



TECHNICAL MEMORANDUM

DATE March 26, 2025

Project No. US0033555.9828

TO Barbara K. Nielsen, Manager, Remedial Projects
Cyprus Amax Minerals Company

CC Steve Anderson

FROM Bob Ireson

EMAIL bob.ireson@wsp.com

**RE: COMPLETION OF OPHAN WATER WELL DECOMMISSIONING
FORMER SATRALLOY SITE (JEFFERSON COUNTY, OHIO)**

This memorandum provides a summary of the abandonment of Well #3, located in the North Lowlands at the Former Satralloy Site in Mingo Junction, Ohio (Site). The well construction is consistent with original Ohio Department of Natural Resources (ODNR) Well Log No. 201946 completed as an industrial water supply well in 1957. No information is available regarding last use; however, all pumping equipment had been removed at some point before Cyprus took control of the Site. WSP discovered the well casing during site grading activities in February 2024.

WSP oversaw the well decommissioning between December 17 and December 18, 2024, with Cascade Drilling LP (Cascade) completing the drilling and sealing activities. A WSP geologist monitored the decommissioning activities. The well casing was inspected and determined to be in good condition prior to decommissioning. Field observations and measurements, including water levels and total depth, were recorded prior to decommissioning.

The work proceeded in accordance with the Ohio EPA Division of Drinking and Ground Waters Technical Guidance Manual (TGM) for Hydrogeologic Investigations and Ground Water Monitoring, Chapter 9, Sealing Boreholes and Decommissioned Monitoring Wells (September 2016) as specified in Ohio Administrative Code Rule 3475-9-03, Monitoring Wells.

Well #3 had a measured total depth of 45.6 feet¹ from the top of the casing, 43.3 feet from the ground surface, and a 16-inch diameter steel casing. WSP observed approximately 10 feet of the well screen during a camera inspection completed on October 10, 2024. At the time of abandonment, groundwater was encountered at a depth of 17.55 feet from the top of the casing.

The area was cleared of debris and obstructions surrounding the well to facilitate safe access to the casing. Static water was pumped from the well prior to sealing. A tremie pipe was installed in the well casing to allow for the controlled deposit of grout.

¹ The ODNR Well Sealing Report application auto-completes the casing length based on the original well log as entered by ODNR and it cannot be edited. The original log indicates 38.2 ft. of casing and 10' of screen.

The primary sealing material consisted of Quick-Grout®, a high-solids grout sealing and plugging material with standard ANSI/NSF 60 certification. It was mixed with fresh potable water according to the manufacturer's instructions. Cascade completed the pressure grouting of the well in a continuous operation without interruption. A total of 19 bags of grout were used to fill the well from the bottom to a depth 3 feet below grade.

The well casing was cut to below the final ground elevation grade on February 20, 2025. Six bags of hydrated 3/8th-inch Hole Plug® were placed in the well above the previously deposited grout to complete sealing of the remaining casing after cutting.

Figure 1 illustrates the location of the decommissioned well. Appendix A includes a copy of the Water Well Sealing Report prepared and submitted by Cascade to the ODNR on February 11, 2025. Information contained in the ODNR sealing report is entered by the driller and subject to the data entry limitations of the ODNR database. Appendix B contains a photo log of the decommissioning activities. Appendix C includes a copy of the original ODNR Well Log and Drilling Report.

In summary, one former water well was decommissioned at the Former Satralloy Site.

WSP USA Inc.

Attachments: Figure 1 – Location of the Decommissioned Water Well
Appendix A – Water Well Sealing Report
Appendix B – Photo Log of Decommissioning Activities
Appendix C – Original Well Log



LEGEND

- Decommissioned Monitoring Well
- Active Monitoring Well
- Decommissioned Water Well
- State Road
- Slab Areas
- Elevation Contour (10-ft interval)
- Elevation Contour (2-ft interval)
- Roads (April 2024)

0 37.5 75 150

1 in = 75ft Feet

NOTE(S)

1. BASE TOPOGRAPHY PROVIDED BY JEFFERSON COUNTY, OHIO, ENGINEER'S OFFICE, DATED 2003. TOPOGRAPHY UPDATED USING AS-BUILT SURVEY OF STAGE 1 INTERIM ACTION PROVIDED BY RETTEW, DATED AUGUST 30, 2017, AS-BUILT SURVEY OF NEW HAUL ROAD PROVIDED BY RETTEW, DATED DECEMBER 20, 2021 AND AS-BUILT SURVEY OF STAGE 2 INTERIM ACTION (DEMOLITION) PROVIDED BY RETTEW, DATED OCTOBER 4, 2022. COORDINATE SYSTEM: NAD83 OHIO STATE PLANE, NORTH ZONE, US FOOT VERTICAL DATUM: NAVD 88

2. PROPERTY BOUNDARY SURVEY PROVIDED BY RETTEW, DATED JULY 29, 2022.

3. JURISDICTIONAL WETLAND AND TRIBUTARY ORDINARY HIGH WATER MARK (OHWM) DELINEATION PROVIDED BY WESTLAND RESOURCES, INC., DATED NOVEMBER 14, 2018.

4. CROSS CREEK MILE MARKERS OBTAINED FROM GEODATABASE AVAILABLE ON THE OHIO STATE DNR WEBSITE, JUNE 2012.

5. SITE ADDRESS: 4243 COUNTY ROAD 74
MINGO JUNCTION, OH 43938

REFERENCE(S)

1. BASEMAP SOURCE: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, WEST VIRGINIA GIS, ESRI, HERE, GARMIN, GEOTECHNOLOGIES, INC., USGS, EPA

CLIENT

CYPRUS AMAX MINERALS COMPANY

PROJECT

FORMER SATRALLOY SITE
SLAG REMOVAL INTERIM ACTION
JEFFERSON COUNTY, OHIO

TITLE

LOCATION OF THE DECOMMISSIONED WATER WELL

CONSULTANT	WSP	YYYY-MM-DD	3/13/2025
DESIGNED		DTD	
PREPARED		DTD	
REVIEWED		DRI	
APPROVED		DRI	

PROJECT NO.	CONTROL	REV.	FIGURE
US0033555.9828	-	-	1

APPENDIX A

Water Well Sealing Report

WATER WELL SEALING REPORT
OHIO DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
2045 Morse Road, Bldg B
Columbus, OH 43229-6693
Phone: (614) 265-6576

Page ____ of ____

LOCATION

County _____ Township _____ Section No. _____ Lot No. _____

Owner _____

Address of Well Location _____

City _____ Zip Code _____

Well Location Description
(120 Characters)

Location of Well: Latitude/Longitude Latitude _____ Longitude _____

Previous Well Use _____

Elevation of Well [][][][][] . [][] +/- _____ ft. Datum Plane: ☐ NAD27 ☐ NAD83Source of Coordinates: ☐ GPS ☐ Survey ☐ Other _____Source of Elevation: ☐ GPS ☐ Survey ☐ Other _____**WELL IDENTIFICATION** ODNR Well Log Number _____ Project Well ID _____**MEASURED CONSTRUCTION DETAILS**

Date of measurements _____ No TD/Pump Stuck _____

Depth of Well _____ ft. Static Water Level _____ ft.

Borehole Depth _____ ft. Borehole Diameter _____ in.

Casing Diameter _____ in. Casing Length _____ ft. Casing Type _____

Borehole Depth _____ ft. Borehole Diameter _____ in.

Casing Diameter _____ in. Casing Length _____ ft. Casing Type _____

Well Condition _____

SEALING PROCEDURE

Placement:	Sealing Material	Volume/Weight Used Units Required	Placement Method
From _____ ft. To _____ ft.	_____	_____	_____
From _____ ft. To _____ ft.	_____	_____	_____
From _____ ft. To _____ ft.	_____	_____	_____
From _____ ft. To _____ ft.	_____	_____	_____

Condition of Casing _____ Was Casing Removed? ☐ Yes or ☐ No
(check one)If casing **Not Removed**, was it Perforated? ☐ Yes or ☐ No Perforations: From _____ ft. To _____ ft.
(check one)

Date Sealing Performed _____

Comments/Reason for Sealing

CONTRACTOR

Name _____ ODH Registration # _____

Address _____

City/State/Zip _____

Signed _____ Filed electronically on _____

I hereby certify the information given is accurate and correct to the best of my knowledge.

Last revised on _____

APPENDIX B

Photo Log

Appendix B: Photo Log

PHOTO 1:
Well #3 located in
the North
Lowlands.



PHOTO 2:
The area
surrounding the
well was cleared
of material
buildup.



PHOTO 3:
Static water was
removed from
the well.



PHOTO 4:
Tremie pipe
staged on top of
well casing.



PHOTO 5:
The well was
grouted 3ft below
grade.



PHOTO 6:
T-posts wrapped
in caution tape
surround the well
after grouting.



PHOTO 7:
Cutting surface
casing below new
ground elevation.



PHOTO 8:
Final sealing of
remaining casing
with hydrated
Hole Plug®.



APPENDIX C

Original Well Log

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 201946

County JEFFERSON Township CROSS CREEK Section of Township 8
Owner VANADIUM CORP OF AMERICA Address CAMBRIDGE OHIO
Location of property WELLS NATH OF CREEK S.E. OF CENTER OF SECTION

CONSTRUCTION DETAILS

Casing diameter Length of casing
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

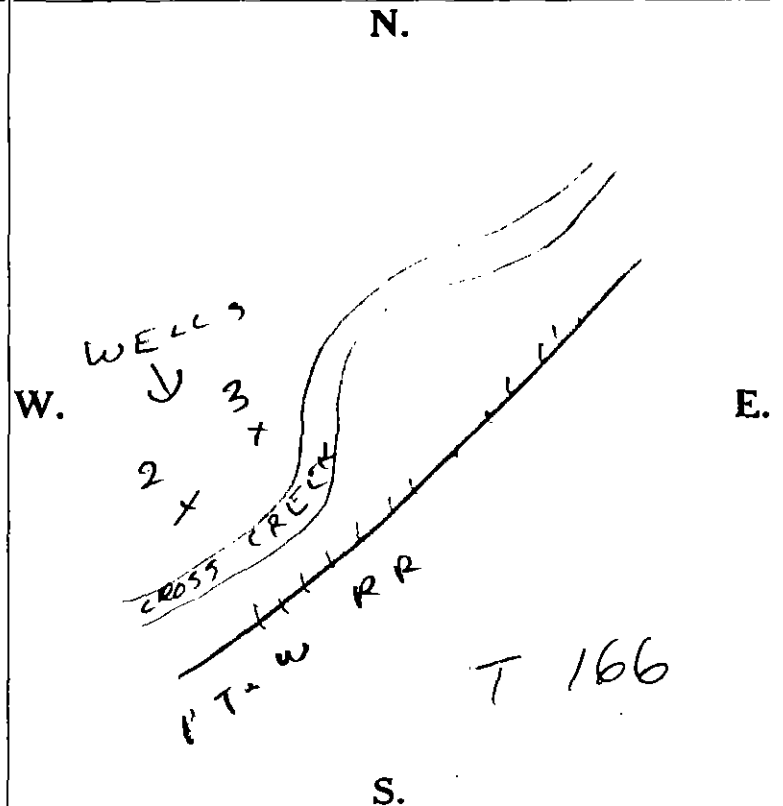
Pumping rate G.P.M. Duration of test hrs.
Drawdown ft. Date
Developed capacity
Static level—depth to water ft.
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 FeetFt.
See our log 1347		

SKETCH SHOWING LOCATION

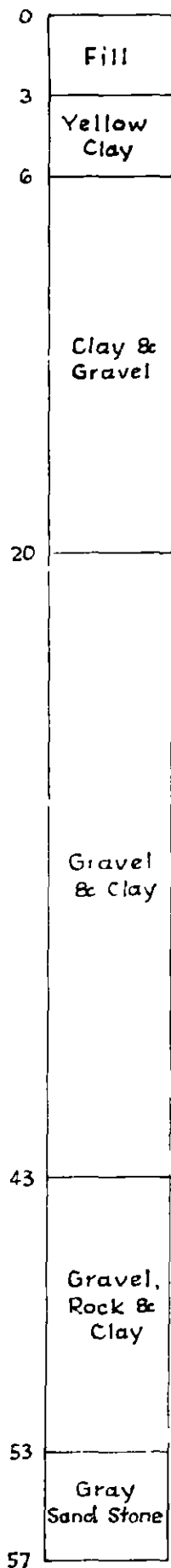
Locate in reference to numbered
State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Ligno Ohio Co
Address Col U

Date 8-12-57
Signed L.T. Humphreys



MATERIAL:

Pit: 38'-4" of 16" Steel Pipe.

Screen: 10' of 16" Bronze Shutter Screen.

Cone: Steel Bottom

PUMP:

No.	38200	Shop No.	38200
Type		Size	8"
Setting	40'	Stages	4
Suction	4"x3'-4"	Impellers	Bronze
Discharge	4"	Head	
Tubing	None	Press. B. P.	
Shafting	7/8"		

MOTOR:

Make	U. S.	Type	S. D. N.
Volts	440	Cycle	60
Phase	3	Amp.	
H. P.	5	R. P. M.	1800
Frame	254-P	Serial	2673557

WELL:

Capacity	80 G. P. M.	Static Level	18
Guarantee	None	P. Level	26'-7"
Started	6-11-57	Pressure	
Finished	7-12-57	Pumped	80 G. P. M.
Accepted	7-12-57	Depth	48'

REMARKS:

26" Casing Removed.

10 Tons of Pea Gravel Placed Around Screen.

Driller: Allen Leatherwood
Installer: Elmer Hurles, Jr.

THE LAYNE-OHIO CO.,

WATER SUPPLY CONTRACTORS
COLUMBUS OHIO

VANADIUM CORP. OF AMERICA
(VANCORUM) STEUBENVILLE, OHIO

DRAWN BY O. L. ME
WELL NO 3

APPROVED BY
DRAWING NO 1347