

November 7, 2022

Mr. Mike Engelhardt Regulatory Division U.S. Army Corps of Engineers - Pittsburgh District 1000 Liberty Avenue Pittsburgh, Pennsylvania 15222

RE: REQUEST FOR PRELIMINARY JURISDICTIONAL DETERMINATION FOR THE FORMER SATRALLOY SITE, STEUBENVILLE, JEFFERSON COUNTY, OHIO WESTLAND PROJECT NO. 1271.05

Dear Mr. Engelhardt:

On behalf of Cyprus Amex Minerals Company (Cyprus), WestLand Engineering and Environmental Services (WestLand) is submitting a request for a preliminary jurisdictional determination for the former Satralloy Site in Steubenville, Jefferson County, Ohio.

Please find the attached Request for Jurisdictional Determination Form and Surface Waters Delineation Report. The Delineation Report provides a detailed description of the site's surface water features, including mappings, photographs, coordinates, and measurements. Per our discussions with you, a Preliminary Jurisdictional Delineation Form is not included with the submittal, as the Delineation Report includes the required information.

If you have any questions or require additional information, please do not hesitate to call me at 971-415-2273.

Respectfully.

WestLand Engineering & Environmental Services

Claire Phillips

Senior Environmental Consultant

CMP:cer

Attachment (s): Request for a Jurisdictional Determination Form

Surface Waters Delineation Report for the Former Satralloy Site, Cyprus

Amax Minerals Company

ORAM Forms

cc: Barbara Nielsen, Cyprus Amax Minerals Company

Christopher Rife, WestLand Engineering and Environmental Services



Request for a Jurisdictional Determination

This form can be used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and then printed. It **must be signed by the property owner** to be considered a formal request. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. The printed form and supporting documents should be mailed to:

Pittsburgh, Regulatory Division U.S. Army Corps of Engineers, Pittsburgh District 1000 Liberty Avenue Pittsburgh, PA 15222

Please contact us at 412-395-7155 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination

Property Address/Location:					
City (name) or Unincorporated:		State:	Zip:		
County:	Township name:				
Lat/Long in Decimal Degrees:		°N		°W	
Size of Property in Acres:	(Include a su	rvey of the pro	operty)		
Prior or related USACE project number:					
Is the property subject to a conservation easement or deed restriction? (Yes or No) If yes, please explain and submit details of the project area.					
Was the property a site for mitigation pursuant to a project previously permitted by USACE? (Yes or No) If yes, please explain and submit details of the project area.					
Is the property neighboring/adjacent to/bordering a project previously permitted by the USACE? (Yes or No) If yes, please explain and submit the name of the project, the permittee's name and/or address, and Corps permit number, if available:					

Property Owner Contact Information: Property Owner Name: Mailing Address: _____ State: _____ Zip: _____ City: Daytime Telephone: Fax: E-Mail Address: If the person requesting the Jurisdictional Determination is **not** the Property Owner, please also supply the Requestor's contact information here: Requestor Name: Mailing Address: City: ____ State: ___ Zip: ____ Daytime Telephone: Fax: E-Mail Address: Please provide a map with the Latitude and Longitude for each water including wetlands; and/or copy of the plat of survey identifying the physical boundaries of the property. Additionally, if you have any of the following information, please include it with your request: wetland delineation, relevant maps, drain tile survey, topographic survey, and site photographs. If you are considering doing work on the property, please identify on the required site map, plat of survey, or in a separate drawing: the footprint, location, and type of potential work. It will assist us in the determination process and reduce unnecessary delays of processing subsequent permits, if required.

I hereby certify that the information contained in the Request for a Jurisdictional Determination

Date:

is accurate and complete:

Signature of Property Owner:

Fruchung

Surface Waters Delineation Report for the Former Satralloy Site, Cyprus Amax Minerals Company

Prepared for:



U.S. Army Corps of Engineers, Pittsburg District William S. Moorhead Federal Building 1000 Liberty Avenue – Pittsburgh, Pennsylvania 15222

Prepared by:

WestLand Engineering & Environmental Services 4001 E. Paradise Falls Drive – Tucson, Arizona 85712 +1 520-206-9585

WestLand Project Number: 1271.05

August 2, 2022



Table of Contents

1. INTRODU	JCTION		1
2. PROJEC	T AND ANALYSIS AREA DES	SCRIPTION	1
2.1. Proj	ect Description and Backgrou	nd	1
2.2. Ana	lysis Area Description		2
3. METHOD	os		3
3.1. Stre	ams		3
3.2. Wet	lands		4
4. RESULTS	S		4
4.1. Stre	am and Wetland Summary		4
4.2. Oth	er Surface Water Features		10
5. CONCLU	SION		10
6. REFERE	NCES		11
		Tables	
Table 1.	Stream Characteristics		6
Table 2.	Wetland Characteristics		7
Table 3.	Non-Wetland Feature Chara	acteristics	10
		Figures	
		(follow text)	
Figure 1.	Vicinity Map		
Figure 2.	Aerial Overview		
Figure 3.	Surface Waters Overview		
Figure 4 a-f.	Wetlands and Streams		
		A., .	
	/	\ttoohmonto	

Attachments

Attachment 1. Agent Designation Letter and Authorization for Federal Access

Attachment 2. Eastern Mountains and Piedmont Wetland Determination Forms (provided electronically)

Attachment 3. Photographic Log

Attachment 4. Directions to Site

1. INTRODUCTION

WestLand Engineering & Environmental Services (WestLand) was retained by Cyprus Amax Minerals Company (Cyprus) to prepare a Surface Waters Delineation Report (Report) for the former Satralloy Site in Jefferson County, Ohio (the Site; **Figures 1 and 2**). This Report responds to a June 10, 2022 request from the U.S. Army Corps of Engineers (Corps) to provide this information in anticipation of a pre-application meeting proposed by Cyprus and WestLand to discuss a Clean Water Act Section 404 permitting strategy for the Site.

WestLand evaluated the presence of surface waters, wetlands, and non-wetland waterways, within the approximately 327-acre Site using the current Corps, U.S. Environmental Protection Agency (EPA), and Ohio Environmental Protection Agency (OEPA) guidance and methodology. WestLand evaluated the physical characteristics of wetlands in accordance with Corps guidance on wetland delineation (Environmental Laboratory 1987), as well as the regional supplement for the Eastern Mountains and Piedmont Region (Corps 2012b). Wetlands were also evaluated using OEPA's Ohio Rapid Assessment Method (ORAM) for Wetlands. The Ordinary High Water Mark (OHWM)¹ for streams was determined in accordance with Corps guidance (Corps and EPA 2007)

This Report is being submitted by WestLand on behalf of Cyprus, as is demonstrated in the Agent designation letter (**Attachment 1**) and provides supporting documentation including Eastern Mountains and Piedmont wetland determination forms (**Attachment 2**). Photographs of delineated streams and wetlands are provided in **Attachment 3** and directions to the Site are provided in **Attachment 4**.

PROJECT AND ANALYSIS AREA DESCRIPTION

2.1. PROJECT DESCRIPTION AND BACKGROUND

The Site has been used for a variety of industrial purposes over the course of its history. Agriculture and coal mining (both underground and strip mining) were conducted for the first half of the 1900s. From 1958 to 1994, a ferrochromium alloy smelter, which processed chromium ore from international mines, was in operation at the Site. Much of the processing equipment from the plant's smelter has been removed, and the remaining structures are currently being demolished. Based on an aerial review, approximately 30 percent of the Site is disturbed. The disturbance includes slag from the processing plant that was placed in various locations across Site.

_

The OHWM is defined at 33 CFR Part 328.3(e) as "the line on the shore established by fluctuations of water and indicated by physical characteristics including a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, or the presence of litter and debris or other appropriate means that consider the characteristics of the surrounding areas."

The Site has been inactive since 1994. Cyprus acquired the Site in 2010 and entered into an Administrative Order on Consent with the OEPA to conduct a Remedial Investigation/Feasibility Study (RI/FS) to address potential impacts from past industrial operations. Cyprus is currently planning a project to consolidate slag into one area of the Site. The work would involve placing fill material in potential waters of the United States, which would require authorization by the Corps under their authority pursuant to Clean Water Act Section 404.

2.2. ANALYSIS AREA DESCRIPTION

The Site is located southwest of Steubenville in Jefferson County, Ohio (**Figure 1**). The approximately 327-acre Site is in Cross Creek Township, within portions of Sections 2, 8, and 9 in Township 6 North, Range 2 West of the Ohio River Survey. The Site is situated on an irregularly shaped parcel of land, generally on a low finger ridge surrounded on three sides by Cross Creek (**Figure 2**). The Site address is 4243 County Road 74 (also known as Gould Road). The coordinates of the main entrance from County Road 74 are 40°18'32" North latitude and 80°40'10" West longitude, which is approximately 0.3 miles west of the intersection with Scott Featner Road.

Topographically, the Site ranges from about 700 feet above mean sea level (amsl) at Cross Creek, to approximately 1,120 feet amsl on the ridge. With the exception of the industrial plant area, which is generally flat, the Site is relatively rugged, with the steepest slopes located near the ridge top and on the northwest side of the Site.

The Site is within the Salem Creek-Cross Creek subwatershed (Hydrologic Unit Code [HUC] 0503010110) of the Upper Ohio watershed (HUC 05030101). The drainage area for the Cross Creek subwatershed (calculated from the most downstream point of Cross Creek within the Site) totals 117 square miles with an estimated mean annual flow of 132 cubic feet per second (Koltun and Whitehead 2001, USGS 2018)

The headwaters of Cross Creek are approximately 12 miles west of the Site, near Bloomingdale, Ohio. Cross Creek becomes a designated Traditional Navigable Water (TNW) approximately 2.5 miles downstream from the Site and extends for another 1.3 miles before reaching the Ohio River near Mingo Junction (Corps 2012a). Mean annual precipitation measured from several climate stations in the vicinity of the Site is between 38.8 and 41.1 inches.

Approximately one-third of the Site is highly disturbed, with industrial processing and operation facilities, several slag piles, and an abandoned coal mine. The Site has several dirt and gravel roads crossing the property and two railroad spurs, which enter the Site from the east. Both railroad spurs were abandoned in the 1980s, but the lower spur was reconstructed in 2015 to support the building demolition project. Second-growth hardwood forest dominated by American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), and box elder (*Acer negundo*) covers most of the undisturbed portions of the Site.

3. METHODS

Prior to conducting the field investigation in 2018, WestLand reviewed the previous delineations conducted at the site (WestLand 2007, 2015) and interpreted available regional and site-specific aerial photography (Google Earth imagery dated June 8, 2016) to identify surface water features and other areas potentially containing surface water features. The field investigation was then conducted from May 2 to May 11, 2018, to update the previous mapping, identify and document physical and biological characteristics, and measure the extent of any wetlands and waterways within the Site. There have been no significant changes to the delineated surface water features in the interim.

3.1. STREAMS

WestLand performed a delineation of streams and other drainage features within the Site in accordance with Corps guidance (Corps and EPA 2007). Surveyors measured the width of the OHWM on all drainages within the Site, an established standard for non-wetland waters of the United States.

OHWM widths were measured and were documented with a Garmin Oregon Model 550T global positioning system (GPS) camera. Data was collected at field-determined intervals, usually less than 500 feet apart. Photographs were taken of both upstream and downstream views at each data collection point. An estimated OHWM was delineated for drainages that exited the Site to assist with determining the hydrological connection to downstream receiving waters.

WestLand identified the OHWM by the presence of one or more of the following characteristics: changes in soil character; matted-down, bent, or absent vegetation; disturbed or washed-away leaf litter; abrupt change in plant community; debris; sediment sorting (e.g., well-sorted or poorly sorted); scour; sediment deposition; and water staining. Upland areas, roads, and other areas of sheet flow or erosional features were also documented with photographs where the presence of a drainage feature was difficult to discern from an aerial photograph.

Using data collected during the field investigations and review of both aerial photographs and Site topography, measurements of OHWM widths and concurrent GPS photo locations were digitally transferred onto aerial imagery using ArcGIS (**Figure 3**). The drainage area (in acres) was calculated using a combination of measured OHWMs at known locations and aerial photography interpretation.

WestLand also evaluated the culvert drainage system during the delineation to determine the extent of subsurface drainage flows through culverts within the former processing facility area. Specifically, this analysis identified culvert inlet and outlet locations on and around the Site to verify possible connections to Cross Creek. The methods used to determine the onsite culvert drainage system included a field investigation and a review of the facility stormwater management designs. Subsurface drainage flows that are connected to downstream waters are shown on the maps with a dashed line (**Figures 3 and 4**).

3.2. WETLANDS

All potential wetlands were evaluated per Corps guidance for the presence of the three criteria ("diagnostic environmental characteristics") that must be met for an area to be classified as a wetland: the dominance of hydrophytic vegetation, the presence of hydric soils, and evidence of wetland hydrology (Environmental Laboratory 1987, Corps 2012b).

Visual estimates of species cover were made for the plant species at each observation point during the field survey, and the dominant species were determined separately for each vegetative stratum—trees, saplings/shrubs, herbs, and vines. The wetland indicator status of each species was determined according to the Corps' Wetland Plant List (Lichvar et al. 2016), and the Dominance Test and the Prevalence Index were used to determine the presence of hydrophytic vegetation. The colors of the soil matrix and any redoximorphic features were described using Munsell™ Soil Color Charts. Site hydrology was determined in the field based on Corps indicators including soil saturation or satiation, inundation, water marks, sediment deposits, water-stained leaves, and drainage patterns. Wetland boundaries were recorded by a Trimble Geo Series handheld GPS unit and photographically documented by a GPS camera. The boundary of the wetland was then accurately mapped in the field and, upon return to WestLand's office, acreages were calculated using ArcGIS. Wetland data collection points are noted on the delineation mapping (Figures 3 and 4) and correspond to the data point noted in the wetland datasheet (Attachment 2).

All wetlands were classified according to U.S. Fish and Wildlife Service (USFWS) classification system developed by Cowardin et al. (Cowardin et al. 1979). This classification system was developed to provide a description of wetlands and deep-water habitats in the United States and to provide a uniform system for inventorying and mapping these resources.

RESULTS

In all, 60 features were reviewed, including 12 streams, 39 wetlands, and 9 other surface water features found to have neither an OHWM nor wetland characteristics. **Tables 1 and 2** provide a summary of the streams and wetlands, respectively, delineated within the Site.

4.1. STREAM AND WETLAND SUMMARY

In all, 12,794 linear feet of surface water features with a bed, bank, and OHWM characteristics were evaluated within the Site (**Table 1**). All but four of the 12 streams discharge directly into Cross Creek. Three streams (DD, OO, and W) do not discharge to downstream receiving waters. Although the OHWM for Stream Q disappears approximately 150 feet upstream from Cross Creek, the stream appears to contribute flow to Cross Creek due to the slope of the terrain.

Thirty-nine wetlands were delineated within the Site; their characteristics are summarized in **Table 2**. Data detailing the conditions of each wetland are provided in the wetland determination forms (**Attachment 2**).

Twenty of the wetlands (AA, CC, DD, EE, FF, G, I, II, JJ, KK, NN, PP1, PP2, PP3, QQ, R, RR, W, Y, Z) are isolated and have no connection to downgradient receiving waters.

The principal Cowardin wetland types occurring in the Analysis Area are palustrine emergent (PEM) wetlands, palustrine scrub-shrub (PSS) wetlands, and palustrine forested (PFO) wetlands. Palustrine wetlands include all nontidal wetlands dominated by trees, shrubs, emergent species, and mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is less than 0.5 parts per thousand. Emergent wetlands are characterized by erect, rooted herbaceous hydrophytes, excluding mosses and lichens. This vegetation is typically dominated by perennial plants that are present for most of the growing season in most years. Scrub-shrub wetlands are areas dominated by woody vegetation less than 6 meters (20 feet) tall, including true shrubs, young trees (saplings), and shrubs and trees stunted due to environmental conditions. Forested wetlands are characterized by woody vegetation that is taller than 6 meters and includes tall shrubs and trees.

Table 1. Stream Characteristics

ID	Description	Area (acres)	Linear (ft)	Avg. Width (ft)	Latitude (WGS 84)	Longitude (WGS 84)	Photo No.
Stream A	Cross Creek, a perennial stream that flows into the Ohio River approximately 4 miles downstream.	2.117	1894	49	-80.678491	40.312176	1, 2
Stream B	Small tributary to Cross Creek.	0.087	577	7	-80.676442	40.312383	3, 4
Stream BB	This drainage feature was analyzed in a prior assessment but was determined to be outside of the Site and was not considered further in this assessment.						
Stream C	Stream flows through culverts to Cross Creek. Portions of the stream have either ephemeral or intermittent flow.	0.031	696	2	-80.668127	40.31095	5, 7, 9, 11
Stream D	Perennial drainage on the eastern portion of the Site. Wetland D, located upstream and draining through a culvert to Stream D, contributes perennial flows to the stream. The stream flows through a culvert to Cross Creek.	0.009	191	2	-80.669706	40.307925	13
Stream DD	Stream DD is a channel in an abandoned coal strip mine that is fed by Wetland DD, located at the upstream terminus of the channel; does not appear to have a hydrologic connection to downstream surface waters.	0.021	462	2	80.665669	40.314273-	
Stream F	Small tributary to Cross Creek. Flow is low but presumably perennial (observed in December, May, and July). The source is Wetland F. Stream F flows to Cross Creek.	0.049	809	3	-80.675973	40.312988	16, 17
Stream H	Continuation of Cross Creek on the south and southwestern side of the Site. The relevant reach for this portion includes flow input from McIntyre Creek.	6.075	5339	50	-80.671397	40.306715	20, 21
Stream J	Several small tributaries that combine to flow through a culvert under the abandoned railroad grade into a subsurface pipe, which ultimately discharges into Cross Creek through a culvert. Mostly narrow channels, with some wider areas of seepage; in some areas, OHWM was indistinct.	0.124	2178	3	-80.670344	40.312787	25, 26, 28 - 30
Stream LL	Stream LL is a constructed drainage that drains Wetland LL into Cross Creek through a series of culverts. It is fed by Wetland LL, located at the upstream end of the drainage.	0.033	495	3	-80.668857	40.310682	32, 33
Stream OO	Stream OO is a drainage that has developed as a result of a blocked pipe located alongside the south mill building. Flows from this drainage are captured in non-wetland Feature OO and do not discharge to downstream surface waters.	-0.002	84	1	-80.671711	40.308637	
Stream Q	Stream located at the downstream terminus of Wetland Q. Drainage dissipates approximately 150 feet upstream from Cross Creek but, given the slope of the terrain, proximity to Cross Creek, number and volume of receiving waters (Wetlands P, S, and T), and high-water table, the majority of flows reach Cross Creek.	0.001	22	1	-80.662686	40.313891	
Stream W	Stream W is a drainage located at the downstream terminus of Wetland W. Stream W does not appear to have a hydrologic connection to downstream surface waters.	0.002	46	2	-80.664331	40.314859	

Table 2. Wetland Characteristics

ID	Description	Area (acres)	Cowardin Class	Coordinates (WGS 84)	Wetland Form Sample Point	Photo No.
Wetland AA	Closed basin in abandoned coal strip mine. No connection to downgradient surface waters.	0.039	PFO1	-80.667042, 40.316814	AA-1, AA-2	36
Wetland C1	Wetland C1 is adjacent to Stream C which is present between two culverts that connect Stream C to Cross Creek.	0.039	PEM1	-80.667847, 40.311122		6
Wetland C2	Wetland C2 abuts Stream C, located near the confluence with Stream LL.	0.019	PFO1	-80.66856, 40.310686	C3, C4	8
Wetland C3	Wetland C3 abuts Stream C, downstream from the confluence with Stream LL.	0.008	PEM1	-80.668656, 40.310433		10
Wetland C4	Wetland C4 is a shallow basin that abuts Stream C, located at the southwestern extent of the stream.	0.024	PEM1	-80.669241, 40.309617	C-1, C-2	12
Wetland CC	Closed basin in abandoned coal strip mine. No connection to downgradient surface waters.	0.021	PFO1	-80.666557, 40.316328	CC-1, CC-2	37
Wetland D	Wetland D is located on the western portion of the Site, near the south mill building, upstream of Gould Road. Partial fill of Wetland D was permitted in 2016 under NWP 38 (Corps File No. 2005-2397), and so the acreage and extent of the wetland have changed from the 2007 and 2015 assessments. Wetland D discharges through a culvert to Stream D.	0.024	PEM1	-80.670202, 40.30824	D-1, D-2	14, 15
Wetland DD	Wetland DD is in abandoned coal strip mine that discharges into Stream DD.	0.167	PEM1	-80.666433, 40.314208	DD-1, DD-2	38, 39
Wetland EE	Wetland EE runs along a hillside fed from a culvert passing under relic rail spur that supplies water to this feature from the adjacent Wetland P. All surface flow infiltrates into the ground at the toe of the slope.	0.031	PFO1	-80.666208, 40.312232	EE-1, EE-2	40, 41
Wetland F	Small wetland area supplied by a seep and runoff east of slag pile; abuts Stream F.	0.192	PEM1	-80.674151, 40.313226	F-1, F-2	18, 19
Wetland FF	Small wetland formed from a small seep below a rock outcropping that pools in an adjacent terrace. No downgradient flow, dissipates through infiltration.	0.025	PFO1	-80.66831, 40.314005	FF-1, FF-2	42, 43
Wetland G	Wetland G is a shallow ponded area on the east end of the slag pile. Closed basin with no discharge. At high water levels, some possible discharge adjacent to slopes where it infiltrates. This wetland is almost entirely within a private inholding within the Site. No connection to downgradient surface waters.	0.433	PEM1	-80.672896, 40.312788	G-1, G-2	44, 45
Wetland I	Narrow, isolated basin at toe of slope, may have been created by construction of railroad grade.	0.039	PFO1	-80.671021, 40.312207	I-1, I-2	22, 23
Wetland II	Small, narrow depression, no observable connection to downgradient surface waters.	0.003	PFO1	-80.664574, 40.315287	II-1	46
Wetland J1	Small wetland area at the headwaters of Stream J, which discharges through a culvert into Stream C and Cross Creek.	0.018	PFO1	-80.671019, 40.314834	J-1, J-2	24

ID	Description	Area (acres)	Cowardin Class	Coordinates (WGS 84)	Wetland Form Sample Point	Photo No.
Wetland J2	Small wetland area located on eastern extent of Stream J, adjacent to culvert beneath the upper rail spur, which discharges flows through a culvert to Cross Creek.	0.017	PSS1	-80.669898, 40.31273	J-3, J-4	27
Wetland JJ	Wetland JJ is located along an old roadbed, collecting water from Stream DD located upgradient of the wetland. Waters pool along terrace created by road with no connection to downgradient surface waters.	0.072	PFO1	-80.664458, 40.314348	JJ-1, JJ-2	47, 48
Wetland KK	Wetland KK collects runoff and/or subsurface flows from Stream DD and Wetland JJ, and the general hillside. Waters pool in naturally terraced areas and do not discharge downgradient.	0.077	PFO1	-80.663921, 40.314204	KK-1, KK-2	49, 50
Wetland LL	Wetland LL is a riprap-filled basin that collects stormwater flow from culverts created during railroad construction conducted in 2016. The wetland is adjacent to Stream LL, which discharges to Cross Creek.	0.023	PEM1	-80.668112, 40.311552	LL-1	31
Wetland NN	Wetland NN is formed from a seep exiting a steep hillside. The wetland has limited surface flow that does not discharge to downgradient surface waters.	0.002	PFO1	-80.676244, 40.306808	NN-1, NN-2	51
Wetland P	Extensive saturated area along abandoned railroad grade adjacent to Wetland Q. Wetland P discharges primarily to Wetland Q.	0.505	PEM1	-80.667965, 40.312902	P-1, P-2	52 - 55
Wetland PP1	Wetland PP1 is an upstream portion of a set of wetlands formed along rutted inactive roadway. Waters pool along the roadway and do not discharge to downgradient surface waters.	0.042	PEM1	-80.671392, 40.316436	PP-1, PP-2	57
Wetland PP2	Wetland PP2 is the middle portion of a set of wetlands formed along rutted inactive roadway. Waters pool along the roadway and do not discharge to downgradient surface waters.	0.010	PEM1	-80.671408, 40.316225	PP-1, PP-2	58
Wetland PP3	Wetland PP3 is downstream portion of a set of wetlands formed along rutted inactive roadway. Waters pool along the roadway and do not discharge to downgradient surface waters.	0.007	PEM1	-80.671482, 40.316016	PP-1, PP-2	59
Wetland Q	Extensive saturated area along abandoned railroad grade, receiving discharges from Wetland P, located upstream. Wetland Q extends outside of the Site, then re-enters downstream. The wetland discharges into Stream Q, which is approximately 150 ft from and flows into Cross Creek.	0.073	PEM1	-80.665627, 40.312253	Q-1, Q-2	60
Wetland QQ	Wetland QQ has developed in a ditch at the toe of a hillslope. The wetland receives waters from the adjacent upland slope and upgradient abandoned railroad grade located above the north mill building. Flows pool in the wetland and do not discharge to downgradient surface waters.	0.062	PSS1	-80.669331, 40.311612	QQ-1	61, 62
Wetland R	Wetland R is located in a constructed basin or borrow pit along a reclaimed railroad spur with no connection to downgradient surface waters.	0.008	PEM1	-80.667241, 40.312803	R-1, R-2	63
Wetland RR	Wetland RR has developed from overflow from a relict concrete structure that pools immediately below the structure, causing a wetland to develop in the adjacent shallow pit; no connection to downgradient surface waters.	0.007	PEM1	-80.670388, 40.31021	RR-1, RR-2	64

ID	Description	Area (acres)	Cowardin Class	Coordinates (WGS 84)	Wetland Form Sample Point	Photo No.
Wetland S1	Part of a series of wetlands located on steep slope upstream from Wetland P, west of Wetland T. Crosses old road related to smelting and slag placement operations. The Wetland S complex abuts Wetland P, which discharges to Cross Creek.	0.411	PEM1	-80.668823, 40.31382	S-1, S-2	65 - 67
Wetland S2	Part of a series of wetlands located on steep slope upstream from Wetland R, west of Wetland T. Crosses old road related to smelting and slag placement operations. The wetland is connected to Wetlands P and Q, which discharge to Cross Creek.	0.099	PEM1	40.314125	S-1, S-2	
Wetland S3	Part of a series of wetlands located on a steep slope upstream from Wetland R, west of Wetland T. Located immediately along old road related to smelting and slag placement operations. The wetland is connected to Wetlands P and Q, which discharge to Cross Creek.	0.033	PEM1	-80.669428, 40.314396	S-1, S-2	
Wetland S4	Part of a series of wetlands that merges with Wetland P across a wide saturated area. The wetland is connected to Wetlands P and Q, which discharge to Cross Creek.	0.012	PEM1	-80.669052, 40.314448	S-1, S-2	
Wetland SS1	Wetland SS1 is on a small terrace that collects runoff from the upgradient hillslope and overflow from Wetland P and has a connection to downgradient surface waters.	0.011	PEM1	-80.668044, 40.312682		
Wetland SS2	Wetland SS2 is on a small terrace that collects runoff from the upgradient hillslope and overflow from Wetland P and has a connection to downgradient surface waters.	0.080	PEM1	-80.668172, 40.312255		56
Wetland T	Wetland located on a steep slope upstream from Wetland P, east of Wetland S. Downstream end merges with Wetland P across a wide saturated area. Upper end appears to be impacted by historic coal mining operations. The wetland is connected to Wetlands P and Q, which discharge to Cross Creek.	0.772	PFO1	-80.667729, 40.313809	T-1, T-2	68
Wetland W	Seepage area along an old mining road with no connection to downgradient surface waters.	0.018	PEM1/ PSS1	-80.664504, 40.314829	W-1, W-2	69
Wetland Y	Closed basin in abandoned coal strip mine. No connection to downgradient surface waters.	0.076	PSS1/ PFO1	-80.670728, 40.317759	Y-1, Y-2	70
Wetland YY	Wetland formed in a borrow pit that is located immediately adjacent to Cross Creek on the eastern bank near the southwestern corner of the Site (near Stream H).	0.111	PFO1	-80.679841, 40.305122	YY-1, YY-2	34, 35
Wetland Z	Closed basin in abandoned coal strip mine. No connection to downgradient surface waters.	0.243	PFO1	-80.668507, 40.316996	Z-1, Z-2	71

4.2. OTHER SURFACE WATER FEATURES

Other surface water features, as described in **Table 3**, include areas where an OHWM was not present and indicators of wetland hydrology (e.g., surface saturation or ponding) were observed but hydrophytic vegetation and/or hydric soil indicators were lacking, and therefore do not satisfy the Corps criteria for defining streams or wetlands.

Table 3. Non-Wetland Feature Characteristics

ID	Description
Feature GG	Feature is a vegetated depression that may collect infrequent surface ponding as the result of overland sheet flow. Surface water feature GG does not have an OHWM or sufficient wetland indicators to be classified as a wetland. See Wetland Form Sample Point GG-1.
Feature HH	Feature HH is a small basin at the toe of a slope adjacent to an old roadway that lacks sufficient wetland indicators to be classified as a wetland. See Wetland Form Sample Point HH-1.
Feature MM	Feature MM is a small depression that collects limited overland sheet flow but lacks sufficient wetland indicators to be classified as a wetland. See Wetland Form Sample Point MM-1.
Feature N	Feature N is a small heavily disturbed basin filled with riprap that does not exhibit sufficient wetland indicators to be classified as a wetland. See Wetland Form Sample Point N-1.
Feature O	Small basin with ponded stormwater. Outlet at west end to culvert that appears to connect with outlet culvert from Stream K. Feature O is upgradient of the discharge outfalls. Does not exhibit sufficient wetland indicators to be classified as a wetland.
Feature OO	Surface water flow from Stream OO, which has developed as a result of a blocked pipe located alongside the south mill building, pools in a ponding area where a wetland has subsequently developed. Waters are captured in the ponding area. Does not exhibit sufficient wetland indicators to be classified as a wetland. See Wetland Form Sample Point OO-1.
Feature U	Isolated seepage area, underlain by slag material. Slag material stockpiled within the feature. No observed hydrologic connection to downstream receiving surface waters and lacks sufficient wetland indicators to be classified as a wetland. See Wetland Form Sample Points U-1.
Feature V	Saturated area along the south side of the abandoned railroad grade. Surface water infiltrates. No observed hydrologic connection to downstream receiving surface waters and lacks sufficient wetland indicators to be classified as a wetland.
Feature X	Relict drainage feature with no OHWM located at the toe of existing slag pile, underlain by slag material. No evidence of surface flow; some areas within downgradient basin (below slag pile) were saturated. No observed hydrologic connection to downstream receiving surface waters and lacks sufficient wetland indicators to be classified as a wetland.

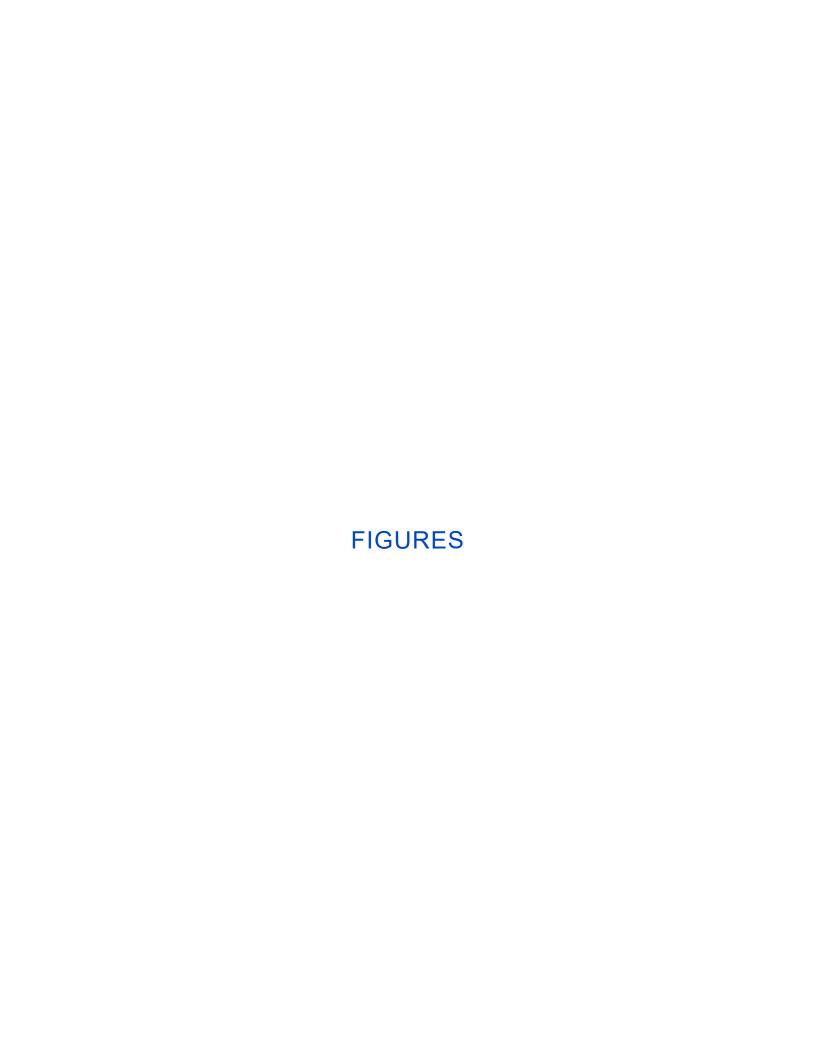
5. CONCLUSION

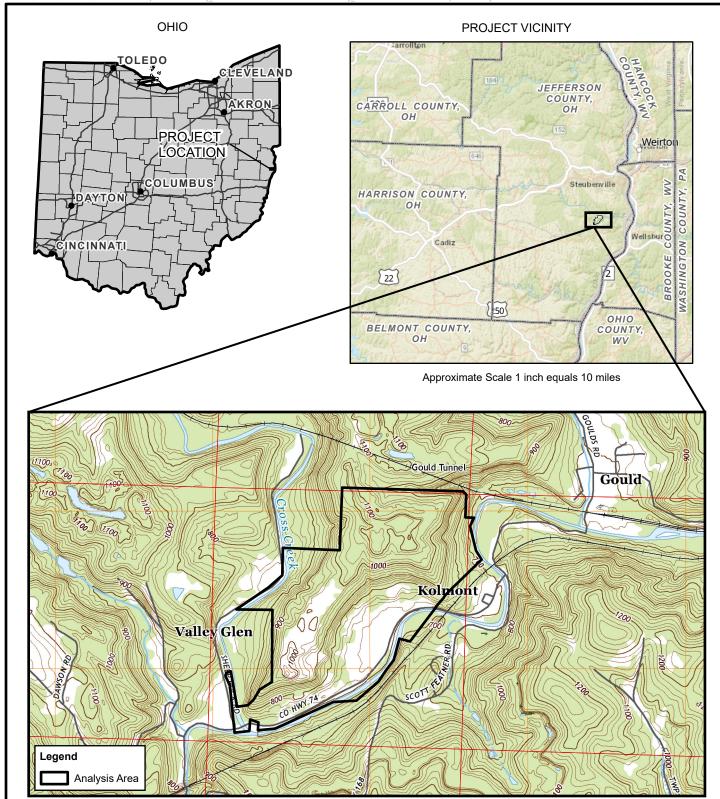
WestLand identified 12 streams, 39 wetlands, and 9 other surface water features at the former Satralloy Site. Three streams (DD, OO, and W) do not discharge to downstream receiving waters. Twenty wetlands (AA, CC, DD, EE, FF, G, I, II, JJ, KK, NN, PP1, PP2, PP3, QQ, R, RR, W, Y, Z) are isolated and have no connection to downgradient receiving waters. The 9 other surface water features are either isolated or do not otherwise satisfy Corps criteria for defining jurisdictional streams or wetlands.

6. REFERENCES

- Cowardin, Lewis M, Virginia Carter, Francis C. Golet, and Edward T LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. *Performed for Office of Biological Services U.S. Fish and Wildlife Service*. Washington, D.C. December 1979.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. *Wetlands Research Program Technical Report Y-87-1*. Vicksburg, Mississippi: U.S. Army Corps of Engineers, Waterways Experiment Station. January 1987.
- Koltun, G. F., and Matthew T. Whitehead. 2001. Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio. Water-Resources Investigations Report 02-4068, U.S. Geological Survey: U.S. Department of Interior. November 2001. 50.
- Lichvar, R. W., D. L. Banks, W. N. Kirchner, and N. C. Melvin. 2016. "The National Wetland Plant List: 2016 Wetland Ratings." *Phytoneuron* 30:1-17.
- U.S. Army Corps of Engineers. 2012a. Current List of Navigable Waters of the United States within the Pittsburgh District. *Public Notice 12-2*: U.S. Army Corps of Engineers.
- ______. 2012b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region 2.0. ERDC/EL TR-12, J. S. Wakeley J. F. Berkowitz, R. W. Lichvar, C. V. Noble. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. April 2012. 182 pp.
- U.S. Army Corps of Engineers, and U.S. Environmental Protection Agency. 2007. Jurisdictional Determination Form Instructional Guidebook. U.S. Army Corps of Engineers. May 30, 2007.
- U.S. Geological Survey. 2018. "StreamStats." U.S. Department of the Interior. https://streamstats.usgs.gov/ss/.
- WestLand. 2007. Revised Preliminary Jurisdictional Waters Delineation and Wetlands Scoring at the Former Satralloy Facility: Steubenville, Jefferson County, Ohio. Submitted on behalf of Cyprus Amax Minerals Company to the U.S. Army Corps of Engineers on March 27, 2007. WestLand Resources, Inc.
- _____. 2015. Preliminary Jurisdictional Determination for Nationwide Permit 38 Application at the Former Satralloy Site. Submitted on behalf of Cyprus Amax Minerals Company. Approved July 14, 2016.: WestLand Resources, Inc.

 $\label{lem:lemont} Q:\label{lem:lemont} Q:\label{lem:lemont} $$Q:\label{lemont} $$Q:\la$



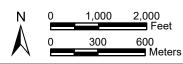


T6N, R2W, Portions of Sections 2, 8, and 9, Jefferson County, Ohio Steubenville West USGS 7.5' Quadrangle (2019) Projection: NAD 1983 UTM Zone 17N Data Source: Golder

Image Source: ArcGIS Online, World Street Map

CYPRUS AMAX MINERALS CORPORATION
Former Satralloy Site
Surface Waters Determination and Delineation





VICINITY MAP Figure 1

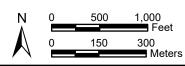
Data Source: Golder Image Source: Google Earth 06/08/2016

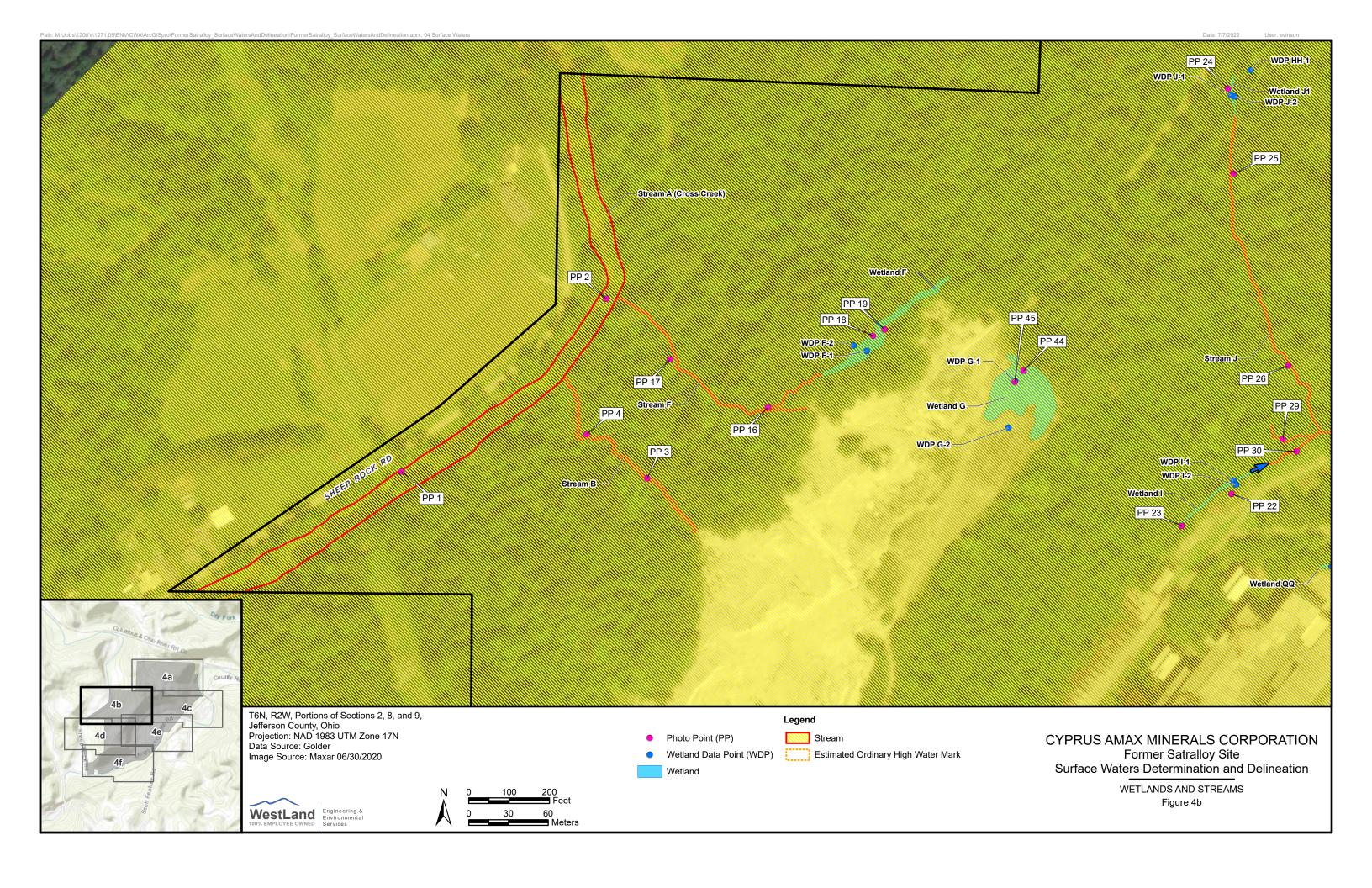
Former Satralloy Site

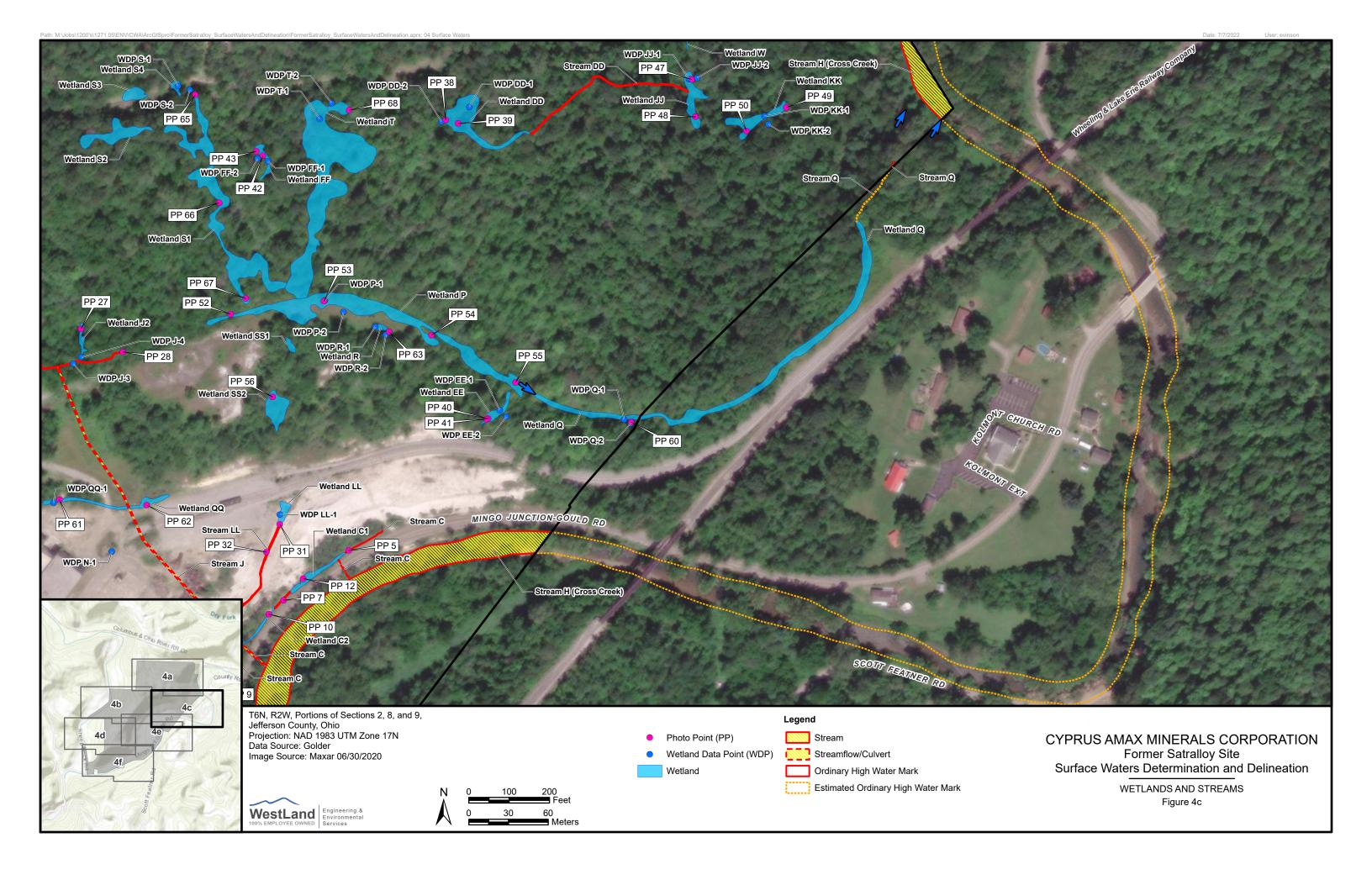
Surface Waters Determination and Delineation

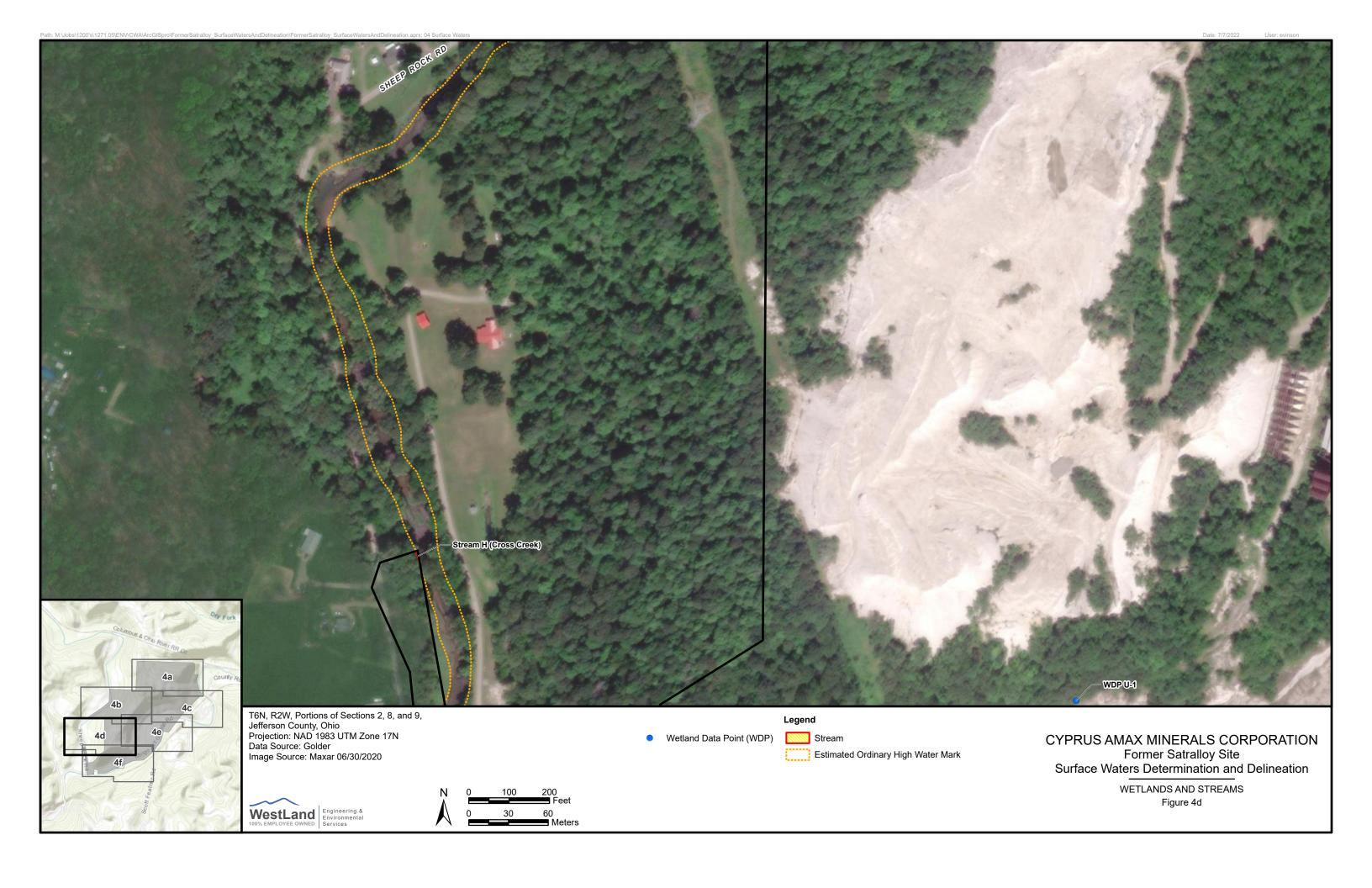
AERIAL OVERVIEW Figure 2

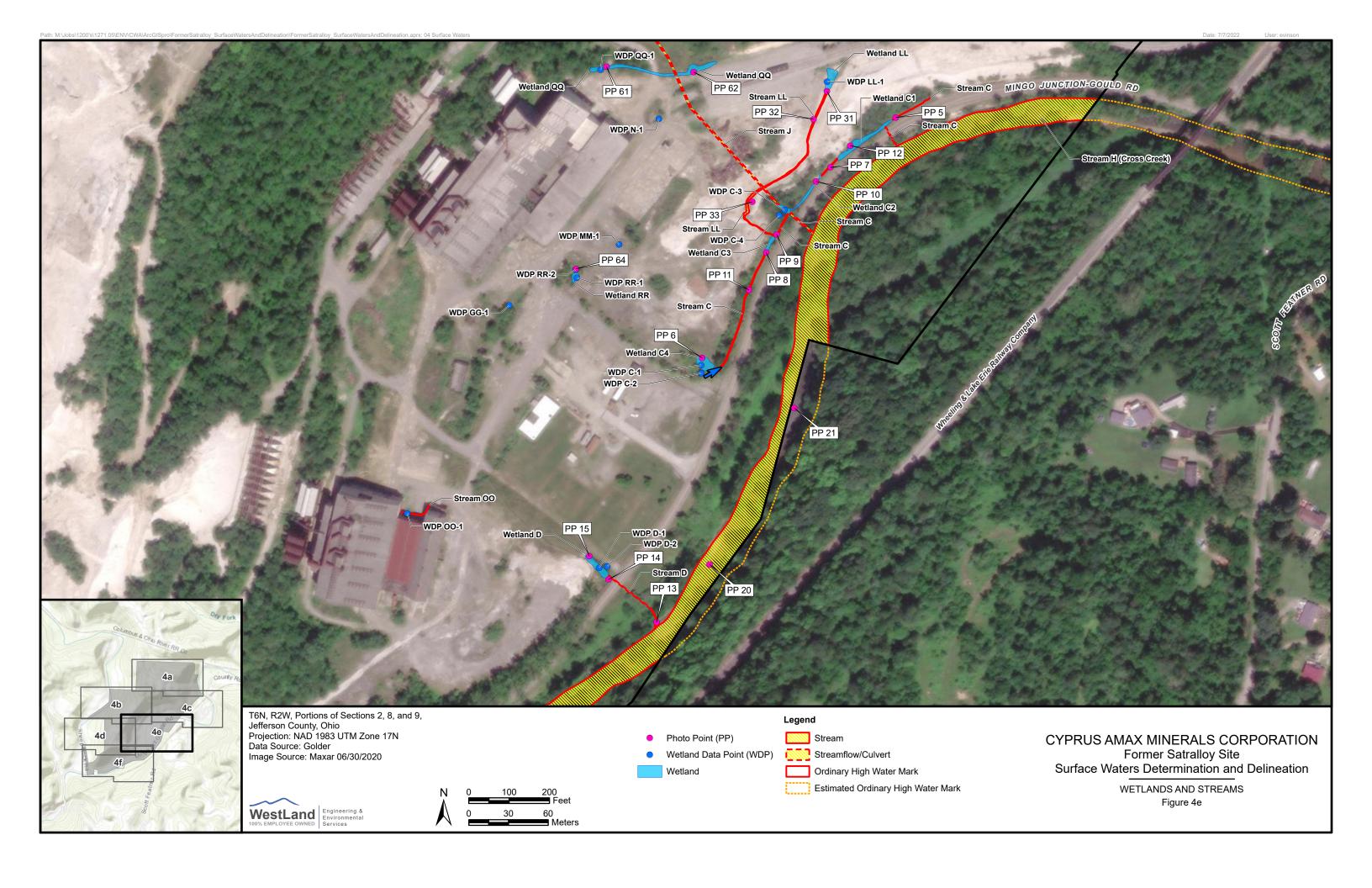


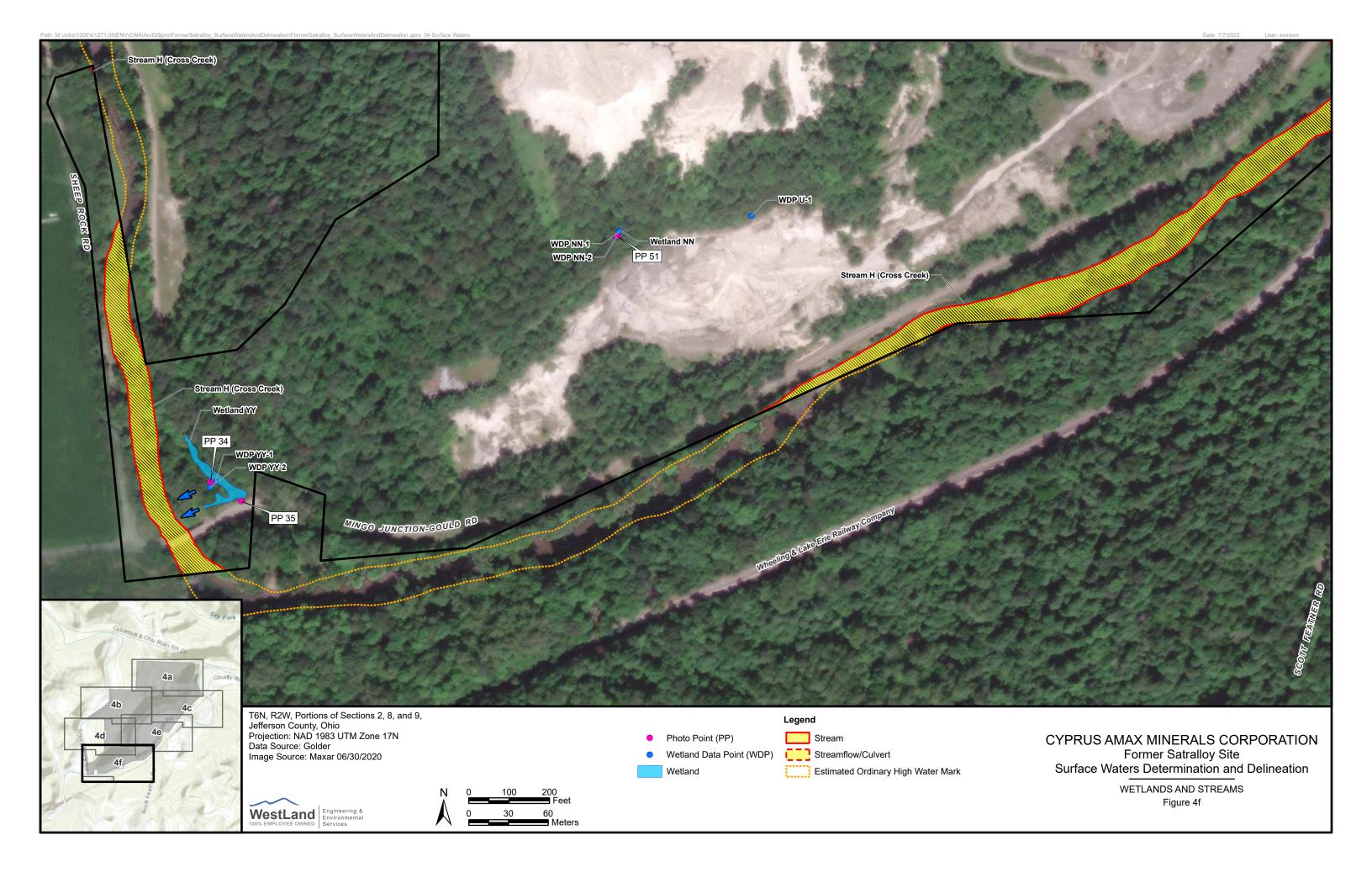












ATTACHMENT 1 Agent Designation Letter and Authorization for Federal Access



333 North Central Avenue Phoenix, Arizona 85004 (620) 366-8100

September 12, 2018

Mr. Scott Hans U.S. ARMY CORPS OF ENGINEERS 1000 Liberty Avenue Pittsburgh, PA 15222

Re: AGENT DESIGNATION AND AUTHORIZATION FOR FEDERAL ACCESS FORMER SATRALLOY SITE, STEUBENVILLE, JEFFERSON COUNTY, OHIO WESTLAND PROJECT NO. 1271.04

Dear Mr. Hans:

I am sending this letter to designate WestLand Resources, Inc. as agent for Cyprus Amex Minerals Corporation (Cyprus) for the purposes of any necessary Clean Water Action Section 404 permitting at the Satralloy Project. The agent contact information is as follows:

Christopher Rife WestLand Resources, Inc. 4001 East Paradise Falls Drive Tucson, Arizona 85712 (520) 206-9585

The Analysis Area subject to this jurisdictional determination is privately owned by Cyprus. The contact information for the responsible person at Cyprus is:

Barbara Nielsen Manager, Remediation Projects Cyprus Amax Minerals Company 333 North Central Avenue Phoenix, Arizona 85004 (602) 366-8100

E-mail: bnielsen@fmi.com

If you have any questions or require additional information, please do not hesitate to contact me or the designated agent.

Mr. Scott Hans September 12, 2018 Page 2

cc: Christopher Rife, WestLand Resources, Inc.

Respectfully,

Barbara KA	September 12, 2018
Signature of Authorized Representative	Date
Barbara K. Nielsen	480-313-2895
Printed/Typed Name of Authorized Representative	Phone Number
Manager, Remediation Projects	
Title of Authorized Representative	

ATTACHMENT 2 Eastern Mountains and Piedmont Wetland Determination Forms

(provided electronically)

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Applicant/Owner: Cyprus Amax Minerals Company Subject of Ministry Section, Township, Range Toth, R2W, Set Conditions of the Condition of the	Project/Site: Former Satralloy Site	_ City/County: Mingo Junction/Jefferson	Sampling Date: 5/2/2018
Section, Township, Range: T6N, R2W, S8	Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: C-1
Landform (hillslope, terrace, etc.): Disturbed		Section, Township, Range: T6N, R2W, S8	
Subregion (LRR or MLRA): LRR \ Lat. 40.3096 \ Long. 80.6693 \ Datum: NAD 83 Soil Map Unit Name: Udorthents, loamy \ NNW classification: none Are vegetation \ Soil or Hydrology or Hydrology \ significantly disturbed? \ Are "Normal Circumstances" present? Yes \ No \ Are Vegetation \ Soil or Hydrology \ Soil or Hydrology \ Instantially problematic? \ (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes \ No \ N		Local relief (concave, convex, none): CONCAVE	Slope (%): 1
Are climate / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation Soil or Hydrology isignificantly disturbed? Are "Normal Circumstances" present? Yes No No No No No No No No No N			
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation or Hydrology significantly disturbed? Are Vegetation or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland Pydrology Present? Yes No No No No No No No No No N			
Are Vegetation Soil or Hydrology significantly disturbed? Are Vegetation Soil or Hydrology Inaturally problematic? SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Hydric Soil Present? Hydric Soil Present? Hydric Soil Present? Hydric Soil Present? Yes No		vear? Yes O No O (If no, explain in Re	emarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?	Are Vegetation, Soil, or Hydrology significan	tly disturbed? Are "Normal Circumstances" p	
Hydrophylic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Wetland C4 is a shallow collection basin present within a local depression. Wetland adjacent to Stream C, located at the southwestern extent of the tributary. See Figure 4E; Attachment 3, Photo 6. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Are Vegetation, Soil, or Hydrology naturally	problematic? (If needed, explain any answer	s in Remarks.)
Hydric Soil Present? Wetland Hydrology Present? Remarks: Wetland C4 is a shallow collection basin present within a local depression. Wetland adjacent to Stream C, located at the southwestern extent of the tributary. See Figure 4E; Attachment 3, Photo 6. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) Hydrogen Sulfide Odor (C1) Saturation (A3) Saturation (A3) Weter Marks (B1) Secondary Indicators (minimum of two required) Hydrogen Sulfide Odor (C1) Saturation (A3) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Presence of Reduced Iron (C4) Sediment Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Algal Mat or Crust (B4) Iron Deposits (B3) High Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Ves No Depth (inches): Water Table Present? Ves No Depth (inches): Wetland Hydrology Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	SUMMARY OF FINDINGS - Attach site map showing	ng sampling point locations, transects,	important features, etc.
Wetland C4 is a shallow collection basin present within a local depression. Wetland adjacent to Stream C, located at the southwestern extent of the tributary. See Figure 4E; Attachment 3, Photo 6. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water (Present? Water Table Present? Yes O No Depth (inches): Saturation present? Yes O No Depth (inches): Satural photos, previous inspections), if available:	Hydric Soil Present? Wetland Hydrology Present? Yes No		_ No <u>O</u>
Stream C, located at the southwestern extent of the tributary. See Figure 4E; Attachment 3, Photo 6. Proceeding			
Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes O No O Depth (inches): Water Table Present? Yes O No O Depth (inches): Wetland Hydrology Present? <t< td=""><td>Stream C, located at the southwestern exten</td><td></td><td></td></t<>	Stream C, located at the southwestern exten		
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) High Water Table (A2) Water Marks (B1) Presence of Reduced Iron (C4) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) Dry-Season Water Table (C2) Crayfish Burrows (C8) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sturtation Visible on Aerial Imagery (C9) Sturtation Visible on Aerial Imagery (C9) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Yes O No Depth (inches): Sutraction Present? Yes O No Depth (inches): Wetland Hydrology Present? Yes X No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	HYDROLOGY		
Surface Water (A1)	Wetland Hydrology Indicators:	Secondary Indicat	tors (minimum of two required)
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Wetland Hydrology Present? Yes X No Depth (inches):	Primary Indicators (minimum of one is required; check all that apply Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Presence of Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations:	Sparsely Veg Ilfide Odor (C1) Izospheres on Living Roots (C3) Reduced Iron (C4) Reduction in Tilled Soils (C6) Iurface (C7) In in Remarks) Sparsely Veg Drainage Pat Moss Trim Lin Crayfish Burr Saturation Vis Geomorphic I Shallow Aquit Microtopogra FAC-Neutral	retated Concave Surface (B8) terns (B10) nes (B16) Nater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) tard (D3) phic Relief (D4)
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		es): Wetland Hydrology Presen	t? Yes X No
Remarks:		otos, previous inspections), if available:	
Remarks:		,,	
	Remarks:		

EGETATION (Four Strata) – Use s	ATION (Four Strata) – Use scientific names of plants. Sampling Point: C-1				
	Absolute		Dominance Test worksheet:		
Tree Stratum (Plot size:) <u>% Cover</u>	Species? Status	Number of Dominant Species		
1. none			That Are OBL, FACW, or FAC: 1 (A)		
2			Total Number of Dominant		
3			Species Across All Strata: 1 (B)		
4			Depart of Department Consider		
5			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)		
6					
7.			Prevalence Index worksheet:		
8.			Total % Cover of: Multiply by:		
o		= Total Cover	OBL species x 1 =		
Sapling/Shrub Stratum (Plot size:			FACW species x 2 = _1		
1. none			FAC species x 3 =		
2.			FACU species x 4 = _1		
3.			UPL species x 5 =		
4			Column Totals: 0 (A) 5 (B)		
			(1)		
5			Prevalence Index = B/A =		
6			Hydrophytic Vegetation Indicators:		
7			✓ 1 - Rapid Test for Hydrophytic Vegetation		
8			2 - Dominance Test is >50%		
9			3 - Prevalence Index is ≤3.0 ¹		
10			4 - Morphological Adaptations ¹ (Provide supporting		
Hart Otata (District 5' radius	0 :	= Total Cover	data in Remarks or on a separate sheet)		
Herb Stratum (Plot size: 5' radius 1 Typha angustifolia) 80	✓ OBL	Problematic Hydrophytic Vegetation ¹ (Explain)		
·· 		V OBL			
	5		¹ Indicators of hydric soil and wetland hydrology must		
3			be present, unless disturbed or problematic.		
4			Definitions of Four Vegetation Strata:		
5					
6			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of		
7			height.		
8					
9			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
10.					
11.			Herb – All herbaceous (non-woody) plants, regardless		
12.			of size, and woody plants less than 3.28 ft tall.		
		= Total Cover	Woody vine - All woody vines greater than 3.28 ft in		
Woody Vine Stratum (Plot size:		- Total Gover	height.		
1. none					
2.					
3.					
4			Hydrophytic		
5			Vegetation Present? Yes No No		
6			Present? res No		
		= Total Cover			
Remarks: (Include photo numbers here or o	n a separate sheet.)				

SOIL Sampling Point: C-1

Profile Desc	ription: (Describe	to the dep	th needed to docur	ment the i	ndicator	or confirm	the absence	of indicators.)		
Depth	Matrix	0/	Redo	x Features		1 2	T	5		
(inches) 0-12	Color (moist) 10YR 4/3	% 85	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Clay Loam	emarks	
								Clay Loaili		
0-12	7.5 YR 6/6	10			С	M				
0-12	Gley 1 4/N	5								
				-						
		letion, RM	=Reduced Matrix, M	S=Masked	Sand Gr	ains.		_=Pore Lining, M=		
Hydric Soil								ators for Proble	•	
Histosol			Dark Surface		(00) (cm Muck (A10)		7)
	oipedon (A2)		Polyvalue Be		. , .		148) C	Coast Prairie Red		
Black Hi	en Sulfide (A4)		Thin Dark Su Loamy Gleye			147, 140)	П	(MLRA 147, 148) Piedmont Floodpla		10)
	d Layers (A5)		Depleted Ma	,	1 2)		<u> </u>	(MLRA 136, 14		13)
	ick (A10) (LRR N)		Redox Dark		⁻ 6)		□F	Red Parent Materi		
	d Below Dark Surfac	e (A11)	Depleted Da					ery Shallow Dark	,	TF12)
l <u>—</u>	ark Surface (A12)		Redox Depre				<u> </u>	Other (Explain in F	Remarks)	
	Mucky Mineral (S1) (I	LRR N,	Iron-Mangan		es (F12) (LRR N,				
	A 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa	•	MIRA 13	6 122)	³ Ind	licators of hydrop	hytic vege	tation and
	Redox (S5)		Piedmont Flo					etland hydrology		
	Matrix (S6)				()	(nless disturbed o		
Restrictive I	Layer (if observed)	!								
Туре:									_	
Depth (inc	ches):						Hydric Soil	Present? Yes	<u>. O</u>	No O
Remarks:										

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sampling Date: 5/2/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: C-2
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W,S8
	Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3096	Long: -80.6693 Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of y	vear? Yes No O (If no explain in Remarks)
Are Vegetation, Soil, or Hydrology significant	tly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally p	oroblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	ng sampling point locations, transects, important features, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes No
Remarks:	
	sollection basin present within a local depression. southwestern extent of the tributary. See Figure 4E;
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	
Surface Water (A1) True Aquatic	
	Ifide Odor (C1) Drainage Patterns (B10)
	zospheres on Living Roots (C3) Moss Trim Lines (B16) Reduced Iron (C4) Dry-Season Water Table (C2)
	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	
	in in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inche	
Water Table Present? Yes No Depth (inche	
Saturation Present? Yes No Depth (inche	es): Wetland Hydrology Present? Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

4.

Tree Stratum (Plot size: 30' Radius

Sapling/Shrub Stratum (Plot size: 15' Radius

Herb Stratum (Plot size: 5' Radius)

2. Daucus carota

3 Rosa multiflora

4. Rumex obtusifolius

1. Dipsacus fullonum

Woody Vine Stratum (Plot size: _____)

1. Platanus occidentalis

Absolute Dominant Indicator

% Cover Species? Status

5 = Total Cover

0 = Total Cover

27 = Total Cover

0 = Total Cover

FACU

FACU

FACU

UPL

15

2

FACW

Sampling Point: C-2 **Dominance Test worksheet: Number of Dominant Species** That Are OBL, FACW, or FAC: 1 _____ (A) Total Number of Dominant 4 _____(B) Species Across All Strata: Percent of Dominant Species 25 ____ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = 1 FACW species 5 x 2 = 10FAC species _____ x 3 = ____ FACU species 22 x 4 = 88UPL species 5 x 5 = 25Column Totals: 32 (A) 125 (B) Prevalence Index = B/A = 4Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Four Vegetation Strata:** Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in Hydrophytic Vegetation Yes No O Present?

Remarks: (Ind	clude photo numb	pers here or on a	a separate sheet.)
---------------	------------------	-------------------	--------------------

Sampling Point: C-2

SOIL

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the i	ndicator	or confirm	the absence	of indicato	rs.)	
Depth Matrix		Redox Features								
(inches)	Color (moist)	<u>%</u>			Loc ²	Texture		Remarks		
0-6	2.5 Y 4/3	100						Sandy Lo	oam	
6-10	2.5 Y 3/2	98	2.5 Y 5/4	2	С	M		Sandy Lo	oam	
										_
1		-ti DM	Deduced Metric MC		0 1 0		21	Daniel Linius	NA NA - 4-1	
Hydric Soil I		etion, RM	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: PL		g, M=Matrix. oblematic Hyd	Iric Soils ³ :
Histosol			Dark Surface	(97)					\10) (MLRA 14	
	pipedon (A2)		Polyvalue Be		ce (S8) (N	II RA 147			Redox (A16)	′)
Black Hi			Thin Dark Su				140,	(MLRA 14		
	n Sulfide (A4)		Loamy Gleye			, -,	☐ P		odplain Soils (F	- 19)
Stratified	l Layers (A5)		Depleted Mat	trix (F3)			_	(MLRA 130	6, 147)	
	ck (A10) (LRR N)		Redox Dark S						laterial (TF2)	
	Below Dark Surface	e (A11)	Depleted Dar					-	Dark Surface ((TF12)
	rk Surface (A12) lucky Mineral (S1) (L	DD N	Redox Depre			I DD NI	Пс	itner (Expiai	n in Remarks)	
	147, 148)	.KK N,	MLRA 136		55 (1-12) (LINK IN,				
	leyed Matrix (S4)		Umbric Surfa	•	MLRA 13	6, 122)	³ Ind	icators of hy	drophytic vege	tation and
	edox (S5)		Piedmont Flo						ology must be p	
	Matrix (S6)		_				u	nless disturb	oed or problem	atic.
Restrictive I	ayer (if observed):									
Туре:										
Depth (inc	ches):						Hydric Soil	Present?	Yes O	No <u> </u>
Remarks:										

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/10/18
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: C-3
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	· · · · · · · · · · · · · · · · · · ·
	ocal relief (concave, convex, none): none	Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 40.3107	Long: -80.6685	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classificat	<u> </u>
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes <u> </u>	narks.)
Are Vegetation, Soil, or Hydrology significantly		
Are Vegetation, Soil, or Hydrology naturally pr		
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects,	important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes	No <u>O</u>
Remarks:		
Wetland C2 is a wetland abutting Stream C ar C, located near the confluence with Stream LL Figure 4E; Attachment 3, Photo 8.	,	•
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicato	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Hydrogen Sulf	ide Odor (C1) Drainage Patte	erns (B10)
	ospheres on Living Roots (C3) Moss Trim Line Moss Trim Line Dry-Season W	es (B16) ater Table (C2)
	eduction in Tilled Soils (C6) Crayfish Burro	
Drift Deposits (B3)		ble on Aerial Imagery (C9)
Algal Mat or Crust (B4) User Descrite (BE)		essed Plants (D1)
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Geomorphic Po	` '
Water-Stained Leaves (B9)	Microtopograpi	
Aquatic Fauna (B13)	FAC-Neutral To	
Field Observations:		
Surface Water Present? Yes O No Depth (inches	•	
Water Table Present? Yes O No Depth (inches	•	Y
Saturation Present? Yes O No Depth (inches (includes capillary fringe)	s): 6 Wetland Hydrology Present?	? Yes ^X No
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspections), if available:	
Remarks:		

'EGETATION (Four Strata) – Use scientifi	c names of p	lants.	Sampling Point: C-3
Tree Stratum (Plot size: 30' Radius)		Dominant Indicator Species? Status	
1. Ulmus americanus	20	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2. Platanus occidentalis	10	✓ FACW	(**,
3. Aesculus glabra	10	✓ FACU	Total Number of Dominant
~^ <u></u>		17,00	Species Across All Strata: 7 (B)
4			Percent of Dominant Species
5			That Are OBL, FACW, or FAC: 57 (A/B)
6			Prevalence Index worksheet:
7			Total % Cover of: Multiply by:
8			OBL species x 1 =1
Sapling/Shrub Stratum (Plot size: 15' Radius)	40 =	Total Cover	FACW species x 2 = 1
1 Lonicera canadensis	15	√ FACU	
2. Ulmus americanus	10	✓ FACW	· — — — — — — — — — — — — — — — — — — —
			UPL species x 5 = 1
3			Column Totals: 0 (A) 5 (B)
4			Column Totals. (A)
5			Prevalence Index = B/A =
6			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			✓ 2 - Dominance Test is >50%
9			3 - Prevalence Index is ≤3.0 ¹
10			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' Radius)	25 =	Total Cover	data in Remarks or on a separate sheet)
1. Aesculus glabra	5	√ FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum arvense	5	FAC	
Glechoma hederacea		FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Taraxacum officinale		FACU	be present, unless disturbed or problematic.
"			Definitions of Four Vegetation Strata:
5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			more in diameter at breast height (DBH), regardless of
7			l height.
8			Sapling/Shrub – Woody plants, excluding vines, less
9		 	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		 	Herb – All herbaceous (non-woody) plants, regardless
11		 	of size, and woody plants less than 3.28 ft tall.
12			Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	= 13 = 1	Total Cover	height.
4 none			
·· 		 	
2		 	
3			
4		 	Hydrophytic
5		+	Vegetation Present? Yes No
6	^		Present? Yes No No
		Total Cover	
Remarks: (Include photo numbers here or on a separa	ate sheet.)		

SOIL Sampling Point: C-3

Profile Desc	cription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirm	n the absence	e of indicators.)				
Depth	Matrix			x Feature		. 3		Turking Burnston				
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture	Rema	arks			
0-4	10 YR 3/2	98	7.5 YR 5/6	2	MS	M		Loamy Sand				
4-8	10 YR 6/2	60	7.5 YR 5/6	10	C	M		Sandy Loam				
4-8	10 YR 5/1	30										
		_			-							
		_			_			-				
¹ Type: C=C	oncentration D=Der	letion RM	I=Reduced Matrix, M	S=Maske	d Sand Gr	ains	² I ocation: P	L=Pore Lining, M=Ma	atrix			
Hydric Soil		, , , , , , , , , , , , , , , , , , ,	Troduced Matrix, M	<u> </u>	u ounu on	anio.		ators for Problemat				
Histosol	(A1)		Dark Surface	e (S7)				2 cm Muck (A10) (ML	RA 147)			
	oipedon (A2)		Polyvalue Be	. ,	ace (S8) (I	/ILRA 147		Coast Prairie Redox (
	stic (A3)		Thin Dark Su	•	, .	147, 148)		(MLRA 147, 148)				
	en Sulfide (A4)		Loamy Gleye		(F2)		F	Piedmont Floodplain	Soils (F19)			
	d Layers (A5)		Depleted Ma					(MLRA 136, 147)				
	ick (A10) (LRR N) d Below Dark Surfac	o (A11)	Redox Dark Depleted Da					Red Parent Material (Very Shallow Dark Su				
_ :	ark Surface (A12)	e (ATT)	Redox Depre		. ,			Other (Explain in Rem				
	/lucky Mineral (S1) (LRR N,	Iron-Mangan			LRR N.	<u>.</u>	outor (Explain in Non	ianto)			
	A 147, 148)	,	MLRA 13		, , ,							
	Gleyed Matrix (S4)		Umbric Surfa					dicators of hydrophyti				
	Redox (S5)		Piedmont Flo	oodplain S	Soils (F19)	(MLRA 14		wetland hydrology mu				
	Matrix (S6)						· ·	unless disturbed or pr	oblematic.			
	Layer (if observed)	:										
Type:							Uvdria Cai	I Present? Yes	O No ○			
	ches):						Hydric Soi	Present? Yes	O NO O			
Remarks:												

Project/Site: Former Satralloy Site	ity/County: Mingo Junction/Jefferson State: OH	Sampling Date: <u>5/11/2018</u>
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: C-4
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	al relief (concave, convex, none): none	Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3106	Long:80.6686	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of year		
Are Vegetation, Soil, or Hydrology significantly d		present? Yes O No
Are Vegetation , Soil , or Hydrology naturally prob		
SUMMARY OF FINDINGS – Attach site map showing		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O Yes No O No O No O	Is the Sampled Area within a Wetland? Yes	No <u>•</u>
Remarks:		
Upland data point adjacent to Wetland C2. See	, Figure 4E.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	itors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	· · · · · · · ·
Surface Water (A1)	=	getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide		
	pheres on Living Roots (C3) Moss Trim Li	· · · · ·
Water Marks (B1) Presence of Red	·	Water Table (C2)
	uction in Tilled Soils (C6) Crayfish Buri	i i
Drift Deposits (B3) Thin Muck Surfa	ce (C7) Saturation Vi	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in	Remarks) Stunted or S	tressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	itard (D3)
Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches):		
		Y
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Presen	nt? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), if available:	
Damarka		
Remarks:		

VEG

ree Stratum (Plot size: 30' radius)	Absolute			Dominance Test worksheet:
Populus deltoides	10 Cover	Species?	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
·		_		Total Number of Dominant Species Across All Strata: 6 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/I
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Cov	er	OBL species x 1 =
apling/Shrub Stratum (Plot size: 15' radius) Lonicera canadensis	30	$\overline{\checkmark}$	FACU	FACW species x 2 = FAC species x 3 =30
Rubus armeniacus	15	 	UPL	FAC species 10 x 3 = 30 FACU species 80 x 4 = 320
Aesculus glabra	10			UPL species 15
Rosa multiflora			FACU	
·	5	+	FACU	Column Totals: <u>105</u> (A) <u>425</u> (B
			-	Prevalence Index = B/A = 4
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
-				2 - Dominance Test is >50%
			-	3 - Prevalence Index is ≤3.0 ¹
0		= Total Cov	rer	4 - Morphological Adaptations ¹ (Provide supporti data in Remarks or on a separate sheet)
erb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation (Explain)
Trifolium repens	15	<u> </u>	FACU	
Taraxacum officinale		√	FACU	¹ Indicators of hydric soil and wetland hydrology must
Anemone quinquefolia	10		FACU	be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm)
				more in diameter at breast height (DBH), regardless of height.
				neight.
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
D				than 6 m. BBT and greater than 6.20 ft (1 m) tail.
1.				Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
2				
		= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
Voody Vine Stratum (Plot size:)				Holghi.
none		-		
-		-		
-		+		
-			-	Hydrophytic
·		+	-	Vegetation
k				Present? Yes No No
	0	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL Sampling Point: C-4

Profile Des	cription: (Describe	to the dept	h needed to docur	ment the i	ndicator	or confirm	the absence	of indicate	ors.)			
Depth	Matrix	%		x Features		Loc ²	Toytura	Texture Remarks				
(inches) 0-9	Color (moist) 7.5 YR 2.5/2	100	Color (moist)	<u></u> %	Type ¹	LOC	<u>r exture</u>	Loamy S				
	<u> </u>											
9-16	5 YR 3/2	100						Loamy S	Sand		<u>.</u>	
											<u> </u>	
	· -											
¹Type: C=C	Concentration, D=De	nletion RM=	Reduced Matrix M	S=Masked	I Sand Gra	ains	² Location: Pl	=Pore Linir	ng M=Matrix		-	
	Indicators:	piotion, rtivi	rtoddodd Matrix, Mi	o masico	T Ourid Oil	aii 10.			roblematic H		oils³:	
Histoso			Dark Surface	e (S7)					A10) (MLRA	-		
	Epipedon (A2)		Polyvalue Be		ce (S8) (N	ILRA 147,			Redox (A16			
	listic (A3)		Thin Dark Su			47, 148)		(MLRA 14				
	en Sulfide (A4)		Loamy Gleye		F2)		P		oodplain Soils	s (F19)		
	ed Layers (A5)		Depleted Ma		.0)		П	(MLRA 13		`		
	luck (A10) (LRR N) ed Below Dark Surfac	ce (A11)	Redox Dark Depleted Da	•	,				Material (TF2 v Dark Surfac		')	
	Oark Surface (A12)	00 (7111)	Redox Depre						in in Remark		• /	
	Mucky Mineral (S1) ((LRR N,	Iron-Mangan			LRR N,	-	` '		,		
	A 147, 148)		MLRA 13									
	Gleyed Matrix (S4)		Umbric Surfa						ydrophytic ve			
	Redox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		-	ology must b		nt,	
	d Matrix (S6) Layer (if observed)	١.					u T	niess distur	bed or proble	ematic.		
Type: no).										
	nches):						Hydric Soil	Drocont?	Yes O	No	\odot	
Remarks:	iciles)						Hydric 30ii	rieseiit:	163	_ 110	<u> </u>	
ixemaiks.												

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: <u>5/2/2018</u>
Applicant/Owner: Cyprus Amax Minerals Company		Sampling Point: D-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): developed	Local relief (concave, convex, none): none	Slope (%): 2
	Long:80.6702	Datum: NAD 83
Soil Map Unit Name: Udorthernts, loamy	NWI classifi	<u> </u>
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes <u> </u>	Remarks.)
Are Vegetation, Soil, or Hydrology significant		present? Yes O No
Are Vegetation, Soil, or Hydrology naturally p		ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	ng sampling point locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes)No
Remarks: Wetland D is the downstream outflow from a uplands. Partial fill of Wetland D was permitted See Figure 4A; Attachment 3, Photos 14 and	ed in 2016 under NWP 38 (Corps	,
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indic	ators (minimum of two required)
Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	Plants (B14) Plants (B14) Ifide Odor (C1) Zospheres on Living Roots (C3) Reduced Iron (C4) Reduction in Tilled Soils (C6) Urface (C7) In in Remarks) Sparsely Ve Dry-Season Crayfish Bu Saturation V Stunted or S Geomorphic Shallow Aqu	Water Table (C2) rrows (C8) /isible on Aerial Imagery (C9) Stressed Plants (D1) c Position (D2) uitard (D3) aphic Relief (D4)
Field Observations: Surface Water Present? Water Table Present? Saturation Present? Yes O No O Depth (inche Yes O No O Dep	es):	nt? Yes ^X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial pho		
	. ,	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants

/EGETATION (Four Strata) – Use scientific	names of	pla	nts.		Sampling Point: D-1
- 2v1E meters				t Indicato	
<u>Tree Stratum</u> (Plot size: 3x15 meters) none	% Cover	Ī	ecies	? Status	Number of Dominant Species
2.			+	-	That Are OBL, FACW, or FAC: 2 (A)
3.					Total Number of Dominant Species Across All Strata: 3 (B)
4.					Species Across Air Strata.
5				_	Percent of Dominant Species That Are OBL FACW or FAC: 66 (A/B)
6.		г	T		That Are OBL, FACW, or FAC: 66 (A/B)
7.					Prevalence Index worksheet:
8.					Total % Cover of: Multiply by:
	0	= To	tal Co	over	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 2x5 meters)	_			E 4 O 1 1	FACW species x 2 = $\frac{1}{4}$
1. Multiflora rosa	_ 5	-	√	FACU	
2. Cornus alternifolia	_ 5	_	✓	FAC	FACU species x 4 = 1
3		_	Щ-	_	UPL species x 5 = _1
4			-	-	Column Totals: 0 (A) 5 (B)
5			<u>H</u>		Prevalence Index = B/A =
6			\vdash		Hydrophytic Vegetation Indicators:
7			+		1 - Rapid Test for Hydrophytic Vegetation
8			H		2 - Dominance Test is >50%
9				-	3 - Prevalence Index is ≤3.0 ¹
10		_		_	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' diameter)	10	= 10	tal Co	over	data in Remarks or on a separate sheet)
1. Typha angustifolia	40		\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Typha latifolia	5	Ī		OBL	
3.					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4.					Definitions of Four Vegetation Strata:
5.					Deminitions of Four Vegetation Strata.
6					Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7					height.
8					Sapling/Shrub – Woody plants, excluding vines, less
9		\perp		_	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		\perp			Herb – All herbaceous (non-woody) plants, regardless
11		\perp		_	of size, and woody plants less than 3.28 ft tall.
12		\perp		_	Waaduudaa Alluusaduudaa maataa taa 2 20 ft in
Weeds Vive Otestans (District	45	= To	tal Co	over	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)		ſ			
1. none		+	_	_	
2.			\dashv		
3 4		\dashv	\dashv		
5.		\neg		_	Hydrophytic
6		T			Vegetation Present? Yes No O
<u> </u>	_	= To	tal Co	over	
Remarks: (Include photo numbers here or on a separate					
(,				

Sampling Point: D-1

. Torne Desc	ription: (Describe	to the dep	oth needed to docur	ment the i	ndicator	or confirm	the absence	of indicato	rs.)	
Depth	Matrix			x Features		2				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-4	10 YR 4/3	100						Loamy Sa	and	
4-12	7.5 YR 4/2	97	10 YR 4/6	3	MS	M		Loamy Sa	and	
				-						
¹ Type: C=Co	oncentration D=Den	letion RM	=Reduced Matrix, M	S=Masked	Sand Gr	ains	² Location: PL	=Pore Lining	n M=Matrix	
Hydric Soil		100011, 1 011	rtoudoud Matrix, Mi	o mackou	Carra Cr	aii 10.	Indica	ators for Pro	oblematic Hyd	ric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			<u> </u>	cm Muck (A	.10) (MLRA 14	7)
Histic Ep	oipedon (A2)		Polyvalue Be		ce (S8) (N	ILRA 147,			Redox (A16)	•
Black Hi			Thin Dark Sι			47, 148)		(MLRA 147		
	en Sulfide (A4)		Loamy Gleye		F2)		P		odplain Soils (I	F19)
	d Layers (A5)		✓ Depleted Ma		0)			(MLRA 136		
	ick (A10) (LRR N) d Below Dark Surfac	ο (Δ11)	Redox Dark Depleted Da	,	,				laterial (TF2) Dark Surface ((TE12)
	ark Surface (A12)	C (ATT)	Redox Depre						n in Remarks)	(11 12)
	lucky Mineral (S1) (L	RR N,	Iron-Mangan			LRR N,		(,	
MLRA	A 147, 148)		MLRA 13	6)						
	Gleyed Matrix (S4)		Umbric Surfa					-	drophytic vege	
	Redox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		-	ology must be p	
	Matrix (S6)						u	nless disturb	ed or problem	atic.
Dootrictive I	aver (if absented).						1			
	Layer (if observed):								·	
Type: Ro	ck						Hydric Soil		Vas. 💿	No. O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro	ck						Hydric Soil		Yes O	No <u>O</u>
Type: Ro Depth (inc	ck						Hydric Soil		Yes	No <u>O</u>
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u> </u>	No <u>O</u>
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u>©</u>	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u>©</u>	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u>©</u>	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u>©</u>	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u>O</u>	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes <u>©</u>	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O
Type: Ro Depth (inc	ck						Hydric Soil		Yes O	No O

Project/Site: Former Satralloy Site City	Mingo Junction/ Jefferson Sampling Date: 5/2/2018 State: OH Sampling Point: D-2	
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: D-2	
Investigator(s): JMM, BJJ Sec	ction, Township, Range: T6N, R2W, S8	
	relief (concave, convex, none): none Slope (%): 0	
	Long: -80.6701 Datum: NAD 83	3
Soil Map Unit Name: Udorthents, loamy	NWI classification: none	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly dist		0
Are Vegetation , Soil , or Hydrology naturally probler		
SUMMARY OF FINDINGS – Attach site map showing sa		etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes O No O N	Is the Sampled Area within a Wetland? Yes No •	
Wetland Hydrology Present? Yes O No		
Remarks:		
Upland data point adjacent to Wetland D. See Fig	gure 4A.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two require	ed)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	
Surface Water (A1)	s (B14) Sparsely Vegetated Concave Surface (B8	3)
High Water Table (A2) Hydrogen Sulfide C	Odor (C1) Drainage Patterns (B10)	
Saturation (A3) Oxidized Rhizosphe	eres on Living Roots (C3) Moss Trim Lines (B16)	
Water Marks (B1) Presence of Reduc	ed Iron (C4) Dry-Season Water Table (C2)	
Sediment Deposits (B2)	tion in Tilled Soils (C6)	
Drift Deposits (B3) Thin Muck Surface	(C7) Saturation Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4) Other (Explain in R		
Iron Deposits (B5)	Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)	
Water-Stained Leaves (B9)	Microtopographic Relief (D4)	
Aquatic Fauna (B13)	FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes O No O Depth (inches):		
Water Table Present? Yes No Depth (inches):		
Saturation Present? Yes No Depth (inches):		
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: D-2
201 1:	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: 30' radius)	% Cover	Species?	Status	Number of Dominant Species
1. none		\bot		That Are OBL, FACW, or FAC: 0 (A)
2				Total Number of Dominant
3				Species Across All Strata: 1 (B)
4				Depart of Demainant Consider
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)
6				(14b)
7				Prevalence Index worksheet:
8.		T	•	Total % Cover of: Multiply by:
0		= Total Cov	·or	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)	-	- 10tal C01	/ei	FACW species x 2 =
1. none				FAC species x 3 =
** 				FACU species 32 x 4 = 128
2				UPL species x 5 =
3				Column Totals: 32 (A) 128 (B)
4			-	Column Totals. <u>92</u> (A) <u>120</u> (B)
5				Prevalence Index = B/A = 4
6			-	Hydrophytic Vegetation Indicators:
7			_	1 - Rapid Test for Hydrophytic Vegetation
8			•	2 - Dominance Test is >50%
9				
10				3 - Prevalence Index is ≤3.0 ¹
		= Total Cov	/er	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius)		_		Problematic Hydrophytic Vegetation (Explain)
1. Cynodon dactylon	25	✓	FACU	Problematic Hydrophytic Vegetation (Explain)
2. Taraxacum officinale	5		FACU	1
3. Achillea millefolium			FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4.				
5.				Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9		-		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11		+		of size, and woody plants less than 3.28 ft tall.
12				
	32	= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)				Holgrit.
1. none		_#	-	
2			-	
3		\bot		
4				
5				Hydrophytic Vegetation
6.				Present? Yes No
	_	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate		10101 001		
Remarks: (include photo numbers here or on a separate	e sneet.)			

Sampling Point: D-2

Profile Desc	ription: (Describe t	to the depth i	needed to docur	nent the in	dicator	or confirm	the absence	of indicato	ers.)	
Depth	Matrix			x Features	_ 1	. ,	_			
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-8	2.5 YR 3/1	100								
	·									
1- 0.0					0 10		21			
	oncentration, D=Depl	etion, RM=Re	duced Matrix, M	S=Masked	Sand Gra	ins.	² Location: PL		ig, M=Matrix. oblematic Hyd	dria Caila ³ .
Hydric Soil				(0=)					-	
Histosol	` '		Dark Surface		(00) (1)				A10) (MLRA 1 4	17)
	pipedon (A2)	,	Polyvalue Be		. , .		148)		Redox (A16)	
Black Hi	suc (A3) n Sulfide (A4)	· ·	Thin Dark Su Loamy Gleye			47, 148)	Пъ	(MLRA 14	7, 148) odplain Soils (l	E40)
-	l Layers (A5)	·	Depleted Ma	•	2)			(MLRA 13		F 19)
	ick (A10) (LRR N)		Redox Dark		3)		Пв		Naterial (TF2)	
	Below Dark Surface	e (A11)	Depleted Dai	•	,				Dark Surface	(TF12)
_	ark Surface (A12)	(,	Redox Depre						n in Remarks)	(,
_	lucky Mineral (S1) (L	RR N,	Iron-Mangan			RR N,	—	` '	,	
	147, 148)		MLRA 13							
Sandy G	lleyed Matrix (S4)		Umbric Surfa	ice (F13) (N	/ILRA 13	6, 122)	³ Ind	icators of hy	drophytic vege	etation and
Sandy R	edox (S5)		Piedmont Flo	odplain So	ils (F19)	(MLRA 14	8) w	etland hydro	ology must be	present,
	Matrix (S6)						u	nless disturb	bed or problem	atic.
	ayer (if observed):									
Type: Ro			_							
Depth (inc	ches): <u>8</u>		_				Hydric Soil	Present?	Yes O	No <u>O</u>
Remarks:										

Project/Site: Former Satralloy Site City/	County: Mingo Junction/Jefferson Sampling Date: 5/9/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson Sampling Date: 5/9/2018 State: OH Sampling Point: F-1
Investigator(s): JMM, BJJ Sect	tion, Township, Range: T6N, R2W, S8
	elief (concave, convex, none): CONCAVE Slope (%): 3
	Long: -80.6743 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex 40-70 percent s	slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distu	ırbed? Are "Normal Circumstances" present? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally problem	natic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sai	mpling point locations, transects, important features, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No N	Is the Sampled Area within a Wetland? Yes No No
Remarks:	
Wetland F is located in a relatively flat terrace at the Stream F. See Figure 4B; Attachment 3, Photos 1	• • • • • • • • • • • • • • • • • • • •
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	(B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) ✓ Hydrogen Sulfide Oc	
	eres on Living Roots (C3) Moss Trim Lines (B16)
✓ Water Marks (B1) Presence of Reduce	
	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Algel Met as Crust (B4) Other (Explain in Be	
Algal Mat or Crust (B4) Uther (Explain in Re	emarks) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
✓ Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No Depth (inches): 1	
Water Table Present? Yes No Depth (inches): 8	
Saturation Present? Yes No Depth (inches): 2	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	evious inspections), if available:
Remarks:	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
ree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species
Ulmus americana	10	✓	FACW	That Are OBL, FACW, or FAC: $\frac{3}{}$ (A)
		$\perp \perp$		Total Number of Dominant
				Species Across All Strata: $\frac{3}{}$ (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/I
				Prevalence Index worksheet:
·				Total % Cover of: Multiply by:
		= Total Cov	/er	OBL species x 1 =
apling/Shrub Stratum (Plot size: 15' radius)				FACW species x 2 = _1
none		+		FAC species x 3 = _1
				FACU species x 4 = _1
		$\perp \perp \perp$	_	UPL species x 5 = _1
				Column Totals: <u>0</u> (A) <u>5</u> (E
				5
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
0				3 - Prevalence Index is ≤3.0 ¹
		= Total Cov	/er	4 - Morphological Adaptations ¹ (Provide supporti data in Remarks or on a separate sheet)
l <u>erb Stratum</u> (Plot size: 5' radius)				Problematic Hydrophytic Vegetation ¹ (Explain)
Solidago gigantea	15	$\overline{}$	FACW	Problematic Trydrophytic Vegetation (Explain)
Poa palustris	15	√	FACW	1 Indicators of hydric coil and watland hydrology must
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
·				
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) more in diameter at breast height (DBH), regardless of
				height.
				Continue/Charaka Manda and and and and and and
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0				, , ,
1				Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
2				
		= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in
Voody Vine Stratum (Plot size:)				height.
none		-		
			-	
·				the described to
				Hydrophytic Vegetation
				Present? Yes No No
	_	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separa		= Total Cov	/er	

Sampling Point: F-1

Profile Desc	ription: (Describe	to the dep	oth needed to docu	ment the i	ndicator	or confirm	the absence	of indicato	rs.)		
Depth	Matrix			x Features			_				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks		
0-3.5	5 YR 2.5/1	100						Mucky M	ineral		
4-15	10 YR 4/1	98	10 YR 6/6	2	MS	M		Loamy S	and		
	-		-								
	-		-					-			
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	Sand Gr	ains.	² Location: PL	.=Pore Linin	g, M=Matrix.		
Hydric Soil	ndicators:						Indica	ators for Pr	oblematic Hy	dric So	ils³:
Histosol	(A1)		Dark Surface	e (S7)			2	cm Muck (A	A10) (MLRA 1 4	1 7)	
Histic Ep	oipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	ILRA 147,	148)		Redox (A16)		
Black Hi			Thin Dark Su			47, 148)		(MLRA 14			
	n Sulfide (A4)		Loamy Gleye		F2)		P		odplain Soils (F19)	
	Layers (A5)		Depleted Ma		.0)			(MLRA 13			
	ck (A10) (LRR N)	o (A11)	Redox Dark Depleted Da						Material (TF2) Dark Surface	/TE40\	
_	d Below Dark Surfac ark Surface (A12)	e (ATT)	Redox Depre		. ,				n in Remarks)		
_	lucky Mineral (S1) (I	RR N	Iron-Mangan			I RR N		iliei (Explai	ii iii iteiliaiks)		
	147, 148)	-1414 14,	MLRA 13		00 (1 12) (
	leyed Matrix (S4)		Umbric Surfa	•	MLRA 13	6. 122)	³ Ind	icators of hy	drophytic veg	etation a	and
	ledox (S5)		Piedmont Flo					-	ology must be		
	Matrix (S6)		_	·	,	•		-	bed or problem		
	_ayer (if observed):										
Type: Ro											
Depth (inc	ches): <u>15</u>						Hydric Soil	Present?	Yes O	No _	<u> </u>
Remarks:											

Project/Site: Former Satralloy Site City/C	County: Mingo Junction/Jefferson Sampling Date: 5/9/18 State: OH Sampling Point: F-2
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: F-2
Investigator(s): JMM, BJJ Secti	ion, Township, Range: T6N, R2W, S8
Landform (hillslope, terrace, etc.): Terrace Local rel	lief (concave, convex, none): CONCAVE Slope (%): 5
	Long: -80.6744 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 percer	
Are climatic / hydrologic conditions on the site typical for this time of year?	res O No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturb	rbed? Are "Normal Circumstances" present? Yes O No
Are Vegetation , Soil , or Hydrology naturally problem	
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No No	Is the Sampled Area
Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No N	within a Wetland? Yes No No
Remarks:	
Upland data point adjacent to Wetland F. See Figu	ure 4B.
grama auta penni aujusem te rremanu r see rigi	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	(B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Od	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduce	
	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (Control in Position of Control in Position	
Algal Mat or Crust (B4) Iron Deposits (B5) Other (Explain in Rei	marks) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No Depth (inches):	
Water Table Present? Yes O No Depth (inches):	
Saturation Present? Yes O No Depth (inches):	Wetland Hydrology Present? Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 15' radius

Sapling/Shrub Stratum (Plot size: 10' radius

Herb Stratum (Plot size: 5' radius)

1. Acer rubrum

1. Rosa multiflora

2. Rubus occidentalis

3. Hamamelis virginiana

1. Anemone quinquefolia

2. Viola canadensis

3. Alliaria petiolata

4. Galium aparine

2. Fraxinus americana

Absolute Dominant Indicator

% Cover Species? Status

20 ___ = Total Cover

25 _ = Total Cover

72 = Total Cover

0 __ = Total Cover

10

10

10

5

60

2

FAC

FACU

FACU

FACU

FACU

FACU

FAC

UPL

	Sam	pling	Point: F-2	
Dominance Test				
Number of Domir That Are OBL, F		1		_ (A)
Total Number of Species Across A		5		_ (B)
Percent of Domir That Are OBL, F		20)	_ (A/B)
Prevalence Inde	x worksheet:			
Total % Cov	er of:	M	lultiply by:	
OBL species		x 1 =		
FACW species		x 2 =		
FAC species	15	x 3 =	45	
FACU species	87	x 4 =	348	
UPL species				_
Column Totals:				(B)
Prevalence	Index = B/A	_ 4		
2 - Dominano 3 - Prevaleno 4 - Morpholo	dric soil and was disturbed of our Vegetation ants, excluding at breast height woody planting greater that ceous (non-wordy plants less	ons ¹ (ons)	(Provide su arate sheet ation¹ (Explantion¹ (Explantion) (Explantion) (Provided ata: es, 3 in. (7.6 BH), regard (1 m) tau plants, reg. 3.28 ft tall.	must compore dless of s, less ll. ardless

Remarks:	(Inc	lude	photo	num	bers	here	or o	n a	separa	te s	heet.	.)
----------	------	------	-------	-----	------	------	------	-----	--------	------	-------	----

Woody Vine Stratum (Plot size: _____)

Sampling Point: F-2

	ription: (Describe	to the dep	oth needed to docur	ment the i	ndicator	or confirm	the absence	of indicators.)	
Depth	Matrix			x Features	3 _ 1		- .		
(inches) 0-3	Color (moist) 10 YR 5/4	100	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks Silty Clay Loam	
	-		40 D 0/0			-			
3-15	10 R 5/8	75	10 R 6/3	5	С	M		Silty Clay Loam	
3-15	10 YR 5/4	20						Silty Clay Loam	_
									_
								-	-
									-
1			De desert Matrice M		0 1 0		21	Daniel Indiana M. Matrice	-
Hydric Soil I		oletion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.		_=Pore Lining, M=Matrix. ators for Problematic Hydric Soils	
Histosol			Dark Surface	(\$7)				cm Muck (A10) (MLRA 147)	.
	oipedon (A2)		Polyvalue Be		ce (S8) (N	ILRA 147.	_	coast Prairie Redox (A16)	
Black Hi			Thin Dark Su					(MLRA 147, 148)	
Hydroge	en Sulfide (A4)		Loamy Gleye		F2)		<u></u>	riedmont Floodplain Soils (F19)	
	d Layers (A5)		Depleted Ma	, ,				(MLRA 136, 147)	
	ick (A10) (LRR N)	- (044)	Redox Dark	,	,			Red Parent Material (TF2)	
	d Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Da Redox Depre					ery Shallow Dark Surface (TF12) Other (Explain in Remarks)	
_	lucky Mineral (S1) (I	LRR N.	Iron-Mangan			LRR N.		The (Explain in Kemarks)	
	A 147, 148)	,	MLRA 13		()(,			
	Gleyed Matrix (S4)		Umbric Surfa					icators of hydrophytic vegetation and	
	Redox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		vetland hydrology must be present,	
	Matrix (S6) Layer (if observed)						u T	nless disturbed or problematic.	
Restrictive i									
		:							
Type: noi	ne	:					Hydric Soil	Present? Yes O No ©	
	ne	:					Hydric Soil	Present? Yes O No O	_
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No O	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne						Hydric Soil	Present? Yes O No O	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	_
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No O	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (ind	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (inc	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (inc	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (inc	ne	:					Hydric Soil	Present? Yes O No ©	
Type: noi Depth (inc	ne						Hydric Soil	Present? Yes O No O	
Type: noi Depth (inc	ne						Hydric Soil	Present? Yes O No ©	
Type: noi Depth (inc	ne						Hydric Soil	Present? Yes O No ©	

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	_ Sampling Date: <u>5/9/2018</u>
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: G-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	<u> </u>
	Local relief (concave, convex, none): none	Slope (%): 0
	Long: -80.6730	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classifi	
Are climatic / hydrologic conditions on the site typical for this time of	vear? Yes O No O (If no explain in	Remarks)
Are Vegetation, Soil, or Hydrology significan		present? Yes O No O
Are Vegetation, Soil, or Hydrology naturally		·
SUMMARY OF FINDINGS - Attach site map showing	ng sampling point locations, transect	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes)_ No
Remarks:		.:
Wetland G is a shallow ponded area on the eshallow ditch at the toe of a slope at the east Attachment 3, Photos 44 and 45.	O .	_
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indic	cators (minimum of two required)
	Plants (B14) Sparsely Ve	il Cracks (B6) egetated Concave Surface (B8) atterns (B10)
	zospheres on Living Roots (C3) Moss Trim I	
Water Marks (B1)	Reduced Iron (C4) Dry-Seasor	Water Table (C2)
	Reduction in Tilled Soils (C6) Crayfish Bu	
Drift Deposits (B3) Arral Matter Crust (B4) Others (Final		Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	, <u> </u>	Stressed Plants (D1) c Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aq	
Water-Stained Leaves (B9)		raphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutra	
Field Observations:		
Surface Water Present? Yes No Depth (inche	· ·	
Water Table Present? Yes No Depth (inche		V
Saturation Present? Yes No Depth (inche (includes capillary fringe)	es): 6 Wetland Hydrology Prese	ent? Yes <u>^</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if available:	
Remarks:		

/EGETATION (Four Strata) – Use scientific ı	names of	plants.	Sampling Point: G-1
		Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 15' radius)	% Cover	Species? Status	Number of Dominant Species
1. none			That Are OBL, FACW, or FAC: 2 (A)
2			Total Number of Dominant
3			Species Across All Strata: 2 (B)
4			Developed of Developed Conscion
5			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6			
7.			Prevalence Index worksheet:
8.			Total % Cover of: Multiply by:
		= Total Cover	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' radius)			FACW species x 2 = _1
1. none			FAC species x 3 = 1
2.			FACU species x 4 =
3.			UPL species x 5 =
4.			Column Totals: 0 (A) 5 (B)
5.			
6.			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			✓ 2 - Dominance Test is >50%
9			3 - Prevalence Index is ≤3.0 ¹
10.		= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius)	40	(00	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Typha angustifolia	40	✓ OBL	
2. Juncus tenuis	40	✓ FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Scirpus atrovirens		OBL	be present, unless disturbed or problematic.
4			Definitions of Four Vegetation Strata:
5			
6			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7			height.
8			Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			
11			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.			of size, and woody plants loss than 5.20 it tall.
Woody Vine Stratum (Plot size:)		= Total Cover	Woody vine – All woody vines greater than 3.28 ft in height.
1			
2.			
3.			
4.			
			Hydrophytic
5			Vegetation Present? Yes O No O
6		= Total Cover	100 <u>0</u> No <u>0</u>
Remarks: (Include photo numbers here or on a separate			

Sampling Point: G-1

Profile Desc	ription: (Describe	to the dep	oth needed to docur	ment the	indicator	or confirn	n the absence	of indicators.)	
Depth	Matrix			x Feature		. 2			
(inches) 0-2	2.5 Y 5/2	[%] 100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks Silty Loam	
		- ——	40.2/5.0/0					·	
2-4	2.5 Y 5/2	80	10 YR 6/6	10	С	M	PL	Loam	
4-6	5 Y 4/1	75	7.5 YR 5/6	10	С	M	PL	Sandy Loam	
4-6			Gley 3/N	15	С	M			
				_	-				
		letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.		L=Pore Lining, M=Matrix.	3
Hydric Soil								ators for Problematic Hydric Soils	s":
Histosol			Dark Surface		oo (CO) (*	AL DA 447		2 cm Muck (A10) (MLRA 147)	
	oipedon (A2) stic (A3)		Polyvalue Be				140)	Coast Prairie Redox (A16) (MLRA 147, 148)	ļ
	en Sulfide (A4)		Loamy Gleye			1, 1-0)	□P	Piedmont Floodplain Soils (F19)	
	d Layers (A5)		✓ Depleted Ma		(- –)			(MLRA 136, 147)	
	ıck (A10) (LRR N)		Redox Dark	,	,			Red Parent Material (TF2)	
	d Below Dark Surfac	e (A11)	Depleted Da					/ery Shallow Dark Surface (TF12)	
	ark Surface (A12)	I DD N	Redox Depre			I DD N	Ш с	Other (Explain in Remarks)	
_	lucky Mineral (S1) (l \ 147, 148)	LKK N,	Iron-Mangan MLRA 13		es (F12) (LKK N,			
	Gleyed Matrix (S4)		Umbric Surfa		(MLRA 13	36. 122)	³ Ind	dicators of hydrophytic vegetation an	ıd
	Redox (S5)		Piedmont Flo					vetland hydrology must be present,	
	Matrix (S6)						u	ınless disturbed or problematic.	
	Layer (if observed)	:							
	rd pack slag								`
Depth (in	ches): <u>6</u>						Hydric Soil	I Present? Yes <u> </u>	<u></u>
Remarks:									
									ļ

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/9/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: G-2
Investigator(s): JMM, BJJ	T6N P2W S8	<u> </u>
	ocal relief (concave, convex, none): none	Slope (%): 0
Subregion (LRR or MLRA): LRR N Lat: 40.3126	Long: -80.6730	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classific	cation: none
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes <u> </u>	emarks.)
Are Vegetation, Soil, or Hydrology significant	ly disturbed? Are "Normal Circumstances" p	present? Yes O No
Are Vegetation, Soil, or Hydrology naturally p		rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showin	g sampling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes) No
Remarks:		nd of the class will
Upland data point adjacent to Wetland G; a s See Figure 4B.	nallow ponded area on the east e	nd of the slag pile.
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Soil	Cracks (B6)
Surface Water (A1)	Plants (B14) Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2)	fide Odor (C1) Drainage Pa	tterns (B10)
	zospheres on Living Roots (C3) 🔲 Moss Trim L	ines (B16)
Water Marks (B1) Presence of F	Reduced Iron (C4) Dry-Season	Water Table (C2)
	Reduction in Tilled Soils (C6) Crayfish Bur	rows (C8)
Drift Deposits (B3)		isible on Aerial Imagery (C9)
	, <u> </u>	tressed Plants (D1)
Iron Deposits (B5)		Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	
Water-Stained Leaves (B9)		aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations: Surface Water Present? Yes O No O Depth (inches	ne).	
Water Table Present? Yes O No O Depth (inche		
		nt? Yes No X
Saturation Present? Yes No Depth (inche (includes capillary fringe)	wettand hydrology Preser	it? res No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspections), if available:	
Remarks:		

/EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: G-2
201 Dadius	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: 30' Radius)	% Cover	Species?	Status	Number of Dominant Species
1. none				That Are OBL, FACW, or FAC: 0 (A)
2				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 0 (A/B)
6				Prevalence Index worksheet:
7		-		Total % Cover of: Multiply by:
8		= Total Cove		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' Radius)		- Total Cove	31	FACW species x 2 =
1. none				FAC species x 3 =
2.				FACU species 17 x 4 = 68
3.				UPL species x 5 =
4.				Column Totals: <u>17</u> (A) <u>68</u> (B)
5.				
6.				Prevalence Index = B/A = 4
7				Hydrophytic Vegetation Indicators:
8.				1 - Rapid Test for Hydrophytic Vegetation
9.				2 - Dominance Test is >50%
10				3 - Prevalence Index is $\le 3.0^1$
Herb Stratum (Plot size: 5' Radius)		= Total Cove	er	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
1 Taraxacum officinale	10	1	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Cirsium arvense	<u> </u>		FACU	
Apocynum cannabinum	5 2		FACU	¹ Indicators of hydric soil and wetland hydrology must
**			I ACO	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8 9.				Sapling/Shrub – Woody plants, excluding vines, less
10.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11.				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
12. <u> </u>		= Total Cove	er er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1		<u></u>		
2				
3				
4				Hydrophytic
5				Vegetation
6				Present? Yes No No
		= Total Cove	er	
Remarks: (Include photo numbers here or on a separat	e sneet.)			

Sampling Point: G-2

	cription: (Describe t	to the depth i				or confirm	the abse	nce of indicato	ors.)	
Depth	Matrix			x Features		. 2	- .		5 .	
(inches)	Color (moist) 2.5 Y 5/3	%	Color (moist)	%	Type ¹	Loc ²	Textur		Remarks	
0-2	2.5 1 5/5							Intermixe	ed cobbles a	nd gravei
										
	Concentration, D=Depl	etion, RM=Re	duced Matrix, M	S=Masked	Sand Gra	ins.		: PL=Pore Linir		3
<u> </u>	Indicators:		_				lr.	dicators for Pi	_	
Histoso			Dark Surface				Ļ		A10) (MLRA 1	47)
	pipedon (A2)		Polyvalue Be				148)		Redox (A16)	
_	listic (A3)		Thin Dark Su			47, 148)	г	(MLRA 14		
	en Sulfide (A4)		Loamy Gleye		-2)		L		oodplain Soils	(F19)
	d Layers (A5)		Depleted Ma		0)		Г	(MLRA 13		
	uck (A10) (LRR N)	(011)	Redox Dark	,	,		F		Material (TF2)	/TE40\
	ed Below Dark Surface ark Surface (A12)	(A11)	Depleted Da Redox Depre				+		v Dark Surface in in Remarks)	
_	Mucky Mineral (S1) (L	DD N	Iron-Mangan			DD N	-L	_ Other (Expla	iii iii Keiliaiks,)
_	A 147, 148)	INN II,	MLRA 13		:5 (F1Z) (1	-INIX IN,				
	Gleyed Matrix (S4)		Umbric Surfa	•	MI RA 13	6 122)		³ Indicators of h	vdronhytic ved	etation and
	Redox (S5)	İ	Piedmont Flo						ology must be	
	d Matrix (S6)	-1		ouplain oc) (1 10)	(1111177 14	,	-	bed or problen	
	Layer (if observed):							unicoo diotai	bed of problem	natio.
Type: H	ard-packed Slag									
			_				Liveleia	Cail Duanaut2	Yes O	O
	nches): <u>2</u>		_				Hydric	Soil Present?	res	NO <u> </u>
Remarks:										

Project/Site: Former Satralloy Site Cit	ty/County: Mingo Junction/Jefferson Sampling Date: 5/10/2018
Applicant/Owner: Cyprus Amax Minerals Company	ty/County: Mingo Junction/Jefferson Sampling Date: 5/10/2018 State: OH Sampling Point: I-1
	ection, Township, Range: T6N, R2W, S8
	relief (concave, convex, none): none Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 40.3122	Long: -80.6710 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 percentage.	
Are climatic / hydrologic conditions on the site typical for this time of year?	? Yes O No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly dis	sturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally proble	ematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wes O No O Yes No O No O No O	Is the Sampled Area within a Wetland? Yes No No
Remarks:	
Wetland I is concentrated in a narrow depression railroad bed. See Figure 4B; Attachment 3, Pho-	n at the toe of a slope and an adjacent raised relic to 23.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	its (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide	
	heres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Sediment Deposits (B2) Presence of Redu Recent Iron Reduc	ction in Tilled Soils (C6) Dry-Season Water Table (C2) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface	
Algal Mat or Crust (B4) Other (Explain in F	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	4
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): 1 (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:
Remarks:	

VEGETATION	(Four Strata) – Use	scientific	names	of plants.
VECEIA IION	i oui otiutu	, 550	3010111110	Hallics	or plants

Sampling Point: I-1

To a Otraction (Distance 3m v 5m	Absolute	Dominant		Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: 3m x 5m)	<u>% Cover</u>	Species?		Number of Dominant Species	
1. Ulmus americanus		✓	FACW	That Are OBL, FACW, or FAC: 3	(A)
2				Total Number of Dominant	
3		 -		Species Across All Strata: 5	(B)
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC: 60	(A/B)
6					(' /
7				Prevalence Index worksheet:	
8.				Total % Cover of: Multiply by:	_
	4.0	Total Cov	er	OBL species x 1 =	-
Sapling/Shrub Stratum (Plot size: 3m x 3m)			01	FACW species x 2 = 1	.
1. Apocynum cannabinum	10	✓	FACU	FAC species x 3 = 1	_
2. Fraxinus pensylvanica	5	\overline{V}	FACW	FACU species x 4 = _1	_
3.				UPL species x 5 = 1	
4.				Column Totals: 0 (A) 5	
				()	- (-)
5			_	Prevalence Index = B/A =	_
6			-	Hydrophytic Vegetation Indicators:	
7			-	1 - Rapid Test for Hydrophytic Vegetation	
8			-	2 - Dominance Test is >50%	
9		- - -	-	3 - Prevalence Index is ≤3.0 ¹	
10			_	4 - Morphological Adaptations ¹ (Provide supp	ortina
2m v 2m	15 :	= Total Cov	er	data in Remarks or on a separate sheet)	orting
Herb Stratum (Plot size: 2m x 2m)	-			Problematic Hydrophytic Vegetation ¹ (Explain	1)
1. Equisetum arvense	5	<u> </u>	FAC		<i>'</i>
2. Lonicera japonica			FACU	¹ Indicators of hydric soil and wetland hydrology m	uet
3	· ——	-		be present, unless disturbed or problematic.	401
4				Definitions of Four Vegetation Strata:	
5					
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm more in diameter at breast height (DBH), regardles	
7				height.	33 01
8					.
9.				Sapling/Shrub – Woody plants, excluding vines, I than 3 in. DBH and greater than 3.28 ft (1 m) tall.	less
10.				than 5 m. bbit and greater than 5.20 ft (1 m) tail.	
				Herb – All herbaceous (non-woody) plants, regard	dless
	· 	+		of size, and woody plants less than 3.28 ft tall.	
12	10			Woody vine – All woody vines greater than 3.28 f	ft in
Woody Vine Stratum (Plot size:)	10	= Total Cov	er	height.	
1					
		$\overline{\Box}$	-		
2			-		
3		+	-		
4		- - -	_	Hydrophytic	
5	· ——	- - -		Vegetation	
6				Present? Yes No No	
	0 :	= Total Cov	er		
Remarks: (Include photo numbers here or on a separate s	sheet.)				

Sampling Point: I-1

Profile Desc	cription: (Describe	to the de	pth needed to docur	ment the	indicator	or confirm	the absence	of indicato	rs.)			
Depth	Matrix			x Feature	s							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remar	ks		
0-4								Mucky Pe	eat			
4-5								Mucky Mi	neral - H	ydrog	en Su	lfide
5-14	2.5 YR 5/2	80	7.5 YR 5/6	10	RM	M	PL	Clay Loa	m			
5-14			2.5 Y 6/3	10	D	M		Soft Mass	ses			
				-								
	-	-										
				_								
1		letien DA	A. De dece d Metric M	0. Maralas			21	Den Linia	14 14-4-			
Hydric Soil		letion, Riv	1=Reduced Matrix, M	S=IVIaske	a Sand Gr	ains.	² Location: P	ators for Pro			ic Soil	e ³ .
_			Dork Surface	(07)						-		s.
Histosol	(A1) pipedon (A2)		Dark Surface Polyvalue Be		rce (S8) (I	/II RΔ 147		2 cm Muck (A Coast Prairie			,	
	istic (A3)		Thin Dark Su				1-0)	MLRA 147	•	10)		
	en Sulfide (A4)		Loamy Gleye			, 1-0/	☐ F	Piedmont Flo		oils (F1	19)	
	d Layers (A5)		✓ Depleted Ma		,		_	(MLRA 136		`	- /	
	uck (A10) (LRR N)		Redox Dark		- 6)		☐ F	Red Parent M		F2)		
	d Below Dark Surface	e (A11)	Depleted Da					ery Shallow			F12)	
_	ark Surface (A12)		Redox Depre					Other (Explain	n in Rema	ırks)		
	Mucky Mineral (S1) (L	RR N,	☐ Iron-Mangan		es (F12) (LRR N,						
	A 147, 148)		MLRA 13		(MLDA 4	06 400)	3 _{1m}	diagtors of by	dranhidia	voaste	tion o	- d
	Gleyed Matrix (S4)		Umbric Surfa					dicators of hy		_		10
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present,												
			Fledillolit Fit	ouplain s	50115 (F 19)	(IVILKA 14						
Stripped	Matrix (S6)		Pledillolit Fit	оочріані с	oolis (F19)	(IVILKA 14		ınless disturb				
Stripped Restrictive	Matrix (S6) Layer (if observed):		Pleamont Fit	оочріант з	oolis (F 19)	(MERA 14						
Restrictive Type: no	l Matrix (S6) Layer (if observed): ne			очріані з	ouis (F19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.)
Restrictive I Type: no Depth (in	Matrix (S6) Layer (if observed):			очріані з	ouis (F19)	(WLKA 14	ι		ed or pro	blemat		<u> </u>
Restrictive Type: no	l Matrix (S6) Layer (if observed): ne			оочріант з	oolis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u> </u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	oolis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>)</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант в	oolis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u> </u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u> </u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WERA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>)</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант в	oolis (F 19)	(WERA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>)</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WERA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	oolis (F 19)	(WERA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант в	olis (F 19)	(WERA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант є	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант є	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант є	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант є	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант с	olis (F 19)	(WILKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D_</u>
Restrictive I Type: no Depth (in	l Matrix (S6) Layer (if observed): ne			оочріант в	olis (F 19)	(WLKA 14	ι	unless disturb	ed or pro	blemat	ic.	<u>D</u>

Project/Site: Former Satralloy Site City/	County: Mingo Junction/Jefferson Sampling Date: 5/10/2016 State: OH Sampling Point: 1-2	8
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: I-2	
Investigator(s): JMM, BJJ Sect	tion, Township, Range: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): Hillslope Local re	elief (concave, convex, none): CONCAVE Slope (%): 30)
	Long: -80.6710 Datum: NAD 8	
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 perce		
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes O No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly distu	urbed? Are "Normal Circumstances" present? Yes No _	0
Are Vegetation, Soil, or Hydrology naturally problem	natic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing sal	mpling point locations, transects, important features,	etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No No	
Remarks:		
Upland data point adjacent to Wetland I. See Figu	ıre 4B.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two require	ed)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	
Surface Water (A1)		8)
High Water Table (A2) Hydrogen Sulfide O		,
Saturation (A3) Oxidized Rhizosphe	eres on Living Roots (C3) Moss Trim Lines (B16)	
Water Marks (B1) Presence of Reduce	ed Iron (C4) Dry-Season Water Table (C2)	
Sediment Deposits (B2) Recent Iron Reducti	ion in Tilled Soils (C6)	
Drift Deposits (B3) Thin Muck Surface ((C7) Saturation Visible on Aerial Imagery (C9))
Algal Mat or Crust (B4) Other (Explain in Re	emarks) Stunted or Stressed Plants (D1)	
☐ Iron Deposits (B5)	Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)	
Water-Stained Leaves (B9)	Microtopographic Relief (D4)	
Aquatic Fauna (B13)	FAC-Neutral Test (D5)	
Field Observations:		
Surface Water Present? Yes O No O Depth (inches):		
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No X	_
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	evious inspections), if available:	
Remarks:		
Nemans.		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: I-2

AEL II	Absolute			t Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 15' radius) 1. <u>Ulmus americana</u>	% Cover 25		ecies	? Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2					Total Number of Dominant Species Across All Strata: 6 (B)
4					Species Across Air Strata.
5		_			Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)
6					Prevalence Index worksheet:
7		-	_		Total % Cover of: Multiply by:
8					OBL species x 1 = 1
Sapling/Shrub Stratum (Plot size: 10' radius)	25	= To	tal Co	ver	FACW species x 2 =1
1 Ulmus americana	5		√	FACW	
···		-		IACVV	FACULTURE
2.			\vdash		FACU species x 4 = _1
3			Н-		UPL species x 5 =
4			<u> </u>	_	Column Totals: 0 (A) 5 (B)
5		_	Щ.		Prevalence Index = B/A =
6			Щ		
7			Ш		Hydrophytic Vegetation Indicators:
8					1 - Rapid Test for Hydrophytic Vegetation
9					2 - Dominance Test is >50%
10					3 - Prevalence Index is ≤3.0 ¹
	5	 = To	tal Co	ver	4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5 radius')		_			data in Remarks or on a separate sheet)
1. Lonicera japonica	25		✓	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum arvense	10		✓	FAC	
Ranunculus repens	15	\Box	✓	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Viola blanda	5			FACW	
5. Galium aparine	2	T	_	FACU	Definitions of Four Vegetation Strata:
		7	_	17100	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			\dashv	-	more in diameter at breast height (DBH), regardless of
7			_	-	height.
8			=		Sapling/Shrub – Woody plants, excluding vines, less
9		\dashv	-		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		4	_		Herb – All herbaceous (non-woody) plants, regardless
11		4	_	_	of size, and woody plants less than 3.28 ft tall.
12				_	
Woody Vine Stratum (Plot size: 10' radius)	57	= To	tal Co	ver	Woody vine – All woody vines greater than 3.28 ft in height.
1. Lonicera japonica	15		√	FACU	
2.		T	$\overline{}$	77.00	
		一	\dashv		
3		\dashv	\dashv	-	
4		\dashv	_		Hydrophytic
5		-	-	-	Vegetation Present? Yes No
6					Present? Yes No
	15	= To	tal Co	ver	
Remarks: (Include photo numbers here or on a separate s	heet.)				

Sampling Point: I-2

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix			x Features							
(inches) 0-3	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	0:11 01	Remarks		_
	10 YR 4/3	100						Silty Clay	•		_
3-14	10 YR 4/3	98	10 YR 6/6	2	C	M		Silty Clay	У		_
											_
											-
			-					-			-
											_
											_
											_
											-
1							2				-
		letion, RM	=Reduced Matrix, MS	S=Masked	Sand Gr	ains.	² Location: PL	=Pore Linir	ng, M=Matrix. roblematic Hyd	luia Caila ³ .	
Hydric Soil I				(07)					•		
Histosol	. ,		Dark Surface Polyvalue Be	. ,	oo (CO) (I	II DA 447			A10) (MLRA 1 4 Redox (A16)	17)	
Black His	pipedon (A2)		Thin Dark Su				146)	MLRA 14)			
	n Sulfide (A4)		Loamy Gleye			47, 140)	ПР		oodplain Soils (F19)	
	Layers (A5)		Depleted Ma	,	,			(MLRA 13		,	
	ck (A10) (LRR N)		Redox Dark	. ,	6)		R		Material (TF2)		
	l Below Dark Surface	e (A11)	Depleted Da						Dark Surface	(TF12)	
_	rk Surface (A12)		Redox Depre				c	ther (Explai	in in Remarks)		
	lucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) (LRR N,					
	147, 148) leyed Matrix (S4)		MLRA 13 Umbric Surfa	•	MI DA 12	6 122\	³ Ind	icators of h	ydrophytic vege	station and	
	edox (S5)		Piedmont Flo						ology must be		
	Matrix (S6)		ricamoneric	ouplain o	0110 (1 10)	(11127)		-	bed or problem		
	ayer (if observed):								<u> </u>		
Type: cob	bles									_	
Depth (inc	thes): <u>14</u>						Hydric Soil	Present?	Yes O	No O	-
Remarks:											

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sampling Date: _5/10/2	018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: J-1	
Investigator(s): JMM, BJJ	Section, Township, Range: T6,R2W, S8	
	Local relief (concave, convex, none): None Slope (%):	3
	Long: -80.6710 Datum: NAC	
Soil Map Unit Name: Lowell silt loam, 8 to 16 percent slopes	NWI classification: none	
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes O No O (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significant	tly disturbed? Are "Normal Circumstances" present? Yes O	。 <u>O</u>
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing	ng sampling point locations, transects, important feature	s, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O Yes No O	Is the Sampled Area within a Wetland? Yes No No	
Remarks:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Wetland J1 is low gradient basin that forms the Attachment 3, Photo 24.	ne neadwaters of Stream J. See Figure 4B;	
7 ttdoffmont 0, 1 noto 24.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two req	uired)
Primary Indicators (minimum of one is required; check all that apply	y) Surface Soil Cracks (B6)	
Surface Water (A1)	Plants (B14) Sparsely Vegetated Concave Surface	(B8)
High Water Table (A2) Hydrogen Su	ulfide Odor (C1) Drainage Patterns (B10)	
Saturation (A3)	zospheres on Living Roots (C3) Moss Trim Lines (B16)	
Water Marks (B1)	Reduced Iron (C4) Dry-Season Water Table (C2)	
Sediment Deposits (B2)	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)	
Drift Deposits (B3)	urface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain	in in Remarks) Stunted or Stressed Plants (D1)	
Iron Deposits (B5)	Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)	
Water-Stained Leaves (B9)	Microtopographic Relief (D4)	
Aquatic Fauna (B13)	FAC-Neutral Test (D5)	
Field Observations:	1	
Surface Water Present? Yes No Depth (inche		
Water Table Present? Yes No Depth (inche		
Saturation Present? Yes No Depth (inche (includes capillary fringe)	es): 12+ Wetland Hydrology Present? Yes X No _	
Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if available:	
Domosto		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: <u>J-1</u>

001 1	Absolute			Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 30' radius)	% Cover	Spe	ecies?		Number of Dominant Species
1. Ulmus americana	20		<u> </u>	FACW	That Are OBL, FACW, or FAC: 5 (A)
2. Fraxinus pennsylvanica	20		✓	FACW	Total Number of Deminent
3					Total Number of Dominant Species Across All Strata: 6 (B)
4.					(2)
					Percent of Dominant Species That Are ORL FACW or FAC: 83 (A/R)
5			\dashv		That Are OBL, FACW, or FAC: 83 (A/B)
6			+		Prevalence Index worksheet:
7		-	4		Total % Cover of: Multiply by:
8		\perp			
451 1	40	= Tot	tal Cov	/er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)		-			FACW species x 2 = _1
1. Ulmus americana	10		✓	FACW	FAC species x 3 = 1
2. Rosa multiflora	5		✓	FACU	FACU species x 4 = _1
3.					UPL species x 5 = _1
			一	-	Column Totals: 0 (A) 5 (B)
4			+	-	(7)(D)
5			\dashv	-	Prevalence Index = B/A =
6			+	_	Hydrophytic Vegetation Indicators:
7		ļ			1 - Rapid Test for Hydrophytic Vegetation
8					
9					2 - Dominance Test is >50%
10.		T		-	3 - Prevalence Index is ≤3.0 ¹
10.		L			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' radius)	10	= 10	tal Cov	/er	data in Remarks or on a separate sheet)
1. Ranunculus repens	30	Γ.	/	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
			7	FAC	
2. Dichanthelium clandestinum			_		¹ Indicators of hydric soil and wetland hydrology must
3. Onoclea sensibilis	5		_	FACW	be present, unless disturbed or problematic.
4					Definitions of Four Vegetation Strata:
5					Deminions of Four Vegetation Strata.
6.					Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
			\dashv		more in diameter at breast height (DBH), regardless of
7			_		height.
8			+		Sapling/Shrub – Woody plants, excluding vines, less
9			_		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10					Hart All back a same (a second b) about a second back
11					Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.					of size, and woody plants less than 5.25 it tall.
	50	– Tot	tal Cov	/or	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		- 10	iai Cov	/GI	height.
1. none		Γ			
		Ť	一	-	
2.			┽╴	-	
3		\rightarrow	——	-	
4		-			Hydrophytic
5					Vegetation
6					Present? Yes No No
	0	= Tot	tal Cov	/er	
Pamarka: (Include photo numbers here or on a congrete of					
Remarks: (Include photo numbers here or on a separate s	sneet.)				

Sampling Point: J-1

	ription: (Describe	to the de	pth needed to docu	ment the i	ndicator	or confirn	n the absence	of indicato	ors.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-2								Muck		
2-11	2.5 YR 4/1	95	7.5 YR 5/6	5	C	PL		oxidized	rhizospheres	}
11-16	10 YR 5/2	85	2.5 Y 5/8	15	C	M	MS	Silty Loa	m	
				-						
				-						
			-							
	-									
			-							
1Type: C=C	oncentration D=Den	letion RM	I=Reduced Matrix, M	S=Masker	Sand Gr	aine	² Location: Pl	=Pore Linin	na M=Matrix	
Hydric Soil		iedon, rav	i-Reduced Matrix, M	0-Masket	Janu Gr	aii i 3.			oblematic Hyd	dric Soils ³ :
Histosol			Dark Surface	e (S7)					A10) (MLRA 1 4	
_	oipedon (A2)		Polyvalue Be	. ,	ce (S8) (N	ILRA 147,			Redox (A16)	,
Black Hi			Thin Dark Su	urface (S9	(MLRA 1			(MLRA 14	` ,	
	en Sulfide (A4)		Loamy Gley		F2)		<u> </u>		oodplain Soils (F19)
	d Layers (A5)		Depleted Ma					(MLRA 13		
	uck (A10) (LRR N)	- (044)	Redox Dark	,	,				Material (TF2)	(TE40)
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Da					-	Dark Surface in in Remarks)	(11-12)
	lucky Mineral (S1) (I	RR N.	Iron-Mangar			LRR N.		Zirici (Explai	iii iii remane)	
	A 147, 148)	,	MLRA 13		(, (,				
Sandy G	Gleyed Matrix (S4)		Umbric Surfa	ace (F13)	MLRA 13	6, 122)	³ Ind	licators of hy	drophytic vege	etation and
	Redox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		-	ology must be	
	l Matrix (S6)						u	nless disturl	bed or problem	atic.
D 4 1 41 1										
	Layer (if observed):									
Type: No	ne						Heatric Coll	B	v •	W- O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u> </u>	No O
Type: No	ne						Hydric Soil	Present?	Yes O	No <u>O</u>
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u> </u>	No <u>O</u>
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No <u>O</u>
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u> </u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes <u>©</u>	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O
Type: No Depth (inc	ne						Hydric Soil	Present?	Yes O	No O

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: <u>5/10/2018</u>
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: J-2
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	ocal relief (concave, convex, none): none	Slope (%): 10
	Long: -80.6710	Datum: NAD 83
	NWI classifi	
Are climatic / hydrologic conditions on the site typical for this time of y	vear? Yes <u> </u>	Remarks.)
Are Vegetation, Soil, or Hydrology significant		present? Yes O No
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling point locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No Wetland Hydrology Present?	Is the Sampled Area within a Wetland? Yes) No
Remarks:	ow gradient basin that forms the	hoodwatara of
Upland data point adjacent to Wetland J1; a lo Stream J. See Figure 4B.	ow gradient basin that forms the r	leadwaters of
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicate	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply		Cracks (B6)
Surface Water (A1)		getated Concave Surface (B8)
		atterns (B10)
	cospheres on Living Roots (C3) Moss Trim L Reduced Iron (C4) Dry-Season	
	Reduced from (C4) Reduction in Tilled Soils (C6) Crayfish But	Water Table (C2)
Drift Deposits (B3) Thin Muck Su	` ' = '	/isible on Aerial Imagery (C9)
		Stressed Plants (D1)
Iron Deposits (B5)	· —	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	uitard (D3)
Water-Stained Leaves (B9)	Microtopogr	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutra	l Test (D5)
Field Observations:		
Surface Water Present? Yes O No O Depth (inche		
Water Table Present? Yes No Depth (inche		X
Saturation Present? Yes No Depth (inche (includes capillary fringe)	s): Wetland Hydrology Prese	nt? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspections), if available:	
Remarks:		

	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30' radius)		Species? Status	Number of Dominant Species
1. Cornus florida	10	✓ FACU	That Are OBL, FACW, or FAC: $\frac{2}{}$ (A)
2. Ulmus americana	10	√ FACW	(.,,
			Total Number of Dominant
3			Species Across All Strata: 5 (B)
4			Percent of Dominant Species
5			That Are OBL, FACW, or FAC: 40 (A/B)
6			(745)
			Prevalence Index worksheet:
7			Total % Cover of: Multiply by:
8			OBL species x 1 =
15! radius	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			FACW species $\frac{15}{100}$ x 2 = $\frac{30}{100}$
1. none			FAC species 45 x 3 = 135
2			FACU species 35 x 4 = 140
3			UPL species x 5 =
4.			Column Totals: 95 (A) 305 (B)
			(-)
5			Prevalence Index = B/A = 3
6			Hydrophytic Vegetation Indicators:
7			
8			1 - Rapid Test for Hydrophytic Vegetation
9			2 - Dominance Test is >50%
10			3 - Prevalence Index is ≤3.0 ¹
10			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' radius)	0	= Total Cover	data in Remarks or on a separate sheet)
1. Ranunculus repens	30	✓ FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Podophyllum peltatum	20	✓ FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Viola blanda	5	FACW	be present, unless disturbed or problematic.
4. Viola sororia	5	FAC	
			Definitions of Four Vegetation Strata:
5			
5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
6			more in diameter at breast height (DBH), regardless of height.
6			more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less
6			more in diameter at breast height (DBH), regardless of height.
6			more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless
6			more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
6			more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
6			more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in
6	60	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
6			more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in
6	60	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in
6	60	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in
6	60	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in
6	60	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
6	60	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
6	60 5	= Total Cover	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation
6	60 5	= Total Cover FACU	more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation

Sampling Point: J-2

Profile Desc	ription: (Describe	to the dep	oth needed to docur	nent the i	ndicator	or confirm	the absence	of indicate	ors.)		
Depth	epth Matrix Redox Features					.					
(inches) 0-4	2.5 Y 3/2	100	Color (moist)	%	Type ¹	Loc ²	Texture	Ciltura -	Remarks		
			-					Silty Loa			
4-17	2.5 Y 4/3	100						Silty Loa	m		
17-19	2.5 Y 4/3	80	2.5 Y 5/6	20	C	PL		Silty Loa	m		
	-										
							-				
				· ——							
¹Type: C=Cd	oncentration D=Den	letion RM	=Reduced Matrix, MS	S=Masker	I Sand Gra	ains	² Location: Pl	=Pore Linir	ng M=Matrix		
Hydric Soil		iction, raw	-reduced Matrix, Mc	J-Waskee	oana on	AII 13.	Indica	ators for Pi	oblematic Hy	dric So	ils³:
Histosol			Dark Surface	(S7)					م 410) (MLRA 1 4		
	oipedon (A2)		Polyvalue Be	` '	ce (S8) (N	ILRA 147,			Redox (A16)	,	
Black Hi	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)	_	(MLRA 14	7, 148)		
	n Sulfide (A4)		Loamy Gleye		F2)		P		oodplain Soils ((F19)	
	d Layers (A5)		Depleted Ma					(MLRA 13			
	ick (A10) (LRR N)	- (011)	Redox Dark	•	,				Material (TF2)	(TE40)	
_	d Below Dark Surface ark Surface (A12)	e (ATT)	Depleted Dai						 Dark Surface in in Remarks) 		
_	lucky Mineral (S1) (L	RR N.	Iron-Mangan			LRR N.		zirici (Expla	iii iii remana)	1	
	\ 147, 148)	,	MLRA 13		() (· · · · · · · · · · · · · · · · ·					
	Bleyed Matrix (S4)		Umbric Surfa		MLRA 13	6, 122)	³ Ind	licators of h	ydrophytic veg	etation a	and
	tedox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	8) v	etland hydr	ology must be	present	t,
	Matrix (S6)						u	nless distur	bed or problen	natic.	
Type: No	_ayer (if observed):										
,. <u> </u>	ches):						Hydric Soil	Present?	Yes O	No _	0
Remarks:							Tiyane oon	i resent:	163		<u> </u>
rtemarks.											

Project/Site: Former Satralloy Site	_ City/County: Mingo Junction/Jefferson _ S	Sampling Date: <u>5/10/2018</u>
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	Local relief (concave, convex, none): CONCAVE	Slope (%): 10
	Long: -80.6700	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classificat	tion: none
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes <u> </u>	marks.)
Are Vegetation, Soil, or Hydrology significant		
Are Vegetation, Soil, or Hydrology naturally p		in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	ng sampling point locations, transects,	important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes	. No <u>•</u>
Remarks:		
Wetland J2 is a small wetland generated fron into Stream J, adjacent to a culvert beneath t Attachment 3, Photo 27.	. •	arging downstream
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicato	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Yes O No Depth (inche Saturation Present? Yes O Depth (inche Saturation Present) Present Present Present Present Present Present	Plants (B14) Plants (B14) Iffide Odor (C1) Zospheres on Living Roots (C3) Reduced Iron (C4) Reduction in Tilled Soils (C6) In in Remarks) Surface Soil Ci Sparsely Vege Drainage Patte Dry-Season W Crayfish Burror Saturation Visi Stunted or Stre Geomorphic Po Shallow Aquita Microtopograpi FAC-Neutral To	racks (B6) stated Concave Surface (B8) erns (B10) es (B16) stater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) ard (D3) hic Relief (D4) est (D5)
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial pho		
Remarks:		
itemans.		

51 451	Absolute			t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 5' x 15') 1. Acer negundo	% Cover 10		ecies?	FAC Status	Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
2					Total Number of Dominant Species Across All Strate: 6 (B)
3					Species Across All Strata: 6 (B)
4. 5.		4			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6					Prevalence Index worksheet:
7		4	4		Total % Cover of: Multiply by:
8		\perp			OBL species x 1 = 1
Outline (Obsert Obsert on April 2014)	10	= To	tal Co	ver	
Sapling/Shrub Stratum (Plot size: 5' x 10') 1. Cornus amomum	20		V	FACW	FACW species $x = 2 = 1$
2. Rubus idaeus			▼	FAC	FACULTURE
	<u>15</u> 5				FACU species x 4 =
3. Acer negundo			₩	FAC	UPL species x 5 = 1
4			Н-		Column Totals: <u>0</u> (A) <u>5</u> (B)
5			Щ.		Prevalence Index = B/A =
6			\vdash		Hydrophytic Vegetation Indicators:
7			Щ.		1 - Rapid Test for Hydrophytic Vegetation
8			Ц_	_	✓ 2 - Dominance Test is >50%
9					l =
10				_	3 - Prevalence Index is ≤3.0 ¹
		= To	tal Co	ver	4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius)		r			Problematic Hydrophytic Vegetation (Explain)
1. Ranunculus repens	15	_	<u> </u>	FAC	Troblematic Trydrophytic Vegetation (Explain)
2. Equisetum arvense	5	_	✓	FAC	The Residence of headings of head and h
3. Viola blanda	5		<u>√</u>	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4		\perp			Definitions of Four Vegetation Strata:
5		r			Dominions of Four Vogetation Strata.
6					Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7.					more in diameter at breast height (DBH), regardless of height.
8.					
9.		r			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10.		T			than 3 in. bbit and greater than 3.20 it (1 in) tail.
11.		Ť			Herb – All herbaceous (non-woody) plants, regardless
12.		\neg		•	of size, and woody plants less than 3.28 ft tall.
	25	<u>—</u> -	tal Co	Ver	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		- 10		VCI	height.
1. none					
2					
3.					
4.					
5					Hydrophytic
6.					Vegetation Present? Yes No
	_	 = To	tal Co	Ver	
Remarks: (Include photo numbers here or on a separate s				VOI	
Tremains. (include prioto numbers here of on a separate s	neet.)				

Sampling Point: <u>J-</u>3

Profile Desc	cription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix	0/		x Feature	s T 1	1.5.2	Taxetonic		Development	
(inches) 0-5	Color (moist) 2.5 YR 2.5/1	%	Color (moist)	%	Type ¹	_Loc ²	Texture	Clavel	Remarks	
					_			Clay Loa		
5-14	7.5 YR 3/2	90	2.5 YR 5/4	10	RM	M		Clay Loa	am	
		-								
			-	-	-					
	-									
								-		
	-	-			_			-		
	-		· -		-					
		letion, RN	/I=Reduced Matrix, M	S=Maske	d Sand Gr	ains.			ng, M=Matrix.	
/dric Soil	Indicators:		_				Indic	ators for P	roblematic Hy	dric Soils ³ :
Histosol	` '		Dark Surface						A10) (MLRA 1 4	47)
_	pipedon (A2)		Polyvalue Be				148)		e Redox (A16)	
	istic (A3)		Thin Dark Su			147, 148)		(MLRA 14		
7 ' "	en Sulfide (A4)		Loamy Gleye		(F2)		₽		oodplain Soils ((F19)
7	d Layers (A5) uck (A10) (LRR N)		Depleted Ma		E6)		П	(MLRA 13	Material (TF2)	
	ed Below Dark Surfac	e (A11)	Depleted Da	,	,				v Dark Surface	(TF12)
= '	ark Surface (A12)	0 (/ (/ / /	Redox Depre					•	in in Remarks)	. ,
-1	Mucky Mineral (S1) (I	LRR N,	Iron-Mangan			LRR N,		(,	
_	A 147, 148)		MLRA 13		, , ,	,				
Sandy 0	Gleyed Matrix (S4)		Umbric Surfa	ace (F13)	(MLRA 13	6, 122)	³ Inc	licators of h	ydrophytic veg	etation and
-	Redox (S5)		Piedmont Flo	oodplain S	Soils (F19)	(MLRA 14	8) v	vetland hydi	rology must be	present,
	d Matrix (S6)						·	nless distur	rbed or problem	natic.
	Layer (if observed):	:								
Type: no										
Depth (in	iches):						Hydric Soil	Present?	Yes O	No <u> </u>
emarks:										

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sampling Date: 5/10/2018
Applicant/Owner: Cyprus Amax Minerals Company	City/County: Mingo Junction/Jefferson Sampling Date: 5/10/2018 State: OH Sampling Point: J-4
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8
Landform (hillslope, terrace, etc.): hillslope Loc	al relief (concave, convex, none): CONCAVE Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 40.3126	
Soil Map Unit Name: Udorthents, loamy	NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year	
Are Vegetation, Soil, or Hydrology significantly of	
Are Vegetation, Soil, or Hydrology naturally prol	
	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O	Is the Sampled Area within a Wetland? Yes No
Upland photo adjacent to Wetland J2; a small vidischarging downstream into Stream J. See Fig.	vetland generated from a seep along a terrace and gure 4C.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	
High Water Table (A2) Hydrogen Sulfid	
	spheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Sediment Deposits (B2) Presence of Rec Recent Iron Rec	duced Iron (C4)
Drift Deposits (B3) Thin Muck Surfa	
Algal Mat or Crust (B4) Other (Explain in	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	2
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes O No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes A No
Describe Recorded Data (stream gauge, monitoring well, aerial photos	s, previous inspections), if available:
Remarks:	

Sampling	Point:	J-4
----------	--------	-----

Tree Stratum (Diet size, 15' radius	Absolute	Dominant		Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: 15' radius) 1 Fraxinus pennsylvanica	% Cover 15	Species?	FACW	Number of Dominant Species That Are OBL FACW or FAC: 6	(4)
2. Acer negundo	10	V ✓	FAC	That Are OBL, FACW, or FAC:	(A)
3.			FAC	Total Number of Dominant Species Across All Strata: 9 9	(B)
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC: 66	(A/B)
6		+		Prevalence Index worksheet:	
7				Total % Cover of: Multiply by:	
8				OBL species x 1 = 1	
Openion (Objects Objects - 10' radius	25 =	= Total Cov	er	FACW species x 2 = 1	
Sapling/Shrub Stratum (Plot size: 10' radius) 1. Rosa multiflora	10	./	FACU	FAC species x 3 = 1	
a Acer negundo		1/	FAC	FACU species x 3 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 = x 4 =	
			FAC		
3			_	UPL species $x = 5$	
4				Column Totals: 0 (A) 5	(B)
5			-	Prevalence Index = B/A =	_
6			-	Hydrophytic Vegetation Indicators:	
7			-	1 - Rapid Test for Hydrophytic Vegetation	
8			-	2 - Dominance Test is >50%	
9			-	3 - Prevalence Index is ≤3.0 ¹	
10				4 - Morphological Adaptations ¹ (Provide supp	ortina
Herb Stratum (Plot size: 5' radius)	15 =	= Total Cov	er	data in Remarks or on a separate sheet)	5
1 Ranunculus repens	15	\checkmark	FAC	Problematic Hydrophytic Vegetation ¹ (Explain	1)
2. Equisetum arvense	10	<u> </u>	FAC		
3. Viola blanda	10	V	FACW	¹ Indicators of hydric soil and wetland hydrology m	ust
A Rosa multiflora	10	<u> </u>	FACU	be present, unless disturbed or problematic.	
T		 	FACU	Definitions of Four Vegetation Strata:	
		+	17100	Tree – Woody plants, excluding vines, 3 in. (7.6 c	m) or
6				more in diameter at breast height (DBH), regardle	ss of
7				height.	
8				Sapling/Shrub – Woody plants, excluding vines,	less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
10				Herb – All herbaceous (non-woody) plants, regard	dless
				of size, and woody plants less than 3.28 ft tall.	
12	47 -			Woody vine – All woody vines greater than 3.28 f	ft in
Woody Vine Stratum (Plot size: 10' radius)	41	= Total Cov	ei	height.	
1. Lonicera japonica	5	\checkmark	FACU		
2.					
3.					
4.					
5.				Hydrophytic Vegetation	
6.		$\overline{\Box}$		Present? Yes No No	
	5	= Total Cov	er		
Remarks: (Include photo numbers here or on a separate					
Tromano. (molado prioto namboro noro el en a coparato	511001)				

Sampling Point: J-4

Profile Desc	ription: (Describe	to the de	oth needed to docur	nent the	indicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix	0/		x Feature			- .				
(inches) 0-1	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Mucky p	Remarks		
	7.5 YR 3/2	400					·				
1-7		100						Clay Loa			
8-16	10 YR 4/2	50	10 YR 5/6	20	RM	M		Clay Loa			
8-16	-		10 YR 5/1	30	D	M		Clay Loa	ım - soft ma	sses	
											_
				-			-	-			
				-				-			
<u> </u>					_		·	-			
				-				-			
		letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gra	ains.	² Location: Pl				. 3
Hydric Soil I									oblematic Hy		oils':
Histosol	• ,		Dark Surface	` '	(00) (1	U DA 447			A10) (MLRA 1		
Black His	oipedon (A2)		Polyvalue Be				148) (oast Prairie MLRA 14)	Redox (A16)		
	n Sulfide (A4)		Loamy Gleye			47, 140)	Пв		oodplain Soils	(F19)	
	d Layers (A5)		✓ Depleted Ma		(- –)			(MLRA 13		()	
	ick (A10) (LRR N)		Redox Dark		=6)			Red Parent N	Material (TF2)		
=	d Below Dark Surfac	e (A11)	Depleted Da						/ Dark Surface)
_	ark Surface (A12)	DD 11	Redox Depre			. DD N		other (Expla	in in Remarks)	
	lucky Mineral (S1) (L \ 147, 148)	LKK N,	Iron-Mangan MLRA 13		es (F12) (LRK N,					
	Gleyed Matrix (S4)		Umbric Surfa		(MLRA 13	6. 122)	³ Ind	icators of h	ydrophytic veg	etation	and
	ledox (S5)		Piedmont Flo						ology must be		
	Matrix (S6)						u	nless distur	bed or probler	natic.	
	_ayer (if observed):	:									
Type: nor											
Depth (inc	ches):						Hydric Soil	Present?	Yes O	No_	
Remarks:											

Project/Site: Former Satralloy Site City	/County: Mingo Junction/Jefferson Sa	ampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: N-1
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8	
	elief (concave, convex, none): CONCAVE	Slope (%): 0
	Long:80.6696	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classificatio	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No O (If no, explain in Rem	arks.)
Are Vegetation, Soil, or Hydrology significantly dist		
Are Vegetation, Soil, or Hydrology naturally problem		
SUMMARY OF FINDINGS – Attach site map showing sa		
		, , , , , , , , , , , , , , , , , , ,
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No	Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes No	within a Wetland? Yes	No <u>(•)</u>
Remarks:		
Feature N is a small heavily disturbed basin filled	with riprap. A PVC pipe drains i	nto the feature.
See Figure 4E.	mannprapritti to pipo aramo.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators	s (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cra	acks (B6)
Surface Water (A1)	(B14) Sparsely Vegeta	ated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide C	=	
	eres on Living Roots (C3) Moss Trim Lines	
Water Marks (B1) Presence of Reduc		
	tion in Tilled Soils (C6) Crayfish Burrow	
Drift Deposits (B3) Algal Mat or Crust (B4) Thin Muck Surface Other (Explain in R		le on Aerial Imagery (C9)
Algal Mat or Crust (B4) Iron Deposits (B5) Other (Explain in R	Geomorphic Pos	` ,
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitaro	` '
Water-Stained Leaves (B9)	Microtopographi	` '
Aquatic Fauna (B13)	FAC-Neutral Tes	
Field Observations:		
Surface Water Present? Yes No Depth (inches): 2		
Water Table Present? Yes No Depth (inches):		V
Saturation Present? Yes No Depth (inches): 4	Wetland Hydrology Present?	Yes X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: N-1

451	Absolute	Do	minan	t Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>15' radius</u>) 1. <u>none</u>	% Cover			? Status	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)	
2		_		_	Total Number of Dominant	
3				_	Species Across All Strata: 2 (B)	
4. 5.					Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/E	3)
6		_		_	Prevalence Index worksheet:	_
7			_	_		
8		\Box			Total % Cover of: Multiply by:	
10' radius	0	= To	tal Co	over	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 10' radius)			\Box		FACW species x 2 =	
1. none			H	_	FAC species x 3 =	
2			 	_	FACU species x 4 =	
3			屵	-	UPL species x 5 =	
4			Щ-	_	Column Totals: 0 (A) 1 (B)
5			Щ.		Prevalence Index = B/A =	
6			oxdot		Hydrophytic Vegetation Indicators:	_
7			Ц_		1 - Rapid Test for Hydrophytic Vegetation	
8			Щ.	_	✓ 2 - Dominance Test is >50%	
9					3 - Prevalence Index is ≤3.0 ¹	
10						
	_	= To	tal Co	over	4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)	g
Herb Stratum (Plot size: 5' radius)			71		Problematic Hydrophytic Vegetation¹ (Explain)	
1. Juncus tenuis	25	_	√	FAC	Troblematic Trydrophytic Vegetation (Explain)	
2. Typha angustifolia	10	4	✓	OBL	¹ Indicators of hydric soil and wetland hydrology must	
3		ļ		_	be present, unless disturbed or problematic.	
4					Definitions of Four Vegetation Strata:	
5						
6					Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of	
7					more in diameter at breast height (DBH), regardless of height.	'
8.						
9.					Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
10		\Box			undirection between the greater than e.ze it (1 m) tail.	
11.		T	T		Herb – All herbaceous (non-woody) plants, regardless	3
12.					of size, and woody plants less than 3.28 ft tall.	
·-·	35	 = To	ntal Co	over	Woody vine - All woody vines greater than 3.28 ft in	
Woody Vine Stratum (Plot size:)				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	height.	
1				_		
2.						
3						
4.						
5					Hydrophytic Vegetation	
6					Present? Yes No No	
	_	 = Tc	tal Co	over		
Remarks: (Include photo numbers here or on a separate s			, tai 00			-
Tremains. (include prioto numbers here of on a separate s	sileet.)					

Sampling Point: N-1

	cription: (Describe	to the dept				or confirm	the absence	of indicate	ors.)	
Depth (inches)	Matrix Color (moist)	%	Redo Color (moist)	x Features %	Type ¹	Loc ²	Texture		Remarks	
0-2	2.5 Y 4/3	100	Color (moist)		Туре	LOC	rexture		Remarks	
2-8	10 YR 4/2	100						no redox	k features	
								_		
										
		-								
		_								
vpe: C=C	oncentration, D=Dep	oletion RM=	Reduced Matrix MS	S=Masked	Sand Gra	ains	² Location: P	I =Pore I ini	ng, M=Matrix.	
	Indicators:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Troubout Manny M						roblematic Hy	dric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)				cm Muck (A10) (MLRA 1 4	47)
-	pipedon (A2)		Polyvalue Be	. ,	ce (S8) (N	ILRA 147,			e Redox (A16)	•
_	istic (A3)		Thin Dark Su			47, 148)		(MLRA 14		
	en Sulfide (A4)		Loamy Gleye		F2)		F		oodplain Soils ((F19)
7	d Layers (A5)		Depleted Ma		C \		П.	(MLRA 13		
	uck (A10) (LRR N) d Below Dark Surfac	ra (Δ11)	Redox Dark	,	,				Material (TF2) v Dark Surface	(TF12)
_	ark Surface (A12))C (A11)	Redox Depre		. ,				ain in Remarks)	
⊣ i	/ /ucky Mineral (S1) (LRR N,	Iron-Mangan			_RR N,			,	
	A 147, 148)		MLRA 13	6)						
	Sleyed Matrix (S4)		Umbric Surfa						ydrophytic veg	
-	Redox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14		-	rology must be	
	l Matrix (S6) Layer (if observed)						T .	iniess distui	rbed or problem	natic.
Type: Ro		•								
Depth (in							Hydric Soi	l Drosont?	Yes O	No O
emarks:	CIIC3).						Tiyunc 301	i rieseiit:	163	110
marks.										

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	_ City/County: Mingo Junction/Jefferson State: OH	Sampling Point: P-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	_ ,
	ocal relief (concave, convex, none): None	Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3130	Long: -80.6677	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of		
Are Vegetation, Soil, or Hydrology significant		resent? Yes O No
Are Vegetation, Soil, or Hydrology naturally p		
SUMMARY OF FINDINGS – Attach site map showin		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes	No
Remarks: Wetland P is an extensive saturated area along an viridescens) was present at upstream end of featur SS was originally delineated as part of Wetland P a Photo 56.	e. See Figure 4C; Attachment 3, Photo	os 52-55.Note:Wetland
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	tors (minimum of two required)
Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	Plants (B14) Plants (B14) Ifide Odor (C1) Ifide Odor (C1) Iffide Odor (C2) Iffide Odor (C1) Iffi	getated Concave Surface (B8) tterns (B10) nes (B16) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2) tard (D3) uphic Relief (D4)
Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Yes O No O Depth (inche Observation Present) Yes No O Depth (inche Observation Present)	es): <u>2</u>	t? Yes ^X No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if available:	
Remarks:		

/EGETATION (Four Strata) – Use scientific r	names of	plants.	Sampling Point: P-1
451.7.001		Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 15' X 30'	% Cover	Species? Status	Number of Dominant Species
1. None			That Are OBL, FACW, or FAC: 2 (A)
2			Total Number of Dominant
3			Species Across All Strata: 2 (B)
4			
5.			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6.			mat Ale OBE, I AOW, OI I AO.
7.			Prevalence Index worksheet:
8.			Total % Cover of: Multiply by:
0		= Total Cover	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)		- Total Covel	FACW species x 2 = 1
1 Salix exigua	5	✓ FACW	FAC species x 3 = 1
2.			FACU species x 4 =1
			UPL species x 5 = 1
3			Column Totals: 0 (A) 5 (B)
4			Column Totals (A) (B)
5			Prevalence Index = B/A =
6			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			2 - Dominance Test is >50%
9			3 - Prevalence Index is ≤3.0 ¹
10			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5 radius)	5	= Total Cover	data in Remarks or on a separate sheet)
1. Typha angustifolia	60	✓ OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Salix exigua	15	FACW	1
3. Equisetum arvense	5	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4			Definitions of Four Vegetation Strata:
5.			Definitions of Four Vegetation Strata.
6.			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7.			more in diameter at breast height (DBH), regardless of height.
			neight.
8	<u> </u>		Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			Herb – All herbaceous (non-woody) plants, regardless
11			of size, and woody plants less than 3.28 ft tall.
12			Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	80	= Total Cover	height.
1			
2.			
3.			
4.			
			Hydrophytic
5			Vegetation Present? Yes No
6	_	= Total Cover	riesent: res No
Remarks: (Include photo numbers here or on a separate	sheet.)		

SOIL Sampling Point: P-1

Profile Desc	cription: (Describe t	o the depth	needed to docu	ment the ir	ndicator	or confirm	the absence	of indicato	rs.)	
Depth	<u>Matrix</u>			x Features			- .			
(inches) 0-3	Color (moist)		Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	I leader a se	Remarks	
<u> </u>								Hydrogei	n Sulfide Pre	sent
								-		
								-		
¹ Type: C=C	oncentration, D=Depl	etion, RM=R	educed Matrix, M	S=Masked	Sand Gra	ains.	² Location: Pl	_=Pore Linin	g, M=Matrix.	
Hydric Soil	Indicators:						Indica	ators for Pr	oblematic Hyd	dric Soils³:
Histosol	(A1)		Dark Surface	e (S7)			2	cm Muck (A	A10) (MLRA 1 4	17)
Histic E	pipedon (A2)		Polyvalue Be	elow Surfac	e (S8) (N	ILRA 147,	148)	coast Prairie	Redox (A16)	
Black Hi	stic (A3)		Thin Dark Su	urface (S9)	(MLRA 1	47, 148)		(MLRA 14		
	en Sulfide (A4)		Loamy Gleye	ed Matrix (F	-2)		F		odplain Soils (F19)
	d Layers (A5)		Depleted Ma					(MLRA 13		
	ıck (A10) (LRR N)		Redox Dark						/laterial (TF2)	
	d Below Dark Surface	e (A11)	Depleted Da					•	Dark Surface	(TF12)
l <u>—</u>	ark Surface (A12)		Redox Depre				∐ 0	other (Explai	n in Remarks)	
	Mucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) (I	LRR N,				
	A 147, 148)		MLRA 13	•	WI DA 40	c 400\	31	:4 6 l		. 4 . 4
	Gleyed Matrix (S4) Redox (S5)		Umbric Surfa						/drophytic vege ology must be	
	Matrix (S6)		Fledition: Fit	Joupiairi Sc) (F 19)	(IVILKA 14		-	ped or problem	
	Layer (if observed):						T	Tiless disturi	bed of problem	auc.
	-ayo: (oboo: vou).									
	ches):						Hudria Cail	Drocont?	Yes O	No. O
			_				nyuric 3011	rieseiit?	res	NO <u> </u>
Remarks:										

Project/Site: Former Satralloy Site City/0	County: Mingo Junction/Jefferson State: OH	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: P-2
Investigator(s): JMM, BJJ Section Sect	ion, Township, Range: T6N, R2W, S8	_ ,
	lief (concave, convex, none): None	Slope (%): 20
	Long: -80.6676	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of year?		
Are Vegetation, Soil, or Hydrology significantly distu		resent? Yes O No
Are Vegetation , Soil , or Hydrology naturally problem		
SUMMARY OF FINDINGS – Attach site map showing sar		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes	No
Remarks:		
Upland data point adjacent to Wetland P. See Fig	ure 4C.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	· · · · · · · · ·
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Oc		
	res on Living Roots (C3) Moss Trim Li	· · · ·
Water Marks (B1) Presence of Reduce	d Iron (C4) Dry-Season \	Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction	on in Tilled Soils (C6) Crayfish Burr	rows (C8)
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Vi	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	marks) Stunted or St	tressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	tard (D3)
Water-Stained Leaves (B9)	Microtopogra	phic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):		
		t? Yes No ^X
(includes capillary fringe)		t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:	
Remarks:		

VEGETATION (Four Strata) - Use scientific names of plants.

= Total Cover

Tree Stratum (Plot size: 30' radius

Sapling/Shrub Stratum (Plot size: 15' radius

Herb Stratum (Plot size: 5' radius)

Woody Vine Stratum (Plot size: 15' radius 1. Parthenocissus quinquefolia

1 Populus deltoides

2. Ulmus americana

3. Acer negundo

1. Rosa multiflora

1. Rosa multiflora

2. Rubus ideaus

4. Urtica dioica

3. Toxicodendron radicans

mes of	pla	nts	S.		Sampling Point: P-2	
Absolute					Dominance Test worksheet:	
% Cover	<u> </u>	✓		FAC	Number of Dominant Species That Are OBL, FACW, or FAC: 4	(A)
5	-	▼		FACW	That Are OBL, FACW, or FAC.	(A)
5	\equiv	<u>√</u>		FAC	Total Number of Dominant Species Across All Strata: 7	(B)
	_				Percent of Dominant Species That Are OBL, FACW, or FAC: 57	(A/B)
	-		_		Prevalence Index worksheet:	
	_		_		Total % Cover of: Multiply by:	
20	 - Ta	t a l			OBL species x 1 = 1	
20	= 10	otai	Cove	er	FACW species x 2 = _1	
10		✓		FACU	FAC species x 3 = 1	
					FACU species x 4 = _1	
					UPL species x 5 = _1	
					Column Totals: 0 (A) 5	(B)
			<u> </u>	_	Prevalence Index = B/A =	_
			Г		Hydrophytic Vegetation Indicators:	
					1 - Rapid Test for Hydrophytic Vegetation	
					2 - Dominance Test is >50%	
					3 - Prevalence Index is ≤3.0 ¹	
10	= To	otal	Cove	er	4 - Morphological Adaptations¹ (Provide sup data in Remarks or on a separate sheet)	
15		✓		FACU	Problematic Hydrophytic Vegetation ¹ (Expla	iin)
10		√		FAC		
5				FAC FACU	¹ Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.	must
	-	_		FACU	Definitions of Four Vegetation Strata:	
					Tree – Woody plants, excluding vines, 3 in. (7.6 more in diameter at breast height (DBH), regard height.	
			_		Sapling/Shrub – Woody plants, excluding vines than 3 in. DBH and greater than 3.28 ft (1 m) tal	
	_		_		Herb – All herbaceous (non-woody) plants, rega of size, and woody plants less than 3.28 ft tall.	ırdless
32	I = To	otal	— Cove	er	Woody vine – All woody vines greater than 3.28 height.	3 ft in
20				FACU	Hydrophytic Vegetation Present? Yes No No	

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point: P-2

Profile Desc	cription: (Describe	to the de	oth needed to docu	ment the	indicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix			x Feature			_				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks		
0-16	10 YR 4/3	94	10 YR 5/6	4	С	M		Clay Loa	ım		
0-16			5 Y 6/3	2	C	M					
,											
-			_								
					-						
					_						
¹Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	² Location: PL	=Pore Linir	ng, M=Matrix.		
Hydric Soil		,	, , , , , , , , , , , , , , , , , , , ,						oblematic Hyd	ric Soil	ls³:
Histosol	(A1)		Dark Surface	e (S7)			_ 2	cm Muck (A	A10) (MLRA 14	7)	
	oipedon (A2)		Polyvalue Be				148)		Redox (A16)		
	stic (A3)		Thin Dark Su			147, 148)		(MLRA 14			
	en Sulfide (A4)		Loamy Gleye		(F2)		<u> </u>	iedmont Flo (MLRA 13)	oodplain Soils (F	-19)	
	d Layers (A5) uck (A10) (LRR N)		Depleted Ma		F6)		Пв	•	Material (TF2)		
	d Below Dark Surfac	e (A11)	Depleted Da	,	,				Dark Surface (TF12)	
Thick Da	ark Surface (A12)		Redox Depre	essions (F	8)		<u> </u>	ther (Expla	in in Remarks)		
	lucky Mineral (S1) (I	LRR N,	Iron-Mangan		ses (F12) (LRR N,					
	A 147, 148)		MLRA 13		(MI DA 40	0 400)	3,			4 - 4!	
	Gleyed Matrix (S4) Redox (S5)		Umbric Surfa						ydrophytic vege ology must be p		
	Matrix (S6)			ouplain C	JOII3 (1 13)	(MEIXA 14		-	bed or problema		
	Layer (if observed):	:							<u>'</u>		
Type: No	ne								_		
Depth (in	ches):						Hydric Soil	Present?	Yes <u> </u>	No_	$\overline{\mathcal{O}}$
Remarks:							•				

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	City/County: Mingo Junction/Jefferson State: OH	Sampling Point: Q-1
	Section, Township, Range: T6N, R2W, S8	
	cal relief (concave, convex, none): none	Slope (%): 2
	Long:80.6651	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy		cation: none
Are climatic / hydrologic conditions on the site typical for this time of ye		
Are Vegetation, Soil, or Hydrology significantly		present? Yes O No
Are Vegetation, Soil, or Hydrology naturally pro		
SUMMARY OF FINDINGS – Attach site map showing		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No N	Is the Sampled Area within a Wetland?) No
Remarks: Wetland Q is an extensive saturated area alon from Wetland P. Wetland Q extends outside of wetland discharges into Stream Q. See Figure	f the Analysis Area, then re-enter	0 0
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations:	de Odor (C1) spheres on Living Roots (C3) Moss Trim L Dry-Season duction in Tilled Soils (C6) face (C7) in Remarks) Geomorphic Shallow Aqu Microtopogra FAC-Neutral	getated Concave Surface (B8) tterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) tressed Plants (D1) Position (D2) itard (D3) aphic Relief (D4)
Surface Water Present? Water Table Present? Saturation Present? Yes O No O Depth (inches Yes O No O Depth (inches): <1"	nt? Yes ^X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photo		
Remarks:		

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: <u>Q</u> -1
T 0: 10' x 30'	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: 10' x 30') 1. Platanus occidentalis	% Cover 5	Species?	FACW	Number of Dominant Species
<u> </u>		- -	FACVV	That Are OBL, FACW, or FAC: 4 (A)
2.				Total Number of Dominant
3				Species Across All Strata: 4 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8	-			OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' x 20')	5	= Total Cov	er er	FACW species x 2 = 1
1 Salix exigua	10	$\overline{\checkmark}$	FACW	FAC species x 3 = 1
			FACU	FACU species x 4 = 1
- `			1 700	UPL species x 5 = 1
3			-	Column Totals: 0 (A) 5 (B)
4				Column Totals. 5 (A) 5 (B)
5			-	Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7			-	1 - Rapid Test for Hydrophytic Vegetation
8			_	2 - Dominance Test is >50%
9		-	_	3 - Prevalence Index is ≤3.0 ¹
10			_	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' radius)	12	= Total Cov	er er	data in Remarks or on a separate sheet)
1. Typha angustifolia	40	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum arvense	_		FAC	
2. Lemna minor	10 1	V	-	¹ Indicators of hydric soil and wetland hydrology must
			OBL	be present, unless disturbed or problematic.
4. Carex sp.			NI	Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9		+		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		+		Herb – All herbaceous (non-woody) plants, regardless
11		+		of size, and woody plants less than 3.28 ft tall.
12				Woody vine – All woody vines greater than 3.28 ft in
Mandy Vina Stratum (Plat aiza)	52	= Total Cov	er er	height.
Woody Vine Stratum (Plot size:) 1. none				
		౼Ħ	-	
2			-	
3			-	
4			-	Hydrophytic
5		+		Vegetation Present? Yes No No
6	_			Present? Yes No No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

Sampling Point: Q-1

Profile Des	cription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirn	n the absence	of indicate	ors.)		
Depth	Matrix	2,	Redo	ox Feature		. 2	-				
(inches) 0-2	Clov 2 5/N	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	0 1 1	Remarks		
	Gley 2.5/N	96	7.5 YR	_ 4	MS	M		Sandy Lo	oam		
2-10	7.5 YR 5/1	30									
2-10	10 YR 5/1	60									
			<u> </u>	_	-						
		-		_	_			-			
					_						
			· -								
¹ Type: C=C	Concentration, D=Dep	oletion, RN	/I=Reduced Matrix, M	S=Maske	d Sand G	rains.	² Location: PL	=Pore Linir	ng, M=Matrix.		
	Indicators:	,							oblematic H	ydric So	oils³:
✓ Histoso			Dark Surface	. ,					A10) (MLRA 1		
	pipedon (A2)		Polyvalue B				148) C		Redox (A16)		
	listic (A3)		Thin Dark S			147, 148)	\Box	(MLRA 14		(E40)	
	en Sulfide (A4) d Layers (A5)		Loamy Gley Depleted Ma		(FZ)		<u> </u>	(MLRA 13	oodplain Soils 6 147)	(F19)	
	uck (A10) (LRR N)		Redox Dark		F6)		Пв		о, тът) Material (TF2)		
	ed Below Dark Surfac	e (A11)	Depleted Da	,	,				Dark Surface)
$\overline{}$	ark Surface (A12)		Redox Depr				<u></u> □ c	ther (Expla	in in Remarks	s)	
	Mucky Mineral (S1) (LRR N,	☐ Iron-Mangar		es (F12)	(LRR N,					
	A 147, 148) Gleyed Matrix (S4)		MLRA 13		/MLDA 4	26 422\	³ Ind	icatora of b	ydrophytic veç	notation	and
	Redox (S5)		Piedmont FI						ology must be		
	d Matrix (S6)		r rearrient r	оочрант	70110 (1 10	, (<u></u>			bed or proble		ιτ,
	Layer (if observed)	:							-		
Type: ra	ilroad bed material										
Depth (in	nches): 10						Hydric Soil	Present?	Yes O	No	0
Remarks:							· I				

Project/Site: Former Satralloy Site City.	/County: Mingo Junction/Jefferson State: OH	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: Q-2
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8	
	elief (concave, convex, none): none	Slope (%): 25
	Long:80.6650	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of year?		
Are Vegetation, Soil, or Hydrology significantly distr		present? Yes O No
Are Vegetation , Soil , or Hydrology naturally probler		
SUMMARY OF FINDINGS – Attach site map showing sa		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O No O	Is the Sampled Area within a Wetland? Yes	No <u> </u>
Remarks:		
Upland data point adjacent to Wetland Q. See Fig	jure 4C.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	itors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	· · · · · · · ·
Surface Water (A1)	=	getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide C		
Saturation (A3) Oxidized Rhizosphe	eres on Living Roots (C3) 🔲 Moss Trim Li	ines (B16)
Water Marks (B1) Presence of Reduc	ed Iron (C4) Dry-Season '	Water Table (C2)
Sediment Deposits (B2)	ion in Tilled Soils (C6) 🔲 Crayfish Burr	rows (C8)
Drift Deposits (B3) Thin Muck Surface	(C7) Saturation Vi	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	emarks) Stunted or St	tressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	itard (D3)
Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches):		
		nt? Yes No X
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Presen	nt? Yes No _^
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		
Tromano.		

0.01	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species
1. Ulmus americana	10	✓	FACW	That Are OBL, FACW, or FAC: 3 (A)
2				Total Number of Dominant
3				Species Across All Strata: 6 (B)
4				Description of Description
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)
6				(12)
7.				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
	4.0	= Total Cov	er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius				FACW species x 2 = _1
1. Cornus florida	15	✓	FACU	FAC species x 3 =
2. Lonicera canadensis	15	✓	FACU	FACU species x 4 = _1
3. Rubus idaeus	10	✓	FAC	UPL species x 5 = 1
4.				Column Totals: 0 (A) 5 (B)
5				
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
			-	1 - Rapid Test for Hydrophytic Vegetation
8			_	✓ 2 - Dominance Test is >50%
9.		-	-	3 - Prevalence Index is ≤3.0 ¹
10		= Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. none				
2		-		¹ Indicators of hydric soil and wetland hydrology must
3		_#_		be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				Continu/Charth Woody plants evaluating vines less
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
11				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12				of size, and woody plants loss than 5.20 it tall.
		= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 15' radius)				height.
1. Parthenocissus quinquefolia	15		FACU	
Tarriandandana andiana	15	\checkmark	FAC	
2. Toxicodendron radicans				
2. Toxicodendron radicans 34				
3				Hydrophytic Vegetation
3.				Hydrophytic Vegetation Present? Yes No

Sampling Point: Q-2

Profile Desc	ription: (Describe	to the dep	oth needed to docur	nent the i	ndicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix			x Feature							
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks		
0-11	2.5 YR 4/3	98	10 YR 6/6	2	MS	M		Loam			
11-18	2.5 YR 6/1	99	2.5 YR 6/6	1	C	M		Clay Loa	ım		
				-							_
								-			_
								-			_
				-							
¹Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: PL	=Pore Linir	ng, M=Matrix.		
Hydric Soil		,	,,,,,,,						oblematic Hyd	lric Soils ³ :	
Histosol	(A1)		Dark Surface	e (S7)			_ 2	cm Muck (A	A10) (MLRA 14	7)	
	oipedon (A2)		Polyvalue Be		. , .		148)		Redox (A16)		
Black Hi			Thin Dark Su			147, 148)	П-	(MLRA 14			
	n Sulfide (A4) d Layers (A5)		Loamy Gleye Depleted Ma		F2)		L P		oodplain Soils (F	-19)	
	ick (A10) (LRR N)		Redox Dark	. ,	-6)		Пв	(MLRA 13	Material (TF2)		
	d Below Dark Surfac	e (A11)	Depleted Da	,	,				Dark Surface ((TF12)	
Thick Da	ark Surface (A12)		Redox Depre	essions (F	8)		<u> </u>	ther (Expla	in in Remarks)		
	lucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) (LRR N,					
	\ 147, 148)		MLRA 13		(BAL DA 46	0.400\	3,			4-4:	
	Gleyed Matrix (S4) Redox (S5)		Umbric Surfa						ydrophytic vege ology must be p		
	Matrix (S6)			ouplain o	olis (1 19)	(WILKA 14		-	bed or problema		
	_ayer (if observed):								'		
Type: noi	ne										
Depth (inc	ches):						Hydric Soil	Present?	Yes <u> </u>	No O	_
Remarks:							•				
											l

Project/Site: Former Satralloy Site City	/County: Mingo Junction/Jefferson Sampling Date	_{3:} 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	/County: Mingo Junction/Jefferson Sampling Date State: OH Sampling Po	oint: R-1
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8	
		lope (%): 2
		um: NAD 83
Soil Map Unit Name: Udothorents, loamy	NWI classification: none	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly dist	urbed? Are "Normal Circumstances" present? Yes _	No O
Are Vegetation, Soil, or Hydrology naturally problem	matic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing sa	mpling point locations, transects, important	features, etc.
Hydrophytic Vegetation Present? Yes No No		
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No Is the Sampled Area		
Wetland Hydrology Present? Yes No No	within a Wetland? Yes No No	_
Remarks:		
Wetland R is located in a constructed basin or bo	rrow pit along a reclaimed railroad spur.	See
Figure 4C; Attachment 3, Photo 63.	1 3	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum	of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	
Surface Water (A1) True Aquatic Plants		e Surface (B8)
High Water Table (A2) Seturation (A2) Hydrogen Sulfide C	=	
Saturation (A3) Oxidized Rhizospho Water Marks (B1) Presence of Reduc	eres on Living Roots (C3) Moss Trim Lines (B16) ed Iron (C4) Dry-Season Water Table (C2	2)
	ion in Tilled Soils (C6) Crayfish Burrows (C8)	-/
Drift Deposits (B3)		lmagery (C9)
Algal Mat or Crust (B4) Other (Explain in R	emarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)	
✓ Water-Stained Leaves (B9)	Microtopographic Relief (D4))
Aquatic Fauna (B13)	FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes O No Depth (inches): 4		
Water Table Present? Yes No Depth (inches): 1		
Saturation Present? Yes No Depth (inches): 4	Wetland Hydrology Present? Yes X	No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		

VEGETATION (Four Strata)

01 v 451	Absolute			Dominance Test worksheet:
ree Stratum (Plot size: 8' x 15')	<u>% Cover</u> 10	Species?		Number of Dominant Species
Salix nigra			OBL	That Are OBL, FACW, or FAC: 3 (A)
				Total Number of Dominant
				Species Across All Strata: 3 (B)
				Percent of Dominant Species
		+		That Are OBL, FACW, or FAC: 100 (A/B)
		+		Prevalence Index worksheet:
		-#-		Total % Cover of: Multiply by:
				OBL species x 1 = 1
pling/Shrub Stratum (Plot size: 8' x 15')	10	= Total Cov	/er	
Salix nigra	5	. /	OBL	FACW species x 2 = _1 FAC species x 3 = _1
		+	ODL	
				FACU species x 4 =
			_	UPL species x 5 =
				Column Totals: 0 (A) 5 (B)
		+	_	Prevalence Index = B/A =
			-	Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
		+	_	2 - Dominance Test is >50%
			_	3 - Prevalence Index is ≤3.0 ¹
			-	4 - Morphological Adaptations ¹ (Provide supporting
01 v 451	5	= Total Cov	/er	data in Remarks or on a separate sheet)
erb Stratum (Plot size: 8' x 15')	00		ODI	Problematic Hydrophytic Vegetation ¹ (Explain)
Typha angustifolia	80		OBL	
Lemna minor	5	+	OBL	¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
		\bot		- W
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
		\perp		height.
				Continue/Charle Wasdernlands available views lass
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
•				
•				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
				of size, and woody plants less than 5.20 it tall.
		= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in
oody Vine Stratum (Plot size:)				height.
none				
				1
				Hydrophytic Vegetation
		1 1		Present? Yes No
	•	= Total Cov	/or	

SOIL Sampling Point: R-1

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Hydric Soil Indicators: Histosol (A1) Histose pipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (S9) (MLRA 147, 148) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N) MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Type: Dark Surface (S7) Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 136) MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type:	Hydrogen Sulfide present =Pore Lining, M=Matrix. tors for Problematic Hydric Soils³: cm Muck (A10) (MLRA 147) cast Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12)
rpe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. rpe: C=Concentration, D=Depletion, PL=Pere Lining, M=Matrix. rpe: C=Concentration, D=Depletion, PL=Pere Lining, M=Matrix. rple: C=Concentration, D=Depletion, PL=Pere Lining, M=Matrix. rple: C=Concentration PL=Pere Lining, M=Matrix. rple: C=Concentration PL=Pere Lining, M=Matrix. rpe: C=Concentration PL=Pere Lining, M=Matrix. rpe: C=Concentration PL=Pere Lining, M=Matrix. rpe: C=Concentration PL=Pere Lining, M=Matrix. rple: C=Concentration PL=P	=Pore Lining, M=Matrix. tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Selow Surface (A14, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F12) (LRR N, MLRA 136, 147) MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the present of the pressure of the press	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Selow Surface (A10) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the p	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histoic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (soil Present? Yes On Muck (A10) (Present? Yes No Muck (A10) (Present? Yes No	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histoic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (soil Present? Yes On Muck (A10) (Present? Yes No Muck (A10) (Present? Yes No	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the pr	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the pr	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Selow Surface (A10) Dark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Depleted	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Selow Surface (A14, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F12) (LRR N, MLRA 136, 147) MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the present of the pressure of the press	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the pr	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the pressure of the pr	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
dric Soil Indicators: Histosol (A1) Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 136, 147) Red Darant Material (TF2) Very Shallow Dark Surface (TF1) Other (Explain in Remarks) Dark Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be presonant strictive Layer (if observed): Type: Depth (inches): Dark Surface (S7) Dark Surface (S9) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Dark Surface (S9) (MLRA 136, 147, 148) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Dark Surface (F7) Redox Dark Surface (F1) Redox Dark Surface (F12) Very Shallow Dark Surface (TF1) Wethan 147, 148) Depleted Dark Surface (F19) Wethan 147, 148) Depleted Dark Surface (F19) Wethan 147, 148 Depleted Dark Surface (F19) Wethan 147, 148 Depleted Dark Surface (F19) Wethan 147, 148 Depleted Dark Surface (F19) Under Cark Surface (F19) Depleted Dark Surface (F19) Wethan 147, 148 Depleted Dark Surface (F19) Under Cark Surface (F19) Depleted Dark Surface (F19) Wethan 147, 148 Depleted Dark Surface (F19) Under Cark Surface (F19) Depleted Dar	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Bandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Striticive Layer (if observed): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Dark Surface (F7) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Dark Su	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Derk Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Selow Surface (A10) Dark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) (LRR N, MLRA 136) Depleted Matrix (S6) Depleted Dark Surface (F13) (MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 148) Dep	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histosol (A2) Black Histosol (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Dark Surface (S7) Dark Surface (S8) (MLRA 147, 148) Dark Surface (S9) (MLRA 147, 148) Depleted Selow Surface (A10) Dark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Depleted	tors for Problematic Hydric Soils ³ : cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depth (inches): Depth (inches): Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Doark Surface (S9) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Depleted Surface (S9) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 148) Which Dark Surface (F13) (MLRA 148) Sandy Redox (S5) Stripped Matrix (S6) Depleted Dark Surface (F13) (MLRA 148) Hydric Soil Present? Yes One No	cm Muck (A10) (MLRA 147) past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): Deployvalue Below Surface (S8) (MLRA 147, 148) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Dark Surface (F7) Piedmont Floodplain Soils (F19) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be presunce stirctive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	past Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6) Depleted Surface (F13) (MLRA 136, 122) Stripped Matrix (S6) Stripped Matrix (S6) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Dark Surface (F6) Redox Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 136, 122) Sandy Mucky Mineral (S1) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 136, 122) Sitripped Matrix (S4) Surface (F13) (MLRA 136, 122) Depleted Dark Surface (F13) (MLRA 136, 122) Sitripped Matrix (S6) Stripped Matrix (S6) Bright Matrix (S6) Hydric Soil Present? Yes No	(MLRA 147, 148) edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 136, 147) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): Loamy Gleyed Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F7) North Company Surface (F12) North Company Surface (F13) North Company Surface (F19) North Company Sur	edmont Floodplain Soils (F19) (MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 136, 147) MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Depleted Matrix (S4) MERA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Strictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	(MLRA 136, 147) ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): Redox Dark Surface (F6) Depleted Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) North Carlo Depleted Dark Surface (F7) Need Parent Material (TF2) Very Shallow Dark Surface (TF1 Other (Explain in Remarks) North Carlo Depleted Dark Surface (F12) (LRR N, MLRA 136) Under (Explain in Remarks) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Iron-Manganese Masses (F12) (MLRA 136, 122) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 148) Wetland hydrology must be present unless disturbed or problematic. Hydric Soil Present? Yes North North Carlo Depth (inches):	ed Parent Material (TF2) ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the problematic. Hydric Soil Present? Yes No.	ery Shallow Dark Surface (TF12) her (Explain in Remarks)
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be pressured in the problematic. Hydric Soil Present? Yes No.	her (Explain in Remarks)
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Jene Manganese Masses (F12) (MLRA 136, 122) Jene Manganese Masses (F12) (LRR N, MLRA 136, 122) Jene Manganese Masses (F12) (MLRA 136, 122) Jene Manganese Masses (F12) (MLRA 136, 122) Jene Manganese Masses (F12) (MLRA 148) Jene	
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches): MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present unless disturbed or problematic. Hydric Soil Present? Yes No.	ators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches):	ators of hydrophytic vegetation and
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be pressured in the pressure of the problematic strictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	sators or rivaropriytic vegetation and
Stripped Matrix (S6) unless disturbed or problematic. strictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes O No	tland hydrology must be present
Depth (inches): Hydric Soil Present? Yes One of the section	
Type:	1633 distarbed of problematic.
Depth (inches): Hydric Soil Present? Yes O No	
	Present? Yes O No
marks:	resent? Yes O No O
ard layer below surface, potentially due to material used to create and support rail spur.	эррогстан эриг.

Project/Site: Former Satralloy Site City/C	County: Mingo Junction/Jefferson	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson State: OH	Sampling Point: R-2
Investigator(s): JMM, BJJ Section	on, Township, Range: T6N, R2W, S8	_ ,
	ief (concave, convex, none): none	Slope (%): 1
	Long: -80.6672	Datum: NAD 83
Soil Map Unit Name: Udothorents, loamy	NWI classifica	
Are climatic / hydrologic conditions on the site typical for this time of year? Y		
Are Vegetation, Soil, or Hydrology significantly distur		
Are Vegetation , Soil , or Hydrology naturally problems		
SUMMARY OF FINDINGS – Attach site map showing san		,
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No No No	Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes No No O	within a Wetland? Yes	No <u>•</u>
Remarks:		
Upland data point adjacent to Wetland R. See Figu	ure 4C.	
HYDROLOGY		
Wetland Hydrology Indicators:		ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil 0	
Surface Water (A1) True Aquatic Plants (etated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Od Cathering (A2)		
Saturation (A3) Oxidized Rhizospher Water Marks (B1) Presence of Reduced	res on Living Roots (C3) Moss Trim Lir	Nater Table (C2)
Sediment Deposits (B2) Recent Iron Reduction	- · · ·	
Drift Deposits (B3) Thin Muck Surface (C	·	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Rer		ressed Plants (D1)
Iron Deposits (B5)	Geomorphic F	` '
Inundation Visible on Aerial Imagery (B7)	Shallow Aquit	ard (D3)
Water-Stained Leaves (B9)	Microtopogra	ohic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches):		
Water Table Present? Yes O No O Depth (inches):		X
Saturation Present? Yes O No Depth (inches): One of the control of	Wetland Hydrology Present	? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:	
Remarks:		
Remarks.		

VE

Status FACW FACW Total Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 6 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = 1 FACW species x 2 = 1 FACU FAC species x 3 = 1 FACU UPL species x 5 = 1 Column Totals: 0 (A) 5 (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) FACU FAC
Total Number of Dominant Species Across All Strata: 6 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = 1 FACW species x 2 = 1 FAC species x 3 = 1 FAC UPL species x 4 = 1 Column Totals: 0 (A) 5 (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation V 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) FACU FACU FACU FACU FACU FACU Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breas
Percent of Dominant Species That Are OBL, FACW, or FAC: Total % Cover of: Multiply by:
That Are OBL, FACW, or FAC: 67 (A/B Prevalence Index worksheet: Total % Cover of: Multiply by:
Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = 1 FACW species x 2 = 1 FAC species x 4 = 1 UPL species x 5 = 1 Column Totals: 0 (A) 5 (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation V 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) FACU FACU FACU FACU FACU FACU Tree – Woody plants, excluding vines, 3 in. (7.6 cm) on more in diameter at breast height (DBH), regardless of
Total % Cover of: OBL species FACU FACU FACU FACU FACU FACU FACU FAC
OBL species
OBL species
FACU FACU FACU FACU FACU FACU FACU FACU
FACU FACU FACU FACU FACU FACU FACU FACU
FACU species
TACU UPL species
Column Totals: 0 (A) 5 (B) Prevalence Index = B/A =
Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) FACU FACU FACU FACU Teacure 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of
Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) on more in diameter at breast height (DBH), regardless of
1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) FACU FACU FACU Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) on more in diameter at breast height (DBH), regardless of
2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) 1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
FAC FACU FACU FACU FACU FACU FACU FACU F
FAC FACU FACU FACU FACU FACU FACU FACU F
FAC FACU FACU FACU FACU FACU The problematic Hydrophytic Vegetation (Explain) 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
FACU FACU FACU Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
FACU Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
more in diameter at breast height (DBH), regardless of
more in diameter at breast height (DBH), regardless of
height.
Sapling/Shrub – Woody plants, excluding vines, less
than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regardless
— of size, and woody plants less than 3.28 ft tall.
Cover Woody vine – All woody vines greater than 3.28 ft in height.
FAC
_ ·
Hydrophytic
- Vegetation
Present? Yes No No
Cover

SOIL Sampling Point: R-2

Profile Desc	cription: (Describe	to the dept				or confirn	n the absence	of indicators	S.)	
Depth (inches)	Matrix Color (moist)	%		x Features		Loc ²	Toyturo		Remarks	
(inches) 0-16	7.5 YR 3/1	98	Color (moist) 10YR 5/4	2	Type ¹	M	Texture MS	Sandy Loa		.
0-10	7.5 110 5/1		10110 3/4		C	IVI	IVIO	Garidy Loa	1111	
	_									
				- ——						
	_			<u> </u>				-		
1		- Intime DM	De dece di Matrice M	2 Maraland	1010-		21	Daniel Linda	NA NA - Asis	
Hydric Soil	oncentration, D=Dep	oletion, RM=	Reduced Matrix, M	S=Masked	Sand Gr	ains.		L=Pore Lining, ators for Prol		Iric Soile ³ :
			Dork Surface	(07)				cm Muck (A1	-	
Histosol	pipedon (A2)		Dark Surface Polyvalue Be		ce (S8) (I	/II RΔ 147		Coast Prairie R	, ,	1)
	istic (A3)		Thin Dark Su				140)	(MLRA 147,		
	en Sulfide (A4)		Loamy Gleye	٠,	•	,,		Piedmont Floor		- 19)
	d Layers (A5)		Depleted Ma		,		<u> </u>	(MLRA 136,		,
	uck (A10) (LRR N)		Redox Dark					Red Parent Ma		
	d Below Dark Surfac	ce (A11)	Depleted Da					ery Shallow D		(TF12)
l	ark Surface (A12)		Redox Depre					Other (Explain	in Remarks)	
_	Mucky Mineral (S1) (LRR N,	Iron-Mangan		es (F12) (LRR N,				
	A 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa	•	MI DA 11	26 122\	3Inc	licators of hyd	rophytic yogo	station and
	Redox (S5)		Piedmont Flo					vetland hydrol		
	Matrix (S6)		r rounterier re	очрічії і	0.10 (1 10)	(ınless disturbe		
	Layer (if observed)	:							<u>'</u>	
Type: no	ne									
Depth (in	ches):						Hydric Soil	Present?	Yes O	No O
Remarks:	-									

Project/Site: Former Satralloy Site City/County: Mingo Junction/Jefferson Sampling Date: 5/7/2018
Project/Site: Former Satralloy Site City/County: Mingo Junction/Jefferson Applicant/Owner: Cyprus Amax Minerals Company State: OH Sampling Date: 5/7/2018 Sampling Point: S-1
Investigator(s): JMM, BJJ Section, Township, Range: Section 8, Township 6N, Range 2W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): CONCAVE Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 40.3145 Long: -80.6690 Datum: NAD83
Soil Map Unit Name: Westmoreland-lowell complex 40-70% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No
Wetlands S1-S4 are a complex of wetlands located on steep slope upstream from Wetland P, west of Wetland T. Crosses old road related to smelting and slag disposal operations. See Figure 4C; Attachment 3, Photos 65-67.
HYDROLOGY
Wetland Hydrology Indicators: Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)
✓ Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2) Sediment Present Iron Poduction in Tilled Soils (C6) Crowfish Purrous (C9)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)
✓ Water-Stained Leaves (B9) ✓ Microtopographic Relief (D4)
Aquatic Fauna (B13) FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes O Depth (inches): 2
Water Table Present? Yes No Depth (inches): 4
Saturation Present? Yes No Depth (inches): 4 Wetland Hydrology Present? Yes X No
(includes capillary fringe)
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:

VEGETATION (Four Strata) - Use scientific names of plants.

___)

Tree Stratum (Plot size: 20' Radius

Sapling/Shrub Stratum (Plot size: 15' radius

Herb Stratum (Plot size: 5' radius)

2. Asclepias incarnata

12. _____

Woody Vine Stratum (Plot size: _____)

Remarks: (Include photo numbers here or on a separate sheet.)

2

1. Fraxinus pennsylvanica

1. none

2. Rubus sp.

1. Typha latifolia

3 Rumex crispus

4. Juncus effusus

Sampling Point: S-1 Absolute Dominant Indicator **Dominance Test worksheet:** % Cover Species? Status **Number of Dominant Species** 2 (A) That Are OBL, FACW, or FAC: **Total Number of Dominant** 2 (B) Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = 1 0 = Total Cover FACW species _____ x 2 = _1____ **FACW** FAC species _____ x 3 = 1 FACU species _____ x 4 = ____ UPL species _____ x 5 = 1 Column Totals: <u>0</u> (A) <u>5</u> (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 10 = Total Cover data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) **OBL** OBL ¹Indicators of hydric soil and wetland hydrology must FAC be present, unless disturbed or problematic. **FACW Definitions of Four Vegetation Strata:** Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in 42 = Total Cover Hydrophytic Vegetation Yes No Present? = Total Cover

Sampling Point: S-1

Profile Desc	cription: (Describe t	o the depth	needed to docui	ment the ir	ndicator	or confirm	the absence	of indicato	ors.)	
Depth	Matrix			x Features		1.5.2	Tandona		Damanka	
(inches) 0-4	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture	Llvalna na	Remarks	
0-4								Hydrogei	n sulfide pres	sent
·										
								-		
	oncentration, D=Depl	etion, RM=R	educed Matrix, M	S=Masked	Sand Gra	ains.	² Location: Pl			
Hydric Soil	Indicators:		_				Indic	ators for Pr	oblematic Hyd	dric Soils³:
Histosol			Dark Surface						14 (MLRA 14	17)
	oipedon (A2)		Polyvalue Be				148) <u> </u>		Redox (A16)	
	istic (A3)		Thin Dark Su	, ,	•	47, 148)	\Box	(MLRA 14		E40)
	en Sulfide (A4)		Loamy Gleye		-2)		P		odplain Soils (F19)
	d Layers (A5) uck (A10) (LRR N)		Depleted Ma Redox Dark	. ,	3)		П	(MLRA 13	Material (TF2)	
	d Below Dark Surface	(A11)	Depleted Da						Dark Surface	(TF12)
	ark Surface (A12)	(/ () /)	Redox Depre					•	n in Remarks)	(2)
l <u>—</u>	/ //ucky Mineral (S1) (L	RR N,	Iron-Mangan			LRR N,		` '	,	
	A 147, 148)		MLRA 13							
Sandy C	Bleyed Matrix (S4)		Umbric Surfa	ace (F13) (I	MLRA 13	6, 122)	³ Ind	icators of hy	drophytic vege	etation and
	Redox (S5)		Piedmont Flo	oodplain Sc	oils (F19)	(MLRA 14			ology must be	
	l Matrix (S6)						u	nless disturl	bed or problem	atic.
	Layer (if observed):									
Type: No			_							
Depth (in	ches):		_				Hydric Soil	Present?	Yes O	No <u>U</u>
Remarks:										

Project/Site: Formern Satralloy Site City/Cour	nty: Mingo Junction/Jefferson Sampling Date: 5/7/2018
Applicant/Owner: Cyprus Amax Minerals Company	nty: Mingo Junction/Jefferson Sampling Date: 5/7/2018 State: OH Sampling Point: S-2
Investigator(s): JMM, BJJ Section,	Township, Range: Section 8, Township 6N, Range 2W
Landform (hillslope, terrace, etc.): hillslope Local relief ((concave, convex, none): CONCAVE Slope (%): 4
	Long: -80.6689 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex 40-70% slopes	NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	No O (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed	4? Are "Normal Circumstances" present? Yes O No
Are Vegetation, Soil, or Hydrology naturally problematic?	
SUMMARY OF FINDINGS – Attach site map showing sampli	
	, , , , , , , , , , , , , , , , , , , ,
Hydrophytic Vegetation Present? Hydric Soil Present? Yes O No O Is wi	the Sampled Area
Hydric Soil Present? Wetland Hydrology Present? Yes No wi	ithin a Wetland? Yes No No
Remarks:	
Upland data point adjacent to the complex of Wetland	ds labeled S1-S4. See Figure 4C.
	ao 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 1410 - 14
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	
High Water Table (A2) Hydrogen Sulfide Odor (Carter of the Carter of th	
Saturation (A3) Oxidized Rhizospheres of Podused Inc.	
✓ Water Marks (B1) ✓ Presence of Reduced Iro ✓ Sediment Deposits (B2) ✓ Recent Iron Reduction in	
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remark	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No O Depth (inches):	
Water Table Present? Yes O No O Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous	us inspections), if available:
Remarks:	
Remarks.	

VEGETATION (Four Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 30' radius

2. Fraxinus pennsylvanica

Sapling/Shrub Stratum (Plot size: 15' radius

Herb Stratum (Plot size: 5' radius)

Woody Vine Stratum (Plot size: 15' radius

1. Toxicodendron radicans

2. Parthenocissus quinquefolia

1. Gaylussacia baccata

2. Viola pubescens

1. Gaylussacia baccata

2. Rosa multiflora

1. Quercus bicolor

solute	plants. Dominant	Indicator	Sampling Point: S-2 Dominance Test worksheet:
<u>Cover</u>	Species?		Number of Dominant Species
)	✓	FACW	That Are OBL, FACW, or FAC: 3 (A
	√	FACW	Total Number of Dominant Species Across All Strata: 8 (B.
			Percent of Dominant Species That Are OBL, FACW, or FAC: 38 (A
	+		Prevalence Index worksheet:
	-		Total % Cover of: Multiply by:
 5	= Total Cov	er	OBL species x 1 =
·	- Total Cov	CI	FACW species 15 x 2 = 30
5	\checkmark	FACU	FAC species <u>5</u> x 3 = <u>15</u>
5	√	FACU	FACU species 105 x 4 = 420
-			UPL species x 5 =
			Column Totals: 125 (A) 465 (I
	\dashv	-	Prevalence Index = B/A = 4
	+	_	Hydrophytic Vegetation Indicators:
	-	_	1 - Rapid Test for Hydrophytic Vegetation
	+	_	2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 ¹
		_	4 - Morphological Adaptations ¹ (Provide support
0 :	= Total Cov	er	data in Remarks or on a separate sheet)
0	1	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
	-	FACU	
0		1 ACO	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	+		Definitions of Four Vegetation Strata:
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) more in diameter at breast height (DBH), regardless height.
			Sapling/Shrub – Woody plants, excluding vines, lest than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb – All herbaceous (non-woody) plants, regardler of size, and woody plants less than 3.28 ft tall.
0 :	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
	\checkmark	FAC	
	<u></u> ✓	FACU	
			Hydrophytic Vegetation Present? Yes No
0	= Total Cov	er	

Remarks:	(Include photo	numbers	here o	r on a	separate	sheet

Sampling Point: S-2

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the i	ndicator	or confirm	n the absence	of indicator	rs.)	
Depth	Matrix			x Features						
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-3.5	10 YR 4/3	100						Sandy Cla	ay Loam	
3.5-8	10YR 4/2	98	10 YR 5/4	2	MS	M		Sandy Cla	ay Loam	
8-15	2.5 Y 5/3	60	2.5 Y 5/6	20	C	M		Clay Loar	n	
8-15			2.5 Y 5/1	5	С	M		Clay Loar	m, soft mass	es present
8-15	2.5 Y 2.5/5	15								_
			-							
		etion, RM	=Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: Pl	L=Pore Lining	g, M=Matrix.	_
Hydric Soil	Indicators:								blematic Hyd	
Histosol	• ,		Dark Surface	. ,					10) (MLRA 14	7)
	oipedon (A2)		Polyvalue Be				148) [(Coast Prairie	, ,	
Black Hi	en Sulfide (A4)		Thin Dark Su Loamy Gleye			47, 148)	П	(MLRA 147	r , 148) odplain Soils (F	10)
	d Layers (A5)		Depleted Mat		/			(MLRA 136		10)
	ick (A10) (LRR N)		Redox Dark	. ,	6)		☐ F	Red Parent M		
	d Below Dark Surface	e (A11)	Depleted Dar					-	Dark Surface (TF12)
	ark Surface (A12)		Redox Depre					Other (Explain	n in Remarks)	
	lucky Mineral (S1) (L \ 147, 148)	.KK N,	Iron-Mangan		es (F12) (LRK N,				
	Gleyed Matrix (S4)		Umbric Surfa		MLRA 13	6. 122)	³ Inc	licators of hyd	drophytic vege	tation and
	ledox (S5)		Piedmont Flo					-	logy must be p	
	Matrix (S6)		_	·	, ,			-	ed or problema	
	_ayer (if observed):									
Type: noi										
Depth (inc	ches):						Hydric Soil	Present?	Yes O	No <u>U</u>
Remarks:										
Adjacent	to relic coal d	ump.								
•		•								

Project/Site: Former Satralloy Site City	//County: Mingo Junction/Jefferson	Sampling Date: 5/7/2018
Applicant/Owner: Cyprus Amax Minerals Company	//County: Mingo Junction/Jefferson State: OH	Sampling Point: T-1
	ction, Township, Range: T6N, R2W, S8	
and the second s	relief (concave, convex, none): CONCAVE	Slope (%): <u>5</u>
Subregion (LRR or MLRA): LRR N Lat: 40.3142	Long: -80.6678	Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 percentage	ent slopes NWI classific	cation: none
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No O (If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrology significantly dist	urbed? Are "Normal Circumstances" p	present? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally proble	matic? (If needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	impling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes) No
Remarks:	W-41 D 1 W-41-	- d C D
Wetland T is located on a steep slope upstream tend merges with Wetland P across a wide satural waste disposal from coal mining operations. See	ted area. Upper end appears	to be impacted by
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1) True Aquatic Plant		getated Concave Surface (B8)
High Water Table (A2) Seturation (A3) Hydrogen Sulfide (Capital Philosoph		
Saturation (A3) Oxidized Rhizosph Water Marks (B1) Presence of Reduc	eres on Living Roots (C3) Moss Trim L	Water Table (C2)
	tion in Tilled Soils (C6)	
Drift Deposits (B3) Thin Muck Surface	_	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in R		tressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	itard (D3)
✓ Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches): 0	.5	
Surface Water Present? Yes No Depth (inches): U		
Saturation Present? Yes No Depth (inches): 4		nt? Yes ^X No
(includes capillary fringe)	Wetland Hydrology Preser	it? res No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		

VEG

To Charles (District 15' radius	Absolute			Indicator	Dominance Test worksheet:
<u>ree Stratum</u> (Plot size: 15' radius) Acer rubrum	<u>% Cover</u> 30	<u>Sp</u>	ecies'	FAC	Number of Dominant Species
Fraxinus pennsylvanica	15	+	<u>v</u>	FACW	That Are OBL, FACW, or FAC: $\frac{4}{}$ (A)
Ulmus americana	5	+	* 	FACW	Total Number of Dominant
Quercus bicolor		+	_		Species Across All Strata: 5 (B)
Quercus bicoloi	5	+	+	FACW	Percent of Dominant Species That Are OBL_FACW_or_FAC: 80 (A/B
				•	That Are OBL, FACW, or FAC: 80 (A/B
					Prevalence Index worksheet:
		Ī			Total % Cover of: Multiply by:
		= To	tal Co	ver	OBL species x 1 =
apling/Shrub Stratum (Plot size: 10' radius)			_		FACW species x 2 = _1
Acer rubrum	15	\perp	✓	FAC	FAC species x 3 =
Fraxinus pennsylvanica	2			FACW	FACU species x 4 =1
Quercus bicolor	2			FACW	UPL species x 5 =
		_			Column Totals: 0 (A) 5 (B)
-		_	_		Prevalence Index = B/A =
-		\dashv	\vdash		Hydrophytic Vegetation Indicators:
		_	_	-	1 - Rapid Test for Hydrophytic Vegetation
-		4	_		2 - Dominance Test is >50%
		ļ	_		3 - Prevalence Index is ≤3.0 ¹
0					4 - Morphological Adaptations ¹ (Provide supportin
lerb Stratum (Plot size: 5' radius)	19	= To	tal Co	ver	data in Remarks or on a separate sheet)
Acer rubrum	5	Г	<u>/</u>	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
		+	./	FACU	
			* 	17100	¹ Indicators of hydric soil and wetland hydrology must
			+		be present, unless disturbed or problematic.
•			┪		Definitions of Four Vegetation Strata:
			_		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
-			_		more in diameter at breast height (DBH), regardless of
·			_		height.
		+	\dashv		Sapling/Shrub – Woody plants, excluding vines, less
0	<u> </u>	7			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
1		T	_		Herb – All herbaceous (non-woody) plants, regardless
2.		\neg			of size, and woody plants less than 3.28 ft tall.
<u> </u>		= To	tal Co	ver	Woody vine - All woody vines greater than 3.28 ft in
Voody Vine Stratum (Plot size:)				VOI	height.
none					
-		\bot			
		\perp			
		_		_	Huduanhudia
				_	Hydrophytic Vegetation
		\perp			Present? Yes No No
	_	= To	tal Co	ver	
Remarks: (Include photo numbers here or on a separat	e sheet.)				I

Sampling Point: T-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth Matrix		Redox Features			3			
(inches) 0-5	Color (moist) 7.5 YR 3/2	100	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
								Sandy Clay Loam
5-7	7.5 YR 4/2	98	10 YR 6/6	2	MS	M		Sandy Clay Loam
7-9	10 YR 4/1	95	10 YR 6/6	5	С	M		Clay Loam
9-10	10 YR 4/2	80	7.5 YR 5/6	20	C	M	PL	Clay Loam
10-15	10 YR 5/8	80	10 YR 5/2	20	С	M		Loamy Sand - soft masses
		· ——						
	-	· ———	-	·				-
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Pl=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :								
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Delevelue Below Surface (S9) (MLRA 147, 148) Coast Proirie Bodov (A16)								
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148)								
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19)								
Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147)								
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6)								
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Depleted Dark Surface (F7)								
Thick Dark Surface (A12)								
MLRA 147, 148) MLRA 136)								
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Jundant 100, 100, 100, 100, 100, 100, 100, 100								
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present,								
Stripped Matrix (S6) unless disturbed or problematic.								
Restrictive Layer (if observed):								
Type: none						Hudria Cail	Present? Yes O No O	
Depth (inches):						nyuric Soil	resent: res No	
Depleted matrix in 9-10 inch deep and 10-15 inch deep soil layers.								
The soil profile met the following requirements for a depleted matrix:								
> 6in starting within the upper 10 in.								
> Value greater than or equal to 4 with chroma less than or equal to 2 in the 9-10 inch layer								
> 10-15 inch layer value greater than or equal to 4 with chroma less than or equal to 2								
> 10-15 inch layer contains 20% soft masses.								

Project/Site: Former Satralloy Site City/	/County: Mingo Junction/Jefferson Sampling Date: 5/7/2018 State: OH Sampling Point: T-2
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: T-2
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8
	elief (concave, convex, none): CONCAVE Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 40.3143	Long: -80.6677 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex 40 to 70 percent	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes O No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distu	urbed? Are "Normal Circumstances" present? Yes O
Are Vegetation, Soil, or Hydrology naturally problem	natic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	mpling point locations, transects, important features, etc.
Library Court Cour	
Hydrophytic Vegetation Present? Yes No No No No No No No No No N	Is the Sampled Area
Wetland Hydrology Present? Yes O No O	within a Wetland? Yes No No
Remarks:	
Upland data point adjacent to Wetland T. See Fig	ure 4C.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	
High Water Table (A2) Seturation (A2) Hydrogen Sulfide O	
Saturation (A3) Oxidized Rhizosphe Water Marks (B1) Presence of Reduce	eres on Living Roots (C3) Moss Trim Lines (B16) ed Iron (C4) Dry-Season Water Table (C2)
	ion in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface	
Algal Mat or Crust (B4) Other (Explain in Re	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No O Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	revious inspections), if available:
Damarka	
Remarks:	

Sampling Point: T-2

Tree Stratum (Plot size: 30' radius)		Dominant		Dominance Test worksheet:	
1 Fraxinus pennsylvanica	% Cover	Species?	FACW	Number of Dominant Species	`
"			IACVV	That Are OBL, FACW, or FAC: 1 (A))
2				Total Number of Dominant	
3				Species Across All Strata: 5 (B))
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC: 20 (A/	/B)
6		-		Prevalence Index worksheet:	
7				Total % Cover of: Multiply by:	
8					
15' radius	10	= Total Co	ver	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Lonicera tatarica	10		EACH	FACW species 10 x 2 = 20	
		V /	FACU	FAC species $\frac{5}{200}$ $\times 3 = \frac{15}{200}$	
2. Rosa multiflora	5	✓	FACU	FACU species 90 x 4 = 360	
3. Rubus spp.	2	-	NI	UPL species x 5 =	
4			_	Column Totals: <u>105</u> (A) <u>395</u> (E	3)
5		\perp	_	Prevalence Index = B/A = 4	
6		\rightarrow	_	Hydrophytic Vegetation Indicators:	
7					
8				1 - Rapid Test for Hydrophytic Vegetation	
9				2 - Dominance Test is >50%	
10				3 - Prevalence Index is ≤3.0 ¹	
	17	= Total Co	ver	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	ing
Herb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation (Explain)	
1. Rosa multiflora	20	✓	FACU	Troblematic Trydrophytic Vegetation (Explain)	
2. Acer rubrum	5		FAC	11111	
3. Galium aparine	5		FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	i
4				Definitions of Four Vegetation Strata:	
5				Definitions of Four Vegetation Strata.	
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm)	
7.				more in diameter at breast height (DBH), regardless height.	ΟĬ
8.					
9.				Sapling/Shrub – Woody plants, excluding vines, lesthan 3 in. DBH and greater than 3.28 ft (1 m) tall.	S
10				than 3 in. Don and greater than 3.20 it (1 iii) tail.	
		\vdash		Herb – All herbaceous (non-woody) plants, regardles	SS
11 12		+		of size, and woody plants less than 3.28 ft tall.	
12.	20	= Total Co		Woody vine - All woody vines greater than 3.28 ft in	1
Woody Vine Stratum (Plot size: 15' radius)	30	- 10tal C0	VEI	height.	
1. Parthenocissus quinquefolia	50	\checkmark	FACU		
2.					
3.			-		
4.		\Box	•		
			-	Hydrophytic	
5		H	-	Vegetation Present? Yes No	
6.	50	= Total Co		Tresent: Tes No	
Develop (la de		- Total Co	ver		
Remarks: (Include photo numbers here or on a separate s	sheet.)				

Sampling Point: T-2

Profile Desc	cription: (Describe	to the de	pth needed to docur	nent the	indicator	or confirm	the absence	of indicato	ors.)	
Depth	Matrix	0/		x Feature		. 2				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-7	2.5 Y 3/2	97	7.5 YR 5/6	3	С	PL		Loam		
7-12	10 YR 4/3	97	7.5 YR 5/6	3	C	PL		Sandy Lo	oam	
			-					-		
		-			-					
		_	·		_			-		
					-					
			· -	<u> </u>						
					-					
[vpo: C=C	oncontration D=Dor	olotion PA	/I=Reduced Matrix, M	S=Masko	d Sand Gr	aine	² Location: Pl	-Doro Linin	a M-Matrix	
	Indicators:	Dietion, Kiv	i-Reduced Matrix, Mis	5-IVIASKE	u Sanu Gi	allis.			oblematic Hyd	dric Soils ³ :
Histosol			Dark Surface	(S7)					A10) (MLRA 14	
_	pipedon (A2)		Polyvalue Be	. ,	ace (S8) (N	/ILRA 147,			Redox (A16)	,
_	istic (A3)		Thin Dark Su					(MLRA 14	7, 148)	
	en Sulfide (A4)		Loamy Gleye		(F2)		F		oodplain Soils (l	F19)
_	d Layers (A5)		Depleted Ma					(MLRA 13		
	uck (A10) (LRR N) d Below Dark Surfac	o (A11)	Redox Dark S	,	,				Material (TF2) Dark Surface	(TE40)
= '	u веюw Dark Surfac ark Surface (А12)	e (ATT)	Redox Depre						in in Remarks)	(1712)
− i	/lucky Mineral (S1) (LRR N,	Iron-Mangan			LRR N.	υ,	outer (Explai	iii iii rtemantoj	
_	A 147, 148)	,	MLRA 13		` / `					
	Gleyed Matrix (S4)		Umbric Surfa						ydrophytic vege	
_	Redox (S5)		Piedmont Flo	odplain S	Soils (F19)	(MLRA 14		-	ology must be p	
	Matrix (S6)						u	ınless disturl	bed or problem	atic.
Type: no	Layer (if observed) ne	:								
Depth (in							Hudria Cail	Drocont?	Yes O	No ①
emarks:	cries).						nyunc son	rieseiit?	res	NO <u> </u>
Billaiks.										

Project/Site: Former Satralloy Site	city/County: Mingo Junction/Jefferson	Sampling Date: 5/19/2018
Applicant/Owner: Cyprus Amax Minerals Company	hity/County: Mingo Junction/Jefferson State: OH	Sampling Point: U-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	<u> </u>
	al relief (concave, convex, none): none	Slope (%): 2
	Long: -80.6751	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy		cation: none
Are climatic / hydrologic conditions on the site typical for this time of year	r? Yes O No O (If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology significantly d		present? Yes O No
Are Vegetation, Soil, or Hydrology naturally prob		
SUMMARY OF FINDINGS – Attach site map showing		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O Yes No O No O No O	Is the Sampled Area within a Wetland? Yes) No <u>•</u>
Remarks:		
Isolated seepage area, underlain by slag mater in the recent past. See Figure 4F.	ial. The area appears to be rece	eiving less water than
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide		
Saturation (A3) Oxidized Rhizos Water Marks (B1) Presence of Red	pheres on Living Roots (C3) Moss Trim L	
	uction in Tilled Soils (C6)	Water Table (C2)
Drift Deposits (B3) Thin Muck Surfa	_	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in	· · · —	Stressed Plants (D1)
Iron Deposits (B5)	_	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	iitard (D3)
Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	I Test (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches):		
		nt? Yes No X
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Preser	nt? Yes No ^
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), if available:	
Remarks:		

VEG

To Otraction (Dietain 15' radius	Absolute	Dominant		Dominance Test worksheet:
<u>ree Stratum</u> (Plot size: <u>15' radius</u>) Platanus occidentalis	<u>% Cover</u> 15	Species?	FACW	Number of Dominant Species
Acer negundo	10	V	FAC	That Are OBL, FACW, or FAC: (A)
		_	IAC	Total Number of Dominant
				Species Across All Strata: (B)
				Percent of Dominant Species
-				That Are OBL, FACW, or FAC: (A/E
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
-	~ -	= Total Cov	/or	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' radius)		- 10tal C0v	CI	FACW species x 2 = _1
Elaeagnus angustifolia	5	✓	FACU	FAC species x 3 =
Lonicera canadensis	5	✓	FACU	FACU species x 4 = _1
-				UPL species x 5 =
				Column Totals: 0 (A) 5 (B)
				Prevalence Index = B/A =
·				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
0				3 - Prevalence Index is ≤3.0¹
- 1	10	= Total Cov	er er	4 - Morphological Adaptations (Provide supportine data in Remarks or on a separate sheet)
lerb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation ¹ (Explain)
Asclepias syriaca		-		
				¹ Indicators of hydric soil and wetland hydrology must
8				be present, unless disturbed or problematic.
k				Definitions of Four Vegetation Strata:
i				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of
i				more in diameter at breast height (DBH), regardless o
				height.
J		-		Sapling/Shrub – Woody plants, excluding vines, less
· <u> </u>		+		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0		+		Herb – All herbaceous (non-woody) plants, regardless
1		+		of size, and woody plants less than 3.28 ft tall.
2				Woody vine – All woody vines greater than 3.28 ft in
Voody Vine Stratum (Plot size:)	0	= Total Cov	er er	height.
·				
				Hydrophytic Vegetation
i.				Present? Yes No No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate				
'	,			

SOIL Sampling Point: U-1

Profile Desc	cription: (Describe	to the dep	oth needed to docu	ment the i	ndicator	or confirm	the absence	of indicato	rs.)		
Depth	Matrix			x Feature	S						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
0-6	7.5 YR 3/2	100						Loamy S	and		
6-13	2.5 Y 5/3	98	2.5 Y 6/6	2	MS	M		Sandy Lo	oam		
13		-						Rock lay	⊃r		
				_				1 took lay	<u> </u>		
				_							
				_							
	•			_							
				_							
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	l Sand Gr	ains.	² Location: Pl	_=Pore Linin	g, M=Matrix.		
Hydric Soil		,	, , , , , , , , , , , , , , , , , , , ,						oblematic H		ls³:
Histosol	(A1)		Dark Surface	e (S7)			\square 2	cm Muck (A	(MLRA	147)	
	oipedon (A2)		Polyvalue Be		ce (S8) (I	/ILRA 147,			Redox (A16		
Black Hi	stic (A3)		Thin Dark S	urface (S9	(MLRA	147, 148)	_	(MLRA 14	7, 148)		
	en Sulfide (A4)		Loamy Gley		F2)		F		odplain Soils	(F19)	
	d Layers (A5)		Depleted Ma					(MLRA 13			
	ick (A10) (LRR N)	(* ()	Redox Dark	,	,				faterial (TF2		
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Da					-	Dark Surfac		
_	ark Surface (A12) /lucky Mineral (S1) (I	DD N	Redox Depre			I DD N	П	λιπει (⊏xpiai	n in Remark	5)	
	147, 148)	LIXIX IV,	MLRA 13		C3 (1 12) (LIXIX IV,					
	Gleyed Matrix (S4)		Umbric Surfa	•	MLRA 1	36. 122)	³ Ind	licators of hy	drophytic ve	getation a	and
								-		-	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present,											
	Matrix (S6)		Fleditiont Fi	oouplali i o	olis (i 10)	(-	ped or proble		,
Stripped		:	Fledition(Fi	oouplain o	0113 (1 10)	(-			,
Stripped	Matrix (S6) Layer (if observed):	:	Fleumont Fi	оочріані о	0113 (1 10)	(2.011		-		matic.	_
Stripped Restrictive I	Matrix (S6) Layer (if observed): ock layer	:		оочріант о		(<u></u>		nless disturb			_
Restrictive I Type: Ro	Matrix (S6) Layer (if observed): ock layer	:		oouplain o	0113 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer	:		оочріант о	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer	:		оочріані О			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer	:		оочріані О	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer	:		оочргант С	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer	:		оочргант о	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о	0113 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант С			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer		Fredmont	оочргані С	013 (1-13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргані С	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант С	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer		Fredmont	оочргант о	013 (1 13)		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer		Fredmont	оочргант С	0.00		u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer		Fredmont	оочргант С			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer		Fredmont	оочргант С			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о			u	nless disturb	ped or proble	matic.	_
Restrictive I Type: Ro Depth (inc	Matrix (S6) Layer (if observed): ock layer			оочргант о			u	nless disturb	ped or proble	matic.	_

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sampling	Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company		ing Point: W-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	ocal relief (concave, convex, none): none	Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3148	Long: <u>-</u> 80.6645	Datum: NAD 83
Soil Map Unit Name: Clarksburg silt loam, 15 to 25 percent slo	ppes NWI classification: no	<u>-</u>
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes O No O (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significant		Yes O No
Are Vegetation, Soil, or Hydrology naturally p	oroblematic? (If needed, explain any answers in Rema	arks.)
SUMMARY OF FINDINGS – Attach site map showing	ng sampling point locations, transects, import	ant features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes No	0_
Remarks:	an ald minima road. Coopers footure M	Llaaka
Wetland W is an isolated seepage area along hydrologic connection to downgradient received Attachment 3, Photo 69.		lacks
/ Mac		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minir	num of two required)
Primary Indicators (minimum of one is required; check all that apply	•	6)
Surface Water (A1)		
	Ifide Odor (C1) Drainage Patterns (B10	·
	zospheres on Living Roots (C3) Moss Trim Lines (B16)	
	Reduced Iron (C4) Dry-Season Water Tab	le (C2)
	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)	orial Imagen (CO)
	urface (C7) Saturation Visible on A n in Remarks) Stunted or Stressed Pla	
Iron Deposits (B5)	Geomorphic Position (I	` '
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)	52)
Water-Stained Leaves (B9)	Microtopographic Relie	of (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)	(D4)
Field Observations:		
Surface Water Present? Yes O No Depth (inche	es): <u>1</u>	
Water Table Present? Yes O No Depth (inche	es): <u>12</u>	
Saturation Present? Yes O No Depth (inche	es): 12 Wetland Hydrology Present? Yes	X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial pho	stop provious inspections) if available:	
Describe Recorded Data (Stream gauge, monitoring well, aerial pric	otos, previous inspections), ii avaliable.	
Remarks:		

Sampling Point: W-1

001.0	Absolute			t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 20' Radius) 1. Ulmus americana	% Cover 5		ecies?	Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
2			_		Total Number of Dominant Species Across All Strata: 4 (B)
4		_			Percent of Dominant Species
					That Are OBL, FACW, or FAC: 75 (A/B)
6					Prevalence Index worksheet:
8					Total % Cover of: Multiply by:
o	_	L	tal Co	ver	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' Radius)		- 10	itai CO	VEI	FACW species x 2 = _1
1. Rosa multiflora	15		\checkmark	FACU	FAC species x 3 = 1
2. Cornus amomum	10		√	FACW	FACU species x 4 = _1
3.					UPL species x 5 = 1
4.					Column Totals: 0 (A) 5 (B)
5.					
6.					Prevalence Index = B/A =
			Н		Hydrophytic Vegetation Indicators:
7			Ħ		1 - Rapid Test for Hydrophytic Vegetation
8			H		✓ 2 - Dominance Test is >50%
9		_	H	-	3 - Prevalence Index is ≤3.0 ¹
10		_	Щ_		4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' Radius)	25	= To	tal Co	ver	data in Remarks or on a separate sheet)
1. Equisetum arvense	20	Γ	√	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
	5	寸	Ħ	FACU	
3. W1	<u>5</u>	十	\dashv	NI	¹ Indicators of hydric soil and wetland hydrology must
. W2	1	十	=	NI	be present, unless disturbed or problematic.
			+	INI	Definitions of Four Vegetation Strata:
5			_		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			_		more in diameter at breast height (DBH), regardless of
7			_		height.
8			_		Sapling/Shrub – Woody plants, excluding vines, less
9		4	_		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		4	_		Herb – All herbaceous (non-woody) plants, regardless
11		\dashv	_		of size, and woody plants less than 3.28 ft tall.
12		\perp			Woody vine – All woody vines greater than 3.28 ft in
Manada Vina Otratama (Diataina	28	= To	tal Co	ver	height.
Woody Vine Stratum (Plot size:)		-			
1		\dashv	=		
2		긕	-		
3		\dashv	\dashv		
4		\dashv	_	-	Hydrophytic
5		_	_	-	Vegetation
6		Ш			Present? Yes No No
	0	= To	tal Co	ver	
Remarks: (Include photo numbers here or on a separate s	heet.)				

Sampling Point: W-1

Profile Desc	cription: (Describe	to the dep	oth needed to docu	ment the	indicator	or confirm	the absence	of indicate	ors.)		
Depth (inches)	Matrix	%		x Feature		Loc ²	Touture		Remarks		
(inches) 0-6	Color (moist) 5 Y 2.5/1	100	Color (moist)	%	Type ¹	Loc	<u>Texture</u>	Silty Clay	y - Hydrogei	n Sulfic	40
		- ——								ii Suiiic	
6-15	2.5 YR 4/2	50	7.5 YR 4/6	50	С	M		Silty Clay	У		
				_				-			-
				-	-						
					-						
				_							
								-			
1		letien DM	Deduced Metric M	0. Maralas			21	Daniel Linda			
Hydric Soil		letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	² Location: PL		ng, M=Matrix. roblematic H		oile ³ :
Histosol			Dark Surface	(97)					410) (MLRA 1		olis .
	pipedon (A2)		Polyvalue Be	. ,	ace (S8) (N	/ILRA 147			Redox (A16)		
	istic (A3)		Thin Dark Su				,	MLRA 14	, ,	,	
	en Sulfide (A4)		Loamy Gleye			,	☐ P	•	oodplain Soils	(F19)	
Stratifie	d Layers (A5)		✓ Depleted Ma	ıtrix (F3)				(MLRA 13			
	uck (A10) (LRR N)		Redox Dark	,	,				Material (TF2)		
	d Below Dark Surfac	e (A11)	Depleted Da						/ Dark Surface)
_	ark Surface (A12) ⁄lucky Mineral (S1) (I	I DD NI	Redox Depre			I DD N	Пс	iner (Expia	in in Remarks	5)	
	A 147, 148)	LIXIX IV,	MLRA 13		663 (T 12 <i>)</i> (LIXIX IV,					
	Gleyed Matrix (S4)		Umbric Surfa		(MLRA 13	86, 122)	³ Ind	icators of h	ydrophytic ve	getation	and
	Redox (S5)		Piedmont Flo						ology must be		
Stripped	Matrix (S6)		_				u	nless distur	bed or proble	matic.	
	Layer (if observed):										
Type: no											
Depth (in	ches):						Hydric Soil	Present?	Yes O	_ No_	<u> </u>
Remarks:											

Project/Site: Former Satralloy Site City/C	County: Mingo Junction/Jefferson	Sampling Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson State: OH	Sampling Point: W-2
Investigator(s): JMM, BJJ Secti	on, Township, Range: Section 8, Towns	hip 6N, Range 2W
	lief (concave, convex, none): none	Slope (%): 4
Subregion (LRR or MLRA): LRR N Lat: 40.3148	Long: -80.6645	Datum: NAD 83
Soil Map Unit Name: Clarksburg silt loam, 15 to 25 percent slopes	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of year?	res O No O (If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrology significantly distu	rbed? Are "Normal Circumstances" p	present? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sar	npling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O	Is the Sampled Area within a Wetland? Yes) No <u>•</u>
Remarks:		
Upland data point adjacent to Wetland W. See Fig	ure 4A.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	
Surface Water (A1)	=	getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Oc	lor (C1) Drainage Par	tterns (B10)
Saturation (A3) Oxidized Rhizospher	res on Living Roots (C3) 🔲 Moss Trim Li	ines (B16)
Water Marks (B1) Presence of Reduce		Water Table (C2)
	on in Tilled Soils (C6) Crayfish Buri	
Drift Deposits (B3) Thin Muck Surface (isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	_	tressed Plants (D1)
Iron Deposits (B5)		Position (D2)
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Shallow Aqui	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	
Field Observations:		
Surface Water Present? Yes O No Depth (inches):		
Water Table Present? Yes O No O Depth (inches):		
Saturation Present? Yes O No O Depth (inches):	Wetland Hydrology Presen	nt? Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections) if available:	
Describe Necorded Data (Stream gauge, monitoring well, acrial photos, pro	vious inspections), il available.	
Remarks:		

Tree Stratum (Plot size: 30' radius

Sapling/Shrub Stratum (Plot size: 15' radius

Herb Stratum (Plot size: 5' radius)

1. Podophyllum peltatum

3. Boehmeria cylindrica

2. Alliaria petiolata

4. Viola blanda

1. Acer saccharum

2. Aesculus glabra

3. Ulmus americana

1. Cornus amomum

2. Rosa multiflora

mes of			Indicator	Dominance Tes			ng Point:		
% Cover	Spe	cies?	Status	Number of Dom	inant Species	S			
25	_		FACU	That Are OBL, F	ACW, or FA	C: _	2		(A)
15		_	FACU	Total Number of	Dominant				
15		+	FACW	Species Across	All Strata:	-	7		(B)
	Ŧ			Percent of Domi That Are OBL, F			29		(A/B)
				Prevalence Ind	ex workshee	et:			
		_		Total % Cov	/er of:		Multiply I	by:	_
55	= Tota	al Cov	er	OBL species					
				FACW species	34	x 2	= 68		_
15	\	4	FACW						_
10			FACU	FACU species	75	x 4	= 300		_
			_	UPL species					
	4	+		Column Totals:	109	(A)	368		_ (B)
		+	-	Prevalence	e Index = B/	A =	3		_
	-	+	_	Hydrophytic Ve	egetation Inc	licato	ors:		_
	 -	+	-		est for Hydro			ion	
	-	+	_		nce Test is >		Ü		
	-	┽	-	3 - Prevaler	nce Index is ≤	≤3.0 ¹			
				4 - Morphol	ogical Adapta	ations	1 (Provide	e supp	orting
25	= Tota	al Cov	er	data in F	Remarks or o	n a se	eparate sl	heet)	
15			FACU	Problemation	Hydrophytic	Vege	etation¹ (E	Explaiı	า)
10		_	FACU	¹ Indicators of hy	dric soil and	wetla	nd hydrol	loav m	nust
2	-	+	FACW	be present, unle					idot
2	-	+	FACW	Definitions of F	our Vegetat	ion S	trata:		
				Tree – Woody p more in diamete height.					
	#			Sapling/Shrub than 3 in. DBH a					
	丰	‡		Herb – All herba of size, and woo					dless
29	<u></u> = Tota	al Cov	er	Woody vine – A height.	All woody vine	es gre	eater thar	1 3.28	ft in
		<u></u>							
	\bot								
	\perp		-						
	\perp	4	_	Hydrophytic					
			-	Hydrophytic Vegetation					
	\bot			Present?	Yes)_	No <u></u>	<u>) </u>	
0	= Tota	al Cov	er						
eet.)				1					

Remarks: (Include photo numbers here or on a separate sheet.)

Woody Vine Stratum (Plot size: _____)

SOIL Sampling Point: W-2

Depth	ription: (Describe Matrix	e to the de	pth needed to docu Red	ox Featur		or confirm	n the absence	of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remark	ks
0-12	5 YR 3/2	98	5 YR 5/8	_ 2	RM	M		Clay Loam	
12-16	5 YR 3/2	90	2.5 YR 6/4	5	RM	M		Clay Loam - interm	ixed with gravel
12-16			2.5 YR 4/6	5	RM	M		Clay Loam	
16+								cobbles	
									_
				_					
			-					-	
				_	_				
					_			-	
1= 0.0					_		2, ,, ,,		
Hydric Soil		pletion, RN	1=Reduced Matrix, M	S=Maske	ed Sand G	rains.		L=Pore Lining, M=Matr ators for Problematic	
Histosol			Dark Surfac	e (S7)				cm Muck (A10) (MLR	
	oipedon (A2)		Polyvalue B		ace (S8) (l	MLRA 147		Coast Prairie Redox (A	
Black Hi	stic (A3)		Thin Dark S	urface (S	9) (MLRA		_	(MLRA 147, 148)	
	en Sulfide (A4)		Loamy Gley		(F2)		∐ F	Piedmont Floodplain Sc	oils (F19)
	d Layers (A5)		Depleted Ma		(FC)		П	(MLRA 136, 147)	-0)
	ick (A10) (LRR N) d Below Dark Surfa	ce (A11)	Redox Dark Depleted Da		` '			Red Parent Material (TF /ery Shallow Dark Surf	
	ark Surface (A12)	(7 (7 (7)	Redox Depr		. ,			Other (Explain in Rema	
_	lucky Mineral (S1)	(LRR N,	Iron-Mangai		ses (F12)	(LRR N,	_		
	\ 147, 148)		MLRA 13		(MI DA 4	00 400)	31		
	Gleyed Matrix (S4) Redox (S5)		Umbric Surf Piedmont Fl	, ,	•			dicators of hydrophytic vetland hydrology must	
	Matrix (S6)			oodplalii	0013 (1 10) (IVILITY I		inless disturbed or prob	
	Layer (if observed):						· · ·	
Type: col									
Depth (inc	ches): <u>16</u>						Hydric Soil	I Present? Yes <u> </u>) No <u>O</u>
Remarks:									

Project/Site: Former Satralloy Site Cit	y/County: Mingo Junction/Jefferson	Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	y/County: Mingo Junction/Jefferson State: OH	Sampling Point: Y-1
Investigator(s): JMM, BJJ	ction, Township, Range: T6N, R2W, S8	
	relief (concave, convex, none): CONCAVE	Slope (%): 15
Subregion (LRR or MLRA): LRR N Lat: 40.3177	Long: -80.6707	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 7- percent		
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes <u> </u>	Remarks.)
Are Vegetation, Soil, or Hydrology significantly dis	turbed? Are "Normal Circumstances" p	oresent? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally proble	ematic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa		s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O	Is the Sampled Area within a Wetland? Yes) No <u>O</u>
Remarks:		
Wetland Y is located in an isolated, closed basin in from chromium smelter. Eastern newt (Notophthaln pipiens) were present within this feature. See Figur	nus viridescens) and northern le	. , ,
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide (A2)		· · · ·
Saturation (A3) Oxidized Rhizosph Water Marks (B1) Presence of Redu	neres on Living Roots (C3) Moss Trim L	· · · ·
	ction in Tilled Soils (C6)	Water Table (C2)
Drift Deposits (B3) Thin Muck Surface	_	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in F		tressed Plants (D1)
Iron Deposits (B5)		Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	itard (D3)
Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches): 3		
Water Table Present? Yes No Depth (inches): 3	_	Y
Saturation Present? Yes No Depth (inches): 5 (includes capillary fringe)	Wetland Hydrology Preser	nt? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:	
Remarks:		

Sampling Point: Y-1

0 40	Absolute	Dor	minant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 3m x 10m)	% Cover	Sp	ecies?		Number of Dominant Species
1. Platanus occidentalis	15	4	<u>√</u>	FACW	That Are OBL, FACW, or FAC: 4 (A)
2. Ulmus americana	10	4	√	FACW	Total Number of Dominant
3					Species Across All Strata: 4 (B)
4					
5					Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6.		г	$\exists \vdash$	•	That Are OBL, FACW, or FAC.
			_		Prevalence Index worksheet:
7		十	_		Total % Cover of: Multiply by:
8	25	ᆜ			OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 2m x 5m)	25	= To	tal Cov	/er	FACW species x 2 =1
1. Salix exigua	40		√	FACW	FAC species x 3 =
		\dashv	-	FACU	
	3	-	\dashv	FACO	FACU species x 4 =
3			_	_	UPL species x 5 =
4		_	_		Column Totals: 0 (A) 5 (B)
5				_	Dravalance Index = D/A =
6					Prevalence Index = B/A =
7					Hydrophytic Vegetation Indicators:
8.					1 - Rapid Test for Hydrophytic Vegetation
9.				•	2 - Dominance Test is >50%
			_	•	3 - Prevalence Index is ≤3.0 ¹
10		 - T-			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' radius)	45	= 10	tal Cov	/er	data in Remarks or on a separate sheet)
A Juncus effusus	15	Γ	√	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
	2	寸	≒	FACU	
		ᆉ	\dashv	1700	¹ Indicators of hydric soil and wetland hydrology must
3			=		be present, unless disturbed or problematic.
4			\dashv		Definitions of Four Vegetation Strata:
5		4	_		To a Manchestante contestinación o Oire (7.0 cm) on
6					Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7					height.
8					
9					Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		- 1			than 6 m. BBT and greater than 6.20 ft (1 m) tail.
11.		T	一		Herb – All herbaceous (non-woody) plants, regardless
		\dashv	十		of size, and woody plants less than 3.28 ft tall.
12	17	 	<u> </u>		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	17	= 10	tai Cov	/er	height.
		[
1		Ť	一	-	
2		ᆉ	\dashv	-	
3		\dashv	_	-	
4			-	-	Hydrophytic
5		_	_		Vegetation
6		$_{\perp}$			Present? Yes No No
	0	= To	tal Cov	/er	
Remarks: (Include photo numbers here or on a separate s	sheet.)				
	,				

SOIL Sampling Point: Y-1

Profile Desc	cription: (Describe	to the dep	oth needed to docu	ment the	indicator	or confirm	the absence	e of indicators.)
Depth (inches)	Matrix	%		x Feature		12	T	Damanda
(inches)	Color (moist) 2.5 YR 2.5/1	100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Clay Learn
								Clay Loam
3-5	10 YR 6/1	70	10 YR 6/8	30	RM	M		Loamy Sand
					_			
	-				-			
				-	_			
								<u> </u>
_								
				-	_			·
T		Intim DM	De des ed Madria M				21	
Type: C=C Hydric Soil		letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.		L=Pore Lining, M=Matrix. cators for Problematic Hydric Soils ³
<u> </u>			Dork Surface	(07)				2 cm Muck (A10) (MLRA 147)
Histosol	pipedon (A2)		Dark Surface Polyvalue Be	` '	ace (S8) (N	/II RΔ 147		Coast Prairie Redox (A16)
	istic (A3)		Thin Dark Su				140)	(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye			, ,	□ F	Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma		,			(MLRA 136, 147)
2 cm Μι	uck (A10) (LRR N)		Redox Dark	Surface (F6)			Red Parent Material (TF2)
	d Below Dark Surfac	e (A11)	Depleted Da		. ,			Very Shallow Dark Surface (TF12)
_	ark Surface (A12)		Redox Depre				(Other (Explain in Remarks)
	Mucky Mineral (S1) (I	LRR N,	Iron-Mangan		ses (F12) (LRR N,		
	A 147, 148)		MLRA 13	,	/MLDA 13	e 422\	3Inc	dicators of hydrophytic vogotation and
	Gleyed Matrix (S4) Redox (S5)		Umbric Surfa	. ,	•			dicators of hydrophytic vegetation and wetland hydrology must be present,
_	Matrix (S6)			Jouplaili	Jolis (1 19)	(IVILIXA 14		unless disturbed or problematic.
	Layer (if observed):	:						
Type: mi								
Depth (in							Hydric Soi	I Present? Yes <u> </u>
Remarks:							11,000	
				,				
•							•	sion which was later filled
vith slag	from chromiu	ım proc	essing activiti	es. Th	e slag	has fori	med a ha	rd layer with limited
penetrati	on ~ 5 inches	below	the surface. L	imited	soil de	velopm	nent is pre	esent with the feature. Th
eature s	hows evidence	e of a	depleted matri	x, how	ever th	ne interi	mixed sla	g confounds the Munsell
	evaluation.		•	•				

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: Y-2
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	cal relief (concave, convex, none): CONCAVE	Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat: 40.3179	Long:80.6708	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 7- perc		
Are climatic / hydrologic conditions on the site typical for this time of ye	ar? Yes <u> </u>	Remarks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances" p	oresent? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O	Is the Sampled Area within a Wetland? Yes)No
Remarks:	E: 4A	
Upland data point adjacent to Wetland Y. See	Figure 4A.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	· · · · · · · · · · · · · · · · · · ·
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfid		= : : :
	spheres on Living Roots (C3) Moss Trim L	· · · ·
		Water Table (C2)
Sediment Deposits (B2)	duction in Tilled Soils (C6) Crayfish Bur	rows (C8)
Drift Deposits (B3)	ace (C7) Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain	in Remarks) Stunted or S	tressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	itard (D3)
Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches)		
Water Table Present? Yes O No Depth (inches)		Y
Saturation Present? Yes O No Depth (inches)	: Wetland Hydrology Preser	nt? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photo	os, previous inspections), if available:	
Remarks:		

Sampling Point: Y-2

201 div	Absolute		nt Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 30' radius)		Species	s? Status	Number of Dominant Species
1. Ulmus americana	20	√	FACW	That Are OBL, FACW, or FAC: 3 (A)
2. Acer saccharum	20	✓	FACU	Total Number of Dominant
3				Species Across All Strata: 10 (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)
6.				That Are OBE, FACW, OF FAC.
7				Prevalence Index worksheet:
		\dashv	-	Total % Cover of: Multiply by:
8				OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)	40	= Total C	over	FACW species 25 x 2 = 50
1 Lonicera canadensis	15	\checkmark	FACU	FAC species 10 x 3 = 30
2. Rosa multiflora	15	 	FACU	FACU species 85 x 4 = 340
3. Acer saccharum	10			
			FACU	UPL species x 5 =
4. Ulmus americana	5		FACW	Column Totals: <u>120</u> (A) <u>420</u> (B)
5		\perp		Prevalence Index = B/A = 3.5
6		\bot		
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
9.				2 - Dominance Test is >50%
10				3 - Prevalence Index is ≤3.0 ¹
10.		 Total_C		4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' radius)	40	= Total C	ovei	data in Remarks or on a separate sheet)
1. Rosa multiflora	15	\checkmark	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Viola sororia	5	<u> </u>	FACU	
3. Acer saccharum	5		FACU	¹ Indicators of hydric soil and wetland hydrology must
4. Taraxacum officinale	2	-	_ FACU	be present, unless disturbed or problematic.
		-H	_	Definitions of Four Vegetation Strata:
5		-	_	Tree Meady plants avaluation vince 2 in (7.0 and an
6		\perp		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				Continue (Charaba Manda and and and and and and and and and
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				ana grader than 520 is (1 in) tam
11.		\Box		Herb – All herbaceous (non-woody) plants, regardless
12.		\Box		of size, and woody plants less than 3.28 ft tall.
12.	27			Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 15' radius)	_27	= Total C	over	height.
1 Toxicodendron radicans	10	\checkmark	FAC	
···		一一		
2		-	_	
3		- -		
4			_	Hydrophytic
5		+	_	Vegetation
6		\Box		Present? Yes No No
	10	= Total C	over	
Remarks: (Include photo numbers here or on a separate s	heet.)			
· · ·	,			

Sampling Point: Y-2

Profile Desc	cription: (Describe	to the dent	h needed to docur	nent the ir	ndicator	or confirm	the absence	e of indicators)
Depth	Matrix	to the dept		x Features		or commi	tile absence	or maioators.,
(inches)	Color (moist)	%	Color (moist)	<u> %</u>	Type ¹	Loc ²	Texture	Remarks
0-9.5	2.5 Y 2.5/1	100						Sandy Clay Loam
9.5-12	10 YR 6/1	100		-				Loamy Sand mixed with slag
		· ——						
		· ——						
-		· ——		·				
		. <u> </u>						
1Type: C=C	oncentration, D=Dep	letion RM=	Reduced Matrix MS	S=Masked	Sand Gra	aine	² I ocation: PI	L=Pore Lining, M=Matrix.
Hydric Soil		ietion, rtivi–	rteduced Matrix, Mc	J-IVIASKEU	Sand Ora	aii i 5.		ators for Problematic Hydric Soils ³ :
Histosol			☐ Dark Surface	(S7)				2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		e (S8) (N	ILRA 147,		Coast Prairie Redox (A16)
	stic (A3)		Thin Dark Su			47, 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye		=2)		F	Piedmont Floodplain Soils (F19)
	d Layers (A5) uck (A10) (LRR N)		Depleted Ma	` '	6)		П	(MLRA 136, 147) Red Parent Material (TF2)
	d Below Dark Surfac	e (A11)	Depleted Dai					/ery Shallow Dark Surface (TF12)
	ark Surface (A12)	- ()	Redox Depre		. ,			Other (Explain in Remarks)
Sandy N	lucky Mineral (S1) (L	LRR N,	Iron-Mangan	ese Masse	es (F12) (LRR N,	_	
	A 147, 148)		MLRA 13				3.	
	Gleyed Matrix (S4)		Umbric Surfa					dicators of hydrophytic vegetation and
	Redox (S5) I Matrix (S6)		Piedmont Flo	odpiain So	olis (F19)	(NILKA 14		vetland hydrology must be present, unless disturbed or problematic.
	Layer (if observed):						1	miless disturbed of problematic.
Type: sla								
	ches): <u>12</u>						Hvdric Soil	I Present? Yes O No O
Remarks:	,						,	
Hard clay	a layor at 12 in	achae in	donth Slag	mivad i	nto the	o coil pr	ofilo but	no characteristics to
,					TILO LITE	soli pi	onie, but	no characteristics to
indicate t	the potential fo	or riyana	solis of cond	JILIONS.				

Project/Site: Former Satralloy Site City/0	County: Mingo Junction/Jefferson Sampling Date: 5/3/2018	
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson Sampling Date: 5/3/2018 State: OH Sampling Point: Z-1	
Investigator(s): JMM, BJJ Section Sect	tion, Township, Range: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): Relict mining feature Local re	elief (concave, convex, none): CONCAVE Slope (%): 5	
Subregion (LRR or MLRA): LRR N Lat: 40.3167	Long:80.6694 Datum: NAD 83	3
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percent		
Are climatic / hydrologic conditions on the site typical for this time of year?		
Are Vegetation, Soil, or Hydrology significantly distu	_	\bigcirc
Are Vegetation , Soil , or Hydrology naturally problem		
, , , , , , , , , , , , , , , , , , , ,		-4-
SUMMARY OF FINDINGS – Attach site map showing sar	mpling point locations, transects, important features, e	etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area	
Hydric Soil Present? Yes No	within a Wetland? Yes No No	
Wetland Hydrology Present? Yes No		
Remarks:		
Wetland Z is located in a closed basin in abandon	ed coal strip mine. See Figure 4A;	
Attachment 3, Photo 71.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two require	ed)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	<u>,u,</u>
Surface Water (A1)		3)
High Water Table (A2) Hydrogen Sulfide Oc		,
	eres on Living Roots (C3) Moss Trim Lines (B16)	
Water Marks (B1) Presence of Reduce	ed Iron (C4) Dry-Season Water Table (C2)	
	on in Tilled Soils (C6) Crayfish Burrows (C8)	
Drift Deposits (B3)		
✓ Algal Mat or Crust (B4) Uther (Explain in Re		
Iron Deposits (B5)	Geomorphic Position (D2)	
✓ Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3) Migraton graphic Police (D4)	
✓ Water-Stained Leaves (B9) ✓ Aquatic Fauna (B13)	Microtopographic Relief (D4) FAC-Neutral Test (D5)	
Field Observations:	TAO-Neutral Test (BS)	
Surface Water Present? Yes O No Depth (inches): 4		
Water Table Present? Yes No Depth (inches): 6		
Saturation Present? Yes No Depth (inches): 15	Wetland Hydrology Present? Yes X No	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections) if available:	
Describe Necorded Data (Stream gauge, monitoring well, aerial priotos, pri	evious inspections), it available.	
Remarks:		

Sampling Point: Z-1

5 45	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size: 5m x 15m)		Species?		Number of Dominant Species	
1. Acer rubrum	25	<u> </u>	FAC	That Are OBL, FACW, or FAC: 6 (A	١)
2. Liriodendron tulipifera	15	✓	FACU	Total Number of Dominant	
3				Species Across All Strata: 10 (E	3)
4					
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A	VB)
6.				That Ale Obl., FACW, of FAC.	VD)
7				Prevalence Index worksheet:	
				Total % Cover of: Multiply by:	
8				OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 3m x 10m)	40	= Total Cov	/er	FACW species x 2 = 1	
1 Liriodendron tulipifera	10	\checkmark	FACU	FAC species x 3 =1	
A con with wine	10		FAC	FACU species x 4 = 1	
2. Acer rubrum 3. Ulmus americana	5	<u> </u>			
	· <u> </u>	- √	FACW	UPL species x 5 =	·-·
4. Rosa multiflora			FACU	Column Totals: 0 (A) 5	(B)
5		-	_	Prevalence Index = B/A =	
6		\bot	-		
7				Hydrophytic Vegetation Indicators:	
8				1 - Rapid Test for Hydrophytic Vegetation	
9				2 - Dominance Test is >50%	
10				3 - Prevalence Index is ≤3.0 ¹	
		= Total Cov	/or	4 - Morphological Adaptations ¹ (Provide suppor	ting
Herb Stratum (Plot size: 5' radius)		- Total Cov	761	data in Remarks or on a separate sheet)	
1. Juncus effusus	15	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)	
2. Carex vulpinoidea	15	<u> </u>	OBL		
3 Polystichum acrostichoides	5	√	FACU	¹ Indicators of hydric soil and wetland hydrology mus	st
···		- 	1 700	be present, unless disturbed or problematic.	
4				Definitions of Four Vegetation Strata:	
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless	
7		\rightarrow		height.	
8		_Ц_		Sapling/Shrub – Woody plants, excluding vines, les	
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.	33
10					
11.				Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.	ess
12.				or size, and woody plants less than 5.20 it tall.	
	35	= Total Cov	/er	Woody vine - All woody vines greater than 3.28 ft i	n
Woody Vine Stratum (Plot size:)				height.	
1. Toxicodendron radicans	5	$\overline{}$	FAC		
2.					
3.					
4.		\Box			
		-	•	Hydrophytic	
5		\dashv		Vegetation Present? Yes No No	
6	_			Present? TesNo	
		= Total Cov	/er		
Remarks: (Include photo numbers here or on a separate s	sheet.)				

Sampling Point: Z-1

Profile Desc	ription: (Describe	to the de	oth needed to docu	ment the	indicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix			x Feature							
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks .		
0-5	5 YR 2.5/1	100						Silty Clay	y Loam		
5-9	Gley 1 5/N	60	2.5 Y 5/6	40	C	M		Loamy S	Sand		
9-15	Gley 1 5/N	50	10 YR 5/8	50	С	M		Loamy S	and		
				_				-			
	-			-							
								-			
								-			
¹Type: C=Co	oncentration. D=Dep	letion. RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: Pl	=Pore Linir	ng. M=Matrix.		
Hydric Soil I		,	, , , , , , , , , , , , , , , , , , , ,						oblematic Hy	dric So	oils³:
Histosol	(A1)		Dark Surface	e (S7)			<u> </u>	cm Muck (A	410) (MLRA 1	47)	
	oipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	ILRA 147,	148)		Redox (A16)		
Black Hi	, ,		Thin Dark Su			47, 148)		(MLRA 14			
	n Sulfide (A4)		Loamy Gleye		(F2)		F		oodplain Soils	(F19)	
	Layers (A5)		✓ Depleted Ma		-0)		П	(MLRA 13			
	ick (A10) (LRR N) d Below Dark Surfac	e (Δ11)	Redox Dark Depleted Da	,	,				Material (TF2) / Dark Surface	(TE12)	
= :	ark Surface (A12)	C (A11)	Redox Depre						in in Remarks		
	lucky Mineral (S1) (L	RR N,	Iron-Mangan			LRR N,	٠ ـــ	(,	
	147, 148)		MLRA 13	66)							
	leyed Matrix (S4)		Umbric Surfa						ydrophytic veg		
	edox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		-	ology must be		t,
	Matrix (S6) ayer (if observed):						u T	nless distur	bed or probler	natic.	
Type: noi											
Depth (inc							Hydric Soil	Present?	Yes O	No_	0
Remarks:	,										
											I

Project/Site: Former Satralloy Site City/C	County: Mingo Junction/Jefferson Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson Sampling Date: 5/3/2018 State: OH Sampling Point: Z-2
Investigator(s): JMM, BJJ Secti	on, Township, Range: T6N, R2W, S8
	lief (concave, convex, none): CONCAVE Slope (%): 35
Subregion (LRR or MLRA): LRR N Lat: 40.3168	Long: -80.6694 Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percent s	
Are climatic / hydrologic conditions on the site typical for this time of year?	res O No O (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	rbed? Are "Normal Circumstances" present? Yes O No
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No	Is the Sampled Area
Wetland Hydrology Present? Yes No •	within a Wetland? Yes No No
Remarks:	
Upland data feature adjacent to Wetland Z. See Fi	igure 4A.
,	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	
High Water Table (A2) Hydrogen Sulfide Od	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Sediment Deposits (B2) Presence of Reduce Recent Iron Reduction	d Iron (C4) Dry-Season Water Table (C2) on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (Cartering Control of the C	
Algal Mat or Crust (B4) Other (Explain in Rei	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No O Depth (inches):	
Water Table Present? Yes O No O Depth (inches):	
Saturation Present? Yes O No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Damada	
Remarks:	

Sampling Point: Z-2

201	Absolute			Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: 30' radius)	% Cover	Spe	cies?		Number of Dominant Species	
1. Acer saccharum	25	\	4	FACU	That Are OBL, FACW, or FAC: 1 (A)	
2. Fagus grandifolia	20	\	_	FACU	Total Number of Dominant	
3. Quercus alba	15	\		FACU	Species Across All Strata: 8 (B)	
4. Acer negundo	5			FAC		
5					Percent of Dominant Species That Are OBL, FACW, or FAC: 13 (A/B	
6.			丁		That Are OBL, FACW, or FAC.)
			_		Prevalence Index worksheet:	_
7		+	+		Total % Cover of: Multiply by:	
8	0.5	_		_	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 15' radius)	65	= Tot	al Cov	er	FACW species x 2 =	
1. Acer saccharum	5	Γ	/	FACU	FAC species 7 x 3 = 21	
2. Rosa multiflora	5	+	7	FACU		
	· ——	-	-	FACU	FACU species 97 x 4 = 388	
3		<u> </u>	_	-	UPL species x 5 =	
4				-	Column Totals: <u>104</u> (A) <u>409</u> (B)	
5					Prevalence Index = B/A = 3.93	
6			\perp			
7					Hydrophytic Vegetation Indicators:	
8.					1 - Rapid Test for Hydrophytic Vegetation	
9.			ヿ゙	-	2 - Dominance Test is >50%	
			_	-	3 - Prevalence Index is ≤3.0 ¹	
10					4 - Morphological Adaptations ¹ (Provide supporting	g
Herb Stratum (Plot size: 5' radius)	10	= 1 ot	al Cov	er	data in Remarks or on a separate sheet)	
1. Rosa multiflora	15	Γ,	7	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)	
2. Lonicera canadensis		÷	 	FACU		
3. Sassafras albidum	5	+	4		¹ Indicators of hydric soil and wetland hydrology must	
	2	<u> </u>	+	FACU	be present, unless disturbed or problematic.	
4. Viola sororia	2			FAC	Definitions of Four Vegetation Strata:	
			_			
5. Geum canadense	2			FACU		
6. Glechoma hederacea	2 2		$\frac{1}{2}$	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or	
6. Glechoma hederacea 7. Podophyllum peltatum	2 1			FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	f
6. Glechoma hederacea 7. Podophyllum peltatum 8.	1	-		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less	f
6. Glechoma hederacea 7. Podophyllum peltatum 8 9	1			FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	1			FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	1			FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1			FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	f
6. Glechoma hederacea 7. Podophyllum peltatum 8 9 10 11 12	2 1		al Cov	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless	f
6. Glechoma hederacea 7. Podophyllum peltatum 8 9 10 11 12 Woody Vine Stratum (Plot size: 15' radius)	2 1		al Cov	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5		al Cov	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1		al Cov	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1		al Cov	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 		al Cov	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 		al Cov	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 		al Cov	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot	al Cov	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f
6. Glechoma hederacea 7. Podophyllum peltatum 8	2 1 29 5	= Tot		FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation	f

Sampling Point: Z-2

	ription: (Describe	to the de	pth needed to docu	ment the	illuicatoi	or commin	the absence	of indicato	13.)		
Depth	Matrix		Redo	x Feature	S						
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
0-6	5 Y 3/2	98	5 Y 6/8	2	С	M		Silty Clay	<u> </u>		
6-16	2.5 YR 4/4	80	5 Y 5/6	15	С	M		Silty Clay	<i>'</i>		
6-16	5 Y 2.5/1	5		- '							
			-								
			-	-							
			-	-							
		· ——	· ·								
			-								
											_
1Typo: C=C	ncontration D-Don	lotion PA	- ∕/⊫Reduced Matrix, M	S-Maska	d Sand Gr	nine	² Location: PL	-Doro Linin	a M-Matrix		
Hydric Soil		ietion, Ki	/i-Reduced Matrix, M	3-IVIASKE	J Sanu Gi	all IS.			g, M=Matrix. oblematic Hyd	Iric Soils	3.
Histosol			Dark Surface	e (S7)					(10) (MLRA 14		•
	pipedon (A2)		Polyvalue Be	. ,	ice (S8) (N	ILRA 147,			Redox (A16)	.,	
Black Hi			Thin Dark Su					(MLRA 147			
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		∐ P	edmont Flo	odplain Soils (F	- 19)	
	l Layers (A5)		Depleted Ma					(MLRA 136			
	ck (A10) (LRR N)	- (0.4.4)	Redox Dark				_		Material (TF2)	TE40\	
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Da		. ,			-	Dark Surface (n in Remarks)	TF12)	
	lucky Mineral (S1) (I	RR N	Iron-Mangar			I RR N	П	illei (Expiaii	ii iii ixemarks)		
	147, 148)		MLRA 13		00 (1 12) (,					
	leyed Matrix (S4)		Umbric Surfa	•	(MLRA 13	6, 122)	³ Ind	icators of hy	drophytic vege	tation an	d
Sandy R	ledox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14	l 8) w	etland hydro	ology must be p	resent,	
	Matrix (S6)						u	nless disturb	ped or problema	atic.	
	_ayer (if observed):										
Type: No										6)
	ches):						Hydric Soil	Present?	Yes O	No	
Remarks:											

Project/Site: Former Satralloy Site City/9	County: Mingo Junction/Jefferson	Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson State: OH	Sampling Point: AA-1
Investigator(s): JMM, BJJ Sect	ion, Township, Range: T6N, R2W, S8	
	lief (concave, convex, none): CONCAVE	Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 40.3168	Long: -80.6672	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percent		
Are climatic / hydrologic conditions on the site typical for this time of year?	res <u> </u>	marks.)
Are Vegetation, Soil, or Hydrology significantly distu	rbed? Are "Normal Circumstances" pre	esent? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sar	npling point locations, transects,	important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes	No <u> </u>
Remarks:		
Wetland AA is an isolated, closed basin in an abal Attachment 3, Photo 36.	ndoned coal strip mine. See F	igure 4A;
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicato	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil C	racks (B6)
Surface Water (A1) True Aquatic Plants	(B14) Sparsely Vege	etated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Oc	· · ·	
	res on Living Roots (C3) Moss Trim Line	
✓ Water Marks (B1) Presence of Reduce		ater Table (C2)
Sediment Deposits (B2) Drift Deposits (B3) Recent Iron Reduction Thin Muck Surface (on in Tilled Soils (C6) Crayfish Burro	ble on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re		essed Plants (D1)
Iron Deposits (B5)	Geomorphic Po	` '
✓ Inundation Visible on Aerial Imagery (B7)	Shallow Aquita	
✓ Water-Stained Leaves (B9)	Microtopograpi	` '
Aquatic Fauna (B13)	FAC-Neutral T	est (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches): 2		
Water Table Present? Yes O No Depth (inches): 6		V
Saturation Present? Yes No Depth (inches): 12	Wetland Hydrology Present?	? Yes X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	l evious inspections), if available:	
Remarks:		

Sampling Point: AA-1

Tree Stratum (Plot size: 3m x 10m)	Absolute		ant Indicator	Dominance Test worksheet:
1 Ulmus americana	25	Specie /	Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
2 Fagus grandifolia	10	▼	FAC	That Are OBL, FACW, or FAC: 3 (A)
3.			IAO	Total Number of Dominant Species Across All Strata: 5 (B)
4				Percent of Dominant Species
5	·	$ \square$		That Are OBL, FACW, or FAC: 60 (A/B)
6		\dashv		Prevalence Index worksheet:
7		ᆜ		Total % Cover of: Multiply by:
8		Ш		
2m v 5m	35	= Total (Cover	OBL species $x = 1$
Sapling/Shrub Stratum (Plot size: 2m x 5m 1. Ulmus americana	15	√	FACW	FACW species x 2 = 1 FAC species x 3 = 1
2. Fagus grandifolia	- ——	-	FACU	
	2	\dashv		FACU species x 4 =
3. Liriodendron tulipifera	- —	\dashv	FACU	UPL species $x = 5 = 1$
4			_	Column Totals: 0 (A) 5 (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7			_	1 - Rapid Test for Hydrophytic Vegetation
8		$ \mu$		2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0¹
10				4 - Morphological Adaptations ¹ (Provide supporting
5' radius	19	= Total (Cover	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius) 1. Alliaria petiolata	10	./	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
Milana petiolata Ulmus americana		-	_	
			FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Liriodendron tulipifera	2	井	FACU	be present, unless disturbed or problematic.
4. Fagus grandifolia	2	$ \parallel$	FAC	Definitions of Four Vegetation Strata:
	2	\dashv	FACU	Tree Moody plants evaluding vines 2 in (7.6 cm) or
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		\blacksquare	_	height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9		\perp	_	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		\perp		Herb – All herbaceous (non-woody) plants, regardless
11		\bot		of size, and woody plants less than 3.28 ft tall.
12				W 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	21	= Total (Cover	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)				
1. none		屵		
2		-H		
3		+		
4		\dashv	-	Hydrophytic
5	. ———	-		Vegetation
6				Present? Yes No No
	0	= Total (Cover	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Sampling Point: AA-1

Profile Desc	ription: (Describe	to the dep	oth needed to docur	nent the i	indicator	or confirm	the absence	of indicators.)		
Depth	Matrix (matrix)	0/	Redo	x Feature		1 - 2	T	D		
(inches) 0-1	Color (moist) 10 YR 2/1	100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Sandy Clay Loa	narks	
1-3	10 YR 4/3	100						Sandy Clay Loa	am	
3-15	2.5 YR	95	2.5 YR	5	RM	M		Sandy Clay		
			-							
				-						
		_								
1										
'Type: C=Co		oletion, RM	=Reduced Matrix, MS	S=Masked	d Sand Gr	ains.		L=Pore Lining, M=M ators for Problema		Soilo ³ :
Histosol			☐ Dark Surface	(07)				cm Muck (A10) (M	•	Suils .
	oipedon (A2)		Polyvalue Be		ce (S8) (N	ILRA 147.		Coast Prairie Redox		
Black Hi			Thin Dark Su				140)	(MLRA 147, 148)	. ,	
	n Sulfide (A4)		Loamy Gleye				☐ F	Piedmont Floodplain)
	d Layers (A5)		✓ Depleted Ma					(MLRA 136, 147)		
	ick (A10) (LRR N)	(0.4.4)	Redox Dark					Red Parent Material		4.0\
	d Below Dark Surfac ark Surface (A12)	ce (A11)	Depleted Dai		. ,			/ery Shallow Dark S Other (Explain in Re	•	12)
l <u>—</u>	fucky Mineral (S1) (LRR N.	Iron-Mangan			LRR N.		otilei (Explaiii iii ite	marks)	
	\ 147, 148)	,	MLRA 13		() (,				
Sandy G	Gleyed Matrix (S4)		Umbric Surfa	ice (F13)	(MLRA 13	6, 122)	³ Inc	licators of hydrophy	tic vegetati	on and
	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		vetland hydrology m		
	Matrix (S6)						u T	ınless disturbed or p	oroblematic	
Type: no	_ayer (if observed)	:								
l	ches):						Hudria Cail	Present? Yes_	(O) N	O_
Remarks:	ones)						nyuric soil	rresent? res_	<u> </u>	<u> </u>
Remarks.										

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: AA-2
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	ocal relief (concave, convex, none): CONCAVE	Slope (%): 15
	Long: -80.6673	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 per	rcent slopes, unreclaimed NWI classific	cation: none
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes <u> </u>	Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circumstances"	present? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showin	g sampling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes) No
Remarks:		
Upland slope adjacent to Wetland AA. Previous Figure 4A.	usiy mined for coal, not a natural	depression. See
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Suli		atterns (B10)
	ospheres on Living Roots (C3) Moss Trim L	
	deduced Iron (C4) Dry-Season Eduction in Tilled Soils (C6) Crayfish Bur	Water Table (C2)
Drift Deposits (B3)	` ' =	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain		Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	itard (D3)
Water-Stained Leaves (B9)		aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutra	Test (D5)
Field Observations: Surface Water Present? Yes O No O Depth (inches	-1.	
Surface Water Present? Yes No Depth (inche: Water Table Present? Yes No Depth (inche: No No Depth (inche: No		
Saturation Present? Yes No Depth (inches		nt? Yes No X
(includes capillary fringe)	,	it: res No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspections), if available:	
Remarks:		

Sampling Point: AA-2

201			nt Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 30' radius)		Species	Status	Number of Dominant Species
1. Fagus grandifolia	40	√	FACU	That Are OBL, FACW, or FAC: 1 (A)
2. Ulmus americana	20	✓	FACW	Total Number of Dominant
3				Species Across All Strata: 6 (B)
4				
5				Percent of Dominant Species That Are OBL_EACW_or EAC: 17 (A/B)
			-	That Are OBL, FACW, or FAC: 17 (A/B)
6				Prevalence Index worksheet:
7		-	_	Total % Cover of: Multiply by:
8				OBL species x 1 =
Obstitution (Obstation (District 15' radius	60	= Total C	over	FACW species 20 x 2 = 40
Sapling/Shrub Stratum (Plot size: 15' radius) 1 Lonicera canadenis	10		FACU	
··-		-	FACO	FAC species x 3 =
2		$ \square$	_	FACU species <u>75</u> x 4 = <u>300</u>
3				UPL species x 5 =
4				Column Totals: <u>95</u> (A) <u>340</u> (B)
5				
6				Prevalence Index = B/A = 3.57
7				Hydrophytic Vegetation Indicators:
			_	1 - Rapid Test for Hydrophytic Vegetation
8			_	2 - Dominance Test is >50%
9			_	3 - Prevalence Index is ≤3.0 ¹
10				4 - Morphological Adaptations ¹ (Provide supporting
Harb Charture (Diet sine, 5' radius	10 :	= Total C	over	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius) 1. Lonicera canadenis	10	\checkmark	FACIL	Problematic Hydrophytic Vegetation ¹ (Explain)
**	10	_=	FACU	
2. Alliaria petiolata	10	√	FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Rosa multiflora	5	$\overline{}$	FACU	be present, unless disturbed or problematic.
4		$\perp \! \! \! \perp \! \! \! \! \! \! \! \! \perp$		Definitions of Four Vegetation Strata:
5				Definitions of Four Vegetation Strata.
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height.
				neight.
8			_	Sapling/Shrub – Woody plants, excluding vines, less
9			_	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		+	_	Herb – All herbaceous (non-woody) plants, regardless
11		\rightarrow	_	of size, and woody plants less than 3.28 ft tall.
12				Was deades Allows beginning to the though the COO files
	25	= Total C	over	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)				noight.
1. none		ᆜ		
2		$\perp \perp$		
3				
4				
5				Hydrophytic
				Vegetation Present? Yes No
6	•		'avar	100
		= Total C	over	
Remarks: (Include photo numbers here or on a separate s	heet.)			

Sampling Point: AA-2

Profile Desc	ription: (Describe	to the dep	th needed to docum	nent the in	ndicator	or confirm	the absence	of indicato	ors.)		
Depth	Matrix			K Features		. 2					
(inches) 0-4	Color (moist) 5 YR 2.5/1	% 100	Color (moist)	%	Type ¹	Loc ²	Texture	Candylla	Remarks		
						_		Sandy Lo			
4-8	2.5 Y 3/2	95	2.5 Y 6/6	5	RM	M		Sandy Lo	oam		
8-16	2.5 Y 6/2	80	2.5 Y 6/6 20 RM M Sandy Loam								
		-		-							
		etion, RM	Reduced Matrix, MS	=Masked	Sand Gr	ains.	² Location: PL				
Hydric Soil I									oblematic Hy		oils ³ :
Histosol			Dark Surface	. ,					A10) (MLRA 14	47)	
	pipedon (A2)		Polyvalue Bel				148) <u> </u>		Redox (A16)		
Black Hi	suc (A3) n Sulfide (A4)		Thin Dark Sui	, ,	•	47, 148)	Пь	(MLRA 14)	7, 148) odplain Soils (F10)	
	l Layers (A5)		Depleted Mat		_)			(MLRA 13		1 10)	
	ck (A10) (LRR N)		Redox Dark S		6)		R		Material (TF2)		
= :	Below Dark Surface	e (A11)	Depleted Dar						Dark Surface		
	ark Surface (A12)	DD 11	Redox Depre				.∐ ∘	ther (Explai	n in Remarks)		
	lucky Mineral (S1) (L \ 147, 148)	KK N,	Iron-Mangane MLRA 136		es (F12) (LKK N,					
	Gleyed Matrix (S4)		Umbric Surface	•	MLRA 13	6. 122)	³ Ind	icators of hy	/drophytic veg	etation	and
	ledox (S5)		Piedmont Flo					-	ology must be		
	Matrix (S6)		_				u	nless disturl	bed or problem	natic.	
	_ayer (if observed):										
Type: noi											
Depth (inc	ches):						Hydric Soil	Present?	Yes O	No_	<u> </u>
Remarks:											
Redox fe	atures in soil _ا	orofile l	ocated near la	rge ro	ots.						

Project/Site: Former Satralloy Site City	/County: Mingo Junction/Jefferson	Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	/County: Mingo Junction/Jefferson State: OH	Sampling Point: CC-1
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): relic mining feature Local r	elief (concave, convex, none): CONCAVE	Slope (%): 3
Subregion (LRR or MLRA): LRR N Lat: 40.3164	Long: -80.6665	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percent	slopes, unreclaimed NWI classifica	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Re	marks.)
Are Vegetation, Soil, or Hydrology significantly dist	urbed? Are "Normal Circumstances" pro	esent? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally problem	matic? (If needed, explain any answers	s in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sa	mpling point locations, transects,	important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No O No O No O	Is the Sampled Area within a Wetland? Yes	_ No <u> </u>
Remarks:		
Wetland CC is a closed basin in abandoned coal 3,Photo 37.	strip mine. See Figure 4A; Atta	achment
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicate	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil C	cracks (B6)
Surface Water (A1)		etated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide C		· · · ·
Saturation (A3) Oxidized Rhizospho Water Marks (B1) Presence of Reduc	eres on Living Roots (C3) Moss Trim Lin	es (B16) /ater Table (C2)
	ion in Tilled Soils (C6)	
Drift Deposits (B3)	_	ible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in R	emarks) Stunted or Str	essed Plants (D1)
Iron Deposits (B5)	Geomorphic P	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquita	
✓ Water-Stained Leaves (B9)		phic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral T	est (D5)
Field Observations: Surface Water Present? Yes No Depth (inches): 1		
Water Table Present? Yes No Depth (inches): 1	l l	
Saturation Present? Yes No Depth (inches): 1		? Yes ^X No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: CC-1	
Tree Stratum (Plot size: 20' radius)	Absolute	Dominant Species?		Dominance Test worksheet:	
1 Fagus grandifolia	15	Species?	FACU	Number of Dominant Species	
2. Ulmus americana	15	 	FACW	That Are OBL, FACW, or FAC:(A)	1
2. Olimos anionidana 3. Platanus occidentalis	10	 	FACW	Total Number of Dominant	
··			FACVV	Species Across All Strata: (B))
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC: (A/	B)
6				Prevalence Index worksheet:	
7		+		Total % Cover of:Multiply by:	
8				OBL species x 1 = 1	
9 11 (9) 1 9 (1) 15' radius	40	= Total Cov	er er		
Sapling/Shrub Stratum (Plot size: 15' radius)	10			FACW species $x = 2 = 1$	
1. CC-2		+		FAC species x 3 = 1	
2				FACU species x 4 =	
3			_	UPL species x 5 =	
4				Column Totals: 0 (A) 5 (E	3)
5			_	Prevalence Index = B/A =	
6		+	-		
7				Hydrophytic Vegetation Indicators:	
8				1 - Rapid Test for Hydrophytic Vegetation	
9				2 - Dominance Test is >50%	
10				3 - Prevalence Index is ≤3.0 ¹	
		= Total Cov	er	4 - Morphological Adaptations ¹ (Provide supportidata in Remarks or on a separate sheet)	ng
Herb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation (Explain)	
1. Ulmus americana	5	\checkmark	FACW	Troblematic Hydrophytic vegetation (Explain)	
2. Carex sp.		\perp	NI	¹ Indicators of hydric soil and wetland hydrology must	
3. <u>CC-1</u>	3			be present, unless disturbed or problematic.	
4. <u>CC-2</u>				Definitions of Four Vegetation Strata:	
5				Johnson of Four Vogotation Official	
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm)	
7				more in diameter at breast height (DBH), regardless height.	OI
8.					
9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	S
10.		\neg		than 3 in. DBH and greater than 3.20 it (1 iii) tail.	
11.	<u> </u>			Herb – All herbaceous (non-woody) plants, regardles	38
12.		+		of size, and woody plants less than 3.28 ft tall.	
12.		= Total Cov	or	Woody vine – All woody vines greater than 3.28 ft in	1
Woody Vine Stratum (Plot size:)		- 10tal C0v	CI	height.	
1					
2.					
3.					
4			-		
			-	Hydrophytic	
5				Vegetation Present? Yes No	
6	_	= Total Cov		11030III. 103 <u>-0</u> 110 <u>-0</u>	
Daniel (Indiana Indiana Indian		- Total Cov	rei		
Remarks: (Include photo numbers here or on a separate	e sneet.)				

Sampling Point: CC-1

. Totale Desc	ription: (Describe	to the dep	oth needed to docu	nent the i	naicator	or confirm	the absence	of indicato	rs.)		
Depth	Matrix			x Feature							
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks		
0-3	2.5 YR 2.5/1	100									
3-9	10 YR 4/2	50	10 YR 5/6	50	RM	M		Sand			
9-16	10 YR 5/2	50	10 YR 5/6	50	RM	M		Sandy Lo	oam		
	-			-							
	-										
	-										
	_										
¹ Type: C=Co	ncentration D=Den	letion RM	=Reduced Matrix, M	S=Masker	I Sand Gr	ains	² Location: PL	=Pore Linin	g M=Matrix		
Hydric Soil I		iotion, rtivi	reduced Matrix, W	o madroc	Cana On	anio.			oblematic Hyd	ric So	ils³:
Histosol			Dark Surface	e (S7)					410) (MLRA 14		
	pipedon (A2)		Polyvalue Be	` '	ce (S8) (N	ILRA 147,	_	,	Redox (A16)	,	
Black His			Thin Dark Su					(MLRA 14	7, 148)		
	n Sulfide (A4)		Loamy Gleye	,	F2)		<u></u>		odplain Soils (F	- 19)	
	I Layers (A5)		✓ Depleted Ma					(MLRA 13			
	ck (A10) (LRR N)	- (444)	Redox Dark	,	,				Material (TF2)	TE40\	
	l Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Da Redox Depre						Dark Surface (n in Remarks)	11-12)	
_	lucky Mineral (S1) (L	RR N.	Iron-Mangan			LRR N.	Ш	Allici (Explai	ii iii Romana)		
	\ 147, 148)	· · · · · · · · · · · · · · · · ·	MLRA 13		(/ (,					
	leyed Matrix (S4)		Umbric Surfa	•	MLRA 13	6, 122)	³ Ind	icators of hy	drophytic vege	tation a	and
	edox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		-	ology must be p		,
	Matrix (S6)						u	nless distur	ped or problema	atic.	
Type: nor	_ayer (if observed):										
Depth (inc							Hydric Soil	Drocont?	Yes	No _	\circ
	nes): 1771						Hydric Soil	Present?	res	NO _	<u> </u>
Remarks:											

Project/Site: Former Satralloy Site City/	County: Mingo Junction/Jefferson State: OH	Sampling Date: 5/3/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: CC-2
Investigator(s): JMM, BJJ Sect	ion, Township, Range: T6N, R2W, S8	
	elief (concave, convex, none): CONCAVE	Slope (%): 15
Subregion (LRR or MLRA): LRR N Lat: 40.3162	Long:80.6666	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percent		
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes <u> </u>	emarks.)
Are Vegetation, Soil, or Hydrology significantly distu	ırbed? Are "Normal Circumstances" p	present? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally problem	natic? (If needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sal	mpling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O	Is the Sampled Area within a Wetland?	No <u>•</u>
Remarks:		
Upland data point adjacent to Wetland CC; a clos Figure 4A.	ed basin in an abandoned coa	ai stripmine. See
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide O	- · · ·	
	res on Living Roots (C3) Moss Trim Li	
Water Marks (B1) Sediment Deposits (B2) Presence of Reduce Recent Iron Reducti	on in Tilled Soils (C6) Crayfish Burn	Water Table (C2)
Drift Deposits (B3) Thin Muck Surface (isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	· · · —	tressed Plants (D1)
☐ Iron Deposits (B5)		Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	itard (D3)
Water-Stained Leaves (B9)	Microtopogr <i>a</i>	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):		
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches):		nt? Yes No X
(includes capillary fringe)		it? res No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	evious inspections), if available:	
Remarks:		

EGETATION (Four Strata) – Use scientific	names or	piants.		Sampling Point: OC-2
Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Fagus grandifolia	35	Species?	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
2. Fraxinus americana	15	 	FACU	That Are OBL, FACW, or FAC: 0 (A)
3. Acer negundo	10	+	FACW	Total Number of Dominant Species Across All Strata: 6 (R)
Julmus americana	10		FACW	Species Across All Strata: 6 (B)
		+	IAOVV	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 0 (A/B)
6				Prevalence Index worksheet:
7		+		Total % Cover of: Multiply by:
8	70			OBL species x 1 = 1
Sapling/Shrub Stratum (Plot size: 15' diameter)	70	= Total Cov	er	FACW species 20 x 2 = 40
1. Rosa multiflora	10		FACU	FAC species x 3 =
Apocynum cannabinum	5	7	FACU	FACU species 73 x 4 = 292
		- - - - - - - - - - 	1700	UPL species x 5 =
3			-	
4				Column Totals: 93 (A) 333 (B)
5			_	Prevalence Index = B/A = 3.58
6			-	Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8		+	-	2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0¹
10				4 - Morphological Adaptations ¹ (Provide supporting
El diameter	15	= Total Cov	er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' diameter)	F	\checkmark	FACIL	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Alliaria petiolata	5		FACU	
2. Rosa multiflora		√	FACU	¹ Indicators of hydric soil and wetland hydrology must
3		-		be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5		\bot		- W
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				Canling/Chaub Woody plants evaluding vines loss
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
11		П		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.				of size, and woody plants less than 5.20 it tall.
		= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4				
5				Hydrophytic Vegetation
6.				Present? Yes No No
	_	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate				
Tremarks. (moldae priote hambers here or on a separak	3 311001.)			

Sampling Point: CC-2

Profile Desc	cription: (Describe	to the dep	oth needed to docu	ment the	indicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix	0/		x Feature			- .				
(inches) 0-7	Color (moist) 2.5 Y 2.5/1	100	Color (moist)	%	Type ¹	Loc ²	Texture	Sandy C	Remarks lay Loam		
			0.51/.5//								
7-17	2.5 Y 4/1	80	2.5 Y 5/1	10	С	M			lay Loam		
7-17			2.5 Y 2.5/1	10	С	M		Sandy C	lay Loam		
				_							
		-									
					-						
				_	-			-			
			-	_	_						
Type: C=C Hydric Soil	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	² Location: PL		ng, M=Matrix. roblematic Hy	rdria Sa	silo ³ .
Histosol			Dark Surface	(87)					410) (MLRA 1		. פווע
	(A1) pipedon (A2)		Polyvalue Be		ace (S8) (I	ILRA 147		,	A10) (MLRA 1 Redox (A16)		
	stic (A3)		Thin Dark Su					MLRA 14	, ,		
	en Sulfide (A4)		Loamy Gley	ed Matrix			☐ P		oodplain Soils	(F19)	
	d Layers (A5)		Depleted Ma	. ,				(MLRA 13			
	uck (A10) (LRR N)	- (044)	Redox Dark						Material (TF2)		
_	d Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Da		. ,			•	/ Dark Surface in in Remarks	. ,)
$\overline{}$	lucky Mineral (S1) (I	LRR N,	Iron-Mangar			LRR N,	Ш,	Zirior (Expla	iii iii rtomanto	,	
MLR/	A 147, 148)	·	MLRA 13	66)							
	Gleyed Matrix (S4)		Umbric Surfa						ydrophytic veg		
	Redox (S5)		Piedmont Flo	oodplain S	Soils (F19)	(MLRA 14		-	ology must be		ıt,
	Matrix (S6) Layer (if observed):						u T	niess distur	bed or probler	natic.	
	Layer (II observed).										
	ches):						Hydric Soil	Present?	Yes O	No	\odot
Remarks:							,				
rtomanto.											

Project/Site: Former Satralloy Site City/C	County: Mingo Junction/Jefferson Sampling Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson Sampling Date: 5/5/2018 State: OH Sampling Point: DD-1
Investigator(s): JMM, BJJ Section	on, Township, Range: Section 8, Township 6N, Range 2W
Landform (hillslope, terrace, etc.): Depression Local rel	ief (concave, convex, none): CONCAVE Slope (%): 3
	Long: -80.6664 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 percent	
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es O No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	rbed? Are "Normal Circumstances" present? Yes O No
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Hydric Soil Present? Yes O No O N	Is the Sampled Area within a Wetland? Yes No No
Wetland Hydrology Present? Yes No No	
Wetland DD is a shallow silted-in basin in abandor	ned coal strip mine that discharges into Stream
DD. See Figure 4C; Attachment 3, Photos 38 and	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (
High Water Table (A2) Hydrogen Sulfide Od Option (A2)	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Sediment Deposits (B2) Presence of Reduced Recent Iron Reduction	
✓ Drift Deposits (B3)	
Algal Mat or Crust (B4) Other (Explain in Rer	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
✓ Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No Depth (inches): 3	
Water Table Present? Yes O No Depth (inches): 2	
Saturation Present? Yes No Depth (inches): 16	Wetland Hydrology Present? Yes X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

Sampling Point: DD-1 **VEGETATION** (Four Strata) – Use scientific names of plants. Absolute Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Plot size: 5' x 25' % Cover Species? Status **Number of Dominant Species** 1. none That Are OBL, FACW, or FAC: _ (A) 2. **Total Number of Dominant**

3			Species Across All Strata: 3 (B)
4			Percent of Dominant Species That Are OBL_FACW_or FAC: 100 (A/B)
5			That Are OBL, FACW, or FAC: 100 (A/B)
6			Prevalence Index worksheet:
7		-	
8			OBL species x 1 = _1
Sapling/Shrub Stratum (Plot size: 5' x 15')	0	= Total Cover	FACW species x 2 = 1
A cor a cook arimum	2	✓ FAC	
···			FACU species x 4 = 1
2			
3			UPL species $x = 5$
4			Column Totals: 0 (A) 5 (B)
5			Prevalence Index = B/A =
6			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			2 - Dominance Test is >50%
9		-	3 - Prevalence Index is ≤3.0 ¹
10		= Total Cover	4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5' x 5')			data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
1. Rubus idaeus		✓ FAC	
2. Dichanthelium clandestinum	1	✓ FAC	
3			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4			Definitions of Four Vegetation Strata:
5			Dominione of Four Togotation Ottakar
6			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7.			more in diameter at breast height (DBH), regardless of height.
8.			
9.			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10.			than 3 iii. DBH and greater than 3.20 it (1 iii) taii.
			Herb – All herbaceous (non-woody) plants, regardless
11.			of size, and woody plants less than 3.28 ft tall.
12		= Total Cover	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		Total Cover	height.
1 none			
2			
3.			
4.			
			Hydrophytic
0			Vegetation Present? Yes No
0			Present: TesNO
	0	= Total Cover	
Remarks: (Include photo numbers here or on a separat	e sheet.)		

SOIL								Sampling Po	int:	
	cription: (Describe t	o the dept				or confirn	the absence of ind	icators.)		
Depth (inches)	Matrix Color (moist)	%	Color (moist)	<u>k Features</u> %	Type ¹	Loc ²	Texture	Remark	(S	
0-16					.,,,,,			rogen Sulfide		
-										
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	=Masked	Sand Gra	ains.	² Location: PL=Pore			. 3
Hydric Soil			D David Confess	(07)				or Problematic	•	ls":
Histosol	(A1) pipedon (A2)		Dark Surface Polyvalue Bel		ce (S8) (N	II RA 147		uck (A10) (MLR/ rairie Redox (A1		
	istic (A3)		Thin Dark Su					A 147, 148)	0)	
	en Sulfide (A4)		Loamy Gleye	d Matrix (nt Floodplain So	ils (F19)	
	d Layers (A5)		Depleted Mat		(C)			A 136, 147) rent Material (TF	-0)	
	uck (A10) (LRR N) d Below Dark Surface	(A11)	Redox Dark S Depleted Dar					allow Dark Surfa		
	ark Surface (A12)	,	Redox Depre					Explain in Remar		
	Mucky Mineral (S1) (L	RR N,	Iron-Mangane		es (F12) (LRR N,				
	A 147, 148) Gleyed Matrix (S4)		MLRA 136		MI RA 13	6 122)	³ Indicators	of hydrophytic v	venetation a	nd
	Redox (S5)		Piedmont Flo					hydrology must		
Stripped	Matrix (S6)		_					disturbed or prob	lematic.	
Restrictive	Layer (if observed):									
Type:									S . (\sim
Depth (in	ches):						Hydric Soil Prese	nt? Yes <u> </u>	No_(<u> </u>
Remarks:			_							
	atic soil preser						•			
	ng a proper so									
	atic Munsell co	lor read	dings. Strong	hydrog	jen sul	fide foi	and in 3rd soil	pit, used to) determ	iine
hydric sc	IIS.									

Project/Site: Former Satralloy Site City	//County: Mingo Junction/Jefferson Sampling Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company	//County: Mingo Junction/Jefferson Sampling Date: 5/5/2018 State: OH Sampling Point: DD-2
Investigator(s): JMM, BJJ Sec	ction, Township, Range: Section 8, Township 6N, Range 2W
Landform (hillslope, terrace, etc.): hillslope	relief (concave, convex, none): none Slope (%): 10
	Long: -80.6667 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 percentage of the soil Map Unit Name:	ent slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes _ O No _ O (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly dis	turbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally proble	
SUMMARY OF FINDINGS – Attach site map showing sa	ampling point locations, transects, important features, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O No O	Is the Sampled Area within a Wetland? Yes No
Remarks: Upland data point adjacent to Wetland DD; a shamine. See Figure 4C.	allow silted-in basin in an abandoned coal strip
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	
High Water Table (A2) Hydrogen Sulfide (Capture 1997)	
Saturation (A3) Oxidized Rhizosph Water Marks (B1) Presence of Reduc	peres on Living Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2)
	tion in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface	
Algal Mat or Crust (B4) Other (Explain in F	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	previous inspections), if available:
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DD-2 Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Plot size: 15' radius % Cover Species? Status **Number of Dominant Species** 1. Liriodendron tulipifera 20 FACU 2 (A) That Are OBL, FACW, or FAC: 2. Acer saccharinum **FACW** Total Number of Dominant 3. Fagus grandifolia 15 **FACU** 7 (B) Species Across All Strata: Percent of Dominant Species 29 ___ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: _____ x 1 = ____ OBL species 50 _ = Total Cover FACW species 18 $\times 2 = 36$ Sapling/Shrub Stratum (Plot size: 10' radius 1. Acer saccharinum **FACW** _____ x 3 = ____ FAC species 2. Fagus grandifolia FACU species 43 x 4 = 172 **FACU** 3 Quercus rubra _____3 ____ x 5 = ____ **FACU** UPL species Column Totals: 61 (A) 208 (B) Prevalence Index = B/A = 3.4Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 9 = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: 5' radius) Problematic Hydrophytic Vegetation¹ (Explain) 1 Fagus grandifolia **FACU** ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Four Vegetation Strata:** Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. **Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in 2 = Total Cover Woody Vine Stratum (Plot size: _____)

= Total Cover

Remarks: (Include photo numbers here or on a separate sheet.)

Yes O No O

Hydrophytic Vegetation

Present?

SOIL Sampling Point: DD-2

Profile Desc	ription: (Describe	to the de	oth needed to docur	nent the i	indicator	or confirm	the absence	of indicators.)		
Depth	Matrix	%		x Feature		1 2	Tandrina	D	emarks	
(inches) 0-15	Color (moist) 2.5 Y 2.5/1	100	Color (moist)	<u>%</u>	Type ¹	Loc ²	<u>Texture</u>	Clay Loam	emarks	
			0.5.1/.0/0		•	DI				
15-22	2.5 Y 3/2	95	2.5 Y 6/6	5	С	PL		Clay Loam		
								_		
				_						
								-		
	-									
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.		_=Pore Lining, M=		
Hydric Soil I	Indicators:		_				Indic	ators for Problen	natic Hyd	ric Soils³:
Histosol			Dark Surface					cm Muck (A10) (7)
	pipedon (A2)		Polyvalue Be				148) <u> </u>	Coast Prairie Redo		
Black Hi	, ,		Thin Dark Su			147, 148)	П	MLRA 147, 148		-40)
	n Sulfide (A4) d Layers (A5)		Loamy Gleye Depleted Ma		(FZ)		<u> </u>	Piedmont Floodpla (MLRA 136, 147)		-19)
	ick (A10) (LRR N)		Redox Dark		-6)		Пв	Red Parent Materia		
	d Below Dark Surfac	e (A11)	Depleted Da	,	,			ery Shallow Dark		TF12)
l	ark Surface (A12)		Redox Depre					Other (Explain in R	lemarks)	
	lucky Mineral (S1) (I	_RR N,	Iron-Mangan		es (F12) (LRR N,				
	147, 148)		MLRA 13 Umbric Surfa		(MI DA 42	e 422\	3 _{1m} d	ligators of budrank	v tie vege	tation and
	Sleyed Matrix (S4) Redox (S5)		Piedmont Flo					licators of hydroph vetland hydrology		
	Matrix (S6)			обаріант С	iolis (1 10)	(MEIXA 14		nless disturbed or		
	_ayer (if observed):	· :							'	
Type:										_
Depth (inc	ches):						Hydric Soil	Present? Yes		No <u> </u>
Remarks:							1			
1 cm^2 fr	ranments of c	nal nre	sent (~5%) thr	ouaho	ut soil	nrofile				
1 0111 2 11	agments or c	oai pie	Sent (*370) till	ougno	ut Soli	prome.				

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sampling Date:	5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Poin	t: EE-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): hillslope Loc Subregion (LRR or MLRA): LRR N Lat: 40.3122	cal relief (concave, convex, none): CONCAVE	oe (%): 4
Subregion (LRR or MLRA): LRR N Lat: 40.3122	Long:80.6662 Datum	n: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classification: none	
Are climatic / hydrologic conditions on the site typical for this time of year Are Vegetation, Soil, or Hydrology significantly Are Vegetation, Soil, or Hydrology naturally pro	disturbed? Are "Normal Circumstances" present? Yes) No <u>O</u>
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important fe	atures, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes O No O No O No O	Is the Sampled Area within a Wetland? Yes No No	
Wetland EE is a feature running along a hillside supplies water to this feature from the adjacent 40 and 41.		•
HYDROLOGY		
Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	de Odor (C1) spheres on Living Roots (C3) duced Iron (C4) duction in Tilled Soils (C6) ace (C7) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image	Surface (B8)
Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Yes O No Depth (inches) Yes No Depth (inches)	: 12 : 13 Wetland Hydrology Present? Yes X	No
Describe Recorded Data (stream gauge, monitoring well, aerial photo	s, previous inspections), if available:	
Remarks: Culvert from feature R conveys flows southeas limited flows though soil to feature EE.	t. Culvert is filled on upstream end but conve	eys

EGETATION (Four Strata) – Use scientific	names or	piant	is.		Sampling Point: LL-1
To a Otraction (Distraction 10' v 30'	Absolute			Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 10' x 30') 1. Ulmus americana	% Cover 25		_		Number of Dominant Species
		√	-	FACW	That Are OBL, FACW, or FAC: 6 (A)
2. Acer rubrum		√	-	FAC	Total Number of Dominant
3. Fraxinus pennsylvanica	15	_ ✓	┿	FACW	Species Across All Strata: 6 (B)
4			┿		Percent of Dominant Species
5			Ļ		That Are OBL, FACW, or FAC: 100 (A/B)
6			╄		December on the december to the
7					Prevalence Index worksheet:
8			上		Total % Cover of: Multiply by:
	00	= Total	l Cov	/er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' x 20')			7		FACW species x 2 =
1. Cornus amomum	10			FACW	FAC species x 3 = _1
2. Acer rubrum	5	✓	<u></u>	FACW	FACU species x 4 =
3. EE-2	2		上	NI	UPL species x 5 =
4			floor		Column Totals: 0 (A) 5 (B)
5					
6.			T		Prevalence Index = B/A =
7.			T		Hydrophytic Vegetation Indicators:
8.			丅	-	1 - Rapid Test for Hydrophytic Vegetation
			十	-	2 - Dominance Test is >50%
9			┿		3 - Prevalence Index is ≤3.0 ¹
10	17			_	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5' radius)		= Total	I Cov	/er	data in Remarks or on a separate sheet)
1. Hydrophyllum virginianum	5	√	1	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. EE-3		_=	Ť	NI	
			T		¹ Indicators of hydric soil and wetland hydrology must
3			╅		be present, unless disturbed or problematic.
4			十		Definitions of Four Vegetation Strata:
5			╁		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			┿		more in diameter at breast height (DBH), regardless of
7			┢		height.
8			 		Sapling/Shrub – Woody plants, excluding vines, less
9			Ļ		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			▙		Have All harbassaus (non woody) plants, regardless
11			┸		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12					
	7	= Total	l Cov	/er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		_	-		height.
1. none			╧	-	
2					
3					
4]		
5.					Hydrophytic Vegetation
6.			7		Present? Yes No No
<u> </u>	_	= Total	L Cov	/er	
Remarks: (Include photo numbers here or on a separate		10101		701	
Tremaiks. (Include prioto humbers here of on a separate	s sileet.)				

Sampling Point: EE-1

Project/Site: Former Satralloy Site	City/County: Mingo Junction/JeffersonSampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: EE-2
Investigator(s): JMM, BJJ	T6N P2W S8
	Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat: 40.3122	
Soil Map Unit Name: Udorthents, loamy	NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes O No O (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significant	
Are Vegetation, Soil, or Hydrology naturally p	
SUMMARY OF FINDINGS - Attach site map showing	ng sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes	Is the Sampled Area within a Wetland? Yes No •
Remarks:	
passing under a relic rail spur. See Figure 4C	feature running along a hillside fed from a culvert
passing under a relicitali spur. See Figure 40	<i>,</i> .
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	y) Surface Soil Cracks (B6)
Surface Water (A1)	
	ulfide Odor (C1) Drainage Patterns (B10)
Saturation (A3) Oxidized Rhiz	zospheres on Living Roots (C3) Moss Trim Lines (B16)
	Reduced Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2)	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Su	urface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain	in in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inche	
Water Table Present? Yes No Depth (inche	
Saturation Present? Yes No Depth (inche	es): Wetland Hydrology Present? Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial pho	l otos, previous inspections), if available:
Remarks:	

	FACU FAC UPL	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: 7 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species
	over FACU FAC UPL over FACU FAC FACU FAC FACU FACU FACU	That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: 7 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species
= Total C	FACU FAC UPL over FACU FAC	Total Number of Dominant Species Across All Strata: 7 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species 40 x 3 = 120 FACU species 40 x 4 = 160 UPL species 15 x 5 = 75 Column Totals: 95 (A) 355 (B) Prevalence Index = B/A = 3.73 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC UPL over FACU FAC	Percent of Dominant Species That Are OBL, FACW, or FAC: Total % Cover of: Multiply by: OBL species FACW species FAC species 40 UPL species 40 UPL species 15 Column Totals: 95 (A) Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)
= Total C	FACU FAC UPL over FACU FAC	Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = FACW species 40 x 3 = 120 FACU species 40 x 4 = 160 UPL species 15 x 5 = 75 Column Totals: 95 (A) 355 (B) Prevalence Index = B/A = 3.73 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)
= Total C	FACU FAC UPL over FACU FAC	That Are OBL, FACW, or FAC: 43 (A/B) Prevalence Index worksheet:
= Total C	FACU FAC UPL over FACU FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species
= Total C	FACU FAC UPL over FACU FAC	Total % Cover of: Multiply by:
= Total C	FACU FAC UPL over FACU FAC	Total % Cover of: Multiply by:
	FACU FAC UPL over FACU FAC	OBL species
	FACU FAC UPL over FACU FAC	FACW species
= Total C	FAC UPL Over	FAC species 40
= Total C	FAC UPL Over	FACU species 40 x 4 = 160 UPL species 15 x 5 = 75 Column Totals: 95 (A) 355 (B) Prevalence Index = B/A = 3.73 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	OVER FACU	UPL species 15 x 5 = 75 Column Totals: 95 (A) 355 (B) Prevalence Index = B/A = 3.73 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	over FACU FAC	Column Totals: 95 (A) 355 (B) Prevalence Index = B/A = 3.73 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC	Prevalence Index = B/A = 3.73 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC	1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
= Total C	FACU FAC	3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
√	FACU FAC	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
√	FACU FAC	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Indicators of hydric soil and wetland hydrology must
✓ ✓ ✓	FAC	Problematic Hydrophytic Vegetation ¹ (Explain) Indicators of hydric soil and wetland hydrology must
√ √ √	FAC	Indicators of hydric soil and wetland hydrology must
✓ ✓		
<u> </u>	FACU	
		be present, unless disturbed or problematic.
		Definitions of Four Vegetation Strata:
		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
_		more in diameter at breast height (DBH), regardless of
_	_	height.
		Sapling/Shrub – Woody plants, excluding vines, less
- +		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
- +	_	Herb – All herbaceous (non-woody) plants, regardless
_ ++	_	of size, and woody plants less than 3.28 ft tall.
		Woody vine – All woody vines greater than 3.28 ft in
= Total C	over	height.
<u> </u>		
		Hydrophytic
_		Vegetation Present? Yes No No
		110301111 103 <u>0</u> 110 <u>0</u>
= 1 otal C	over	

Sampling Point: <u>EE-2</u>

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator	or confirm	n the absence	e of indicators.)
Depth	Matrix			x Feature		. 2		-
(inches) 0-8	Color (moist) 10YR 4/3	100	Color (moist)	<u>%</u>	Type ¹	_Loc ²	Texture	Remarks Sandy Loam
			10.1/5.0/0					
8-14	10 YR 5/3	98	10 YR 6/6	2	С	M	<u>PL</u>	Sandy Loam
14-17	10 YR 5/2	85	10 YR 6/6	10	С	M		Clay Loam
14-17	-		10 R 4/3	5	C	M		Clay Loam
				-				
				-				
1							2	
		letion, RM	=Reduced Matrix, MS	S=Masked	d Sand Gr	ains.		L=Pore Lining, M=Matrix. ators for Problematic Hydric Soils ³ :
Hydric Soil I			Dank Confess	(07)				_
Histosol	(A1) pipedon (A2)		Dark Surface Polyvalue Be	. ,	co (SS) (N	AI DA 147		2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16)
Black His			Thin Dark Su				, 140)	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye			, ,	☐ F	Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Ma					(MLRA 136, 147)
	ck (A10) (LRR N)		Redox Dark					Red Parent Material (TF2)
= :	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Dai		. ,			/ery Shallow Dark Surface (TF12) Other (Explain in Remarks)
_	lucky Mineral (S1) (I	LRR N.	Iron-Mangan			LRR N.	Ц,	Ottlei (Explain in Nemarks)
	147, 148)		MLRA 13		oo () (
	leyed Matrix (S4)		Umbric Surfa		(MLRA 13	86, 122)	³ Inc	dicators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14		vetland hydrology must be present,
	Matrix (S6)						l	unless disturbed or problematic.
Type: nor	_ayer (if observed):	·						
Depth (inc							Hydric Soi	I Present? Yes O No O
Remarks:							Hydric 30i	Triesent: Tes No
ixemaiks.								

Project/Site: Former Satralloy Site City.	/County: Mingo Junction/Jefferson Sampling Date: 5/7/2018
Applicant/Owner: Cyprus Amax Minerals Company	/County: Mingo Junction/Jefferson Sampling Date: 5/7/2018 State: OH Sampling Point: FF-1
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8
	elief (concave, convex, none): CONCAVE Slope (%): 4
	Long: -80.6682 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 perce	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distu	urbed? Are "Normal Circumstances" present? Yes O
Are Vegetation, Soil, or Hydrology naturally probler	matic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	impling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks:	
Wetland FF is formed from a small seep below a See Figure 4C; Attachment 3, Photos 42 and 43.	rock outcropping that pools in an adjacent terrace.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
✓ Surface Water (A1) True Aquatic Plants	
High Water Table (A2) Hydrogen Sulfide O	
Saturation (A3) Oxidized Rhizosphe Water Marks (B1) Presence of Reduce	eres on Living Roots (C3) Moss Trim Lines (B16)
	ed Iron (C4) Dry-Season Water Table (C2) tion in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface	
Algal Mat or Crust (B4) Other (Explain in Re	
☐ Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes No Depth (inches):	1
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:
Remarks:	

451 1	Absolute		
ree Stratum (Plot size: 15' radius)		Species? Statu	T Number of Dominant Species
Fraxinus pennsylvanica	30	✓ FACV	That Are OBL, FACW, or FAC: $\frac{2}{}$ (A)
·			Total Number of Dominant
			Species Across All Strata: 4 (B)
			Percent of Dominant Species
•			That Are OBL, FACW, or FAC: 50 (A/B
			Prevalence Index worksheet:
•			
	0.0		OBL species x 1 = 1
Sapling/Shrub Stratum (Plot size: 10' radius	30	= Total Cover	FACW species x 2 =1
Lonicera tatarica	5	√ FACI	
1	5		
*	5		UPL species x 5 = 1
b			Column Totals: 0 (A) 5 (B)
			Column Totals (A) (B)
i			Prevalence Index = B/A =
)			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
B			2 - Dominance Test is >50%
)			3 - Prevalence Index is ≤3.0 ¹
0.		= Total Cover	4 - Morphological Adaptations ¹ (Provide supportin data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius) Anemone canadensis	10	✓ FAC\	Problematic Hydrophytic Vegetation ¹ (Explain)
' ·			
<u> </u>			¹ Indicators of hydric soil and wetland hydrology must
3			be present, unless disturbed or problematic.
l			Definitions of Four Vegetation Strata:
5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
S			more in diameter at breast height (DBH), regardless of
·			height.
3			Sapling/Shrub – Woody plants, excluding vines, less
)			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0			Herb – All herbaceous (non-woody) plants, regardless
11		+	of size, and woody plants less than 3.28 ft tall.
2			Woody vine – All woody vines greater than 3.28 ft in
Noody Vine Stratum (Plot size:)	10	= Total Cover	height.
l			
). 2.			
3.			
5.			Hydrophytic
S			Vegetation Present? Yes No No
··		= Total Cover	
Remarks: (Include photo numbers here or on a sepa	-	= Total Cover	
•	,		

Sampling Point: FF-1

Profile Desc	cription: (Describe	to the dep	oth needed to docu	nent the i	ndicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix			x Feature							
(inches)	Color (moist)	100	Color (moist)	%	Type ¹	Loc ²	Texture	0:11.1	Remarks		
0-3.5	2.5 Y 4/2	100						Silt Loan	า		
3.5-14	2.5 Y 5/2	50	10 YR 5/6	50	C	PL		Silt Loan	1		
		·		-				-			
				-							
			-								
		·		-				-			
				-							
1	-			-							
	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL	=Pore Linir	ng, M=Matrix.	-1-1- 0-11-	3.
Hydric Soil				(0-)					oblematic Hy		5":
✓ Histosol	` '		Dark Surface Polyvalue Be	. ,	oo (CO) (N	II DA 447			A10) (MLRA 1 4 Redox (A16)	17)	
	pipedon (A2) istic (A3)		Thin Dark Su				146)	MLRA 14)	, ,		
	en Sulfide (A4)		Loamy Gleye			47, 140)	ПР	•	oodplain Soils (F19)	
	d Layers (A5)		✓ Depleted Ma		,			(MLRA 13		,	
	uck (A10) (LRR N)		Redox Dark		⁻ 6)		R		Material (TF2)		
_	d Below Dark Surfac	e (A11)	Depleted Da		. ,				Dark Surface		
_	ark Surface (A12)		Redox Depre				<u>.</u> c	ther (Explai	in in Remarks)		
	Mucky Mineral (S1) (L	_RR N,	Iron-Mangan		es (F12) (LRR N,					
	A 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa		MI DA 12	6 122\	3Ind	icators of h	ydrophytic vege	otation an	٨
	Redox (S5)		Piedmont Flo						ology must be		u
	Matrix (S6)		r reament r	ouplant c	0110 (1 10)	(-	bed or problem		
	Layer (if observed):	:							<u> </u>		
Type: col	bbles									_	
Depth (in	ches): <u>14</u>						Hydric Soil	Present?	Yes <u> </u>	No C)
Remarks:											

Project/Site: Former Satralloy Site City/	County: Mingo Junction/Jefferson	Sampling Date: 5/7/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson State: OH	Sampling Point: FF-2
Investigator(s): JMM, BJJ Sect	ion, Township, Range: T6N, R2W, S8	
	elief (concave, convex, none): CONVEX	Slope (%): 15
	Long: -80.6683	Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 perce	nt slopes NWI classifica	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes _ O _ O _ (If no, explain in Re	emarks.)
Are Vegetation, Soil, or Hydrology significantly distu	irbed? Are "Normal Circumstances" p	resent? Yes O No
Are Vegetation, Soil, or Hydrology naturally problem		
SUMMARY OF FINDINGS – Attach site map showing sai	•	
Hydrophytic Vegetation Present? Yes No No	Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	within a Wetland? Yes	No <u> </u>
Remarks:		
Upland point adjacent to Wetland FF. See Figure	4C	
Splana point adjacent to Welland 11. Gee 1 iguio		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicat	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil 0	Cracks (B6)
Surface Water (A1)	(B14) Sparsely Veg	etated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide O	=	
	res on Living Roots (C3) Moss Trim Lir	
Water Marks (B1) Sediment Deposits (B2) Presence of Reduce Recent Iron Reducti	on in Tilled Soils (C6)	Vater Table (C2)
Drift Deposits (B3) Thin Muck Surface (sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	_	ressed Plants (D1)
Iron Deposits (B5)	Geomorphic F	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquit	tard (D3)
Water-Stained Leaves (B9)	Microtopogra	phic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):		
Water Table Present? Yes O No O Depth (inches):		
Saturation Present? Yes O No O Depth (inches):		t? Yes No ^X
(includes capillary fringe)		100
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	evious inspections), if available:	
Remarks:		

451	Absolute			Dominance Test worksheet:
ree Stratum (Plot size: 15' radius)	_	Species?		Number of Dominant Species
Ulmus americana	25	√	FACW	That Are OBL, FACW, or FAC: 1 (A)
Quercus rubra	10	✓	FACU	Total Number of Dominant
		4		Species Across All Strata: 7 (B)
		\perp		Percent of Dominant Species
				That Are OBL, FACW, or FAC: 14 (A/B)
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Cov	ver	OBL species x 1 =
apling/Shrub Stratum (Plot size: 10' radius)			E 4 O 1 1	FACW species $\underline{25}$ $\times 2 = \underline{50}$
Lonicera canadensis	25	<u> </u>	FACU	FAC species x 3 =
Rosa multiflora	15	<u> </u>	FACU	FACU species <u>85</u> x 4 = <u>340</u>
Geum canadense	15	$\overline{}$	FACU	UPL species x 5 =
		\bot	_	Column Totals: <u>110</u> (A) <u>390</u> (B)
				Prevalence Index = B/A = 3.54
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
)				3 - Prevalence Index is ≤3.0¹
		= Total Cov	ver	4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
erb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation ¹ (Explain)
Rosa multiflora	15	$\overline{}$	FACU	Froblematic Hydrophytic Vegetation (Explain)
Delphinium tricorne	10	\bot	NI	1 and in the second of bounding and south and bounded and south
Quercus rubra	5		FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
				height.
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
)				
1.				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
2.				of size, and woody plants less than 3.20 it tall.
		= Total Cov	ver	Woody vine – All woody vines greater than 3.28 ft in
oody Vine Stratum (Plot size: 10' radius)				height.
Parthenocissus quinquefolia	10		FACU	
			_	
		\bot		
			-	
				Hydrophytic Vegetation
				Present? Yes No No
		= Total Cov	ver	
Remarks: (Include photo numbers here or on a separate	10	= Total Cov	ver	

Sampling Point: FF-2

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the i	ndicator	or confirm	the absence	of indicato	ors.)		
Depth	Matrix			x Features							
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks		.
0-3	10 YR 4/2	100						Silty Clay	/ Loam		
3-8.5	10 YR 5/4	98	10 YR 6/6	2	C	PL		Silty Clay	/ Loam		
8.5-14	2.5 Y 3/1	98	10 YR 6/4	2	С	M		Clay Loa	m		
								-			
	-										
¹Type: C=Co	oncentration. D=Dep	letion. RM	=Reduced Matrix, MS	S=Masked	Sand Gr	ains.	² Location: PL	=Pore Linin	a. M=Matrix.		
Hydric Soil I			, , , , , , , , , , , , , , , , , , , ,						oblematic Hy	dric So	oils³:
Histosol	(A1)		Dark Surface	(S7)			<u> </u>	cm Muck (A	A10) (MLRA 1 4	17)	
	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147,	148) \square C		Redox (A16)		
Black Hi	, ,		Thin Dark Su			147, 148)		(MLRA 14			
	n Sulfide (A4)		Loamy Gleye		F2)		P		odplain Soils (F19)	
	Layers (A5)		Depleted Mat		(0)			(MLRA 13	6, 147) ⁄/aterial (TF2)		
	ck (A10) (LRR N) Below Dark Surface	- (Δ11)	Redox Dark S Depleted Dar	•	,				Dark Surface	(TF12)	
= :	ark Surface (A12)	3 (7 (1 1)	Redox Depre						n in Remarks)		
	lucky Mineral (S1) (L	.RR N,	Iron-Mangan			LRR N,		(1	,		
	147, 148)		MLRA 13								
	leyed Matrix (S4)		Umbric Surfa					-	drophytic veg		
	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		-	ology must be		t,
	Matrix (S6) ayer (if observed):						u I	nless disturi	bed or problem	natic.	
Type: noi											
Depth (inc							Hydric Soil	Present?	Yes O	No_	o
Remarks:							,				
rtomanto.											

Project/Site: Former Satralloy Site City	/County: Mingo Junction/Jefferson State: OH	Sampling Date: 5/2/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: GG-1
Investigator(s): JMM, BJJ Sec	etion, Township, Range: T6N, R2W, S8	
	elief (concave, convex, none): CONCAVE	Slope (%): 1
	Long: -80.6710	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classification	
Are climatic / hydrologic conditions on the site typical for this time of year?		
Are Vegetation, Soil, or Hydrology significantly dist		
Are Vegetation, Soil, or Hydrology naturally problem		
SUMMARY OF FINDINGS – Attach site map showing sa		
Hydrophytic Vegetation Present? Yes O No O N	Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes No	within a Wetland? Yes	No
Remarks:		
Feature GG is a vegetated depression that may of	collect infrequent surface pondi	ng as the result of
overland sheet flow. See Figure 4E.	enest imregaent sariaes penai	ing as the result of
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicate	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil C	racks (B6)
Surface Water (A1)	S(B14) Sparsely Vege	etated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide C		· · · ·
	eres on Living Roots (C3) Moss Trim Line	
Water Marks (B1) Sediment Deposits (B2) Presence of Reduction Recent Iron Reduction	tion in Tilled Soils (C6)	/ater Table (C2)
Drift Deposits (B3) Recent from Reduct Thin Muck Surface		ible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in R		essed Plants (D1)
Iron Deposits (B5)	Geomorphic P	` '
Inundation Visible on Aerial Imagery (B7)	Shallow Aquita	· · ·
▼ Water-Stained Leaves (B9)	Microtopograp	· ·
Aquatic Fauna (B13)	FAC-Neutral T	est (D5)
Field Observations:		
Surface Water Present? Yes No Depth (inches):		
Water Table Present? Yes No Depth (inches):		Y
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present	? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Damada		
Remarks:		

451 45	Absolute Dominant Ind	
Tree Stratum (Plot size: 15' radius)	<u>% Cover Species? S</u>	Number of Dominant Species
1. none		That Are OBL, FACW, or FAC: 1 (A)
2		Total Number of Dominant
3		Species Across All Strata: 4 (B)
4		
5		Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)
6		
7		Prevalence Index worksheet:
8.		Total % Cover of: Multiply by:
	0 = Total Cover	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' radius		FACW species <u>5</u> x 2 = <u>10</u>
1. Rosa multiflora		ACU FAC species x 3 =
2. Ulmus americana	5 √ F /	ACW FACU species 50 x 4 = 200
3.		UPL species <u>5</u> x 5 = <u>25</u>
4.		Column Totals: <u>60</u> (A) <u>235</u> (B)
5		
6		Prevalence Index = B/A = 3.95
7		Hydrophytic Vegetation Indicators:
		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		3 - Prevalence Index is ≤3.0 ¹
10		4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5' radius)	15 = Total Cover	data in Remarks or on a separate sheet)
1. Apocynum cannabinum	30 √ F /	ACU Problematic Hydrophytic Vegetation¹ (Explain)
2. Dipsacus fullonum		ACU
3. Daucus carota	5 UI	¹ Indicators of hydric soil and wetland hydrology must
		be present, unless disturbed of problematic.
4		Definitions of Four Vegetation Strata:
5		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8.		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		Herb – All herbaceous (non-woody) plants, regardless
11		of size, and woody plants less than 3.28 ft tall.
12		Woody vine – All woody vines greater than 3.28 ft in
AAA a du Vina Chahana (Dlah aina	45 = Total Cover	height.
Woody Vine Stratum (Plot size:)		
1		
2		
2		
3		
3 4		Hydrophytic
3		Hydrophytic Vegetation
3 4		

SOIL Sampling Point: GG-1

Profile Desc	cription: (Describe	to the de	oth needed to docu	ment the	indicator	or confirn	n the absence	of indicate	ors.)	
Depth	Matrix		Red	ox Feature	s					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	_Loc ²	Texture		Remarks	
0-7	2.5 YR 4/2	100						Sandy L	oam	
7-13	10 YR 5/3	95	10 YR 5/6	5	RM	M		Sandy Lo	oam - high gra	avel content
					IXIVI	IVI	-		g g	
	-				_			-		
·				_						
·								-		
	-									
	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	IS=Masked	d Sand Gi	ains.			ng, M=Matrix.	
Hydric Soil	Indicators:						<u>Ind</u> ic	ators for Pi	roblematic Hy	dric Soils³:
Histosol	(A1)		Dark Surfac	e (S7)			<u> </u>	cm Muck (A10) (MLRA 1 4	17)
	pipedon (A2)		Polyvalue B		ice (S8) (I	VILRA 147,		,	Redox (A16)	,
Black H	istic (A3)		Thin Dark S	urface (S9) (MLRA	147, 148)	_	(MLRA 14	17, 148)	
Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		F	Piedmont Flo	oodplain Soils (F19)
	d Layers (A5)		Depleted Ma	atrix (F3)			_	(MLRA 13		
	uck (A10) (LRR N)		Redox Dark	,	,				Material (TF2)	
	d Below Dark Surfac	e (A11)	Depleted Da						v Dark Surface	
l <u> </u>	ark Surface (A12)		Redox Depr		,		(Other (Expla	in in Remarks)	
	Mucky Mineral (S1) (LRR N,	Iron-Manga		es (F12)	LRR N,				
	A 147, 148)		MLRA 1	•			3			
	Gleyed Matrix (S4)		Umbric Surf						ydrophytic vege	
	Redox (S5)		Piedmont Fl	loodplain S	Soils (F19)	(MLRA 14		-	ology must be	
	Matrix (S6)						ι	ınless distur	bed or problem	atic.
	Layer (if observed)	:								
Type: Gr										
Depth (in	ches): <u>13</u>						Hydric Soi	I Present?	Yes O	No <u> </u>
Remarks:							1			

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sar	mpling Date: 5/10/2018
Applicant/Owner: Cyprus Amax Minerals Company	City/County: Mingo Junction/Jefferson Sal	Sampling Point: HH-1
Investigator(s): JMM, BJJ	Section, Township, Range: Section 8, Township	6N, Range 2W
	al relief (concave, convex, none): CONCAVE	
Subregion (LRR or MLRA): LRR N Lat: 40.3150	Long: -80.6709	
Soil Map Unit Name: Lowell silt loam, 8 to 15 percent slopes	NWI classification	
Are climatic / hydrologic conditions on the site typical for this time of year	ar? Yes O No O (If no, explain in Rema	arks.)
Are Vegetation, Soil, or Hydrology significantly		
Are Vegetation, Soil, or Hydrology naturally pro		
SUMMARY OF FINDINGS – Attach site map showing		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes	No <u>•</u>
Remarks:		
Feature HH is a small basin at the toe of a slop changes in flow patterns from the adjacent hills this feature than has in the past. See Figure 4A	ide indicate a reduced amount of w	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators	(minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Crac	
Surface Water (A1)		ted Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfid	le Odor (C1) Drainage Pattern	ns (B10)
	spheres on Living Roots (C3) Moss Trim Lines	
Water Marks (B1)		
	duction in Tilled Soils (C6) Crayfish Burrows	
Drift Deposits (B3) Thin Muck Surfa		e on Aerial Imagery (C9)
Algal Mat or Crust (B4)	n Remarks)	` '
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard	
Water-Stained Leaves (B9)	✓ Microtopographic	· · ·
Aquatic Fauna (B13)	FAC-Neutral Tes	` '
Field Observations:		,
Surface Water Present? Yes O No Depth (inches)	:	
	:	
Saturation Present? Yes No Depth (inches)	Wetland Hydrology Present?	Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photo	s previous inspections) if available:	
Describe recorded Data (stream gauge, monitoring wen, acriai priote	s, previous inspections), il available.	
Remarks:		

	Species V Total Co	? Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B) Prevalence Index worksheet:
) =		FACW	Total Number of Dominant Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)
) =	Total Co		Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)
) =	Total Co		Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)
) =	Total Co		Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B
) =	Total Co		That Are OBL, FACW, or FAC: 40 (A/B
) =	Total Co		
) =	Total Co		Prevalence Index worksheet:
) =	Total Co		
	Total Co		Total % Cover of: Multiply by:
0		over	OBL species x 1 =
0			FACW species 25 x 2 = 50
	√	FACU	FAC species <u>20</u> x 3 = <u>60</u>
			FACU species <u>80</u> x 4 = <u>320</u>
		_	UPL species x 5 =
			Column Totals: <u>125</u> (A) <u>430</u> (B)
			0.44
			Prevalence Index = B/A = 3.44
	П		Hydrophytic Vegetation Indicators:
	\Box		1 - Rapid Test for Hydrophytic Vegetation
	\vdash	-	2 - Dominance Test is >50%
	\neg		3 - Prevalence Index is ≤3.0 ¹
	Total C		4 - Morphological Adaptations ¹ (Provide supportin
	Total Co	over	data in Remarks or on a separate sheet)
0	\checkmark	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
0	<u></u>		
0	√		¹ Indicators of hydric soil and wetland hydrology must
	Ħ	_	be present, unless disturbed or problematic.
	\vdash		Definitions of Four Vegetation Strata:
	\vdash		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
	\vdash		more in diameter at breast height (DBH), regardless of
	\vdash	_	height.
	H		Sapling/Shrub – Woody plants, excluding vines, less
	\dashv		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	\dashv		Herb – All herbaceous (non-woody) plants, regardless
	+	_	of size, and woody plants less than 3.28 ft tall.
			Woody vine – All woody vines greater than 3.28 ft in
<u>5 </u>	Total Co	over	height.
	Ħ		
	╫		
	+		
	\dashv		Hydrophytic
	╫	-	Vegetation
	Ш		Present? Yes No No
=	Total Co	over	
	0 = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 = Total Co	Total Cover

SOIL Sampling Point: HH-1

Profile Desc	cription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirm	m the absence	of indicator	rs.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
+2-0					_				and organic	matter
0-3	10 YR 4/2	80	7.5 YR 4/6	20	MS	M	PL	Sandy Lo		
3-8	10 Y 4/2	60	2.5 Y 6/8	15	MS	M	C, PL	Sandy Lo	am	_
3-8	2.5 Y 2.5/1	25		_				Sandy Lo	am, black c	oncretions
			-	-				-		
-					-		-			
					_					
		_	- <u> </u>							
¹ Type: C=C	oncentration, D=Dep	letion, RN	//=Reduced Matrix, M	S=Maske	d Sand Gr	ains.		L=Pore Linin		
Hydric Soil	Indicators:		_				Indic	ators for Pro	blematic Hy	dric Soils³:
Histosol			Dark Surface						10) (MLRA 1 4	47)
	pipedon (A2)		Polyvalue Be				′, 148)	Coast Prairie	` ,	
	istic (A3) en Sulfide (A4)		Thin Dark Su Loamy Gley			147, 148)	\Box	(MLRA 147	′, 148) odplain Soils ((E10)
	d Layers (A5)		Depleted Ma		(Г2)			MLRA 136)		(519)
	uck (A10) (LRR N)		Redox Dark		F6)		F	Red Parent M		
	d Below Dark Surfac	e (A11)	Depleted Da	rk Surface	(F7)				Dark Surface	
\vdash	ark Surface (A12)		Redox Depre				(Other (Explain	n in Remarks)	
	Mucky Mineral (S1) (I	LRR N,	Iron-Mangar		ses (F12) (LRR N,				
	A 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa		(MI RΔ 13	86 122)	3Inc	dicators of hy	drophytic veg	etation and
	Redox (S5)		Piedmont Flo						logy must be	
	l Matrix (S6)				((-	ed or problem	
	Layer (if observed):	:								
Type: no	ne									
Depth (in	ches):						Hydric Soi	I Present?	Yes O	No <u>O</u>
Remarks:										
i										

Project/Site: Former Satralloy Site City/0	County: Mingo Junction/Jefferson Sampling Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company	County: Mingo Junction/Jefferson Sampling Date: 5/5/2018 State: OH Sampling Point: II-1
Investigator(s): JMM, BJJ Section	ion, Township, Range: Section 8, Township 6N, Range 2W
Landform (hillslope, terrace, etc.): old roadbed Local re	lief (concave, convex, none): none Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 40.3153	Long: -80.6646 Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell Complex, 40-70% slopes	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly distu	rbed? Are "Normal Circumstances" present? Yes O No
Are Vegetation, Soil, or Hydrology naturally problem	
SUMMARY OF FINDINGS – Attach site map showing sar	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes No No No No No No No N
Remarks:	-f - alama alama an abandan ad marahusu O-a
Wetland II is within a small ponded area at the toe Figure 4A; Attachment 3, Photo 46.	of a slope along an abandoned roadway. See
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	(B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Oc	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Sediment Deposits (B2) Presence of Reduce Recent Iron Reduction	d Iron (C4) Dry-Season Water Table (C2) on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Recent from Reduction Reduction Thin Muck Surface (in	
Algal Mat or Crust (B4) Other (Explain in Re	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes O No Depth (inches): 2	
Water Table Present? Yes O No O Depth (inches):	
Saturation Present? Yes O No Depth (inches): 16 (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:
Remarks:	

VEGETATION (Four Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 6' x 15'

Sapling/Shrub Stratum (Plot size: 6' x 15'

Herb Stratum (Plot size: 5' radius)

4. _____

1 Platanus occidentalis

2. Ulmus americana

1. Ulmus americana

2. Cornus amomum

1. Equisetum arvense

2. Onoclea sensibilis

3. Viola sororia

bsolute	plants. Dominant	Indicator	Sampling Point: II-1 Dominance Test worksheet:
	Species?		
5	√	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)
5	√	FACW	Total Number of Dominant Species Across All Strata: 7 (B)
	\dashv		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/I
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
0 :	= Total Cov	er	OBL species x 1 = _1
		01	FACW species x 2 =1
i	\checkmark	FACW	FAC species x 3 =1
	√	FACW	FACU species x 4 =1
			UPL species x 5 = 1
	\dashv	_	Column Totals: 0 (A) 5 (B
	+		Column rotals (A) (B
	\dashv		Prevalence Index = B/A =
	+	-	Hydrophytic Vegetation Indicators:
	+		1 - Rapid Test for Hydrophytic Vegetation
	+	_	2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 ¹
		-	4 - Morphological Adaptations ¹ (Provide supporting
0 :	= Total Cov	er	data in Remarks or on a separate sheet)
_			Problematic Hydrophytic Vegetation ¹ (Explain)
5		FAC	Tropioniale riyarepriyae vegetation (Explain)
5	✓	FACW	1 and a state of the education and south and broaden to several
<u> </u>	$\overline{}$	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	+		Definitions of Four Vegetation Strata:
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height.
			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	+		Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
25	= Total Cov	rer	Woody vine – All woody vines greater than 3.28 ft in height.
			Hydrophytic Vegetation Present? Yes No No
			Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

Woody Vine Stratum (Plot size: _____)

SOIL Sampling Point: II-1

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix		Redox Features			. 2		
(inches) 0-8	Color (moist)	100	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
	5 YR 2.5/2	100						Loamy Sand
8-16	10 YR 4/3	90	10 YR 5/6	8	RM	M		Clay Loam
8-16			2.5 YR 7/2	2	RM	M		Clay Loam - soft masses
16+								Rock
				. ———				
		· ——		· ——				
				·				
		letion, RM	=Reduced Matrix, MS	S=Masked	Sand Gr	ains.		_=Pore Lining, M=Matrix.
Hydric Soil I								ators for Problematic Hydric Soils ³ :
Histosol	` '		Dark Surface	` '				cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be				148) (Coast Prairie Redox (A16)
Black Hi	stic (A3) n Sulfide (A4)		Thin Dark Su Loamy Gleye	, ,		47, 148)	П	(MLRA 147, 148) Piedmont Floodplain Soils (F19)
	l Layers (A5)		Depleted Ma		12)		ш.	(MLRA 136, 147)
	ck (A10) (LRR N)		Redox Dark		- 6)		☐ F	Red Parent Material (TF2)
	d Below Dark Surfac	e (A11)	Depleted Dai	rk Surface	(F7)			ery Shallow Dark Surface (TF12)
	ark Surface (A12)		Redox Depre					Other (Explain in Remarks)
	lucky Mineral (S1) (L	LRR N,	Iron-Mangan		es (F12) (LRR N,		
	A 147, 148) Sleyed Matrix (S4)		MLRA 13 Umbric Surfa		MIRA 13	6 122)	³ Inc	licators of hydrophytic vegetation and
	ledox (S5)		Piedmont Flo	. ,	•			vetland hydrology must be present,
	Matrix (S6)		_		(- /	•		nless disturbed or problematic.
Restrictive I	ayer (if observed):							
Type: roc								
Depth (inc	ches): <u>16</u>						Hydric Soil	Present? Yes O No O
Remarks:								
Problema	atic soils are p	resent.	Recent vehic	le use	along	an old ı	roadway I	nas led to deep ruts that
					_			elopment of the features
								and hydrology and
								d the strong presence of
								d to be a wetland.
rrydroprry	tio vegetation	and m	diologic iliaic	ators t	ilio ica	tare is t	Jonisiacio	a to be a welland.
İ								

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company		Sampling Point: JJ-1
Investigator(s): JMM, BJJ	Section, Township, Range: Section 8, Towns	ship 6N, Range 2W
	ocal relief (concave, convex, none): none	Slope (%): 3
Subregion (LRR or MLRA): LRR N Lat: 40.3145	Long: -80.6645	Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell Complex, 40-70%	slopes NWI classific	cation: None
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes <u> </u>	Remarks.)
Are Vegetation, Soil, or Hydrology significant	ly disturbed? Are "Normal Circumstances"	present? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling point locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes)No
Remarks:	collecting water from Tributery DI) located ungradient
Wetland JJ is located along an old road bed, of the wetland. Waters pool along terrace cre and 48.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations:	Plants (B14) Plants (B14) Sparsely Ve Ifide Odor (C1) Drainage Pa zospheres on Living Roots (C3) Reduced Iron (C4) Reduced Iron (C4) Reduction in Tilled Soils (C6) Urface (C7) Saturation V Stunted or S Geomorphic Shallow Aqu Microtopogra FAC-Neutral	Water Table (C2) Frows (C8) Frisible on Aerial Imagery (C9) Extressed Plants (D1) Frosition (D2) Frosition (D3) Frosition (D4)
Surface Water Present? Yes No Depth (inche Water Table Present? Yes No Depth (inche		
Saturation Present? Yes No Depth (inche		nt? Yes ^X No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspections), if available:	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 10' x 15')

Herb Stratum (Plot size: 5' radius)

12. _____

2. Platanus occidentalis

1. Ulmus americana

1. Cornus amomum

Agrostis hyemalis 2. Equisetum arvense

2. Rubus idaeus

3. Acer negundo

Sampling Point: JJ-1 Dominant Indicator **Dominance Test worksheet:** % Cover Species? Status **Number of Dominant Species FACW** 6 ____ (A) That Are OBL, FACW, or FAC: **FACW** Total Number of Dominant 10 FAC 6 _____ (B) Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: ___ (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = 1 40 _ = Total Cover Sapling/Shrub Stratum (Plot size: 5' x 15') FACW species _____ x 2 = _1____ 10 **FACW** FAC species _____ x 3 = 1 FACU species _____ x 4 = ____ 10 FAC UPL species _____ x 5 = 1 Column Totals: <u>0</u> (A) <u>5</u> (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 20 = Total Cover data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) FAC **FAC** ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Four Vegetation Strata:** Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in 45 = Total Cover Woody Vine Stratum (Plot size: _____) Hydrophytic Vegetation Yes No Present? = Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point: JJ-1

Profile Desc	ription: (Describe	to the dep	th needed to docur	ment the i	ndicator	or confirm	the absence	of indicate	ors.)		
Depth	Matrix			x Features							
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
0-8	2.5 YR 2.5/3	100						Peat			
8-14	10 YR 4/2	95	10 YR 5/8	5	C	M		Silty Clay	У		
14-16	10 YR 4/3	80	10 YR 5/1	20	C	M		Silty Clay	У		
16								Rock			
	-										
¹ Type: C=Co	oncentration, D=Dep	letion, RM:	=Reduced Matrix, MS	S=Masked	Sand Gr	ains.	² Location: PL	=Pore Linir	ng, M=Matrix.		
Hydric Soil I	ndicators:		_				Indica	ators for Pr	oblematic Hy	dric So	ils³:
Histosol	· ,		Dark Surface	, ,					410) (MLRA 1 4	1 7)	
	pipedon (A2)		Polyvalue Be				148)		Redox (A16)		
Black Hi	, ,		Thin Dark Su			147, 148)	Пъ	(MLRA 14		E40)	
	n Sulfide (A4) I Layers (A5)		Loamy Gleye ✓ Depleted Ma	,	F2)		Ц Р	iedmont Fid MLRA 13)	oodplain Soils (F19)	
	ck (A10) (LRR N)		Redox Dark		·6)		Пв		Material (TF2)		
	Below Dark Surface	e (A11)	Depleted Dai	,	,				Dark Surface	(TF12)	
_	ark Surface (A12)	,	Redox Depre					-	in in Remarks)	. ,	
	lucky Mineral (S1) (L	.RR N,	☐ Iron-Mangan	ese Masse	es (F12) (LRR N,	_				
	A 147, 148)		MLRA 13	•			2				
	Sleyed Matrix (S4)		Umbric Surfa						ydrophytic vege		
	edox (S5) Matrix (S6)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		-	ology must be bed or problem		,
	_ayer (if observed):						u I	illess distui	bed of problem	ialic.	
Type: roo											
Depth (inc							Hydric Soil	Present?	Yes O	No _	0_
Remarks:	•										

Project/Site: Former Satralloy Site City/County: Ming	go Junction/Jefferson Sampling Date: 5/5/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: JJ-2
Investigator(s): JMM, BJJ Section, Township	o, Range: Section 8, Township 6N, Range 2W
Landform (hillslope, terrace, etc.): hillslope\terrace Local relief (concave,	
Subregion (LRR or MLRA): LRR N Lat: 40.3145	Long: -80.6644 Datum: NAD 83
	NWI classification: None
_	No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes O No O
	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling poi	nt locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes O No O Is the Sam within a W	
Upland data point adjacent to Wetland JJ. See Figure 4A.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9) Aquatic Fauna (B13)	Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	TAC-Neutral Test (D3)
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches): 19	
Saturation Present? Yes O No O Depth (inches):	Wetland Hydrology Present? Yes No X
(includes capillary fringe)	, , , ,
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: JJ-2
To the state of th	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: 15' radius) 1. Acer negundo	<u>% Cover</u> 25	Species?		Number of Dominant Species
1. Ulmus americana	10		FAC FACW	That Are OBL, FACW, or FAC: 5 (A)
			ACVV	Total Number of Dominant
3		-		Species Across All Strata: 7 (B)
4		-		Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 71 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8		= Total Cove	r	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' radius)		- Total Cove	l	FACW species x 2 = 1
1. Rubus idaeus	10	✓	FAC	FAC species x 3 = 1
2. Acer negundo	5	✓	FAC	FACU species x 4 = _1
3				UPL species x 5 =
4				Column Totals: 0 (A) 5 (B)
5				5 50
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
9				✓ 2 - Dominance Test is >50%
10				3 - Prevalence Index is ≤3.0 ¹
		= Total Cove	r	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius)	40		- 4 - 0 1	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Alliaria petiolata	10		FACU	
2. Galium aparine	10		FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Agrostis hyemalis	_ 10		FAC	be present, unless disturbed or problematic.
4. Arisaema triphyllum			FACW	Definitions of Four Vegetation Strata:
5. Onoclea sensibilis			FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7		+++++		height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	33	= Total Cove	r	height.
1. none				
2.				
3.				
4.				
5.				Hydrophytic Vegetation
6.				Present? Yes No No
		= Total Cove	r	
Remarks: (Include photo numbers here or on a separate				
	o 0.1301.1,			

Sampling Point: JJ-2

	cription: (Describe	to the dep	oth needed to docur	ment the i	ndicator	or confirm	the absence	of indicators.)	
Depth Matrix Redox Features									
(inches) 0-8	Color (moist) 7.5 YR 2.5/1	100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks	-
	-							Clay Loam	_
8-11	10 YR 4/3	93	10 YR 6/3		С	M		Silt Loam	_
11-19	10 YR 4/4	95	10 YR 5/3	5	C	M		Silt Clay	_
19								Groundwater	_
									_
									-
	-								-
									_
									_
		letion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.		=Pore Lining, M=Matrix.	
Hydric Soil								ators for Problematic Hydric Soils ³ :	
Histosol	, ,		Dark Surface		· · (00) (B	U DA 447		cm Muck (A10) (MLRA 147)	
Black Hi	oipedon (A2)		Polyvalue Be		. , .		148) C	coast Prairie Redox (A16) (MLRA 147, 148)	
	en Sulfide (A4)		Loamy Gleye			47, 140)	ПР	riedmont Floodplain Soils (F19)	
	d Layers (A5)		Depleted Ma		. –,			(MLRA 136, 147)	
	ıck (A10) (LRR N)		Redox Dark					led Parent Material (TF2)	
	d Below Dark Surface	e (A11)	Depleted Da					ery Shallow Dark Surface (TF12)	
_	ark Surface (A12)	DD N	Redox Depre			DD N	<u> </u>	Other (Explain in Remarks)	
	lucky Mineral (S1) (L \ 147, 148)	.KK N,	Iron-Mangan MLRA 13		es (F12) (LKK N,			
	Gleyed Matrix (S4)		Umbric Surfa	•	MLRA 13	6. 122)	³ Ind	icators of hydrophytic vegetation and	
	Redox (S5)		Piedmont Flo					vetland hydrology must be present,	
Strinned	Matrix (S6)		_				u	nless disturbed or problematic.	
								•	
Restrictive I	Layer (if observed):							·	
Type: no	Layer (if observed): ne								
Type: noi	Layer (if observed): ne						Hydric Soil	Present? Yes O No O	_
Type: no	Layer (if observed): ne						Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		 19 inches dep	oth.			Hydric Soil	Present? Yes O No	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		 19 inches dep	oth.			Hydric Soil	Present? Yes O No O	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		 19 inches dep	oth.			Hydric Soil	Present? Yes O No O	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		 19 inches dep	oth.			Hydric Soil	Present? Yes O No	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	-
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	_
Restrictive I Type: noi Depth (inc	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	
Restrictive I Type: noi Depth (inc Remarks:	Layer (if observed): ne ches):		19 inches dep	oth.			Hydric Soil	Present? Yes O No O	

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson Sampling Date: 5/6/2018						
Applicant/Owner: Cyprus Amax Minerals Company	State: OH Sampling Point: KK-1						
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8						
	cal relief (concave, convex, none): none Slope (%): 10						
Subregion (LRR or MLRA): LRR N Lat: 40.3142	Long: -80.6638 Datum: NAD 83						
Soil Map Unit Name: Clarksburge Silt Loam 15-25% Slopes	NWI classification: None						
Are climatic / hydrologic conditions on the site typical for this time of year	ar? Yes No (If no, explain in Remarks.)						
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances" present? Yes No						
Are Vegetation, Soil, or Hydrology naturally pro	blematic? (If needed, explain any answers in Remarks.)						
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important features, etc.						
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes No No						
Wetland KK collects runoff and/or subsurface flows from Stream DD and Wetland JJ, and the general hillside. Waters flow down the hillside and pool in naturally terraced areas and do not discharge downgradient. See Figure 4C; Attachment 3, Photos 49 and 50.							
HYDROLOGY							
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)						
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) True Aquatic Plate Hydrogen Sulfide Oxidized Rhizos							
Water Marks (B1) Sediment Deposits (B2) Presence of Real Recent Iron Rec	duced Iron (C4) Dry-Season Water Table (C2) duction in Tilled Soils (C6) Crayfish Burrows (C8)						
Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Thin Muck Surfa Other (Explain i							
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)						
Water-Stained Leaves (B9)	Microtopographic Relief (D4)						
Aquatic Fauna (B13)	FAC-Neutral Test (D5)						
Field Observations: Surface Water Present? Water Table Present? Saturation Present? Yes O No Depth (inches) Yes No Depth (inches) Yes O No Depth (inches)	: 1						
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photo	s, previous inspections), if available:						
Remarks:							

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: KK-1

	Absolute			Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: 10' x 20')	% Cover				Number of Dominant Species	
1. Acer rubrum	30	_	✓	FAC	That Are OBL, FACW, or FAC: 3 (A	١)
2. Fraxinus pennsylvanic	5			FACW	Total Number of Dominant	
3					Species Across All Strata: 5 (E	3)
4.						,
					Percent of Dominant Species That Are OBL FACW or FAC: 60	. (5)
5			_		That Are OBL, FACW, or FAC: 60 (A	√B)
6			_		Prevalence Index worksheet:	
7			_			
8		\perp			Total % Cover of: Multiply by:	
	0.5	= Tot	tal Cov	er	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 5' x 20')			_		FACW species x 2 = _1	
1. Acer rubrum	5	L	✓	FAC	FAC species x 3 = _1	
2. Liriodendron tulipifera	5		√	FACU	FACU species x 4 = _1	
		T	_		UPL species x 5 = 1	
3			+	-		(D)
4			_		Column Totals: 0 (A) 5	(B)
5				-	Prevalence Index = B/A =	
6						
7					Hydrophytic Vegetation Indicators:	
8.					1 - Rapid Test for Hydrophytic Vegetation	
			_	-	✓ 2 - Dominance Test is >50%	
9			=	-	3 - Prevalence Index is ≤3.0 ¹	
10				_	4 - Morphological Adaptations ¹ (Provide suppor	tina
en l'	10	= Tot	tal Cov	er	data in Remarks or on a separate sheet)	ung
Herb Stratum (Plot size: 5' radius)		-	_		Problematic Hydrophytic Vegetation (Explain)	
1. Toxicodendron radicans	5		✓	FAC	Troblematic Trydrophytic vegetation (Explain)	
2						
3.					¹ Indicators of hydric soil and wetland hydrology mus	st
			_		be present, unless disturbed or problematic.	
4			+		Definitions of Four Vegetation Strata:	
5			_		Tree Woody plants evaluding vince 2 in /7.6 am	۱ ۵ ۳
6					Tree – Woody plants, excluding vines, 3 in. (7.6 cm more in diameter at breast height (DBH), regardless	
7					height.	01
8.			_		Sapling/Shrub – Woody plants, excluding vines, le	SS
8						
9		4	+		than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
9		4	\pm		than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
9		4	<u>+</u>			
9		4			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.	ess
9		<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft	ess
9		<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.	ess
9		<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft	ess
9	5	<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft	ess
9	5	<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft	ess
9	5	<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft	ess
9	5	<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height.	ess
9	5	<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	<u>+</u>	tal Cov	er	than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic	ess
9	5	= Tol	tal Cov		than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess
9	5	= Tol			than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft height. Hydrophytic Vegetation	ess

SOIL Sampling Point: KK-1

Profile Desc	cription: (Describe	to the dep	th needed to docu	ment the	indicator	or confirm	n the absence	of indicators	s.)	
Depth				x Feature		1 - 2				
(inches) 0-6	Color (moist) 7.5 YR 3/1	100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Loom mu	Remarks ucky mineral	
			0.53/.0/4						-	
6-15	7.5 YR 4/2	90	2.5 Y 6/4	7	С	M		Sandy Loa		
6-15			2.5 Y 6/4	3	С	M		Sandy Loa	am	
			-	_						
		-								
					-					
				_	-			-		
1							2			
Type: C=Co		letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.		L=Pore Lining, ators for Prol		trio Soilo ³ :
Histosol			☐ Dark Surface	(97)				cm Muck (A1	-	
	oipedon (A2)		Polyvalue Be		nce (S8) (I	/ILRA 147.		Coast Prairie R		1)
Black Hi			Thin Dark Su		. , .		.+0,	(MLRA 147,	, ,	
	en Sulfide (A4)		Loamy Gleye			,	□ ₽	Piedmont Floo		- 19)
	d Layers (A5)		Depleted Ma					(MLRA 136,		
	ick (A10) (LRR N)	(* ()	Redox Dark	,	,			Red Parent Ma		(== 10)
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Da Redox Depre		. ,			/ery Shallow D Other (Explain		(TF12)
l <u>—</u>	lucky Mineral (S1) (I	LRR N.	Iron-Mangan			LRR N.		otilei (Explaii)	iii iteiliaiks)	
	\ 147, 148)	,	MLRA 13			,				
Sandy G	Gleyed Matrix (S4)		Umbric Surfa	ace (F13)	(MLRA 1	86, 122)	³ Inc	licators of hyd	rophytic vege	tation and
	Redox (S5)		Piedmont Flo	oodplain S	Soils (F19)	(MLRA 14		vetland hydrol		
	Matrix (S6)						u	ınless disturbe	ed or problem	atic.
Type: no	L ayer (if observed) : ne	i								
	ches):						Hydria Cail	Present?	vaa 🔘	No O
Remarks:	ulles)						Hyuric Soil	rresent	Tes	NO <u> </u>
Remarks.										

Project/Site: Former Satralloy Site Cit	y/County: Mingo Junction/Jefferson	Sampling Date: 5/7/2018
Applicant/Owner: Cyprus Amax Minerals Company	y/County: Mingo Junction/Jefferson State: OH	Sampling Point: KK-2
Investigator(s): JMM, BJJ Se	ction, Township, Range: T6N, R2W, S8	
	relief (concave, convex, none): none	Slope (%): 20
Subregion (LRR or MLRA): LRR N Lat: 40.3142	Long: -80.6638	Datum: NAD 83
Soil Map Unit Name: Clarksburg Silt Loam 15-25% Slopes	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes O No (If no, explain in R	demarks.)
Are Vegetation, Soil, or Hydrology significantly dis		present? Yes O No O
Are Vegetation, Soil, or Hydrology naturally proble		
SUMMARY OF FINDINGS – Attach site map showing sa		
		· · ·
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No No No	Is the Sampled Area	
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No No	within a Wetland? Yes) No <u>•</u>
Remarks:		
Upland data point adjacent to Wetland KK. See F	Figure 4C.	
	.g	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)	s (B14) Sparsely Veç	getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide		
	neres on Living Roots (C3) Moss Trim Li	
Water Marks (B1) Presence of Redu		Water Table (C2)
	ction in Tilled Soils (C6) Crayfish Burn	
Drift Deposits (B3) Thin Muck Surface Other (Funds in In-	· · · —	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in F) Iron Deposits (B5)		tressed Plants (D1) Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	` ,
Water-Stained Leaves (B9)		aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	
Field Observations:		
Surface Water Present? Yes No Depth (inches): _		
Water Table Present? Yes No Depth (inches): _		
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Presen	nt? Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, includes capillary fringe)		
	, , , ,	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling	Point-	KK-2
Sambling	Point.	

Table Chaptering (Diet sine) 15' radius	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 15' radius) 1 Acer rubrum	30	Species?	FAC	Number of Dominant Species
•••		√		That Are OBL, FACW, or FAC: 5 (A)
Ulmus americana Ulmus americana	15	-	FACW	Total Number of Dominant Species Across All Strata: 10 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)
6				
7.				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
	4.5	= Total Cov	er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' radius)			·	FACW species 20 x 2 = 40
1. Acer rubrum	5	✓	FAC	FAC species <u>40</u> x 3 = <u>120</u>
2. Viburnum prunifolium	5	\checkmark	FACU	FACU species 25 x 4 = 100
3				UPL species x 5 =
4				Column Totals: <u>85</u> (A) <u>260</u> (B)
5.				
6.			-	Prevalence Index = B/A = 3.05
7				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
8			_	2 - Dominance Test is >50%
9		\dashv		3 - Prevalence Index is ≤3.0 ¹
10		Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius) 1. Toxicodendron radicans	5	\checkmark	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
Rosa multiflora		<u> </u>		
		√	FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Galium aparine		-	FACU	be present, unless disturbed or problematic.
4. Viola bicolor	5	√	FACU	Definitions of Four Vegetation Strata:
5. Alliaria petiolata		<u> </u>	FACU	The Manda de lands avaludina vince 2 in (7.0 cm) or
6. Boehmeria cylindrica	5	✓	FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		\bot		height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
4.4				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.				of size, and woody plants less than 3.20 it tall.
Woody Vine Stratum (Plot size: 10' diameter)	30	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
1. Toxicodendron radicans	5	$\overline{\checkmark}$	FAC	
2.		一一	1710	
		+	-	
3		++	-	
4		+	-	Hydrophytic
5		+		Vegetation
6				Present? Yes No No
	5	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL Sampling Point: KK-2

I I TOTHE DESC	cription: (Describe	to the de	oth needed to docu	ment the i	ndicator	or confirm	n the absence	of indicato	rs.)	
Depth	Matrix		Redo	ox Feature	S					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-2	2.5 YR 2.5/1	100						Silt Loam	1	
2-13	10 YR 4/3	99	10 YR 5/6	1	MS	M		Loam		
13-17	10 YR 4/2	95	10 YR 5/6	 5	С	M		Loam		
13-17	10 111 7/2	35	10 110 3/0		C	IVI		LUaiii		
		- ——								
¹Type: C=C	oncentration D=Der	letion RM	=Reduced Matrix, M	IS=Masker	I Sand G	raine	² Location: PL	=Pore Linin	a M=Matrix	
Hydric Soil		iletion, ixiv	-reduced Matrix, M	IO-IVIASKE	Janu G	airis.			oblematic Hyd	dric Soils ³ :
Histosol			Dark Surface	o (S7)					410) (MLRA 1 4	
	pipedon (A2)		Polyvalue B	, ,	ce (S8) (I	MI DA 147			Redox (A16)	+1)
	istic (A3)		Thin Dark S				, 146)	MLRA 14'		
	en Sulfide (A4)		Loamy Gley			147, 140)	Пь		odplain Soils (F10)
	d Layers (A5)		Depleted Ma		1 2)		ш.	(MLRA 13		1 19)
	uck (A10) (LRR N)		Redox Dark		6)		Пв		Material (TF2)	
	d Below Dark Surfac	e (A11)	Depleted Da	,	,				Dark Surface	(TF12)
	ark Surface (A12)	· ()	Redox Depr						n in Remarks)	
l <u>—</u>	/lucky Mineral (S1) (RR N.	Iron-Mangar		,	LRR N.		(,	
	A 147, 148)	,	MLRA 13		(/	,				
	Gleyed Matrix (S4)		Umbric Surfa	•	MLRA 1	36, 122)	³ Ind	icators of hy	drophytic vege	etation and
	Redox (S5)		Piedmont FI						ology must be	
	Matrix (S6)		_		,	·		-	ped or problem	
Restrictive	Layer (if observed)									
Type: no	ne									_
							Hydric Soil	Present?	Yes O	No O
Depth (in	ne ches):						Hydric Soil	Present?	Yes O	No <u> </u>
							Hydric Soil	Present?	Yes O	No <u> </u>
Depth (in			_				Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in			<u> </u>				Hydric Soil	Present?	Yes O	No <u>O</u>
Depth (in							Hydric Soil	Present?	Yes <u>O</u>	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>O</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>O</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>O</u>
Depth (in							Hydric Soil	Present?	Yes O	No <u>©</u>
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O
Depth (in							Hydric Soil	Present?	Yes O	No O

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: LL-1
Investigator(a): JMM, BJJ	Section Township Bongs: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): terrace\disturbed	_ocal relief (concave, convex, none); CONCAVE	Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3115	Long: -80.6681	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of	vear? Yes No O (If no explain in F	Remarks)
Are Vegetation, Soil, or Hydrology significant		present? Yes O No O
Are Vegetation, Soil, or Hydrology naturally p		
SUMMARY OF FINDINGS – Attach site map showing		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland? Yes) No
Remarks:	rtificial fill and rin ran that callegts	drainaga water from
Wetland LL is a heavily disturbed area with a a culvert underneath an adjacent railroad spu	• •	J
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	/) Surface Soil	Cracks (B6)
Surface Water (A1)	Plants (B14) Sparsely Ve	getated Concave Surface (B8)
	llfide Odor (C1) Drainage Pa	tterns (B10)
	zospheres on Living Roots (C3) Language Moss Trim L	
	· · · ·	Water Table (C2)
	Reduction in Tilled Soils (C6) Crayfish Bur	
Drift Deposits (B3) Thin Muck St		isible on Aerial Imagery (C9)
	, <u> </u>	tressed Plants (D1)
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Geomorphic Shallow Agu	Position (D2)
Water-Stained Leaves (B9)		aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	
Field Observations:		(- /
Surface Water Present? Yes O No Depth (inche	es): 6	
Water Table Present? Yes No Depth (inche		
Saturation Present? Yes O No Depth (inche	es): 6 Wetland Hydrology Preser	nt? Yes X No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if available:	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling	Doint:	L	L-1	
Sampling	Point.	_	_ '	

401	Absolute	Dor	minant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: 10' radius)	% Cover	Sp	ecies?	Status	Number of Dominant Species	
1. none		_			That Are OBL, FACW, or FAC: 3 (A	A)
2.					Total Number of Deminant	
3					Total Number of Dominant Species Across All Strata: 3 (I	В)
4.					(-,
5			T		Percent of Dominant Species That Are OBL FACW or FAC: 100	A (D)
			十		That Are OBL, FACW, or FAC: 100 (A	A/B)
6			+		Prevalence Index worksheet:	
7		- г	+		Total % Cover of: Multiply by:	
8	•				OBL species x 1 = _1	
Cardina/Charle Charles (District 10' radius	0	= To	tal Cov	/er	FACW species x 2 = 1	
Sapling/Shrub Stratum (Plot size: 10' radius) 1 Salix exigua	10	ı	√	FACW		
··· 		\rightarrow	* 	FACVV	FAC species x 3 =	
2			-		FACU species $x 4 = 1$	
3		_	_	-	UPL species x 5 = _1	
4		_			Column Totals: 0 (A) 5	(B)
5					B 1 1 1 8/A	
6		- 1			Prevalence Index = B/A =	
7					Hydrophytic Vegetation Indicators:	
8.				•	1 - Rapid Test for Hydrophytic Vegetation	
				-	2 - Dominance Test is >50%	
9			\dashv	-	3 - Prevalence Index is ≤3.0 ¹	
10		_			4 - Morphological Adaptations ¹ (Provide suppo	rting
Herb Stratum (Plot size: 5' radius)	10	= 10	tal Cov	/er	data in Remarks or on a separate sheet)	
1. Typha angustifolia	40	Γ	√	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)	
2 Equisetum arvense		_=	7	FAC		
		+	<u>* </u>	-	¹ Indicators of hydric soil and wetland hydrology mu	st
3. Juncus spp.	5	+	┿	NI	be present, unless disturbed or problematic.	
4. Salix exigua			_	FACW	Definitions of Four Vegetation Strata:	
5		_	_		To a Was do a landa a controlla a cina a O in (7.0 cm	
6		_			Tree – Woody plants, excluding vines, 3 in. (7.6 cm more in diameter at breast height (DBH), regardles	
7					height.	0 01
8		- 1				
9					Sapling/Shrub – Woody plants, excluding vines, lethan 3 in. DBH and greater than 3.28 ft (1 m) tall.	ess
10					and the Berrama grouter than 6.25 it (1 m) tall.	
		T	一		Herb – All herbaceous (non-woody) plants, regardl	ess
11 12		\neg	十		of size, and woody plants less than 3.28 ft tall.	
12.		L	<u> </u>		Woody vine - All woody vines greater than 3.28 ft	in
Woody Vine Stratum (Plot size:)	70	- 10	iai Cov	/ei	height.	
1		[
		寸	╗	-		
2		ᆉ	┽	-		
3			_	-		
4			_	-	Hydrophytic	
5		ᆛ	=	-	Vegetation	
6					Present? Yes No No	
	0	= To	tal Cov	/er		
Remarks: (Include photo numbers here or on a separate s	sheet.)					

Sampling Point: LL-1

SOIL

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the i	ndicator	or confirm	the absence	of indicators	5.)	
Depth	Matrix		Redo	x Feature:	3					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-4	2.5 Y 4/4	95	2.5 Y 4/1	5	D	PL		Loam		
4-6	10 YR 4/1	93	10 YR 6/6	7	C	PL		Loam - dist	tinct redox fe	eatures
6-15	2.5 YR 5/3	80	2.5 YR 3/2	20	С	M		Sandy Loa	m	
	-			·						
	-									
	-	·								
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, MS	S=Masked	Sand Gr	ains.	² Location: PL	_=Pore Lining,	M=Matrix.	
Hydric Soil I	ndicators:							ators for Prob	-	
Histosol	, ,		Dark Surface					cm Muck (A1		7)
	pipedon (A2)		Polyvalue Be				148)	oast Prairie R	, ,	
Black Hi	stic (A3) n Sulfide (A4)		Thin Dark Su Loamy Gleye			147, 148)	Пь	(MLRA 147, riedmont Flood		10)
	I Layers (A5)		✓ Depleted Mat		172)			(MLRA 136,		19)
	ck (A10) (LRR N)		Redox Dark	. ,	6)		□R	Red Parent Ma	•	
	Below Dark Surface	e (A11)	Depleted Dar					ery Shallow D		TF12)
	ark Surface (A12)		Redox Depre				<u></u>	ther (Explain i	in Remarks)	
	lucky Mineral (S1) (L	.RR N,	Iron-Mangan		es (F12) (LRR N,				
	147, 148) ileyed Matrix (S4)		MLRA 130		MIRA 13	6 122)	³ Ind	icators of hydr	ronhytic veget	ation and
	edox (S5)		Piedmont Flo					etland hydrolo		
	Matrix (S6)		_	•	,	•		nless disturbe		
	ayer (if observed):									
Type: col										
Depth (inc	ches): <u>15</u>						Hydric Soil	Present?	Yes <u> </u>	No O
Remarks:										

Project/Site: Former Satralloy Site C	ity/County: Mingo Junction/Jefferson State: OH	Sampling Date: 5/8/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OH	Sampling Point: MM-1
Investigator(s): JMM, BJJ S	ection, Township, Range: T6N, R2W, S8	
Landform (hillslope, terrace, etc.): disturbed Loca	al relief (concave, convex, none): none	Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3104		Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy		ation:
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes O No O (If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrology significantly di		resent? Yes O No
Are Vegetation, Soil, or Hydrology naturally prob		
SUMMARY OF FINDINGS – Attach site map showing s		
	paring point resultane, transcere	,portant routaros, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No No No No No No No N	Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No No No No No	within a Wetland? Yes	No <u> </u>
Remarks:		
Feature MM is a small depression that collects I	imited overland sheet flow. See	Figure 4F
Toutare with the definant depression that defined to	miliou everiaria erieet new. eee	rigaro ie.
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide	· · · · · · · · · · · · · · · · · · ·	
	oheres on Living Roots (C3) Moss Trim Li	
Water Marks (B1) Sediment Deposits (B2) Presence of Red Recent Iron Redu	uction in Tilled Soils (C6)	Water Table (C2)
Drift Deposits (B3) Thin Muck Surface	` ' =	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in		tressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	` '
✓ Water-Stained Leaves (B9)		phic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):	1	
Water Table Present? Yes O No O Depth (inches):		
Saturation Present? Yes No Depth (inches):		t? Yes ^X No
(includes capillary fringe)		100 110
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	, previous inspections), if available:	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: MM-1

T 0: 1 (D) 1:			t Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size:) 1 none			? Status	Number of Dominant Species That Are OBL, FACW, or FAC: 1	(A)
··· ·				That Are OBL, FACW, or FAC: 1	(A)
2.			_	Total Number of Dominant	
3				Species Across All Strata: 1	(B)
4			_	Percent of Dominant Species	
5		\perp			(A/B)
6		\rightarrow	_	Prevalence Index worksheet:	
7		\perp	_	Total % Cover of: Multiply	by a
8		\bot			-
	0	= Total Co	over	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 = 1	
1. none				FAC species x 3 = 1	
2			-	FACU species x 4 = 1	
3		\perp		UPL species x 5 = 1	
4			_	Column Totals: 0 (A) 5	(B)
5		$\perp \perp \perp$	_	Dravelence Index = D/A =	
6			_	Prevalence Index = B/A =	
7				Hydrophytic Vegetation Indicators:	
8.				1 - Rapid Test for Hydrophytic Vegeta	tion
9.				2 - Dominance Test is >50%	
10				3 - Prevalence Index is ≤3.0 ¹	
10.	0	- Total Co	- ·	4 - Morphological Adaptations ¹ (Providence)	
Herb Stratum (Plot size: 5' radius)		- Total Ct	ovei	data in Remarks or on a separate s	*
1. Typha angustifolia	50	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ ((Explain)
2. Juncus spp.	5	\Box	NI		
				¹ Indicators of hydric soil and wetland hydro	
3				be present, unless disturbed or problemati	C.
4			-	Definitions of Four Vegetation Strata:	
5				Tree – Woody plants, excluding vines, 3 in	ı. (7.6 cm) or
6			-	more in diameter at breast height (DBH), re	
7				height.	
8				Sapling/Shrub – Woody plants, excluding	vines, less
9				than 3 in. DBH and greater than 3.28 ft (1	
10		\perp		Herb – All herbaceous (non-woody) plants	regardless
11		+		of size, and woody plants less than 3.28 ft	
12			_		0.00 %
	55	= Total Co	over	Woody vine – All woody vines greater that height.	n 3.28 ft in
Woody Vine Stratum (Plot size:)				noight.	
1. <u>none</u>		-			
2					
3		-			
4				Herdrande stie	
5				Hydrophytic Vegetation	
6.				Present? Yes No ()
	0	= Total Co	over		
Remarks: (Include photo numbers here or on a separate	sheet)				
Tromane. (molado prioto namboro noro di diri a doparato	011001)				

SOIL Profile Dos	cription: (Describe	to the den	th peopled to decure	nent the i	ndicator	or confirm	the absence	Sampling Point:
Depth (inches)	Matrix Color (moist) 2.5 Y 4/1	— % 100		x Feature:		Loc ²	Texture	Remarks Loamy Sand with gravel

(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-6	2.5 Y 4/1	100						Loamy S	and with gra	vel
	-			· ———						
								-		
_										_
	-							-		
1		 .					2			
	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: Pl	_=Pore Linir	ng, M=Matrix.	
Hydric Soil	Indicators:						Indic	ators for Pr	oblematic Hy	dric Soils³:
Histosol	I (A1)		Dark Surface	(S7)			\square_2	cm Muck (/	A10) (MLRA 1 4	17)
					00 (SO) /N	II DA 147			Redox (A16)	*1)
	pipedon (A2)		Polyvalue Be				, 148) (
_	istic (A3)		Thin Dark Su			47, 148)		(MLRA 14		
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		F	Piedmont Flo	odplain Soils (F19)
Stratifie	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 13	6. 147)	
	uck (A10) (LRR N)		Redox Dark		·6)				Material (TF2)	
		- (0.4.4)		•	,					(TE40)
	d Below Dark Surfac	e (A11)	Depleted Dai						Dark Surface	
	ark Surface (A12)		Redox Depre					Other (Expla	in in Remarks)	
Sandy N	Mucky Mineral (S1) (L	LRR N,	Iron-Mangan	ese Mass	es (F12) (I	LRR N,				
MLR	A 147, 148)		MLRA 13							
	Gleyed Matrix (S4)		Umbric Surfa	•	MI DA 13	6 122\	3Inc	licators of h	ydrophytic vege	etation and
	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		-	ology must be	
Stripped	d Matrix (S6)						U	nless distur	bed or problem	natic.
Restrictive	Layer (if observed):	:								
Type: CO	mpacted gravel									
								_		
Depth (in	ches): 0						Hydric Soil	Present?	Yes O	No O
Remarks:										
⋅Value is	too high for a	ı deplete	ed matrix.							
	0	•								

Project/Site: Former Satralloy Site C	ity/County: Mingo Junction/Jefferson Sampling Date: 5/9/2018
Applicant/Owner: Cyprus Amax Minerals Company	ity/County: Mingo Junction/Jefferson Sampling Date: 5/9/2018 State: OH Sampling Point: NN-1
Investigator(s): JMM, BJJ S	Section, Township, Range: T6N, R2W, S8
	al relief (concave, convex, none): CONCAVE Slope (%): 5
	Long: -80.6763 Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year	r? Yes _ O _ No _ O (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly di	
Are Vegetation, Soil, or Hydrology naturally prob	
	sampling point locations, transects, important features, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Is the Sampled Area within a Wetland? Yes No No	
Remarks:	
Wetland NN is formed from a seep exiting a sterterminate before reaching the toe of the hillslope	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	nts (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide	
	pheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Sediment Deposits (B2) Presence of Red Recent Iron Redu	uced Iron (C4) Dry-Season Water Table (C2) uction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Recent from Redd Thin Muck Surface	` ' = ' ` ' '
Algal Mat or Crust (B4) Other (Explain in	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	<0.5
Surface Water Present? Yes O Depth (inches):	
Water Table Present? Yes O No O Depth (inches):	
Saturation Present? Yes O No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), if available:
Remarks:	

VEGETATION (Four Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 15' radius

Sapling/Shrub Stratum (Plot size: 10' radius

Herb Stratum (Plot size: 5' radius)

1 Platanus occidentalis

2. Aesculus glabra

1. Ulmus americana

1. Equisetum arvense

3. Solidago altissima

2. Rosa multiflora

4. Galium aparine

2. Rubus spp.

ames of	plants.		Sampling Point: NN-1
Absolute	Dominant In	dicator	Dominance Test worksheet:
% Cover 20 10		ACW ACU	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
10		ACU	Total Number of Dominant Species Across All Strata: 4 (B)
	#		Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
30	= Total Cover		OBL species x 1 =
	- Total Cover		FACW species x 2 = _1
15	√ F	ACW	FAC species x 3 =
10		11	FACU species x 4 =1
			UPL species x 5 = _1
			Column Totals: 0 (A) 5 (B)
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 ¹
25	= Total Cover		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
		_	Problematic Hydrophytic Vegetation ¹ (Explain)
15		AC	Troblematic Hydrophytic Vegetation (Explain)
5		ACU	¹ Indicators of hydric soil and wetland hydrology must
3		ACU	be present, unless disturbed or problematic.
5		ACU	Definitions of Four Vegetation Strata:
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
	#:		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	古		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

2.		Woody vine – All woody vines greater than 3.28 ft in height.			
Voody Vine Stratum (Plot size:) 2 3		Tieigiti.			
i	0 = Total Cover	Hydrophytic Vegetation Present? Yes No No			

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: NN-1

Profile Desc	ription: (Describe	to the dep	oth needed to docur	ment the	indicator	or confirn	n the absence	of indicators.)
Depth	Matrix	0/		x Feature		. 2	- .	B
(inches) 0-6	Color (moist) Gley 1 2.5/N	100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks Mucky Mineral
6-13	10 YR 3/1	95	10 YR 5/6	5	С	PL	M	Loam - prominent redox
	-		-					
	-		-					
				-				
¹Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: Pl	L=Pore Lining, M=Matrix.
Hydric Soil I		,	,					ators for Problematic Hydric Soils ³ :
✓ Histosol	(A1)		☐ Dark Surface	e (S7)			2	cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be				, 148) 🔲 🤇	Coast Prairie Redox (A16)
Black Hi	, ,		Thin Dark Su	•	, .	147, 148)		(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		(F2)		<u></u>	Piedmont Floodplain Soils (F19)
	l Layers (A5) ick (A10) (LRR N)		✓ Depleted Ma		- 6)		Пв	(MLRA 136, 147) Red Parent Material (TF2)
	Below Dark Surfac	e (A11)	Depleted Da	,	,			/ery Shallow Dark Surface (TF12)
	ark Surface (A12)	, ,	Redox Depre					Other (Explain in Remarks)
	lucky Mineral (S1) (LRR N,	☐ Iron-Mangan		es (F12) (LRR N,		
	147, 148)		MLRA 13		(B. 11 D. 14 A		3,	
	edox (S5)		Umbric Surfa					licators of hydrophytic vegetation and vetland hydrology must be present,
	Matrix (S6)			Joupiairi S	oolis (F 19)	(IVILKA 12		inless disturbed or problematic.
	_ayer (if observed)	:						
Type: roo								
Depth (inc	ches): 13						Hydric Soil	Present? Yes O No
Remarks:	,						,	

Project/Site: Former Satralloy Site City.	/County: Mingo Junction/Jefferson	Sampling Date: 5/9/2018
Applicant/Owner: Cyprus Amax Minerals Company	/County: Mingo Junction/Jefferson State: OH	Sampling Point: NN-2
Investigator(s): JMM, BJJ Sec	tion, Township, Range: T6N, R2W, S8	
	elief (concave, convex, none): none	Slope (%): 10
	Long:80.6763	Datum: NAD83
Soil Map Unit Name: Udorthents, loamy	NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of year?		
Are Vegetation, Soil, or Hydrology significantly distr		present? Yes O No
Are Vegetation , Soil , or Hydrology naturally probler		
SUMMARY OF FINDINGS – Attach site map showing sa		
	T	
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No No No No No No No No No No No No No	Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No No No No No	within a Wetland? Yes	No <u> </u>
Remarks:		
Upland data point adjacent to Wetland NN. See F	igure 4F.	
	3	
HYDROLOGY		
Wetland Hydrology Indicators:		tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	·
Surface Water (A1) True Aquatic Plants		getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide C		· · · · ·
Saturation (A3) Oxidized Rhizosphe Water Marks (B1) Presence of Reduc	eres on Living Roots (C3) Moss Trim Li	Mater Table (C2)
	ion in Tilled Soils (C6)	i i
Drift Deposits (B3) Thin Muck Surface	` ' = '	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	· · —	tressed Plants (D1)
Iron Deposits (B5)		Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	itard (D3)
Water-Stained Leaves (B9)	Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:		
Surface Water Present? Yes O No O Depth (inches):		
Water Table Present? Yes O No O Depth (inches):		X
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Presen	nt? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:	
Remarks:		
Remarks.		

VEGETATION (Four Strata) – Use scientific names of plants.

20

20

40 _ = Total Cover

Tree Stratum (Plot size: 15' radius

Sapling/Shrub Stratum (Plot size: 10' radius

1. Acer saccharum

1. Lonicera canadensis

2. Quercus rubra

Sampling Point: NN-2 Absolute Dominant Indicator **Dominance Test worksheet:** % Cover Species? Status **Number of Dominant Species** FACU That Are OBL, FACW, or FAC: <u>1</u> (A) FACU Total Number of Dominant 5 (B) Species Across All Strata: Percent of Dominant Species 20 (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species ____ x 1 = ____ FACW species _____ x 2 = ____ FAC species <u>20</u> x 3 = <u>60</u> **FACU** FACU species 55 x 4 = 220 ____ x 5 = ____ UPL species Column Totals: <u>75</u> (A) <u>280</u> (B) Prevalence Index = B/A = 3.73Hydrophytic Vegetation Indicators:

7					Trydrophytic vegetation indicators.
8.			7		1 - Rapid Test for Hydrophytic Vegetation
9.			1		2 - Dominance Test is >50%
10.			1		3 - Prevalence Index is ≤3.0 ¹
Herb Stratum (Plot size: 5' radius)	5		Cover		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Galium aparine	10	J	F/	ACU	Problematic Hydrophytic Vegetation ¹ (Explain)
	- —	<u> </u>		AC AC	
Dryopteris carthusiana . 3.				10	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4.					
5			1		Definitions of Four Vegetation Strata:
6.			1		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7					more in diameter at breast height (DBH), regardless of height.
8.					neight.
9.			i		Sapling/Shrub – Woody plants, excluding vines, less
10.			<u> </u>		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11			 		Herb - All herbaceous (non-woody) plants, regardless
12.					of size, and woody plants less than 3.28 ft tall.
	30	= Total	Cover		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)			-		height.
1		<u></u> _			
2					
3					
4	_		<u></u>		
5	_				Hydrophytic Vegetation
6					Present? Yes No No
	0	_ = Total	Cover		
Remarks: (Include photo numbers here or on a separate	sheet.)				
S Army Corps of Engineers					Eastern Mountains and Piedmont – Interim Version

SOIL Sampling Point: NN-2

Profile Desc	cription: (Describe	to the dep	oth needed to docu	ment the	indicator	or confirm	n the absence	of indicate	ors.)	
Depth	Matrix	0/		x Feature		. 2	- .		5 .	
(inches) 0-7	Color (moist) 7.5 YR 3/2	100	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Loam	Remarks	
7-16	7.5 YR 3/3	50	7.5 YR 5/6	50	RM	M		Loam - ii	ntermixed wit	h gravel
				_						_
		·	-	-	-			-		
					-					
				_						_
1		Intinu DM	Deduced Metric M	0. Maralas			21	D Linis	NA . NA . 4	
Hydric Soil		letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: Pl		ng, M=Matrix. roblematic Hyd	dric Soile ³ :
Histosol			Dark Surface	(87)					A10) (MLRA 1 4	
	oipedon (A2)		Polyvalue Be		ace (S8) (I	/II RΔ 147			Redox (A16)	+1)
	stic (A3)		Thin Dark Su				1-0)	MLRA 14		
	en Sulfide (A4)		Loamy Gleye			, ,	☐ F		oodplain Soils (F19)
	d Layers (A5)		Depleted Ma				_	(MLRA 13	6, 147)	,
	ıck (A10) (LRR N)		Redox Dark	,	,				Material (TF2)	
	d Below Dark Surfac	e (A11)	Depleted Da				_	•	Dark Surface	(TF12)
l <u>—</u>	ark Surface (A12)	DD N	Redox Depre			LDDN	∐ (Other (Expla	in in Remarks)	
	/lucky Mineral (S1) (I \ 147, 148)	LKK N,	Iron-Mangan MLRA 13		ses (F12) (LKK N,				
	Gleyed Matrix (S4)		Umbric Surfa	•	(MLRA 13	86, 122)	³ Inc	dicators of h	ydrophytic vege	etation and
	Redox (S5)		Piedmont Flo						ology must be	
	Matrix (S6)		_		, ,			-	bed or problem	
	Layer (if observed):	:								
Type: no	ne									
Depth (in	ches):						Hydric Soil	Present?	Yes O	No <u> </u>
Remarks:							•			

Project/Site: Former Satralloy Site	City/County: Mingo Junction/Jefferson	Sampling Date: <u>5/9/2018</u>
Applicant/Owner: Cyprus Amax Minerals Company		Sampling Point: 00-1
Investigator(s): JMM, BJJ	Section, Township, Range: T6N, R2W, S8	
	ocal relief (concave, convex, none): none	Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 40.3086	Long: -80.6719	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy	NWI classifi	
Are climatic / hydrologic conditions on the site typical for this time of	vear? Yes No O (If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology significant		present? Yes O No
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showin	ng sampling point locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No O	Is the Sampled Area within a Wetland? Yes) No
Remarks:		
Feature OO is an isolated drainage that has o	•	
alongside the south mill building. Flows from	this drainage do not discharge to	downstream waters.
See Figure 4E.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	y) Surface Soil	Cracks (B6)
Surface Water (A1)	Plants (B14) Sparsely Ve	getated Concave Surface (B8)
		atterns (B10)
	zospheres on Living Roots (C3) Language Moss Trim L	· · · ·
		Water Table (C2)
	Reduction in Tilled Soils (C6) Crayfish Bu	
☐ Drift Deposits (B3) ☐ Thin Muck St. ☐ Algal Mat or Crust (B4) ☐ Other (Explain Deposits (B4))		/isible on Aerial Imagery (C9) Stressed Plants (D1)
Iron Deposits (B5)	, E	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	
Water-Stained Leaves (B9)		aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutra	
Field Observations:		
Surface Water Present? Yes O Depth (inche	es): <u>5</u>	
Water Table Present? Yes No Depth (inche		
Saturation Present? Yes No Depth (inche	es): 5 Wetland Hydrology Prese	nt? Yes X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if available:	
Remarks:		

VEGETATION (Four Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 3' x 15')

Sapling/Shrub Stratum (Plot size: 3' x 15'

Herb Stratum (Plot size: 3' X 10')

1. Apocynum cannabinum

2. Taraxacum officinale

3. Dactylis glomerata

4. Rumex crispus

1. Ulmus americana

1. Ulmus americana

2. Cornus florida

bsolute	Dominan	t Indicator	Dominance Test worksheet:
% Cover 0	Species?	? Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
			Total Number of Dominant Species Across All Strata: 5 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)
	-	-	Prevalence Index worksheet:
			Total % Cover of: Multiply by:
0		-	OBL species x 1 =
	= Total Co	ver	FACW species 20 $\times 2 = 40$
10	\checkmark	FACW	FAC species 5 x 3 = 15
10	√	FACU	FACU species 40 x 4 = 160
			UPL species x 5 =
			Column Totals: 65 (A) 215 (B)
	\dashv		Prevalence Index = B/A = 3.31
	\rightarrow		Hydrophytic Vegetation Indicators:
	-		1 - Rapid Test for Hydrophytic Vegetation
	\dashv		2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 ¹
			4 - Morphological Adaptations ¹ (Provide supporting
20	= Total Co	ver	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
15	$\overline{}$	FACU	Problematic Hydrophytic Vegetation (Explain)
10	✓	FACU	¹ Indicators of hydric soil and wetland hydrology must
5		FACU	be present, unless disturbed or problematic.
5	-	FAC	Definitions of Four Vegetation Strata:
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	#		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
35	= Total Co	ver	Woody vine – All woody vines greater than 3.28 ft in height.
			Hydrophytic Vegetation
			Present? Yes No No
)	= Total Co	ver	
et.)			

Remarks:	(lı	nclud	ер	hoto	num	bers	here	or	on	а	separat	e s	heet	٠,
----------	-----	-------	----	------	-----	------	------	----	----	---	---------	-----	------	----

Woody Vine Stratum (Plot size: _____)

SOIL Sampling Point: OO-1

Profile Des	cription: (Describe	to the dept	h needed to docur	ment the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix			x Features		. 2		
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-2.5	2.5 Y 2.5/1	100						mucky peat
2.5-5	2.5 Y 3/2	100						loamy sand
				· ——				
	Concentration, D=Dep	oletion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.	² Location: Pl	L=Pore Lining, M=Matrix.
<u> </u>	Indicators:							ators for Problematic Hydric Soils ³ :
Histoso	` '		Dark Surface	. ,				2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be				148)	Coast Prairie Redox (A16)
	listic (A3)		Thin Dark Su			47, 148)	П	(MLRA 147, 148)
	en Sulfide (A4) ed Layers (A5)		Loamy Gleye Depleted Ma		-2)		<u> </u>	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark		6)		Пв	Red Parent Material (TF2)
	ed Below Dark Surfac	e (A11)	Depleted Da	,	,			/ery Shallow Dark Surface (TF12)
Thick D	ark Surface (A12)	, ,	Redox Depre					Other (Explain in Remarks)
Sandy I	Mucky Mineral (S1) (I	LRR N,	Iron-Mangan	ese Masse	es (F12) (I	LRR N,		
	A 147, 148)		MLRA 13	•			2	
	Gleyed Matrix (S4)		Umbric Surfa					dicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo	oodplain So	oils (F19)	(MLRA 14		vetland hydrology must be present,
	d Matrix (S6) Layer (if observed):						u T	inless disturbed or problematic.
	undation -gravel and							
, <u> </u>							Usadaia Cail	Present? Yes O No O
	nches): <u>5</u>						Hydric Soil	Present? Yes O No O
Remarks:								

Project/Site: Former Satralloy Site Ci	ty/County: Mingo Junction/Jefferson	Sampling Date: 5/10/2018
Applicant/Owner: Cyprus Amax Minerals Company	ty/County: Mingo Junction/Jefferson State: OH	Sampling Point: PP-1
Investigator(s): JMM, BJJ Se	ection, Township, Range: T6N, R2W, S8	
	relief (concave, convex, none): none	Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 40.3162	Long: -80.6715	Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percel	nt slopes, unreclaimed NWI classific	<u> </u>
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes <u> </u>	emarks.)
Are Vegetation, Soil, or Hydrology significantly dis	sturbed? Are "Normal Circumstances" p	resent? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally probl	ematic? (If needed, explain any answei	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes O No O No O No O No O No O No O No O N	Is the Sampled Area within a Wetland? Yes	No
Wetland Hydrology Present? Yes No Remarks:		
Wetlands PP1-PP3 are a complex of wetlands for	ormed along rutted inactive road	dway Waters pool
along the roadway and do not discharge to down Attachment 4, Photos 57-59.	<u> </u>	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1) True Aquatic Plar		etated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Contained Disease		
Saturation (A3) Oxidized Rhizosp Water Marks (B1) Presence of Redu	heres on Living Roots (C3) Moss Trim Li	Nater Table (C2)
	ction in Tilled Soils (C6)	i i
Drift Deposits (B3) Thin Muck Surface	` ' =	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in		ressed Plants (D1)
Iron Deposits (B5)	Geomorphic	` '
Inundation Visible on Aerial Imagery (B7)	Shallow Aqui	tard (D3)
Water-Stained Leaves (B9)	Microtopogra	phic Relief (D4)
✓ Aquatic Fauna (B13)	FAC-Neutral	Test (D5)
Field Observations:	4	
Surface Water Present? Yes O No O Depth (inches):		
Water Table Present? Yes O No Depth (inches):		X
Saturation Present? Yes O No Depth (inches): _ (includes capillary fringe)	11.5 Wetland Hydrology Presen	t? Yes <u>^</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:	
Remarks:		

Trop Stratum (Diet size: 5' ¥ 20'	Absolute Dominant Indicat	or Dominance Test worksheet:
Tree Stratum (Plot size: 5' x 20')	% Cover Species? Statu	
1. none		That Are OBL, FACW, or FAC: 1 (A)
2		Total Number of Dominant
3		Species Across All Strata: 1 (B)
4		Derecut of Deminent Chapies
5		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6		
7		Prevalence Index worksheet:
8		Total % Cover of: Multiply by:
	0 = Total Cover	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 5' x 10'	_)	FACW species x 2 =
1. none		FAC species x 3 = _1
2		FACU species x 4 = _1
3		UPL species x 5 = 1
4		Column Totals: <u>0</u> (A) <u>5</u> (B)
5		Dravalance Index = D/A =
6		Prevalence Index = B/A =
7		Hydrophytic Vegetation Indicators:
8		1 - Rapid Test for Hydrophytic Vegetation
9.		2 - Dominance Test is >50%
10		3 - Prevalence Index is ≤3.0 ¹
Herb Stratum (Plot size: 5' radius)	0 = Total Cover	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
1. Lemna minor	70 ✓ OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Rumex obtusifolius		U
3		Indicators of hydric soil and wetland hydrology must
4		be present, unless disturbed or problematic.
		Definitions of Four Vegetation Strata:
5		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		Herb – All herbaceous (non-woody) plants, regardless
11		of size, and woody plants less than 3.28 ft tall.
12	72 = Total Cover	Woody vine – All woody vines greater than 3.28 ft in height.
	⁾	110.9.1.1
		- 1
1. none		
none 2.		
1. none 2		
1. none 2		Hydrophytic
Woody Vine Stratum (Plot size:) 1. none 2 3 4 5		Hydrophytic Vegetation
1. none 2		

SOIL Sampling Point: PP-1

Profile Des	cription: (Describe t	o the depti	needed to docui	ment the ir	ndicator	or confirm	n the absence	of indicator	'S.)	
Depth	Matrix			x Features						
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture		Remarks	
0-4								Hydrogen	sulfide pres	ent
l ———										
										
1							2			
	oncentration, D=Depl	etion, RM=F	Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL			3
Hydric Soil									blematic Hyd	
Histoso	, ,		Dark Surface						10) (MLRA 14	7)
Histic E	pipedon (A2)		Polyvalue Be		. , .		148) C	oast Prairie	Redox (A16)	
	istic (A3)		Thin Dark Su			47, 148)	_	(MLRA 147		
	en Sulfide (A4)		Loamy Gleye	ed Matrix (F	-2)		<u></u>	edmont Floo	odplain Soils (F	- 19)
Stratifie	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136	5, 147)	
2 cm M	uck (A10) (LRR N)		Redox Dark	Surface (F6	3)		∐ R	ed Parent M	aterial (TF2)	
Deplete	d Below Dark Surface	(A11)	Depleted Da	rk Surface	(F7)		. □ ∨	ery Shallow	Dark Surface (TF12)
Thick D	ark Surface (A12)		Redox Depre	essions (F8	5)		c	ther (Explair	n in Remarks)	
Sandy I	Mucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Masse	s (F12) (LRR N,	_			
MLR	A 147, 148)		MLRA 13	6)						
Sandy (Gleyed Matrix (S4)		Umbric Surfa	ace (F13) (I	VILRA 13	6, 122)	³ Ind	icators of hyd	drophytic vege	tation and
	Redox (S5)		Piedmont Flo						logy must be p	
	d Matrix (S6)		_	·	, ,	`			ed or problem	
Restrictive	Layer (if observed):									
Restrictive Type: no	Layer (if observed):						Hudria Cail	Duna aut?	v	No. O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u> </u>	No O
Restrictive Type: no	Layer (if observed):		_				Hydric Soil	Present?	Yes <u> </u>	No <u> </u>
Restrictive Type: no Depth (in	Layer (if observed):		_				Hydric Soil	Present?	Yes <u> </u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>•</u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>O</u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u> </u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u> </u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u> </u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u> </u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>•</u>	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u> </u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No <u>O</u>
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>O</u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>O</u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>O</u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>O</u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>O</u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes <u>©</u>	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O
Restrictive Type: no Depth (in	Layer (if observed):						Hydric Soil	Present?	Yes O	No O

Project/Site: Former Satralloy Site Cit	ty/County: Mingo Junction/Jefferson Sampling Date: 5/10/2018
Applicant/Owner: Cyprus Amax Minerals Company	ty/County: Mingo Junction/Jefferson Sampling Date: 5/10/2018 State: OH Sampling Point: PP-2
Investigator(s): JMM, BJJ Se	ection, Township, Range: T6N, R2W, S8
	relief (concave, convex, none): none Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat: 40.3161	Long: -80.6713 Datum: NAD 83
Soil Map Unit Name: Bethesda channery silt loam, 25 to 70 percer	
Are climatic / hydrologic conditions on the site typical for this time of year?	? Yes O No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly dis	sturbed? Are "Normal Circumstances" present? Yes O No
Are Vegetation, Soil, or Hydrology naturally proble	
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No Is the Sampled Area	
Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No No No No No	within a Wetland? Yes No
Remarks:	
Upland data point adjacent to Wetlands PP1-PP	3. See Figure 4A.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	its (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide	
	heres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)	
	ction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	
Algal Mat or Crust (B4) Uther (Explain in F	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13) Field Observations:	FAC-Neutral Test (D5)
Surface Water Present? Yes No Depth (inches): _	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:
Remarks:	

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: PP-2
45l radius	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: 15' radius)		Species?		Number of Dominant Species
1. Acer saccharum	40	V	FACU	That Are OBL, FACW, or FAC: 3 (A)
2. Ulmus americana	20		FACW	Total Number of Dominant
3				Species Across All Strata: 7 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 43 (A/B)
6				Prevalence Index worksheet:
7		-		Total % Cover of: Multiply by:
8				OBL species x 1 =
0 1: (0) 1 0: (D) : 10' radius	60	= Total Cov	er	FACW species 35 x 2 = 70
Sapling/Shrub Stratum (Plot size: 10' radius) 1 Acer saccharum	20	$\overline{\checkmark}$	FACU	
1. Ulmus americana		<u> </u>	-	FAC species x 3 =
	10	<u> </u>	FACW	FACU species <u>77</u> x 4 = <u>308</u>
3			-	UPL species x 5 =
4				Column Totals: <u>112</u> (A) <u>378</u> (B)
5				Prevalence Index = B/A = 3.375
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8		-	_	2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
10			_	4 - Morphological Adaptations ¹ (Provide supporting
El radius	30	= Total Cov	er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' radius)	40			Problematic Hydrophytic Vegetation ¹ (Explain)
1. Galium aparine	10	√	FACU	
2. Ulmus americana	5	√	FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Acer saccharum	5	<u> </u>	FACU	be present, unless disturbed or problematic.
4. Rosa mullilora			FACU	Definitions of Four Vegetation Strata:
5		+		Tues Meadernlants and discountings 2 in (7.0 and an
6		\perp		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		+		height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		$\perp \! \! \perp \! \! \perp$		Lieds Allies de conserve (conserve de Valente accordina
11				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12				
	22	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)				neight.
1. none		-		
2				
3		+		
4		+		Hydrophytic
5				Vegetation
6		\bot		Present? Yes No No
	0	= Total Cov	er	
Remarks: (Include photo numbers here or on a separat	e sheet.)			1

SOIL Sampling Point: PP-2

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the	indicator	or confirm	n the absence	of indicators.)
Depth	Matrix			x Feature				
(inches) 0-3	Color (moist)	100	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
	7.5 YR 5/2	100			-		Silt loam	
3-9	10 YR 5/3	95	10 YR 5/6	5	MS	PL	Clay loam	Decomposed sedimentary rock sheets
9-11	10 YR 4/3	45	10 YR 5/6	10	MS		Clay loam	
9-11	10 YR 4/1	45					Clay loam	
11-19	10 YR 6/3	60	10 YR 6/6	20	С	M	Clay loam	
11-19	10 YR 4/1	20						
¹ Type: C=Co	oncentration. D=Dep	letion. RM	=Reduced Matrix, MS	S=Masked	d Sand Gra	ains.	² Location: PL	_=Pore Lining, M=Matrix.
Hydric Soil I		,	,					ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be				, 148) 🔲 C	Coast Prairie Redox (A16)
Black Hi			Thin Dark Su			47, 148)	П-	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		(F2)		<u> </u>	Piedmont Floodplain Soils (F19)
	l Layers (A5) lck (A10) (LRR N)		Depleted Ma	, ,	F6)		ПБ	(MLRA 136, 147) Red Parent Material (TF2)
	d Below Dark Surfac	e (A11)	Depleted Dar	•	,			/ery Shallow Dark Surface (TF12)
	ark Surface (A12)	, ,	Redox Depre				_	Other (Explain in Remarks)
	lucky Mineral (S1) (I	_RR N,	☐ Iron-Mangan		ses (F12) (LRR N,		
	147, 148)		MLRA 13				3,	
	edox (S5)		Umbric Surfa Piedmont Flo					licators of hydrophytic vegetation and vetland hydrology must be present,
	Matrix (S6)			ouplain c	oolis (F 19)	(INILIXA I		nless disturbed or problematic.
	_ayer (if observed):							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Type: No	ne							
Depth (ind	ches): NA						Hydric Soil	Present? Yes O No O
Remarks:								

Project/Site: Former Satralloy Site	_ City/County: Mingo Junction/Jefferson	Sampling Date: 5/10/2018
Applicant/Owner: Cyprus Amax Minerals Company	State: OF	Sampling Point: QQ-1
Investigator(s): JMM, MBJJ	TENI DOM C	 88
Landform (hillslope, terrace, etc.): terrace		
Subregion (LRR or MLRA): LRR N Lat: 40.3116		Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy		assification:
Are climatic / hydrologic conditions on the site typical for this time or	year? Yes No (If no, explain	ı in Remarks.)
Are Vegetation , Soil , or Hydrology , significan		ces" present? Yes O No
Are Vegetation, Soil, or Hydrology naturally	problematic? (If needed, explain any a	nswers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showi	ng sampling point locations, trans	ects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes O No O No O	Is the Sampled Area within a Wetland? Yes _	
Wetland QQ has developed in a ditch at the adjacent upland slope and upgradient aband building. See Figure 4E; Attachment 3, Photos	oned railroad grade located ab	
HYDROLOGY		
Wetland Hydrology Indicators:		ndicators (minimum of two required)
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S	Plants (B14) Ilfide Odor (C1) Izospheres on Living Roots (C3) Reduced Iron (C4) Reduction in Tilled Soils (C6) Iurface (C7) In in Remarks) Sparsel Moss T Crayfisl Saturat Geomo Shallow Microto FAC-Ne	e Soil Cracks (B6) y Vegetated Concave Surface (B8) ge Patterns (B10) rim Lines (B16) ason Water Table (C2) n Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) y Aquitard (D3) pographic Relief (D4) eutral Test (D5)
Water Table Present? Yes No Depth (incr		
Saturation Present? Yes No Depth (inch		resent? Yes X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial ph		
Describe recorded Data (stream gauge, monitoring well, aerial pr	otos, previous inspections/, il avaliable.	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 5'x20')

Sapling/Shrub Stratum (Plot size: 5'x10')

Herb Stratum (Plot size: 5' radius)

2. Juncus sp. 2

1. Ulmus americana

1. Salix exigua

1. Salix exigua

solute	Dominant	Indicator	Dominance Test worksl	heet:	
Cover	Species?	Status FACW	Number of Dominant Spe That Are OBL, FACW, or		(A)
			Total Number of Dominar Species Across All Strata	•	(B)
	\perp		Percent of Dominant Spe That Are OBL, FACW, or		(A/B)
	\perp		Prevalence Index works	shoot:	
				Multiply by:	
			OBL species		
0	= Total Cov	er	FACW species		
5	1	FACW		x 3 = 1	
	+	1 ACVV	FACU species		
	+			x 5 = 1	
	+	_			
	+		Column Totals: 0	(A) <u>3</u>	_ (B)
	-	-	Prevalence Index =	= B/A =	
	-	_	Hydrophytic Vegetation		
	-			drophytic Vegetation	
	-	_	2 - Dominance Test i	· · ·	
	_#		3 - Prevalence Index		
				laptations¹ (Provide sup	porting
5	= Total Cov	er		or on a separate sheet)	
<u> </u>	✓	FACW NI	Problematic Hydroph	nytic Vegetation ¹ (Expla	in)
2		INI	¹ Indicators of hydric soil a be present, unless disturb		nust
			Definitions of Four Veg	etation Strata:	
			Tree – Woody plants, exc more in diameter at breas height.		
	井		Sapling/Shrub – Woody than 3 in. DBH and greate		
			Herb – All herbaceous (n of size, and woody plants		rdless
7	= Total Cov	er	Woody vine – All woody height.	vines greater than 3.28	8 ft in
			Hydrophytic Vegetation Present? Yes	No ○	
)	Total Car	or.	11030111: 165	140	
	Total Cov	CI C			

Remarks: (Include photo numbers here or on a separate sheet.)

Woody Vine Stratum (Plot size: _____)

SOIL Sampling Point: QQ-1

	cription: (Describe	to the de				or confirm	the absence	of indicate	ors.)			
Depth	Matrix	%		x Feature %		Loc ²	Texture		Rema	arko		
(inches)	Color (moist) 10 YR 4/3	100	Color (moist)	70	Type ¹	LOC	loamy sand		Kema	IIKS		
			10.10					-				
2-6	10 YR 5/3	96	10 YR 7/6	_ 4			loamy sand					
	- '	_										
			-									
	<u> </u>			-								
	-							-				
				_				-				
				_								
	· .											
	Concentration, D=Dep	pletion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: PL					3
<u> </u>	Indicators:							tors for Pi		-		oils":
Histoso			Dark Surface	. ,			_	cm Muck (, .		7)	
	pipedon (A2)		Polyvalue Be				148) <u> </u>	oast Prairie	•	A16)		
_	listic (A3)		Thin Dark Si			147, 148)	Пъ	(MLRA 14 edmont Flo		Caila /F	-10)	
	en Sulfide (A4) ed Layers (A5)		Depleted Ma		(FZ)		PI	(MLRA 13		SOIIS (F	19)	
	luck (A10) (LRR N)		Redox Dark		- 6)		Пв	ed Parent N		TF2)		
	ed Below Dark Surface	ce (A11)	Depleted Da	,	,			ery Shallow			TF12)
	ark Surface (A12)	,	Redox Depr					ther (Expla			•	
Sandy	Mucky Mineral (S1) (LRR N,	Iron-Mangar	ese Mass	es (F12) (LRR N,	<u>—</u>					
	A 147, 148)		MLRA 13									
	Gleyed Matrix (S4)		Umbric Surfa					cators of h				
_	Redox (S5)		Piedmont Fl	oodplain S	oils (F19)	(MLRA 14		etland hydr				ıt,
	d Matrix (S6)						ur	nless distur	bed or pro	oblema	atic.	
	Layer (if observed)):										
· · · —	ard packed gravel									0		\circ
Depth (ir	nches): <u>6</u>						Hydric Soil	Present?	Yes	<u> </u>	No_	
Remarks:												

Project/Site: Former Satralloy Site	ity/County: Mingo Junction/Jefferson S	ampling Date: 5/2/2018
Applicant/Owner: Cyprus Amax Minerals Company	ity/County: Mingo Junction/Jefferson State: OH	Sampling Point: RR-1
	Section, Township, Range: T6N, R2W, S8	· · · <u></u>
	al relief (concave, convex, none): CONCAVE	Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat: 40.3102	Long: <u>-80.6704</u>	
Soil Map Unit Name: Udorthents, loamy	NWI classificati	
Are climatic / hydrologic conditions on the site typical for this time of yea		
Are Vegetation, Soil, or Hydrology significantly d		
Are Vegetation, Soil, or Hydrology naturally prob	lematic? (If needed, explain any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, i	mportant features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O Yes No O No O	Is the Sampled Area within a Wetland? Yes	No <u> </u>
Remarks: Wetland RR is located in a excavated depression unseven feet deep. Surface water was present within of the scale to the north within the depression. See F	oncrete bottomed structure under tru	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicator	rs (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cra	acks (B6)
Surface Water (A1)		ated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide		· · ·
✓ Saturation (A3) ✓ Oxidized Rhizos ✓ Water Marks (B1) Presence of Red	oheres on Living Roots (C3) Moss Trim Line uced Iron (C4) Dry-Season Wa	
	uction in Tilled Soils (C6) Crayfish Burrow	· ·
Drift Deposits (B3)	` ' = '	ole on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in		ssed Plants (D1)
Iron Deposits (B5)	Geomorphic Po	osition (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitar	
Water-Stained Leaves (B9)	Microtopograph	` '
Aquatic Fauna (B13)	FAC-Neutral Te	est (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):	3	
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches):		
Saturation Present? Yes No Depth (inches):		Yes X No
(includes capillary fringe)		165 NO
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), if available:	
Remarks:		
Normality.		

EGETATION (Four Strata) – Use scientific			Sampling Point: RR-1
Tree Stratum (Plot size: 30' radius)	Absolute	Dominant Indicates Species? Sta	tue
1 Ulmus americana	10	√ FA	
"· 			That Are OBL, FACW, or FAC. (A)
2			Total Number of Dominant
3			Species Across All Strata: 3 (B)
4			Percent of Dominant Species
5		-	That Are OBL, FACW, or FAC: 100 (A/B)
6			Prevalence Index worksheet:
7			Total % Cover of: Multiply by:
8			OBL species x 1 = 1
Out to the total 15' radius	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Ulmus americana	10	√FA	FACW species x 2 = 1
··-			<u> </u>
2			FACU species x 4 = 1
3			UPL species x 5 =
4			Column Totals: 0 (A) 5 (B)
5			Dravalance Index = P/A =
6			Prevalence Index = B/A =
7			Hydrophytic Vegetation Indicators:
8			1 - Rapid Test for Hydrophytic Vegetation
9.			2 - Dominance Test is >50%
10.			3 - Prevalence Index is ≤3.0¹
El es dive		= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 radius) 1. Typha angustifolia	60	✓ OB	Problematic Hydrophytic Vegetation ¹ (Explain)
			Indicators of hydric soil and wetland hydrology must
3		+	be present, unless disturbed or problematic.
4			Definitions of Four Vegetation Strata:
5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			more in diameter at breast height (DBH), regardless of
7			height.
8			Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			
11			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.			or size, and woody plants less than 5.20 it tall.
Woody Vine Stratum (Plot size:)		= Total Cover	Woody vine – All woody vines greater than 3.28 ft in height.
1 none			
** 			
2			
3			
			Hydrophytic
			Vegetation
6	_		Present? Yes No V
	0	= Total Cover	
4	0	= Total Cover	

Sampling Point: C-1

SOIL

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator	or confirm	the absence	of indicato	ors.)		
Depth	Matrix			x Feature:							
(inches)	Color (moist)	<u>%</u>	Color (moist)		Type ¹	Loc ²	<u>Texture</u>		Remarks		
0-7	7.5 YR 3/1	100							lay Loam		
7-14	10 YR 5/2	30	10 R 5/3	40	C	M		Silty Clay	/ Loam		
7-14	Gley 1 5/N	30						Clay Loa	m		
			-								
		·									
¹Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, Ms	S=Masked	Sand Gra	ains.	² Location: PL	=Pore Linin	ng, M=Matrix.		
Hydric Soil I			,						oblematic H		oils³:
✓ Histosol	(A1)		Dark Surface	e (S7)			<u> </u>	cm Muck (A	A10) (MLRA	147)	
Histic Ep	oipedon (A2)		Polyvalue Be				148) \square C		Redox (A16)	
✓ Black Hi			Thin Dark Su			47, 148)		(MLRA 14			
	n Sulfide (A4)		Loamy Gleye		F2)		P		odplain Soils	(F19)	
	Layers (A5)		✓ Depleted Ma	. ,	.0)		П	(MLRA 13			
	ick (A10) (LRR N) d Below Dark Surface	- (Δ11)	Redox Dark	,	,				//aterial (TF2 / Dark Surfac)
_	ark Surface (A12)	S (7111)	Redox Depre						in in Remark		''
	lucky Mineral (S1) (L	RR N,	Iron-Mangan			LRR N,	-	()		,	
	A 147, 148)		MLRA 13								
	leyed Matrix (S4)		Umbric Surfa					-	ydrophytic ve	-	
	ledox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		-	ology must b		nt,
	Matrix (S6) ayer (if observed):						u T	niess disturi	bed or proble	ematic.	
Type:	Layer (ii observed).										
	ches):						Hydric Soil	Present?	Yes O	No	0
Remarks:							,				
rtornamo.											

Project/Site: Former Satralloy Site Ci	ty/County: Mingo Junction/Jefferson	Sampling Date: 5/2/2018
Applicant/Owner: Cyprus Amax Minerals Company	ty/County: Mingo Junction/Jefferson State: OH	Sampling Point: RR-2
Investigator(s): JMM, BJJ S	ection, Township, Range: T6N, R2W, S8	
	I relief (concave, convex, none): none	Slope (%): 1
	Long: -80.6704	Datum: NAD 83
Soil Map Unit Name: Udorthents, loamy		cation: none
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes O No O (If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology significantly di		present? Yes O No
Are Vegetation, Soil, or Hydrology naturally probl		
SUMMARY OF FINDINGS – Attach site map showing s		,
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes O No O No O	Is the Sampled Area within a Wetland?)No
Remarks:		
Upland data point adjacent to Wetland RR. See	Figure 4E.	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Cracks (B6)
Surface Water (A1)	=	getated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide		atterns (B10)
	oheres on Living Roots (C3) Moss Trim L	
Water Marks (B1) Presence of Redu	uced Iron (C4) Dry-Season	Water Table (C2)
Sediment Deposits (B2)	ıction in Tilled Soils (C6) 🔲 Crayfish Bur	rows (C8)
Drift Deposits (B3)	e (C7) Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in	Remarks) Stunted or S	Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aqu	
Water-Stained Leaves (B9)		aphic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral	I Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):		
Water Table Present? Yes O No Depth (inches):		
Saturation Present? Yes O No O Depth (inches):		nt? Yes No X
(includes capillary fringe)		nt? res No
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:	
Remarks:		
Tomano.		

FACU FACU FACU FACU FACU FACU FACU FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A) Total Number of Dominant Species Across All Strata: 7 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (A/B) Prevalence Index worksheet:
FACU FACU FACU FACU FACU FACU FACU	Total Number of Dominant Species Across All Strata: 7 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (A/B) Prevalence Index worksheet:
FACU FACU FACU FACU FACU FACU	Percent of Dominant Species That Are OBL, FACW, or FAC: Total % Cover of: Multiply by: OBL species FACW species FACW species FACU species FACU species Column Totals: 1 - Rapid Test for Hydrophytic Vegetation Prevalence Index in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation Indicators of hydric soil and wetland hydrology must
FACU FACU FACU FACU FACU	Percent of Dominant Species That Are OBL, FACW, or FAC:
FACU FACU FACU FACU FACU	That Are OBL, FACW, or FAC: 14 (A/B) Prevalence Index worksheet:
FACU FACU FACU FACU FACU	That Are OBL, FACW, or FAC: 14 (A/B) Prevalence Index worksheet:
FACU FACU FACU FACU FACU	Total % Cover of: OBL species FACW species FAC species FAC species FACU species
FACU FACU FACU FACU FACU	Total % Cover of: OBL species FACW species FAC species FAC species FACU species
FACU FACU FACU FACU FACU	OBL species
FACU FACU FACU FACU FACU	FACW species 5
FACU FACU	FAC species
FACU FACU	FACU species 85 x 4 = 340 UPL species x 5 = Column Totals: 90 (A) 350 (B) Prevalence Index = B/A = 3.89 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% √ 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	UPL species x 5 = Column Totals: 90 (A) 350 (B) Prevalence Index = B/A = 3.89 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
over	Column Totals: 90 (A) 350 (B) Prevalence Index = B/A = 3.89 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	Prevalence Index = B/A = 3.89 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% √ 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
FACU	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
- — —	¹ Indicators of hydric soil and wetland hydrology must
- — —	
17100	
-	be present, unless disturbed or problematic.
-	
	Definitions of Four Vegetation Strata:
-	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
	more in diameter at breast height (DBH), regardless of
	height.
-	Sapling/Shrub – Woody plants, excluding vines, less
	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	Herb – All herbaceous (non-woody) plants, regardless
	of size, and woody plants less than 3.28 ft tall.
_	
ver	Woody vine – All woody vines greater than 3.28 ft in height.
	Tioight.
-	
	Hydrophytic
_	Vegetation
	Present? Yes No No
ver	

Sampling Point: C-2

Profile Desc	ription: (Describe	to the dep	oth needed to docur	nent the	indicator	or confirm	n the absence	of indicate	ors.)	
Depth										
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-12	10 YR 3/2	98	10 YR 5/6	2	С	M		Sandy Lo	oam	
			-	-	-					
		- ——			-					
	-				_					
	-									
		-		-	-					
	-			-	_		•			
					_					
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gi	ains.	² Location: PL	_=Pore Linir	ng, M=Matrix.	
Hydric Soil I	ndicators:								roblematic Hyd	dric Soils³:
Histosol	(A1)		Dark Surface	e (S7)			2	cm Muck (A	A10) (MLRA 1 4	! 7)
	oipedon (A2)		Polyvalue Be	low Surfa	ace (S8) (I	VILRA 147,	148)	Coast Prairie	Redox (A16)	
Black Hi	, ,		Thin Dark Su			147, 148)		(MLRA 14		
	n Sulfide (A4)		Loamy Gleye		(F2)		P		oodplain Soils (F19)
	Layers (A5)		Depleted Ma		F0\			(MLRA 13		
	ick (A10) (LRR N) d Below Dark Surfac	o (A11)	Redox Dark Depleted Da						Material (TF2) V Dark Surface	(TE12)
= :	ark Surface (A12)	C (A11)	Redox Depre		. ,				in in Remarks)	(11 12)
	lucky Mineral (S1) (I	RR N.	Iron-Mangan			LRR N.		zaror (Expla	iii iii rtomanto)	
	\ 147, 148)	,	MLRA 13		,	,				
	leyed Matrix (S4)		Umbric Surfa		(MLRA 1	36, 122)	³ Ind	icators of h	ydrophytic vege	etation and
Sandy R	edox (S5)		Piedmont Flo				18) w	etland hydr	ology must be	present,
	Matrix (S6)						u	nless distur	bed or problem	atic.
Restrictive I	_ayer (if observed):									
Type:			<u></u>							
Depth (inc	ches):						Hydric Soil	Present?	Yes O	No <u> </u>
Remarks:							1			

SOIL

Project/Site: Former Satralloy Site	ity/County: Mingo Junction/Jefferson Sam	pling Date: 5/11/2018
Applicant/Owner: Cyprus Amax Minerals Company	ity/County: Mingo Junction/Jefferson Samp	mpling Point: YY-1
Investigator(s): JMM, BJJ	ection, Township, Range: T6N, R2W, S8	
	I relief (concave, convex, none): none	Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 40.3051	Long: -80.6798	Datum: NAD 83
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 per	cent slopes NWI classification:	<u> </u>
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes <u> </u>	(S.)
Are Vegetation, Soil, or Hydrology significantly d	sturbed? Are "Normal Circumstances" present	t? Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally prob	lematic? (If needed, explain any answers in R	Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	sampling point locations, transects, imp	oortant features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Is the Sampled Area within a Wetland? Yes N	lo <u> </u>	
Remarks:		
Wetland YY is ponded feature located within an Figure 4F; Attachment 3, Photos 34 and 35.	old borrow pit adjacent to Cross Cr	eek. See
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (r	minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Crack	s (B6)
Surface Water (A1)		d Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide	=	
Saturation (A3) Oxidized Rhizosp Water Marks (B1) Presence of Red	pheres on Living Roots (C3) Moss Trim Lines (E	·
	uced Iron (C4) Uction in Tilled Soils (C6) Dry-Season Water Crayfish Burrows (Can be determined by the control of the contr	
Drift Deposits (B3) Thin Muck Surface	_	on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in		
Iron Deposits (B5)	Geomorphic Position	on (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard ([,
Water-Stained Leaves (B9)	Microtopographic F	
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes O No Depth (inches):	10	
Water Table Present? Yes No Depth (inches):		
Saturation Present? Yes No Depth (inches):		res X No
(includes capillary fringe)		<u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos	previous inspections), if available:	
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: YY-1

451 45-	Absolute			t Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 15' dia)		Spe	ecies:	Status Status	Number of Dominant Species
1. Fraxinus pennsylvanica	20	_	√	FACW	That Are OBL, FACW, or FAC: 6 (A)
2. Aesculus glabra	15	_	<u>√</u>	FACU	Total Number of Dominant
3. Acer saccharum	15		√	FACU	Species Across All Strata: 10 (B)
4					Dancout of Dancin and Charles
5					Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)
6					(178)
7					Prevalence Index worksheet:
8.					Total % Cover of: Multiply by:
		= Tot	tal Co	ver	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 10' dia)		10		VOI	FACW species x 2 = 1
1. Aesculus glabra	10		✓	FACU	FAC species x 3 =
2. Acer saccharum	5		√	FACU	FACU species x 4 = _1
3. Acer negundo	5	Ī	√	FAC	UPL species x 5 = 1
4.	·		Ť		Column Totals: 0 (A) 5 (B)
			\dashv		(3)
5			╅		Prevalence Index = B/A =
6			\dashv		Hydrophytic Vegetation Indicators:
7			-		1 - Rapid Test for Hydrophytic Vegetation
8			\dashv		√ 2 - Dominance Test is >50%
9	·		_		3 - Prevalence Index is ≤3.0 ¹
10					4 - Morphological Adaptations ¹ (Provide supporting
CI 41-	20	= Tot	tal Co	ver	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5' dia)		г	7	0.71	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Lemna minor	40	_=	√	OBL	Troblemate riyarepriyae vegetation (Explain)
2. Viola blanda	10	_	√	FACW	The disease of budgies and supplement budgets and accept
3. Viola sororia	10		✓	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Collinsia verna	10	[✓	FAC	Definitions of Four Vegetation Strata:
5. Aesculus glabra	5			FACU	Definitions of Four Vegetation Strata.
6. Acer saccharum	5		_	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
		7	_	FACW	more in diameter at breast height (DBH), regardless of
				171011	height.
8			=		Sapling/Shrub – Woody plants, excluding vines, less
9		-	_		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		-	_		Herb – All herbaceous (non-woody) plants, regardless
11		\dashv	_		of size, and woody plants less than 3.28 ft tall.
12		L			Manda de Cina Allessa de Cina a manda de Cina a Constitu
	82	= To	tal Co	ver	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)		Г	\neg		
1. none		<u></u>	=		
2		ᆜ	<u> </u>		
3		\dashv	_		
4					
5					Hydrophytic Vegetation
6.					Present? Yes No No
	_	= Tot	tal Co	ver	
Remarks: (Include photo numbers here or on a separate s					
Tremarks. (include prioto numbers here of our a separate s	oricet.)				

SOIL Sampling Point: YY-1

Profile Des	cription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirm	n the absence	of indicators	s.)		
Depth	Matrix	21	Redo		. 2						
(inches) 0-5	Color (moist) 7.5 YR 3/2	97	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u> PL	Clay loam	Remarks		—
			7.5 YR 5/4	3	C	M	<u>PL</u>	·			—
5-15	10 YR 4/2	75	7.5 YR 6/6	5	С			Clay loam			
5-15	10 YR 5/1	15	Gley 1 4/N	5	С	M	PL	Clay loam			
		-		_							_
					_						
					_						—
			-								—
		oletion, RN	1=Reduced Matrix, M	S=Maske	d Sand G	rains.		_=Pore Lining,		duia Caila ³ .	
Hydric Soil			Dark Surface	. (07)				ators for Prob	-		
Histosol	pipedon (A2)		Dark Surface Polyvalue Be		ace (S8) (I	WI RΔ 147		cm Muck (A1 Coast Prairie R		<i>(1)</i>	
	istic (A3)		Thin Dark S				, 140)	(MLRA 147,	, ,		
_	en Sulfide (A4)		Loamy Gley			,	☐ F	Piedmont Floor		F19)	
	d Layers (A5)		✓ Depleted Ma	. ,				(MLRA 136,			
	uck (A10) (LRR N)	- (0.4.4)	Redox Dark	,	,			Red Parent Ma		(TE40)	
	d Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Da					/ery Shallow D other (Explain		(1112)	
—	Mucky Mineral (S1) (I	LRR N,	Iron-Mangar			(LRR N,	υ,	otrior (Explain	iii rtomantoj		
MLR	A 147, 148)	•	MLRA 13	36)							
	Gleyed Matrix (S4)		Umbric Surfa					licators of hyd			
	Redox (S5)		Piedmont Fl	oodplain S	Soils (F19)	(MLRA 14		vetland hydrolo			
	d Matrix (S6) Layer (if observed)						T u	nless disturbe	ea or problem	auc.	
Type: no		•									
	ches): NA						Hydric Soil	Present?	Yes O	No O	
Remarks:	,						,				

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Former Satralloy Site City	/County: Mingo Junction/Jefferson	Sampling Date: 5/11/2018						
Applicant/Owner: Cyprus Amax Minerals Company	tt/Site: Former Satralloy Site City/County: Mingo Junction/Jefferson Sampling Date: 5/11/2018 Sampling Point: YY-2							
Investigator(s): JMM, BJJ Sec	etion, Township, Range: T6N, R2W, S8							
	elief (concave, convex, none): none	Slope (%): 1						
Subregion (LRR or MLRA): LRR N Lat: 40.3051	Long: -80.6799	Datum: NAD 83						
Soil Map Unit Name: Westmoreland-Lowell complex, 40 to 70 perce	ent slopes NWI classificat							
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No O (If no, explain in Rer	marks.)						
Are Vegetation, Soil, or Hydrology significantly dist	urbed? Are "Normal Circumstances" pre	esent? Yes O No						
Are Vegetation , Soil , or Hydrology naturally proble								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
		•						
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No No No No No No No No No N	Is the Sampled Area							
Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No No No No No No No	within a Wetland? Yes	No <u> </u>						
Remarks:								
Upland data point adjacent to Wetland YY. See F	igure 4F.							
CP and a sum point or any account to the sum of the s	.9							
HYDROLOGY								
Wetland Hydrology Indicators:	Secondary Indicate	ors (minimum of two required)						
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil C	racks (B6)						
Surface Water (A1)	S (B14) Sparsely Vege	tated Concave Surface (B8)						
High Water Table (A2) Hydrogen Sulfide C	· · ·							
Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)								
Water Marks (B1) Presence of Reduc		ater Table (C2)						
	tion in Tilled Soils (C6) Crayfish Burro	* *						
Drift Deposits (B3) Thin Muck Surface Other (Further in In		ble on Aerial Imagery (C9)						
Algal Mat or Crust (B4) Iron Deposits (B5) Other (Explain in R	Geomorphic Po	essed Plants (D1)						
Inundation Visible on Aerial Imagery (B7)	Shallow Aquita	` '						
Water-Stained Leaves (B9)	Microtopograpi							
Aquatic Fauna (B13)	FAC-Neutral T	· ·						
Field Observations:		, ,						
Surface Water Present? Yes O No Depth (inches): _								
Water Table Present? Yes O No Depth (inches): _								
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present?	? Yes No X						
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:							
	, , , , , , , , , , , , , , , , , , , ,							
Remarks:								

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: YY-2

Tree Stratum (Plot size: 15' dia)	Absolute Dominant Indicator % Cover Species? Status			Dominance Test worksheet:			
1 Aesculus glabra	50		<u>√</u>	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 1 ((A)	
2. Platanus occidentalis	10	+	+	FACW	That Are OBL, FACW, or FAC.	A)	
3. Acer negundo	10	Ť	_	FAC	Total Number of Dominant Species Across All Strata: 7 ((B)	
4.		T				٥,	
5.		Ī			Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (Λ/ D)	
6.					That Ale Obl., I AGW, OF AG.	~0)	
7.					Prevalence Index worksheet:		
8.		Ť	┪	•	Total % Cover of: Multiply by:		
o		L	tal Co	ver	OBL species x 1 =		
Sapling/Shrub Stratum (Plot size: 10' dia)				VOI	FACW species 10 x 2 = 20		
1. Acer saccharum	10		✓	FACU	FAC species <u>5</u> x 3 = <u>15</u>		
2. Acer negundo	5		✓	FAC	FACU species 90 x 4 = 360		
3					UPL species x 5 =		
4		г			Column Totals: 105 (A) 395	(B)	
5.		г					
6.		г	T		Prevalence Index = B/A = 3.42		
7.				-	Hydrophytic Vegetation Indicators:		
8.				•	1 - Rapid Test for Hydrophytic Vegetation		
9.					2 - Dominance Test is >50%		
10.			┪		3 - Prevalence Index is ≤3.0 ¹		
10.	15	L	tal Co	ver	4 - Morphological Adaptations ¹ (Provide supporting		
Herb Stratum (Plot size: 5' dia)	10	- 101	Lai CO	vei	data in Remarks or on a separate sheet)		
1. Acer saccharum	10	Ŀ	✓	FACU	Problematic Hydrophytic Vegetation ¹ (Explain))	
2. Aesculus glabra	10	Ţ,	✓	FACU			
3. Galium aparine	5		√	FACU	¹ Indicators of hydric soil and wetland hydrology mu be present, unless disturbed or problematic.	ıst	
4. Alliaria petiolata	5	Ţ	✓	FACU			
5			_		Definitions of Four Vegetation Strata:		
6.					Tree – Woody plants, excluding vines, 3 in. (7.6 cm		
7			T		more in diameter at breast height (DBH), regardles height.	s of	
8.					noight.		
9.			\blacksquare		Sapling/Shrub – Woody plants, excluding vines, letter 3 in DRI Land greater than 3 29 ft (4 m) tall	ess	
10			\dashv		than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
11.	·		_		Herb - All herbaceous (non-woody) plants, regardl	less	
12.			\top		of size, and woody plants less than 3.28 ft tall.		
12.	30	L	tal Co	ver	Woody vine - All woody vines greater than 3.28 ft	: in	
Woody Vine Stratum (Plot size:)		- 101		VCI	height.		
1. none							
2.							
3							
4.							
5.					Hydrophytic Vegetation		
6.		Ī			Present? Yes No		
	0	= Tot	tal Co	ver			
Remarks: (Include photo numbers here or on a separate s							
Tremarks. (molade priote numbers here of on a separate c	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						

SOIL Sampling Point: YY-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth (inches)	Matrix				1002	Texture Remarks				
(inches) 0-16	Color (moist) 10YR 3/3	100	Color (moist)	%	Type ¹	Loc ²	Texture sandy loam	Re	marks	
0-10	101103/3	_ 100					Sandy Idam			
-										
										
										_
1- 0.0							2			
Hydric Soil	oncentration, D=De	pletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.		Pore Lining, M=		rio Soilo ³ :
			D Double Country	(07)					•	
Histosol	(A1) pipedon (A2)		Dark Surface Polyvalue Be		o (SS) /N	II DA 147	_	cm Muck (A10) (N past Prairie Redo)
	stic (A3)		Thin Dark Su					(MLRA 147, 148		
	en Sulfide (A4)		Loamy Gleye	, ,	•	41, 140)		edmont Floodplai		19)
	d Layers (A5)		Depleted Ma		,			(MLRA 136, 147		- /
	ıck (A10) (LRR N)		Redox Dark	Surface (F	6)			ed Parent Materia		
	d Below Dark Surfac	ce (A11)	Depleted Da					ery Shallow Dark		ΓF12)
l	ark Surface (A12)		Redox Depre				L Oti	her (Explain in R	emarks)	
_	Mucky Mineral (S1) (LRR N,	Iron-Mangan		es (F12) (LRR N,				
	A 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa		MI DA 13	6 122)	³ Indic	cators of hydroph	vtic veget	ation and
	Redox (S5)		Piedmont Flo					etland hydrology i		
	Matrix (S6)			ocupiani o	5110 (T 10)	(less disturbed or		
	Layer (if observed)):								
Type: no	ne		<u></u>							
Depth (in	ches): NA						Hydric Soil F	Present? Yes	_O_	No <u> </u>
Remarks:	·						1 -			<u> </u>
Ì										

ATTACHMENT 3 Photographic Log

STREAMS AND WETLANDS



Photo No.: 1 Date: 5/11/2018 Feature: Stream A

Description: Cross Creek, a perennial stream that flows into the Ohio River approximately 4 miles downstream. This portion of Cross Creek is upstream from convergence with McIntyre Creek. River bank adjacent to the site is steep and





Photo No.: 2 Date: 5/9/2018 Feature: Stream A

Description: Cross Creek, a perennial stream that flows into the Ohio River approximately 4 miles downstream. Portion of Cross Creek upstream from convergence with McIntyre Creek.





Photo No.: 3 Date: 5/9/2018 Feature: Stream B

Description: Upstream portion of small

tributary to Cross Creek.



Photo No.: 4 Date: 5/9/2018 Feature: Stream B

Description: Lower portion of Stream B, a small tributary to Cross Creek.





Photo No.: 5 Date: 5/11/2018 Feature: Stream C

Description: Portion of drainage with intermittent flows that contribute the perennial flows this drainage experiences further downstream. Stream C ultimately discharges through culverts to Cross Creek.



Photo No.: 6 Date: 5/9/2018 Feature: Wetland C4

Description: Wetland is a shallow basin that abuts Stream C, located at the southwestern extent of the tributary, which discharges into Cross Creek.





Photo No.: 7 Date: 5/11/2018 Feature: Stream C

Description: Portion of Stream C with intermittent flows that contribute to the downstream perennial flows of the tributary.



Photo No.: 8 Date: 5/11/2018 Feature: Wetland C2

Description: Wetland adjacent to Stream C, located near the confluence with Stream LL. Stream C discharges into Cross

Creek.



Photopage 4





Photo No.: 9 Date: 5/11/2018 Feature: Stream C

Description: Portion of Stream C with intermittent flows that contribute to the downstream perennial flows of the stream.



Photo No.: 10 Date: 5/11/2018 Feature: Wetland C3

Description: Wetland adjacent to Stream C, downstream from the confluence with Stream LL.





Photo No.: 11 Date: 5/9/2018 Feature: Stream C

Description: Portion of Stream C with intermittent flows that contribute to the downstream perennial flows of the tributary.



Photo No.: 12 Date: 5/11/2018 Feature: Wetland C1

Description: Wetland adjacent toStream C that is present between two culverts that connect Stream C to CrossCreek.





Photo No.: 13 Date: 5/11/2018 Feature: Stream D

Description: Perennial, vegetated drainage on eastern portion of site, near smelter site. Fed by flows from Wetland D, which is located upstream and drains through culvert to Stream D. Channel flows through culvert to Cross Creek. Stream D is upgradient of the discharge outfalls.



Photo No.: 14 Date: 5/2/2018 Feature: Wetland D

Description: Wetland D is located on the eastern portion of the Analysis Area, near the smelter site, upstream of Goulds Road. Wetland discharges downstream

through culvert to Stream D.





Photo No.: 15 Date: 5/2/2018 Feature: Wetland D

Description: Wetland D is located on the eastern portion of the Analysis Area, near the smelter site, upstream of GouldsRoad. Wetland discharges downstream through

culvert to Stream D.



Photo No.: 16 Date: 5/9/2018 Feature: Stream F

Description: Small tributary to Cross Creek, Segment A. Flow low but presumably perennial (observed in December, May, and July). Source is Wetland F. Stream F is comparable to Streams J and K upgradient of the

discharge outfalls.





Photo No.: 17 Date: 5/9/2018 Feature: Stream F

Description: Small tributary to Cross Creek, Segment A. Flow low but presumably perennial (observed in December, May, and July). Source is Wetland F. Stream F is comparable to Streams J and K upgradient of the

discharge outfalls.



Photo No.: 18 Date: 5/9/2018 Feature: Wetland F

Description: Small wetland area supplied by a seep and runoff east of slag pile.

Adjacent to Stream F.



Photo No.: 19 Date: 5/9/2018 Feature: Wetland F ORAM Category: 1

Description: Small wetland area supplied by a seep and runoff east of slag pile.

Adjacent to Stream F.



Photo No.: 20 Date: 5/11/2018 Feature: Stream H

Description: Continuation of Cross Creek on south and southwestern side of site. Flow is greater than in Segment A due to input from McIntyre Creek.





Photo No.: 21 Date: 5/11/2018 Feature: Stream H

Description: Continuation of Cross Creek on south and southwestern side of site. Flow is greater than in Segment A due to input from McIntyre Creek.



Photo No.: 22 Date: 5/10/2018 Feature: Wetland I

Description: Narrow, isolated basin at toe

of slope, may have been created by construction of railroad grade.

Wetland I is located adjacent to Stream J, and appears to discharge into the tributary.

Surface Waters Determination and Delineation Former Satralloy Site Attachment 3. Photographic Log

Photopage II





Photo No.: 23 Date: 5/10/2018 Feature: Wetland I

Description: Narrow, isolated basin at toe of slope, may have been created by construction of railroad grade. Located

adjacent to Stream J.



Photo No.: 24 Date: 5/10/2018 Feature: Wetland J1

Description: Small wetland area at the headwaters of Stream J. Stream J discharges through a subsurface water management system into Stream C and

Cross Creek.





Photo No.: 25 Date: 5/10/2018 Feature: Stream J

Description: Several small tributaries that combine to flow through a culvert under the abandoned railroad grade into Wetland K. Mostly narrow channels, with some wider areas of seepage; in some areas, OHWM was indistinct. Stream J is upgradient of the discharge outfalls.



Photo No.: 26 Date: 5/10/2018 Feature: Stream J

Description: Several small tributariesthat combine to flow through a culvertunder the abandoned railroad grade into Wetland K. Mostly narrow channels, with some wider areas of seepage; in some areas, OHWM was indistinct. Stream J is upgradient of the discharge outfalls.





Photo No.: 27 Date: 5/10/2018 Feature: Wetland J2

Description: Small wetland area located on eastern extent of Stream J, adjacent to culvert beneath the upper rail spur, which discharges flows through a subsurface pipe to Cross Creek.



Photo No.: 28 Date: 5/10/2018 Feature: Stream J

Description: Several small tributariesthat combine to flow through a culvertunder the abandoned railroad grade into Wetland K. Mostly narrow channels, with some wider areas of seepage; in some areas, OHWM was indistinct. Stream J is upgradient of the discharge outfalls.





Photo No.: 29 Date: 5/10/2018 Feature: Stream J

Description: Several small tributaries that combine to flow through a culvert under the abandoned railroad grade into Wetland K. Mostly narrow channels, with some wider areas of seepage; in some areas, OHWM was indistinct. Stream J is upgradient of the discharge outfalls.



Photo No.: 30 Date: 5/10/2018 Feature: Stream J

Description: Several small tributariesthat combine to flow through a culvertunder the abandoned railroad grade into Wetland K. Mostly narrow channels, with some wider areas of seepage; in some areas, OHWM was indistinct. Stream J is upgradient of the discharge outfalls.





Photo No.: 31 Date: 5/8/2018 Feature: Wetland LL

Description: Wetland LL is a riprap filled basin that collects stormwater flow from culverts created during railroad construction conducted in 2015. The wetland is adjacent to Stream LL, which discharges to Cross Creek.



Photo No.: 32 Date: 5/11/2018 Feature: Stream LL

Description: Stream LL is a constructed drainage designed to discharge stormwater into Cross Creek

through a series of culverts.





Photo No.: 33 Date: 5/11/2018 Feature: Stream LL

Description: Stream LL is a constructed drainage designed to discharge stormwater into Cross Creek through a series of culverts.



Photo No.: 34 Date: 5/11/2018 Feature: Wetland YY

Description: Wetland YY is located immediately adjacent to Cross Creek on the eastern bank near the southwestern corner of the Analysis Area (near

Stream H).





Photo No.: 35 Date: 5/11/2018 Feature: Wetland YY

Description: Wetland YY is located immediately adjacent to Cross Creek on the eastern bank near the southwestern corner of the Analysis Area (near

Stream H).



Photo No.: 52 Date: 5/8/2018 Feature: Wetland P

Description: Extensive saturated area along abandoned railroad grade. Immediately adjacent to Wetland Q.





Photo No.: 53 Date: 5/8/2018 Feature: Wetland P

Description: Wetland P is located

adjacent to Wetland Q.



Photo No.: 54 Date: 5/8/2018 Feature: Wetland P

Description: Wetland P is located

adjacent to Wetland Q.





Photo No.: 55 Date: 5/8/2018 Feature: Wetland P

Description: Wetland P is located

adjacent to Wetland Q.



Photo No.: 60 Date: 5/8/2018 Feature: Wetland Q

Description: Extensive saturated area along abandoned railroad grade, receiving discharges from Wetland P, located upstream. Wetland Q extends outside of the Analysis Area, then re-enters downgradient. The wetland discharges into Stream Q, which is approximately

150 ft from Cross Creek.



Photopage 20





Photo No.: 65 Date: 5/7/2018 Feature: Wetland S1

Description: Part of a series of wetlands located on steep slope upstream from Wetland P, west of Wetland T. Crosses old road related to smelting and slag

disposal operations.



Photo No.: 66 Date: 5/7/2018 Feature: Wetland S1

Description: Middle portion of Wetland

S1.

Surface Waters Determination and Delineation Former Satralloy Site
Attachment 3. Photographic Log

Photopage 21





Photo No.: 67 Date: 5/7/2018 Feature: Wetland S1

Description: Downgradient portion of

Wetland S1.



Photo No.: 68 Date: 5/7/2018 Feature: Wetland T

Description: Wetland located on a steep slope upstream from WetlandP, east of

Wetland S. Downgradient end

merges with Wetland P across a wide

saturated area.





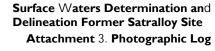
Photo No.: 36
Date: 5/3/2018
Feature: Wetland AA
Description: Closed basin in abandoned coal strip mine.



Photo No.: 37 Date: 5/3/2018 Feature: Wetland CC

Description: Closed basin in abandoned

coal strip mine.



Photopage 23





Photo No.: 38 Date: 5/3/2018 Feature: Wetland DD

Description: Wetland DD in abandoned coal strip mine that discharges into

Stream DD.



Photo No.: 39 **Date:** 5/3/2018

Description: Wetland DD in abandoned

coal strip mine that discharges into

Stream DD.







Photo No.: 40 Date: 5/8/2018 Feature: Wetland EE

Description: Feature running along a hillside fed from a culvert passing under relic rail spur that supplies water to this feature from the adjacent Wetland P. All surface flow infiltrates into the ground at

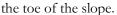




Photo No.: 41 Date: 5/8/2018 Feature: Wetland EE

Description: Feature running along a hillside fed from a culvert passing under relic rail spur that supplies water to this feature from the adjacent Wetland P. All surface flow infiltrates into the ground at

the toe of the slope.

Surface Waters Determination and Delineation Former Satralloy Site Attachment 3. Photographic Log

Photopage 25





Photo No.: 42 Date: 5/7/2018 Feature: Wetland FF

Description: Small area of seepage on slope, may be related to old roadway. No downgradient connection, flow dissipates through infiltration.



Photo No.: 43 Date: 5/7/2018 Feature: Wetland FF

Description: Small wetland formed from a small seep below a rock outcropping that pools in an adjacent terrace. Flow dissipates

through infiltration.





Photo No.: 44 Date: 5/9/2018 Feature: Wetland G

Description: The wetland is a shallow ponded area on the east end of the slag pile. Closed basin with no discharge. At high water levels, some possible discharge adjacent to slopes where it infiltrates. This wetland is almost entirely within a private in-holding within the Satralloy Property.



Photo No.: 45 Date: 5/9/2018 Feature: Wetland G

Description: Human-induced wetland at east end of slag pile. Closed basin with no discharge. At high water levels, some possible discharge adjacent to slopes where it infiltrates. This wetland is almost entirely within a private in-holding within the Satralloy Property.





Photo No.: 46 Date: 5/2/2018 Feature: Wetland II

Description: Wetland II has no observable hydrologic connection to downgradient surface waters.



Photo No.: 47 Date: 5/5/2018 Feature: Wetland JJ

Description: Wetland JJ has no observable hydrologic connection to downgradient surface waters.





Photo No.: 48 Date: 5/5/2018 Feature: Wetland JJ

Description: Wetland JJ has no observable hydrologic connection to downgradient surface waters.



Photo No.: 49 Date: 5/7/2018 Feature: Wetland KK

Description: Wetland KK has no observable hydrologic connection to downgradient surface waters.





Photo No.: 50 Date: 5/7/2018 Feature: Wetland KK ORAM Category: 2

Description: Wetland KK has no observable hydrologic connection to downgradient surface waters.



Photo No.: 51 Date: 5/9/2018 Feature: Wetland NN

Description: Wetland NN has no observable hydrologic connection to downgradient surface waters.





Photo No.: 56 Date: 5/8/2018 Feature: Wetland SS1

Description: Wetlands SS1 and SS2 have formed along a saturated area located on a terrace below an abandoned railroad grade that received upgradient runoff. It is not hydrologically connected to downstream receiving waters.



Photo No.: 57 Date: 5/10/2018 Feature: Wetland PP1

Description: Wetland PP1 is upstream portion of a set of wetlands formed along rutted inactive roadway that have no observable hydrologic connection to downgradient surface waters.





Photo No.: 58 Date: 5/10/2018 Feature: Wetland PP2

Description: Wetland PP2 is middle portion of a set of wetlands formed along rutted inactive roadway that have no observable hydrologic connection to downgradient surface waters.



Photo No.: 59
Date: 5/10/2018
Feature: Wetland PP3
Description: Wetland PP3

Description: Wetland PP3 is

downgradient portion of a set of wetlands formed along rutted inactive roadway that have no observable hydrologic connection to downgradient surface

waters.









Photo No.: 61 Date: 5/10/2018 Feature: Wetland QQ

Description: Wetland QQ has no observable hydrologic connection to downgradient surface waters.



Photo No.: 62 Date: 5/8/2018 Feature: Wetland QQ

Description: Wetland QQ has no observable hydrologic connection to

downgradient surface waters.



Surface Waters Determination and Delineation Former Satralloy Site Attachment 3. Photographic Log



Photo No.: 63 Date: 5/8/2018 Feature: Wetland R

Description: Wetland R is located in a constructed basin or borrow pit along a reclaimed railroad spur and has no observable hydrologic connection to downgradient surface waters.



Photo No.: 64 Date: 5/2/2018 Feature: Wetland RR

Description: Wetland has developed at the outlet of a stormwater outlet. Previously adjacent to Stream C; however, due to changes in stormwater flow from surface water management alterations, the wetland receives less water than during previous assessment.



Surface Waters Determination and Delineation Former Satralloy Site Attachment 3. Photographic Log



Photo No.: 69 Date: 5/5/2018 Feature: Wetland W

Description: Small seepage area along an

old mining road.



Photo No.: 70 Date: 5/3/2018 Feature: Wetland Y

Description. Closed basin in abandoned coal strip mine. Also impacted by slag from chromium smelter. Wetland observed to support aquatic vertebrates including frogs and salamanders.



Surface Waters Determination and Delineation Former Satralloy Site
Attachment 3. Photographic Log



Photo No.: 71 Date: 5/3/2018 Feature: Wetland Z

Description: Closed basin inabandoned

coal strip mine.



Photopage 36

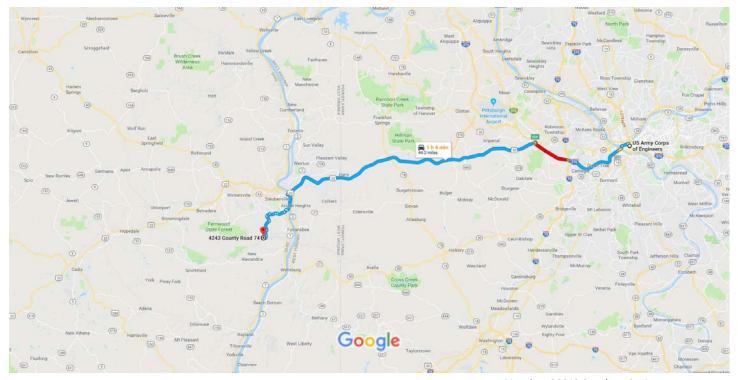


ATTACHMENT 4
Directions to Site

Google Maps

US Army Corps of Engineers to 4243 Co Rd 74, Drive 44.2 miles, 1 h 4 min Mingo Junction, OH 43938

Direction to the Former Satralloy Site



Map data ©2018 Google 2 mi **■**

US Army Corps of Engineers

1000 Liberty Ave, Pittsburgh, PA 15222

Get on I-376 W/Fort Pitt Bridge from 10th St Bypass

†	1.	Head west on Liberty Ave toward 10th St	min (1.2 mi)
Ļ	2.	Turn right onto 10th St	—— 161 ft
4	3.	Turn left onto Fort Duquesne Blvd	0.2 mi
1	4.	Continue straight onto 10th St Bypass	0.1 mi
1	5.	Keep right at the fork, follow signs for I-376 W/Airport/Fort Pitt Bridge and merge onto I-376 Pitt Bridge	0.6 mi W/Fort
			0.3 mi

Follow I-376 W and US-22 W to Island Creek Township. Take the University Blvd/Downtown exit from US-22 W

36 min (36.4 mi)

★ 6. Use the left lane to merge onto I-376 W/Fort Pitt Bridge

0.1 mi

1 of 3 7/10/2018, 4:23 PM

_		9.8
8.	Take exit 60A for US-22 W/US-30 W toward Weirton	
9.	Continue onto US-22 W/US-30 W	0.2
	Continue to follow US-22 W	
	Passing through West Virginia	
	1 Entering Ohio	
10	Take the University Divid (December on switch several OU 7.0	26.
10.	Take the University Blvd/Downtown exit toward OH-7 S	0.
	on OH-7 S/Dean Martin Blvd/Ohio River Scenic Byway. Take Lincoln Ave, Coal Hill Rd, 8 to Co Rd 74 in Cross Creek Township	Goulds Rd an
11.	Continue onto OH-7 S/Dean Martin Blvd/Ohio River Scenic Byway	1
12.	Turn right onto S 3rd St	1.
13.	Turn left onto Slack St	
14.	Turn left onto S 4th St	4
15.	Continue onto Lincoln Ave	0.
16.	Turn left to stay on Lincoln Ave	0.
17.	Continue onto Coal Hill Rd	0.
18.	Turn left onto Goulds Rd	0.
	Turn left to atou on Coulde De	0.
19.	Turn left to stay on Goulds Rd	
19. 20.		0.
	Turn right onto Cty Rd 28/Goulds Rd 1 Continue to follow Goulds Rd	1.
20.	Turn right onto Cty Rd 28/Goulds Rd 1 Continue to follow Goulds Rd Goulds Rd turns slightly right and becomes Co Hwy 28	0. 1. 0.
20.	Turn right onto Cty Rd 28/Goulds Rd i Continue to follow Goulds Rd Goulds Rd turns slightly right and becomes Co Hwy 28 Continue onto Goulds Rd	

2 of 3 7/10/2018, 4:23 PM

4243 Co Rd 74

Mingo Junction, OH 43938

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

3 of 3

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

T N		
Name: J. Melko, B. Jacoby		
Date: 5/2/2018		
Affiliation:		
Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland C		
Vegetation Communit(ies): PEM1		
HGM Class(es): Flats, Slope		
Location of Wetland: include map, address, north arrow, landmarks, distances, i	roads, etc.	
see attached jurisdictional map		
Lat/Long or UTM Coordinate	Lat 40.311122,	Lon -80.667847
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		X
National Wetland Inventory Map		Χ
Ohio Wetland Inventory Map		
Soil Survey		Χ
Delineation report/map		X

Name of Wetland: Wetland C	
Wetland Size (acres, hectares):	0.0905 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
see attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
A set of intermittent wetlands that collect water from adjacent uplands, for	eature II and
Feature J. The wetlands consist of a small basin wetland at the southwe	
terminus, three intermittent wetlands along the roadway, and a wetland	
between two culverts that connect Feature J to Cross Creek.	·
Final score : 11 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland C	Rater(s): JMM, BJJ	Date: 5/2/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
1	1	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first open pasture, row cropping, mining, construction. (1)	ow field. (3)
7	8	Metric 3. Hydrology.	
max 30 pts.	subtotal	Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Part of wetland/u Duration inundation/sate Semi- to permane Regularly inundation/sate Seasonally inundation/sate	inin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
3	11	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average.	
	11 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed mowing Recarry grazing Recent or no recovery (1) Check all disturbances observed mowing Recarry grazing Recent or no recovery (1) clearcutting Recent or no recovery (1)	itic bed removal
last revised	1 Februa	ry 2001 jjm	

7

Site: Wetland C		Rater	Date: 5/2/2018	
su	11 btotal first pa	ge		
0	11	Metric 5. Special Wetlan	ds.	
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-rulake Erie coastal/tributary wetland-rulake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydrolo lings) (10) atened or enda fowl habitat or u	ngered species (10) usage (10)
0	11	Metric 6. Plant communi	ities, inte	erspersion, microtopography.
max 20 pts.	subtotal	」 6a. Wetland Vegetation Communities.	Vegetation (Community Cover Scale
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
		Aquatic bed 1 Emergent	1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a
		Shrub		significant part but is of low quality
		Forest Mudflats Open water	2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
		Other	3	Present and comprises significant part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.	3	vegetation and is of high quality
		Select only one.		vegetation and is of high quality
			Narrativo Do	escription of Vocatation Quality
		High (5)		escription of Vegetation Quality
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
		Moderately low (2)	mod	Native spp are dominant component of the vegetation,
		Low (1)	mou	although nonnative and/or disturbance tolerant native spp
		Low (1)		can also be present, and species diversity moderate to
		6c. Coverage of invasive plants. Refer		moderately high, but generally w/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp
		or deduct points for coverage	high	A predominance of native species, with nonnative spp
		Extensive >75% cover (-5)	9	and/or disturbance tolerant native spp absent or virtually
		Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,
		☐ Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp
		Nearly absent <5% cover (0)		, , , , , , , , , , , , , , , , , , , ,
		Absent (1)	Mudflat and	Open Water Class Quality
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
		Standing dead >25cm (10in) dbh		
		¹ Amphibian breeding pools	Microtopogi	raphy Cover Scale
			0	Absent
			1	Present very small amounts or if more common of marginal quality
			2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
11			3	Present in moderate or greater amounts and of highest quality
П				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	11	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

	Fin	al Category	
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/2/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland D	
Vegetation Communit(ies):	
PEM1 HGM Class(es):	
Slope Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
see attached jurisdictional delineation map.	
coo attached juneatorial definedation map.	
Lat/Long or UTM Coordinate	
Lat 40.30824, L	ong -80.670202
USGS Quad Name	Steubenville West
County	Jefferson
Township	T2N, R2W
Section and Subsection	Section 8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland D	
Wetland Size (acres, hectares):	0.0241 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
•	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland D is located on the eastern portion of the Analysis Area, near th	e smelter site
upstream of Goulds Road. Partial fill of Wetland D was permitted in 2016	
38 (Corps File No. 2005-2397), and so the acreage and extent of the we	
changed from the 2007 and 2014 JDs. Wetland discharges downstream	
culvert to Tributary D.	
,	
Final score : 13 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland D	Rater(s):	JMM, BJJ	Date: 5/2/2018
0	0	Metric 1. Wetland Area (size	·).	
max 6 pts.	subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)		
1	1	Metric 2. Upland buffers and	d surrounding land use	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one WIDE. Buffers average 50m (164ft) or mol MEDIUM. Buffers average 25m to <50m (8) NARROW. Buffers average 10m to <25m VERY NARROW. Buffers average <10m (9) Intensity of surrounding land use. Select one or VERY LOW. 2nd growth or older forest, provided by LOW. Old field (>10 years), shrub land, you MODERATELY HIGH. Residential, fenced HIGH. Urban, industrial, open pasture, row	re around wetland perimeter (7) 32 to <164ft) around wetland perimeter (4) (32ft to <82ft) around wetland perimeter (* <32ft) around wetland perimeter (0) double check and average. airie, savannah, wildlife area, etc. (7) ung second growth forest. (5) pasture, park, conservation tillage, new fa	
8	9	Metric 3. Hydrology.		
max 30 pts.	subtotal	Recovered (7) Recovering (3) Recent or no recovery (1) Recovered (7) ditch tile dike weir stormw	Part of wetland Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of wetland Part of vetland Part of riparian Part of wetland Part of wetland Part of riparian Part of wetland Part of wetland Part of riparian Part of wetland Part of riparian Part of riparian Part of riparian Part of vetland Part of riparian Part of ripari	plain (1) m/lake and other human use (1) /upland (e.g. forest), complex (1) or upland corridor (1) aturation. Score one or dbl check unently inundated/saturated (4) dated/saturated (3) ndated (2) urated in upper 30cm (12in) (1) onstormwater)
4	13	Metric 4. Habitat Alteration	and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double che None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assig Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check ar	n score.	
ſ	4.0	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all dis	turbances observed shrub/sapling r herbaceous/aq tting c cutting dredging	emoval uatic bed removal
su	13 btotal this pa	toxic po	debris removal	nent
last revised	1 Februa	ry 2001 jjm		

Metric 5. Special Wetlands.	Site: We	etland D	Rater((s): JMM, BJJ	Date: 5/2/2018
Check all that apply and score as indicated. Bog (10)	su		ge		
Bog (10)	0	13	Metric 5. Special Wetlan	ds.	
Score all present using 0 to 3 scale. Aquatic bed Bernergent Shrub Forest Mudflats Open water Other Other Moderately low (2) Discoverage For 15 To 17 Bible 1 ORAM long form for list. Add or deduct points for coverage Extensive 75% cover (-5) Moderate 25-75% cover (-5) Moderate 25-75% cover (-1) Nearly absent <5% cover (-1) Nearly a	max 10 pts.	subtotal	Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-u Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Openion Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydrol ings) (10) atened or enda fowl habitat or 1 Qualitative Ra	ngered species (10) usage (10) ating (-10)
Score all present using 0 to 3 scale. Aquatic bed Aquatic of foreses simil part of wetland's vegetation and is of moderate quality or comprises a significant part of wetland's vegetation and is of moderate quality or comprises a significant part of wetland's vegetation and is of moderate quality or comprises as significant part of wetland's vegetation and is of moderate quality or comprises as fighting and in composition of moderate quality or comprises as significant part of wetland's vegetation and is of moderate quality or comprises as fighting and of moderate quality or comprises as significant part of wetland's vegetation and is of high quality Arriste Description of Vegetation Quality Fresent and either comprises seginficant part of wetland's vegetation and is of hig	0	13	Metric 6. Plant communi	ities, inte	erspersion, microtopography.
Acquatic bed Emergent Emergent Shrub Forest Mudflats Open water Other Shrub Present and either comprises significant part out is of moderate quality, or comprises a significant part but is of low quality Vegetation and is of moderate quality or comprises a significant part but is of moderate quality or comprises a small part and is of high quality Speak of high	max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation (Community Cover Scale
Semeragent Shrub					
Shrub Forest Significant part but is of low quality			├──	1	
Forest Mudflats Open water Other Oth					
Mudflats vegetation and is of moderate quality or comprises a small part and is of high quality			<u> </u>		
Dep water				2	
Other 6b. horizontal (plan view) Interspersion. Select only one. High (5)			├		
Select only one. Select only			<u> </u>	2	
Select only one. High (5)				3	
High (5) Moderately high(4) Moderately high(4) Moderately low (2) Low (1) None (0) Gc. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Moderate 25-75% cover (-5) Moderate 25-75% cover (-6) Nearly absent <5% cover (0) Absent (1) Gd. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris > 15cm (6in) Standing dead >25cm (10in) dbh Thamphibian breeding pools Microtopography Cover Scale Moderately high, but generally w/o presence of rare threatened or endangered spp and/or disturbance tolerant native spp and/or disturbance of native species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp and/or disturbance tolerant native spp and/or disturbance tolerant native spp and/or disturbance of native species, with nonnative spp and/or disturbance of native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Mudflat and Open Water Class Quality Description of Vegetated Native species. Native Species. Native Species. Native Species. Native Species. Native Species. Native Species.					vegetation and is of high quality
Moderately high(4)				Narrative De	escription of Vagetation Quality
Moderate (3)			—		
Moderately low (2)				1000	
Low (1)			· ·	mod	·
None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) Moderate by passent using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh 1 Amphibian breeding pools Microtopography Cover Scale					
6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage					
to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5)					
Extensive >75% cover (-5)			to Table 1 ORAM long form for list. Add		
Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale O Absent (-3) (-247 acres) (-247 to 9.88 acres) (-247 to 9.8			or deduct points for coverage	high	A predominance of native species, with nonnative spp
Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Description of marginal quality 2 Present in moderate amounts, but not of highest quality 3 Present in moderate or greater amounts and of highest quality and of highest quality			` '		
Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Description of marginal quality Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts and of highest quality					
Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Rudflat and Open Water Class Quality 0 Absent <					the presence of rare, threatened, or endangered spp
Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Description of marginal quality Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality Present in moderate or greater amounts and of highest quality				Mudflat and	Open Water Class Quality
Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale O Absent Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Reserved. Present in moderate or greater amounts and of highest quality			6d. Microtopography.	0	Absent <0.1ha (0.247 acres)
Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale 0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality			Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale 0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality					
Amphibian breeding pools Microtopography Cover Scale			· · · · · · · · · · · · · · · · ·	3	High 4ha (9.88 acres) or more
0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality					
1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality			Amphibian breeding pools		
of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality				0	
2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality				1	
quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality					
3 Present in moderate or greater amounts and of highest quality				2	
and of highest quality				3	
13				3	-
	13			-	and or ingricor quality

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	4	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	13	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one Category 1 Category 2		Category 3	
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/8/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland EE	
Vegetation Communit(ies):	
PFO1, R4UB HGM Class(es):	
Slope	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat/Long or UTM Coordinate	
Lat 40.312232, 1	Long -80.666208
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland EE	
Wetland Size (acres, hectares):	0.0306
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.0300
See attached figure	
a diaditor ligare	
Comments, Narrative Discussion, Justification of Category Changes:	
Narrow channel with some flow at inlet from Wetland P. All surface flow	
the ground at the toe of the slope. Wetland EE is hydrologically isolated	irom
downgradient receiving surface waters.	
	T
Final score : 21.5 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland	YES	NO
	contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis,</i> or	Wetland is a Category 1 wetland	Go to Question 6
	2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no	YES	NO
	significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the	Wetland is a Category 3 wetland	Go to Question 7
	cover of invasive species (see Table 1) is <25%?	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that	YES	NO
	is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
Ва	"Old Growth Forest." Is the wetland a forested wetland and is the	YES	NO
	forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetlar	nd EE		Rater(s): JMM, BJJ		Date: 5/8/2018
	0	Metric 1. Wetland A	rea (size).		
	O	Select one size class and assign score	e. I.2ha) (5 pts) Ia) (4 pts) (3 pts) Iha) (2pts)		
5	5	Metric 2. Upland but	ffers and surround	ing land use.	
max 14 pts. sul	ibtotal	MEDIUM. Buffers average 2 NARROW. Buffers average VERY NARROW. Buffers a 2b. Intensity of surrounding land use. VERY LOW. 2nd growth or LOW. Old field (>10 years), MODERATELY HIGH. Resi	n (164ft) or more around wetland p 25m to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) around verage <10m (<32ft) around wetlan	erimeter (7) I wetland perimeter (4) and wetland perimeter (1) and perimeter (0) average. dlife area, etc. (7) forest. (5) servation tillage, new fallo	ow field. (3)
9	14	Metric 3. Hydrology			
max 30 pts. sul	ibtotal	3a. Sources of Water. Score all that a High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lak) 3c. Maximum water depth. Select onl >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (1) 3e. Modifications to natural hydrologic None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	e water (3) e or stream) (5) 3d. y one and assign score. (2) regime. Score one or double che Check all disturbances observed ditch ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Part of riparian or Part of riparian or Part of riparian or Part of riparian or Part of riparian or Duration inundation/sate Semi- to permane Regularly inundation Seasonally inundation Seasonally saturates ck and average. point source (non filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) pland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) led/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)
	8.5	Metric 4. Habitat Alt		opment.	
max 20 pts. sul		4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Ab. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or decovering (2) None or none apparent (9)	one and assign score.		
	8.5	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

last revised 1 February 2001 jjm

Site: We	tland EE		Rater	(S): JMM, BJ.	J	Date: 5/8/2018
	18.5			•		
0	ototal first pa	ĭ	Special Wetlar	nds.		
max 10 pts.	subtotal	Bog (10		restricted hydrol nings) (10) eatened or enda fowl habitat or	angered species (10) usage (10)	
3	21.5	Metric 6.	Plant commun	ities, int	erspersion, microto	opography.
max 20 pts.	subtotal	6a. Wetland Vege	tation Communities.	Vegetation	Community Cover Scale	
		Score all present u		0	Absent or comprises <0.1ha (0.2	471 acres) contiguous area
		Aquatic		1	Present and either comprises sm	
		□ Emerge			vegetation and is of moderate of	•
		Shrub			significant part but is of low qua	' '
		Forest		2	Present and either comprises sig	
		Mudflats		2		
					vegetation and is of moderate of	quality of comprises a small
		Open w	ater		part and is of high quality	
		Other		3	Present and comprises significan	it part, or more, of wetland's
		6b. horizontal (pla	ın view) Interspersion.		vegetation and is of high quality	<i>y</i>
		Select only one.				
				Narrative D	escription of Vegetation Quality	
			ely high(4)	low	Low spp diversity and/or predom	inance of nonnative or
					disturbance tolerant native spe	
			ely low (2)	mod	Native spp are dominant compon	
		Low (1)	(=)		although nonnative and/or distu	_
		None (0)		can also be present, and specie	
		<u> </u>	nvasive plants. Refer		moderately high, but generally	•
			long form for list. Add		threatened or endangered spp	
		or deduct points for		high	A predominance of native specie	
			•	nign		
			/e >75% cover (-5)		and/or disturbance tolerant nati	
			e 25-75% cover (-3)		absent, and high spp diversity a	-
			5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
			bsent <5% cover (0)			
		Absent	,		Open Water Class Quality	
		6d. Microtopograp	,	0	Absent <0.1ha (0.247 acres)	
		Score all present u	•	1	Low 0.1 to <1ha (0.247 to 2.47 a	
			ed hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		Coarse	woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
			g dead >25cm (10in) dbh an breeding pools	Microtopog	raphy Cover Scale	
				0	Absent	
				1	Present very small amounts or if of marginal quality	more common
				2	Present in moderate amounts, bu quality or in small amounts of h	_
				3	Present in moderate or greater a	
1				Ŭ	and of highest quality	

21.5

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
Ü	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	4.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	21.5	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one Category 1 Category 2 Category 3					
	\checkmark				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/9/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland F	
Vegetation Communit(ies):	
PEM1, PFO1, R4UB HGM Class(es):	
Slope	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat 40.313226, I	Long -80.674151
USGS Quad Name	Steubenville West
County	Jefferson
Township	T2N, R2W
Section and Subsection	Section 8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland F	
Wetland Size (acres, hectares):	0.192 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Small wetland area supplied by a seep and runoff east of slag pile. Discl	parges to
Tributary F.	larges to
Thousany 1.	
Final score : 27 Category:	1 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland	d F	Rater(s): JMM, BJJ	Date: 5/9/2018
1 1		Metric 1. Wetland Area (size).	
max 6 pts. subt		elect one size class and assign score.	
9 10	0	Metric 2. Upland buffers and surrounding land use.	
max 14 pts. subt	_	a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallo HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	ow field. (3)
11 2	1	Metric 3. Hydrology.	
max 30 pts. subt	3	☑ Precipitation (1) ☐ Part of wetland/up ☐ Seasonal/Intermittent surface water (3) ☐ Part of riparian or ☐ Perennial surface water (lake or stream) (5) 3d. Duration inundation/satus C. Maximum water depth. Select only one and assign score. ☐ Semi- to permane ☐ >0.7 (27.6in) (3) ☐ Regularly inundat ☐ 0.4 to 0.7m (15.7 to 27.6in) (2) ☑ Seasonally inundat ☑ < 0.4m (<15.7in) (1)	in (1) ake and other human use (1) bland (e.g. forest), complex (1) cupland corridor (1) curation. Score one or dbl check ently inundated/saturated (4) ced/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)
5 20	6 I	Metric 4. Habitat Alteration and Development.	
max 20 pts. subt	4	a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	
	4	C. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed	
2 subtotal t	this page	Recovered (6) Recovering (3) Recent or no recovery (1) Recovered (6) Recovered (6) Recovered (6) Recovered (6) Recovered (6) Recovered (6) Recovering (3) Recent or no recovery (1) Recent or no recover	tic bed removal
last revised 1 Fel	bruary	2001 jjm	

Site: We	etland F	Rater	(s): JMM, BJ	J	Date: 5/9/2018
	00]			
011	26 btotal first pa				
0	26	Metric 5. Special Wetlar	ıds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-lake Erie coastal/tributary wetland-lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	restricted hydro nings) (10) eatened or enda fowl habitat or 1 Qualitative R	angered species (10) usage (10) lating (-10)	
1	27	Metric 6. Plant commun	ities, int	erspersion, microto	opography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed	1	Present and either comprises sm	•
		• Emergent		vegetation and is of moderate of	
		Shrub		significant part but is of low qua	•
		o Forest	2	Present and either comprises sign	
		Mudflats		vegetation and is of moderate of	luality or comprises a small
		Open water		part and is of high quality	
		Other	3	Present and comprises significan	
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	1
		Select only one.			
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	_
		✓ Low (1)		although nonnative and/or distu	
		None (0)		can also be present, and specie	•
		6c. Coverage of invasive plants. Refer		moderately high, but generally	
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
		Nearly absent <5% cover (0)			
		Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	cres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh			
		Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if	more common
				of marginal quality	
			2	Present in moderate amounts, bu quality or in small amounts of h	ighest quality
			3	Present in moderate or greater ar	
				and of highest quality	
27				<u> </u>	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
Ü	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	27	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/9.2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland G	
Vegetation Communit(ies):	
PEM1, PUS3 HGM Class(es):	
flats	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map	
Lat 40.312788, I	Long -80.672896
USGS Quad Name	Steubenvuille West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland G	
Wetland Size (acres, hectares):	0.433 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.100 40.00
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes: Human-induced wetland at east end of slag pile. Closed basin with no discharge adjacent to slopes where it is Wetland G is hydrologically isolated from downgradient receiving surface wetland is almost entirely within a private inholding within the Satralloy F	nfiltrates. e waters. This
Final score : 15 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
	Question		
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical"	YES Wetland should be	NO Go to Question 2
	habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has	evaluated for possible Category 3 status	
	had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Go to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland	YES	NO
	contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis,</i> or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
		Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0)	Wetland is a Category	Go to Question 8a
	and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	3 wetland	
0.	HOLD County Francis II Is the county of the state of the	Go to Question 8a	NO
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8b
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wet	land G	R	ater(s): JMM, BJJ		Date: 5/9/2018
2	2	Metric 1. Wetland Are	ea (size).		
max 6 pts.	subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2 10 to <25 acres (4 to <10.1ha) 3 to <10 acres (1.2 to <4ha) (3 0.3 to <3 acres (0.12 to <1.2ha) 0.1 to <0.3 acres (0.04 to <0.1) <0.1 acres (0.04ha) (0 pts)	ha) (5 pts) (4 pts) pts) a) (2pts)		
1	3	Metric 2. Upland buffe	ers and surroundi	ng land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average 25r NARROW. Buffers average 10 VERY NARROW. Buffers average 25r VERY NARROW. Buffers average 26r VERY LOW. 2nd growth or old LOW. Old field (>10 years), sh	164ft) or more around wetland per m to <50m (82 to <164ft) around v 0m to <25m (32ft to <82ft) around v rage <10m (<32ft) around wetland select one or double check and av der forest, prairie, savannah, wildling land, young second growth for that, fenced pasture, park, conse	imeter (7) vetland perimeter (4) l wetland perimeter (1) l perimeter (0) erage. fe area, etc. (7) orest. (5) rvation tillage, new fallo	w field. (3)
6	9	Metric 3. Hydrology.			
max 30 pts.	subtotal	Recovered (7) Recovering (3) Recent or no recovery (1)	water (3) or stream) (5) 3d. If one and assign score. egime. Score one or double check check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat Seasonally inundat Seasonally satura and average. point source (non filling/grading road bed/RR track dredging other	in (1) ake and other human use (1) bland (e.g. forest), complex (1) upland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ed/saturated (3) ated (2) tted in upper 30cm (12in) (1)
3	12	Metric 4. Habitat Alte	ration and Develo	pment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one of None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only or Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or doul	ne and assign score.		
Г			Check all disturbances observed mowing grazing clearcutting selective cutting	shrub/sapling rem herbaceous/aqua sedimentation dredging	
subi	12 total this pa		woody debris removal toxic pollutants	farming nutrient enrichme	nt
last revised 1	l Februa	-y 2001 jjm			

Site: We	etland G	Rater(S): JMM, BJ.	J	Date: 5/9/2018
		1			
	12				
su	btotal first pa] ge			
0	12	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated.			
		Bog (10) Fen (10)			
		Old growth forest (10)			
		Mature forested wetland (5) Lake Erie coastal/tributary wetland-u	nrestricted hyd	trology (10)	
		Lake Erie coastal/tributary wetland-re		=	
		Lake Plain Sand Prairies (Oak Openi	ings) (10)		
		Relict Wet Prairies (10) Known occurrence state/federal threa	atened or enda	angered species (10)	
		Significant migratory songbird/water			
	1	Category 1 Wetland. See Question	1 Qualitative R	ating (-10)	
3	15	Metric 6. Plant communi	ties, int	erspersion, microto	pography.
max 20 pts.	subtotal	So Wetland Vagatation Communities	Vacatation	Community Cover Scale	
max 20 pts.	Subtotal	6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale.	vegetation 0	Community Cover Scale Absent or comprises < 0.1ha (0.24)	171 acres) contiguous area
		Aquatic bed	1	Present and either comprises sma	all part of wetland's
		1 Emergent 0 Shrub		vegetation and is of moderate q	•
		6 Shrub Forest	2	significant part but is of low qua Present and either comprises sign	•
		1 Mudflats		vegetation and is of moderate q	
		Open water	3	part and is of high quality	want annana af watlandla
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significant vegetation and is of high quality	
		Select only one.		regetation and is or riight quality	
		High (5)		escription of Vegetation Quality	
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predomined disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compone	
		✓ Low (1)		although nonnative and/or distu	
		None (0) 6c. Coverage of invasive plants. Refer		can also be present, and specie moderately high, but generally was	-
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	•
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5) Moderate 25-75% cover (-3)		and/or disturbance tolerant native absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatened	
		Nearly absent <5% cover (0) Absent (1)	Mudflat and	l Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
		Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	3	Moderate 1 to <4ha (2.47 to 9.88 High 4ha (9.88 acres) or more	acres)
		Standing dead >25cm (10in) dbh		Trigit 4tta (9.00 acres) of thore	
		1 Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent Procent yory small amounts or if r	more common
			I	Present very small amounts or if r of marginal quality	nore common
			2	Present in moderate amounts, bu quality or in small amounts of hi	_
	I		3	Present in moderate or greater ar	nounts
15				and of highest quality	
IJ					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
J	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	6	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	15	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/10/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland I	
Vegetation Communit(ies):	
PFO1 HGM Class(es):	
Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional map.	
Lat/Long or UTM Coordinate	00.074004
Lat 40.312207, 1	Long -80.671021
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland I	
Wetland Size (acres, hectares):	0.0394 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Narrow, isolated basin at toe of slope, may have been created by constr	uction of
railroad grade. Located adjacent to Tributary J.	
Final score : 29 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
	Question		
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical"	YES Wetland should be	NO Go to Question 2
	habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has	evaluated for possible Category 3 status	
	had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Go to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland	YES	NO
	contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
		Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0)	Wetland is a Category	Go to Question 8a
	and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	3 wetland	
0.5	HOLd Crewth Farest II to the wester de ferreste deviction de la 11	Go to Question 8a	NO
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8b
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland I		Rater(s): JMM, BJJ	Date: 5/10/2018
		Matria 1 Watland Area (size)	
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
7	7	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) WIDE. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallo	w field. (3)
9	16	Metric 3. Hydrology.	
max 30 pts.	subtotal	☐ Precipitation (1) ☐ Part of wetland/up ☐ Perennial surface water (lake or stream) (5) 3d. Duration inundation/satu 3c. Maximum water depth. Select only one and assign score. ☐ Semi- to permane ☐ >0.7 (27.6in) (3) ☐ Regularly inundat ☐ 0.4 to 0.7m (15.7 to 27.6in) (2) ☐ Seasonally inundat ☐ 3e. Modifications to natural hydrologic regime. Score one or double check and average. ☐ None or none apparent (12) ☐ Recovered (7) ☐ Recovering (3) ☐ ditch ☐ point source (non filling/grading road bed/RR track dredging other) ☐ Weir ☐ dike ☐ dredging other ☐ weir ☐ other	in (1) ake and other human use (1) bland (e.g. forest), complex (1) upland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ed/saturated (3) ated (2) tted in upper 30cm (12in) (1)
8	24	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	
		4c. Habitat alteration. Score one or double check and average. Check all disturbances observed	
sub	24 ototal this pa	Recovered (6) Recovering (3) Recent or no recovery (1) Recent or no recovery (1) Recent or no recovery (1) Recent or no recovery (1) Recent or no recovery (1) Recent or no recovery (1) Recent or no recovery (1) Recent or no recovery (1) Recovered (6) R	tic bed removal
last revised	1 Februa	ry 2001 jjm	

Site: We	etland I	Rater	(s): JMM, BJ.	J	Date: 5/10/2018
su	24 obtotal first pa] ge			
0	24	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-r Lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydro nings) (10) natened or endated fowl habitat or	angered species (10) usage (10)	
5	29	Metric 6. Plant commun	ities, int	erspersion, microto	pography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	71 acres) contiguous area
		Aquatic bed	1	Present and either comprises sma	
		1 Emergent		vegetation and is of moderate qu	uality, or comprises a
		o Shrub		significant part but is of low qual	
		1 Forest	2	Present and either comprises sign	ificant part of wetland's
		Mudflats		vegetation and is of moderate qu	
		Open water		part and is of high quality	
		Other	3	Present and comprises significant	part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
		Select only one.			
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomin	ance of nonnative or
		Moderate (3)		disturbance tolerant native speci	
		Moderately low (2)	mod	Native spp are dominant compone	
		Low (1)		although nonnative and/or distur	•
		None (0)		can also be present, and species	
		6c. Coverage of invasive plants. Refer		moderately high, but generally w	-
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	with nonnative spp
		Extensive >75% cover (-5)	3	and/or disturbance tolerant nativ	
		☐ Moderate 25-75% cover (-3)		absent, and high spp diversity ar	
		Sparse 5-25% cover (-1)		the presence of rare, threatened	, , ,
		☐ Nearly absent <5% cover (0)		,	<u> </u>
		Absent (1)	Mudflat and	Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acr	res)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	<u> </u>
		Standing dead >25cm (10in) dbh		riigii 4ila (0.00 aoi00) oi ilioi0	
		1 Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if m	nore common
			1	of marginal quality	ioro dominion
			2	Present in moderate amounts, but	not of highest
			2	quality or in small amounts of hig	
			3	Present in moderate or greater am	-
			3	and of highest quality	ou no
29				and or mignost quanty	
20					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	5	
	TOTAL SCORE	29	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/10/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland J1		
Vegetation Communit(ies): R4UB, PFO		
HGM Class(es): Slope		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See jurisdictional delineation map.		
Lat/Long or UTM Coordinate	Lat 40.31483, L	ong -80.671019
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland J1	
Wetland Size (acres, hectares):	0.0177
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.0
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Small wetland area at the northern extent of Tributary J which discharges	s through a
subsurface water pipe.	o un ough u
Final score : 45 Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
•	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland J1	Rater(s): JMM, BJJ	Date: 5/10/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
9	9	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) WEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first open pasture, row cropping, mining, construction. (1)	ow field. (3)
12	21	Metric 3. Hydrology.	
max 30 pts.	subtotal	☑ Precipitation (1) ☐ Part of wetland/u ☑ Seasonal/Intermittent surface water (3) ☑ Part of riparian or injunction/sate stream) ③ C. Maximum water depth. Select only one and assign score. ☐ Semi- to permane Regularly injunction injunction/sate stream) ☑ >0.7 (27.6in) (3) ☑ Seasonally injunction injun	nin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) lated in upper 30cm (12in) (1)
17	39	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. □ None or none apparent (4) □ Recovered (3) □ Recovering (2) □ Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. □ Excellent (7) □ Very good (6) □ Good (5) □ Moderately good (4) □ Fair (3) □ Poor to fair (2) □ Poor (1) 4c. Habitat alteration. Score one or double check and average.	
	39	✓ None or none apparent (9) Check all disturbances observed ☐ Recovered (6) mowing shrub/sapling ren ☐ grazing herbaceous/aqua ☐ clearcutting sedimentation ☐ selective cutting dredging ☐ woody debris removal farming ☐ toxic pollutants nutrient enrichment	ttic bed removal
last revised	1 Februa	ry 2001 jjm	

7

Citorra		Dete	-/->		Detersuore
Site: We	etland J	Rate	r(s): JMM, BJJ		Date: 5/10/2018
ſ		1			
	39				
SIL	btotal first pa	l ne			
34	btotal ili st pe	-	n d n		
0	0	Metric 5. Special Wetla	nas.		
max 10 pts.	subtotal				
max 10 pts.	Subtotal	Check all that apply and score as indicated. Bog (10)			
		Fen (10)			
		Old growth forest (10)			
		Mature forested wetland (5)			
		Lake Erie coastal/tributary wetland		=	
		Lake Erie coastal/tributary wetland Lake Plain Sand Prairies (Oak Ope	-	ogy (5)	
		Relict Wet Prairies (10)	silligs) (10)		
		Known occurrence state/federal thi	reatened or endar	ngered species (10)	
		Significant migratory songbird/water			
		Category 1 Wetland. See Question	n 1 Qualitative Ra	ating (-10)	
5	45	Metric 6. Plant commur	nities, inte	erspersion, microto	opography.
5	43			-	
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.		Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2d	
		Aquatic bed Emergent	ı	Present and either comprises sm vegetation and is of moderate of	
		Shrub		significant part but is of low qua	
		Forest	2	Present and either comprises sig	
		Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water		part and is of high quality	
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significant vegetation and is of high quality	
		Select only one.		vegetation and is of high quality	/
		High (5)	Narrative De	scription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2) Low (1)	mod	Native spp are dominant compon	
		None (0)		although nonnative and/or distuction also be present, and species	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	•
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5) Moderate 25-75% cover (-3)		and/or disturbance tolerant nati absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatene	-
		Nearly absent <5% cover (0)			-,g
		Absent (1)	Mudflat and	Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	<u>1</u>	Low 0.1 to <1ha (0.247 to 2.47 a)	
		Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	3	Moderate 1 to <4ha (2.47 to 9.88 High 4ha (9.88 acres) or more	s acres)
		Standing dead >25cm (10in) dbh		13 (0.00 40.00) 01 111010	
		1 Amphibian breeding pools	Microtopogr	aphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if of marginal quality	more common
			2	Present in moderate amounts, bu	•
			3	quality or in small amounts of h	
			3	Present in moderate or greater a	mounts

45

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	17	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	5	
	TOTAL SCORE	45	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, loca or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
		\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/10/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland J2	
Vegetation Communit(ies):	
R4UB, PFO HGM Class(es):	
Slopes	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat/Long or UTM Coordinate Lat 40.31273, L	ong -80.669898
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	
Site Visit	05030101
	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland J2	
Wetland Size (acres, hectares):	0.0166 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
	0.0166 acres
Comments, Narrative Discussion, Justification of Category Changes: Small wetland area located on eastern extent of Tributary J, adjacent to beneath the upper rail spur, which discharges flows through a subsurface	
Cross Creek.	
Final score: 27 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
	Question		
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical"	YES Wetland should be	NO Go to Question 2
	habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has	evaluated for possible Category 3 status	
	had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Go to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland	YES	NO
	contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
		Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0)	Wetland is a Category	Go to Question 8a
	and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	3 wetland	
0.5	HOLd Crewth Farest II to the wester de ferreste deviction de la 11	Go to Question 8a	NO
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8b
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ju	an elevation less than 575 feet on the USGS map, adjacent to this	120	140
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible Category 3 status	
		Category 5 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category	Go to Question 9e
	nauve epocles sam allos so procent.	3 wetland	Co to Quodion oo
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	Go to Question 10
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	Go to Question 11
	several inches of the surface, and often with a dominance of the	On the Owner than 44	
	gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	NO
"	dominated by some or all of the species in Table 1. Extensive prairies	160	INO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible Category 3 status	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,		
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	
		rrauriy	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland J2	Rater(s): JMM, BJJ	Date: 5/10/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
3	3	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) WIDE. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first open pasture, row cropping, mining, construction. (1)	ow field. (3)
10	13	Metric 3. Hydrology.	
max 30 pts.	subtotal	☑ Precipitation (1) ☐ Part of wetland/u ☑ Seasonal/Intermittent surface water (3) ☑ Part of riparian of part o	ain (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) ated in upper 30cm (12in) (1)
9	22	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average.	
	22 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed mowing grazing prazing praz	ttic bed removal
last revised	i Februa	ry 2001 jjm	

7

Site: We	etland J2	Rater((s): JMM, BJ.	J	Date: 5/10/2018
	22]			
su	22 obtotal first pa	lge			
0	0	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5)			
		Lake Erie coastal/tributary wetland-u Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Openi Relict Wet Prairies (10) Known occurrence state/federal threa	estricted hydro ings) (10)	logy (5)	
		Significant migratory songbird/water Category 1 Wetland. See Question			
3	25	Metric 6. Plant communi	ities, int	erspersion, microto	pography.
max 20 pts.	subtotal	J 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed	1	Present and either comprises sm	
		1 Emergent 0 Shrub		vegetation and is of moderate of significant part but is of low qua	
		o Forest	2	Present and either comprises sign	
		Mudflats	_	vegetation and is of moderate of	
		Open water		part and is of high quality	
		Other	3	Present and comprises significan	
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	<u> </u>
		Select only one. High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	=
		Low (1)		although nonnative and/or distu	
		None (0) 6c. Coverage of invasive plants. Refer		can also be present, and specie moderately high, but generally	-
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	• • • • • • • • • • • • • • • • • • • •
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatene	u, or endangered spp
		Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
		Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	3	Moderate 1 to <4ha (2.47 to 9.88 High 4ha (9.88 acres) or more	3 acres)
		Standing dead >25cm (10in) dbh		Flight 411a (9.88 acres) of fliore	
		Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if	more common
			2	of marginal quality Present in moderate amounts, bu quality or in small amounts of h	_
	•		3	Present in moderate or greater ar	
25				and of highest quality	
25					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	13	
	Metric 4. Habitat	9	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	28	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/8/2018	
Affiliation:	
Cyprus Amax Minerals Company Address:	
Dhana Numbau	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland P	
Vegetation Communit(ies): PEM1, PFO1	
HGM Class(es):	
Slope Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached delineation map	
·	
Labil and an LITAA Coordinate	
	Long -80.667965
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland:		_
Wetland P		
Wetland Size (acres, hectares):	0.597 acres	_
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.		
See attached figure.		
oos allasiioa ligare.		
Comments, Narrative Discussion, Justification of Category Changes:		
	o Wotland O	
Extensive saturated area along abandoned railroad grade adjacent to Flows from Wetland P discharge downstream to Wetland Q.	J Welland Q.	
riows from Welland P discharge downstream to Welland Q.		
Final score : 28 Categor	ry: 1	

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland P	Rater(s):	MM, BJJ	Date: 5/8/2018
	_	Metric 1. Wetland Area (size).	
max 6 pts.	2 subtotal	Select one size class and assign score.	,	
7	9	Metric 2. Upland buffers and	surrounding land use	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one a WIDE. Buffers average 50m (164ft) or more MEDIUM. Buffers average 25m to <50m (8 NARROW. Buffers average 10m to <25m (9 VERY NARROW. Buffers average 10m to <25m (9 VERY NARROW. Buffers average <10m (9 VERY LOW. 2nd growth or older forest, practice of the control of t	e around wetland perimeter (7) 2 to <164ft) around wetland perimeter (4) (32ft to <82ft) around wetland perimeter (1 32ft) around wetland perimeter (0) double check and average. airie, savannah, wildlife area, etc. (7) ung second growth forest. (5) pasture, park, conservation tillage, new fa	
11	20	Metric 3. Hydrology.		
max 30 pts.	subtotal	Recovered (7) Recovering (3) Recent or no recovery (1) ditch tile dike weir stormwa	Part of wetland/Part of riparian 3d. Duration inundation/sage score. Semi- to perma Regularly inund Seasonally inure Seasonally sature one or double check and average. Semi- to perma Regularly inund Seasonally sature one or double check and average. Impoint source (not filling/grading road bed/RR trader input other othe	lain (1) n/lake and other human use (1) n/lake and other human use (1) n/lake and other human use (1) n/lake and other human use (1) or upland corridor (1) aturation. Score one or dbl check. nently inundated/saturated (4) lated/saturated (3) ndated (2) lated in upper 30cm (12in) (1) onstormwater)
7	27	Metric 4. Habitat Alteration a	and Development.	
max 20 pts.	subtotal	 4a. Substrate disturbance. Score one or double checking. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and 	score.	
	27	□ None or none apparent (9) □ Recovered (6) □ Recovering (3) □ Recent or no recovery (1) □ Recent or no recovery (1)	urbances observed	uatic bed removal
last revised	ibtotal this pa 1 Februa			

7

Site: W	etland P	Rater	(s): JMM, BJ	Date: 5/8/2018	
SL	27 ubtotal first pa	ige			
0	27	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-ru Lake Erie coastal/tributary wetland-ru Lake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydro ings) (10) atened or enda fowl habitat or	angered species (10) usage (10)	
1	28	Metric 6. Plant communi	ities, int	erspersion, microtopography.	
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous a	rea
		Aquatic bed	1	Present and either comprises small part of wetland's	
		1 Emergent		vegetation and is of moderate quality, or comprises a	
		Shrub		significant part but is of low quality	
		Forest	2	Present and either comprises significant part of wetland's	
		Mudflats Open water		vegetation and is of moderate quality or comprises a sn	nali
		Open water Other	3	part and is of high quality Present and comprises significant part, or more, of wetlar	nd'o
		6b. horizontal (plan view) Interspersion.	3		nu s
		Select only one.		vegetation and is of high quality	
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predominance of nonnative or	
		Moderate (3)	1011	disturbance tolerant native species	
		Moderately low (2)	mod	Native spp are dominant component of the vegetation,	
		Low (1)		although nonnative and/or disturbance tolerant native s	рр
		None (0)		can also be present, and species diversity moderate to	
		6c. Coverage of invasive plants. Refer		moderately high, but generally w/o presence of rare	
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species, with nonnative spp	
		Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtuall	ly
		Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always	s,
		Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp	
		Nearly absent <5% cover (0)			
		Absent (1)		Don Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh	Microtonom	graphy Cover Seele	
		¹ Amphibian breeding pools		raphy Cover Scale Absent	
			1	Present very small amounts or if more common	
			1	of marginal quality	
			2	Present in moderate amounts, but not of highest	
				quality or in small amounts of highest quality	
	i		3	Present in moderate or greater amounts	
20				and of highest quality	
28					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	28	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM	
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM	
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.	
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM	
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.	
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).	
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.	

Final Category				
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/8/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland Q	
Vegetation Communit(ies):	
PEM1 HGM Class(es):	
Slope Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
ood attached janearanan domication map.	
Lat/Long or UTM Coordinate	
Lat 40.312253, I	Long -80.665627
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland Q	
Wetland Size (acres, hectares):	0.384 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
-	
Comments, Narrative Discussion, Justification of Category Changes:	
Extensive saturated area along abandoned railroad grade, receiving dis-	
Wetland P, located upstream. Wetland Q extends outside of the Analysi	
re-enters the downstream. This assessment considers the entire wetland	d and is not
limited to the portion within Cyprus Amex Minerals Company property.	
Final score : 25 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
••			
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	YES Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Category 3 status Go to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland.	NO Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in	YES	NO
	Natural Heritage Database as a high quality wetland?	Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland	NO Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis,</i> or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no	YES	NO
	significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
7	Fana Is the wetland a carbon accumulating (next much) wetland that	Go to Question 7	NO
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO) Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
•	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland Q	Rater(s): JM	Date: 5/8/2018	
		Metric 1. Wetland Area (size)		
max 6 pts.	2 subtotal	Select one size class and assign score.		
7	9	Metric 2. Upland buffers and	surrounding land use	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one ar WIDE. Buffers average 50m (164ft) or more MEDIUM. Buffers average 25m to <50m (82 NARROW. Buffers average 10m to <25m (32 VERY NARROW. Buffers average <10m (<32b. Intensity of surrounding land use. Select one or downward very LOW. 2nd growth or older forest, prain LOW. Old field (>10 years), shrub land, your MODERATELY HIGH. Residential, fenced purchase with the selection of the selection o	around wetland perimeter (7) to <164ft) around wetland perimeter (4) t2ft to <82ft) around wetland perimeter (1) t2ft) around wetland perimeter (0) touble check and average. tie, savannah, wildlife area, etc. (7) ting second growth forest. (5) table the same as the same as the same area.	
10	19	Metric 3. Hydrology.		
max 30 pts.	subtotal	Recovered (7) Recovering (3) Recent or no recovery (1) ditch tile dike weir stormwat	Part of wetland/	lain (1) n/lake and other human use (1) n/lake and other human use (1) n/lake and other human use (1) n/lake and other human use (1) n/lake and other human use (1) nor upland corridor (1) aturation. Score one or dbl check. nently inundated/saturated (4) ated/saturated (3) ndated (2) nrated in upper 30cm (12in) (1) onstormwater)
3	22	Metric 4. Habitat Alteration a	nd Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign select control of the con	score.	
	22	□ None or none apparent (9) □ Recovered (6) □ Recovering (3) □ Recent or no recovery (1) □ Check all disturble mowing grazing clearcutti selective woody de toxic pollut	bances observed shrub/sapling re herbaceous/aqu sedimentation cutting bris removal shrub/sapling re herbaceous/aqu sedimentation dredging farming	uatic bed removal
last revised	ibtotal this pa 1 Februa			

7

Site: We	etland Q	Rater	(s): JMM, BJ.	J	Date: 5/8/2018
su	22 ubtotal first pa	lge			
0	22	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-u Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydro ings) (10) atened or enda fowl habitat or	angered species (10) usage (10)	
3	25	Metric 6. Plant communi	ities, int	erspersion, microto	pography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	71 acres) contiguous area
		Aquatic bed	1	Present and either comprises sma	all part of wetland's
		1 Emergent		vegetation and is of moderate q	uality, or comprises a
		o Shrub		significant part but is of low qua	
		1 Forest	2	Present and either comprises sign	
		Mudflats		vegetation and is of moderate q	uality or comprises a small
		Open water		part and is of high quality	
		Other	3	Present and comprises significant	
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
		Select only one.			
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomin	
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compone	•
		Low (1)		although nonnative and/or distu	
		None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally w	v/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5)		and/or disturbance tolerant nativ	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatened	d, or endangered spp
		Nearly absent <5% cover (0)	Mudfletens	Open Water Class Quality	
		Absent (1)		Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	uroa)
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
		Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	3	Moderate 1 to <4ha (2.47 to 9.88 High 4ha (9.88 acres) or more	acres)
		Standing dead >25cm (10in) dbh		Tilgit 4tia (9.00 acres) of tilore	
		1 Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if r	more common
			'	of marginal quality	noro commun
			2	Present in moderate amounts, bu	t not of highest
			2	quality or in small amounts of hi	
			3	Present in moderate or greater an	
	l		3	and of highest quality	nounto
25					
20					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
J	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	25	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization				
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/8/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland R	
Vegetation Communit(ies):	
PEM HGM Class(es):	
Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat/Long or UTM Coordinate Lat 40.312803,	Long -80.667241
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland R	
Wetland Size (acres, hectares):	0.0082 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.0002 0.0.00
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	inaga
Extensive saturated area along abandoned railroad grade. Outlets to dra Wetland EE, but is hydrologically isolated from downgradient receiving s	
Extent of wetland changed between 2007 and 2014 JDs, due to work au	thorized under
an Isolated Wetland Permit.	
Final score : 22 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of	YES	NO
	a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or	Wetland should be evaluated for possible Category 3 status	Go to Question 2
	threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Go to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain	YES	NO
	an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland	YES	NO
	contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre)	YES	NO
	in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	2010: 0:	Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8a
0 -	HOLD County France H. Le Manually J. C. 11 J. H. 11 J. H.	Go to Question 8a	NO.
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a	YES Wetland is a Category	Go to Question 8b
	projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	3 wetland. Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

l	Site: We	tland R	Rater(s): JMM, BJJ	Date: 5/8/2018
	0	0	Metric 1. Wetland Area (size).	
	max 6 pts.	subtotal	Select one size class and assign score.	
	4	4	Metric 2. Upland buffers and surrounding land use).
	max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) VARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (9) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new face.	1)
	9	13	Metric 3. Hydrology.	
1	max 30 pts.	subtotal	☑ Precipitation (1) ☐ Part of wetland ☐ Seasonal/Intermittent surface water (3) ☐ Part of riparian ☐ Perennial surface water (lake or stream) (5) 3d. Duration inundation/s 3c. Maximum water depth. Select only one and assign score. ☑ Semi- to perma ☐ >0.7 (27.6in) (3) ☐ Regularly inundation/s ☐ 0.4 to 0.7m (15.7 to 27.6in) (2) ☐ Seasonally inundation/s ☑ < 0.4m (<15.7in) (1)	plain (1) m/lake and other human use (1) d/upland (e.g. forest), complex (1) or upland corridor (1) caturation. Score one or dbl check. anently inundated/saturated (4) dated/saturated (3) indated (2) curated in upper 30cm (12in) (1)
	8	21	Metric 4. Habitat Alteration and Development.	
	max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average.	
		21 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal woody debris removal nutrient enricht	quatic bed removal
-	ast revised	i Februa	ry zuu i jim	

7

Metric 5. Special Wetlands.	Site: We	etland R	Rater	(s): JMM, BJ	 J	Date: 5/8/2018
Metric 5. Special Wetlands. Metric 5. Special Wetlands. Proceed as a finite page Process		0.4]			
Metric 5. Special Wetlands. Check all that apply and score as indicated.						
Check all that apply and score as indicated. Bog (10)		·	i	de		
Bog (10)	0	21	Special Wetland	us.		
Fen (10) Mature forested wetland (5) Lake Erie coastal/firbutary wetland-unrestricted hydrology (10) Lake Erie coastal/firbutary wetland-vestricted hydrology (5) Lake Erie coastal/firbutary wetland-vestricted hydrology (5) Lake Erie coastal/firbutary wetland-vestricted hydrology (5) Relict Wet Prairise (10) Relict Wet Prairise	max 10 pts.	subtotal				
Mature forested welland (5) Lake Frie coastal/fibutary wetland-unrestricted hydrology (10) Lake Plain Sand Prairies (10) Relict Wet Prairies (10)			Fen (10)			
Lake Erie coastal/flibutary wetland-restricted hydrology (5) Lake Plain Sand Prairies (0ak Openings) (10) Relict Wet Prairies (10) Relict Wet Pra			\(\begin{array}{cccccccccccccccccccccccccccccccccccc			
Lake Plain Sand Prairies (Oak Openings) (10) Relict Wel Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory complit/dwater fow habitat or usage (10) Significant migratory complit/dwater fow habitat or usage (10) Significant migratory complit/dwater fow habitat or usage (10) Significant migratory complit/dwater fow habitat or usage (10) Significant migratory complit/dwater fow habitat or usage (10) Significant migratory complitive Rating (-10) Metric 6. Plant communities, interspersion, microtopography. Score all present using 0 to 3 scale. Advantic bed Emergent Shrub Forest Present and either comprises small part of wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality Present and either comprises significant part but wis of low quality Present and either comprises significant part but is of low quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a significant part but so flow quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a significant part but so flow quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a significant part of wetland's vegetation and is of moderate quality or comprises and part of wetland's vegetation and is of moderate quality or comprises and part of wetland's part of the present of part of the vegetat			Lake Erie coastal/tributary wetland-u			
Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10)				-	liogy (5)	
Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10)			· '	atanad ar ande	angered energies (10)	
New column communities Second communities Second communities			Significant migratory songbird/water	fowl habitat or	usage (10)	
Score all present using 0 to 3 scale.			1		• ,	
Score all present using 0 to 3 scale. Aquatic bed Apacit and either comprises small part of wetland's vegetation and is of moderate quality or comprises a small part and either comprises as mall vegetation and is of moderate quality or comprises a small part and either comprises Aguative pare to tow quality Present and either comprises as mide to find perturned and either comprises as significant part to twetland's vegetation and is of moderate quality or comprises a small part and either comprises as mall pert of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality Present and either comprises as mall either comprises as mall part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality Narrative Description of Vegetation Quality Iow Low spp diversity and/or predominance of nonnative or disturbance tolerant native species with nonnative species and so present and perturned or endangered spp Appresent and is of high quality Narrative Description of Vegetation Qualit	1	22	Metric 6. Plant communi	ities, int	erspersion, microto	opograpny.
Aquatic bed Emergent Emergent Shrub Forest Wudflats Open water Other	max 20 pts.	subtotal	】 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
Impregent						
Forest Mulflats 1 Open water Other Other 6b. hortzontal (plan view) Interspersion. Select only one. High (5) Moderately high(4) Low (1) Low (1) None (0) Extensive >75% cover (-5) Moderate 25-75% cover (-5) Moderate (25-75% cover (-6) Moderate (3) Moderate 25-75% cover (-6) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/lussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Present and either comprises significant part of wetland's vegetation and is of high quality Separate and comprises significant part, or more, of wetland's vegetation and is of high quality Separate and comprises significant part, or more, of wetland's vegetation and is of high quality Separate and comprises significant part, or more, of wetland's vegetation and is of high quality Separate and comprises significant part, or more, of wetland's vegetation and is of high quality Separate and comprises significant part, or more, of wetland's vegetation and is of high quality Separate and comprises significant part, or more, of wetland's vegetation and is of high quality or more, of wetland's vegetation and is of high quality or more. Amphibian breeding to we detail to a separate and comprises significant part, or more, of wetland's vegetation and is of high quality or more feature and comprises significant part, or more, of wetland's vegetation and is of high quality or more, of wetland's vegetation and is of high quality or in small amounts or if more common of marginal quality or in small amounts of highest quality or in small amounts of highest quality or in small amounts or if more common of marginal quality or in small amounts of highest quality or in small amounts or in moderate amounts.			1 Emergent		vegetation and is of moderate of	quality, or comprises a
Mudflats Open water Other Oth			├	2		-
Select only one. High (5) Moderately high(4) Dow spo diversity and/or predominance of nonnative or disturbance tolerant native species			Mudflats		vegetation and is of moderate of	
Vegetation and is of high quality			├	3		nt part, or more, of wetland's
High (5) Moderately high(4) Iow Low spp diversity and/or predominance of nonnative or disturbance tolerant native species mod Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp					-	
Moderate (3)				Narrative D	escription of Vegetation Quality	
Moderately low (2)				low		
Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality Can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp high A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp Mudflat and Open Water Class Quality 0 Absent <0.1ha (0.247 acres) 1 Low 0.1 to <1ha (0.247 to 2.47 acres) 2 Moderate 1 to <4ha (2.47 to 9.88 acres) Microtopography Cover Scale 0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts			Moderately low (2)	mod	Native spp are dominant compon	ent of the vegetation,
6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5)					_	
or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality 3 Present in moderate or greater amounts			6c. Coverage of invasive plants. Refer		moderately high, but generally	w/o presence of rare
□ Extensive >75% cover (-5) □ Moderate 25-75% cover (-3) □ Sparse 5-25% cover (-1) □ Nearly absent <5% cover (0) □ Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. □ Vegetated hummucks/tussucks □ Coarse woody debris >15cm (6in) □ Standing dead >25cm (10in) dbh □ Amphibian breeding pools Microtopography Cover Scale □ Microtopography Cover Scale □ Absent □ Present very small amounts or if more common of marginal quality □ Present in moderate amounts, but not of highest quality or in small amounts of highest quality □ And/or disturbance tolerant native spp absent or virtually absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp Mudflat and Open Water Class Quality □ Absent <□ Low 0.1 to <1ha (0.247 acres) □ Absent □ to <4ha (2.47 to 9.88 acres) □ Absent □ Present very small amounts or if more common of marginal quality □ Present in moderate amounts, but not of highest quality or in small amounts of highest quality □ Present in moderate or greater amounts			_	high		
Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh 1 Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Microtopography Cover Scale Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts			Extensive >75% cover (-5)	3	and/or disturbance tolerant nati	ive spp absent or virtually
Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale Description of marginal quality Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Rudflat and Open Water Class Quality 0 Absent <						
6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale Microtopography Cover Scale O Absent Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts				Mudfleten	d Onen Meter Class Quality	
Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale O Absent Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Reserved.			<u> </u>			
Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale O Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts					`	
Amphibian breeding pools Microtopography Cover Scale						s acres)
0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts				Microtopoo	uranhy Cover Scale	
of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts			Amphibian breeding pools			
2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts				1	-	more common
3 Present in moderate or greater amounts				2	Present in moderate amounts, bu	_
and of highest quality				3		
	22				and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	22	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization				
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/7/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland S		
Vegetation Communit(ies): PFO1, PEM1, R4UB		
HGM Class(es): Slope		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See attached jurisdictional delineation map.		
Lat/Long or UTM Coordinate	Lat 40.31382, L	ong -80.668823
USGS Quad Name	<u> </u>	Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		V

Name of Wetland: Wetland S	
Wetland Size (acres, hectares):	0.555 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	1
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
A series of wetlands located on steep slope upstream from Wetland P, v	vest of
Wetland T. Crosses old road related to smelting and slag disposal opera	
Final score : 29 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO) Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO) Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO) Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetla	nd S		Rater(s): JMM, BJJ		Date: 5/2/18
2	0	Metric 1. Wetland Ar	rea (size).		
max 6 pts. su	2 ubtotal	Select one size class and assign score			
7	9	Metric 2. Upland buf	fers and surroundi	ing land use.	
max 14 pts. su	ubtotal	MEDIUM. Buffers average 2 NARROW. Buffers average VERY NARROW. Buffers average very NARROW. Supplemental very NARROW. Supple	(164ft) or more around wetland pe 25m to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) aroun verage <10m (<32ft) around wetlan	erimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) verage. llife area, etc. (7) forest. (5) ervation tillage, new fallo	ow field. (3)
12	21	Metric 3. Hydrology.			
max 30 pts. su	ubtotal	Recovered (7) Recovering (3) Recent or no recovery (1)	e water (3) e or stream) (5) 3d. y one and assign score. 2) regime. Score one or double chec Check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat Seasonally inundat Seasonally satura k and average. point source (non filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) rupland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
6	27	Metric 4. Habitat Alte	eration and Develo	pment.	
max 20 pts. su	ubtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or de	one and assign score. Duble check and average. Check all disturbances observed		
	27	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

last revised 1 February 2001 jjm

Site: We	etland S	Rater((s): JMM, BJ.	J	Date: 5/7/2018
	27				
su	27 btotal first pa	lge			
0	27	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-u Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Openi Relict Wet Prairies (10) Known occurrence state/federal threa	estricted hydro ings) (10)	logy (5)	
		Significant migratory songbird/water Category 1 Wetland. See Question	fowl habitat or	usage (10)	
2	29	Metric 6. Plant communi		• , ,	pography.
max 20 pts.	subtotal	】 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed Emergent Shrub	1	Present and either comprises small vegetation and is of moderate of significant part but is of low quart	uality, or comprises a
		1 Forest Mudflats	2	Present and either comprises sign vegetation and is of moderate of	nificant part of wetland's
		Open water		part and is of high quality	
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significan vegetation and is of high quality	
		Select only one. High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predomi disturbance tolerant native spec	
		☐ Moderately low (2) ☐ Low (1)	mod	Native spp are dominant compon although nonnative and/or distu	rbance tolerant native spp
		None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add		can also be present, and species moderately high, but generally we threatened or endangered spp	w/o presence of rare
		or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	high	A predominance of native species and/or disturbance tolerant nati absent, and high spp diversity at the presence of rare, threatened	s, with nonnative spp we spp absent or virtually and often, but not always,
		Nearly absent <5% cover (0)	Mudflotone	d Onen Water Class Quality	
		Absent (1) 6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	cres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh Amphibian breeding pools	Microtopoo	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if of marginal quality	
			2	Present in moderate amounts, bu quality or in small amounts of h	ighest quality
00			3	Present in moderate or greater ar and of highest quality	mounts
29					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
J	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	29	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, loca or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization				
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/7/2018		
Affiliation:		
Cyprus Amax Minerals Company Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland T		
Vegetation Communit(ies): PEM1, PFO1, R4UB		
HGM Class(es):		
Slope Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.		
See attached jurisdictional delineation map.		
·		
Lat/Long or UTM Coordinate Lat 40.313809,	Long -80.667729	
USGS Quad Name	Steubenville West	
County	Jefferson	
Township	T6N, R2W	
Section and Subsection	S8	
Hydrologic Unit Code	05030101	
Site Visit	Υ	
National Wetland Inventory Map	Υ	
Ohio Wetland Inventory Map		
Soil Survey	Υ	
Delineation report/map	Υ	

Name of Wetland: Wetland T	
Wetland Size (acres, hectares):	0.772 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Series of wetlands located on steep slope upstream from Wetland P, ea	st of Wetland
S. Downstream end merges with Wetland P across a wide saturated are	
appears to be impacted by waste disposal from coal mining operations.	
Final score : 28 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
•	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site:		Rater(s):	Date:
2	2	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
7	9	Metric 2. Upland buffers and surrounding land use	•
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) WEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fall IIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	
12	21	Metric 3. Hydrology.	
max 30 pts.	subtotal	☑ Precipitation (1) ☐ Part of wetland/ ☐ Seasonal/Intermittent surface water (3) ☑ Part of riparian of part of riparian of part of riparian of part of riparian of part of riparian of part of riparian of part of riparian of part of riparian of part of riparian of part of part of wetland// Part of riparian of part of part of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of wetland// Part of riparian of riparian of riparian of riparian of riparian of riparian of riparian of riparian of	lain (1) In/lake and other human use (1) In/lake and other human use (1) Invalid (e.g. forest), complex (1) Invalid (1) Invalid (1) Invalid (2) Invalid (3) Invalid (3) Invalid (4) Invald
5	26	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	
	26	□ None or none apparent (9) □ Recovered (6) □ Recovering (3) □ Recent or no recovery (1) □ Recent or no recovery (1) □ Recent or no recovery (1) □ Check all disturbances observed □ mowing □ shrub/sapling re □ herbaceous/aqu □ clearcutting □ sedimentation □ dredging	moval atic bed removal
	btotal this pa	ge toxic pollutants nutrient enrichm	ent
	26	Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Recent or no recovery (1) Recovering (3) Recent or no recovery (1) Recovering (3) Recent or no recovery (1) Recovering (3) Recent or no recovery (1) Recovering (3) Recovering (3) Recovering (3) Recovering (3) Recovering (4) Recovering (5) Recovering (6) Recovering (7) Recovering (7) Recovering (8) Recovering (9) Recovering (9) Recovering (9) Recovering (9) Recovering (9) Recovering (1) Recovering (atic bed removal
last revised		ge	

7

Description of the subtotal lifest page Metric 5. Special Wetlands.	
Metric 5. Special Wetlands. Tax 10 pts. Subtotal Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Erie coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (0ak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography.	
Metric 5. Special Wetlands. Subtotal Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Eric coastal/tributary wetland-unrestricted hydrology (10) Lake Eric coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. Score all present using 0 to 3 scale. Aquatic bed Aquatic bed Present and either comprises <0.1ha (0.2471 acres) contiguous vegetation and is of moderate quality, or comprises significant part but is of low quality.	
Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. Score all present using 0 to 3 scale. Aquatic bed Emergent Shrub Bog (10) Fen (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Erie coastal/tributary wetland-restricted hydrology (10) Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Erie coastal/tributary wetland-restricted hydrology (10) Lake Erie coastal/tributary wetland-restrict	
Ga. Wetland Vegetation Communities, interspersion, microtopography. Subtotal Mature forested wetland (5) Lake Eric coastal/tributary wetland-unrestricted hydrology (10) Lake Eric coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography.	
Mature forested wetland (5) Lake Eric coastal/tributary wetland-unrestricted hydrology (10) Lake Eric coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. Mature forested wetland-unrestricted hydrology (10) Lake Eric coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Wetland Coategory 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. Some all present using 0 to 3 scale. O Absent or comprises <0.1ha (0.2471 acres) contiguous vegetation and is of moderate quality, or comprises significant part but is of low quality	
Lake Erie coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. 6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale. Aquatic bed Aquatic bed Emergent Shrub Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (Oak Openings) (10) Relict Wet Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Wegetation Community Cover Scale 1 Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises significant part but is of low quality	
Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. 6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale. Aquatic bed Aquatic bed Benergent Shrub Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Wegetation Community Cover Scale 1 Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises significant part but is of low quality	
Known occurrence state/federal threatened or endangered species (10)	
Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. 6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale. Aquatic bed Aquatic bed Emergent Shrub Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Wegetation Community Cover Scale 0 Absent or comprises <0.1ha (0.2471 acres) contiguous vegetation and is of moderate quality, or comprises significant part but is of low quality	
Metric 6. Plant communities, interspersion, microtopography. Subtotal 6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale. Aquatic bed Aquatic bed Emergent Shrub Metric 6. Plant communities, interspersion, microtopography. Vegetation Community Cover Scale 0 Absent or comprises <0.1ha (0.2471 acres) contiguous vegetation and either comprises small part of wetland's vegetation and is of moderate quality, or comprises significant part but is of low quality	
max 20 pts. Subtotal Score all present using 0 to 3 scale. Description of the present using 0 to 3 scale. Description of the present using 0 to 3 scale. Description of the present using 0 to 3 scale. Description of the present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises significant part but is of low quality	
Score all present using 0 to 3 scale. Aquatic bed Emergent Shrub Aquatic bed Description Appearance Absent or comprises <0.1ha (0.2471 acres) contiguous Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises significant part but is of low quality	
Aquatic bed Emergent Shrub Aquatic bed Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises significant part but is of low quality	
Emergent vegetation and is of moderate quality, or comprises Shrub significant part but is of low quality	is area
	а
December 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 -
1 Forest 2 Present and either comprises significant part of wetlan vegetation and is of moderate quality or comprises at	
Open water part and is of high quality	
Other 3 Present and comprises significant part, or more, of we vegetation and is of high quality	∌tland's
Select only one.	
High (5) Marrative Description of Vegetation Quality low Low spp diversity and/or predominance of nonnative	
Moderate (3) Cow spp diversity and/or predominance of normalive of disturbance tolerant native species	
Moderately low (2) mod Native spp are dominant component of the vegetation	
Low (1) although nonnative and/or disturbance tolerant native None (0) can also be present, and species diversity moderate	
6c. Coverage of invasive plants. Refer moderately high, but generally w/o presence of rare	
to Table 1 ORAM long form for list. Add threatened or endangered spp or deduct points for coverage high A predominance of native species, with nonnative spp)
Extensive >75% cover (-5) and/or disturbance tolerant native spp absent or virt	ually
Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) absent, and high spp diversity and often, but not alw the presence of rare, threatened, or endangered sp	-
Nearly absent <5% cover (0)	
Absent (1) 6d. Microtopography. Mudflat and Open Water Class Quality 0 Absent <0.1ha (0.247 acres)	
Score all present using 0 to 3 scale. Absent < 0.111a (0.247 acres)	
Vegetated hummucks/tussucks 2 Moderate 1 to <4ha (2.47 to 9.88 acres)	
Coarse woody debris >15cm (6in) 3 High 4ha (9.88 acres) or more Standing dead >25cm (10in) dbh	
Amphibian breeding pools Microtopography Cover Scale	
0 Absent 1 Present very small amounts or if more common	
of marginal quality	
2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality	
3 Present in moderate or greater amounts	
and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
J	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	28	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category						
Choose one	Category 3					
	\checkmark					

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/5/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Dhana Manchan		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland W		
Vegetation Communit(ies): PFO1		
HGM Class(es): Slope		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See jurisdictional delineation map.		
Lat/Long or UTM Coordinate		
	Lat 40.314829, I	Long -80.664504
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland W	
Wetland Size (acres, hectares):	0.181 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.101 40100
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Isolated seepage area along an old mining road. Seepage feature W is	nydrologically
isolated from downgradient receiving surface waters.	
Final score : 23 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wet	tland W	F	Rater(s): JMM, BJJ		Date: 5/5/2018
4	4	Metric 1. Wetland Ar	ea (size).		
max 6 pts.	1 subtotal	Select one size class and assign score.	2ha) (5 pts) a) (4 pts) (3 pts) na) (2pts)		
7	8	Metric 2. Upland buf	fers and surround	ing land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average 2: NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average 2: LOW. Old field (>10 years), substituting the substitution of the su	(164ft) or more around wetland posts to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) around rerage <10m (<32ft) around wetlar Select one or double check and a bider forest, prairie, savannah, wild shrub land, young second growth dential, fenced pasture, park, constitutions.	erimeter (7) I wetland perimeter (4) and wetland perimeter (1) and perimeter (0) average. dlife area, etc. (7) forest. (5) servation tillage, new fallo	ow field. (3)
9	17	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that an High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lake) 3c. Maximum water depth. Select only >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	e water (3) e or stream) (5) 3d. v one and assign score. 2) regime. Score one or double che Check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Part of riparian or Part of riparian or Part of riparian or Part of riparian or Part of riparian or Duration inundation/sate Semi- to permane Regularly inundat Seasonally inundat Seasonally satura ck and average. point source (non filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) pland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) led/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)
3	20	Metric 4. Habitat Alte	eration and Develo	opment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only of Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or do Recovered (6)	one and assign score.	✓ shrub/sapling ren	noval.
subí	20	Recovering (3) Recent or no recovery (1)	grazing clearcutting selective cutting woody debris removal toxic pollutants	herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

last revised 1 February 2001 jjm

Site: We	atland W/	Rater	S): JMM, BJ.		Date: 5/5/2018
Site. We	stiatiu vv	ixater	S). JIVIIVI, DJ.	J	Date: 3/3/2010
su	20 btotal first pa	ge			
0	20	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-uely Lake Erie coastal/tributary wetland-rely Lake Plain Sand Prairies (Oak Openion Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question 2	estricted hydro ings) (10) atened or enda fowl habitat or	angered species (10) usage (10)	
3	23	Metric 6. Plant communi	ties, int	erspersion, microto	opography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed	1	Present and either comprises sm	
		1 Emergent		vegetation and is of moderate of	
		Shrub 1 Forest	2	significant part but is of low qua Present and either comprises sig	•
		1 Forest Mudflats	2	vegetation and is of moderate of	
		Open water		part and is of high quality	quality of comprises a small
		Other	3	Present and comprises significan	t part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
		Select only one.			
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	•
		Low (1)		although nonnative and/or distu	
		None (0)		can also be present, and specie	-
		6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add		moderately high, but generally	
		or deduct points for coverage	high	threatened or endangered spp A predominance of native species	
		Extensive >75% cover (-5)	riigii	and/or disturbance tolerant nati	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatene	
		☐ Nearly absent <5% cover (0)		,	, 3 11
		Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh	Microtonom	wanhu Cayar Saala	
		Amphibian breeding pools		raphy Cover Scale	
			0 1	Absent Present very small amounts or if	more common
			1	of marginal quality	more comment
			2	Present in moderate amounts, bu	it not of highest
				quality or in small amounts of h	•
			3	Present in moderate or greater a	
00				and of highest quality	
23					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
3	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	23	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 3			
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/3/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland Y		
Vegetation Communit(ies): PFO1		
HGM Class(es): Depressional		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See jurisdictional delineation map.		
Lat/Long or UTM Coordinate	l	
	Lat 40.317759, I	Long -80.670728
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland Y	
Wetland Size (acres, hectares):	0.0757
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.0737
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Isolated, closed basin in abandoned coal strip mine. Also impacted by sl	ag from
chromium smelter. Red-spotted newts were recorded within Wetland Y.	Wetland Y is
hydrologically isolated from downgradient receiving waters.	
Final score : 24.5 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ju	an elevation less than 575 feet on the USGS map, adjacent to this	120	140
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible Category 3 status	
		Category 5 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category	Go to Question 9e
	nauve eposies sam also so procent.	3 wetland	Co to Quodion oo
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	Go to Question 10
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	Go to Question 11
	several inches of the surface, and often with a dominance of the	On the Owner than 44	
	gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	NO
"	dominated by some or all of the species in Table 1. Extensive prairies	160	INO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible Category 3 status	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,		
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	
		rrauriy	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland Y	Rater(s): JMM, BJJ	Date: 5/3/2018
0 0	Metric 1. Wetland Area (size).	
max 6 pts. subtota	Select one size class and assign score.	
6 6	Metric 2. Upland buffers and surrounding land use.	
max 14 pts. subtota	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow this park. HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	ow field. (3)
11 17	Metric 3. Hydrology.	
max 30 pts. subtota	☐ High pH groundwater (5) ☐ Other groundwater (3) ☐ Precipitation (1) ☐ Seasonal/Intermittent surface water (3) ☐ Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. ☐ >0.7 (27.6in) (3) ☐ Regularly inundation/sate of the part of permaner control of the permaner control of the permaner control of the permaner control of the permaner control of the permaner control of the permaner control of the permaner control of the permaner control of the permaner control of the permaner control of	inin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
F F 00 F	Metric 4. Habitat Alteration and Development.	
5.5 22.5 max 20 pts. subtota		
	Poor (1) 4c. Habitat alteration. Score one or double check and average.	
subtotal this		itic bed removal

7

Site: We	etland Y		Rater(s): JMM,	BJJ	Date: 5/3/2018
0	22.5 ubtotal first pa	Metric 5. Special '	Wetlands.		
max 10 pts.	subtotal	Check all that apply and score as Bog (10) Fen (10) Old growth forest (10) Mature forested wetland Lake Erie coastal/tributa Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state Significant migratory sor Category 1 Wetland. Se	(5) Iry wetland-unrestricted Iry wetland-restricted hy Is (Oak Openings) (10) Irederal threatened or engbird/water fowl habitate Ire Question 1 Qualitative	endangered species (10) t or usage (10) e Rating (-10)	nicrotopography
2	24.5	Metric 6. Plant co	·	•	
max 20 pts.	subtotal	6a. Wetland Vegetation Communi		ion Community Cover Scal	
		Score all present using 0 to 3 scale Aquatic bed Emergent Shrub	e. <u>0</u>	Present and either cor	c0.1ha (0.2471 acres) contiguous area mprises small part of wetland's moderate quality, or comprises a sof low quality
		Forest Mudflats Open water	2	Present and either cor vegetation and is of part and is of high qu	nprises significant part of wetland's moderate quality or comprises a small uality
		Other6b. horizontal (plan view) Interspe	ersion. 3	Present and comprises vegetation and is of	s significant part, or more, of wetland's high quality
		Select only one.			.
		High (5) Moderately high(4) Moderate (3)	low	Low spp diversity and/disturbance tolerant	or predominance of nonnative or
		Moderate (5) Moderately low (2)	mod		ant component of the vegetation,
		□ Low (1)			and/or disturbance tolerant native spp
		None (0)		_	and species diversity moderate to
		6c. Coverage of invasive plants. to Table 1 ORAM long form for list		moderately high, but threatened or endan	generally w/o presence of rare gered spp
		or deduct points for coverage	high	-	tive species, with nonnative spp
		Extensive >75% cover (*		olerant native spp absent or virtually
		Moderate 25-75% cover ☐ Sparse 5-25% cover (-1	` '	, , , , , ,	o diversity and often, but not always, , threatened, or endangered spp
		Nearly absent <5% cover		the presence of rare	, tilleatened, or endangered spp
		Absent (1)		and Open Water Class Qua	ality
		6d. Microtopography.	0	Absent <0.1ha (0.247	
		Score all present using 0 to 3 scale	e. 1	Low 0.1 to <1ha (0.24)	<u> </u>
		Vegetated hummucks/tu		Moderate 1 to <4ha (2	2.47 to 9.88 acres)
		Coarse woody debris >1		High 4ha (9.88 acres)	or more
		Standing dead >25cm (,	nography Cover Scale	
		Amphibian breeding poo	0	pography Cover Scale Absent	
			1		ounts or if more common
			2	Present in moderate a	mounts, but not of highest nounts of highest quality
			3	Present in moderate o	
	I		0	and of highest qualit	•

24.5

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	6	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	5.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	24.5	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM		
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM		
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.		
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM		
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.		
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).		
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.		

Final Category				
Choose one Category 1 Category 2 Category 3				
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method 10 Page Form for Wetland Cate			
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/3/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland Z	
Vegetation Communit(ies):	
PFO1 HGM Class(es):	
Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat 40.316996, I	Long -80.668507
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland Z	
Wetland Size (acres, hectares):	0.243 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Isolated, closed basin in abandoned coal strip mine. Wetland Z is hydrol	odically
isolated from downgradient receiving surface waters.	ogically
nonatou nom uomigraulone rocoming cumaco materol	
Final score : 14 Category:	1 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

_						
#	Question	Circle one				
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2			
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3			
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4			
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5			
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6			
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7			
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a			
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b			

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	·-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	tland Z		Rater(s): JMM, BJJ		Date: 5/3/2018
		•			
1	1	Metric 1. Wetland Ar	rea (size).		
max 6 pts.	subtotal	Select one size class and assign score	.2ha) (5 pts) a) (4 pts) (3 pts) ha) (2pts)		
10	11	Metric 2. Upland but	fers and surround	ing land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average 2 NARROW. Buffers average VERY NARROW. Buffers average very NARROW. Supplied very	n (164ft) or more around wetland po 25m to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) arour verage <10m (<32ft) around wetlar	erimeter (7) wetland perimeter (4) nd wetland perimeter (1) nd perimeter (0) everage. dlife area, etc. (7) forest. (5) ervation tillage, new fallo	ow field. (3)
9	20	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that a limit high pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surfaction perennial surface water (lake) 3c. Maximum water depth. Select onlessed on the season of the s	e water (3) e or stream) (5) 3d. y one and assign score. (2) regime. Score one or double chee Check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Duration inundation/sate Semi- to permane Regularly inundation Seasonally inundation Seasonally saturation Seasonally saturation Ck and average. point source (non filling/grading road bed/RR trace dredging other relic coal mining	sin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
3	23	Metric 4. Habitat Alt	eration and Develo	pment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or decomposition.	one and assign score. Duble check and average. Check all disturbances observed		
sul	23	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	itic bed removal

last revised 1 February 2001 jjm

Site: Wetland Z Rater		(s): JMM, BJJ		Date: 5/3/2018	
		1			
	23				
su	btotal first pa	i			
-10	13	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated.			
		Bog (10) Fen (10)			
		Old growth forest (10)			
		Mature forested wetland (5)			
		Lake Eric coastal/tributary wetland-u	-	=	
		Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Open	-	logy (5)	
		Relict Wet Prairies (10)	9-7 (7		
		Known occurrence state/federal threa			
		Significant migratory songbird/water Category 1 Wetland. See Question			
		1		• ,	nography
1	14	Metric 6. Plant communi	illes, iiil	erspersion, micrott	pograpity.
max 20 pts.	subtotal	】 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed	1	Present and either comprises sm	
		Emergent Shrub		vegetation and is of moderate of significant part but is of low qua	
		Forest	2	Present and either comprises sign	
		Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water Other	3	part and is of high quality Present and comprises significan	t part or more of wetland's
		6b. horizontal (plan view) Interspersion.	3	vegetation and is of high quality	
		Select only one.			
		High (5)		escription of Vegetation Quality	
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predomi disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	
		Low (1)		although nonnative and/or distu	
		None (0) 6c. Coverage of invasive plants. Refer		can also be present, and specie moderately high, but generally	-
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5) Moderate 25-75% cover (-3)		and/or disturbance tolerant nati absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatene	
		Nearly absent <5% cover (0)			
		Absent (1) 6d. Microtopography.	Mudflat and	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	cres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if	more common
			2	of marginal quality Present in moderate amounts, bu	t not of highest
				quality or in small amounts of h	
	ì		3	Present in moderate or greater ar and of highest quality	mounts
14					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
3	Metric 2. Buffers and surrounding land use	11	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	-10	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	14	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/3/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland AA	
Vegetation Communit(ies):	
PFO1 HGM Class(es):	
Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional map.	
Lat/Long or UTM Coordinate	Long -80.667042
USGS Quad Name	
County	Steubenville West
	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland AA	
Wetland Size (acres, hectares):	0.0392 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	1
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Isolated, closed basin in abandoned coal strip mine. Wetland AA is hydrological strip mine.	ologically
isolated from downgradient receiving surface waters.	
Final score : 14 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO) Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO) Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO) Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	tland AA		Rater(s): JMM, BJJ		Date: 5/3/2018
0	0	Metric 1. Wetland A	rea (size).		
max 6 pts.	subtotal	Select one size class and assign scor >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <2 10 to <25 acres (4 to <10.1) 3 to <10 acres (1.2 to <4ha 0.3 to <3 acres (0.12 to <1.1) 0.1 to <0.3 acres (0.04 to <1.1) <0.1 acres (0.04ha) (0 pts)	e. 0.2ha) (5 pts) ha) (4 pts)) (3 pts) 2ha) (2pts)		
12	12	Metric 2. Upland bu	ffers and surroun	ding land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth or LOW. Old field (>10 years) MODERATELY HIGH. Res	m (164ft) or more around wetland 25m to <50m (82 to <164ft) around to 10m to <25m (32ft to <82ft) around wetlage <10m (<32ft) around wetl	perimeter (7) and wetland perimeter (4) und wetland perimeter (1) land perimeter (0) d average. vildlife area, etc. (7) th forest. (5) anservation tillage, new fallo	ow field. (3)
9	21	Metric 3. Hydrology	•		
max 30 pts.	subtotal	3a. Sources of Water. Score all that High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lake) 3c. Maximum water depth. Select on 3c. Maximum water depth. Select on 3c. 0.4 to 0.7m (15.7 to 27.6in) 3e. Modifications to natural hydrologi None or none apparent (12 Recovered (7) Recovering (3) Recent or no recovery (1)	ce water (3) (e or stream) (5) 3ce or stream) (5) 3ce or stream) (5) 3ce or stream) (2) c regime. Score one or double chapter of the chapter	Part of wetland/u Part of riparian or Duration inundation/sate Semi- to permand Regularly inunda Seasonally inund Seasonally saturated and average. ed point source (nor filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) pland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) led/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)
3	24	Metric 4. Habitat Al	teration and Deve	lopment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score on None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or comparent (9)	one and assign score. Souble check and average. Check all disturbances observe		
sul	24 btotal this pa	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

last revised 1 February 2001 jjm

Site: We	etland AA	Rater	(s): JMM, BJ.	J	Date: 5/3/2018
	0.4]			
	24				
su	btotal first pa	i	مام		
-10	14	Metric 5. Special Wetlan	as.		
max 10 pts.	subtotal	Check all that apply and score as indicated.			
		Bog (10) Fen (10)			
		Old growth forest (10)			
		Mature forested wetland (5)		destance (40)	
		Lake Erie coastal/tributary wetland-u	-		
		Lake Plain Sand Prairies (Oak Open	-	97 (-)	
		Relict Wet Prairies (10)			
		Known occurrence state/federal three			
		Category 1 Wetland. See Question			
0	4.4	Metric 6. Plant communi	ities. int	erspersion, microto	ppography.
0	14		,	,	, p = 9, s. p = 7
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.		Community Cover Scale	
		Score all present using 0 to 3 scale. Aquatic bed	0	Absent or comprises <0.1ha (0.24) Present and either comprises sm	
		Emergent	'	vegetation and is of moderate of	
		Shrub		significant part but is of low qua	
		Forest Mudflats	2	Present and either comprises sign vegetation and is of moderate of	
		Open water		part and is of high quality	quality of comprises a small
		Other	3	Present and comprises significan	t part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	/
		Select only one. High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2) Low (1)	mod	Native spp are dominant compon although nonnative and/or distu	=
		None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	
		to Table 1 ORAM long form for list. Add or deduct points for coverage	high	threatened or endangered spp A predominance of native species	
		Extensive >75% cover (-5)	9	and/or disturbance tolerant nati	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatene	d, or endangered spp
		Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale. Vegetated hummucks/tussucks	1	Low 0.1 to <1ha (0.247 to 2.47 a) Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	3 40103)
		Standing dead >25cm (10in) dbh			
		Amphibian breeding pools		raphy Cover Scale Absent	
			0 1	Present very small amounts or if	more common
				of marginal quality	
			2	Present in moderate amounts, but quality or in small amounts of h	_
			3	Present in moderate or greater ar	
14				and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	-10	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	14	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

	Final Category			
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/3/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland CC	
Vegetation Communit(ies):	
PFO1 HGM Class(es):	
Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat/Long or UTM Coordinate	
Lat 40.3 10328, 1	Long -80.666557
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland CC	
Wetland Size (acres, hectares):	0.0214 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.02 14 acres
See attached figure.	
ees allasiisa ligarei	
Comments, Narrative Discussion, Justification of Category Changes:	
Isolated, closed basin in abandoned coal strip mine. Wetland CC is hydro	ologically
isolated from downgradient receiving surface waters.	orogrouny
nonatou nom uomigraalom roooming camaco matero.	
Final score : 14 Category:	

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO) Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO) Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO) Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetla	ind CC		Rater(s): JMM, BJJ		Date: 5/3/2018
0	0	Metric 1. Wetland Ar	ea (size).		
	ubtotal	Select one size class and assign score	.2ha) (5 pts) a) (4 pts) (3 pts) ha) (2pts)		
12	12	Metric 2. Upland buf	fers and surround	ding land use.	
max 14 pts. su	ubtotal	MEDIUM. Buffers average 2 NARROW. Buffers average 2 VERY NARROW. Buffers average 2 Intensity of surrounding land use. VERY LOW. 2nd growth or LOW. Old field (>10 years), MODERATELY HIGH. Resi	n (164ft) or more around wetland 25m to <50m (82 to <164ft) aroun 10m to <25m (32ft to <82ft) arou verage <10m (<32ft) around wetla Select one or double check and older forest, prairie, savannah, wi	perimeter (7) d wetland perimeter (4) und wetland perimeter (1) and perimeter (0) average. ildlife area, etc. (7) n forest. (5) nservation tillage, new fallo	ow field. (3)
8	20	Metric 3. Hydrology.			
max 30 pts. su	ubtotal	3a. Sources of Water. Score all that a limit high pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lake 3c. Maximum water depth. Select only 9.0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (1) 3e. Modifications to natural hydrologic None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	e water (3) e or stream) (5) 3d y one and assign score. 2) regime. Score one or double check all disturbances observe ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Part of riparian or Part of riparian or Part of riparian or Semi- to permane Regularly inundar Seasonally inundar Seasonally saturated and average. d point source (non filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) rupland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
3	23	Metric 4. Habitat Alt		opment.	
max 20 pts. su	ubtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or decomposition of the select one of	one and assign score. Duble check and average. Check all disturbances observe		
	23 al this pa	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	ttic bed removal

7

last revised 1 February 2001 jjm

Site:		Rater	(s):	Date:
I		1		
	23			
su	btotal first pa	ge		
-10	13	Metric 5. Special Wetlan	ds.	
max 10 pts.	subtotal	Check all that apply and score as indicated.		
		Bog (10)		
		Fen (10) Old growth forest (10)		
		Mature forested wetland (5)		
		Lake Erie coastal/tributary wetland-u		
		Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Open	-	logy (5)
		Relict Wet Prairies (10)	90/(10/	
		Known occurrence state/federal three		
		Significant migratory songbird/water Category 1 Wetland. See Question		
		1		
1	14	wetric 6. Plant communi	illes, ini	erspersion, microtopography.
max 20 pts.	subtotal] 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
		Aquatic bed	1	Present and either comprises small part of wetland's
		Emergent Shrub		vegetation and is of moderate quality, or comprises a significant part but is of low quality
		o Forest	2	Present and either comprises significant part of wetland's
		Mudflats		vegetation and is of moderate quality or comprises a small
		Open water Other	3	part and is of high quality Present and comprises significant part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.	3	vegetation and is of high quality
		Select only one.		
		High (5)		escription of Vegetation Quality
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
		Moderately low (2)	mod	Native spp are dominant component of the vegetation,
		☑ Low (1)		although nonnative and/or disturbance tolerant native spp
		None (0) 6c. Coverage of invasive plants. Refer		can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp
		or deduct points for coverage	high	A predominance of native species, with nonnative spp
		Extensive >75% cover (-5) Moderate 25-75% cover (-3)		and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always,
		Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp
		Nearly absent <5% cover (0)		
		Absent (1) 6d. Microtopography.	Mudflat and	d Open Water Class Quality Absent <0.1ha (0.247 acres)
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
		Standing dead >25cm (10in) dbh Amphibian breeding pools	Microtopog	raphy Cover Scale
			0	Absent
			1	Present very small amounts or if more common of marginal quality
			2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
-	Ī		3	Present in moderate or greater amounts
14				and of highest quality
14				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
3	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	-10	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	14	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/5/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland DD		
Vegetation Communit(ies): PFO1, PEM1		
HGM Class(es): Slopes		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See attached jurisdictional delineation map.		
Lat/Long or UTM Coordinate	Lat 40 314208	Long -80.666433
USGS Quad Name	Lat 40.3 14200,	_
County		Steubenville West
		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland DD	
Wetland Size (acres, hectares):	0.167 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.107 acres
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland DD is in abandoned coal strip mine that discharges into the nor	ı-jurisdictional
Tributary DD, a hydrologically isolated channel.	
Final score : 27 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO) Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO) Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ju	an elevation less than 575 feet on the USGS map, adjacent to this	120	140
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible Category 3 status	
		Category 5 status	
		Go to Question 10	l NO
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category	Go to Question 9e
	nauve epocles sam allos se procent.	3 wetland	Co to Quodion oo
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	Go to Question 10
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	Go to Question 11
	several inches of the surface, and often with a dominance of the	On the Owner than 44	
	gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	150	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible Category 3 status	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,		
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	l

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland DD		F	Rater(s): JMM, BJJ		Date: 5/5/2018		
1	1	Metric 1. Wetland Arc	ea (size).				
	Ibtotal	Select one size class and assign score.	2ha) (5 pts)) (4 pts) 3 pts) a) (2pts)				
12	13	Metric 2. Upland buff	fers and surroundi	ng land use.			
max 14 pts. su	ibtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check.					
10 2	23	Metric 3. Hydrology.					
max 30 pts. su	ibtotal	Recovered (7) Recovering (3) Recent or no recovery (1)	water (3) or stream) (5) 3d. one and assign score. 2) regime. Score one or double check Check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat Seasonally inundat Seasonally satura k and average. point source (non filling/grading road bed/RR track dredging other	in (1) ake and other human use (1) bland (e.g. forest), complex (1) cupland corridor (1) curation. Score one or dbl check. ently inundated/saturated (4) ced/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)		
3 2	26	Metric 4. Habitat Alte	eration and Develo	pment.			
max 20 pts. su		4a. Substrate disturbance. Score one of None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only of Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	ne and assign score.				
	26	Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal		
last revised 1 F	al this page ebruar	<u>L</u>					

7

Site: We	etland DD	Rate	r(s): JMM, BJ.	J	Date: 5/5/2018		
	0.0						
	26						
	btotal first pa	Metric 5. Special Wetlar	nde				
0	26	Openial Wellar	143.				
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5)					
		Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Erie coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10)					
		Relict Wet Prairies (10) Known occurrence state/federal thr		angered species (10)			
		Significant migratory songbird/wate Category 1 Wetland. See Question	r fowl habitat or	usage (10)			
1	27	Metric 6. Plant commun	ities, int	erspersion, microto	opography.		
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale			
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24			
		Aquatic bed	1	Present and either comprises sm	•		
		Emergent Shrub		vegetation and is of moderate of significant part but is of low qua			
		o Forest	2	Present and either comprises sig	-		
		Mudflats	۷	vegetation and is of moderate of			
		Open water		part and is of high quality	quality of comprises a small		
		Other	3	Present and comprises significan	t part, or more, of wetland's		
		6b. horizontal (plan view) Interspersion.	-	vegetation and is of high quality			
		Select only one.			,		
		High (5)	Narrative D	escription of Vegetation Quality			
		Moderately high(4)	low	Low spp diversity and/or predomi			
		Moderately low (2)	mod	Mative spears deminant compon			
		Moderately low (2) Low (1)	mod	Native spp are dominant compon although nonnative and/or distu	_		
		Low (1)		can also be present, and specie			
		6c. Coverage of invasive plants. Refer		moderately high, but generally	•		
		to Table 1 ORAM long form for list. Add		threatened or endangered spp			
		or deduct points for coverage	high	A predominance of native species			
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	ve spp absent or virtually		
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	and often, but not always,		
		Sparse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp		
		Nearly absent <5% cover (0)	Mudflotone	d Onen Water Class Ovelity			
		Absent (1) 6d. Microtopography.		Open Water Class Quality			
		Score all present using 0 to 3 scale.	<u>0</u> 1	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	cres)		
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88			
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	9 46/65)		
		Standing dead >25cm (10in) dbh		1.113.1.11.1.1(0.000 1.11.1.1)			
		Amphibian breeding pools	Microtopog	raphy Cover Scale			
		<u> </u>	0	Absent			
			1	Present very small amounts or if of marginal quality	more common		
			2	Present in moderate amounts, but quality or in small amounts of h	_		
			3	Present in moderate or greater a			
07				and of highest quality			
27							

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
Ü	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	27	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, loca or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one	Category 1	Category 2	Category 3		
	\checkmark				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization				
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:		
J. Melko, B. Jacoby Date:		
5/7/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland FF		
Vegetation Communit(ies): PFO1		
HGM Class(es): Slope		
Location of Wetland: include map, address, north arrow, landmarks, distances, r	oads, etc.	
See attached jurisdictional delineation map.		
Lat/Long or UTM Coordinate	Lat 40.314005,	Long -80.66831
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland FF	
Wetland Size (acres, hectares):	0.0251 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.020 : 0.0.00
	0.0251 acres
Comments, Narrative Discussion, Justification of Category Changes: Small, isolated area of seepage on slope, may be related to old roadway downgradient connection, flow disappears through infiltration. Wetland F hydrologically isolated from downgradient receiving surface waters.	. No F is
Final score : 41 Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	tland FF		Rater(s): JMM, BJJ		Date: 5/7/2018
0	0	Metric 1. Wetland Ar	ea (size).		
max 6 pts.	subtotal	Select one size class and assign score	.2ha) (5 pts) a) (4 pts) (3 pts) ha) (2pts)		
12	12	Metric 2. Upland buf	fers and surround	ling land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average 2 NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth or a LOW. Old field (>10 years), MODERATELY HIGH. Resident	(164ft) or more around wetland p 5m to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) around verage <10m (<32ft) around wetla Select one or double check and a blder forest, prairie, savannah, wil	perimeter (7) If wetland perimeter (4) Ind wetland perimeter (1) Ind perimeter (0) Ind perimeter (0) Ind perimeter (0) Ind perimeter (7) Ind perimeter (7) Ind perimeter (7) Ind perimeter (8) Ind perimeter (1) I	ow field. (3)
19	31	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that a High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lake 3c. Maximum water depth. Select only 0.7 (27.6in) (3) O.4 to 0.7m (15.7 to 27.6in) (1) 3e. Modifications to natural hydrologic Mone or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	e water (3) e or stream) (5) 3d. y one and assign score. 2) regime. Score one or double che Check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Duration inundation/sate Semi- to permane Regularly inundat Seasonally inundat Seasonally saturate eck and average. point source (non filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) rupland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
9	40	Metric 4. Habitat Alt	eration and Develo	opment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only Secellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or do	one and assign score. Suble check and average. Check all disturbances observed		
sub	40	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	ttic bed removal

7

last revised 1 February 2001 jjm

Site: We	etland FF	Rater(S): JMM, BJ.		Date: 5/7/2018		
0.00.			<u>, </u>		20.001000000		
	40						
	40						
su	btotal first pa	ge					
0	40	Metric 5. Special Wetlan	ds.				
max 10 pts.	subtotal	Check all that apply and score as indicated.					
		Bog (10) Fen (10)					
		Old growth forest (10)					
		Mature forested wetland (5)					
		Lake Erie coastal/tributary wetland-unrestricted hydrology (10)					
		Lake Erie coastal/tributary wetland-re	-	logy (5)			
		Relict Wet Prairies (10)	90/ (10/				
		Known occurrence state/federal threa					
		Significant migratory songbird/water Category 1 Wetland. See Question					
		1 - 1					
1	41	Metric 6. Plant communi	ties, int	erspersion, micrott	ppograpny.		
max 20 pts.	subtotal] 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale			
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	471 acres) contiguous area		
		Aquatic bed	1	Present and either comprises sm	all part of wetland's		
		6 Emergent		vegetation and is of moderate of			
		Shrub Forest	2	significant part but is of low qua Present and either comprises sign	•		
		Mudflats	_	vegetation and is of moderate of			
		Open water		part and is of high quality			
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significan vegetation and is of high quality			
		Select only one.		vegetation and is of high quality	·		
		High (5)	Narrative D	escription of Vegetation Quality			
		Moderately high(4)	low	Low spp diversity and/or predomi			
		Moderate (3) Moderately low (2)	mod	disturbance tolerant native special Native spp are dominant compon			
		✓ Low (1)		although nonnative and/or distu	•		
		None (0)		can also be present, and specie			
		6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add		moderately high, but generally threatened or endangered spp			
		or deduct points for coverage	high	A predominance of native species			
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	ve spp absent or virtually		
		Moderate 25-75% cover (-3)		absent, and high spp diversity a			
		Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatener	u, or endangered spp		
		Absent (1)	Mudflat and	d Open Water Class Quality			
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)			
		Score all present using 0 to 3 scale. Vegetated hummucks/tussucks	1	Low 0.1 to <1ha (0.247 to 2.47 ac Moderate 1 to <4ha (2.47 to 9.88			
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	<i>aurus)</i>		
		Standing dead >25cm (10in) dbh					
		Amphibian breeding pools		raphy Cover Scale			
			<u>0</u>	Absent Present very small amounts or if it	more common		
			•	of marginal quality			
			2	Present in moderate amounts, bu quality or in small amounts of h	•		
	1		3	Present in moderate or greater ar	mounts		
41				and of highest quality			

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	19	
	Metric 4. Habitat	9	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	41	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	(NO)	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
		\checkmark	

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/5/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland II	
Vegetation Communit(ies):	
PF01 HGM Class(es):	
Slope Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lat/Long or UTM Coordinate	00.004574
USGS Quad Name	Long -80.664574
	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland II	
Wetland Size (acres, hectares):	0.00371 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland II is located along an old road bed, collecting water from the up	
Flows are restricted to the road bed, and the wetland is hydrologically is	olated from
downgradient receiving surface waters.	
Final score : 24 Category:	

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland II	R	ater(s): JMM, BJJ		Date: 5/5/2018
		Metric 1. Wetland Are	ea (size).		
max 6 pts.	Osubtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2l 10 to <25 acres (4 to <10.1ha) 3 to <10 acres (1.2 to <4ha) (3 0.3 to <3 acres (0.12 to <1.2ha 0.1 to <0.3 acres (0.04 to <0.1) <0.1 acres (0.04ha) (0 pts)	ha) (5 pts) (4 pts) pts) a) (2pts)		
12	12	Metric 2. Upland buffe	ers and surroundi	ng land use.	
max 14 pts.	subtotal	NARROW. Buffers average 10 VERY NARROW. Buffers average 2b. Intensity of surrounding land use. S VERY LOW. 2nd growth or old LOW. Old field (>10 years), sh MODERATELY HIGH. Reside	164ft) or more around wetland per m to <50m (82 to <164ft) around w come to <25m (32ft to <82ft) around rage <10m (<32ft) around wetland select one or double check and av der forest, prairie, savannah, wildli	rimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) erage. ife area, etc. (7) prest. (5) ervation tillage, new fallo	w field. (3)
7	19	Metric 3. Hydrology.			
max 30 pts.	subtotal	Recovered (7) Recovering (3) Recent or no recovery (1)	water (3) or stream) (5) 3d. If one and assign score. egime. Score one or double check check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat Seasonally inundat Seasonally satura and average. point source (non filling/grading road bed/RR track dredging other atv usage	in (1) ake and other human use (1) bland (e.g. forest), complex (1) upland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ed/saturated (3) ated (2) tted in upper 30cm (12in) (1)
3	22	Metric 4. Habitat Alte	ration and Develo	pment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one of None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only or Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or doul	ne and assign score.		
[su	22 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal
last revised		· L			

Site: Wetland II	Rater	(s): JMM, BJ	J	Date: 5/5/2018
22]			
subtotal first pa	age			
0 22	Metric 5. Special Wetlan	ds.		
max 10 pts. subtotal	Check all that apply and score as indicated.			
	Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-ru Lake Erie coastal/tributary wetland-ru Lake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water	estricted hydro ings) (10) atened or end	angered species (10)	
	Category 1 Wetland. See Question	1 Qualitative F	Rating (-10)	
2 24	Metric 6. Plant communi	ities, int	erspersion, microto	ppography.
max 20 pts. subtotal	6a. Wetland Vegetation Communities.		Community Cover Scale	
	Score all present using 0 to 3 scale. Aquatic bed	0	Absent or comprises <0.1ha (0.24) Present and either comprises sm	
	Emergent	,	vegetation and is of moderate of	
	Shrub		significant part but is of low qua	
	Forest	2	Present and either comprises sign	
	Mudflats Open water		vegetation and is of moderate of part and is of high quality	quality or comprises a small
	Other	3	Present and comprises significan	t part, or more, of wetland's
	6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
	Select only one.			
	High (5) Moderately high(4)	Narrative D	Low spp diversity and/or predomi	nanco of nonnativo or
	Moderate (3)	IOW	disturbance tolerant native spec	
	Moderately low (2)	mod	Native spp are dominant compon	
	Low (1)		although nonnative and/or distu	
	None (0)		can also be present, and specie	
	6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add		moderately high, but generally threatened or endangered spp	
	or deduct points for coverage	high	A predominance of native species	
	Extensive >75% cover (-5)		and/or disturbance tolerant nati	
	Moderate 25-75% cover (-3)		absent, and high spp diversity a	
	Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatene	u, or endangered spp
	Absent (1)	Mudflat and	d Open Water Class Quality	
	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
	Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
	Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	3	Moderate 1 to <4ha (2.47 to 9.88 High 4ha (9.88 acres) or more	3 acres)
	Standing dead >25cm (10in) dbh		Trigit 4tia (9.00 acres) or filore	
	Amphibian breeding pools	Microtopog	graphy Cover Scale	
		0	Absent	
		1	Present very small amounts or if of marginal quality	more common
		2	Present in moderate amounts, bu quality or in small amounts of h	•
		3	Present in moderate or greater ar	
24			and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	24	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/5/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland JJ	
Vegetation Communit(ies): PFO1, PEM1	
HGM Class(es):	
Slopes Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See jurisdictional delineation map.	
, ·	
Lat 40.314348, I	Long -80.664458
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Y

Name of Wetland: Wetland JJ	
Wetland Size (acres, hectares):	0.0725 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland JJ is located along an old road bed, collecting water from Trib	
located upgradient of the wetland. Waters pool along terrace created b	
the wetland hydrologically isolated from downgradient receiving surfac	e waters.
Final score: 27.5 Category	': 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland JJ	Rater(s): JMM, BJJ	Date: 5/5/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)	
12	12	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first park industrial, open pasture, row cropping, mining, construction. (1)	ow field. (3)
8	20	Metric 3. Hydrology.	
max 30 pts.	subtotal	Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Part of wetland/u Duration inundation/sate Semi- to permane Regularly inunda Seasonally inunda	ain (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) ated in upper 30cm (12in) (1)
5.5	25.5	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	
		4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed shrub/sapling ren shrub/sapling ren herbaceous/aqua	
	25.5	Recent or no recovery (1) Clearcutting Sedimentation dredging dredging farming farming toxic pollutants mutrient enrichmentation mutrient enrichmentation clearcutting dredging dredging farming mutrient enrichmentation clearcutting dredging dredging farming clearcutting dredging dredging dredging farming clearcutting dredging dred	
last revised	ibtotal this pa 1 Februa		

7

Site: We	etland JJ		Rater(s): JMM	l, BJJ	Date: 5/5/2018
su O	25.5 abtotal first pa	Metric 5. Special	Wetlands.		
max 10 pts.	subtotal	Check all that apply and score as	indicated		
		Bog (10) Fen (10) Old growth forest (10) Mature forested wetland Lake Erie coastal/tributa Lake Plain Sand Prairie Relict Wet Prairies (10) Known occurrence state Significant migratory son Category 1 Wetland. So	I (5) Try wetland-unrestricted by wetland-restricted by wetland-restricted by the control of th	endangered species (10) at or usage (10) ive Rating (-10)	
2	27.5	Metric 6. Plant co	mmunities,	interspersion,	microtopography.
max 20 pts.	subtotal	6a. Wetland Vegetation Commun		tion Community Cover S	
		Score all present using 0 to 3 scal Aquatic bed Emergent Shrub	e. <u>C</u>	Present and either	es <0.1ha (0.2471 acres) contiguous area comprises small part of wetland's of moderate quality, or comprises a
		Forest Mudflats Open water	2	Present and either	comprises significant part of wetland's of moderate quality or comprises a small
		Other6b. horizontal (plan view) Interspe	ersion.	Present and compr vegetation and is	rises significant part, or more, of wetland's of high quality
		Select only one.			
		High (5) Moderately high(4) Moderate (3)	Narrati lo		nd/or predominance of nonnative or ant native species
		Moderate (5) Moderately low (2)	mo		ninant component of the vegetation,
		Low (1)		· · ·	ve and/or disturbance tolerant native spp
		None (0) 6c. Coverage of invasive plants. to Table 1 ORAM long form for list			ent, and species diversity moderate to but generally w/o presence of rare dangered spp
		or deduct points for coverage	hiç	h A predominance of	native species, with nonnative spp
		Extensive >75% cover (Moderate 25-75% cover (Sparse 5-25% cover (-1	(-3)	absent, and high	ce tolerant native spp absent or virtually spp diversity and often, but not always, are, threatened, or endangered spp
		☐ Nearly absent <5% cove	· ·	t and Open Water Class	Quality
		6d. Microtopography.	C	\	,
		Score all present using 0 to 3 scal		- 1	
		Vegetated hummucks/tu			a (2.47 to 9.88 acres)
		Coarse woody debris > Standing dead > 25cm (10in) dbh	1 0 (<u></u>
		Amphibian breeding poo		opography Cover Scale	
			1		amounts or if more common
			2		te amounts, but not of highest I amounts of highest quality
	1		3	Present in moderat	te or greater amounts

27.5

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
3	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	5.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	27.5	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM	
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM	
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.	
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM	
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.	
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).	
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.	

Final Category						
Choose one	Category 1	Category 2	Category 3			
	\checkmark					

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization				
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/5/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Dhana Manchan		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland KK		
Vegetation Communit(ies): PFO1		
HGM Class(es): Slopes		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See jurisdictional delineation map.		
Lat/Long or UTM Coordinate	Lat 40.314204, I	Long -80.663921
USGS Quad Name	<u> </u>	Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland KK	
Wetland Size (acres, hectares):	0.0773 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
	0.0773 acres
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland KK collects runoff and/or subsurface flows from Tributary DD at and the general hillside. Waters pool in naturally terraced areas and do it downgradient.	not discharge
Final score : 32 Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	tland KK		Rater(s): JMM, BJJ		Date: 5/5/2018
0	0	Metric 1. Wetland A	rea (size).		
max 6 pts.	subtotal	Select one size class and assign scor >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20) 10 to <25 acres (4 to <10.10) 3 to <10 acres (1.2 to <4ha) 0.3 to <3 acres (0.12 to <1.10) 0.1 to <0.3 acres (0.04 to <0.10) <0.1 acres (0.04ha) (0 pts)	e. J.2ha) (5 pts) na) (4 pts) I (3 pts) 2ha) (2pts)		
12	12	Metric 2. Upland bu	ffers and surround	ling land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers a b. Intensity of surrounding land use. VERY LOW. 2nd growth or LOW. Old field (>10 years) MODERATELY HIGH. Res	m (164ft) or more around wetland p 25m to <50m (82 to <164ft) aroun e 10m to <25m (32ft to <82ft) arou average <10m (<32ft) around wetla	perimeter (7) d wetland perimeter (4) and wetland perimeter (1) and perimeter (0) average. Idlife area, etc. (7) a forest. (5) servation tillage, new fallo	ow field. (3)
9	21	Metric 3. Hydrology	•		
max 30 pts.	subtotal	3a. Sources of Water. Score all that High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lak 3c. Maximum water depth. Select on >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) 3e. Modifications to natural hydrologie None or none apparent (12) Recovered (7) Recent or no recovery (1)	ce water (3) te or stream) (5) 3d ly one and assign score. (2) c regime. Score one or double che Check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Part of riparian or Part of riparian or Part of riparian or Part of riparian or Part of riparian or Semi- to permand Regularly inunda Seasonally inund Seasonally saturated and average. d point source (nor filling/grading road bed/RR traced dredging other other	sin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) ated in upper 30cm (12in) (1)
7	28	Metric 4. Habitat Alt	teration and Devel	opment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or comparent (9)	one and assign score.	d	
_ sut	28 btotal this pa	Recovered (6) Recovering (3) Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	atic bed removal

7

last revised 1 February 2001 jjm

Site: We	etland KK	Rater	(s): JMM, BJ.	J	Date: 5/5/2018
		1	1-7		
	28				
911	btotal first pa	na na			
0	28	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated.			
max to pio.	oubtotui	Bog (10)			
		Fen (10)			
		Old growth forest (10) Mature forested wetland (5)			
		Lake Erie coastal/tributary wetland-u	nrestricted hyd	drology (10)	
		Lake Erie coastal/tributary wetland-re	estricted hydro	=	
		Lake Plain Sand Prairies (Oak Openi	ings) (10)		
		Known occurrence state/federal threa	atened or enda	angered species (10)	
		Significant migratory songbird/water	fowl habitat or	usage (10)	
		Category 1 Wetland. See Question		• ,	
4	32	Metric 6. Plant communi	ities, int	erspersion, microto	opography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vocatation	Community Cover Scale	
111dx 20 pto.	oubtotui	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	471 acres) contiguous area
		Aquatic bed	1	Present and either comprises sm	all part of wetland's
		Emergent Shrub		vegetation and is of moderate of significant part but is of low qua	
		Forest	2	Present and either comprises sign	•
		Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water Other	3	part and is of high quality Present and comprises significan	t nart or more of wetland's
		6b. horizontal (plan view) Interspersion.	3	vegetation and is of high quality	
		Select only one.			
		High (5) Moderately high(4)	Narrative D	escription of Vegetation Quality Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)	IOW	disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	=
		Low (1) None (0)		although nonnative and/or distuction also be present, and species	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	-
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage Extensive >75% cover (-5)	high	A predominance of native species and/or disturbance tolerant nati	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatene	
		Nearly absent <5% cover (0) Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
		Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	3	Moderate 1 to <4ha (2.47 to 9.88 High 4ha (9.88 acres) or more	3 acres)
		Standing dead >25cm (10in) dbh		g (0.00 ac.00) c	
		¹ Amphibian breeding pools		raphy Cover Scale	
			<u>0</u>	Absent Present very small amounts or if	more common
				of marginal quality	
			2	Present in moderate amounts, bu quality or in small amounts of h	_
	ī		3	Present in moderate or greater ar	
32			-	and of highest quality	
32					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
Ü	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	4	
	TOTAL SCORE	32	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	(NO)	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
		\checkmark	

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization				
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/8/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland LL	
Vegetation Communit(ies):	
PEM1 HGM Class(es):	
Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See jurisdictional delineation map.	
Lat/Long or UTM Coordinate	00.000440
Lat 40.311552, 1	Long -80.668112
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland LL	
Wetland Size (acres, hectares):	0.0233 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.0200 0.0.00
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland LL has developed in response to changes in surface water flow	from railroad
construction conducted in 2016. The wetland is adjacent to Tributary LL,	
discharges to Cross Creek.	
Final score : 8 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland LL	Rater(s): JMM, BJJ	Date: 5/8/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
1	1	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first open pasture, row cropping, mining, construction. (1)	ow field. (3)
7	8	Metric 3. Hydrology.	
max 30 pts.	subtotal	Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Part of wetland/u Duration inundation/sat Regularly inunda Seasonally inunda	sin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) ated in upper 30cm (12in) (1)
3	11	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average.	
	11 btotal this pa	□ None or none apparent (9) □ Recovered (6) □ Recovering (3) □ Recent or no recovery (1) □ Grazing □	atic bed removal
last revised	ı rebrua	ry zuu i jjm	

7

Site: We	etland LL	Rater((s): JMM, BJ.	Date: 5/8/2018
su 0	11 btotal first pa] Metric 5. Special Wetlan	ds.	
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydrol ings) (10) atened or enda fowl habitat or 1 Qualitative R	angered species (10) usage (10) ating (-10)
-3	8	Metric 6. Plant communi	ities, int	erspersion, microtopography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
		Aquatic bed	1	Present and either comprises small part of wetland's
		Emergent Character		vegetation and is of moderate quality, or comprises a
		Shrub		significant part but is of low quality
		Forest	2	Present and either comprises significant part of wetland's
		Mudflats		vegetation and is of moderate quality or comprises a small
		Open water Other	3	part and is of high quality Present and comprises significant part, or more, of wetland's
			3	
		6b. horizontal (plan view) Interspersion. Select only one.		vegetation and is of high quality
		High (5)	Narrative De	escription of Vegetation Quality
		Moderately high(4)	low	Low spp diversity and/or predominance of nonnative or
		Moderate (3)	1011	disturbance tolerant native species
		Moderately low (2)	mod	Native spp are dominant component of the vegetation,
		Low (1)		although nonnative and/or disturbance tolerant native spp
		None (0)		can also be present, and species diversity moderate to
		6c. Coverage of invasive plants. Refer		moderately high, but generally w/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp
		or deduct points for coverage	high	A predominance of native species, with nonnative spp
		Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually
		Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,
		Sparse 5-25% cover (-1)	-	the presence of rare, threatened, or endangered spp
		Nearly absent <5% cover (0)	Mudfletend	I Onen Water Class Quality
		Absent (1)		Open Water Class Quality
		6d. Microtopography. Score all present using 0 to 3 scale.	<u>0</u>	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
		Standing dead >25cm (10in) dbh		Trigit tha (0.00 acres) of more
		Amphibian breeding pools	Microtopoa	raphy Cover Scale
			0	Absent
			1	Present very small amounts or if more common
				of marginal quality
			2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
			3	Present in moderate or greater amounts
				and of highest quality
8				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-3	
	TOTAL SCORE	8	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands O Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/9/2018	
Affiliation:	
Cyprus Amax Minerals Company Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland NN	
Vegetation Communit(ies): PFO1	
HGM Class(es):	
Slope Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See jurisdictional delineation map.	
	Long -80.676244
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Y

Name of Wetland: Wetland NN	
Wetland Size (acres, hectares):	0.00221 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland NN is formed from a seep exiting a steep hillside. The wetland	has limited
surface flow that does not discharge to downgradient receiving surface v	
danage new that does not discharge to downgradient reserving sands t	vatoro.
Final score : 22 Category:	1 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

Mature forested wetlands. Is the welland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh? Wetland should be evaluated for possible Category 3 status. Go to Question 9a YES				
deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh? Particle (17.7in) dbh? Lake Eric coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Eric that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Eric due to lakeward or landward dikes or other hydrological controls? Are Lake Eric water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation. Lake Plain Sand Prairies (Oak Openings) is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substitate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Chio Department of Natural Revosuces Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and tis quality. Relict Wet Prairies. Is the wetland relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	8b		YES	NO
Section 93 status. Go to Question 9a Lake Eric coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Eric that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Eric due to lakeward or landward dikes or other hydrological controls? Are Lake Eric water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, iter mouth wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species and also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation ilsted in Table 1 (wood) species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were f		deciduous trees with large diameters at breast height (dbh), generally		Go to Question 9a
Sate Capital Sate		diameters greater than 45cm (17.7in) dbh?		
Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?				
an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls? Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody) species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties). Sandwsty Plains (Wyandot, Crawford, and Marion	90	Lake Eric coastal and tributery wetlands. In the wetland legated at		NO
elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls? Wetland should be evaluated for possible Category 3 status The wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "esturaine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Page 1 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandway Plains (Wayndot, Crawford, and Marion	эа		150	INO
prevent erosion and the loss of aquatic plants, i.e. the wettand is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls? 9c		elevation, or along a tributary to Lake Erie that is accessible to fish?		
partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls? Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. 9d Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 4 VES Wetland should be evaluated for possible Category 3 wetland Go to Question 10 YES NO Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland should be evaluated for possible Category 3 wetland should be evaluated for possible Category 3 wetland. The Unit of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Myandot, Crawford, and Marion Vetland should be evaluated for possible duentities.	9b	Does the wetland's hydrology result from measures designed to	YES	NO
Iandward dikes or other hydrological controls?		partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
9c Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. 9d Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Pariries. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Madison and Union Countie				
Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. 9d			Category 3 status	
i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. 9d Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Myandot, Crawford, and Marion i Rot Question 9d Go to Question 9d So to Question 10 YES NO Wetland should be evaluated for possible Wetland is a Category 3 status Go to Question 10 YES NO Wetland is a Category 3 wetland. Go to Question 10 YES NO Wetland is a Category 3 wetland. Go to Question 10 YES NO Wetland is a Category 3 wetland and 1 wetland 1 wetl			Go to Question 10	
border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. 9d Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	9c		YES	NO
"estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. 9d Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion 12 VES NO Wetland is a Category 3 to Question 10 YES NO Wetland is a Category 3 wetland. Go to Question 10 YES NO Wetland is a Category 3 wetland. For the vertical security and the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its q		border alterations) or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
Wetlands, or those dominated by submersed aquatic vegetation.		"estuarine" wetland with lake and river influenced hydrology. These	00 10 Quosiisii 0u	
Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Wetland should be evaluated for possible Category 3 status Go to Question 10 YES NO Wetland should be evaluated for possible Category 3 wetland is a Category 3 wetland. Wetland is a Category Go to Question 10 YES Wetland is a Category Go to Question 10 YES On to Question 11 So to Question 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wagndot, Crawford, and Marion VYES NO Wetland should be evaluated for possible of to Question 11 YES NO Wetland is a Category Go to Question 10 YES Wetland is a Category Go to Question 10 YES NO Wetland is a Category Go to Question 10 YES Wetland is a Category Go to Question 10 YES NO Wetland should be evaluated for possible or Quantitative				
vegetation communities, although non-native or disturbance tolerant native species can also be present? Wetland is a Category 3 wetland Go to Question 10 Pe Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Wetland should be evaluated for possible Category 3 status Go to Question 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland is a Category 3 wetland. YES NO Go to Question 10 YES Wetland is a Category 3 status Go to Question 10 YES NO Wetland is a Category 3 wetland. YES NO Wetland is a Category 3 wetland. So to Question 11 YES NO Wetland is a Category 3 wetland. YES NO Wetland should be evaluated for possible or Quantitative.	9d		YES	NO
9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion 3 wetland YES NO Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland. Go to Question 11 Self the wetland a category 3 wetland is a Category 3 wetland. For the Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. YES NO Wetland should be Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland is a Category 3 wetland. Wetland is a Category 3 wetland. So to Question 10 Wetland is a Category 3 wetland. So to Question 10 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. So to Question 12 Wetland is a Category 3 wetland		vegetation communities, although non-native or disturbance tolerant		
9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Wetland should be evaluated for possible Category 3 status Go to Question 10 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion		native species can also be present?		Go to Question 9e
Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Wetland should be evaluated for possible Category 3 status Go to Question 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland should be evaluated for possible Vetland is a Category 3 wetland. Go to Question 10 YES Wetland should be evaluated for possible vetland is a Category 3 wetland. Go to Question 11 So to Question 11 Figure 10 Wetland should be evaluated for possible vetland in the Category 3 wetland. Wetland should be evaluated for possible vetland should be vetland should should be			o wettand	
tolerant native plant species within its vegetation communities? Wetland should be evaluated for possible Category 3 status Go to Question 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland should be evaluated for possible Wetland should be evaluated for possible of to Question 10 YES Woo to Question 11 YES NO NO Complete Quantitative		Don't be set to the set of the se		NO
Wetland should be evaluated for possible Category 3 status Go to Question 10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland should be evaluated for possible Wetland is a Category 3 wetland. Go to Question 11 YES Wotland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. So to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11	96		YES	NO
Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Complete evaluated for possible Quantitative				Go to Question 10
10 Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Complete evaluated for possible Quantitative				
Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion YES Wetland is a Category 3 wetland. Go to Question 11 YES NO Wetland is a Category 3 wetland. YES Wetland is a Category 3 wetland. YES Wetland is a Category 3 wetland. YES NO Complete evaluated for possible			Category 5 status	
Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland is a Category 3 wetland. Go to Question 11 YES NO Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11				
characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. 11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland is a Category 3 wetland. Go to Question 11 YES NO Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 Wetland is a Category 3 wetland. For to Question 11 VES NO Complete evaluated for possible	10		YES	NO
several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion So to Question 11 So to Question 11		characterized by the following description: the wetland has a sandy		Go to Question 11
gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Go to Question 11 YES NO			3 wetland.	
present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion YES NO			Go to Question 11	
type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion YES Wetland should be evaluated for possible Quantitative		present). The Ohio Department of Natural Resources Division of		
11 Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion YES Wetland should be evaluated for possible Quantitative				
dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Wetland should be evaluated for possible	11		YES	NO
Counties), Sandusky Plains (Wyandot, Crawford, and Marion evaluated for possible Quantitative		dominated by some or all of the species in Table 1. Extensive prairies	Mattendal	
		Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),		
and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,			Complete Quantitations	
Montgomery, Van Wert etc.). Complete Quantitative Rating		i wongomery, van wen etc.).	Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	tland NN		Rater(s): JMM, BJJ		Date: 5/9/2018
0	0	Metric 1. Wetland A	rea (size).		
max 6 pts.	subtotal	Select one size class and assign scor >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <2 10 to <25 acres (4 to <10.1 3 to <10 acres (1.2 to <4ha 0.3 to <3 acres (0.12 to <1. 0.1 to <0.3 acres (0.04 to <	0.2ha) (5 pts) ha) (4 pts)) (3 pts) 2ha) (2pts)		
8	8	Metric 2. Upland bu	ffers and surround	ding land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth or LOW. Old field (>10 years) MODERATELY HIGH. Res	n (164ft) or more around wetland 25m to <50m (82 to <164ft) arour e 10m to <25m (32ft to <82ft) aro average <10m (<32ft) around wetl	perimeter (7) and wetland perimeter (4) und wetland perimeter (1) land perimeter (0) d average. vildlife area, etc. (7) th forest. (5) nservation tillage, new fallo	ow field. (3)
7	15	Metric 3. Hydrology	'.		
max 30 pts.	subtotal	3a. Sources of Water. Score all that High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surfact Perennial surface water (lal) 3c. Maximum water depth. Select or >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) 3e. Modifications to natural hydrologi None or none apparent (12 Recovered (7) Recent or no recovery (1)	ce water (3) (e or stream) (5) 30 (dly one and assign score. (2) c regime. Score one or double check all disturbances observed ditch tile dike weir stormwater input	Part of wetland/u Part of riparian or Duration inundation/sate Semi- to permand Regularly inunda Seasonally inund Seasonally saturated and average. ed point source (nor filling/grading road bed/RR trace dredging other	in (1) lake and other human use (1) pland (e.g. forest), complex (1) rupland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
7	22	Metric 4. Habitat Al	teration and Devel	lopment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score on None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or of the second of the seco	one and assign score.		
sut	22 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	ttic bed removal

7

last revised 1 February 2001 jjm

Site: We	etland NN	Rate	r(s): JMM, BJ	J	Date: 5/9/2018
	00				
011	22 Ibtotal first pa				
0	22	Metric 5. Special Wetlar	nds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland- Lake Plain Sand Prairies (Oak Ope Relict Wet Prairies (10) Known occurrence state/federal thr Significant migratory songbird/wate Category 1 Wetland. See Questior	restricted hydro nings) (10) eatened or enda r fowl habitat or	angered species (10) usage (10)	
2	24	Metric 6. Plant commur	ities, int	erspersion, microto	opography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
		Aquatic bed	1	Present and either comprises sm	•
		Emergent		vegetation and is of moderate of	
		Shrub	2	significant part but is of low qua	•
		o Forest Mudflats	2	Present and either comprises sig	
		Open water		vegetation and is of moderate of part and is of high quality	quality of comprises a small
		Other	3	Present and comprises significan	at part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.	9	vegetation and is of high quality	
		Select only one.		regetation and is of high quality)
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predom	inance of nonnative or
		Moderate (3)		disturbance tolerant native spe	
		Moderately low (2)	mod	Native spp are dominant compon	
		Low (1)		although nonnative and/or distu	_
		None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	w/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native specie	
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	ive spp absent or virtually
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
		Nearly absent <5% cover (0)			
		Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh			
		Amphibian breeding pools		graphy Cover Scale	
			0	Absent	mara agrant :
			1	Present very small amounts or if	more common
				of marginal quality	it not of highest
			2	Present in moderate amounts, bu	_
			3	quality or in small amounts of h	
			3	Present in moderate or greater a	mounts
24				and of highest quality	
24					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
3	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	24	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category						
Choose one Category 1 Category 2 Category 3						
	\checkmark					

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method 10 Page Form for Wetland Cate	
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:		
J. Melko, B. Jacoby Date:		
5/10/2018		
Affiliation:		
Cyprus Amax Minerals Company Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland PP		
Vegetation Communit(ies): PFO1, PEM1		
HGM Class(es):		
Slopes Location of Wetland: include map, address, north arrow, landmarks, distances,	roads etc	
See jurisdictional delineation map.	. 0000, 010.	
Lat/Long or UTM Coordinate	Lat 40.316436, I	Long -80.671392
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland PP	
Wetland Size (acres, hectares):	0.0595 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	a. 41a a
A set of wetlands formed along rutted inactive roadway. Waters pool alo roadway and do not discharge to downgradient receiving surface waters	
Toadway and do not discharge to downgradient receiving surface waters	•
Final score : 29 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Go to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
Z	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
•	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

etland PP		Rater(s): JMM, BJJ	Date: 5/10/2018
0	Metric 1. Wetland A	rea (size).	
subtotal	>50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <2) 10 to <25 acres (4 to <10.1) 3 to <10 acres (1.2 to <4ha) 0.3 to <3 acres (0.12 to <1.	0.2ha) (5 pts) ha) (4 pts)) (3 pts) 2ha) (2pts)	
10	Metric 2. Upland bu	ffers and surrounding land use.	
subtotal	WIDE. Buffers average 50 MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth of LOW. Old field (>10 years) MODERATELY HIGH. Res	m (164ft) or more around wetland perimeter (7) 25m to <50m (82 to <164ft) around wetland perimeter (4) e 10m to <25m (32ft to <82ft) around wetland perimeter (1) average <10m (<32ft) around wetland perimeter (0) Select one or double check and average. r older forest, prairie, savannah, wildlife area, etc. (7) shrub land, young second growth forest. (5) sidential, fenced pasture, park, conservation tillage, new fallo	
19	Metric 3. Hydrology	'.	
subtotal	High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surfaction Perennial surface water (lal 3c. Maximum water depth. Select or >0.7 (27.6in) (3) O.4 to 0.7m (15.7 to 27.6in) 0.4 to 0.7m (15.7 to 27.6in) 3e. Modifications to natural hydrologi	100 year floodpla Between stream/ Part of wetland/u Part of riparian o Re or stream) (5) 3d. Duration inundation/sate of stream and assign score. Semi- to perman regularly inundation and seasonally inundation and	ain (1) //ake and other human use (1) //ake and other human use (1) //pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) ated in upper 30cm (12in) (1)
26	Metric 4. Habitat Al	teration and Development.	
subtotal	None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	double check and average. Check all disturbances observed shrub/sapling rer herbaceous/aqua grazing sedimentation clearcutting selective cutting selective cutting dredging farming farming	atic bed removal
	O subtotal 10 subtotal 26 subtotal	Metric 1. Wetland A Select one size class and assign scor >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <2 10 to <25 acres (4 to <10.1 3 to <10 acres (1.2 to <4ha 0.3 to <3 acres (0.04 to < <0.1 acres (0.04ha) (0 pts) Metric 2. Upland bu subtotal 2a. Calculate average buffer width. Select only VERY NARROW. Buffers average Solution Naverage Narrow. Buffers a	Metric 1. Wetland Area (size). Select one size class and assign score.

last revised 1 February 2001 jjm

Site: We	etland PP	Rater((s): JMM, BJ.	J	Date: 5/10/2018
	00				
	26				
0	obtotal first pa	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-uetake Erie coastal/tributary wetland-retake Plain Sand Prairies (Oak Openion Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water	estricted hydro ings) (10) atened or enda	angered species (10)	
		Category 1 Wetland. See Question	1 Qualitative R	ating (-10)	
3	29	Metric 6. Plant communi	ities, int	erspersion, microto	ppography.
max 20 pts.	subtotal] 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed 1 Emergent	1	Present and either comprises sm. vegetation and is of moderate c	uality, or comprises a
		Shrub Forest	2	significant part but is of low qua Present and either comprises sign	
		Mudflats	_	vegetation and is of moderate of	
		Open water		part and is of high quality	
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significan	
		Select only one.		vegetation and is of high quality	<u> </u>
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	
		Moderate (3) Moderately low (2)	mod	disturbance tolerant native spec	
		Low (1)	mod	Native spp are dominant compon although nonnative and/or distu	_
		None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	
		to Table 1 ORAM long form for list. Add	I. S. de	threatened or endangered spp	
		or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	high	A predominance of native species and/or disturbance tolerant nati absent, and high spp diversity at the presence of rare, threatened	ve spp absent or virtually and often, but not always,
		Nearly absent <5% cover (0)			
		Absent (1) 6d. Microtopography.	Mudflat and	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	cres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh Amphibian breeding pools	Microtopog	raphy Cover Scale	
		Amphibian breeding pools	0	Absent	
			1	Present very small amounts or if of marginal quality	more common
			2	Present in moderate amounts, bu quality or in small amounts of h	•
00			3	Present in moderate or greater ar and of highest quality	nounts
29					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	10	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	29	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	(NO)	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one Category 1 Category 2 Category 3					
	\checkmark				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:		
J. Melko, B. Jacoby Date:		
5/10/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland QQ		
Vegetation Communit(ies): PFO1, RFUB		
HGM Class(es):		
Slope Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See jurisdictional delineation map		
Lat/Long or UTM Coordinate	Lat 40.311612, I	Long -80.669331
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		Υ

Name of Wetland: Wetland QQ	
Wetland Size (acres, hectares):	0.0617 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
See attached map.	
Comments, Narrative Discussion, Justification of Category Changes:	
Wetland QQ has developed in a ditch at the toe of a hillslope. The wetla	nd receives
waters from the adjacent upland slope and upgradient abandoned railro	ad grade
located above the North Mill building. Flows pool in the wetland and do	not discharge
to downgradient receiving surface waters.	
Final score : 15 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
•	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

l	Site: We	tland QC	Rater(s): JMM, BJJ	Date: 5/10/2018
	0	0	Metric 1. Wetland Area (size).	
	max 6 pts.	subtotal	Select one size class and assign score.	
ı	1	1	Metric 2. Upland buffers and surrounding land u	se.
	max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check width. Suffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, ne HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	r (4) er (1)
ı	8	9	Metric 3. Hydrology.	
1	max 30 pts.	subtotal	☑ Precipitation (1) ☐ Part of wett ☐ Seasonal/Intermittent surface water (3) ☐ Part of ripa ☐ Perennial surface water (lake or stream) (5) 3d. Duration inundation 3c. Maximum water depth. Select only one and assign score. ☐ Semi- to perent to perent to 20.7 (27.6in) (3) ☐ O.4 to 0.7m (15.7 to 27.6in) (2) ☑ Seasonally ☑ < 0.4m (<15.7in) (1)	coodplain (1) tream/lake and other human use (1) land/upland (e.g. forest), complex (1) rian or upland corridor (1) con/saturation. Score one or dbl check. rmanently inundated/saturated (4) nundated/saturated (3) rinundated (2) saturated in upper 30cm (12in) (1) re (nonstormwater) ng
ı	4	13	Metric 4. Habitat Alteration and Development.	
	max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average.	
	sut last revised	13 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed mowing grazing clearcutting clearcutting woody debris removal toxic pollutants Check all disturbances observed check all disturbances obser	s/aquatic bed removal ion
	INDE I CVIDEU	colua	, , ==== , jj	

7

Site: Wetland QQ	Rater	(S): JMM, BJ.		Date: 5/10/2018
Site. Welland QQ	Kater	S). JIVIIVI, DJ	J	Date: 3/10/2016
subtotal first page Metr	ric 5. Special Wetlan	ds.		
0 13 141611	oposiai rionaii			
	Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydrol ings) (10) atened or enda fowl habitat or 1 Qualitative R	angered species (10) usage (10) ating (-10)	
2 15 Metr	ic 6. Plant communi	ities, int	erspersion, microto	opography.
	land Vegetation Communities.	Vacatation	Community Cover Scale	
	present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	471 acres) contiguous area
Score an	Aquatic bed	1	Present and either comprises sm	, ,
	Emergent		vegetation and is of moderate of	
	Shrub		significant part but is of low qua	
	Forest	2	Present and either comprises sign	nificant part of wetland's
	Mudflats		vegetation and is of moderate of	quality or comprises a small
0	Open water		part and is of high quality	
	Other	3	Present and comprises significan	
Select or	zontal (plan view) Interspersion.		vegetation and is of high quality	<u> </u>
Select of	High (5)	Narrative D	escription of Vegetation Quality	
	Moderately high(4)	low	Low spp diversity and/or predomi	nance of nonnative or
	Moderate (3)		disturbance tolerant native spec	
	Moderately low (2)	mod	Native spp are dominant compon	
✓	Low (1)		although nonnative and/or distu	ırbance tolerant native spp
	None (0)		can also be present, and specie	-
	erage of invasive plants. Refer		moderately high, but generally	
	1 ORAM long form for list. Add	high	threatened or endangered spp	
or deduc	et points for coverage Extensive >75% cover (-5)	high	A predominance of native species and/or disturbance tolerant nati	
片	Moderate 25-75% cover (-3)		absent, and high spp diversity a	
	Sparse 5-25% cover (-1)		the presence of rare, threatener	-
	Nearly absent <5% cover (0)	Maralflat and		, ,
Ed Mior	Absent (1)		Open Water Class Quality	
	otopography. I present using 0 to 3 scale.	<u>0</u>	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	cres)
Octore an	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
	Standing dead >25cm (10in) dbh		,	
1	Amphibian breeding pools	Microtopog	raphy Cover Scale	
		0	Absent	
		1	Present very small amounts or if of marginal quality	more common
		2	Present in moderate amounts, but quality or in small amounts of h	ighest quality
		3	Present in moderate or greater ar	mounts
15			and of highest quality	
15				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
3	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	4	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	15	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one Category 1 Category 2 Category 3					
	\checkmark				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby		
Date: 5/2/2018		
Affiliation: Cyprus Amax Minerals Company		
Address:		
Phone Number:		
e-mail address:		
Name of Wetland: Wetland RR		
Vegetation Communit(ies): PEM1		
HGM Class(es): Depressional		
Location of Wetland: include map, address, north arrow, landmarks, distances,	roads, etc.	
See jurisdictional delineation map.		
Lat/Long or UTM Coordinate	Lat 40.31021, L	ong -80.670388
USGS Quad Name		Steubenville West
County		Jefferson
Township		T6N, R2W
Section and Subsection		S8
Hydrologic Unit Code		05030101
Site Visit		Υ
National Wetland Inventory Map		Υ
Ohio Wetland Inventory Map		
Soil Survey		Υ
Delineation report/map		V

Name of Wetland: Wetland RR	
Wetland Size (acres, hectares):	0.00722 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.00. == 0.00
See attached figure	
Comments, Narrative Discussion, Justification of Category Changes:	
Extensive saturated area along abandoned railroad grade. Outlets to dra	
Wetland EE. Wetland R is hydrologically isolated from downgradient rec	
waters. Extent of wetland changed between 2007 and 2014 JDs, due to	work
authorized under an Isolated Wetland Permit.	
Final score : o Category:	4

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland RR	Rater(s): JMM, BJJ	Date: 5/2/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)	
1	1	Metric 2. Upland buffers and surrounding	land use.
max 14 pts.	subtotal	 2a. Calculate average buffer width. Select only one and assign score. Do not comply width the width of the wi	er (7) ad perimeter (4) and perimeter (1) meter (0) e. ea, etc. (7) (5) on tillage, new fallow field. (3)
5	6	Metric 3. Hydrology.	
max 30 pts.	subtotal	High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3d. Durati 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2)	ectivity. Score all that apply. 100 year floodplain (1) Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) on inundation/saturation. Score one or dbl check. Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) average. point source (nonstormwater) filling/grading road bed/RR track dredging other
3	9	Metric 4. Habitat Alteration and Developm	ent.
max 20 pts.	subtotal 9	Recovering (3) Recent or no recovery (1)	shrub/sapling removal herbaceous/aquatic bed removal sedimentation dredging farming
Su	btotal this pa	toxic pollutants	nutrient enrichment

7

last revised 1 February 2001 jjm

Site: We	etland RF	Rater	(s): JMM, BJ.	Date: 5/2/2018
	9 btotal first pa] Metric 5. Special Wetlar	nds.	
0	9	·		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland- Lake Plain Sand Prairies (Oak Ope Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/wate Category 1 Wetland. See Question	restricted hydrol nings) (10) eatened or enda r fowl habitat or i 1 Qualitative R	angered species (10) usage (10) ating (-10)
-1	8	Metric 6. Plant commun	ities, int	erspersion, microtopography.
max 20 pts.	subtotal	J 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
		Aquatic bed	1	Present and either comprises small part of wetland's
		□ Emergent Shrub		vegetation and is of moderate quality, or comprises a significant part but is of low quality
		Forest	2	Present and either comprises significant part of wetland's
		Mudflats	_	vegetation and is of moderate quality or comprises a small
		Open water		part and is of high quality
		Other	3	Present and comprises significant part, or more, of wetland's
		6b. horizontal (plan view) Interspersion. Select only one.		vegetation and is of high quality
		High (5)	Narrative De	escription of Vegetation Quality
		Moderately high(4)	low	Low spp diversity and/or predominance of nonnative or
		Moderate (3)	-	disturbance tolerant native species
		Moderately low (2)	mod	Native spp are dominant component of the vegetation,
		Low (1) None (0)		although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to
		6c. Coverage of invasive plants. Refer		moderately high, but generally w/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp
		or deduct points for coverage	high	A predominance of native species, with nonnative spp
		Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually
		Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)		absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
		Nearly absent <5% cover (0)		
		Absent (1) 6d. Microtopography.	Mudflat and	Open Water Class Quality Absent <0.1ha (0.247 acres)
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
		Standing dead >25cm (10in) dbh		
		¹ Amphibian breeding pools	Microtopog 0	raphy Cover Scale Absent
			1	Present very small amounts or if more common
			•	of marginal quality
			2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
	1		3	Present in moderate or greater amounts and of highest quality
8				and or riightoot quanty

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	5	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-1	
	TOTAL SCORE	8	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one Category 1 Category 2 Category 3					
	\checkmark				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method 10 Page Form for Wetland Cate			
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/8/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland SS	
Vegetation Communit(ies):	
PEM1, PFO1 HGM Class(es):	
Slope	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached delineation map	
Lat/Long or UTM Coordinate	Long -80.668172
USGS Quad Name	-
County	Steubenville West
	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland SS	
Wetland Size (acres, hectares):	0.091 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	0.001 0.00
See attached figure.	
Comments, Narrative Discussion, Justification of Category Changes:	
Formed along a saturated area located on a terrace below an abandone	d railroad
grade that receives upgradient runoff.	d fallioad
g.ado mar rocerros apgradient ramom	
Final score : 28 Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	GO to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible	Go to Question 9a
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	00 10 Quoduon 00
		Category 3 status	
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Oo to Question su	Oo to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
9d	wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its	YES	NO
Ju	vegetation communities, although non-native or disturbance tolerant	TL3	INO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	
	several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of	Go to Question 11	
	Natural Areas and Preserves can provide assistance in confirming this		
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community	VEC	NO
11	dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	evaluated for possible	Quantitative Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Nauriy
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland SS	Rater(s): JMM, BJJ	Date: 5/8/2018
0	0	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.	
7	7	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) WEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first open pasture, row cropping, mining, construction. (1)	ow field. (3)
10	17	Metric 3. Hydrology.	
max 30 pts.	subtotal	☑ Precipitation (1) ☐ Part of wetland/u ☑ Seasonal/Intermittent surface water (3) ☑ Part of riparian of part o	ain (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) lated (2) ated in upper 30cm (12in) (1)
7	24	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	 4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average. 	
	24 btotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed mowing grazing prazing praz	atic bed removal
last revised	1 Februa	ry 2001 m	

7

Site: We	etland SS	Rater((s): JMM, BJ.	J	Date: 5/8/2018
	0.4				
	24				
0	ibtotal first pa	Metric 5. Special Wetlan	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated.			
		Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-re Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Open Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question	estricted hydro ings) (10) atened or enda fowl habitat or	angered species (10) usage (10)	
1	25	Metric 6. Plant communi	ities, int	erspersion, microto	ppography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed	1	Present and either comprises sm	
		1 Emergent Shrub		vegetation and is of moderate of significant part but is of low qua	
		1 Forest	2	Present and either comprises sign	
		Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water		part and is of high quality	4 4
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significan vegetation and is of high quality	
		Select only one.		- vogetation and to or riight quality	'
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	
		Moderate (3) Moderately low (2)	mod	disturbance tolerant native special Native spp are dominant compon	
		Low (1)	mod	although nonnative and/or distu	_
		None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	
		to Table 1 ORAM long form for list. Add	high	threatened or endangered spp	
		or deduct points for coverage Extensive >75% cover (-5)	high	A predominance of native species and/or disturbance tolerant nati	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	• • • • • • • • • • • • • • • • • • • •
		Sparse 5-25% cover (-1)		the presence of rare, threatene	
		Nearly absent <5% cover (0)	Mudflet en	d One an Materia Class Overlite.	
		Absent (1) 6d. Microtopography.	Mudflat and	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	cres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh	Microtonom	wenty Cover Seels	
		Amphibian breeding pools	0	raphy Cover Scale Absent	
			1	Present very small amounts or if	more common
				of marginal quality	
			2	Present in moderate amounts, bu quality or in small amounts of h	ighest quality
•	ı		3	Present in moderate or greater ar	mounts
25				and of highest quality	
25					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
Ü	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	25	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
	\checkmark			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: J. Melko, B. Jacoby	
Date: 5/11/2018	
Affiliation: Cyprus Amax Minerals Company	
Address:	
Phone Number:	
e-mail address:	
Name of Wetland: Wetland YY	
Vegetation Communit(ies):	
PFO1	
HGM Class(es): Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See attached jurisdictional delineation map.	
Lettler are a UTM Occasion to	
	Long -80.679841
USGS Quad Name	Steubenville West
County	Jefferson
Township	T6N, R2W
Section and Subsection	S8
Hydrologic Unit Code	05030101
Site Visit	Υ
National Wetland Inventory Map	Υ
Ohio Wetland Inventory Map	
Soil Survey	Υ
Delineation report/map	Υ

Name of Wetland: Wetland YY		
Wetland Size (acres, hecta	res):	0.111 acres
Sketch: Include north arrow	w, relationship with other surface waters, vegetation zones, etc.	
See attached figure		
Comments, Narrative Disc	ussion, Justification of Category Changes:	
Wetland developed	in what appears to be a relic borrow area. Immediate	ely adjacent to
	eastern bank near the southwestern corner of the Ar	nalysis Area
(near Tributary H).		
Final score :	37 Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has	YES	NO
	been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species?	Wetland should be evaluated for possible	Go to Question 2
	Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Category 3 status Go to Question 2	
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	Co to Question 2	
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES	NO
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES	NO
		Wetland is a Category 3 wetland	Go to Question 4
		Go to Question 4	
ŀ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding	YES	NO
	waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of	YES	NO
	vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or	Wetland is a Category 1 wetland	Go to Question 6
	no vegetation?	Go to Question 6	
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses,	YES	NO
	particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland	Go to Question 7
	30701 01 111743170 3p00103 (000 14310 1) 13 32070.	Go to Question 7	
<u>7</u>	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free	YES	NO
	flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland	Go to Question 8
	'	Go to Question 8a	
3a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics:	YES	NO
	overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence	Wetland is a Category 3 wetland.	Go to Question 8
	of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Go to Question 8b	

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible Category 3 status.	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	Go to Question 9a	NO
Ja	an elevation less than 575 feet on the USGS map, adjacent to this	TL3	NO NO
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is	YES	NO
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
-		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES	NO
	border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These		
	include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Watland is a Catagon	Go to Question 9e
	native species carraiso de present?	Wetland is a Category 3 wetland	Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance	Go to Question 10 YES	NO
•	tolerant native plant species within its vegetation communities?		
		Wetland should be evaluated for possible	Go to Question 10
		Category 3 status	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	Go to Question 10 YES	NO
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be		
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland	Go to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies	YES	NO
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	etland YY	Rater(s)	IJMM, BJJ	Date: 5/11/2018
1	1	Metric 1. Wetland Area (siz	æ).	
max 6 pts.	subtotal	Select one size class and assign score.		
8	9	Metric 2. Upland buffers ar	•	
max 14 pts.	subtotal	VERY NARROW. Buffers average <10m 2b. Intensity of surrounding land use. Select one VERY LOW. 2nd growth or older forest, LOW. Old field (>10 years), shrub land,	nore around wetland perimeter (7) 1 (82 to <164ft) around wetland perimeter (4) 1 (32ft to <82ft) around wetland perimeter (1 1 (<32ft) around wetland perimeter (0) 1 or double check and average. 1 prairie, savannah, wildlife area, etc. (7) 1 young second growth forest. (5) 1 ed pasture, park, conservation tillage, new fal	,
16	25	Metric 3. Hydrology.		
max 30 pts.	subtotal	Recovered (7) Recovering (3) Recent or no recovery (1) ditch tile dike weir storm	Part of wetland/ Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of riparian Part of wetland/ Part of wetland/ Part of wetland/ Part of wetland/ Seasonallysan Seasonally inur Seasonally satu Seasonally satu Ore one or double check and average. disturbances observed point source (not filling/grading road bed/RR tradering) ore one or double check and average.	lain (1) n/lake and other human use (1) upland (e.g. forest), complex (1) or upland corridor (1) aturation. Score one or dbl check. nently inundated/saturated (4) ated/saturated (3) idated (2) irrated in upper 30cm (12in) (1) onstormwater)
8	33	Metric 4. Habitat Alteration	and Development.	-
max 20 pts.	subtotal 33	Recovered (6) Recovering (3) Recent or no recovery (1) Recent or no word grazi Clear Select wood	and average. disturbances observed ing shrub/sapling reng cutting sedimentation dredging farming farming	uatic bed removal
SU	btotal this pa	 	pollutants nutrient enrichm	ieni

7

last revised 1 February 2001 jjm

Site: Wetland YY		Rater(s): JMM, BJJ		Date: 5/11/2018						
		1								
	33									
SL	ıbtotal first pa] ge								
0	33	Metric 5. Special Wetlan	ds.							
max 10 pts.	subtotal	Check all that apply and score as indicated.								
		□ Bog (10) □ Fen (10)								
		Old growth forest (10)								
		Mature forested wetland (5)	Mature forested wetland (5)							
		Lake Erie coastal/tributary wetland-u								
		Lake Plain Sand Prairies (Oak Openings) (10)								
		Relict Wet Prairies (10)								
		Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10)								
		Category 1 Wetland. See Question								
4	0.7	Metric 6. Plant communi	ities. inte	erspersion, microtopography.						
4	37		,	,						
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.		Community Cover Scale						
		Score all present using 0 to 3 scale. Aquatic bed	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area Present and either comprises small part of wetland's						
		Emergent	'	vegetation and is of moderate quality, or comprises a						
		Shrub		significant part but is of low quality						
		Forest Mudflats	2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small						
		Open water		part and is of high quality						
		Other	3	Present and comprises significant part, or more, of wetland's						
		6b. horizontal (plan view) Interspersion. Select only one.		vegetation and is of high quality						
		High (5)	Narrative De	escription of Vegetation Quality						
		Moderately high(4)	low	Low spp diversity and/or predominance of nonnative or						
		Moderate (3) Moderately low (2)	mod	disturbance tolerant native species Native spp are dominant component of the vegetation,						
		Low (1)	mod	although nonnative and/or disturbance tolerant native spp						
		None (0)		can also be present, and species diversity moderate to						
		6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add		moderately high, but generally w/o presence of rare threatened or endangered spp						
		or deduct points for coverage	high	A predominance of native species, with nonnative spp						
		Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually						
		☐ Moderate 25-75% cover (-3) ☐ Sparse 5-25% cover (-1)		absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp						
		Nearly absent <5% cover (0)								
		Absent (1)		Open Water Class Quality						
		6d. Microtopography. Score all present using 0 to 3 scale.	<u>0</u>	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)						
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)						
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more						
		Standing dead >25cm (10in) dbh Amphibian breeding pools	Microtopogr	raphy Cover Scale						
			0	Absent						
			1	Present very small amounts or if more common of marginal quality						
			2	Present in moderate amounts, but not of highest						
				quality or in small amounts of highest quality						
			3	Present in moderate or greater amounts						
37				and of highest quality						

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
Ü	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	16	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	4	
	TOTAL SCORE	37	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	(NO)	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category								
Choose one	Category 1	Category 2	Category 3					
		\checkmark						

End of Ohio Rapid Assessment Method for Wetlands.