Former Satralloy Facility

Request for Section 404 Jurisdictional Determination

Prepared for Cyprus Amax Minerals Company

333 North Central Avenue Phoenix, Arizona 85004 602-366-8270

Prepared by

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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 Branch 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 e If yes, please explain and submit details o		striction? (Y	les or □No)	
Was the property a site for mitigation pure (Yes or No) If yes, please explain a	1 2 1		2	
Is the property neighboring/adjacent to/bo (Yes or No) If yes, please explain a and/or address, and Corps permit number.	and submit the name	• •	-	

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: ____ 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 is accurate and complete:

Date:

Signature of Property Owner:

Former Satralloy Facility

Request for Section 404 Jurisdictional Determination

Prepared for

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Introduction

1.1 Purpose of this Document

This document is a request for a Section 404 Jurisdictional Determination (JD) for the former Satralloy Facility, located in Cross Creek Township, Jefferson County, Ohio (the Site). The Site is undergoing site investigation work that may require a nationwide permit from the U.S. Army Corps of Engineers (USACE) (Nationwide Permit No. 38, Cleanup of Hazardous and Toxic Waste). A JD was originally issued for the Site on August 6, 2007 and expired on August 6, 2012. Based on that expiration and planned upcoming work, a new JD is required to determine the aquatic resource areas that are currently considered jurisdictional under USACE regulations. This JD request provides the technical documentation required for the USACE to make a determination on the jurisdictional status of the wetlands and waterways on the Site and certain adjoining property that, in total, constitute the Project Area (Figure 1). We request that the USACE review and concur with the identification and delineation of the Waters of the United States within the Project Area, as described in this submittal.

This chapter of the JD request provides general information on the Project as well as an overview of jurisdictional authority pertaining to the Project Area. Table 1-1 summarizes pertinent Site information for the JD. Chapter 2 describes the regulatory definitions of wetland resource areas, as well as the methodology and criteria used to identify and delineate these resource areas. Chapter 3 identifies the jurisdictional and potentially jurisdictional waterways and wetlands of the United States within the Project Area. Appendix A provides relevant references. Appendix B provides figures showing the jurisdictional or potentially jurisdictional wetland resource areas in the Project Area. Appendix C provides the USACE Wetland Data Forms, using the format prescribed in the Eastern Mountains and Piedmont Regional Supplement (April 2012) of the USACE Wetlands Delineation Manual. Appendix D provides photographs of the jurisdictional or potentially jurisdictional wetland resource areas in the Project Area.

Table 1-1 Jurisdictional Determination Summary Information

	Former Satralloy Facility
Project Name	Remedial Investigation/Feasibility Study
Project Location	In Cross Creek Township near Steubenville, OH
Property Owner/Applicant	Cyprus Amax Minerals Company Barbara Nielsen, Manager, Remediation Projects 333 North Central Avenue Phoenix, AZ 85004
Location of Site	40.310°N, 80.671°W
Approximate Size of Site	332 acres
Approximate Size of Project Area	337 acres

1.2 Project Overview

The Site is the location of a former chromium smelting facility that was in operation from 1958 until 1982. Waste products (slag) from the smelting process have been deposited over a large area of the Site. Much of the smelter equipment has been removed from the Site, but the framework and exterior of several large industrial buildings are still in place. These buildings will be demolished as part of the current Project. The owner/applicant has rebuilt the lower of two rail spurs that serviced the facility during its operational phase, in order to be able to transport materials and equipment on and off the Site by rail; a portion of the rail spur is outside of the Site property boundary. This adjoining area, along with the Site, constitutes the Project Area. Since the original 2007 JD expired in August 2012, a new JD is needed in order to determine the extent of jurisdictional wetlands within the Project Area that may be impacted by the Project.

The purpose of the current Project is to conduct a Remedial Investigation/Feasibility Study (RI/FS), which may be followed by remediation activities. The field investigation will include a surface and subsurface investigation to determine the nature and extent of any contaminated environmental media (soils, groundwater, surface water) on the Site. Work to support the field investigation may include constructing or repairing roads, moving materials, and demolishing abandoned buildings and equipment. Some of these activities will occur near jurisdictional or potentially jurisdictional Waters of the U.S., and could result in the discharge of dredged or fill material. To the extent practical, the RI/FS field activities will be planned to avoid such discharges.

1.3 Site Description

The Site is located on Jefferson County Road 74 (CR74, also known as Gould Road), approximately 4.5 miles southwest of Steubenville, Ohio. The existing buildings are situated on a flat portion of land covering the southeastern half of the Site; the remainder of the Site is characterized by a ridge approximately 400 feet in height. The Site is surrounded to the north, west, and south by the perennial stream Cross Creek (Figure 1). An active rail line passes near the northeastern corner of the Site; the rail spurs mentioned above originate in this area and terminate at the industrial buildings.

The lower portion of the Site has little vegetation, and consists mainly of dirt and gravel driveways between the industrial buildings. The ridge is mostly covered with second growth forest and understory vegetation. Much of the Site is highly disturbed. A large portion of the ridge and some of the flat area is covered by waste slag, which has inhibited plant growth. A network of dirt trails and roads lead up the southeastern face of the ridge from the industrial buildings, and wind through the forest and disturbed areas at the top of the ridge. An electric transmission line crosses the western portion of the Site along a cleared easement.

1.4 Jurisdictional Authority

Federal regulations define the term *Waters of the United States*¹ (Waters of the U.S.). USACE has jurisdictional authority over Waters of the U.S., including wetlands associated with those waters.

The USACE and the U.S. Environmental Protection Agency (USEPA) define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."²

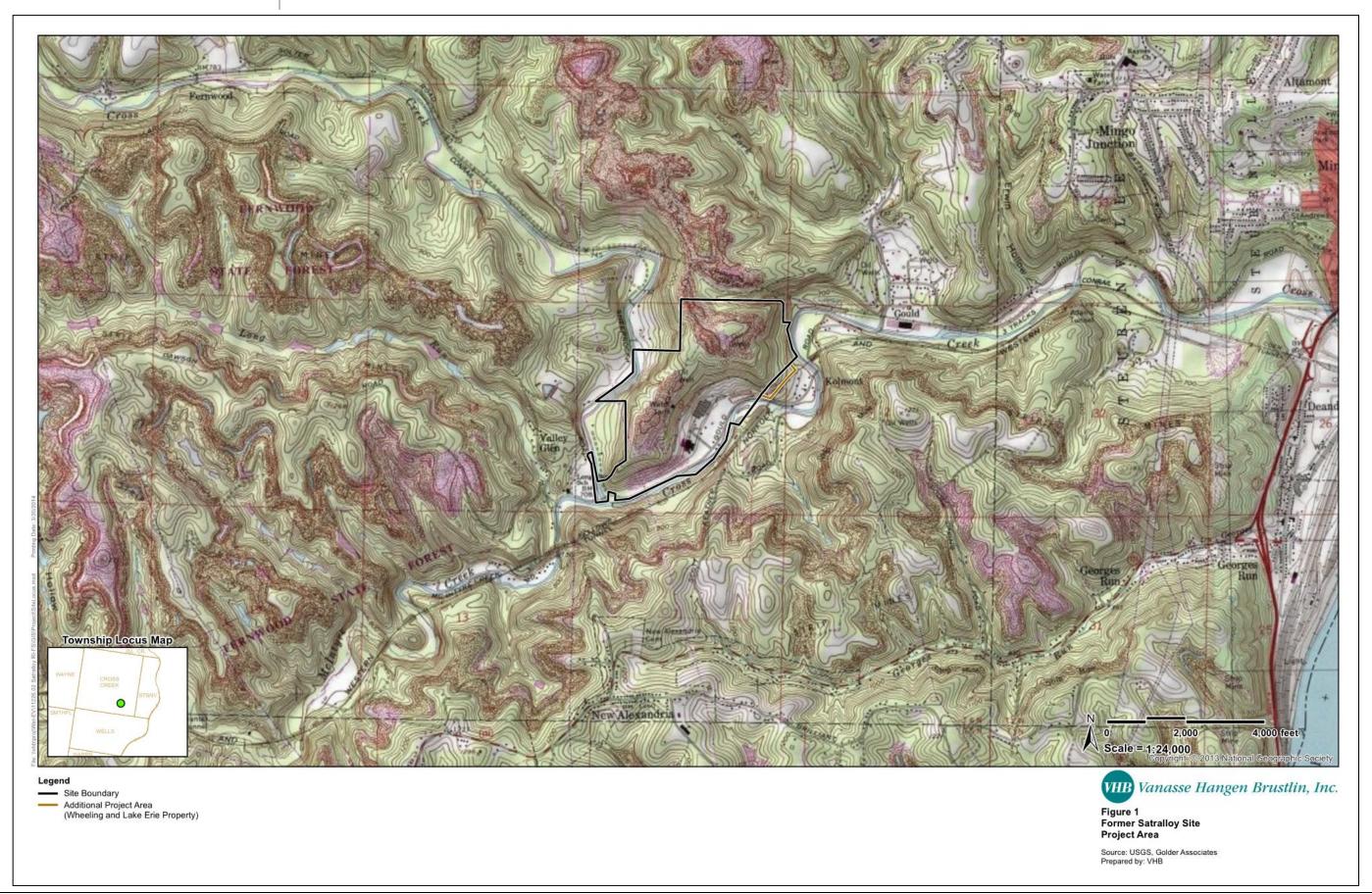
Isolated wetlands have no chemical, physical, or biological connection (nexus) to traditional navigable Waters of the U.S. Wetlands determined to be isolated do not fall under federal jurisdiction, but are protected by the Ohio Environmental Protection Agency (OEPA) Division of Surface Water (DSW). The OEPA jurisdiction stems from Sections 6111.02 through 6111.29 of the Ohio Revised Code.

¹Code of Federal Regulations, Definition of Waters of the United States. 33 CFR 328.3.

² Environmental Laboratory, U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-01. (Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station, 1987).

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A detailed discussion of regulatory definitions and their application in the field to identify and delineate Waters of the U.S. under the jurisdiction of the USACE and isolated wetlands under the jurisdiction of the OEPA DSW is provided in Chapter 2.



2

Regulatory Definitions and Methodology

This chapter describes the regulatory definitions upon which the determination of wetland resource area boundaries was based, and the methodology used to identify and evaluate jurisdictional wetlands and waterways within the Project Area.

2.1 Federal Regulatory Definitions

Although state and in some cases even local regulations exist to regulate waterways and wetland resource areas, jurisdiction over these areas ultimately derives from USACE regulations. The USACE is granted jurisdiction over waters of the U.S. under Section 404 of the Federal Water Pollution Control Act (commonly known as the Clean Water Act) and Section 10 of the Rivers and Harbors Act. The following sections describe the federal definition of the term "Waters of the United States," as well as the criteria used to determine whether areas are considered jurisdictional.

2.1.1 Waters of the United States

USACE's jurisdiction over Waters of the U.S. derives from federal regulations that define the term "Waters of the United States," 33 CFR 328.3 (a)(1)-(7.)³ The regulation defines Waters of the U.S. to include:

All waters that are currently used, were used in the past, or may be susceptible to
use in interstate or foreign commerce, including all waters that are subject to the
ebb and flow of the tide;

Code of Federal Regulations, Definition of Waters of the United States. 33 CFR 328.3.

- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- ➤ All impoundments of waters otherwise defined as Waters of the United States;
- > Tributaries of waters;
- > The territorial seas; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands).

USACE jurisdiction of streams and tributaries (which may include some man-made ditches) extends to the ordinary high water mark of the defined waterway channel. The area below the ordinary high water mark is considered a USACE jurisdictional waterway.

2.1.2 Jurisdictional Wetlands

A number of wetland resource areas on the Site are federally regulated under Section 404 of the Clean Water Act. The 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Corps Manual)⁴ defines wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The regulations in the 1987 Corps Manual require that the following three criteria ("diagnostic environmental characteristics") be met for an area to be classified as a jurisdictional wetland: the dominance of hydrophytic vegetation, the presence of hydric soils, and the evidence of wetland hydrology.

In 2009 (and subsequently in 2012) the USACE issued Regional Supplements to the 1987 Corps Manual; the site falls into the Eastern Mountains and Piedmont Region.⁵ The purpose of the Regional Supplement is to "address regional wetland characteristics and improve the accuracy and efficiency of wetland-delineation procedures." The Regional Supplement provides a number of revised and refined defining characteristics and methods to be used to identify wetlands in the field, in

Environmental Laboratory, U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-01. (Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station, 1987).

⁵ U.S. Army Corps of Engineers, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, April 2012.

order to increase the regional sensitivity of wetland delineation in the Eastern Mountains and Piedmont Region.

Although the Regional Supplement states that the determination of jurisdiction for a given wetland is still subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act, it also provides information to replace sections of the 1987 Corps Manual, and states: "Where differences in the two documents occur, this Regional Supplement takes precedence over the Corps Manual for applications in the Eastern Mountains and Piedmont Region."

2.1.2.1 Hydrophytic Vegetation

According to the 1987 Corps Manual, the prevalent vegetation in jurisdictional wetlands consists of macrophytes that are typically adapted to areas having the hydrologic and soil conditions that are described in the Manual's definition of wetlands. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptations, have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Plant species have been compiled in a list⁷ and are given a wetland indicator status to denote the hydrologic regime in which they are most often found. The indicator status can be, in order of decreasing preference for a wet regime, Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), or Upland (UPL). The use of (+) and (-) modifiers further refine those categories, with (+) designating a preference for a wetter regime. According to the 1987 Corps Manual, a plant with a status of FAC or wetter is considered to be a wetland plant, while a plant with a status of FAC- or drier is considered to be a non-wetland plant. The 1987 Corps Manual makes note of the fact that some plant species have broad ecological tolerances and occur in both wetlands and non-wetlands.

The Regional Supplement provides guidance on vegetation sampling and analysis to supplement the 1987 Corps Manual, including more precise definitions of plant strata and field techniques than are found in the Manual. Of particular note, the Regional Supplement alters the usage of indicator status for a given plant species by removing the (+) and (–) modifiers. Therefore, any plant with an indicator status of FAC-, which would have previously been considered a non-wetland plant, is now grouped with all other plants with an indicator status of FAC, identifying these plants as wetland plants.

⁶ Ibid.

⁷ Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: 1988 national summary. Biological Report 88(24). Washington, DC: U.S. Fish and Wildlife Service.

2.1.2.2 Hydric Soils

The 1987 Corps Manual defines a hydric soil as "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation." The Manual describes several characteristics and features that are used to identify soils as hydric, such as the presence of layers of organic material, reducing (low oxygen) soil conditions, and soil colors that result from prolonged saturation and/or inundation.

The Regional Supplement presents indicators that are designed to help identify hydric soils in the Eastern Mountains and Piedmont Region, along with accompanying photographs and identifying criteria. The Supplement does not change the core definition of a hydric soil in the 1987 Corps Manual, and notes that: "Indicators are not intended to replace or relieve the requirements contained in the definition of a hydric soil. Therefore, a soil that meets the definition of a hydric soil is hydric whether or not it exhibits indicators." 9

2.1.2.3 Hydrology

The 1987 Corps Manual establishes criteria to identify wetland hydrology: "Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic soil conditions." The Manual provides a number of identifying factors that are used in the field to determine the hydrology of an area, including direct observation of inundation, soil saturation, and evident drainage patterns.

The Regional Supplement presents indicators that are designed to help identify wetland hydrology in the Eastern Mountains and Piedmont Region, along with accompanying photographs and identifying criteria. According to the Regional Supplement, wetland hydrology indicators "provide evidence that the site has a *continuing* wetland hydrologic regime and that hydric soils and hydrophytic vegetation are not relicts of a past hydrologic regime." ¹¹

Environmental Laboratory, U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-01. (Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station, 1987).

U.S. Army Corps of Engineers, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, April 2012.

¹⁰ Environmental Laboratory, U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-01. (Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station, 1987).

¹¹ U.S. Army Corps of Engineers, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, April 2012.

2.1.3 Guidance Memorandum

In 2007, the USACE and the USEPA issued a joint guidance memorandum on Clean Water Act jurisdiction following the U.S. Supreme Court's decision in *Rapanos v. United States & Carabell v. United States.*¹² The memorandum was revised after public comment and the revised document was issued on December 2, 2008. The memorandum provided guidance to USEPA regions and USACE districts, particularly in regard to situations in which the agencies should apply the "significant nexus" determination to determine whether or not to take jurisdiction over an area.

2.1.4 Isolated Wetlands

Isolated wetland areas that are non-jurisdictional under federal regulations are still within the jurisdiction of the OEPA DSW. Anyone who wishes to discharge dredged or fill material into isolated wetlands in Ohio must obtain an Isolated Wetland Permit from the OEPA. The DSW has developed the Ohio Rapid Assessment Method (ORAM) to evaluate isolated wetlands in order to determine an appropriate level of mitigation for any impacts to isolated wetlands based on their overall quality.

2.2 Methodology and Field Work

In order to identify and delineate the federal or state jurisdictional wetlands and waterways within the Project Area, field surveys were conducted in conjunction with mapping supplied as part of the JD approved by the USACE for the Site on August 6, 2007.

Waterways and wetland areas were delineated in the field in April 2012 and April 2013. These resource areas were marked with colored flagging, and the flag locations were recorded with a Trimble hand-held GPS device. Areas that were determined to be non-jurisdictional by the USACE in the 2007 JD and which had not changed since the previous JD delineation were not redelineated. Areas that were determined to be jurisdictional by the USACE in the 2007 JD were all redelineated, and any areas where changes had occurred since the previous delineation were also redelineated.

Wetlands and waterways were identified and delineated using the methods and criteria established in the 1987 Corps Manual as well as the Regional Supplement. According to this federal methodology, wetlands were identified by the presence of

¹² U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, June 6, 2007, revised December 2, 2008.

the three essential parameters: hydrophytic vegetation, hydric soils, and evidence of wetland hydrology. In the absence of significant disturbance, all three technical criteria are considered mandatory and must be met for an area to be identified as a wetland. Waterways (such as Cross Creek) were identified by the extent of the ordinary high water mark of perennial streams.

Potential waterways and wetland resource areas were examined by field investigators using these three criteria throughout the Project Area. For each identified wetland resource area, a representative observation point was selected, and field data sheets were completed describing the upland and wetland characteristics of the observation point. The results of these observations are provided in the Appendix B figures, Appendix C field data sheets, and Appendix D photographs.

2.2.1 Hydrophytic Vegetation

Visual estimates of species abundance were made for the upland and wetland plant communities at each observation point, and the dominant species were determined and recorded by genus and species on the field data sheets included in Appendix C. Dominant species were determined separately for each vegetative stratum as trees, saplings/shrubs, herbs, and vines. No field data sheets were prepared for waterways.

The wetland indicator status of each species was determined according to the 1988 *National List of Plant Species That Occur in Wetlands*, which is based on the national list¹³. According to the Regional Supplement, three separate procedures exist to determine whether an area has hydrophytic vegetation: the Rapid Test for hydrophytic vegetation, the Dominance Test, and the Prevalence Index. These procedures are briefly described below.

The Rapid Test for Hydrophytic Vegetation

This test is used in obvious cases where a site has or appears to have hydrophytic vegetation. If all dominant plant species in a sample vegetation plot are rated OBL or FACW, then the vegetation community is hydrophytic and no further vegetation analysis is required.

The Dominance Test

This test measures the relative dominance of plant species in a given sample plot to determine whether the overall vegetation is hydrophytic. If greater than 50 percent of the dominant plant species are rated OBL, FACW, or FAC, then the vegetation community is hydrophytic. This test accounts for communities where not all dominant plant species are hydrophytic.

³ Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: 1988 national summary. Biological Report 88(24). Washington, DC: U.S. Fish and Wildlife Service.

The Prevalence Index

The Prevalence Index is a weighted-average indicator of all plant species in a given community. Plants are given a numeric value based on their indicator status and their abundance is used to calculate the Prevalence Index. The Prevalence Index is a more thorough measure of all plants in a given community.

These procedures are discussed in detail in the Regional Supplement. All three methods were considered when evaluating site conditions, and the results of all three methods are noted on the field data sheets prepared for each observation point.

2.2.2 Soils

Baseline soils information was determined from review of existing data, including the USDA Natural Resources Conservation Service (NRCS) *Soils Survey of Jefferson County, Ohio*, county and state lists of hydric soils, and data collected from the previous delineation.

During the wetland investigation, soils were examined with a hand auger to determine if hydric soil characteristics were present. Auger holes were excavated to a depth that confirmed the presence of hydric soils in wetland areas, or that eliminated the possibility of hydric soils in uplands. The colors of the soil matrix and any redoximorphic features were described using Munsell Soil Color Charts. Information describing the upland and wetland soil profiles was recorded on the field data sheets for each identified wetland.

2.2.3 Hydrology

Site hydrology was determined in the field based on properties such as soil saturation, inundation, oxidized root zones, manganese concretions, and drainage patterns. Hydrologic indicators were based on the 1987 Corps Manual and the Regional Supplement.

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Waters of the U.S. and Isolated Wetlands within the Project Area

This chapter provides a summary of the waterways and wetland resource areas found in the Project Area. Figures showing the delineated boundaries of all wetland resource areas are provided in Appendix B.

3.1 Overview of Findings

The Project Area contains or lies adjacent to seven waterways and wetland resource areas that were determined to be jurisdictional by the USACE as part of the 2007 JD process (Wetlands and Waterways A, D, E, F, H, J, and K). Three other areas (Wetlands P, Q and EE) were determined by the USACE to be isolated and non-jurisdictional in the 2007 JD, due to a lack of adjacency or significant nexus to a navigable waterway. Wetlands P and Q were redelineated as part of the current JD request to allow for reevaluation by the USACE.

As part of the most recent site inspection/delineation, one additional wetland resource area (Wetland YY) was identified that was not included in the previous JD request; this wetland was delineated and is included in this request for evaluation by the USACE. Table 3-1 outlines the jurisdictional and potentially jurisdictional wetlands located within the Project Area and the resources associated with each wetland.

Table 3-1 Jurisdictional and Potentially Jurisdictional Wetlands and Waterways

Waterway or Wetland Identifier	Flag Numbers	Wetland Description
A	BFA-100 to BFA-118	Cross Creek on north side of the Site. Perennial stream that flows into the Ohio River approximately 4 miles downstream. River bank adjacent to the site is steep and rocky.
D	WFD-100 to WFD-125	Vegetated drainage feature in the eastern portion of the site. Highly disturbed area that receives water from Wetland E and conveys it via culvert beneath Gould Road to Cross Creek.
E	WFE-93 to WFE-109	Area located west of the North Mill building. Water flows from a broken stormwater conveyance pipe, down a retaining wall, across a concrete slab and into the wetland. Water is conveyed from Wetland E to Wetland D via culvert.
F	BFF-78 to BFF-92, WFF-93 to WFF-109, BFF-110 to BFF-123	Small wetland area (WFF-93 to WFF-109) supplied by a seep and runoff, before transitioning to a channel tributary to Cross Creek.
Н	BFH-100 to BFH-133 and BFH-200 to BFH-210	Portion of Cross Creek located along the southern and southwestern property boundaries. Increased flow through this section, as compared to A, as a result of water input from McIntyre Creek.
J	BFJ-74 to BFJ-97, WFJ-98 to WFJ-102, BFJ-103 to BFJ-121, WFJ-121A, BFJ-122	Small wetland area (WFJ-98 to WFJ-102) at the northern extent of Wetland J, which then transitions to the bank of a waterway. Wetland J connects to Wetland K (to the south) via culvert beneath the upper rail spur. A small wetland area (WFJ-121A) is present adjacent to the culvert.
К	BFK-90 to BFK-107	Channel connected to Wetland J via a culvert beneath the rail spur. Channel flows north to south before connecting to Cross Creek via a culvert beneath the southern portion of the site.
Р	WFP-70 to WFP-121	Wetland area that has formed adjacent to the upper rail spur. Wetland becomes channelized before flowing via a culvert to Wetland EE. Not jurisdictional in the 2007 JD; however, work has been done in the channelized portion of this wetland since the last review, as authorized under an Isolated Wetland Permit.
Q	WFQ-71 to WFQ-122	Wetland area that has formed adjacent to the upper rail spur, but hydrologically separated from Wetland P. Work has been done on Wetland Q since the time of the last review to restore a collapsed berm that directed water away from the lower railroad spur and offsite toward Cross Creek, as authorized under an Isolated Wetland Permit.
EE	Not redelineated	Channel that receives flow from Wetland P via a culvert beneath the upper rail spur; water infiltrates into the ground shortly thereafter.
YY	WFYY-100 to WFYY-115	Wetland located immediately east of Cross Creek (Wetland H) near the southwestern corner of the site. No apparent hydrologic connection to Cross Creek.

Source: VHB, 2012

Notes: Wetlands and waterways are shown in Appendix B Figures.

The letters "BF" denote Bank Flags of a waterway; the letters "WF" denote Wetland Flags.

In accordance with federal regulations and guidance documents, the majority of the wetlands and waterways identified and delineated in this JD request and described herein are considered jurisdictional for the USACE because they are either:

- > Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); or
- Wetlands that directly abut such tributaries.

Some of the wetlands within the Project Area were determined to be isolated (Wetlands P, Q, and EE), and therefore not federally regulated, due to a lack of adjacency or significant nexus to a navigable waterway. During the previous JD review these wetlands were determined to be non-jurisdictional by the USACE.

The 2007 JD determined that Wetland Q was an isolated wetland not federally jurisdictional as Waters of the U.S. In August 2010, the Ohio EPA Division of Surface Water authorized alterations to Wetland Q under the Ohio General Permit for Filling Category 1 and Category 2 Isolated Wetlands. The work was completed that same year.

Wetland YY was not identified as part of the 2007 JD process, as it was outside of the anticipated Project Area. However, due to its proximity to Cross Creek, this wetland was delineated and included in the current JD request so that it could be evaluated by the USACE.

3.2 Wetland and Waterway Descriptions

A brief description of each wetland and waterway is provided below. Supporting documentation is provided in the form of wetland delineation forms in Appendix C and site photographs in Appendix D.

3.2.1 Waterway A (Cross Creek)

Waterway A is the portion of Cross Creek as it flows along the northern side of the site. Cross Creek is a perennial stream with a stone and gravel bottom. Waterway A is at the bottom of a large and very steep slope that forms the northwestern face of the ridge on the Site. Waterway A receives discharge from Wetland/Waterway F, as well as several other non-jurisdictional upgradient intermittent channels.

Waterway A was determined to be federally jurisdictional in the 2007 JD due to its nature as a perennial stream. The 2012 and 2013 field investigations determined that

no characteristics of this resource area have substantively changed in the interim. Additional information on Waterway A is provided in Figure 3 and Photos 1 through 3.

3.2.2 Wetland D

Wetland D is part of the drainage system that carries water from in and around the Site buildings to Cross Creek via a series of culverts under Gould Road. Wetland D is a manmade open channel located between the Site buildings and Gould Road. The channel receives water via a culvert from Wetland E and discharges it through another culvert under Gould Road to Cross Creek. Wetland D is a palustrine scrub-shrub wetland along with emergent vegetation along the bottom of the channel. The area is disturbed, with a pile of discarded tires lining part of the channel.

Wetland D was determined to be federally jurisdictional in the 2007 JD due to the presence of wetland vegetation, soils, and hydrology in the channel, which has a direct connection with Cross Creek through the culvert under Gould Road. The 2012 and 2013 field investigations determined that no characteristics of this resource area have substantively changed in the interim. Additional information on Wetland D is provided in the wetland delineation form in Appendix C, Figure 4, and Photos 4 through 5.

3.2.3 Wetland E

Wetland E is part of the drainage system that carries water from in and around the Site buildings to Cross Creek via a series of culverts under Gould Road. Wetland E is a manmade open channel located next to a concrete pad adjacent to one of the Site buildings. Wetland E connects to Wetland D via a culvert; Wetland D subsequently discharges to Cross Creek through another culvert under Gould Road. Wetland E is a palustrine scrub-shrub wetland along with emergent vegetation along a portion of the channel.

Wetland E was determined to be federally jurisdictional in the 2007 JD due to the presence of wetland vegetation, soils, and hydrology in the channel, which has a direct connection with Cross Creek through Wetland D. The 2012 and 2013 field investigations determined that no characteristics of this resource area have substantively changed in the interim. Additional information on Wetland E is provided in the wetland delineation form in Appendix C, Figure 5, and Photos 6 through 7.

3.2.4 Wetland/Waterway F

Wetland/Waterway F is a drainageway that flows down the steep northern slope of the Site and discharges to Cross Creek. Wetland/Waterway F begins as a palustrine forested swale that receives water from the surrounding slope as well as from the large slag pile on top of the ridge. The wetland then becomes a defined channel and flows down the slope to Cross Creek.

Wetland/Waterway F was determined to be federally jurisdictional in the 2007 JD due to the presence of wetland vegetation, soils, and hydrology in an area with a direct hydrologic connection to Cross Creek. The 2012 and 2013 field investigations determined that no characteristics of this resource area have substantively changed in the interim. Additional information on Wetland/Waterway F is provided in the wetland delineation form in Appendix C, Figure 6, and Photos 8 through 11.

3.2.5 Waterway H (Cross Creek)

Waterway H is the portion of Cross Creek as it flows along the western and southern sides of the site. Cross Creek is a perennial stream with a stone and gravel bottom. At the intersection of Gould Road and Sheep Rock Road, Cross Creek is joined by McIntyre Creek. Waterway H is a well-defined channel and is bounded by steep slopes and Gould Road for most of its length. Waterway H receives discharge from Wetland D, as well as several other non-jurisdictional upgradient intermittent channels, via culverts underneath Gould Road.

Waterway H was determined to be federally jurisdictional in the 2007 JD due to its nature as a perennial stream. The 2012 and 2013 field investigations determined that no characteristics of this resource area have substantively changed in the interim. Additional information on Waterway H is provided in the wetland delineation form in Appendix C, Figures 7 and 8, and Photos 12 through 15.

3.2.6 Wetland/Waterway J

Wetland/Waterway J is a drainageway that flows down the steep southern face of the ridge in the northern portion of the Site. Wetland/Waterway J begins as a palustrine forested depression that receives water from the surrounding forested area. The wetland then becomes a defined channel and flows down the ridge face. The channel is connected to Waterway K through a culvert under an access road; Waterway K subsequently discharges to Cross Creek through another culvert under Gould Road.

Wetland/Waterway J was determined to be federally jurisdictional in the 2007 JD due to the presence of wetland vegetation, soils, and hydrology in an area with a direct hydrologic connection to Cross Creek. The 2012 and 2013 field investigations

determined that no characteristics of this resource area have substantively changed in the interim. Additional information on Wetland/Waterway J is provided in the wetland delineation form in Appendix C, Figure 9, and Photos 16 through 18.

3.2.7 Waterway K

Waterway K is a drainageway that flows down the steep southern face of the ridge in the northern portion of the Site. Waterway K is a manmade open channel that receives water via a culvert from Wetland/Waterway J; Waterway K then discharges through another culvert under a portion of the Site and under Gould Road to Cross Creek. Waterway K is surrounded by the palustrine forested slope; the area is disturbed, with a pile of construction debris adjacent to the culvert that discharges into Waterway K from under the access road.

Waterway K was determined to be federally jurisdictional in the 2007 JD due to its connection between Wetland/Waterway J upgradient and Cross Creek downgradient. The 2012 and 2013 field investigations determined that no characteristics of this resource area have substantively changed in the interim. Additional information on Waterway K is provided in the wetland delineation form in Appendix C, Figure 10, and Photo 19.

3.2.8 Wetland P

Wetland P is a palustrine emergent wetland that has formed in the area where the upper rail spur into the Site was located when the smelting facility was still functional. The rails and ties of the spur have been removed; Wetland P has formed on the remaining flat rail bed and surrounding area. Water flows from this area down a manmade drainage ditch alongside the path of the rail spur toward the existing Norfolk and Western Railroad. The drainage ditch has degraded over time and has filled in partially, becoming a palustrine emergent vegetated swale. Water then flows through a culvert under the rail bed and into Wetland EE, where it dissipates into the ground.

The 2007 JD determined that Wetland P was an isolated wetland, not federally jurisdictional as a Water of the U.S. In August 2010, the Ohio EPA Division of Surface Water authorized alterations to Wetland P under the Ohio General Permit for Filling Category 1 and Category 2 Isolated Wetlands. Work was subsequently performed on Wetland P in anticipation of rebuilding the lower rail spur as part of remedial activities on the Site. The work to Wetland P included rebuilding the drainage ditch along the upper rail spur. The work in Wetland P was completed in 2010.

As a result of the work, the shape and extent of Wetland P have changed slightly since 2007, so the area was redelineated as part of the field work in 2012 and 2013 to

allow for reinspection by the USACE. Field investigations show that Wetland P is still an isolated wetland not subject to federal jurisdiction. Wetland P is not contiguous with or adjacent to any other Water of the U.S., and it does not have a surface or upper subsurface hydrologic connection with any other area under federal jurisdiction. Additional information on Wetland P is provided in Figure 11 and Photos 20 through 22.

3.2.9 Wetland Q

Wetland Q is a palustrine emergent wetland that, like Wetland P, has formed in the area of the upper rail spur. Wetland Q begins just downgradient of the culvert where water flows from Wetland P into Wetland EE. Wetland Q consists of the same partially degraded drainage ditch along the old rail bed, which has become a palustrine emergent vegetated swale.

The 2007 JD determined that Wetland Q was an isolated wetland, not federally jurisdictional as a Water of the U.S. In August 2010, the Ohio EPA Division of Surface Water authorized alterations to Wetland Q under the Ohio General Permit for Filling Category 1 and Category 2 Isolated Wetlands. Work was subsequently performed on Wetland Q in anticipation of rebuilding the lower rail spur as part of remedial activities on the Site. The work to Wetland Q included rebuilding the drainage ditch along the upper rail spur and regrading the area to prevent water from flowing off of the upper rail spur, down an embankment, and onto the lower rail spur. The work in Wetland Q was completed in 2010.

As a result of the work, water from Wetland Q no longer flows down the embankment between the upper and lower rail spur, but instead flows down the rebuilt drainage ditch and off the Site to the northeast, where it dissipates into the ground. Because of the alterations to Wetland Q, the area was redelineated as part of the field work in 2012 and 2013 to allow for reinspection by the USACE. Field investigations show that Wetland Q is still an isolated wetland not subject to federal jurisdiction. Wetland Q is not contiguous with or adjacent to any other Water of the U.S., and it does not have a surface or upper subsurface hydrologic connection with any other area under federal jurisdiction. Additional information on Wetland Q is provided in Figure 12 and Photos 23 through 24.

3.2.10 Wetland EE

Wetland EE is a small isolated wetland that receives flow from Wetland P via a culvert under the upper rail spur bed. Water flows from the culvert down the steep face of the ridge between the upper and lower rail spurs. However, the flow from the culvert is not enough to develop a distinct channel, and the water dissipates into the ground before reaching another wetland or waterway.

Wetland EE was determined to be an isolated wetland not subject to federal jurisdiction in the 2007 JD request. The 2012 and 2013 field investigations determined that Wetland EE is still an isolated wetland not subject to federal jurisdiction. Wetland EE is not contiguous with or adjacent to any other Water of the U.S., and it does not have a surface or upper subsurface hydrologic connection with any other area under federal jurisdiction. Additional information on Wetland EE is provided in Figure 13.

3.2.11 Wetland YY

Wetland YY is an isolated wetland at the southwest corner of the Site, adjacent to the bridge that carries Gould Road over Cross Creek. Wetland YY is also adjacent to an access road that leads from Gould Road to a gun club and firing range to the north. The area is a confined basin depression within the surrounding palustrine forested area between the access road and Cross Creek. The depression appears to hold standing water for much of the year.

Wetland YY was not included in the original 2007 JD request, so no jurisdictional determination was made on this area. While no work related to the Site remediation efforts would occur in or near Wetland YY, the area was delineated in 2012 to allow for inspection by the USACE. Field investigations show that Wetland YY appears to be an isolated wetland not subject to federal jurisdiction. Wetland YY is not contiguous with or adjacent to any other Water of the U.S., and it does not have a surface or upper subsurface hydrologic connection with any other area under federal jurisdiction. Additional information on Wetland YY is provided in the wetland delineation form in Appendix C, Figure 14, and Photos 25 through 26.

3.3 Conclusion

The Applicant, Cyprus Amax Minerals Company, respectfully requests that the U.S. Army Corps of Engineers review the information included in this request for a Section 404 Jurisdictional Determination (JD) for the former Satralloy Facility, located in Cross Creek Township, Jefferson County, Ohio. The Applicant requests that the USACE review and concur with the identification and delineation of the Waters of the United States within the Project Area, as described in this submittal.

Appendix A References

References

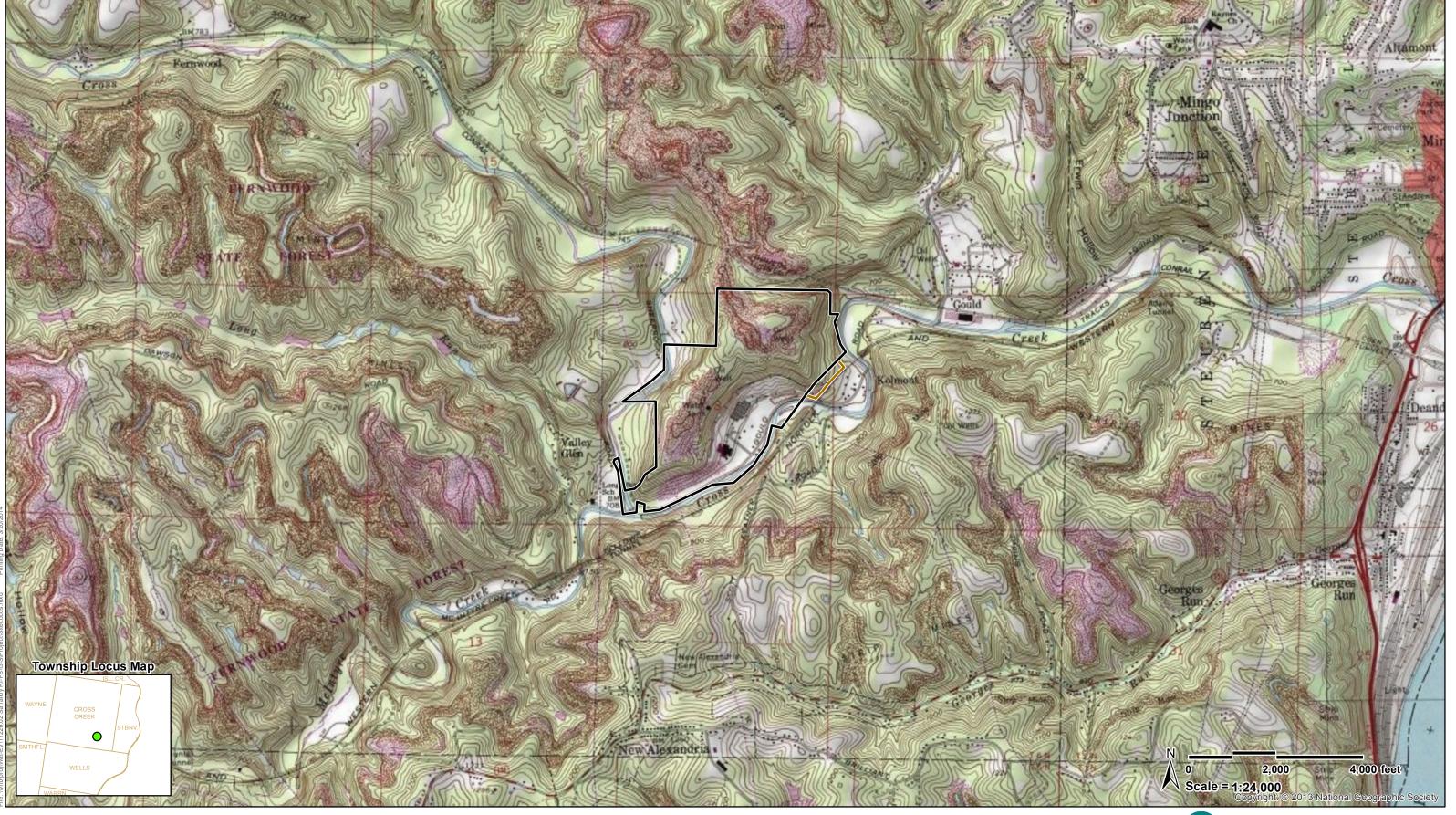
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Request for Section 404 Jurisdictional Determination

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Appendix B Figures

Request for Section 404 Jurisdictional Determination



Site Boundary
Additional Project Area
(Wheeling and Lake Erie Property)

VHB Vanasse Hangen Brustlin, Inc.

Figure 1 Former Satralloy Site Project Area

Source: USGS, Golder Associates Prepared by: VHB



Site Boundary

Additional Project Area
(Wheeling and Lake Erie Property)

Federally Jurisdictional Waterway

Federal Waterway (Estimated Boundary)
Federally Jurisdictional Wetland

 Culvert/Hydrologic Connection Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 2 Former Satralloy Site Delineated Wetlands and Waterways



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

 Culvert/Hydrologic Connection —O Isolated Wetland

VHB Vanasse Hangen Brustlin, Inc.

Figure 3 Former Satralloy Site Waterway A (Cross Creek)



Site Boundary

Additional Project Area (Wheeling and Lake Erie Property) Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

-O Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 4 Former Satralloy Site Wetland D



Site Boundary

Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

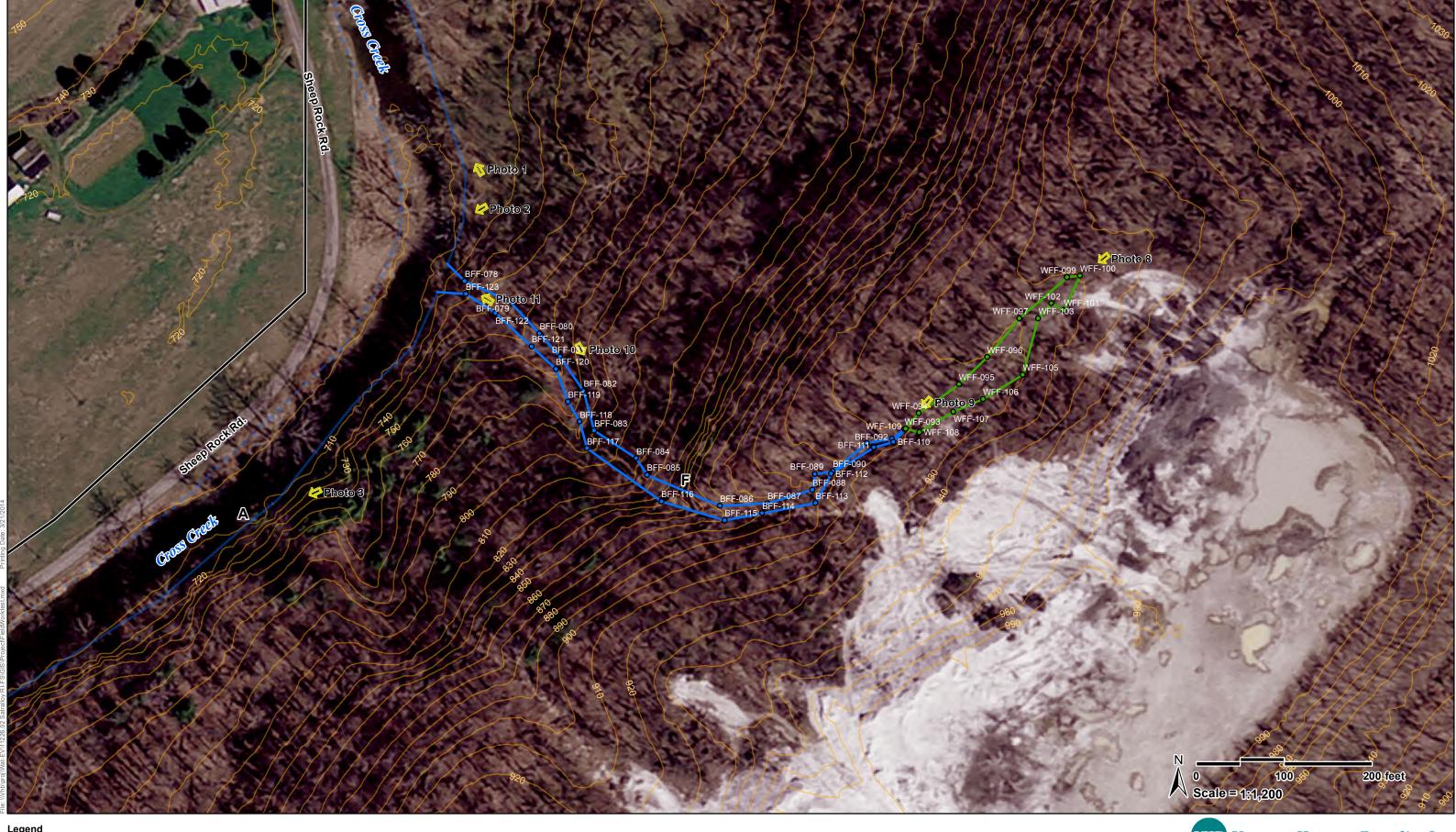
Culvert/Hydrologic Connection

-O Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 5 Former Satralloy Site Wetland E



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

—O Isolated Wetland



Figure 6 Former Satralloy Site Wetland/Waterway F



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ ■ Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

—O Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 7 Former Satralloy Site Waterway H (1 of 2) (Cross Creek)



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

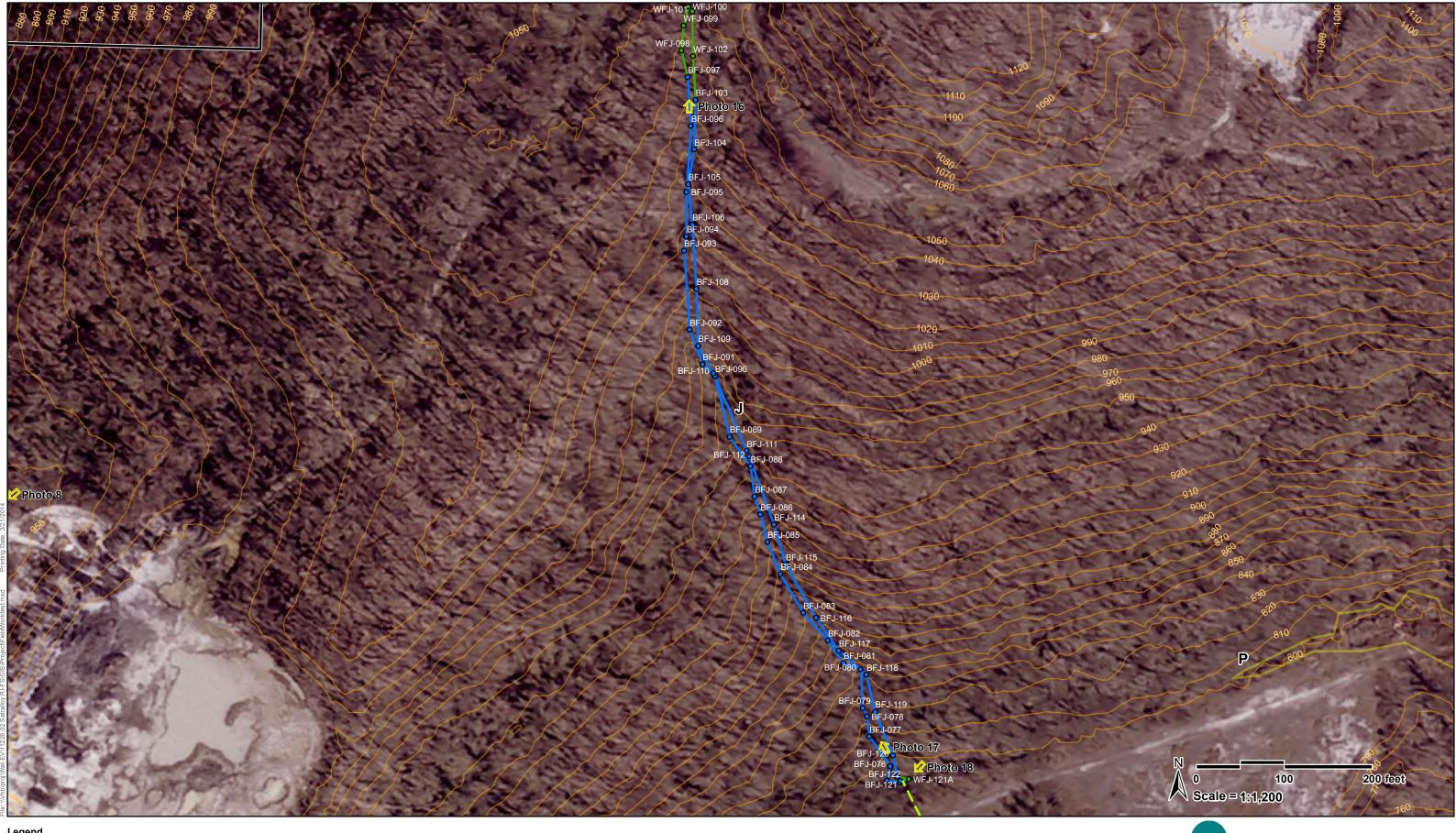
■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

-O Isolated Wetland

Figure 8 Former Satralloy Site Waterway H (2 of 2) (Cross Creek)



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour Photo Location and Direction Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

-O Isolated Wetland



Figure 9 Former Satralloy Site Wetland/Waterway J



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour Photo Location and Direction Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

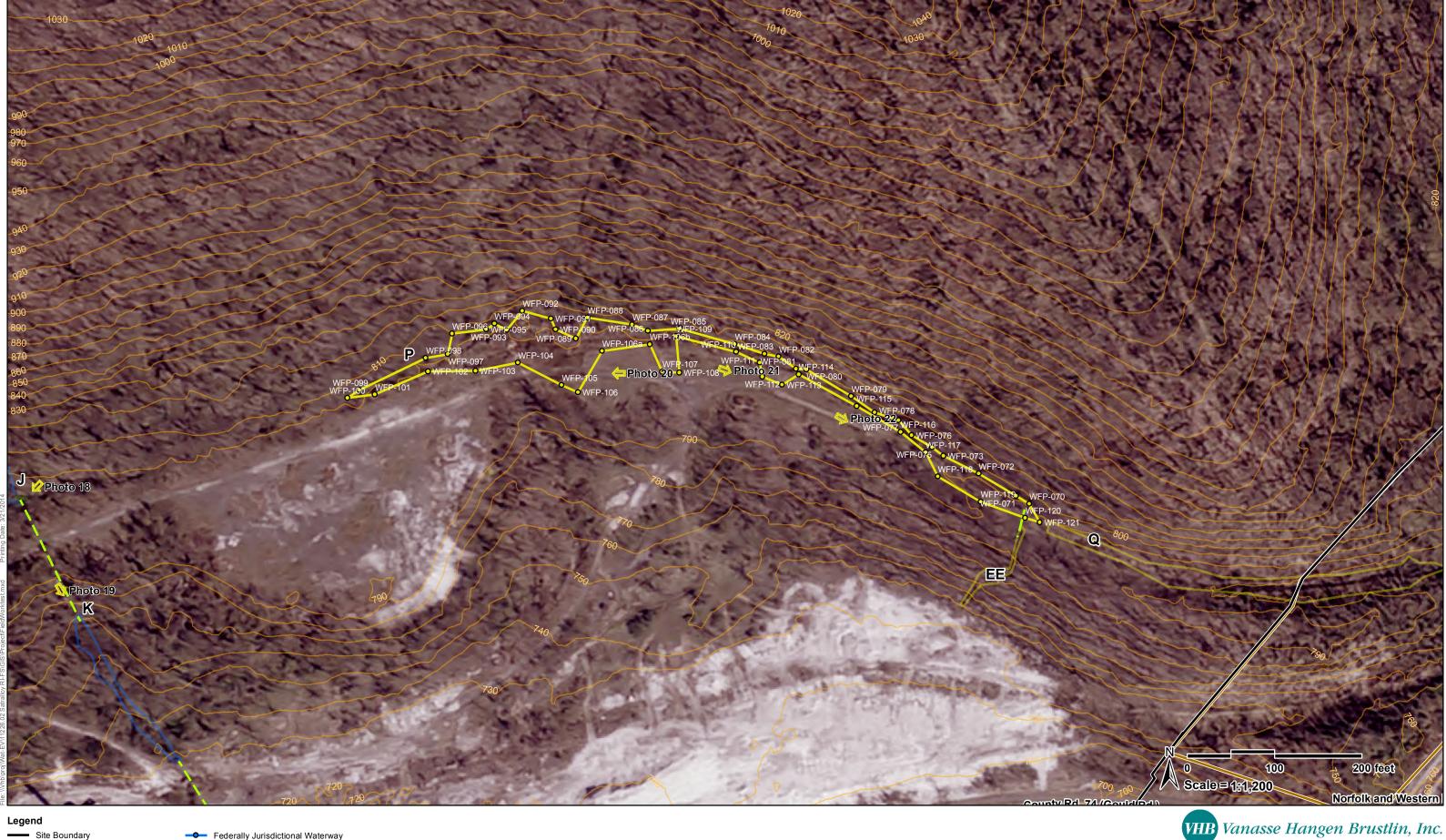
Culvert/Hydrologic Connection

—O Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 10 Former Satralloy Site Wetland K



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour Photo Location and Direction Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection -O Isolated Wetland

Figure 11 Former Satralloy Site Wetland P



Site Boundary Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection —O Isolated Wetland

VHB Vanasse Hangen Brustlin, Inc.

Figure 12 Former Satralloy Site Wetland Q



Site Boundary

Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour Photo Location and Direction Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

—O Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 13 Former Satralloy Site Wetland EE (not redelineated)



Site Boundary

Additional Project Area (Wheeling and Lake Erie Property)

Elevation Contour

Photo Location and Direction

Federally Jurisdictional Waterway

■ • Federal Waterway (Estimated Boundary)

Federally Jurisdictional Wetland

Culvert/Hydrologic Connection

-O Isolated Wetland



VHB Vanasse Hangen Brustlin, Inc.

Figure 14 Former Satralloy Site Wetland YY

Appendix C USACE Wetland Data Forms

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

Project/Site: Former Satralio	Oject/Site: Former Satratioy Site City/County: Mingo Junction/Jeπerson Sampling Date: 4/26/2012								
Applicant/Owner: Cyprus A	max Minerals	s Company				Sampling Point: WF-D			
Investigator(s): KK, CW				ection, Township, Range: Ci					
Landform (hillslope, terrace, e		rbed/develo _l	•	relief (concave, convex, non	· -	Slope (%):			
Subregion (LRR or MLRA):	LRR N		Lat: 80.6701° W	Long: <u>40</u>	.3084° N	Datum: NAD 1983			
	orthents, loan	-			NWI classification: N				
Are climatic / hydrologic cond			•	Yes X No		n in Remarks.)			
		_	X significantly disturbed		•	Yes No_X_			
Are Vegetation, So	il , or	Hydrology_	naturally problematic	? (If needed, explain a	any answers in Remark	(s.)			
CUMMADV OF FINDIN	ICC Attac	L cito mo	hawing complin		to important	factures sto			
SUMMARY OF FINDIN	GS - Allac	n site ilia	p snowing sampling	g point locations, trai	isects, important	reatures, etc.			
Hydrophytic Vegetation Pre	eant?	Yes	No X	Is the Sampled Area					
Hydric Soil Present?	JCIN:	Yes	No X	Within a Wetland?	Yes	No X			
Wetland Hydrology Present	'n	Yes	No X	If yes, optional Wetland S					
Welland Hydrology Fresent	ſ	169	NU	II yes, optional wetiand o	ще ID				
Remarks: (Explain alternative procedures here or in a separate report.) Highly disturbed area adjacent to site buildings. Drainageway receives water from Wetland E and discharges under County Rd. 74 to Cross Creek. See Appendix B, Figures 2, 4; Appendix D, Photos 4-5.									
HYDROLOGY Wetland Hydrology Indica	· tara				Soconary Indicatory	o (minimum of two required)			
Wetland Hydrology Indica		······································	II that analy)			rs (minimum of two required)			
Primary Indicators (minimur	n of one is rec	µured; спеск		(5.4.4)	Surface Soil	\ '			
Surface Water (A1)		_	True Aquatic Plants (getated Concave Surface (B8)			
High Water Table (A2)	_	Hydrogen Sulfide Od	,	Drainage Pat				
Saturation (A3)		_		res on Living Roots (C3)	Moss Trim Li	,			
Water Marks (B1)		_	Presence of Reduce	, ,		Water Table (C2)			
Sediment Deposits (B	2)	_		on in Tilled Soils (C6)	Crayfish Buri	` '			
Drift Deposits (B3)		_	Thin Muck Surface (0	•		sible on Aerial Imagery (C9)			
Algal Mat or Crust (B4	1)	_	Other (Explain in Rer	marks)		tressed Plants (D1)			
Iron Deposits (B5)						Position (D2)			
Inundation Visible on		y (B7)			Shallow Aqui				
Water Stained Leaves	3 (B9)					phic Relief (D4)			
Aquatic Fauna (B13)					FAC-Neutral	Test (D5)			
Field Observations:									
Surface Water Present?	Yes	No X	Depth (inches):						
Water Table Present?	Yes	No X	Depth (inches):						
Saturation Present? (includes capillary fringe)	Yes	No <u>X</u>	Depth (inches):	Wetland Hyd	rology Present?	Yes No <u>X</u>			
Describe Recorded Data (st	tream gauge,	monitoring w	vell, aerial photos, previous	s inspections), if available:					
•		· ·							
Remarks:									

Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1. none					Are OBL, FACW, or FAC: 0 (A)
2.					Total Number of Dominant Species
3.					Across All Strata: 3 (B)
4.					Percent of Dominant Species That
5.					Are OBL, FACW, or FAC: 0.0% (A/B)
6.					``,
7.					Prevalence Index worksheet:
		0	= Total Cov	ver	Total % Cover of: Multiply by:
					OBL species $0 \times 1 = 0$
Sapling/Shrub Stratum	(Plot size: 15' radius)				FACW species 0 x 2 = 0
tartarian honeysuckle		38	yes	FACU	FAC species 0 x 3 = 0
2. rubus	Rubus sp.	10.5	yes	NI	FACU species 59 x 4 = 236
3.	<u> </u>				UPL species 0 x 5 = 0
4.					Column Totals: 59 (A) 236 (B)
5.					
6.					Prevalence Index = B/A = 4.00
7.					
		48.5	= Total Cov	ver	Hydrophytic Vegetation Indicators:
					Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size:	5' radius)				Dominance Test is >50%
1. upland grass	Gramineae sp.	38	yes	NI	Prevalence Index is ≤ 3.0 ¹
2. yarrow	Achillea millefolium	10.5	no	FACU	Morphological Adaptations ¹ (Provide supporting data
3. bull thistle	Cirsium vulgare	10.5	no	FACU	in Remarks or on a separate sheet)
4.	Olloidili Valgaio	10.0	110	17.00	Problematic Hydrophytic Vegetation ¹ (Explain)
5.					Flobicitiatic Hydrophytic vegetation (Explain)
6.					¹ Indicators of hydric soil and wetland hydrology must be
7.					present, unless disturbed or problematic.
8.					processing amount and an processing and
<u> </u>					Definitions of Vegetation Strata:
10					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11					breast height (DBH), regardless of height.
12.					Sapling/Shrub - Woody plants less than 3 in. DBH and
12.		59	= Total Cov	vor	greater than 3.28 ft (1 m) tall.
			- 10tai C0	VCI	Herb - All herbaceous (non-woody) plants, regardless of
Woody Vine Stratum	(Plot size:				size, and woody plants less than 3.28 ft tall.
1. none	(FIOU SIZE)				Woody vines - All woody vines greater than 3.28 ft in
2. Hone					height.
2.					noight.
3.					
4.			- Total Co		Hydrophytic
			= Total Cov	vei	Vegetation
					Present? Yes NoX
Describes (leaded a describe to a			<u> </u>		
Remarks: (Include photo nu	impers nere or on a sepa	arate sneet.))		

SOIL Upgradient Sampling Point: WF-D

Profile De	scription: (Describe	to the dep	th needed to docu	ment the ir	ndicator o	r confirm	the abse	nce of indicators.)			
Depth	Matrix		Re	dox Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Rema	rks		
0-12+			, ,					gravelly fill			
12-15+	10YR 4/4	50						half fill,			
								half C Horizon			
	1							-			
									-		
							· 				
¹ Type: C=0	Concentration, D=De	pletion, RM=	Redox Matrix, CS=	Covered or	Coated S	and Grain	S.	² Location: PL=Pore Lir	ning, M-Matrix.		
Hydric So	il Indicators:						Indicato	rs for Problematic Hyd	Iric Soils ³ :		
-	ol (A1)		Dark Surface (S7)				n Muck (A10) (MLRA 14			
	Epipedon (A2)		Polyvalue Belo		(S8) (MLR	A 147, 14		st Prairie Redox (A16)	- /		
	Histic (A3)		Thin Dark Surfa					RA 147, 148)			
	gen Sulfide (A4)		Loamy Gleyed		-,		Imont Floodplain Soils (F	- 19)			
	ied Layers (A5)		Depleted Matri				(MLRA 136, 147)				
	Muck (A10) (LRR N)		Redox Dark Su					Parent Material (TF2)			
	ted Below Dark Surfa	ace (A11)	Depleted Dark	, ,			/ Shallow Dark Surface (TF12)			
	Dark Surface (A12)	,	Redox Depress		,		Other (Explain in Remarks)				
	Mucky Mineral (S1)	(I RR N	Iron-Manganes		(F12) (I RE	2 N		- (
	147, 148)	(=::::,	MLRA 136)	o maccoc ,	(· · -) (=· ·	,					
	Gleyed Matrix (S4)		Umbric Surface	e (F13) (ML	RA 136.1	22)					
	Redox (S5)		Piedmont Floor								
	ed Matrix (S6)			ap.a 00	(i i o) (iii-	³ Indicators of hydrophytic vegetation and we					
	ou maam (oo)						hydrology must be present, unless disturbed or problematic.				
Restrictive	e Layer (if observed	l):					•				
Type:		,									
	(inches):			•	Hydric S	oil Prese	nt?	Yes	No X		
	(•	, , , , , ,						
Remarks:					<u> </u>						

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

Project/Site: Former Satralloy	Site		City/County	: Mingo Junction/Jefferson		Sampling Date: 4/26/	/2012	
Applicant/Owner: Cyprus Am	ax Minerals Co	mpany		State	: <u>OH</u>	Sampling Point: WF-I	D	
Investigator(s): KK, CW			Se	ection, Township, Range: Cros	ss Creek			
Landform (hillslope, terrace, etc	c.): disturbed	/develope	d Local r	relief (concave, convex, none)	concave	Slope (%):		
, ,	LRR N		Lat: 80.6701° W	Long: 40.3		Datum: NAD	1983	
	hents, loamy				NWI classification	n: PEM		
Are climatic / hydrologic conditi	ons on the site t	ypical for th	nis time of year?	Yes X No	_ (If no, exp	olain in Remarks.)		
Are Vegetation X, Soil	X , or Hyd	Irology X	significantly disturbed		•		<u> </u>	
Are Vegetation, Soil	, or Hyd	drology	naturally problematic?	(If needed, explain any	y answers in Ren	narks.)		
SHIMMADY OF EINDING	C Attach o	ito man	chowing compling	noint locations trans	aata impart	ant footures ats		
SUMMARY OF FINDING	33 - Allacii S	пе шар	Snowing Sampling	point locations, trans	ecis, importa	int leatures, etc.		
Hydrophytic Vegetation Prese	ent? Yes	s X	No	Is the Sampled Area				
Hydric Soil Present?	Yes	s X	No	Within a Wetland?	Yes	X No		
Wetland Hydrology Present?	Yes	s X	No	If yes, optional Wetland Site	ID:			
, 0,								
Remarks: (Explain alternative procedures here or in a separate report.) Highly disturbed area adjacent to site buildings. Drainageway receives water from Wetland E and discharges under County Rd. 74 to Cross Creek. See Appendix B, Figures 2, 4; Appendix D, Photos 4, 5.								
HYDROLOGY								
Wetland Hydrology Indicate	ors:				Seconary Indica	ators (minimum of two red	quired)	
Primary Indicators (minimum	of one is require	d; check al	I that apply)			Soil Cracks (B6)		
X Surface Water (A1)			True Aquatic Plants (E	314)	Sparsely	Vegetated Concave Surfa	ace (B8)	
X High Water Table (A2)			Hydrogen Sulfide Odo	or (C1)	Drainage	Patterns (B10)		
X Saturation (A3)			Oxidized Rhizosphere	es on Living Roots (C3)	Moss Trin	n Lines (B16)		
Water Marks (B1)			Presence of Reduced	Iron (C4)	Dry-Seas	on Water Table (C2)		
Sediment Deposits (B2))		Recent Iron Reduction	n in Tilled Soils (C6)	Crayfish I	Burrows (C8)		
Drift Deposits (B3)			Thin Muck Surface (C	7)	Saturation	n Visible on Aerial Image	ry (C9)	
Algal Mat or Crust (B4)		<u>-</u>	Other (Explain in Rem	narks)	Stunted o	r Stressed Plants (D1)		
Iron Deposits (B5)			_		X Geomorp	hic Position (D2)		
Inundation Visible on A	erial Imagery (B7	7)			Shallow A	Aquitard (D3)		
Water Stained Leaves (B9)				Microtopo	graphic Relief (D4)		
Aquatic Fauna (B13)					FAC-Neu	tral Test (D5)		
Field Observations:						· · ·		
Surface Water Present?	Yes X No)	Depth (inches):	6				
Water Table Present?	Yes X No		Depth (inches):	0				
Saturation Present?	Yes X No		Depth (inches):	0 Wetland Hydro	logy Present?	Yes X No)	
(includes capillary fringe)								
Describe Recorded Data (stre	eam gauge mon	itoring well	aerial photos previous	inspections) if available:				
(gg.,		, шене ринене, ринене	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Damada								
Remarks:								

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	e Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1.	red maple	Acer rubrum	10.5	yes	FAC*	Are OBL, FACW, or FAC: 3 (A)
2.						Total Number of Dominant Species
3.						Across All Strata: 3 (B)
4.						Percent of Dominant Species That Are OBL, FACW, or FAC: 100 00% (A/B)
5.						Are OBL, FACW, or FAC: 100.00% (A/B)
6. 7						Prevalence Index worksheet:
7.			10.5	= Total Cov		Total % Cover of: Multiply by:
			10.5	= 10tai 00t	vei	OBL species 76.5 x 1 = 76.5
Sar	oling/Shrub Stratum ((Plot size: 15' radius)				FACW species $10.5 \times 2 = 21$
1.	black willow	Salix nigra	10.5	ves	FACW*	FAC species 10.5 x 3 = 31.5
2.)		FACU species 0 x 4 = 0
3.						UPL species 0 x 5 = 0
4.						Column Totals: 97.5 (A) 129 (B)
5.						
6.						Prevalence Index = B/A =1.32
7.						
			10.5	= Total Cov	ver	Hydrophytic Vegetation Indicators:
						Rapid Test for Hydrophytic Vegetation
	rb Stratum (Plot size:					X Dominance Test is >50%
1.	narrow-leaf cattail	Typha angustifolia		yes	OBL*	X Prevalence Index is ≤ 3.0 ¹
2.	water plantain	Alisma subcordatum		no	OBL*	Morphological Adaptations ¹ (Provide supporting data
3.	duckweed	Lemna sp.	3	no	OBL*	in Remarks or on a separate sheet)
4.						Problematic Hydrophytic Vegetation ¹ (Explain)
5.						1
6.						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. 8.						present, unless disturbed of problematic.
9.						Definitions of Vegetation Strata:
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.						breast height (DBH), regardless of height.
12.						Sapling/Shrub - Woody plants less than 3 in. DBH and
			76.5	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
						Herb - All herbaceous (non-woody) plants, regardless of
Wo	ody Vine Stratum ((Plot size:)				size, and woody plants less than 3.28 ft tall.
1.	none					Woody vines - All woody vines greater than 3.28 ft in
2.						height.
3.						
4.						Hydrophytic
			0	= Total Cov	ver	Vegetation
						Present? Yes X No
						
Rei	marks: (Include photo nu	imbers here or on a sep	arate sneet.))		

SOIL Downgradient Sampling Point: WF-D

Profile De	scription: (Describe	to the depti	n needed to docur	nent the ir	ndicator o	r confirm	the abse	nce of indicators.)			
Depth	Matrix		Re	edox Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remark	KS		
0-15+	Gley 4/5G_/1							infiltrated sandy			
								silt			
								-	-		
				. ——							
				. ——							
				. ——							
				. ——							
	·										
¹ Type: C=0	Concentration, D=Dep	letion, RM=F	Redox Matrix, CS=0	Covered or	Coated S	and Grain	S.	² Location: PL=Pore Lini	ng, M-Matrix.		
Hydric So	il Indicators:						Indicato	rs for Problematic Hydr	ic Soils ³ :		
-	sol (A1)		Dark Surface (S	S7)				n Muck (A10) (MLRA 147			
	Epipedon (A2)	_	Polyvalue Belo		(S8) (MLR	A 147, 14		st Prairie Redox (A16)	,		
	Histic (A3)	_	Thin Dark Surfa				_	RA 147, 148)			
	gen Sulfide (A4)	_	Loamy Gleyed			,		lmont Floodplain Soils (F	19)		
	ied Layers (A5)	_	Depleted Matrix				(MLRA 136, 147)				
	Muck (A10) (LRR N)	_	Redox Dark Su				Red Parent Material (TF2)				
	ted Below Dark Surfac	:e (A11)	Depleted Dark	` '	7)			/ Shallow Dark Surface (T	F12)		
	Dark Surface (A12)	_	Redox Depress		• /			er (Explain in Remarks)	,		
	/ Mucky Mineral (S1) (I	I DD N	Iron-Manganes		(E12) (I DE	N		o. (=/.p.a : toao)			
	147, 148)	_KK N, _	MLRA 136)	e masses (,i 12) (LIXI	\ 14 ,					
	Gleyed Matrix (S4)		Umbric Surface	(F13) (M I	RΔ 136 1	22)					
	Redox (S5)	-	Piedmont Floor								
	ed Matrix (S6)	-		apiaii oolis	(1 13) (IVIL	-1140)	31				
	ed Matrix (00)							rs of hydrophytic vegetati y must be present, unless atic.			
Restrictiv	e Layer (if observed)	:			1						
Type:		•									
	(inches):			Į.	Hydric S	oil Prese	nt?	Yes X	No		
Вори				ı	,	0		<u> </u>			
Remarks:					<u> </u>						

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

City/County: Mingo Junction/Jeπerson Sampling Date: 4/26/2012							
Applicant/Owner: Cyprus A	max Minerals	s Company				Sampling Point: WF-E	
Investigator(s): KK, CW				ection, Township, Range: C	ross Creek		
Landform (hillslope, terrace, e	etc.): distu	rbed/develo	ped Local	relief (concave, convex, nor	ne): concave	Slope (%):	
Subregion (LRR or MLRA):	LRR N		Lat: 80.6718° W	Long: 40	0.3100° N	Datum: NAD 1983	
	rthents, loan	-			NWI classification: N		
Are climatic / hydrologic cond	itions on the s	site typical fo	r this time of year?	Yes X No	(If no, explain	in Remarks.)	
Are Vegetation X, Soi			X significantly disturbed	d? Are "Normal Circum	nstances" present?	Yes No_X_	
Are Vegetation, Soi	.l , or	r Hydrology_	naturally problematic	? (If needed, explain a	any answers in Remark	s.)	
SUMMARY OF FINDIN	GS - Attac	th site ma	ip showing sampling	រូ point locations, trai	nsects, important	features, etc.	
				T			
Hydrophytic Vegetation Pres	sent?	Yes	No	Is the Sampled Area	.,		
Hydric Soil Present?	_	Yes	No X	Within a Wetland?	Yes	No <u>X</u>	
Wetland Hydrology Present	?	Yes	No <u>X</u>	If yes, optional Wetland S	Site ID:		
Remarks: (Explain alternati Highly disturbed depression concrete slab and into the w	al area adjac	ent to site bu	ildings, concrete pad. Wa			e down a retaining wall, across a otos 6-7.	
	ottaria, triori c	alconargeo te	o vvolana b unough a out	ort. Coo reportaix B, rigare	50 2, 0, Appondix B, 1 11	0.00 0 7.	
HVDDOL OCV							
HYDROLOGY							
Wetland Hydrology Indica	tors:				Seconary Indicator	s (minimum of two required)	
Primary Indicators (minimun		auired: checl	(all that apply)		Surface Soil (
,	i oi one is rec	quireu, criecr		'D14\		letated Concave Surface (B8)	
Surface Water (A1)	`	-	True Aquatic Plants (•			
High Water Table (A2))	-	Hydrogen Sulfide Od	` '	Drainage Pat	·	
Saturation (A3)		-		es on Living Roots (C3)	Moss Trim Li	, ,	
Water Marks (B1)		-	Presence of Reduced	` '		Water Table (C2)	
Sediment Deposits (B	2)	-	Recent Iron Reductio		Crayfish Burr	` '	
Drift Deposits (B3)		-	Thin Muck Surface (0	•		sible on Aerial Imagery (C9)	
Algal Mat or Crust (B4	.)	_	Other (Explain in Rer	narks)		ressed Plants (D1)	
Iron Deposits (B5)					Geomorphic	Position (D2)	
Inundation Visible on A	Aerial Imager	y (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	No X	Depth (inches):				
Water Table Present?	Yes	No X	Depth (inches):				
Saturation Present?	Yes	No X	Depth (inches):	Wetland Hyd	Irology Present?	Yes No_X_	
(includes capillary fringe)							
Describe Recorded Data (st	ream gauge,	monitoring w	vell, aerial photos, previous	inspections), if available:			
Remarks:							

Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1. none					Are OBL, FACW, or FAC:1 (A)
2.					Total Number of Dominant Species
3.					Across All Strata: 6 (B)
4.					Percent of Dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)
5.					Are OBL, FACW, or FAC: 16.7% (A/B)
6.					Prevalence Index worksheet:
7			= Total Cov	··or	Total % Cover of: Multiply by:
			- Total 00	VEI	OBL species 0 x 1 = 0
Sapling/Shrub Stratum	(Plot size: 15' radius)				FACW species 20.5 x 2 = 41
1. black willow	Salix nigra	20.5	yes	FACW*	FAC species 0 x 3 = 0
multiflora rose	Rosa multiflora	10.5	yes	FACU	FACU species 42 x 4 = 168
tartarian honeysuckle	Lonicera tatarica	10.5	yes	FACU	UPL species 0 x 5 = 0
4.			<u> </u>		Column Totals: 62.5 (A) 209 (B)
5.					
6.					Prevalence Index = B/A = 3.34
7.					
		41.5	= Total Cov	ver	Hydrophytic Vegetation Indicators:
					Rapid Test for Hydrophytic Vegetation
	5' radius)				Dominance Test is >50%
black swallow-wort	Cynanchum nigrum	20.5	<u> </u>	NI	Prevalence Index is ≤ 3.0 ¹
2. yarrow	Achillea millefolium	10.5	yes	FACU	Morphological Adaptations ¹ (Provide supporting data
3. Canada goldenrod	Solidago canadensis	10.5	yes	FACU	in Remarks or on a separate sheet)
4. 5.					Problematic Hydrophytic Vegetation ¹ (Explain)
6.					¹ Indicators of hydric soil and wetland hydrology must be
7.					present, unless disturbed or problematic.
8.					process, among another set processing as
9.					Definitions of Vegetation Strata:
10.					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.					breast height (DBH), regardless of height.
12.					Sapling/Shrub - Woody plants less than 3 in. DBH and
		41.5	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
					Herb - All herbaceous (non-woody) plants, regardless of
Woody Vine Stratum	(Plot size:)				size, and woody plants less than 3.28 ft tall.
1. none					Woody vines - All woody vines greater than 3.28 ft in
2.					height.
3.					
4.			T-1-1-0-		Hydrophytic
			= Total Cov	ver	Vegetation Present? Yes No X
					Present? Yes NoX
Remarks: (Include photo nu	imhers here or on a sen	arate sheet ')		
Nemarks. (molade prioto ne	illipers liere or on a sop	alaic siicci.	,		

SOIL Upgradient Sampling Point: WF-E

Depth	rofile Description: (Describe to the depth needed to document the in epth Matrix Redox Featur						ine absei	nce of indica	เบรร.)		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remar	rks	
)-15+			(ballast, fill			
	-										
	· ·										
	-										
	· ·										
	-										
·	_		_								
Type: C=C	oncentration, D=Deple	etion, RM=	Redox Matrix, CS=0	Covered or	Coated S	and Grain	S.	² Location: P	L=Pore Lin	ning, M-Matrix.	
lydric Soil	Indicators:						Indicato	rs for Proble	matic Hyd	ric Soils³:	
Histoso	l (A1)	_	Dark Surface (S	,				n Muck (A10)	(MLRA 14	7)	
Histic E	pipedon (A2)	_	Polyvalue Belov				8) Coa	st Prairie Red	ox (A16)		
	listic (A3)	_	Thin Dark Surfa	. , .	RA 147, 148)						
	en Sulfide (A4)	-	Loamy Gleyed)		Piedmont Floodplain Soils (F19)				
	d Layers (A5)	_	Depleted Matrix				(MLRA 136, 147)				
	uck (A10) (LRR N)	_	Redox Dark Su	` '				Parent Mater			
	d Below Dark Surface	e (A11)	Depleted Dark	7)		/ Shallow Darl		TF12)			
	ark Surface (A12)	_	Redox Depress				Othe	er (Explain in l	Remarks)		
	Mucky Mineral (S1) (L	.RR N,	Iron-Manganes	e Masses ((F12) (LRF	R N,					
	147, 148)		MLRA 136)	(E40) (BB)	DA 400 4						
	Gleyed Matrix (S4)	-	Umbric Surface								
	Redox (S5)	-	Piedmont Flood	ipiain Solis	6 (F19) (IVII	-RA 148)	3				
Strippe	d Matrix (S6)									tion and wetlan	
							problema		sent, unles	ss disturbed or	
Restrictive	Layer (if observed):						probleme				
Type:	, (,										
• • •	inches):				Hydric S	oil Prese	nt?	Yes		No	
. `	,							_			
Remarks:											

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

Project/Site: Former Satralloy Site	City/County: Mingo J	unction/Jefferson	Sampling Date: 4/26/2012			
Applicant/Owner: Cyprus Amax Minerals Company		State: OH	Sampling Point: WF-E			
Investigator(s): KK, CW	Section, Tow	nship, Range: Cross Creek				
Landform (hillslope, terrace, etc.): disturbed/developed	Local relief (cond	cave, convex, none): concave	Slope (%):			
Subregion (LRR or MLRA): LRR N	Lat: 80.6698° W	Long: 40.3119° N	Datum: NAD 1983			
Soil Map Unit Name: Udorthents, loamy		NWI classification	n: PEM			
Are climatic / hydrologic conditions on the site typical for th	is time of year? Yes	X No (If no, ex	plain in Remarks.)			
Are Vegetation X, Soil X, or Hydrology X	significantly disturbed? Ar	e "Normal Circumstances" present?	Yes No_ X _			
Are Vegetation , Soil , or Hydrology	naturally problematic? (If	needed, explain any answers in Rer	marks.)			
_	_					
SUMMARY OF FINDINGS - Attach site map	showing sampling point le	ocations, transects, importa	ant features, etc.			
Hydrophytic Vegetation Present? Yes X	No Is the Sa	ampled Area				
Hydric Soil Present? Yes X	No Within a	a Wetland? Yes	No			
Wetland Hydrology Present? Yes X	No If yes, or	ptional Wetland Site ID:				
Remarks: (Explain alternative procedures here or in a se	parate report.)					
Highly disturbed depressional area adjacent to site building						
concrete slab and into the wetland, then discharges to W	etland D through a culvert. See A	ppendix B, Figures 2, 5; Appendix D	, Photos 6-7.			
HYDROLOGY						
IIIDROLOGI						
Wetland Hydrology Indicators:		Seconary Indic	ators (minimum of two required)			
	(that apply)		Soil Cracks (B6)			
Primary Indicators (minimum of one is required; check all	,		, ,			
X Surface Water (A1)	True Aquatic Plants (B14)		Vegetated Concave Surface (B8)			
<u> </u>	_ Hydrogen Sulfide Odor (C1)		Patterns (B10)			
X Saturation (A3)	Oxidized Rhizospheres on Living	g Roots (C3)Moss Trir	m Lines (B16)			
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Seas	son Water Table (C2)			
Sediment Deposits (B2)	Recent Iron Reduction in Tilled	Soils (C6) Crayfish	Burrows (C8)			
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturatio	n Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted of	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)	_		phic Position (D2)			
Inundation Visible on Aerial Imagery (B7)		·	Aquitard (D3)			
Water Stained Leaves (B9)			ographic Relief (D4)			
Aguatic Fauna (B13)			utral Test (D5)			
Field Observations:		T AC-Neu	itiai Test (D3)			
	Double (inches).					
Surface Water Present? Yes X No	Depth (inches): 18					
Water Table Present? Yes X No	Depth (inches): 0					
Saturation Present? Yes X No No	Depth (inches): 0	Wetland Hydrology Present?	Yes X No			
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous inspection	ıs), if available:				
Remarks:						

Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:		% Cover	Species?	Status	Number of Dominant Species That
1. none					Are OBL, FACW, or FAC: <u>2</u> (A)
2.					Total Number of Dominant Species
3.					Across All Strata: 2 (B)
4.					Percent of Dominant Species That
5.					Are OBL, FACW, or FAC: 100.00% (A/B)
7			- Total Co		Prevalence Index worksheet: Total % Cover of: Multiply by:
			= Total Cov	/ei	Total % Cover of: Multiply by: OBL species 48.5 x 1 = 48.5
Sapling/Shrub Stratum ((Plot size: 15' radius)				FACW species 20.5 x 2 = 41
1. black willow	Salix nigra	20.5	ves	FACW*	FAC species 0 x 3 = 0
2.	<u> </u>		<i>J</i>		FACU species 0 x 4 = 0
3.					UPL species 0 x 5 = 0
4.					Column Totals: 69 (A) 89.5 (B)
5.					
6.					Prevalence Index = B/A = 1.30
7					
		20.5	= Total Cov	/er	Hydrophytic Vegetation Indicators:
(Diet eine					X Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size:		20		○ DI *	X Dominance Test is >50% X Prevalence Index is ≤ 3.0¹
carex folliculata horsetail	Carex folliculata Equisetum sp.	10.5	yes no	OBL*	
water plantain	Alisma subcordatum	10.5	no	OBL*	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4.	Alisma subcordatum	10.0	110	ODL	Problematic Hydrophytic Vegetation ¹ (Explain)
5.					Flobicinatic Hydrophytic vegetation (Explain)
6.					¹ Indicators of hydric soil and wetland hydrology must be
7.					present, unless disturbed or problematic.
8.					
9.					Definitions of Vegetation Strata:
10					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11					breast height (DBH), regardless of height.
12					Sapling/Shrub - Woody plants less than 3 in. DBH and
		59	= Total Cov	/er	greater than 3.28 ft (1 m) tall.
NA - J. M Observer	(D) (-!)				Herb - All herbaceous (non-woody) plants, regardless of
	(Plot size:)				size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in
1. none					woody vines - All woody vines greater than 3.28 π in height.
3.					neight.
4.					Hydrophytic
		0	= Total Cov	ver	Vegetation
					Present? Yes X No
Remarks: (Include photo nu	imbers here or on a sep	arate sheet.))		

SOIL Downgradient Sampling Point: WF-E

Profile Do	escription: (Describe Matrix	to the dept	th needed to document the indicator or confirm the absence of indicators.) Redox Features									
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks			
0-12+	2.5Y 4/2		Color (molot)		-76-		Toxtaro	infiltrated silt	rtomanto			
	<u> </u>											
								-				
								-				
								-				
								-				
	<u> </u>											
Type: C=	-Concentration, D=Dep	letion, RM=	Redox Matrix, CS=	Covered or	Coated S	and Grair	ıs.	² Location: PL=	Pore Lining	, M-Matrix.		
lydric So	oil Indicators:						Indicato	rs for Problem	atic Hydric	Soils ³ :		
Histo	osol (A1)	-	Dark Surface (n Muck (A10) (N				
Histic	c Epipedon (A2)	-	Polyvalue Belo	w Surface	(S8) (MLR	A 147, 14	1 8) Coa	Coast Prairie Redox (A16)				
	k Histic (A3)		Thin Dark Surfa			(MLRA 147, 148)						
	ogen Sulfide (A4)		Loamy Gleyed)		Piedmont Floodplain Soils (F19)					
Stratified Layers (A5)			Depleted Matrix	x (F3)		(MLRA 136, 147)						
	Muck (A10) (LRR N)	-	Redox Dark Surface (F6)					Red Parent Material (TF2)				
	eted Below Dark Surfac	e (A11)	Depleted Dark		7)	Very Shallow Dark Surface (TF12)						
Thick	Control (A12)	-	Redox Depress	sions (F8)		Other (Explain in Remarks)						
	dy Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,									
	A 147, 148)		MLRA 136)									
	ly Gleyed Matrix (S4)	-	Umbric Surface									
	ly Redox (S5)	_	Piedmont Floor	dplain Soils	(F19) (ML	_RA 148)						
Stripp	ped Matrix (S6)			³ Indicators of hydrophytic vegetation								
							hydrology must be present, unless disturbed or					
					T		problema	atic.				
Restrictiv	ve Layer (if observed)	:										
Type	:			ı								
Deptl	h (inches):			•	Hydric S	oil Prese	ent? Yes <u>X</u> No					
Remarks:	:											

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

Project/Site: Former Satrall	oy Site		City/Coun	City/County: Mingo/Jefferson Sampling Date: 4/26/20						
Applicant/Owner: Cyprus A	max Minera	Ils Company		State:	ОН	Sampling Point: WF-F				
nvestigator(s): KK, CW			S	Section, Township, Range: <u>Cros</u>	s Creek					
_andform (hillslope, terrace,	etc.): hills	lope	Local	I relief (concave, convex, none):	concave	Slope (%):				
Subregion (LRR or MLRA):	LRR N		Lat: 80.6740° W	Long: 40.3 °		Datum: NAD 1983				
	orthents, loa				IWI classification:					
Are climatic / hydrologic cond			•	Yes X No	(If no, expla	in in Remarks.)				
Are Vegetation, So			x significantly disturbe		inces" present?	Yes No_X_				
Are Vegetation, So	il, c	or Hydrology	X naturally problematic	c? (If needed, explain any	answers in Remai	rks.)				
SUMMARY OF FINDIN	IGS - Atta	ch site mar	showing samplin	g point locations, trans	ects, importan	t features, etc.				
Hydrophytic Vegetation Pre	sent?	Yes	NoX	Is the Sampled Area						
Hydric Soil Present?		Yes	No X	Within a Wetland?	Yes	NoX				
Wetland Hydrology Present	?	Yes	No	If yes, optional Wetland Site	ID:					
sedimentation over time fro immediately around the see area of the channel, which	m unconsolice p lacks a pre	dated material o	on the pile. This area als wetland vegetation or hy	so receives water from a small g	roundwater breako Wetland F-98 UG)	is just above the edge of the lowest				
HYDROLOGY Wetland Hydrology Indica	ntors:				Seconary Indicato	ors (minimum of two required)				
Primary Indicators (minimum		equired; check	all that apply)			Cracks (B6)				
Surface Water (A1)		- 4	True Aquatic Plants	(R14)		egetated Concave Surface (B8)				
High Water Table (A2	' \		Hydrogen Sulfide Oc		Drainage Patterns (B10)					
Saturation (A3)	•)			` '						
Water Marks (B1)			Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Moss Trim Lines (B16) Dry-Season Water Table (C2)							
	20)		Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8)							
Sediment Deposits (B	12)									
Drift Deposits (B3)	41		Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Other (Explain in Percentage) Structed or Streeged Plants (D1)							
Algal Mat or Crust (B4	+)	_	Other (Explain in Remarks) Stunted or Stressed Plants (D1)							
Iron Deposits (B5)	^ ==i=l lmage	····· (DZ)				Position (D2)				
Inundation Visible on	_	ry (B/)			Shallow Aqu					
Water Stained Leaves	3 (BA)					aphic Relief (D4)				
Aquatic Fauna (B13)					FAC-Neutra	I Test (D5)				
Field Observations:	.,		5 4 6 1 3							
Surface Water Present?	Yes	NoX	Depth (inches):							
Water Table Present?	Yes	No X	Depth (inches):		B 10	Was No W				
Saturation Present? (includes capillary fringe)	Yes	NoX	Depth (inches):	Wetland Hydrol	ogy Present?	Yes No_X_				
Describe Recorded Data (s	tream gauge	e. monitoring we	ell, aerial photos, previou	s inspections), if available:						
(-	99-	, .	,, p	F						
Remarks:										
ixciliaiks.										

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	e Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1.	red maple	Acer rubrum	38	yes	FAC*	Are OBL, FACW, or FAC: 2 (A)
2.	black birch	Betula lenta	20.5	yes	FACU	Total Number of Dominant Species
3.	American sycamore	Platanus occidentalis	10.5	no	FACW*	Across All Strata: 6 (B)
4.	American elm	Ulmus americana	10.5	no	FACW*	Percent of Dominant Species That
5.	common hackberry	Celtis occidentalis	3	no	FACU	Are OBL, FACW, or FAC: 33.3% (A/B)
6.						
7.						Prevalence Index worksheet:
			82.5	= Total Co	ver	Total % Cover of: Multiply by:
						OBL species $0 \times 1 = 0$
Sa	oling/Shrub Stratum	(Plot size: 15' radius)				FACW species 21 x 2 = 42
1.	multiflora rose	Rosa multiflora	38	yes	FACU	FAC species 61.5 x 3 = 184.5
2.						FACU species 148 x 4 = 592
3.						UPL species 0 x 5 = 0
4.						Column Totals: 230.5 (A) 818.5 (B)
5.						(,,
6.	(<u> </u>					Prevalence Index = B/A = 3.55
7.						
			38	= Total Co	ver	Hydrophytic Vegetation Indicators:
						Rapid Test for Hydrophytic Vegetation
Hei	rb Stratum (Plot size:	5' radius)				Dominance Test is >50%
1.	garlic mustard	Alliaria petiolata	38	yes	FACU	Prevalence Index is ≤ 3.0 ¹
2.	spreading sandwort	Arenaria lanuginosa	20.5	yes	FAC*	Morphological Adaptations ¹ (Provide supporting data
3.	wild strawberry	Fragaria virginiana	10.5	no	FACU	in Remarks or on a separate sheet)
4.	violet	Viola sp.	3	no	NI	Problematic Hydrophytic Vegetation ¹ (Explain)
5.	bittersweet nightshade		3	no	FAC*	
6.	bittersweet nightshadt	Solarium dalcamara		110	170	¹ Indicators of hydric soil and wetland hydrology must be
7.						present, unless disturbed or problematic.
7. 8.						present, unless disturbed of problematic.
9.						Definitions of Vegetation Strata:
						_
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
11.						
12.			7.5	_ Tatal Ca		Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			75	= Total Co	ver	1 -
10/-	- d- \ <i>I'</i> Ott	(Distains)				Herb - All herbaceous (non-woody) plants, regardless of
		(Plot size:)	20		E4011	size, and woody plants less than 3.28 ft tall.
1.	fox grape	Vitis labrusca	38	yes	FACU	Woody vines - All woody vines greater than 3.28 ft in
2.						height.
3.						
4.						Hydrophytic
			38	= Total Co	ver	Vegetation
						Present? Yes No X
Rei	marks: (Include photo nu	ımbers here or on a sep	arate sheet.))		

SOIL Upgradient Sampling Point: WF-F

Profile De Depth	escription: (Describe Matrix	to the dept	h needed to docur: Re	nce of indicator	rs.)							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks			
0-3	10YR 2/2		oddi (molot)		.) 0		TOXIGIO	A Horizon	silt loam			
3-10	10YR 4/3							Bw1 Horizon	silt loam			
10-15+	10 TR 4/3							Bw2 Horizon		<u> </u>		
10-15+	101R 5/4						. ——	BWZ HOHZOH	silt clay loar	11		
	<u> </u>											
				,								
¹ Type: C=	-Concentration, D=Dep	letion, RM=	Redox Matrix, CS=	Covered or	Coated S	and Grair	ıs.	² Location: PL=	Pore Lining, M	Matrix.		
Hydric So	oil Indicators:						Indicato	rs for Problema	tic Hydric So	ls³:		
-	sol (A1)		Dark Surface (\$	S7)				n Muck (A10) (M	-			
	Epipedon (A2)	-	Polyvalue Belo	,	(S8) (MI R	Δ 147 14						
	Histic (A3)	-	Thin Dark Surfa		. , .		18) Coast Prairie Redox (A16) (MLRA 147, 148)					
	ogen Sulfide (A4)	-	Loamy Gleyed			140)			Soils (E10)			
	-	-	Depleted Matrix	1		Piedmont Floodplain Soils (F19)						
	ified Layers (A5)	-					(MLRA 136, 147)					
	Muck (A10) (LRR N)	- (0.44)	Redox Dark Su	, ,	- /\		Red Parent Material (TF2)					
	eted Below Dark Surfac	œ (A11)	Depleted Dark	/)		Very Shallow Dark Surface (TF12) Other (Explain in Remarks)						
	Dark Surface (A12)	-	Redox Depress			Otne	er (Explain in Re	marks)				
	ly Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,									
	A 147, 148)		MLRA 136)									
	ly Gleyed Matrix (S4)	-	Umbric Surface (F13) (MLRA 136,122)									
	ly Redox (S5)	_	Piedmont Floor	dplain Soils	Soils (F19) (MLRA 148)							
Stripp	ped Matrix (S6)						³ Indicators of hydrophytic vegetation and wetland					
							hydrology must be present, unless disturbed or					
							problema	atic.				
Restrictiv	ve Layer (if observed)	:										
Type	:											
Depth	h (inches):				Hydric S	oil Prese	ent? Yes			No X		
•	`				-				_			
Remarks:												
rtomanto.												

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

Project/Site: Former Satralloy Site		City/County	y: Mingo/Jefferson		Sampling Date: 4/26/2012				
Applicant/Owner: Cyprus Amax Min	erals Company	у		State: OH	Sampling Point: WF-F				
Investigator(s): KK, CW		Se	ection, Township, Range:	Cross Creek					
Landform (hillslope, terrace, etc.): h	illslope	Local	relief (concave, convex, n	one): concave	Slope (%):				
Subregion (LRR or MLRA): LRR N		Lat: 80.6740° W	Long:	40.3134° N	Datum: NAD 1983				
Soil Map Unit Name: Udorthents,	loamy			NWI classification:	PFO				
Are climatic / hydrologic conditions on	the site typical f	for this time of year?	Yes X No	(If no, expla	nin in Remarks.)				
Are Vegetation X, Soil X	, or Hydrology	X significantly disturbed	1? Are "Normal Circulation"	umstances" present?	Yes No X				
Are Vegetation, Soil	, or Hydrology	naturally problematic	? (If needed, explai	n any answers in Rema	rks.)				
SUMMARY OF FINDINGS - A	ttach site m	ap showing sampling	g point locations, tr	ansects, importar	nt features, etc.				
Hydrophytic Vegetation Present?	Yes	X No	Is the Sampled Area						
Hydric Soil Present?	Yes	X No	Within a Wetland?	Yes)	(No				
Wetland Hydrology Present?	Yes	X No	If yes, optional Wetland	I Site ID:					
The entire area lies directly below an sedimentation over time from uncons immediately around the seep lacks a area of the channel, which collects gr	solidated materia predominance	al on the pile. This area also of wetland vegetation or hyd	o receives water from a sn dric soils. This sampling p	nall groundwater breakd oint (Wetland F-98 UG)	out (seep) upgradient; the area is just above the edge of the lowest				
HYDROLOGY									
Wetland Hydrology Indicators:					ors (minimum of two required)				
Primary Indicators (minimum of one i	s required; ched				il Cracks (B6)				
X Surface Water (A1)		True Aquatic Plants (•	X Sparsely Vegetated Concave Surface (B8)					
X High Water Table (A2)		Hydrogen Sulfide Ode	<u> </u>						
X Saturation (A3)			s on Living Roots (C3) Moss Trim Lines (B16)						
Water Marks (B1)		Presence of Reduced	ron (C4) Dry-Season Water Table (C2)						
Sediment Deposits (B2)		Recent Iron Reductio	n in Tilled Soils (C6)	n Tilled Soils (C6) Crayfish Burrows (C8)					
Drift Deposits (B3)		Thin Muck Surface (C	C7)	Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4)		Other (Explain in Ren	Stunted or Stressed Plants (D1)						
Iron Deposits (B5)				c Position (D2)					
Inundation Visible on Aerial Ima	agery (B7)		Shallow Aquitard (D3)						
Water Stained Leaves (B9)				Microtopog	raphic Relief (D4)				
Aquatic Fauna (B13)				FAC-Neutra	al Test (D5)				
Field Observations:									
Surface Water Present? Yes	X No	Depth (inches):	0						
Water Table Present? Yes	X No	Depth (inches):	0						
	X No	Depth (inches):	0 Wetland Hy	ydrology Present?	Yes X No				
(includes capillary fringe)									
Describe Recorded Data (stream gau	uge monitoring	well aerial photos previous	inspections) if available:						
2000.20 1.000.404 24.4 (004 94.6	.ge,eg	wen, dend. photoe, provide	mopostiono), ii arailasio.						
Remarks:									
Remarks.									

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	ee Stratum (Plot size:	30' <u>radius</u>)	% Cover	Species?	Status	Number of Dominant Species That
1.	American elm	Ulmus americana	38	yes	FACW*	Are OBL, FACW, or FAC: 2 (A)
2.	ash-leaf maple	Acer negundo	10.5	no	FAC*	Total Number of Dominant Species
3.	common hackberry	Celtis occidentalis	10.5	no	FACU	Across All Strata: 5 (B)
4.						Percent of Dominant Species That
5.						Are OBL, FACW, or FAC: 40.00% (A/B)
6.						
7.						Prevalence Index worksheet:
			59	= Total Cov	ver	Total % Cover of: Multiply by:
						OBL species 0 x 1 = 0
Sap		(Plot size: 15' radius)				FACW species 58 x 2 = 116
1.	multiflora rose	Rosa multiflora	20	yes	FACU	FAC species 13.5 x 3 = 40.5
2.						FACU species 55.5 x 4 = 222
3.						UPL species 0 x 5 = 0
4.						Column Totals: 127 (A) 378.5 (B)
5.						.]
6.						Prevalence Index = B/A = 2.98
7.						
			20	= Total Cov	ver	Hydrophytic Vegetation Indicators:
						Rapid Test for Hydrophytic Vegetation
Her	rb Stratum (Plot size:	5' radius)				Dominance Test is >50%
1.	sedge	Carex sp.	50	yes	NI	X Prevalence Index is ≤ 3.0 ¹
2.	late goldenrod	Solidago gigantea	20	yes	FACW*	Morphological Adaptations ¹ (Provide supporting data
3.	spring avens	Geum vernum	5	no	FACU	in Remarks or on a separate sheet)
4.	red maple	Acer rubrum	3	no	FAC*	Problematic Hydrophytic Vegetation ¹ (Explain)
5.						
6.						¹ Indicators of hydric soil and wetland hydrology must be
7.						present, unless disturbed or problematic.
8.						
9.						Definitions of Vegetation Strata:
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.						breast height (DBH), regardless of height.
12.						Sapling/Shrub - Woody plants less than 3 in. DBH and
			78	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
						Herb - All herbaceous (non-woody) plants, regardless of
Wo	oody Vine Stratum ((Plot size:)				size, and woody plants less than 3.28 ft tall.
1.	fox grape	Vitis labrusca	20	yes	FACU	Woody vines - All woody vines greater than 3.28 ft in
2.						height.
3.						
4.						Hydrophytic
			20	= Total Cov	ver	Vegetation
						Present? Yes X No
Rer	marks: (Include photo nu	umbers here or on a sep	arate sheet.)		
	•					

SOIL Downgradient Sampling Point: WF-F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Re	dox Featu	res							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks			
0-5	10YR 2/2							A Horizon	mucky r	mineral		
refusal												
								-				
								-				
¹ Type: C=0	Concentration, D=Dep	letion, RM=F	Redox Matrix, CS=	Covered or	Coated Sa	and Grain	S.	² Location: PL	=Pore Lining	ı, M-Matrix.		
Hydric So	il Indicators:						Indicato	rs for Problen	natic Hydric	Soils ³ :		
-	ol (A1)		Dark Surface (S	S7)				n Muck (A10) (-			
	Epipedon (A2)	_	Polyvalue Belo		(S8) (MLR	A 147. 14		st Prairie Redo				
	Histic (A3)	_					_	RA 147, 148)	(,,			
	gen Sulfide (A4)	_	Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2)					lmont Floodpla	in Soils (F19)		
	ed Layers (A5)	_	Depleted Matrix		(MLRA 136, 147)							
	Muck (A10) (LRR N)	_	Redox Dark Surface (F6)					Parent Materia	al (TF2)			
	ted Below Dark Surfac	e (A11)	Depleted Dark	` ,	7)		Very Shallow Dark Surface (TF12)					
	Dark Surface (A12)		Redox Depress		. ,		Other (Explain in Remarks)					
	Mucky Mineral (S1) (I RR N	Iron-Manganese Masses (F12) (LRR N,									
	147, 148)		MLRA 136)									
	Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136,122)									
	Redox (S5)	_	Piedmont Floodplain Soils (F19) (MLRA 148)									
	ed Matrix (S6)	_		apiani oone) (i 10) (iii		³ Indicato	re of bydronby	tic vocatation	and wotland		
	ou maan (00)						hydrolog	Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.				
Restrictive	e Layer (if observed)	:										
	refusal from underlyi											
	(inches):	ng dag pilo	5	5 Hydric Soil Pre			ent? Yes X			No		
Борин	(11100):				riyunc 3011 Fresent!							
Remarks:					<u>.</u>							
1												

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

Project/Site: Former Satralle	oy Site				City/Count	ty: Mingo Ju	nction/Jeffe	rson		Sampling Date:	4/26/2012
Applicant/Owner: Cyprus A	max Minera	Is Comp	any					State: OH		Sampling Point	WF-H (200 series)
Investigator(s): KK, CW					S	ection, Towns	ship, Range:	Cross Cre	ek		
Landform (hillslope, terrace, e	etc.): <u>river</u>	embank	ment		Local	relief (conca	ve, convex, r	none): <u>con</u> d	cave	Slop	oe (%):
Subregion (LRR or MLRA):	LRR N			Lat: 8 (0.6803° W		Long:	40.3051° N			: NAD 1983
	ga silt loam							-	lassification:		
Are climatic / hydrologic cond						Yes X	_			ain in Remarks.)	
					antly disturbed		"Normal Circ	umstances'	" present?	Yes X	No
Are Vegetation, So	il , c	or Hydrolo	ogy	_naturall	ly problematic	:? (If ne	eeded, explai	in any answ	wers in Rema	ırks.)	
SUMMARY OF FINDIN	IGS - Atta	ch site	map s	showin	g samplin	g point lo	cations, tr	ransects	, importar	nt features, e	tc.
Hydrophytic Vegetation Pre	sent?	Yes	Χ	No		Is the Sar	mpled Area				
Hydric Soil Present?		Yes		No	Х	Within a V	Wetland?		Yes	No	<u> </u>
Wetland Hydrology Present	.?	Yes		No	Χ	If yes, opti	ional Wetland	d Site ID:			
Remarks: (Explain alternat											
Embankment of Cross Cree	k, near junct	ion with N	√lcIntyre	Creek. S	See Appendix	: B, Figures 2	, 8; Appendix	∢ D, Photos	: 12-15.		
HYDROLOGY											
Wetland Hydrology Indica								Seco		ors (minimum of t	two required)
Primary Indicators (minimur	n of one is re	equired; c	heck all	that apply	y)				_	il Cracks (B6)	
Surface Water (A1)				True Ac	quatic Plants ((B14)			Sparsely Ve	egetated Concav	e Surface (B8)
High Water Table (A2	.)			Hydrog	en Sulfide Od	lor (C1)				atterns (B10)	
Saturation (A3)				Oxidize	ed Rhizospher	es on Living	Roots (C3)		Moss Trim	Lines (B16)	
Water Marks (B1)				Present	ce of Reduced	d Iron (C4)			Dry-Seasor	n Water Table (C	2)
Sediment Deposits (B	(2)			Recent	Iron Reduction	on in Tilled Sc	oils (C6)		_Crayfish Bu	ırrows (C8)	
Drift Deposits (B3)				Thin Mu	uck Surface (0	C7)			Saturation \	Visible on Aerial I	Imagery (C9)
Algal Mat or Crust (B4	1)			Other (F	Explain in Rer	marks)			Stunted or	Stressed Plants ((D1)
Iron Deposits (B5)									_	c Position (D2)	
Inundation Visible on	Aerial Image	ry (B7)							Shallow Aq	uitard (D3)	
Water Stained Leaves	s (B9)								_ Microtopog	raphic Relief (D4)
Aquatic Fauna (B13)									FAC-Neutra	al Test (D5)	
Field Observations:											
Surface Water Present?	Yes	No_2			(inches):						
Water Table Present?	Yes	No_2	X	Depth	(inches):						
Saturation Present? (includes capillary fringe)	Yes	_ No	<u>x</u>	Depth	(inches):		Wetland H	lydrology F	Present?	Yes	No X
Describe Recorded Data (s	tream gauge,	, monitori	ng well,	aerial pho	otos, previous	s inspections)), if available:	:			
Remarks:											
romano.											

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	e Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1.	American sycamore	Platanus occidentalis	63	yes	FACW*	Are OBL, FACW, or FAC:1 (A)
2.						Total Number of Dominant Species
3.						Across All Strata: 4 (B)
4.						Percent of Dominant Species That
5.						Are OBL, FACW, or FAC: 25.0% (A/B)
6.						
7.						Prevalence Index worksheet:
			63	= Total Cov	ver	Total % Cover of: Multiply by:
						OBL species $0 \times 1 = 0$
Sap	oling/Shrub Stratum	(Plot size: 15' radius)				FACW species 63 x 2 = 126
1.	Ohio buckeye	Aesculus glabra	20.5	yes	FACU	FAC species 0 x 3 = 0
2.						FACU species 34 x 4 = 136
3.						UPL species 0 x 5 = 0
4.						Column Totals: 97 (A) 262 (B)
5.						
6.						Prevalence Index = B/A = 2.70
7.						
			20.5	= Total Cov	ver	Hydrophytic Vegetation Indicators:
						Rapid Test for Hydrophytic Vegetation
Her	b Stratum (Plot size:	5' radius)				Dominance Test is >50%
1.	common bluebell	Hyacinthoides non-sci	38	yes	NI	X Prevalence Index is ≤ 3.0 ¹
2.	sarsaparilla	Aralia nudicaulis	10.5	yes	FACU	Morphological Adaptations ¹ (Provide supporting data
3.	garlic mustard	Alliaria petiolata		no	FACU	in Remarks or on a separate sheet)
3. 4.	gariic mustaru	Allialia peliolala		110	FACO	Problematic Hydrophytic Vegetation ¹ (Explain)
5.						Problematic Hydrophytic Vegetation (Explain)
5. 6.						1 Indicators of hydric cail and watland hydrology must be
						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7.						present, unless disturbed of problematic.
8.						Definitions of Venetation Charte.
9.						Definitions of Vegetation Strata:
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.						breast height (DBH), regardless of height.
12.						Sapling/Shrub - Woody plants less than 3 in. DBH and
			51.5	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
						Herb - All herbaceous (non-woody) plants, regardless of
Wo	ody Vine Stratum	(Plot size:)				size, and woody plants less than 3.28 ft tall.
1.	none					Woody vines - All woody vines greater than 3.28 ft in
2.						height.
3.						
4.						Hydrophytic
			0	= Total Cov	ver	Vegetation
						Present? Yes X No
Rer	marks: (Include photo ทเ	umbers here or on a sep	arate sheet.)	1		

SOIL Upgradient Sampling Point: WF-H (200 series)

Profile De Depth	escription: (Describe Matrix	to tne dept		nent the ir dox Featui		r confirm	tne abse	nce of indicator	S.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
)-15+	10YR 4/4		(1 1)					Floodplain soil	sandy loar	n
								-		
								0		
Гуре: С=	Concentration, D=Dep	letion, RM=	Redox Matrix, CS=C	Covered or	Coated S	and Grain	S.	² Location: PL=F	Pore Lining, N	Л-Matrix.
ydric Sc	oil Indicators:							rs for Problema	-	oils³:
Histos	sol (A1)		Dark Surface (S	,				n Muck (A10) (M I	LRA 147)	
Histic	Epipedon (A2)		Polyvalue Below				8) Coa	st Prairie Redox	(A16)	
	Histic (A3)	-	Thin Dark Surfa			148)		RA 147, 148)		
	ogen Sulfide (A4)	-	Loamy Gleyed N)			mont Floodplain	Soils (F19)	
	fied Layers (A5)	-	Depleted Matrix					RA 136, 147)		
	Muck (A10) (LRR N)	-	Redox Dark Sur	` '				Parent Material		
	eted Below Dark Surfac	e (A11)	Depleted Dark S		7)			Shallow Dark S)
	Dark Surface (A12)	-	Redox Depressi				Othe	er (Explain in Rer	marks)	
	y Mucky Mineral (S1) (LRR N,	Iron-Manganese	e Masses ((F12) (LRF	R N,				
	A 147, 148)		MLRA 136)	(E40) (B41	DA 400 4	••				
	y Gleyed Matrix (S4)	-	Umbric Surface							
	y Redox (S5)	-	Piedmont Flood	piain Soiis	6 (F19) (IVII	-RA 148)	2			
Stripp	ped Matrix (S6)							rs of hydrophytic		
							problema	y must be preser	it, uriless disi	urbea or
Restrictiv	ve Layer (if observed)	:					p. 0 2. 0			
	refusal									
	n (inches):		8		Hydric S	oil Prese	nt?	Yes		No X
•	· /		_							
Remarks:					•					

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

Project/Site: Former Satralloy Site		City/County:	Mingo Junction/Jeffer	rson	Sampling Date:	4/26/2012
Applicant/Owner: Cyprus Amax Mineral	s Company			State: OH	Sampling Point:	WF-H (200 series)
Investigator(s): KK, CW		Sec	ction, Township, Range:	Cross Creek		
Landform (hillslope, terrace, etc.): river	embankment	Local re	elief (concave, convex, n	ione): concave	Slope	e (%):
Subregion (LRR or MLRA): LRR N		Lat: 80.6803° W	Long:	40.3051° N		NAD 1983
Soil Map Unit Name: Tioga silt loam				NWI classification:		
Are climatic / hydrologic conditions on the			Yes X No		ain in Remarks.)	
		significantly disturbed?		umstances" present?	Yes X	No
Are Vegetation, Soil, or	· Hydrology	_naturally problematic?	(If needed, explai	in any answers in Rema	ırks.)	
SUMMARY OF FINDINGS - Attac	h site map s	showing sampling	point locations, tr	ansects, importar	nt features, et	c.
Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area			
Hydric Soil Present?	Yes X	No	Within a Wetland?	Yes	X No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland	I Site ID:		
Remarks: (Explain alternative procedure						
Embankment of Cross Creek, near junction	on with McIntyre	Creek. See Appendix B	3, Figures 2, 8; Appendix	D, Photos 12-15.		
HYDROLOGY					_	
Wetland Hydrology Indicators:				Seconary Indicate	ors (minimum of to	wo required)
Primary Indicators (minimum of one is red	quired; check all	that apply)			il Cracks (B6)	
X Surface Water (A1)		_True Aquatic Plants (B	314)	Sparsely Ve	egetated Concave	Surface (B8)
X High Water Table (A2)		Hydrogen Sulfide Odor	r (C1)	Drainage P	atterns (B10)	
X Saturation (A3)		Oxidized Rhizospheres	s on Living Roots (C3)	Moss Trim	Lines (B16)	
Water Marks (B1)		Presence of Reduced I	Iron (C4)	Dry-Seasor	n Water Table (C2	<u>?</u>)
Sediment Deposits (B2)		Recent Iron Reduction	in Tilled Soils (C6)	Crayfish Bu	ırrows (C8)	
Drift Deposits (B3)		Thin Muck Surface (C7	7)	Saturation \	Visible on Aerial In	magery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rema	arks)	Stunted or	Stressed Plants (I	D1)
Iron Deposits (B5)	_	_		X Geomorphi	c Position (D2)	
Inundation Visible on Aerial Imager	y (B7)			Shallow Aq	uitard (D3)	
Water Stained Leaves (B9)				Microtopog	raphic Relief (D4))
Aquatic Fauna (B13)	<u></u> _			FAC-Neutra	al Test (D5)	
Field Observations:						
Surface Water Present? Yes X	No	Depth (inches):	12			
Water Table Present? Yes X	No	Depth (inches):	0			
	No	Depth (inches):	0 Wetland Hy	ydrology Present?	Yes X	No
(includes capillary fringe)						
Describe Recorded Data (stream gauge,	monitoring well	aerial photos, previous i	inenections) if available:			
Describe recorded bata (officially gauge,	monitoring we.,	dellai priotos, proviess .	nispeditorioj, ii avalias.e.			
Remarks:						
Nemarks.						

Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1. none					Are OBL, FACW, or FAC: 1 (A)
2.					Total Number of Dominant Species
3.					Across All Strata: 1 (B)
4.					Percent of Dominant Species That Are OBL, FACW, or FAC: 100 00% (A/B)
5.					Are OBL, FACW, or FAC: 100.00% (A/B)
6. 7.					Prevalence Index worksheet:
<i>'</i>			= Total Cov	vor	Total % Cover of: Multiply by:
İ			- Total Oct	/ C I	OBL species 38 x 1 = 38
Sapling/Shrub Stratum	(Plot size: 15' radius)				FACW species 0 x 2 = 0
1. none	, reconstruction				FAC species 0 x 3 = 0
2.					FACU species 3 x 4 = 12
3.					UPL species 0 x 5 = 0
4.					Column Totals: 41 (A) 50 (B)
5.					
6.					Prevalence Index = B/A = 1.22
7.					
		0	= Total Cov	ver	Hydrophytic Vegetation Indicators:
l					X Rapid Test for Hydrophytic Vegetation
	5' radius)				X Dominance Test is >50%
carex folliculata	Carex folliculata	38		OBL*	X Prevalence Index is ≤ 3.0 ¹
yellow rocket	Barbarea vulgaris	3	no	FACU	Morphological Adaptations ¹ (Provide supporting data
3.					in Remarks or on a separate sheet)
4.					Problematic Hydrophytic Vegetation ¹ (Explain)
5.					
6.					¹ Indicators of hydric soil and wetland hydrology must be
7.					present, unless disturbed or problematic.
8. 9.					Definitions of Vegetation Strata:
10					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11					breast height (DBH), regardless of height.
12.					Sapling/Shrub - Woody plants less than 3 in. DBH and
12.		41	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
			1010.01	701	Herb - All herbaceous (non-woody) plants, regardless of
Woody Vine Stratum	(Plot size:				size, and woody plants less than 3.28 ft tall.
1. none	· · · · · · · · · · · · · · · · · · ·				Woody vines - All woody vines greater than 3.28 ft in
2.					height.
3.					
4.					Hydrophytic
		0	= Total Cov	ver	Vegetation
					Present? Yes X No
Remarks: (Include photo nu	umbers here or on a sep	arate sheet.))		

SOIL Downgradient Sampling Point: WF-H (200 series)

Profile De Depth	escription: (Describe Matrix	to the dept		ment the ir dox Featur		r confirm	the abse	nce of indicate	ors.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	•
0-3	10YR 4/3	70	Color (molot)		.,,,,,		ТОЖИТО	A Horizon		n sandy silty loam
3-8+	2.5Y 4/2							B Horizon	medium	
00.	2.01 4/2							<u>B Honzon</u>	modium	Tourid
								-		
	'							. (
¹ Type: C=	Concentration, D=Dep	letion, RM=	Redox Matrix, CS=	Covered or	Coated S	and Grair	ıs.	² Location: PL	=Pore Lininç	g, M-Matrix.
Hydric Sc	oil Indicators:						Indicato	rs for Problen	natic Hydric	: Soils ³ :
-	sol (A1)		Dark Surface (\$	S7)				n Muck (A10) (I	-	
	Epipedon (A2)	-	Polyvalue Belo	,	(S8) (MLR	A 147. 14		st Prairie Redo		
	Histic (A3)	-	Thin Dark Surfa		. , .		<u></u>	RA 147, 148)	х (/ 110)	
	ogen Sulfide (A4)	-	Loamy Gleyed			140)	•	dmont Floodpla	in Soile (F10))
	fied Layers (A5)	-	Depleted Matrix		,			RA 136, 147)	11 00113 (1 10	,)
	Muck (A10) (LRR N)	-	Redox Dark Su	` '				Parent Materia	N (TEQ)	
		(111)			7 \				` ,	:40\
	eted Below Dark Surfac	e (ATT)	Depleted Dark		/)			y Shallow Dark		12)
	Dark Surface (A12)	-	Redox Depress				Otne	er (Explain in R	emarks)	
	y Mucky Mineral (S1) (LRR N,	Iron-Manganes	e Masses	(F12) (LRF	R N,				
	A 147, 148)		MLRA 136) Umbric Surface (F13) (MLRA 136,122)							
	y Gleyed Matrix (S4)	-								
	y Redox (S5)	-	Piedmont Floor	dplain Soils	s (F19) (MI	_RA 148)				
Stripp	ed Matrix (S6)							ors of hydrophyt		
							hydrolog	y must be pres	ent, unless o	disturbed or
							problema	atic.		
Restrictiv	e Layer (if observed)	:								
Type:										
Depth	(inches):			1)	Hydric S	oil Prese	nt?	Yes	X	No
	· /			•						
Remarks:					!					

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

Project/Site: Former Satralloy Sit	:e	City/County	/: Mingo Junction/Jefferson		Sampling Date: <u>4/26/2012</u>
Applicant/Owner: Cyprus Amax	Minerals Company		State: OH	<u> </u>	Sampling Point: WF-J
Investigator(s): KK, CW		Se	ection, Township, Range: Cross Cr	reek	
Landform (hillslope, terrace, etc.):	hillslope	Local r	relief (concave, convex, none): cor	ncave	Slope (%):
Subregion (LRR or MLRA): LRI	R N	Lat: 80.6709° W	Long: 40.3149°	N	Datum: NAD 1983
Soil Map Unit Name: Lowell si	It loam		NWI	classification: No	one
Are climatic / hydrologic conditions	71	this time of year?	Yes X No	(If no, explain	in Remarks.)
Are Vegetation, Soil	, or Hydrology	significantly disturbed	? Are "Normal Circumstances	s" present?	Yes X No
Are Vegetation, Soil		naturally problematic?	? (If needed, explain any ans	wers in Remarks	s.)
		_			
SUMMARY OF FINDINGS	- Attach site map	snowing sampling	point locations, transects	s, important	teatures, etc.
Hydrophytic Vegetation Present?	Yes	No X	Is the Sampled Area		
Hydric Soil Present?	Yes	No X	Within a Wetland?	Yes	No X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:		<u></u>
Wettand Trydrology Fresent:	163		ii yes, optional wetland one ib.		
	ression on the slope o	f the ridge which collects of	groundwater and surface seepage, Figures 2, 9; Appendix D, Photos		s down the steep slope of the
HYDROLOGY					
Wetland Hydrology Indicators:			Sec	conary Indicators	(minimum of two required)
Primary Indicators (minimum of o	ne is required; check	all that apply)		Surface Soil C	Cracks (B6)
Surface Water (A1)	_	True Aquatic Plants (E	B14)	Sparsely Vege	etated Concave Surface (B8)
High Water Table (A2)	_	Hydrogen Sulfide Odd	or (C1)	Drainage Patt	erns (B10)
Saturation (A3)	_	Oxidized Rhizosphere	es on Living Roots (C3)	Moss Trim Lin	nes (B16)
Water Marks (B1)	_	Presence of Reduced	Iron (C4)	Dry-Season V	Vater Table (C2)
Sediment Deposits (B2)	_	Recent Iron Reduction	n in Tilled Soils (C6)	Crayfish Burro	ows (C8)
Drift Deposits (B3)		Thin Muck Surface (C		Saturation Vis	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rem	narks)	Stunted or Str	ressed Plants (D1)
Iron Deposits (B5)				Geomorphic F	
Inundation Visible on Aerial	Imagery (B7)			Shallow Aquit	ard (D3)
Water Stained Leaves (B9)				Microtopograp	ohic Relief (D4)
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)
Field Observations:					, ,
Surface Water Present? Ye	es No X	Depth (inches):			
Water Table Present? Ye		Depth (inches):			
Saturation Present? Ye	es No X	Depth (inches):	Wetland Hydrology	Present?	Yes No X
(includes capillary fringe)					<u> </u>
B 11 B 1 1 B 1 (1					
Describe Recorded Data (stream	gauge, monitoring we	ell, aerial photos, previous	inspections), if available:		
Remarks:					

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	e Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1.	common hackberry	Celtis occidentalis	38	yes	FACU	Are OBL, FACW, or FAC:1 (A)
2.	red maple	Acer rubrum	10.5	no	FAC*	Total Number of Dominant Species
3.	American elm	Ulmus americana	10.5	no	FACW*	Across All Strata: 5 (B)
4.						Percent of Dominant Species That
5.						Are OBL, FACW, or FAC: 20.0% (A/B)
6.						
7.						Prevalence Index worksheet:
			59	= Total Co	ver	Total % Cover of: Multiply by:
						OBL species $0 \times 1 = 0$
Sap	oling/Shrub Stratum	(Plot size: 15' radius)				FACW species 10.5 x 2 = 21
1.	multiflora rose	Rosa multiflora	10.5	yes	FACU	FAC species 48.5 x 3 = 145.5
2.	common hackberry	Celtis occidentalis	10.5	yes	FACU	FACU species 100 x 4 = 400
3.						UPL species 0 x 5 = 0
4.						Column Totals: 159 (A) 566.5 (B)
5.						``
6.						Prevalence Index = B/A = 3.56
7.						
			21	= Total Co	ver	Hydrophytic Vegetation Indicators:
						Rapid Test for Hydrophytic Vegetation
Her	b Stratum (Plot size:	5' radius)				Dominance Test is >50%
1.	mayapple (Field 6126)	Podophyllum peltatum	38	yes	FACU	Prevalence Index is ≤ 3.0 ¹
2.	spreading sandwort	Arenaria lanuginosa	38	yes	FAC*	Morphological Adaptations ¹ (Provide supporting data
3.	early buttercup	Ranunculus fascicular	3	no	FACU	in Remarks or on a separate sheet)
4.	carry battereap	Tanandala lasoloala		110	17100	Problematic Hydrophytic Vegetation ¹ (Explain)
5.						1 Tobicinatio Trydrophytic Vegetation (Explain)
6.						¹ Indicators of hydric soil and wetland hydrology must be
7.						present, unless disturbed or problematic.
8.						processin, arricos distarboa en problemado.
9.						Definitions of Vegetation Strata:
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.						breast height (DBH), regardless of height.
12.						Sapling/Shrub - Woody plants less than 3 in. DBH and
12.			79	= Total Co	vor	greater than 3.28 ft (1 m) tall.
			19	- 10tai C0	VCI	1 -
۱۸/۵	ady Vina Stratum	(Diet size:				Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
		(Plot size:)				Woody vines - All woody vines greater than 3.28 ft in
1.	none					height.
2.						noight.
3.						
4.				_ Tetal Ca		Hydrophytic
				= Total Co	ver	Vegetation
						Present? Yes No _X
Rer	narks: (Include photo nເ	imbers here or on a sepa	arate sheet.)		

SOIL Upgradient Sampling Point: WF-J

Depth (inches)	Matrix		th needed to docu Re	edox Featu	res							
unches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks			
0-4	10YR 3/2							A Horizon	silt loam			
4-8	10YR 3/4							B1 Horizon	silt loam			
8-12+	10YR 4/6							B2 Horizon	silt loam			
<u> </u>				-			-	22	0			
				. ———			-					
								-				
								-				
				- ——								
	-			. ———				-				
	-			. ———				-				
	-			- ——				-				
	-											
¹ Type: C=0	Concentration, D=Dep	oletion, RM=	Redox Matrix, CS=	Covered or	r Coated S	and Grain	S.	² Location: PL=	Pore Lining,	M-Matrix.		
Hydric So	il Indicators:						Indicato	rs for Problem	atic Hydric	Soils ³ :		
-	sol (A1)		Dark Surface (S7)				n Muck (A10) (N	-			
	Epipedon (A2)	•	Polyvalue Belo	,	(S8) (MLR	A 147, 14		st Prairie Redox				
	Histic (A3)	•	Thin Dark Surf					RA 147, 148)	(- /			
	gen Sulfide (A4)	•	Loamy Gleyed			-,		lmont Floodplai	n Soils (F19)			
	ied Layers (A5)	•	Depleted Matri		,			RA 136, 147)	, ,			
	Muck (A10) (LRR N)	•	Redox Dark Su	` '				Parent Materia	l (TF2)			
	ted Below Dark Surface	Depleted Dark	, ,	7)			/ Shallow Dark	` ,	2)			
	Dark Surface (A12)		Redox Depres		,			er (Explain in Re		,		
	/ Mucky Mineral (S1) ((I RR N			(F12) (I RF	N S		(=-,	,			
	147, 148)	(LIXIX IX,	Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
	Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136,122)									
	Redox (S5)	•	Piedmont Floodplain Soils (F19) (MLRA 148)									
	ed Matrix (S6)	•		up.u 00	, , (,	3Indicato	rs of hydrophyti	c vegetation	and wetlan		
								y must be prese				
	ed Matrix (30)											
Strippe):										
Strippe	e Layer (if observed)):										
Strippe Restrictive Type:	e Layer (if observed) :		-	Hydric S	oil Prese	nt?	Yes		No		
Strippe Restrictive Type:):		- -	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Strippe Restrictive Type:	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Strippe Restrictive Type: Depth	e Layer (if observed):		- -	Hydric S	oil Prese	nt?	Yes		No		
Strippe Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes	_	No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Strippe Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		
Restrictive Type: Depth	e Layer (if observed):		-	Hydric S	oil Prese	nt?	Yes		No		

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

Project/Site: Former Satrallo	/ Site		City/County:	Mingo Junction/Jefferson		Sampling Date: 4/26/2012	
Applicant/Owner: Cyprus An	licant/Owner: Cyprus Amax Minerals Company			State	: OH	Sampling Point: WF-J	
Investigator(s): KK, CW			Sec	ction, Township, Range: Cros	ss Creek		
Landform (hillslope, terrace, et	c.): hillslope		Local re	elief (concave, convex, none)	: concave (chan	nel) Slope (%):	
Subregion (LRR or MLRA):	LRR N		Lat: 80.6710° W	Long: 40.3	149° N	Datum: NAD 1983	
Soil Map Unit Name: Lowe	ell silt loam				NWI classification	n: PFO	
Are climatic / hydrologic condit	ions on the site ty	ypical for th	nis time of year?	Yes X No	(If no, exp	olain in Remarks.)	
Are Vegetation , Soil	, or Hyd	Irology	significantly disturbed?	? Are "Normal Circumsta	ances" present?	Yes X No	
Are Vegetation , Soil	, or Hyd	Irology	naturally problematic?	(If needed, explain any	y answers in Rem	narks.)	
		·	_			,	
SUMMARY OF FINDING	3S - Attach s	ite map	showing sampling	point locations, trans	ects, importa	ant features, etc.	
Hydrophytic Vegetation Pres	ent? Yes		No	Is the Sampled Area			
Hydric Soil Present?	Yes	sX	No	Within a Wetland?	Yes	X No	
Wetland Hydrology Present?	Yes	sX	No	If yes, optional Wetland Site	ID:		
	depression on the	e slope of t	the ridge which collects gr	roundwater and surface seep Figures 2, 9; Appendix D, Pho		elizes down the steep slope of the	
HYDROLOGY							
Wetland Hydrology Indicate	ors:				Seconary Indica	ators (minimum of two required)	
Primary Indicators (minimum	of one is require	d; check a	ll that apply)		Surface S	Soil Cracks (B6)	
X Surface Water (A1)			True Aquatic Plants (B	314)	X Sparsely	Vegetated Concave Surface (B8)	
X High Water Table (A2)			Hydrogen Sulfide Odor	r (C1)	X Drainage	Patterns (B10)	
X Saturation (A3)			Oxidized Rhizospheres	s on Living Roots (C3)		n Lines (B16)	
Water Marks (B1)			Presence of Reduced	- · ·		on Water Table (C2)	
Sediment Deposits (B2	Λ.		Recent Iron Reduction	, ,		Burrows (C8)	
Drift Deposits (B3)	,		Thin Muck Surface (C7	` ,		n Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4)		_	Other (Explain in Rema	arks)		r Stressed Plants (D1)	
Iron Deposits (B5)						hic Position (D2)	
Inundation Visible on A		')				Aquitard (D3)	
Water Stained Leaves	(B9)				Microtopo	ographic Relief (D4)	
Aquatic Fauna (B13)				<u>, </u>	FAC-Neut	tral Test (D5)	
Field Observations:							
Surface Water Present?	Yes X No)	Depth (inches):	0			
Water Table Present?	Yes X No)	Depth (inches):	0			
Saturation Present?	Yes X No)	Depth (inches):	0 Wetland Hydro	logy Present?	Yes X No	
(includes capillary fringe)							
Describe Recorded Data (stre	eam gauge, mon	itoring well	, aerial photos, previous i	inspections), if available:			
Remarks:							
Remarks.							

Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1. none					Are OBL, FACW, or FAC: 2 (A)
2.					Total Number of Dominant Species
3.					Across All Strata: 3 (B)
4.					Percent of Dominant Species That
5.					Are OBL, FACW, or FAC: 66.67% (A/B)
6.					
7.					Prevalence Index worksheet:
		0	= Total Co	ver	Total % Cover of: Multiply by:
					OBL species 38 x 1 = 38
Sapling/Shrub Stratum	(Plot size: 15' radius)				FACW species 10.5 x 2 = 21
multiflora rose	Rosa multiflora	38	yes	FACU	FAC species 0 x 3 = 0
2. green ash	Fraxinus pennsylvanic	10.5	yes	FACW*	FACU species 41 x 4 = 164
3.					UPL species 0 x 5 = 0
4.					Column Totals: 89.5 (A) 223 (B)
5.	-				
6.					Prevalence Index = B/A = 2.49
7.					
		48.5	= Total Co	ver	Hydrophytic Vegetation Indicators:
					Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size:	5' radius)				X Dominance Test is >50%
carex folliculata	Carex folliculata	38	yes	OBL*	$\frac{\mathbf{X}}{\mathbf{X}}$ Prevalence Index is $\leq 3.0^{1}$
multiflora rose	Rosa multiflora		no	FACU	Morphological Adaptations ¹ (Provide supporting data
3.	NOSA MUMINIONA		110	1700	in Remarks or on a separate sheet)
4.					
5.					Problematic Hydrophytic Vegetation ¹ (Explain)
					1
6.					¹ Indicators of hydric soil and wetland hydrology must be
7.					present, unless disturbed or problematic.
8.					
9					Definitions of Vegetation Strata:
10					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11					breast height (DBH), regardless of height.
12.					Sapling/Shrub - Woody plants less than 3 in. DBH and
		41	= Total Co	ver	greater than 3.28 ft (1 m) tall.
					Herb - All herbaceous (non-woody) plants, regardless of
Woody Vine Stratum	(Plot size:)				size, and woody plants less than 3.28 ft tall.
1. none					Woody vines - All woody vines greater than 3.28 ft in
2.					height.
3.					
4.					Hydrophytic
		0	= Total Co	ver	Vegetation
					Present? Yes X No
Remarks: (Include photo nu	umbers here or on a sepa	arate sheet.))		

SOIL Downgradient Sampling Point: WF-J

Depth	escription: (Describe to Matrix	_		dox Featu					•		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
1-0								O Horizon	muck		
0-9	2.5Y 4/1							A Horizon	silty sand		
9-15+	2.5Y 3/1							BC Horizon	silty sand		
	2.0 1 0.1						-	20110112011	only carra		
							-				
							-				
							-				
								-			
								-			
							-				
							-				
							-				
								-			
Type: C=0	Concentration, D=Dep	letion, RM=	Redox Matrix, CS=	Covered or	r Coated S	and Grain	S.	² Location: PL=	Pore Lining,	M-Matrix.	
ydric So	il Indicators:						Indicato	rs for Problem	atic Hydric S	ioils³:	
-	sol (A1)		Dark Surface (\$	S7)				n Muck (A10) (N	-		
_	Epipedon (A2)	_	Polyvalue Belo	,	(S8) (MLR	A 147, 14		st Prairie Redox			
	Histic (A3)	_	Thin Dark Surfa		. , .			RA 147, 148)	(-/		
	gen Sulfide (A4)	-	Loamy Gleyed			,		lmont Floodplair	n Soils (F19)		
	ied Layers (A5)	-	Depleted Matrix		,		(MLRA 136, 147)				
	Muck (A10) (LRR N)	_	Redox Dark Su	` '				Parent Material	(TF2)		
_	oleted Below Dark Surface (A11) Depleted Dark Surface			. ,	7)			Shallow Dark S	` '	2)	
	Dark Surface (A12)	` ′ –	Redox Depress		,			er (Explain in Re		,	
	/ Mucky Mineral (S1) (I	LRR N.	 Iron-Manganes		(F12) (LRF	R N.		` '	,		
	A 147, 148)		MLRA 136)		(· ·-/ (·-	,					
	Gleyed Matrix (S4)		Umbric Surface	(F13) (M I	LRA 136,1	22)					
	Redox (S5)	-	Piedmont Floor								
	ed Matrix (S6)	_	_	•	`	•	3Indicato	rs of hydrophyti	c vegetation :	and wetland	
								y must be prese			
Restrictiv	e Layer (if observed)	:									
Type:											
Depth	(inches):				Hydric S	oil Prese	nt?	Yes X		No	
	` '				1						
emarks:											

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

Project/Site: Former Satrallo	Project/Site: Former Satralloy Site City/County: Mingo Junction/Jefferson Sampling Date: 4/26/2012									
Applicant/Owner: Cyprus A	max Minera	Is Company		St	tate: OH	Sampling Point: WF-K				
Investigator(s): KK, CW				Section, Township, Range:	Cross Creek					
Landform (hillslope, terrace, e	etc.): hillsl	оре	Lo	ocal relief (concave, convex, no	ne): concave	Slope (%):				
Subregion (LRR or MLRA):	LRR N		Lat: 80.6698° W	V Long: 4	IO.3119° N	Datum: NAD 1983				
	rthents, loa			NWI classification: None						
Are climatic / hydrologic condi			•	Yes X No_		in in Remarks.)				
Are Vegetation, Soi		or Hydrology			mstances" present?	Yes X No				
Are Vegetation, Soi	.I	or Hydrology	naturally problem	natic? (If needed, explain	any answers in Remar	ks.)				
SUMMARY OF FINDIN	GS - Atta	ch site mar	ρ showing samp	oling point locations, tra	insects, importan	t features, etc.				
Hydrophytic Vegetation Pres	sent?	Yes	No X	Is the Sampled Area						
Hydric Soil Present?		Yes	No X	Within a Wetland?	Yes	NoX				
Wetland Hydrology Present	?	Yes	No X	If yes, optional Wetland	Site ID:					
Appendix B, Figures 2, 10; A			IIOIII Wetland 5 down	the slope of the ridge. Wetlan	u K uistilalyes to Gros.	s Cleek tillough a cuivert. Sec				
HYDROLOGY										
Wetland Hydrology Indicat		de ale ale	U. Standard and Standard			rs (minimum of two required)				
Primary Indicators (minimum	n of one is re	quired; check	* * * * * * * * * * * * * * * * * * * *			Cracks (B6)				
Surface Water (A1)		_	True Aquatic Pla			getated Concave Surface (B8)				
High Water Table (A2))	_	Hydrogen Sulfide	` '	Drainage Pa					
Saturation (A3)		_		pheres on Living Roots (C3)	Moss Trim L					
Water Marks (B1)		_	Presence of Red	, ,		Water Table (C2)				
Sediment Deposits (B)	2)	_		uction in Tilled Soils (C6)	Crayfish Bur					
Drift Deposits (B3)		_	Thin Muck Surface			isible on Aerial Imagery (C9)				
Algal Mat or Crust (B4	.)	_	Other (Explain in	Remarks)		Stressed Plants (D1)				
Iron Deposits (B5)						: Position (D2)				
Inundation Visible on A	_	ry (B7)			Shallow Aqu					
Water Stained Leaves	; (B9)					aphic Relief (D4)				
Aquatic Fauna (B13)					FAC-Neutra	Test (D5)				
Field Observations:										
Surface Water Present?	Yes	No <u>X</u>	Depth (inches):							
Water Table Present?	Yes	No <u>X</u>	Depth (inches):							
Saturation Present? (includes capillary fringe)	Yes	NoX	Depth (inches):	Wetland Hy	drology Present?	Yes No <u>X</u>				
Describe Recorded Data (st	ream gauge,	, monitoring we	ell, aerial photos, prev	vious inspections), if available:						
Remarks:										

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	ee Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1.	ash-leaf maple	Acer negundo	85.5	yes	FAC*	Are OBL, FACW, or FAC: 2 (A)
2.						Total Number of Dominant Species
3.						Across All Strata: 4 (B)
4.						Percent of Dominant Species That
5.						Are OBL, FACW, or FAC: 50.0% (A/B)
6.						
7.						Prevalence Index worksheet:
			85.5	= Total Cov	ver	Total % Cover of: Multiply by:
2 -		(= : , , , , , , , , , , , , , , , , , , ,				OBL species 0 x 1 = 0
		(Plot size: 15' radius)	20 F		E^^*	FACW species 0 x 2 = 0
1.	ash-leaf maple	Acer negundo	20.5	yes	FAC*	FAC species 106 x 3 = 318
2.	multiflora rose	Rosa multiflora	10.5	yes	FACU	FACU species 16.5 x 4 = 66
3. 4						UPL species 0 x 5 = 0
4. 5			. ——			Column Totals:122.5 (A)384 (B)
5. 6			. ——			Provolence Index = P/A = 3.13
6. 7			. ——			Prevalence Index = B/A = 3.13
7.			31	= Total Cov		Hydrophytic Vegetation Indicators:
ı			31	= Total Cov	vei	
Ц	rb Stratum (Plot size:	·				Rapid Test for Hydrophytic Vegetation Dominance Test is >50%
1.	Canada white violet	5' radius) Viola canadensis	20.5	V00	NI	Prevalence Index is ≤ 3.0¹
1. 2.	garlic mustard	Alliaria petiolata	3	yes no	FACU	Morphological Adaptations¹ (Provide supporting data
2. 3.	hairy wood mint	Blephilia hirsuta	3	no	FACU	in Remarks or on a separate sheet)
3. 4.	Hally wood Hills	Diepriilia Ilii Suta		TIU	FACO	Problematic Hydrophytic Vegetation ¹ (Explain)
4. 5.						Problematic hydrophytic vegetation (Explain)
5. 6.						¹ Indicators of hydric soil and wetland hydrology must be
7.						present, unless disturbed or problematic.
7. 8.	-					process, among another services
9.						Definitions of Vegetation Strata:
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.						breast height (DBH), regardless of height.
12.						Sapling/Shrub - Woody plants less than 3 in. DBH and
			26.5	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
						Herb - All herbaceous (non-woody) plants, regardless of
Wo	oody Vine Stratum	(Plot size:)				size, and woody plants less than 3.28 ft tall.
1.	none	·				Woody vines - All woody vines greater than 3.28 ft in
2.						height.
3.						
4.						Hydrophytic
	_		0	= Total Cov	ver	Vegetation
						Present? Yes No X
Rei	marks: (Include photo ทเ	umbers here or on a sep	parate sheet.))		

SOIL Upgradient Sampling Point: WF-K

Profile De Depth	escription: (Describe Matrix	to the dept		ment the ir edox Featur		r confirm	the abse	nce of indicato	rs.)		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
0-5	10YR 2/2		00.0. (0.0.)				10/11010	A Horizon	fine sandy	v loam	
5-15+	10YR 4/3							B1 Horizon	fine sandy		
										<u>,</u>	
				. ——							
				. ——			-				
							-	-			
	. ———							-			
								-			
	. ———			. ——			-				
	. ———			. ——			-				
				. ——							
				. ——							
	. ———										
¹ Type: C=	Concentration, D=Dep	letion, RM=	Redox Matrix, CS=	Covered or	Coated S	and Grain	ıs.	² Location: PL=	Pore Lining, I	M-Matrix.	
Hvdric Sc	oil Indicators:						Indicato	rs for Problem	atic Hydric S	oils ³ :	
-	sol (A1)		Dark Surface (S7)				n Muck (A10) (N	-		
	Epipedon (A2)	-	Polyvalue Belo	,	(S8) (MLR	A 147. 14		st Prairie Redox			
	Histic (A3)	-	Thin Dark Surfa		. , .			RA 147, 148)	(7110)		
	gen Sulfide (A4)	-	Loamy Gleyed			0,		lmont Floodplair	soils (F19)		
	fied Layers (A5)	-	Depleted Matrix		'			RA 136, 147)	1 000 (1 10)		
	2 cm Muck (A10) (LRR N) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F							Parent Materia	(TF2)		
	eted Below Dark Surface	Depleted Dark	, ,	7)			Very Shallow Dark Surface (TF12)				
	Dark Surface (A12)		Redox Depress		• ,		er (Explain in Re		-)		
	y Mucky Mineral (S1) (I DD N	Iron-Manganes		(E12) (I DE		or (Explain in re	marks)			
	y Mucky Milleral (31) (A 147, 148)	LKK N,	MLRA 136)	e iviasses ((F 12) (LKF	ιν,					
	y Gleyed Matrix (S4)		Umbric Surface	(F13) (M I	RΔ 136 1	22)					
	y Redox (S5)	-	Piedmont Floor								
	ed Matrix (S6)	-	TICUMONTITION	apiaii i oolis	, (1 13) (1412	-144 140)	31	ئة بما محمدات بما كم م			
Ouipp	od Wallix (OO)							ors of hydrophyti By must be prese atic.			
Restrictiv	e Layer (if observed)	:									
Type:											
• .	(inches):			į.	Hydric S	oil Prese	nt?	Yes		No >	
- 1				į.	,						
Remarks:					<u> </u>						

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

roject/Site: Former Satralloy Site City/County: Mingo Junction/Jefferson Sampling Date: 4/26/2012									
Applicant/Owner: Cyprus An	nax Minerals Comp	any	State: C	DH Sa	mpling Point: WF-K				
Investigator(s): KK, CW			Section, Township, Range: Cross	Creek					
Landform (hillslope, terrace, et	c.): hillslope	Loca	al relief (concave, convex, none): c	oncave	Slope (%):				
Subregion (LRR or MLRA):	LRR N	Lat: 80.6698° W	Long: 40.311	9° N	Datum: NAD 1983				
Soil Map Unit Name: Lowe	ell silt loam		NV	VI classification: PFC	<u> </u>				
Are climatic / hydrologic condit	ions on the site typic	cal for this time of year?	Yes X No	(If no, explain ir	n Remarks.)				
Are Vegetation, Soil	, or Hydrol	ogy significantly disturb	ed? Are "Normal Circumstand	ces" present?	Yes X No				
Are Vegetation, Soil	, or Hydrol	ogy naturally problemat	tic? (If needed, explain any a	nswers in Remarks.)				
									
SUMMARY OF FINDING	3S - Attach site	map showing sampli	ng point locations, transec	ts, important fe	eatures, etc.				
			l						
Hydrophytic Vegetation Pres	_	X No	Is the Sampled Area						
Hydric Soil Present?	Yes	No	Within a Wetland?	Yes X	No				
Wetland Hydrology Present?	Yes	X No	If yes, optional Wetland Site ID):					
Remarks: (Explain alternativ									
Appendix B, Figures 2, 10; A			ne slope of the ridge. Wetland K dis	scnarges to Cross C	reek through a cuivert. See				
HYDROLOGY	_								
Wetland Hydrology Indicate	ors:		<u> </u>	Seconary Indicators (minimum of two required)				
Primary Indicators (minimum	of one is required; of	check all that apply)	<u>_</u>	Surface Soil Cr	acks (B6)				
X Surface Water (A1)		True Aquatic Plants	s (B14)	X Sparsely Veget	ated Concave Surface (B8)				
X_ High Water Table (A2)		Hydrogen Sulfide C	Odor (C1)	X Drainage Patte	rns (B10)				
X Saturation (A3)		Oxidized Rhizospho	eres on Living Roots (C3)	Moss Trim Line	s (B16)				
Water Marks (B1)		Presence of Reduc	ed Iron (C4)	Dry-Season Wa	ater Table (C2)				
Sediment Deposits (B2	1)		tion in Tilled Soils (C6)	Crayfish Burrov					
Drift Deposits (B3)	,	Thin Muck Surface	` '		ole on Aerial Imagery (C9)				
Algal Mat or Crust (B4)		Other (Explain in R	· · ·		ssed Plants (D1)				
Iron Deposits (B5)		Other (Explain		X Geomorphic Po	` '				
	orial Imageny (R7)		-						
Inundation Visible on A			_	Shallow Aquita					
Water Stained Leaves	(89)		_	Microtopograph	` '				
Aquatic Fauna (B13)			ı	FAC-Neutral Te	est (D5)				
Field Observations:		5 " "							
Surface Water Present?	Yes X No	Depth (inches):	0						
Water Table Present?	Yes X No	Depth (inches):	<u> </u>						
Saturation Present?	Yes X No	Depth (inches):	0 Wetland Hydrolog	y Present?	Yes X No				
(includes capillary fringe)									
Describe Pecarded Data (str	eam gauge monitor	ing well, aerial photos, previo	us inspections) if available:						
Describe Recorded Data (Silv	sam gauge, monitor	ing well, aeriai priotos, previo	us irispections), ii available.						
Remarks:									

Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1. none					Are OBL, FACW, or FAC:1 (A)
2.					Total Number of Dominant Species
3.					Across All Strata: 1 (B)
4.					Percent of Dominant Species That
5.					Are OBL, FACW, or FAC: 100.00% (A/B)
6.					
7.					Prevalence Index worksheet:
		0	= Total Cov	ver	Total % Cover of: Multiply by:
					OBL species 38 x 1 = 38
Sapling/Shrub Stratum (Plot size: 15' radius)				FACW species 0 x 2 = 0
1. none	·				FAC species 0 x 3 = 0
2.					FACU species 0 x 4 = 0
3.					UPL species 0 x 5 = 0
4.					Column Totals: 38 (A) 38 (B)
					(2)
6.					Prevalence Index = B/A = 1.00
7.					1.00 Index Birt
			= Total Cov	ver	Hydrophytic Vegetation Indicators:
			10101 00	· O.	X Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size:	E' radius				X Dominance Test is >50%
1. carex folliculata	Carex folliculata	38	VAC	OBL*	X Prevalence Index is ≤ 3.0¹
great waterleaf			yes no	NI	l
3.	Hydrophyllum append		110	INI	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4.					
5.					Problematic Hydrophytic Vegetation ¹ (Explain)
					The directions of the older and another distriction of the
6.					¹ Indicators of hydric soil and wetland hydrology must be
7.					present, unless disturbed or problematic.
8.					
					Definitions of Vegetation Strata:
10.					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
					breast height (DBH), regardless of height.
12					Sapling/Shrub - Woody plants less than 3 in. DBH and
		41	= Total Cov	ver	greater than 3.28 ft (1 m) tall.
					Herb - All herbaceous (non-woody) plants, regardless of
	(Plot size:)				size, and woody plants less than 3.28 ft tall.
1. none					Woody vines - All woody vines greater than 3.28 ft in
2					height.
3					
4.					Hydrophytic
		0	= Total Cov	ver	Vegetation
					Present? Yes X No
Remarks: (Include photo nu	imbers here or on a sep	arate sheet.))		

SOIL Downgradient Sampling Point: WF-K

Profile De	scription: (Describe	to the dep	th needed to docu	ment the i	ndicator	or confirm	the abse	nce of indicato	rs.)		
Depth Matrix Redox Features (inches) Color (moiet) % Color (moiet) 1/2 Type 1 Loc2 Touture Percent											
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
0-3	2.5Y 4/1			1				A Horizon	silty sandy	loam	
3-15+	10YR 5/3		10YR 6/8	10	С	M		BC Horizon	silt loam		
				-	-		. ———				
						-		-			
-								-			
			-		-	. ———		-			
				- ———			. ——				
				. —							
¹ Type: C=0	Concentration, D=Dep	letion, RM	=Redox Matrix, CS=	Covered o	r Coated S	Sand Grain	IS.	² Location: PL=	Pore Lining, N	/I-Matrix.	
Hydric So	il Indicators:						Indicato	rs for Problem	atic Hydric So	oils³:	
Histos	ol (A1)		Dark Surface (S7)			2 cn	n Muck (A10) (N	ILRA 147)		
	Epipedon (A2)		Polyvalue Belo		(S8) (MLF	RA 147, 14		st Prairie Redox			
	Histic (A3)		Thin Dark Surf					RA 147, 148)	(-)		
	gen Sulfide (A4)		Loamy Gleyed	. , .		, ,		lmont Floodplair	Soils (F19)		
	ied Layers (A5)		X Depleted Matri		,			•	1 00110 (1 10)		
	Muck (A10) (LRR N)		Redox Dark Su				(MLRA 136, 147) Red Parent Material (TF2)				
	ted Below Dark Surfac	o (Λ11)	Depleted Dark	` ,							
		E (ATT)			1)					,	
	Dark Surface (A12)		Redox Depres		/= .a\			er (Explain in Re	illaiks)		
	Mucky Mineral (S1) (LRR N,	Iron-Manganes	se Masses	(F12) (LR	RN,					
	147, 148)		MLRA 136)								
	Gleyed Matrix (S4)		Umbric Surface								
	Redox (S5)		Piedmont Floo	dplain Soil	s (F19) (M	LRA 148)					
Strippe	ed Matrix (S6)							rs of hydrophytic			
								y must be prese	nt, unless dist	urbed or	
							problema	atic.			
Restrictive	e Layer (if observed)	:									
Type:				_							
Depth	(inches):			_	Hydric S	Soil Prese	nt?	Yes X	,	No	
				_						<u></u>	
Remarks:											
I											

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Upgradient

roject/Site: Former Satralloy Site City/County: Mingo Junction/Jefferson Sampling Date: 4/26/2012										
Applicant/Owner: Cyprus A	max Minera	Is Company		Stat	e: OH	Sampling Point: WF-YY				
Investigator(s): KK, CW Section, Township, Range: Cross Creek										
Landform (hillslope, terrace, e	etc.): near	r river embankı	ment L	ocal relief (concave, convex, none	e): concave	Slope (%):				
Subregion (LRR or MLRA):	LRR N		Lat: 80.6800° V	N Long: 40.		Datum: NAD 1983				
	ga silt loam				NWI classification: 1					
Are climatic / hydrologic cond			•	Yes X No		n in Remarks.)				
Are Vegetation, Soi			significantly distu		•	Yes X No				
Are Vegetation, Soi	.1	or Hydrology	naturally problem	natic? (If needed, explain a	ny answers in Remar	ks.)				
SUMMARY OF FINDIN	GS - Atta	ch site map	showing samp	oling point locations, trans	sects, important	t features, etc.				
Hydrophytic Vegetation Pres	sent?	Yes	No X	Is the Sampled Area						
Hydric Soil Present?		Yes	No X	Within a Wetland?	Yes	NoX				
Wetland Hydrology Present	?	Yes	No X	If yes, optional Wetland Sit	e ID:					
year. See Appendix B, Figu				t the southwestern corner of the Si						
HYDROLOGY Watland Hydrology Indian	4-ua.				Casanany Indicato	(minimum of two required)				
Wetland Hydrology Indica			-!! that analy()			rs (minimum of two required)				
Primary Indicators (minimum	1 of one is re	equirea; cneck a		(544)	Surface Soil					
Surface Water (A1)		_	True Aquatic Pla			getated Concave Surface (B8)				
High Water Table (A2))	_	Hydrogen Sulfide	` '	Drainage Pa					
Saturation (A3)		_		pheres on Living Roots (C3)	Moss Trim L					
Water Marks (B1)		_	Presence of Red	• •		Water Table (C2)				
Sediment Deposits (B	2)	_		luction in Tilled Soils (C6)						
Drift Deposits (B3)		_	Thin Muck Surface		Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4	.)	_	Other (Explain in	n Remarks)	Stunted or Stressed Plants (D1)					
Iron Deposits (B5)		,				Position (D2)				
Inundation Visible on	_	ry (B7)			Shallow Aqu					
Water Stained Leaves	(B9)					aphic Relief (D4)				
Aquatic Fauna (B13)					FAC-Neutral	Test (D5)				
Field Observations:										
Surface Water Present?	Yes	NoX	Depth (inches):							
Water Table Present?	Yes	NoX	Depth (inches):							
Saturation Present? (includes capillary fringe)	Yes	NoX	Depth (inches):	: Wetland Hydro	ology Present?	Yes No <u>X</u>				
Describe Recorded Data (st	ream gauge	, monitoring we	ell, aerial photos, prev	vious inspections), if available:						
Remarks:										

	Common Name	Scientific Name	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tre	ee Stratum (Plot size:	30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1.	American sycamore	Platanus occidentalis			FACW*	Are OBL, FACW, or FAC: 2 (A)
2.	common hackberry	Celtis occidentalis	20.5	yes	FACU	Total Number of Dominant Species
3.						Across All Strata: 5 (B)
4.						Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)
5. c						Are OBL, FACW, or FAC: 40.0% (A/B)
6. 7						Prevalence Index worksheet:
7.		·	58.5	= Total Cov		
			0.00	= 10tai Cov	vei	Total % Cover of: Multiply by: OBL species 0 x 1 = 0
Sar	pling/Shrub Stratum	(Plot size: 15' radius)				FACW species 38 x 2 = 76
1.	Ohio buckeye	Aesculus glabra	38	yes	FACU	FAC species 10.5 x 3 = 31.5
2.) 555	17.00	FACU species 69 x 4 = 276
3.						UPL species 0 x 5 = 0
4.						Column Totals: 117.5 (A) 383.5 (B)
5.						
6.						Prevalence Index = B/A = 3.26
7.						
			38	= Total Cov	ver	Hydrophytic Vegetation Indicators:
						Rapid Test for Hydrophytic Vegetation
Her		5' radius)				Dominance Test is >50%
1.	red maple	Acer rubrum	10.5	yes	FAC*	Prevalence Index is ≤ 3.0 ¹
2.	woodland phlox	Phlox divaricata	10.5	yes	FACU	Morphological Adaptations ¹ (Provide supporting data
3.						in Remarks or on a separate sheet)
4.						Problematic Hydrophytic Vegetation ¹ (Explain)
5.						
6.						¹ Indicators of hydric soil and wetland hydrology must be
7.						present, unless disturbed or problematic.
8.						
9.						Definitions of Vegetation Strata:
10.						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
11.						breast height (DBH), regardless of height.
12.				Tatal Co		Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			21	= Total Cov	ver	
۱۸/۵	ade Vino Stratum	(Diet size:				Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
	oody Vine Stratum none	(Plot size:)				Woody vines - All woody vines greater than 3.28 ft in
1. 2.	ПОПЕ					height.
2. 3.						no.gra
3. 4.						The Jacob Ada
-1.			0	= Total Cov	ver	Hydrophytic Vegetation
				1010.00	V C.	Present? Yes No X
						11636111.
Rer		umbers here or on a sep	arate sheet.	1		.1
	marito. (moreas prists	11110010 11010 0. o o. zz-	urato c,			

SOIL Upgradient Sampling Point: WF-YY

Profile De	escription: (Describe	to the dept	h needed to docui	ment the i	ndicator o	r confirm	the abse	nce of indicato	rs.)			
Depth	Matrix		Re	dox Featu	res							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks			
0-6	10YR 4/3							Ap Horizon	fine sand	y loam		
6-18+	10YR 3/4							Bw Horizon	fine sand	y loam		
				· · ·								
				· · ·								
	- 1						. !					
								•				
								•				
¹ Type: C=	Concentration, D=Dep	letion, RM=	Redox Matrix, CS=	Covered or	Coated S	and Grair	S.	² Location: PL=	Pore Lining,	M-Matrix.		
Hydric So	oil Indicators:						Indicato	rs for Problem	atic Hydric S	Soils ³ :		
-	sol (A1)		Dark Surface (S7)				n Muck (A10) (N	-			
	Epipedon (A2)	-	Polyvalue Belo		(S8) (MLR	A 147, 14		st Prairie Redox				
	Histic (A3)	-	Thin Dark Surfa				_	RA 147, 148)	(- /			
	Hydrogen Sulfide (A4) Loamy Gleyed Mat					,	Piedmont Floodplain Soils (F19)					
Stratified Layers (A5) Depleted Matrix (,		(MLRA 136, 147)					
	Muck (A10) (LRR N)	-	Redox Dark Su					Red Parent Material (TF2)				
	eted Below Dark Surface	ce (A11)	Depleted Dark	Surface (F	7)			/ Shallow Dark		2)		
	Dark Surface (A12)	` ′ -	Redox Depress		,			er (Explain in Re		•		
	y Mucky Mineral (S1) (LRR N.	 Iron-Manganes		(F12) (LRF		` '	,				
	A 147, 148)		MLRA 136)									
	y Gleyed Matrix (S4)		Umbric Surface	e (F13) (ML	-RA 136,1	22)						
	y Redox (S5)	-	Piedmont Floor									
	ped Matrix (S6)	-		•	` , `	ĺ	3Indicato	rs of hydrophyti	c vegetation	and wetland		
	, ,							y must be prese				
							problema	atic.				
Restrictiv	e Layer (if observed)	:										
Type:	refusal			-								
Depth	n (inches):		8		Hydric S	oil Prese	nt?	Yes		No X		
				•								
Remarks:					•							

WETLAND DELINEATION DATA FORM - Eastern Mountains and Piedmont Downgradient

Project/Site: Former Satralloy	/ Site	City/Cou	inty: Mingo Junction/Jefferson	Sam	npling Date: <u>4/26/2012</u>		
Applicant/Owner: Cyprus Am	nax Minerals Comp	oany	State: O	H Sam	Sampling Point: WF-YY		
Investigator(s): KK, CW			Section, Township, Range: Cross C	reek			
Landform (hillslope, terrace, et	c.): near river en	nbankment Loca	al relief (concave, convex, none): co	ncave	Slope (%):		
• ,	LRR N	Lat: 80.6800° W	Long: 40.3052		Datum: NAD 1983		
	a silt loam			I classification: PFO			
Are climatic / hydrologic condit		•	Yes X No	(If no, explain in F	•		
Are Vegetation, Soil				•	Yes X No		
Are Vegetation, Soil	, or Hydrol	logy naturally problemat	tic? (If needed, explain any an	swers in Remarks.)			
SUMMARY OF FINDING	3S - Attach site	map showing samplii	ng point locations, transect	s, important fea	atures, etc.		
Hydrophytic Vegetation Prese	ent? Yes_	X No_	Is the Sampled Area				
Hydric Soil Present?	Yes	X No	Within a Wetland?	Yes X	No		
Wetland Hydrology Present?	Yes	X No	If yes, optional Wetland Site ID:				
•	_						
year. See Appendix B, Figur							
HYDROLOGY Wetland Hydrology Indicate	ore:		Se	econary Indicators (m	ninimum of two required)		
Primary Indicators (minimum		check all that annly)		Surface Soil Crac			
X Surface Water (A1)	Of Otto is required, s	True Aquatic Plants			ted Concave Surface (B8)		
X High Water Table (A2)		Hydrogen Sulfide C		Drainage Pattern			
X Saturation (A3)			eres on Living Roots (C3)	Moss Trim Lines			
Water Marks (B1)		Presence of Reduc		Dry-Season Wate			
Sediment Deposits (B2	ή.		tion in Tilled Soils (C6)	Crayfish Burrows			
Drift Deposits (B3)	,	Thin Muck Surface	` '		e on Aerial Imagery (C9)		
Algal Mat or Crust (B4)		Other (Explain in R	· ·	Stunted or Stress			
Iron Deposits (B5)		Outer (Explain in 15		X Geomorphic Posi			
Inundation Visible on A	erial Imagery (B7)			Shallow Aquitard			
Water Stained Leaves				Microtopographic			
Aquatic Fauna (B13)	(53)			FAC-Neutral Tes			
Field Observations:				1710 1104141	(00)		
Surface Water Present?	Yes X No	Depth (inches):	12				
Water Table Present?	Yes X No	Depth (inches):	0				
Saturation Present?	Yes X No	Depth (inches):		/ Present?	Yes X No		
(includes capillary fringe)	100_1			, 11000	100 <u>x</u>		
Describe Recorded Data (stre	eam gauge, monitor	ring well, aerial photos, previo	us inspections), if available:				
`	0 0 7		. ,				
Remarks:							

Scientific Name

Absolute

Common Name

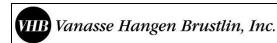
Tree Stratum (Plot	Size: 30' radius)	% Cover	Species?	Status	Number of Dominant Species That
1. american elm	Ulmus americana	38	yes	FACW*	Are OBL, FACW, or FAC: 2 (A)
2. Ohio buckeye	Aesculus glabra	10.5	yes	FACU	Total Number of Dominant Species
3.					Across All Strata: 6 (B)
4.					Percent of Dominant Species That
5.					Are OBL, FACW, or FAC: 33.33% (A/B)
6.					
7.					Prevalence Index worksheet:
		48.5	= Total Co	ver	Total % Cover of: Multiply by:
					OBL species 0 x 1 = 0
Sapling/Shrub Stratur	n (Plot size: 15' radius)				FACW species 38 x 2 = 76
Ohio buckeye	Aesculus glabra	10.5	yes	FACU	FAC species 10.5 x 3 = 31.5
2.					FACU species 31.5 x 4 = 126
3.					UPL species 0 x 5 = 0
4.					Column Totals: 80 (A) 233.5 (B)
5.					
6.					Prevalence Index = B/A = 2.92
7.					
		10.5	= Total Co	ver	Hydrophytic Vegetation Indicators:
					Rapid Test for Hydrophytic Vegetation
	SIZE: 5' radius)				Dominance Test is >50%
1. duckweed	Lemna trinervis	10.5	yes	NI	Y Prevalence Index is ≤ 3.0 ¹
red maple	Acer rubrum	10.5	yes	FAC*	Morphological Adaptations ¹ (Provide supporting data
early buttercup	Ranunculus fascicular	10.5	yes	FACU	in Remarks or on a separate sheet)
4.					Problematic Hydrophytic Vegetation ¹ (Explain)
5					. _
6.					Indicators of hydric soil and wetland hydrology must be
7					present, unless disturbed or problematic.
8.					
					Definitions of Vegetation Strata:
10					Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
					breast height (DBH), regardless of height.
12					Sapling/Shrub - Woody plants less than 3 in. DBH and
		31.5	= Total Co	ver	greater than 3.28 ft (1 m) tall.
					Herb - All herbaceous (non-woody) plants, regardless of
Woody Vine Stratum	(Plot size:)				size, and woody plants less than 3.28 ft tall.
1. none					Woody vines - All woody vines greater than 3.28 ft in
2.					height.
3.					
4.					Hydrophytic
		0	= Total Co	ver	Vegetation
					Present? Yes X No
Remarks: (Include ph	oto numbers here or on a sep	arate sheet.))		

Dominant Indicator

SOIL Downgradient Sampling Point: WF-YY

Profile Des	scription: (Describe	to the depti	n needed to docur	nent the ir	ndicator o	r confirm	the abse	nce of indicato	rs.)	
Depth	Matrix		Re	dox Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-6	10YR 4/3							Ap Horizon	fine sand	dy loam
6-12+	2.5Y 4/2							Bg Horizon	fine sand	dy loam
										'
										'
								-		
								-		
¹ Type: C=0	Concentration, D=Dep	letion, RM=F	Redox Matrix, CS=	Covered or	Coated Sa	and Grain	S.	² Location: PL=	Pore Lining	, M-Matrix.
Hydric So	il Indicators:						Indicato	rs for Problema	atic Hydric	Soils ³ :
-	ol (A1)		Dark Surface (S	S7)				n Muck (A10) (N	-	·· · ·
	Epipedon (A2)	-	Polyvalue Belo	,	(S8) (MLR	Δ 147 14		st Prairie Redox		
	Histic (A3)	-	Thin Dark Surfa					RA 147, 148)	(/110)	
	gen Sulfide (A4)	-	Loamy Gleyed			140)	•	lmont Floodplair	Soils (F19)	1
	ed Layers (A5)	-	X Depleted Matrix					RA 136, 147)	. 00.10 (1 10)	
	Muck (A10) (LRR N)	-	Redox Dark Su					Parent Material	(TF2)	
	ted Below Dark Surfac	re (A11)	Depleted Dark	` ,	7)			Shallow Dark S		2)
	Dark Surface (A12)		Redox Depress		• /			er (Explain in Re		-/
	Mucky Mineral (S1) (I DD NI	Iron-Manganes		(E12) // DE	D NI		or (Explain in the	iriarito)	
	. 147, 148)	LKK N,	MLRA 136)	e iviasses ((1 12) (LIX F	ιν,				
	Gleyed Matrix (S4)		Umbric Surface	(F13) (MI	RΔ 136 1 5	22)				
	Redox (S5)	-	Piedmont Floor							
	ed Matrix (S6)	-		apiani cono	(i 10) (iii	,	³ Indicato	rs of hydrophytic	e vogetation	and wotland
	ca mainx (co)							y must be prese		
							problema		int, unicoo u	otarbea or
Restrictive	e Layer (if observed)						p			
Type:	c Layer (ii observed)	•								
	(inches):				Hydric S	oil Prese	nt?	Yes X		No
Берит	(11101103).				linguine	011116361		163	·	<u> </u>
Remarks:					<u>. </u>					
ricinario.										
ĺ										

Appendix D Project Area Photographs



Client Name: Cyprus

Site Location: Former Satralloy Site

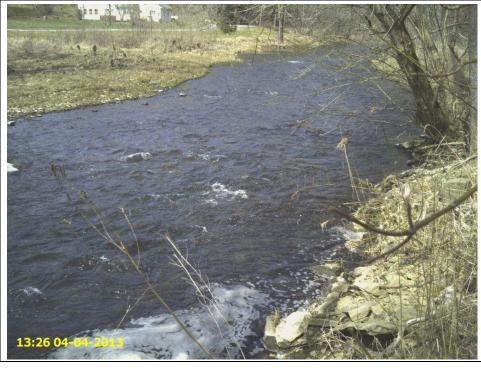
Project No: 11226.02

Photo No.: 1

Date: 4/4/13

Description:

Waterway A (Cross Creek), at bend in creek, looking north.



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/4/13

Site Location: Former Satralloy Site

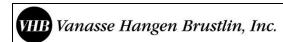
Project No: 11226.02

Description:

Photo No.: 2

Waterway A (Cross Creek), at bend in creek, looking southwest.





Client Name: Cyprus

Date: 4/4/13

Description:

Photo No.: 3

Waterway A (Cross Creek), looking southwest.

Site Location: Former Satralloy Site



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/24/12

Site Location: Former Satralloy Site

Project No: 11226.02



Photo No.: 4

Wetland D, at northwestern end of wetland, looking southeast.





Client Name: Cyprus

Site Location: Former Satralloy Site

Project No: 11226.02

Photo No.: 5

Date: 4/24/12

Description:

Wetland D, culvert and headwall at northwestern end, looking northeast.



VIIB Vanasse Hangen Brustlin, Inc.

Date: 4/24/12

PHOTOGRAPHIC LOG

Client Name: Cyprus

ypruo

Site Location: Former Satralloy Site

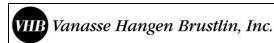
Project No: 11226.02

Description:

Photo No.: 6

Wetland E, at northern end of wetland, looking south.





Client Name: Cyprus

Site Location: Former Satralloy Site

Project No: 11226.02

Photo No.: 7

Date: 4/26/12

Description:

Wetland E, in center of channel, looking north.



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/4/13

Site Location: Former Satralloy Site

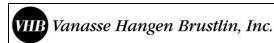
Project No: 11226.02

Description:

Photo No.: 8

Wetland/Waterway F, at northeastern end of vegetated wetland, looking southwest.





Client Name: Cyprus

Site Location: Former Satralloy Site

Project No: 11226.02

Photo No.: 9

Date: 4/4/13

Description:

Wetland/Waterway F, flow from vegetated wetland dropping into welldefined channel, looking southwest.



VHB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/4/13

Site Location: Former Satralloy Site

Project No: 11226.02

Description:

Photo No.: 10

Wetland/Waterway F, near bottom of channel, looking southeast.





Client Name: Cyprus

Site Location: Former Satralloy Site

Project No: 11226.02

Photo No.: 11

Date: 4/4/13

Description:

Wetland/Waterway F, at intersection with Waterway A (Cross Creek), looking northwest.



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/23/12

Site Location: Former Satralloy Site

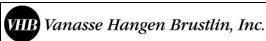
Project No: 11226.02

Description:

Photo No.: 12

Waterway H (Cross Creek), at eastern property border, looking east.





Client Name: Cyprus Site Location: Former Satralloy Site **Project No: 11226.02**

Photo No.: 13 **Date:** 4/3/13

Description:

Waterway H (Cross Creek), at southern property boundary, looking northeast.



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Site Location: Former Satralloy Site Client Name: Cyprus **Project No: 11226.02**

Photo No.: 14 **Date:** 4/3/13

Description:

Waterway H (Cross Creek), at bridge by western property border, looking south.



VHB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Site Location: Former Satralloy Site

Project No: 11226.02

Photo No.: 15

Date: 4/3/13

Description:

Waterway H (Cross Creek), at bridge by western property border, looking north.



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/25/12

Site Location: Former Satralloy Site

Project No: 11226.02

Description:

Photo No.: 16

Wetland/Waterway J, at northern end of wetland, looking north.





Client Name: Cyprus

Site Location: Former Satralloy Site

Project No: 11226.02

Photo No.: 17

Date: 4/4/13

Description:

Wetland/Waterway J, at southern end of wetland, looking north.



VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/4/13

Site Location: Former Satralloy Site

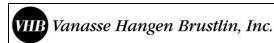
Project No: 11226.02

Description:

Photo No.: 18

Wetland/Waterway J, culvert at southern end, looking southwest.





Client Name: Cyprus

Photo No.: 19 **Date:** 4/4/13

Description:

Waterway K, from access road separating Wetlands J and K, looking

southeast.



VHB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

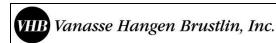
Client Name: Cyprus

Photo No.: 20 **Date:** 4/3/13

Description:

Wetland P, at edge of former rail spur, looking west.





Client Name: Cyprus

Date: 4/3/13

Project No: 11226.02

Description:

Photo No.: 21

Wetland P, at edge of former rail

spur, looking east.



VHB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Date: 4/3/13

Site Location: Former Satralloy Site

Site Location: Former Satralloy Site

Project No: 11226.02

Description:

Photo No.: 22

Wetland P, water flowing down former rail spur, looking southeast.





Client Name: Cyprus Site Location: Former Satralloy Site Project No: 11226.02

Photo No. : 23

23 **Date:** 4/3/13

Description:

Wetland Q, water flowing along berm separating upper and lower rail spurs, looking southwest.



VHB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus Site Location: Former Satralloy Site Project No: 11226.02

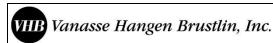
Photo No.: 24

Date: 4/3/13

Description:

Wetland Q, at eastern end of wetland, looking north.





Client Name: Cyprus

Photo No.: 25

Date: 4/3/13

Project No: 11226.02

Description:

Wetland YY, at southeastern end of wetland, looking northwest.





VIIB Vanasse Hangen Brustlin, Inc.

PHOTOGRAPHIC LOG

Client Name: Cyprus

Photo No.: 26 **Date:** 4/3/13 Site Location: Former Satralloy Site

Site Location: Former Satralloy Site

Project No: 11226.02

Description:

Wetland YY, at southeastern end of wetland, looking west.

