SIXTH FIVE-YEAR REVIEW REPORT FOR SALTVILLE WASTE DISPOSAL PONDS SUPERFUND SITE SMYTH AND WASHINGTON COUNTIES, VIRGINIA

SEPTEMBER 2022

Prepared by

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LIST OF ABBREVIATIONS AND ACRONYMS

ADTDR	average daily treated discharge rate
AOC	administrative order on consent
ASAW	ammonia soda ash waste
CDM Smith	CDM Federal Programs Corporation
cfs	cubic feet per second
DDA	Demolition Debris Area
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FCPS	Former Chlorine Plant Site
FRC	former river channel
FS	feasibility study
FYR	five-year review
GPRA	Government Performance and Results Act
IC	institutional control
LTM	long-term monitoring
MCL	maximum contaminant level
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
ng/L	nanograms per liter
NFHR	North Fork Holston River
NPL	National Priorities List
Olin	Olin Corporation
O&M	operation and maintenance
OMM	operations, maintenance, and monitoring
OU	operable unit
PRP	potentially responsible party
RA	remedial action
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RI	remedial investigation
ROD	Record of Decision
RPM	remedial project manager
SSTP	Saltville Site Treatment Plant
SWCB	State Water Control Board
TMDL	total maximum daily load
UU/UE	unlimited use and unrestricted exposure
VDEQ	Virginia Department of Environmental Quality

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act Section 121, consistent with National Oil and Hazardous Substances Pollution Contingency Plan requirements at Title 40 of the Code of Federal Regulations, Section 300.430(f)(4)(ii), and considering EPA policy.

This is the sixth FYR for the Saltville Waste Disposal Ponds Superfund site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of four operable units (OUs), three of which are addressed in this FYR. OU1 addresses Pond 5 surface water diversion. OU2 addresses the collection and treatment of leachate-contaminated groundwater from Pond 5 at the Saltville Site Treatment Plant (SSTP) (historically referred to as the wastewater treatment plant, the Pond 5 treatment facility, and the Pond 5 treatment plant, among other names). OU3[1] addresses the upgradient groundwater interceptor system, the Pond 5 cap, the Pond 6 soil cover, the collection and treatment of leachate-contaminated groundwater from Pond 6, additional engineering controls for diversion/management of clean stormwater and groundwater, institutional controls (ICs), operations and maintenance (O&M), and long-term monitoring (LTM). OU4 addresses mercury impacts at the Former Chlorine Plant Site (FCPS) and the North Fork Holston River (NFHR) and Holston River. OU4 is not addressed in this FYR because it is still in the remedial investigation (RI) phase, and no remedy has been selected for OU4.

The FYR was led by EPA co-remedial project managers (Co-RPMs) Eric Newman and Evelyn Sorto. Participants included EPA community involvement coordinator Eric Pollard, EPA hydrogeologists Mindi Snoparsky and Nate Doyle, EPA risk assessor Jeff Tuttle, EPA Ecologist Bruce Pluta, and William Lindsay from the Virginia Department of Environmental Quality (VDEQ). Staff from EPA contractor CDM Federal Programs Corporation (CDM Smith) assisted with preparing the initial draft report and provided technical input throughout the review process. Olin, the sole Potentially Responsible Party (PRP), was notified of the initiation of the FYR. The review began on 1/5/2022.

Appendix A includes a list of documents reviewed for this FYR. Appendix B includes a Site chronology.

Site Background

The 132-acre Site is located along the bank of the NFHR between the towns of Saltville and Allison Gap, Virginia, in western Smyth and eastern Washington Counties (Figure 1). The NFHR forms the southern border of the Site. Virginia State Route 611 runs along the northern edge of the Site, near the foot of Little Mountain. Areas and features of interest at this Site generally consist of the FCPS; Ponds 2, 5, and 6; the SSTP; and the extent of contamination that has migrated from these areas, including an undetermined length of the NFHR (See Figures C-2 and C-3).

From 1895 to 1972, Olin and its corporate predecessors used the Site as the location for various chemical manufacturing operations. Ponds 2, 5, and 6 were used primarily to settle alkaline solids from waste slurry generated by the Solvay soda ash (sodium carbonate) manufacturing process; excess water decanted directly to the river untreated. The settled solids are referred to as ammonia soda ash waste (ASAW) and can exhibit pH

[1] In April 2022, EPA issued an Explanation of Significant Differences (ESD) adding Pond 2 to the scope of OU3.

levels of more than 12. In general, when the volume of settled ASAW in a waste pond reached full capacity, a new waste pond was created.

The dikes containing the ponds were constructed of rockfill cores (starter dikes) and built up with accumulations of spent coke and roasted limestone waste. Pond 2 operated as an active disposal area until 1924, when it suffered a breach. The following year Pond 5 was constructed by diverting the NFHR into a new channel and constructing a new dike across the former river channel (FRC). Pond 5 operated from 1925 to 1971, and Pond 6 from 1964 to 1971. Pond 2 is immediately east of Pond 5, covering a 7-acre stretch of land extending to the FCPS with dikes approximately 90 feet high and ASAW 50-70 feet thick. Pond 5 covers an area of about 76 acres with dikes approximately 100 feet high and depth of ASAW averaging about 63 feet. Pond 6 is immediately west and downstream of Pond 5 covering about 45 acres with dikes approximately 35 feet high and ASAW 20-30 feet thick.

The Ponds were primarily used for ASAW containment; however, a mercury cell chlor-alkali plant contributed mercury-contaminated wastewater to the Ponds as well. Olin's predecessor constructed the mercury cell chlor-alkali plant, also referred to as the chlorine plant, in 1950 in the area known as the FCPS and operated that facility through 1972. The chlorine plant produced chlorine gas and sodium hydroxide by passing brine, obtained by solution mining salt deposits in the area, between two electrodes. The cathode used in this process was mercury. The electrical current passing through the brine produced chlorine gas at the anode through electrolytic oxidation. A sodium amalgam formed at the cathode was conveyed to a decomposing tower where the sodium was separated by flushing the water from the sodium hydroxide. Mercury was lost in the production process and solubilized, with the resultant wastewater conveyed to Pond 5 and, to a lesser extent, Pond 6. The mercury-contaminated wastewater was conveyed to Pond 5 via a surface ditch leading from the chlorine plant across Pond 2. Mercury was also released to soil, groundwater, and surface water at the FCPS via spills and during routine facility washing operations.

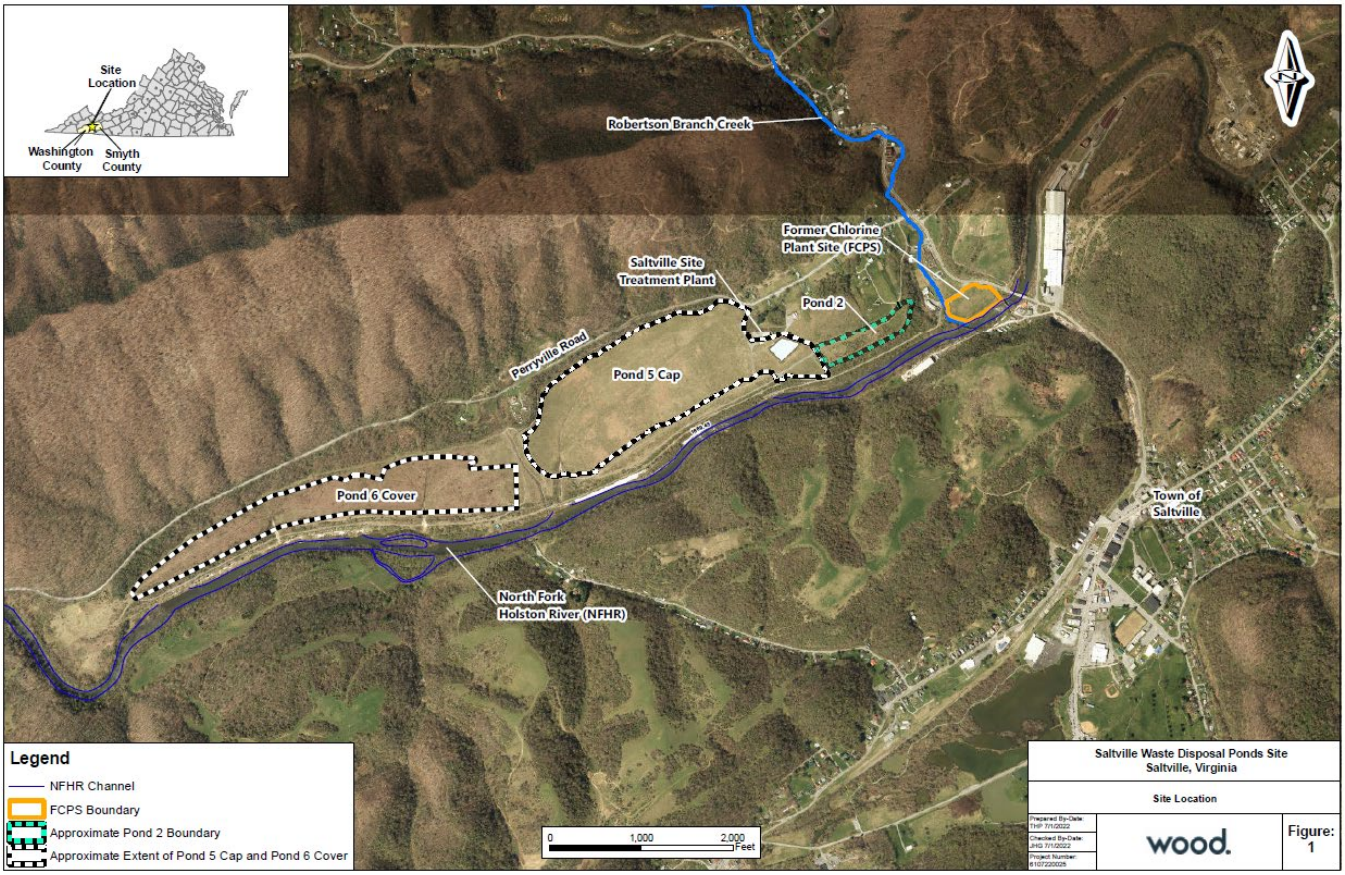
Olin ceased plant operations in 1972 and dismantled the plant in 1972 and 1973. The equipment was rinsed at the FCPS and the rinsate was allowed to percolate into the soils. Some of the debris and obsolete equipment from the plant demolition was placed at the eastern edge of Pond 6 and on the lower bench of the dike between Ponds 5 and 6 (referred to as the Demolition Debris Area (DDA)).

Surface water runoff and groundwater contaminated by leachate from Ponds 5 and 6 were collected in decant structures which discharged directly to the NFHR through an outfall. Overall shallow groundwater flow within the ASAW and the underlying alluvium is toward the south, from Little Mountain to the NFHR.

The Town of Saltville gets its water from deep bedrock groundwater wells located at least one mile upgradient of the FCPS (north and east). A Smyth County municipal ordinance requires the connection of residential and industrial developments in the area to the municipal water supply system (Appendix I). This system is the source of water for all residences and industrial operations near the Site. A dry ice facility to the immediate northwest of the FCPS, upgradient from the Site, is connected to the municipal system but has a private water supply well. This is the only known private well that may still be in use in areas underlain by groundwater potentially impacted by the Site. This well is sampled by Olin. The dry ice facility does not generate wastewater or discharge wastewater to surface water.

The Site is currently not in active reuse but does function as wildlife habitat. Three residential areas are immediately upgradient of Ponds 5 and 6. Land uses adjacent to the FCPS are industrial. They include the Saltville municipal wastewater treatment plant to the north, the dry ice facility to the northwest, a wheel manufacturing plant to the east (across the NFHR), and an auto repair/welding shop to the south (also across the NFHR).

Figure 1: Site Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Saltville Waste Disposal Ponds		
EPA ID:VAD003127578		
Region: 3	**State:** Virginia	**City/County:** Saltville/Smyth
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Eric Newman and Evelyn Sorto		
Author affiliation: EPA Region 3		
Review period: 1/5/2022 – 8/31/2022		
Date of site inspection: 2/16/2022		
Type of review: Statutory		
Review number: 6		
Triggering action date: 9/26/2017		
Due date *(five years after triggering action date)*: 9/26/2022		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Environmental studies of the Site began in conjunction with heightened concern about mercury discharges nationwide. An investigation of the chlorine plant site and adjacent NFHR by Olin, the Commonwealth of Virginia, and local agencies during the late 1960s revealed mercury contamination at the Site, including in the NFHR.

In 1970, Virginia and Tennessee placed a ban on fishing in the NFHR and the Holston River due to elevated mercury concentrations found in fish. These bans were later modified to permit fishing on a catch-and-release basis and a "Do Not Eat" fish consumption advisory is in effect for 84 miles of the NFHR in Virginia. In 1978, a Saltville Site Task Force was formed which included the Virginia State Water Control Board (SWCB), Virginia State Attorney General's Office, the Tennessee and Virginia Departments of Health, Tennessee Valley Authority, and EPA. The Task Force required Olin to conduct studies to identify sources of mercury contamination at the Saltville facility and negotiated cleanup measures to reduce mercury loading to the NFHR.

EPA listed the Site on the Superfund program's National Priorities List (NPL) on September 8, 1983.

In 1986, EPA determined that sufficient data was available from previous investigations conducted by Olin to complete an initial risk assessment and feasibility study (FS) for the Site without performing a stand-alone RI. While the risk assessment identified several data gaps, it was clear that initial steps could be taken to address the mercury contamination at the Site. This included preventing contact between surface water and Pond 5 wastes as well as treating Pond 5 leachate prior to its discharge to the NFHR.

Olin completed an RI, including a baseline risk assessment, for Ponds 5 and 6 in 1994. The risk assessment identified unacceptable hazard to human health via inadvertent ingestion or direct contact with high pH, mercury-laden wastes in Ponds 5 and 6 when considering the potential future residential land use scenario.

In 2022, Olin completed a series of investigations at Pond 2 which concluded that Pond 2 wastes are substantively indistinguishable from Pond 5 wastes. EPA determined that the basis for taking action at Pond 5 applies to Pond 2 as well.

Response Actions

Prior to the Site being listed on the NPL, under a Special Order issued in 1982 by the Virginia SWCB, Olin performed bank stabilization measures to reduce erosion of mercury-contaminated soil from the FCPS to the NFHR and dredged mercury-contaminated sediments from a 1,000-foot section (between river mile (RM) 82.8 to RM 82.6) of the NFHR next to and downstream of the FCPS. The excavated sediments were placed in a lined cell on the foundation of the FCPS. The dredged sediments were segregated by size. The fine fraction was sealed in the lined cell (a 36-millimeter Hypalon "envelope") while the larger sediments were power-washed and placed near the lined cell. The sediments were then covered with a clay cap and 6 inches of topsoil. This project was supplemented by the construction of a diversion ditch around the western, upstream side of Pond 5 (referred to as the Western Diversion Ditch) to reduce surface water flow onto the pond. The Western Diversion Ditch project intercepted surface water flowing from four natural swales (Swales #2-5) leading from Little Mountain to the immediate north of the Site and re-routed the clean water to the ditch which conveyed the water to the NFHR by gravity flow. Response actions to address the fifth natural swale (Swale #1) leading from Little Mountain to the eastern end of Pond 5 were deferred for subsequent action.

ROD-1 (OU1 and OU2) Remedy Selection[2]:

On June 30, 1987, EPA issued an interim Record of Decision (ROD-1) for the Site. The remedial action objectives (RAOs) were to reduce infiltration of surface water at Pond 5 and minimize migration of mercury to the NFHR. ROD-1 called for:

- Construction of an Eastern Diversion Ditch around the eastern edge of Pond 5;
- Construction of a treatment plant to treat Pond 5 effluent[3]; and
- Additional environmental studies of Ponds 5 and 6, the FCPS, and NFHR.

Olin performed the required additional studies, and the results were presented in a RI report (1994) and FS report (1995).

[2] The original OU designations in ROD-1 were as follows:
OU1 addressed the surface water diversion (Eastern Diversion Ditch) and wastewater treatment plant for Pond 5
OU2 addressed the additional studies of Ponds 5 and 6, the FCPS, and NFHR

[3] The effluent discharge limit of 20 µg/L mercury was established by ROD-1.

ROD-2 (OU3) Remedy Selection[4]:

On September 29, 1995, EPA issued ROD-2 for Ponds 5 and 6. The RAOs were to:

- Reduce infiltration of surface water and migration of contaminants into groundwater at Pond 5;
- Prevent human contact with waste material in Pond 6;
- Neutralize discharge from the Pond 6 decant structure; and
- Include a contingent remedy that would be implemented if groundwater monitoring wells demonstrate that mercury-contaminated groundwater in Pond 6 is migrating from the DDA toward the NFHR.

The Selected Remedy includes the following elements:

Pond 5:

- Installation of a multi-layered RCRA Subtitle-C cap over the entire Pond 5 area;
- Construction of an upgradient groundwater interceptor system;
- Revision of the effluent discharge criteria for the SSTP to achieve the current Virginia in-stream water quality standard for mercury and any modification of the SSTP necessary to achieve the revised effluent discharge criteria[5];
- Implementation of institutional controls;
- Site security and O&M programs; and
- LTM.

Pond 6:

- Installation of a permeable soil cover over Pond 6;
- Construction of a pH adjustment system to neutralize effluent discharge from the Pond 6 outfall;
- Implementation of institutional controls;
- Site security and O&M programs; and
- LTM.

Pond 6 Contingent Remedy – To be implemented in the event that mercury is determined to be migrating from the DDA:

- Isolation of the FCPS demolition debris buried in the eastern end of Pond 6 by installation of a vertical barrier wall and a multi-layered cap over the two to three acres where the debris is buried

[4] The OU designations were updated as follows shortly after ROD-2 was issued:
OU1 addresses the Pond 5 surface water diversion.
OU2 addresses the wastewater treatment plant for Pond 5 (and currently, Pond 6 leachate) (formerly OU1).
OU3 addresses the Pond 5 cap, Pond 6 soil cover, collection and treatment of leachate contaminated groundwater from Pond 6, engineering controls for diversion/management of clean stormwater and groundwater, institutional controls (ICs), and LTM. The 2022 ESD extended the response actions selected for Pond 5 to the adjacent Pond 2.
OU4 addresses additional investigations at the FCPS and NFHR.

[5] The effluent discharge limit for mercury was reduced from 20 µg/L to 3.6 µg/L (Source: Virginia Department of Environmental Quality (VDEQ), 2000. *Proposed Effluent Limitations for the Saltville Pond 5 Treatment Plant Discharge; Smyth County*, Letter from VDEQ to Olin, November 22, 2000). In 2011, VDEQ issued a Total Maximum Daily Load (TMDL) Report for the NFHR and established an in-stream mercury target of 2 ng/L.

Removal Action – Seeps at Pond 6 Dike Cuts:

In March 2016, EPA conducted a removal site evaluation and observed high pH seeps from Ponds 5 and 6 along the base of the dikes adjacent the NFHR. EPA collected pH measurements and found that the pH levels in the water seeps exceeded 12.5. EPA determined that the high pH water was bypassing treatment and directly discharging the NFHR, presenting a risk to recreational users of the NFHR and aquatic biota. In August 2017, EPA and Olin entered into an Administrative Order on Consent (AOC) whereby Olin agreed to install riprap at select seeps discharging to the NFHR to minimize direct contact with high pH water. The Pond 6 dike cuts remain under investigation due to ongoing water seep discharges to the NFHR. In August 2021, EPA approved Olin's work plan for characterizing the flow rate and pH of the seeps along the Pond 6 dike cut inflows.

On April 26, 2022, EPA issued an ESD to ROD-2 adding Pond 2 to the scope (OU3):

Pond 2:

- For the purposes of remediation, Pond 2 and Pond 5 will be considered a single waste management unit. The Selected Remedy elements applicable to Pond 5 apply to Pond 2.

Investigations related to OU4, including the FCPS, groundwater impacted by the FCPS, and the NFHR will be taking place in Fall 2022. The NHFR includes 80 miles to the confluence with the Holston River. Site-related mercury extends an additional 70 miles within the Holston River to the sediments of the Cherokee Reservoir in Tennessee, which is managed by the Tennessee Valley Authority. Remedies to address these areas will be selected in future ROD(s).

Status of Implementation

ROD-1 (OU1 and OU2) Remedy Implementation:

In September 1988, EPA and Olin entered into a Consent Decree (CD-1) wherein Olin agreed to perform the remedial design (RD) and remedial action (RA) work necessary to implement the ROD-1 remedy and perform a sitewide RI/FS.

EPA approved the final design for the Pond 5 Eastern Diversion Ditch (OU1) in May 1991. Construction of the Pond 5 Eastern Diversion Ditch began in June 1991 and was completed in November 1991. The major components of the RD/RA for OU1 included:

- High density polyethylene (HDPE) liner and grout matting in collection basins upgradient of Pond 5;
- HDPE liner and grout matting in an open channel drainage ditch;
- Subsurface 42" HDPE pipe to convey clean water flowing from Swale #1 across Pond 5; and
- Discharge chute and stilling basin to control outfall to NFHR.

In addition to the elements listed above, the engineered diversion ditches for swales 2, 3, 4, and 5 were upgraded. In September 1992, an OU1 Remedial Action Report was issued documenting the completion of the upgradient stormwater run-on controls.

Construction activities for the SSTP (OU2) began in October 1993 and were completed in August 1994. Major elements of the RD/RA for OU2 included:

- A sump and pumping station to collect and convey groundwater contaminated with leachate from Pond 5 to a 2-million-gallon equalization basin;
- A membrane-lined 2-million-gallon equalization basin; and
- A wastewater treatment plant which provides pH adjustment and carbon filtration for mercury reduction.

In September 1996, EPA approved an OU2 Remedial Action Report documenting that construction of the remedy was completed in accordance with RD plans.

ROD-2 (OU3) Remedy Implementation:

In July 1997, EPA and Olin entered into a Consent Decree (CD-2) wherein Olin agreed to perform the RD and RA work necessary to implement the ROD-2 remedy. Construction to implement the remediation activities began in March 2001 and extended through July 2002. Major components of the RD/RA for OU3 included:

- Installation of additional Site security fence around Ponds 5 and 6;
- Construction of an 18-inch-thick permeable soil cover over Pond 6 with slopes between one and four percent. The surface of the pond was seeded with a diverse mix of grasses to provide wildlife habitat as beneficial reuse;
- Upgrades to Little Mountain swales 1-5 to intercept clean, shallow groundwater and routing of the subject flow of clean water to rehabilitated Western and Eastern Diversion Ditches leading to the NFHR;
- Closing of the Pond 6 outfall, modification of the Pond 6 decant structure as needed to prevent untreated water from being discharged to NFHR, and installation of pumps and pipes to convey Pond 6 groundwater to the SSTP;
- Construction of a multi-layered RCRA Subtitle-C cap over Pond 5 with a profile (from bottom up) of (1) a geosynthetic clay liner (in areas of less than two percent slope and drainage swales), (2) a 40-mil Linear Low Density Polyethylene (LLDPE) geomembrane, (3) a geocomposite drainage layer, and (4) a 24-inch thick soil layer vegetated with diverse seed mix to provide wildlife habitat as beneficial reuse; and
- Deed restrictions on Ponds 5 and 6 to prevent unsuitable development or installation of drinking water wells on the Site.

In July 2003, EPA approved a Remedial Action Report documenting that construction of the ROD-2 remedy was completed in accordance with RD plans.

In May 2022, Olin affirmed its commitment to design and construct the Pond 2 response actions set forth in the ESD. Olin has initiated pre-design investigations for the Pond 2 RD and RA but no substantive work at Pond 2 has been completed by the date this 6th FYR has been issued. EPA anticipates that the construction of the Pond 2 remedy will be completed by late 2024.

Former River Channel Pump and Treat Pilot Study – Eastern End of Pond 5 Dike

Efforts are ongoing to evaluate and continuously improve the effectiveness of engineered source control remedies in minimizing migration of mercury from Pond 5 to the NFHR. Analytical results for near-bank NFHR surface water samples indicate higher mercury concentrations adjacent to the eastern end of Pond 5 near the former NFHR channel. In 2016, at the conclusion of a preliminary hydrogeologic investigation which included a dye tracer test (dye migrated from the southeastern end of Pond 5 to the NFHR) and pumping tests to provide a design basis for a pilot groundwater extraction system, EPA directed Olin to implement a field-scale pilot study in the vicinity of the former river channel (FRC) beneath the Pond 5 dike, between RM 82.2 and 82.4. Specifically, EPA directed Olin to initiate continuous pumping of groundwater in monitoring wells MW-119S and PZ-10 (Figure C-2) to reduce the subsurface non-point source discharge of mercury-contaminated groundwater to the NFHR. In March 2017, Olin began extraction and treatment of groundwater from MW-119S and PZ-10. Environmental monitoring demonstrates that these extraction wells are intercepting mercury mass; however, reduction of mercury loading to the NFHR has not been evident. In May 2022, Olin submitted a workplan focused on improving understanding of the hydrology and improving the effectiveness of the groundwater extraction system.

Institutional Control (IC) Review

ICs were recorded for Ponds 5 and 6 in both Smyth and Washington Counties in March 2007. Olin and the Commonwealth of Virginia signed an Environmental Protection Easement and Declaration of Restrictive

Covenants (Environmental Easement). During the 6th FYR process, EPA identified a typographic error in parcel identification number listed in the Environmental Easement. This clerical error would prevent an interested stakeholder from finding the Environmental Easement when searching the publicly available land records. EPA has brought this issue to Olin's attention and Olin is working with a real estate attorney to resolve this matter. It is anticipated that Olin will file a corrected Environmental Easement with accurate parcel/tax identification numbers and adding appropriate Pond 2 legal description as a single administrative action. The corrected Environmental Easement will be filed with Smyth and Washington Counties. The Environmental Easement includes the following restrictions:

- Prohibit development of Ponds 5 and 6 and prohibit any type of activity that could disturb the surface or the underlying waste, as well as the use of groundwater from that area as a source of potable water, or in any way increase the risk of exposure to contaminants on the property, except for activities performed by Olin, or its representatives, to comply with ROD-2 or any order issued by the United States governing activity at or on said property. In accordance with the 2022 ESD, the legal property description of Pond 2 will be added to the Environmental Easement.
- Prohibit residential development of the FCPS[6] and prohibit the use of groundwater found on or under the FCPS as a source of potable water, as well as any type of activity that would require excavation into or through, or any form of disturbance of, the clay cap located on the FCPS.

Olin also granted the Commonwealth of Virginia an irrevocable, permanent, and continuing right of access, at all reasonable times, to Ponds 5 and 6 for purposes of inspecting site conditions.

Although the RODs did not specifically establish a RAO of preventing fish consumption, the Virginia Department of Health has placed a "Do Not Eat" fish consumption advisory for any fish species caught from the NFHR from Saltville to the Virginia-Tennessee state line. The Virginia Department of Inland Game and Fisheries notes downstream of Saltville is an exceptional smallmouth bass fishery.

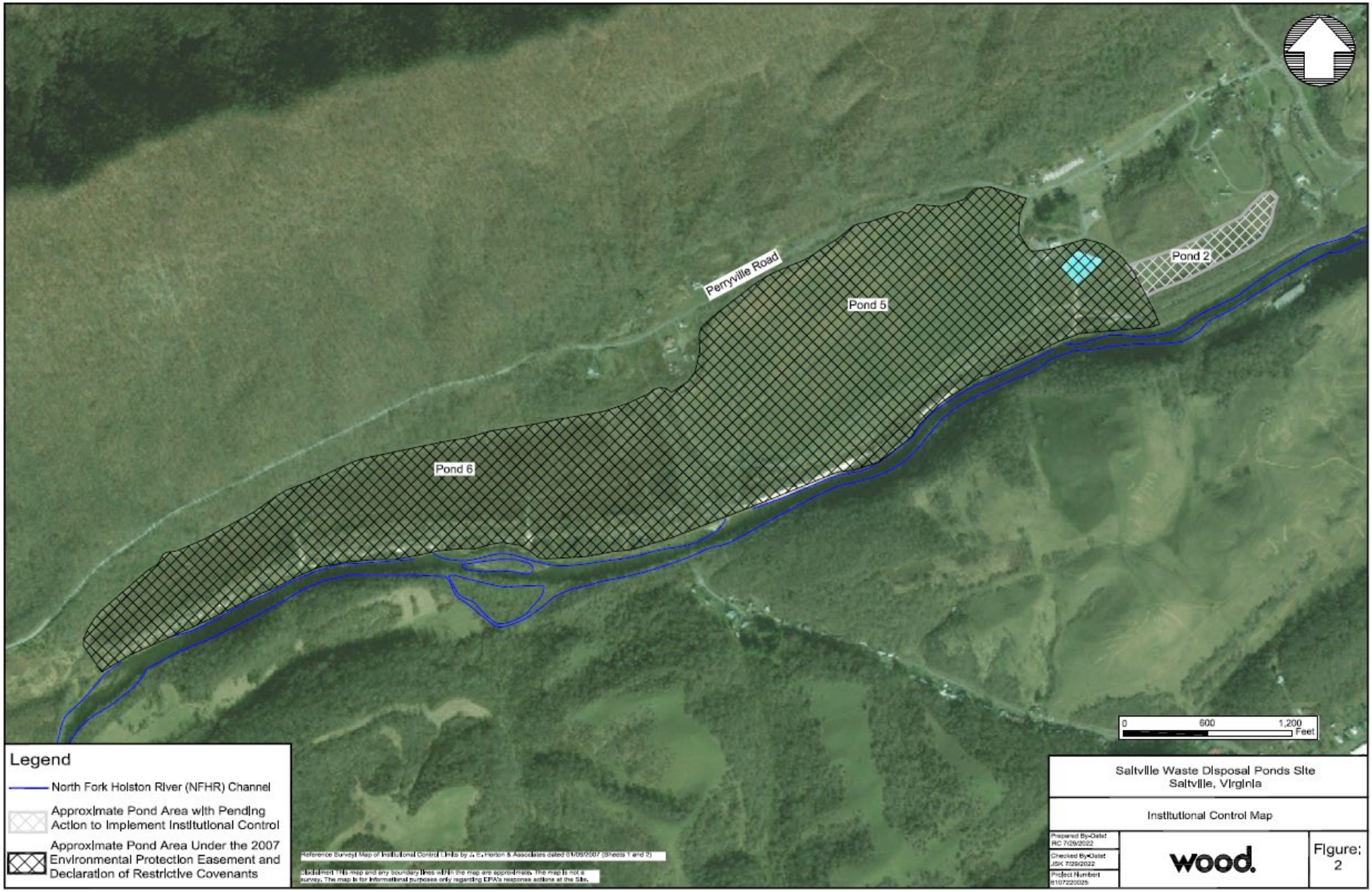
Table 1 and Figure 2 summarize and depict the ICs.

[6] EPA notes that the FCPS was not within the scope of ROD-1, ROD-2, or the ESD. EPA does not object to private landowners including non-mandated restrictions to property. The FCPS will be addressed by EPA in a subsequent ROD.

Table 1: Summary of Institutional Controls

Media, Engineered Controls and Areas that Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil and Groundwater	Yes	Yes	Ponds 5 and 6	Prohibits development of Ponds 5 and 6, prohibits any activities that would affect the Pond 5 cap and Pond 6 cover, and prohibits use of groundwater from the Pond 5 and Pond 6 area as a potable water source.	Environmental Protection Easement and Declaration of Restrictive Covenants, 2007
Soil and Groundwater	Yes	Yes	Pond 2	Prohibits development of Pond 2, prohibits any activities that would affect the Pond 2 cap, and prohibits use of groundwater from the Pond 2 area as a potable water source. Existing Environmental Easement covering Pond 5 and 6 will be updated to include Pond 2.	Updated Environmental Protection Easement and Declaration of Restrictive Covenants. Planned by 9/30/2024
Soil and Groundwater	Yes	No	FCPS	Prohibits residential development of the FCPS; prohibits the use of groundwater found on or under the FCPS as a potable water source; and prohibits any type of activity that would require excavation into or through, or any form of disturbance of, the clay cap located on the FCPS.	Environmental Protection Easement and Declaration of Restrictive Covenants, 2007

Figure 2: Institutional Control Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Systems Operations/Operation and Maintenance

Primary O&M activities for the Site include operation, inspection, and maintenance of Site security fencing, access roads, the Eastern and Western Diversion Ditches, the Pond 5 and Pond 6 dikes, the swale interceptor system, the Pond 5 cap, the Pond 6 soil cover and associated surface drainage systems, the equalization basin, the acid feed system, the SSTP, and the groundwater monitoring wells. Site LTM and O&M features are depicted in Figures C-2 and C-3. Olin conducts quarterly inspections per ROD-2, and performs repairs as needed based on the inspections.

Vegetation, debris, and siltation may prohibit proper function of the swale interceptor system and Eastern and Western Diversion Ditches. Vegetation, debris, and siltation are removed from these systems on a regular basis to ensure they function properly. The Pond 5 and Pond 6 dikes are inspected in accordance with Virginia Soil and Water Conservation Board Impounding Structure Regulations (4 Va. Admin. Code § 50-20).

The Pond 5 cap and Pond 6 soil cover systems are inspected in accordance with the approved LTM and O&M Plans (March 2022). The cap and cover are checked for stress cracks, holes, depressions, areas of ponded water, evidence of burrowing animals, disturbed or damaged slope protection on perimeter slopes, and areas where cover is inadequate. Surface water drainage features on the Pond 5 cap and Pond 6 soil cover are inspected for erosion; vegetation in the drainage ditches and conveyances; vegetation, sedimentation, or debris in the drop inlets and pipes; and sediment, debris, or other obstructions in ditches. A mowing plan for Pond 5 prevents colonization of woody plants with tap roots capable of damaging the geomembrane while maintaining wildlife habitat in the area. Pond 6 has less stringent mowing requirements (i.e., there is no geomembrane to maintain) and supports wildlife habitat. Settlement of the Pond 5 cap and grade reversals in drainage channels may cause localized depressions that result in ponding or saturation above the geomembrane. In this case, permanent settlement monuments are surveyed annually to detect any settlement or grade reversals of concern. Olin documents inspection results, identifies deficiencies, and outlines corrective measures in quarterly and Annual Site Inspection Reports.

Effluents from Ponds 5 and 6 are collected in the equalization basin and treated at the SSTP prior to discharge to the NFHR. The SSTP operates intermittently, as required, to treat water collected in the equalization basin. On days when the SSTP operates and water is discharged to the NFHR, a daily composite sample of treated water is collected. The sample is tested for total mercury and pH to confirm the SSTP is operating as required to meet VDEQ discharge limits for mercury and pH. Major control system updates and equipment replacements to the SSTP were performed in 2019 through 2021. This work included hardware and software updates for the SSTP control panel, replacing pneumatic controls/wires with electric controls/wires, and other equipment upgrades (i.e., valves, pumps, and transmitters). Genesis64 Supervisory Control and Data Acquisition (SCADA) software and telemetry equipment was installed to allow transmission between field equipment and the control room Programable Logic Controller (PLC) and allow treatment plant monitoring and operation from a remote location. These improvements are documented in the approved Saltville Site Treatment Plant Operating and Maintenance Manual (SSTP-OMM, March 2022). A contingency plan has been added to the SSTP-OMM to improve response actions taken during historically significant precipitation events. Olin inspects the equalization basin for signs of deterioration and erosion. Precipitate is removed from the equalization basin periodically so that precipitate volume does not reduce the volume of the equalization basin. The acid storage tank is inspected for deterioration and malfunction and is repaired as needed. LTM required by ROD-2 consists of monitoring SSTP effluent and groundwater. The monitoring results were historically presented in quarterly data reports and an annual operations, maintenance, and monitoring report (OMM). Effective 2022, Olin will consolidate this information into an Annual Comprehensive Data Report.

Operation, maintenance, and monitoring requirements for Pond 2 will be developed during the Pond 2 design. The O&M plan will be issued at the conclusion of construction activities, estimated for late 2024.

III. PROGRESS SINCE THE PREVIOUS REVIEW

This section includes the protectiveness determinations and statements from the previous FYR, as well as the recommendations from the previous FYR and the current status of those recommendations.

Table 2: Protectiveness Determinations/Statements from the 2017 FYR

OU	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy at OU1 is protective of human health and the environment.
2	Short-term Protective	The remedy at OU2 is protective in the short term because the treatment plant is reducing mercury discharge to the NFHR. However, in order to determine if the remedy is protective in the long term, the effluent discharge standards and monitoring requirements need to be updated in the O&M manual.
3	Short-term Protective	The remedy at OU3 is protective of human health and the environment in the short term because the Pond covers and caps have eliminated direct exposures and the infiltration of precipitation into waste material. However, for the remedy to be protective in the long-term, the relevant dike regulations and associated inspection procedures need to be updated and the groundwater monitoring program needs to be updated following the completion of the OU4 RI.

Table 3: Status of Recommendations from the 2017 FYR

OU	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
3	LTM Plan for Pond 5 and/or Pond 6 groundwater to be modified based on results of ongoing RI.	Modify LTM Plan for Pond 5 and/or Pond 6 groundwater as needed based on results of ongoing RI.	Complete	LTM and O&M Plans were revised and approved by EPA on March 29, 2022.	March 29, 2022
2	Unclear whether current effluent limitations for mercury for onsite treatment plant are consistent with VA Water Quality Standard for methylmercury and NFHR Mercury Total Maximum Daily Load (TMDL) Report. In addition, effluent limitations for onsite treatment plant are identified in long-term monitoring plan.	Confirm current effluent limitations for onsite treatment plant are consistent with VA Water Quality Standard for methylmercury and NFHR Mercury TMDL Report (or modify as needed).	Complete	VDEQ has affirmed that effluent limits meet Virginia [Surface] Water Quality Standards for the water column.	June 1, 2020

OU	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
3	Routine Dike inspections for Pond 5 and Pond 6 must adequately determine their long-term stability. It is unclear whether the dikes for Pond 5 and 6 are in compliance with VA impoundment regulations per the 1995 ROD.	Implement necessary modifications to the routine Pond 5 and Pond 6 dike inspections based on current industry standards and appropriate and relevant VA Impoundment regulations.	Complete	The Pond 5 and Pond 6 dikes are in compliance with VA's Impounding Structure Regulations. LTM and O&M Plans include provision requiring a VA Professional Engineer (PE) to inspect the dikes and stamp inspection reports. LTM and O&M Plans were revised and approved by EPA on March 29, 2022.	March 29, 2022

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement, and Site Interviews

A public notice was made available in the *Smyth County News & Messenger* on October 13, 2021, stating that there was a FYR underway and inviting the public to submit any comments to EPA. No comments were received. The results of the review and the report will be made available at the Site information repository located at the Saltville Public Library, 111 Palmer Avenue, Saltville, Virginia 24370 and online at http://www.epa.gov/superfund/saltville. A copy of the public notice is available in Appendix E.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The results of these interviews are summarized below and included in Appendix H.

Interviewed residents are generally pleased with the site cleanup. They also indicated that there have been few Site updates from EPA in recent years. EPA affirmed it would provide periodic Site updates to the community. Residents signaled they would like to receive Site updates via facts sheets.

Representatives from Olin believe the remedies in place are working as designed and are effectively reducing environmental exposures.

Data Review

Current Site monitoring includes sampling of groundwater, surface water drainage, and SSTP effluent. Additionally, monument stability and dike stability are monitored annually. This FYR considered data from 2017 – 2021 for OU1, OU2, and OU3. Select tables and charts from the most recent Annual Comprehensive Data Report are included in Appendix G.

Surface Water Drainage

Surface water in the Ponds 5 and 6 diversion ditches and dike cuts is tested annually for mercury. In 2020, there was one noteworthy sample result at the Pond 5 dike cut when the surface water sample had a mercury detection of 1.4 µg/L J[7]. The current VDEQ standards for mercury in freshwater are 1.4 µg/L (freshwater, acute) and 0.77 µg/L (freshwater, chronic). This stands out as all other samples in 2020 were below the detection limit of 0.2 µg/L. Further, all samples in 2017 were below the detection limit of 0.1 micrograms per liter (µg/L) and all samples in 2018, 2019 and 2021 were below the detection limit of 0.2 µg/L for mercury. In 2021, a sample could not be collected from the Pond 5 East Channel due to a lack of surface water. (Appendix G).

[7] The "J" is a data validation qualifier indicating that the value is an estimated quantity.

Monument Survey

Settlement monuments were established as part of Pond 5 closure. Monuments were installed to monitor the grades along the drainage channels and on the cap surface. Total settlement is calculated and the grades along the drainage channels and cap surface are measured once every 5 years. Surveys conducted in 2018, 2020, and 2021 indicate settlement data is within the range predicted in the design report.

During the March 2019 annual inspection, three depression areas were identified as needing further inspection to determine if potential grade reversal of the designed drainage pattern was occurring. A LiDAR topographic survey was completed in August 2020 and the areas were visually observed after a rain event. The LiDAR survey determined that the depressed areas were shallow and smaller than initially estimated. Field inspections determined that shallow depressions were not ponding water.

Dike Stability

The Pond 5 and Pond 6 dikes are inspected annually for erosion, undercutting along the toe of the dike by the NFHR, excess vegetation preventing inspection, and areas of subsidence or dike instability. Between 2017 and 2021, the dikes were documented to be stable with no significant changes from the last inspection.

Olin submitted initial and revised Dike Stability Evaluation Reports (Golder 2019 and Golder 2021, respectively) in response to a recommendation from the fifth FYR. The reports concluded that the dikes are stable under current and anticipated Site closure conditions. The report provided an enhanced monitoring approach for the dikes and relevant Site features. Results of the dike monitoring will be evaluated and tracked moving forward.

SSTP Effluent

The SSTP operates intermittently, as required, to treat water collected in the equalization basin. The number of SSTP effluent samples collected is dictated by the number of days the SSTP operates. A daily composite sample is collected on each day of operation. The SSTP operated for 775 days from 2017 to 2021 and discharged a total of 159.4 million gallons of treated water to the NFHR during this period (an average of 31.9 million gallons per year). Effluent data for 2021 is included in Appendix G.

The samples are tested for total mercury and pH to confirm that the SSTP is operating as required to meet the VDEQ discharge limits for mercury (3.6 µg/L), when river flow is higher than 160 cubic feet per second (cfs), and pH (between 6 and 9). When the river flow is less than 160 cfs, an analysis of expected effluent flows and concentrations, and concurrent river flows, is used to ensure the effluent remains compliant below 0.012 µg/L at all stream flows greater than the lowest established 7-day average flow that occurs once every 10 years. Results indicate compliance with applicable SSTP discharge standards. Between 2017 and 2021, the maximum concentration of total mercury in the treated discharge was 3.4 µg/L, the minimum pH was 6.00, and the maximum pH was 8.22.

SSTP effluent data review noted that on five occasions in 2020 and 3 occasions in 2021 the average daily treated discharge rate (ADTDR) was marginally greater than the assumed maximum 230 gal/min ADTDR used by VDEQ to calculate the effluent discharge limit for the SSTP (the maximum ADTDR was 251 gal/min on 10/9/2021). A review of the daily mercury concentration indicates that the discharge remained compliant as the corresponding mercury concentrations were significantly lower than the allowable 3.6 µg/L limit.

The 2021 Annual Comprehensive Data Report indicates there were 19 instances when the river flow was less than 160 cfs (all between 5/13/21 and 10/11/21). Of these instances, there were 3 occasions where the average daily treated discharge rate was greater than 230 gpm (251 gpm on 10/9/21; 248 gpm on 10/10/21; and 240 gpm on 10/11/21). The effluent remained compliant during these occasions as the mercury concentrations were approximately 0.25 µg/L, well below the 3.6 µg/L limit.

Groundwater

Sampling of groundwater monitoring wells at Ponds 5 and 6 began in 2003. Olin collects groundwater samples quarterly or semiannually from monitoring wells in the Ponds 5 and 6 areas (Figures C-2 and C-3). Monitoring wells include:

- Background monitoring wells – MW-16 and CP-13, northeast of Ponds 5 and 6 near the FCPS, to monitor background/upgradient groundwater quality.
- Trigger wells – MW-104D and MW-105D, to monitor the demolition debris burial area in the northeast corner of Pond 6.
- Pond 5 Dike Wells – to monitor groundwater quality conditions along the Pond 5 dike.
- Pond 6 Dike Wells – to monitor groundwater quality conditions along the Pond 6 dike.

The objective of the long-term groundwater monitoring program is to evaluate subsurface flow conditions and water quality in the Ponds 5 and 6 areas and, more specifically, the seepage of contaminated groundwater migrating through the dikes to the NFHR. In addition to quarterly sampling of wells in place at the time of the issuance of ROD-2, monitoring includes quarterly sampling of any new wells approved by EPA during the remedial design. Although specific cleanup goals are not defined in the existing RODs and ESD, the EPA maximum contaminant level (MCL) for mercury in drinking water of 2 µg/L is applied for assessing groundwater and overall contaminant trends.

The most recent long-term groundwater monitoring results (from 2021) for Ponds 5 and 6 are included in Appendix G. From 2017 to 2021, the maximum total mercury detection in Pond 5 wells was 18 µg/L at MW-5S in June 2017. In September 2017 and June 2021, total mercury in MW-5S was 2.6 µg/L. All other results from Pond 5 wells between 2017 and 2021 were below the mercury MCL.

From 2017 to 2021, the highest total mercury detections in Pond 6 wells were 31 µg/L in MW-105S in September 2017, 6.2 µg/L in MW-105S in December 2017, and 2.6 µg/L in MW-104S in September 2017. All other results from Pond 6 wells between 2017 and 2021 were below the mercury MCL.

Performance monitoring of the pilot groundwater extraction and treatment system and additional investigations to identify means of increasing its effectiveness are currently underway. The groundwater extraction and treatment system pilot study are not evaluated in this FYR.

Site Inspection

The Site inspection took place on 2/16/2022. In-person participants included EPA Co-RPMs Eric Newman and Evelyn Sorto; Julie Peoples, James Cashwell, and Stanley Haynes from Olin; and Richard Opem and Katie Young from EPA contractor CDM Smith. Participants via phone included EPA community involvement coordinator Eric Pollard, EPA hydrogeologist Nate Doyle, and William Lindsay from VDEQ. The purpose of the inspection was to assess the protectiveness of the remedies prescribed in ROD-1 and ROD-2. The Site inspection checklist is included in Appendix D and site photos are included in Appendix F.

The Site inspection team met at the on-site trailer and discussed issues and recommendations from the previous FYR as well as relevant Site activities. The team then inspected the SSTP, the equalization basin, the acid feed system, the Eastern and Western Diversion Ditches, surface drainage features, swales, the Pond 5 cap, the Pond 6 soil cover, three dike cuts, the Pond 5 decant structure, the Pond 6 pumping station, monitoring wells, fencing along the Site, and the NFHR and fish consumption warning signs near the NFHR.

All on-site equipment, including at the SSTP, appeared to be in good condition and properly maintained. Swales and diversion ditches had minor siltation and vegetation growth present at the time of the visit; however, this did not appear to impede surface water flow. Vegetation, siltation, and debris are cleared from diversion ditches and swales on an annual basis. The Site inspection team observed the damaged grout blanket and exposed geomembrane in Swale #1. Olin indicated the damage was from a tree root on the northern upstream side of the

swale and noted they were planning a repair. Site participants noted Olin should consider clearing vegetation from the swales more frequently in the future to avoid this issue.

Vegetation on Ponds 5 and 6 appeared healthy and well-established. Pond 5 was vegetated with grass and had been recently mowed. Pond 6 had a variety of larger vegetation to attract wildlife, including trees and shrubs; deer were spotted on Pond 6. Ponds 5 and 6 diversion channels appeared to be in good condition and minimal to no erosion was observed.

All monitoring wells observed were secured with locks and clearly labeled. A locking gate restricts access to the Olin trailer, Ponds 5 and 6, and the SSTP.

Participants noted pink, tan, and white discoloration on the Pond 6 dike cuts. This observation has been made in the past (including during the fifth FYR) and an investigation is underway by Olin to determine the causes/sources.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

Yes, the OU1, OU2, and OU3 remedies called for in ROD-1 and ROD-2 are generally functioning as intended. All inspections, monitoring and maintenance conducted have been historically documented in annual site inspection and OMM reports. Beginning in 2022, this information will be documented in the Annual Site Inspection Report and Annual Comprehensive Data Report.

The primary component of the OU1 remedy is Pond 5 surface water diversion. These remedy components are in place and functioning as intended. The Western and Eastern Diversion Ditches and the surface drainage channels are inspected and maintained as needed.

The primary component of the OU2 remedy is the SSTP. The SSTP is functioning as intended by the decision documents.

Primary components of the OU3 remedy are the Pond 5 cap, the Pond 6 soil cover, Pond 6 leachate treatment and the upgrade to the SSTP for Ponds 5 and 6. The Pond 5 cap and Pond 6 soil cover are functioning as intended to prevent potential direct contact with waste materials. The engineered multi-layered cap over Pond 5 minimizes the volume of Pond 5 leachate requiring treatment. The Pond 5 cap and Pond 6 soil cover are inspected regularly, and corrective actions are promptly taken to prevent functional degradation. A 2022 ESD requires the construction of a multi-layered cap over Pond 2. Remedial design tasks for Pond 2 have been initiated but construction has not been completed.

Olin and VDEQ entered an Environmental Easement establishing requisite Pond 5 and Pond 6 land use restrictions at the Site property and filed those documents with the County deed records offices. The restrictions enumerated in the RODs remain appropriate for Pond 5 and Pond 6 and have been appropriately mandated for Pond 2 in accordance with the 2022 ESD. EPA field review indicates that a typographic error inadvertently mis-identifies the property parcel number in the filed Environmental Easement. The Environmental Easement must be corrected to identify the appropriate parcel number and add the requisite restrictions to Pond 2; nevertheless, this component of the remedy remains appropriate. The ICs are meant to prohibit development of Ponds 2, 5 and 6, as well as any type of activity that could disturb the surface or the underlying waste; use of groundwater from that area as a source of potable water; or development that in any way increases the risk of exposure to contaminants. A municipal ordinance requires the connection of residential and industrial developments in the area to the

municipal water supply system. The NFHR will be addressed under OU4. In the interim, a fish consumption advisory is in place for affected areas.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Summary:

Yes. Current and future land use and exposure assumptions used at the time of remedy selection remain valid. Toxicity data for mercury remains unchanged and remedial action objectives remain valid.

The ROD-2 remedy was based on the finding that waste materials in Ponds 5 and 6 posed an unacceptable risk to human health based on potential incidental ingestion of mercury and dermal contact of high pH material. The Pond 6 soil cover, Pond 5 engineered multi-layered cap, and ICs have eliminated these pathways of concern. Although the RI did not include an assessment of risks posed to ecological receptors, the engineering controls implemented have also mitigated any potential ecological risk that may have been present by preventing direct contact with capped material.

Current effluent limitations for the SSTP for groundwater contaminated by leachate from Ponds 5 and 6 were developed in 2000. The effluent discharge standards were developed to meet Virginia's water quality standard of 0.012 µg/L total mercury that was in place at that time. More recently, VDEQ has increased the Virginia surface water quality standard to 1.4 µg/L Hg (acute) and 0.77 µg/L Hg (chronic) for freshwater. This indicates that the SSTP discharge limits remain protective.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the FYR:
OU1, OU2
Issues and Recommendations Identified in the FYR:

OU(s): 3	**Issue Category: Institutional Controls**			
	Issue: The existing Environmental Easement has a typographical error in the parcel identification number, and the easement does not include restrictions on Pond 2.			
	Recommendation: Update the existing Environmental Easement to add Pond 2 and correct the typo in the property parcel number.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	9/30/2024

OTHER FINDINGS

Several additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- Olin will need to repair the damaged grout blanket and geomembrane at Swale #1. Olin will also need to repair the grout blankets at Swales #3 and 4 to prevent surface water runoff from getting under the geomembrane and bypassing the swales.

- Olin will investigate, characterize, and, as appropriate, develop a corrective action plan to address water seepage from the Pond 6 dike cuts that is bypassing treatment and discharging directly to the NFHR.

- On April 26, 2022, EPA issued an ESD extending components of the Pond 5 remedy to Pond 2. Olin will need to complete the remedial design and remedial action for Pond 2.

- Olin will conduct additional investigations of the groundwater extraction system to evaluate its efficacy at reducing migration of mercury to the NFHR and propose improvements to the existing system.

- VDEQ will be consulted to consider modifying the SSTP discharge table to allow higher flow rates when discharge concentrations are well below the allowable limit. It is in the best interest of the project to rapidly treat and discharge contaminated leachate, particularly during periods of high precipitation, as the Site has a limited retention capacity.

It is noteworthy that VDEQ has established a new water quality standard of 0.3 milligrams per kilogram (mg/kg) methylmercury in fish tissue for safe human consumption. In addition to the statewide promulgated water quality standard discussed above, VDEQ issued the NFHR Mercury TMDL Report (MapTech Inc., 2011). The TMDL Report calculates 2 ng/L total mercury as the in-stream NFHR-specific endpoint or target surface water concentration for achieving this 0.3 mg/kg methylmercury fish tissue standard based on mathematical modeling.

The 2011 TMDL report presents the total daily load of mercury expressed as an average annual weight (in grams) that can reach the NFHR from each defined Saltville Site source area and still meet the in-stream 2 ng/L Hg endpoint for several source areas. The load allocated for the SSTP is 2.4 grams per year. Based on calculations of the total loading using the daily total mercury concentrations and total volumes treated, the SSTP effluent has exceeded this allocation by over 50 times in one of the last five years. Based on these calculations, it appears that the effluent limitations on the SSTP (approved by VDEQ in 2000) are not consistent with the NFHR Mercury TMDL. EPA and Olin are completing additional OU4 RI/FS investigations to measure mercury loading from the Site. This potential inconsistency will be addressed in a future ROD.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
Operable Unit:1	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The remedy at OU1 is protective of human health and the environment because the constructed surface water diversion system has been effective in reducing the volume of contaminated Pond 5 leachate requiring treatment. The remedial action objectives have been met.		

Protectiveness Statement(s)		
Operable Unit:2	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The remedy at OU2 is protective of human health and the environment. Pond 5 leachate is treated at the SSTP and effluent meets the Virginia effluent discharge limits. The remedial action objectives are being met.		

Protectiveness Statement(s)		
Operable Unit:3	*Protectiveness Determination:* Short-term Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The remedy at OU3 is protective of human health and the environment in the short term because the Pond 5 cap and Pond 6 soil cover have eliminated direct exposure and infiltration of precipitation into waste material, Pond 6 leachate is being treated and Pond 2 has a soil cover and is fenced. Construction of a multi-layered cap is planned for Pond 2. However, to be protective in the long-term, a multi-layered cap needs to be constructed over Pond 2 and institutional controls need to be updated to include Pond 2 and correct a typo.		

VIII. GOVERNMENT PERFORMANCE AND RESULTS ACT MEASURES

As part of this FYR, the Government Performance and Results Act (GPRA) Measures have been reviewed. The GPRA Measures and their status are provided as follows:

Environmental Indicators
Human Health: Current Human Exposure Under Control (HEUC)
Groundwater Migration: Groundwater Migration Not Under Control (GMNC)

Sitewide Ready for Anticipated Use (SWRAU)
The Site is not SWRAU but is expected to achieve SWRAU on April 2, 2029.

IX. NEXT REVIEW

The next FYR report for the Saltville Waste Disposal Ponds Superfund Site is required 5 years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Golder Associates Inc., Dike Stability Evaluation Saltville Waste Disposal Ponds Site, Saltville, Virginia. March 8, 2019.

MapTech, Inc., Mercury Total Maximum Daily Load Development for the North Fork Holston River, Virginia. March 2011.

Olin Corporation, Quarterly Data Report Nos. 111-127, Saltville Waste Disposal Site, Saltville, Virginia, April 2017 - April 2021.

Olin Corporation, Annual Operation, Maintenance, and Monitoring Reports OM&M 2017-2020, Saltville Waste Disposal Ponds Superfund Site Operable Unit 2 (Ponds 5 And 6), Saltville, Virginia. June 2018 – June 2021.

Olin Corporation, Annual Site Inspection Reports 2021-2022, Saltville Waste Disposal Ponds Site, Saltville, Virginia, June 2021 – June 2022.

Olin Corporation, Dike Stability Evaluation Report – Revised, Saltville Waste Disposal Ponds Site, Saltville, Virginia, September 10, 2021.

Olin Corporation, Saltville Site Treatment Plant Operating and Maintenance Manual, Saltville Waste Disposal Ponds Site, Saltville, Virginia, March 4, 2022.

Olin Corporation, Long Term Monitoring and Operations and Maintenance Plans, Saltville Waste Disposal Site, Saltville, Virginia, March 11, 2022.

Olin Corporation, Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, Saltville, Virginia, March 31, 2022.

USEPA, Record of Decision, Saltville Waste Disposal Ponds Superfund Site, Saltville, Virginia, Operable Unit 1, June 30, 1987.

USEPA, Record of Decision, Saltville Waste Disposal Ponds Superfund Site, Saltville, Virginia, Operable Unit 2 (Pond 5 and Pond 6), September 29, 1995.

USEPA, Five-Year Review Report for Saltville Waste Disposal Ponds Superfund Site, Smyth and Washington Counties, Virginia. September 30, 1997.

USEPA, Second Five-Year Review Report for Saltville Waste Disposal Ponds Superfund Site, Smyth and Washington Counties, Virginia. September 30, 2002.

USEPA, Third Five-Year Review Report for Saltville Waste Disposal Ponds Superfund Site, Smyth and Washington Counties, Virginia. September 27, 2007.

USEPA, Fourth Five-Year Review Report for Saltville Waste Disposal Ponds Superfund Site, Smyth and Washington Counties, Virginia. September 27, 2012.

USEPA, Fifth Five-Year Review Report for Saltville Waste Disposal Ponds Superfund Site, Smyth and Washington Counties, Virginia. September 26, 2017.

USEPA, Explanation of Significant Differences for the Saltville Waste Disposal Ponds Superfund Site, Smyth County, Virginia, April 26, 2022.

APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
Olin or its predecessors (Olin Mathieson Chemical Corporation, Mathieson Chemical Corporation and Mathieson Alkali Works) operated chemical manufacturing operations in Saltville	1895-1972
Olin or its predecessors operated a mercury cell chlor-alkali plant on the banks of the North Fork Holston River	1950-1972
Olin dismantled its facilities	June 1973
Olin entered into a special order with the Virginia State Water Control Board in which Olin agreed to dredge mercury-contaminated sediment from the North Fork Holston River, encapsulate sediment on the foundation of a former building at the FCPS and cap the FCPS with clay	November 1982
EPA listed the Site on the NPL	September 8, 1983
EPA signed first ROD requiring interim measures and additional investigations	June 30, 1987
Olin entered into Consent Decree to implement 1987 ROD remedy. Olin began OU4 RI	September 15, 1988
Olin completed OU1 remedial action	September 30, 1991
EPA signed second ROD	September 29, 1995
Olin completed OU2 remedial action	September 3, 1996
EPA signed Site's first FYR Report	July 29, 1997
EPA signed Site's second FYR Report	September 20, 2002
Olin completed OU3 remedial action	July 11, 2003
Olin filed Environmental Protection Easement and Declaration of Restrictive Covenants	March 27, 2007
EPA signed Site's third FYR Report	September 27, 2007
VDEQ issued NFHR Mercury TMDL Report	March 2011
EPA signed Site's fourth FYR Report	September 27, 2012
Olin completes NFHR Phase VII Pond 2 Data Collection Report	March 27 2015
EPA directed Olin to modify the SSTP to include targeted pumping and treatment of groundwater to reduce the discharge of mercury-contaminated groundwater between river mile 82.2 and 82.4	January 28, 2016
Olin completed the field construction to modify the SSTP to include extraction and treatment of groundwater from MW-119S and PZ-10.	March 21, 2017
EPA and Olin entered an AOC for Removal Action where in Olin agreed to address high pH seeps discharging from Ponds 5 and 6.	August 16, 2017
EPA signed Site's fifth FYR Report	September 26, 2017
EPA signed ESD for Pond 2	April 26, 2022

APPENDIX C – SITE MAPS

Figure C-1. Historical Site Layout

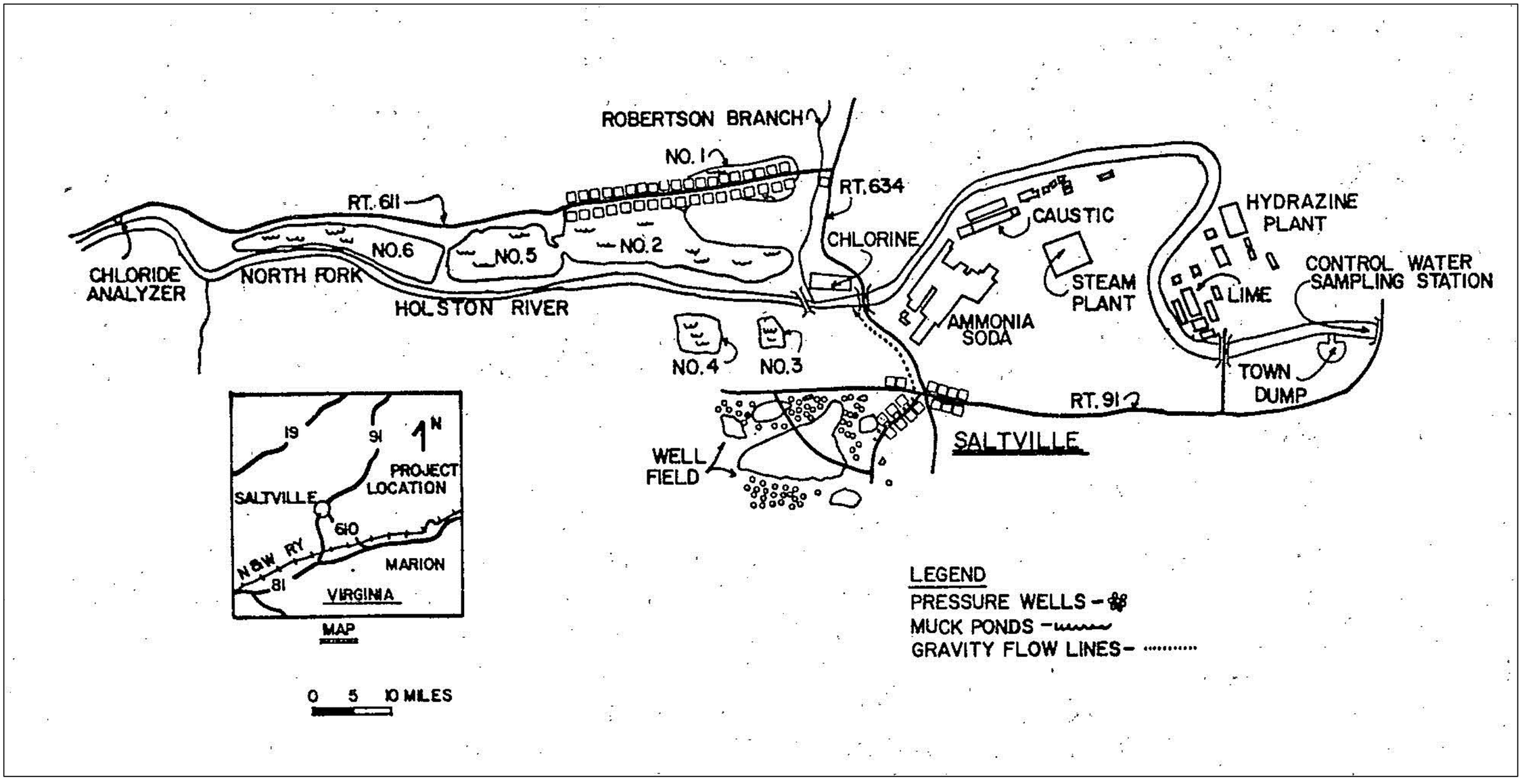


Figure C-2. Pond 5 Features

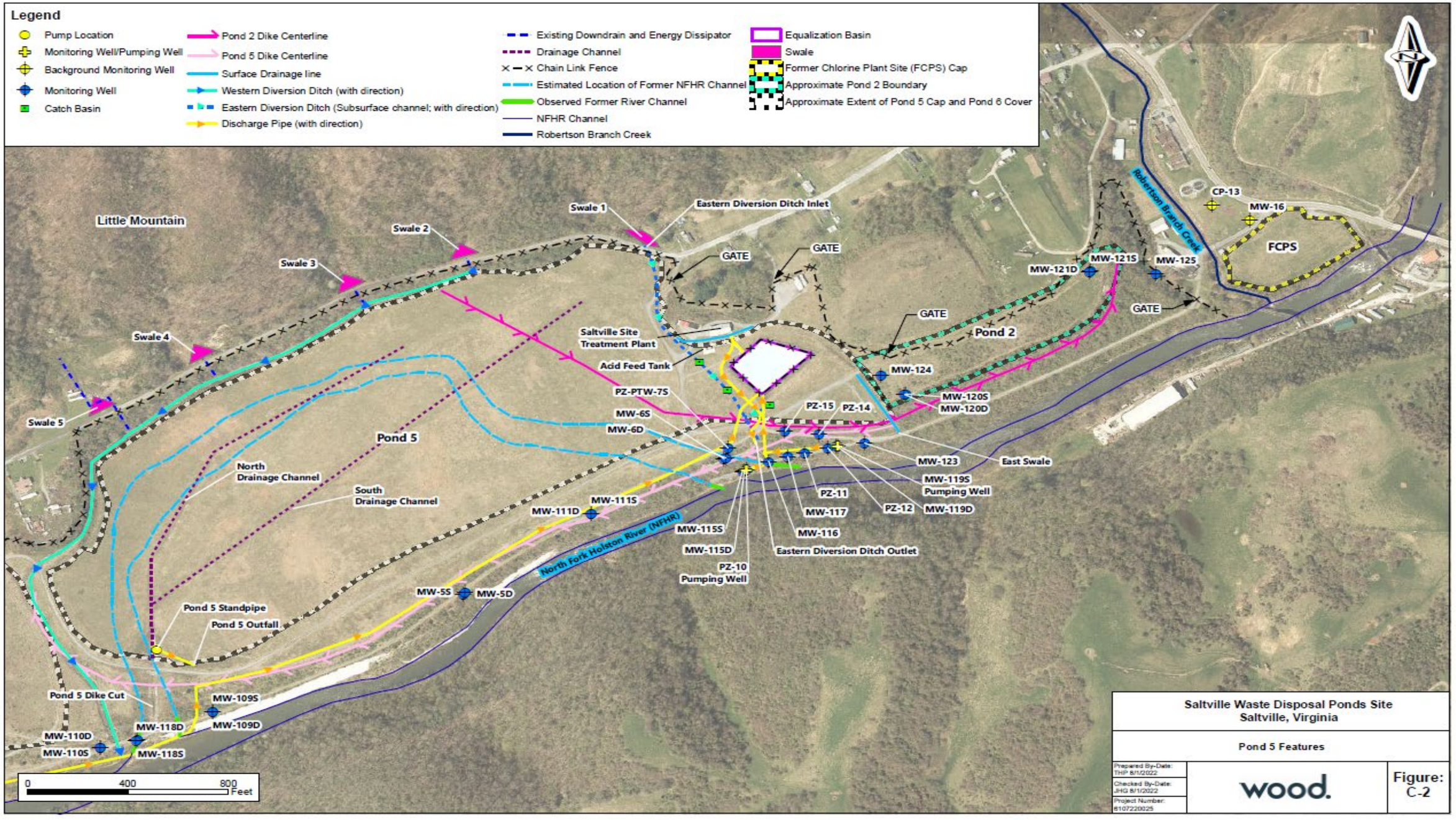


Figure C-3, Pond 6 Features

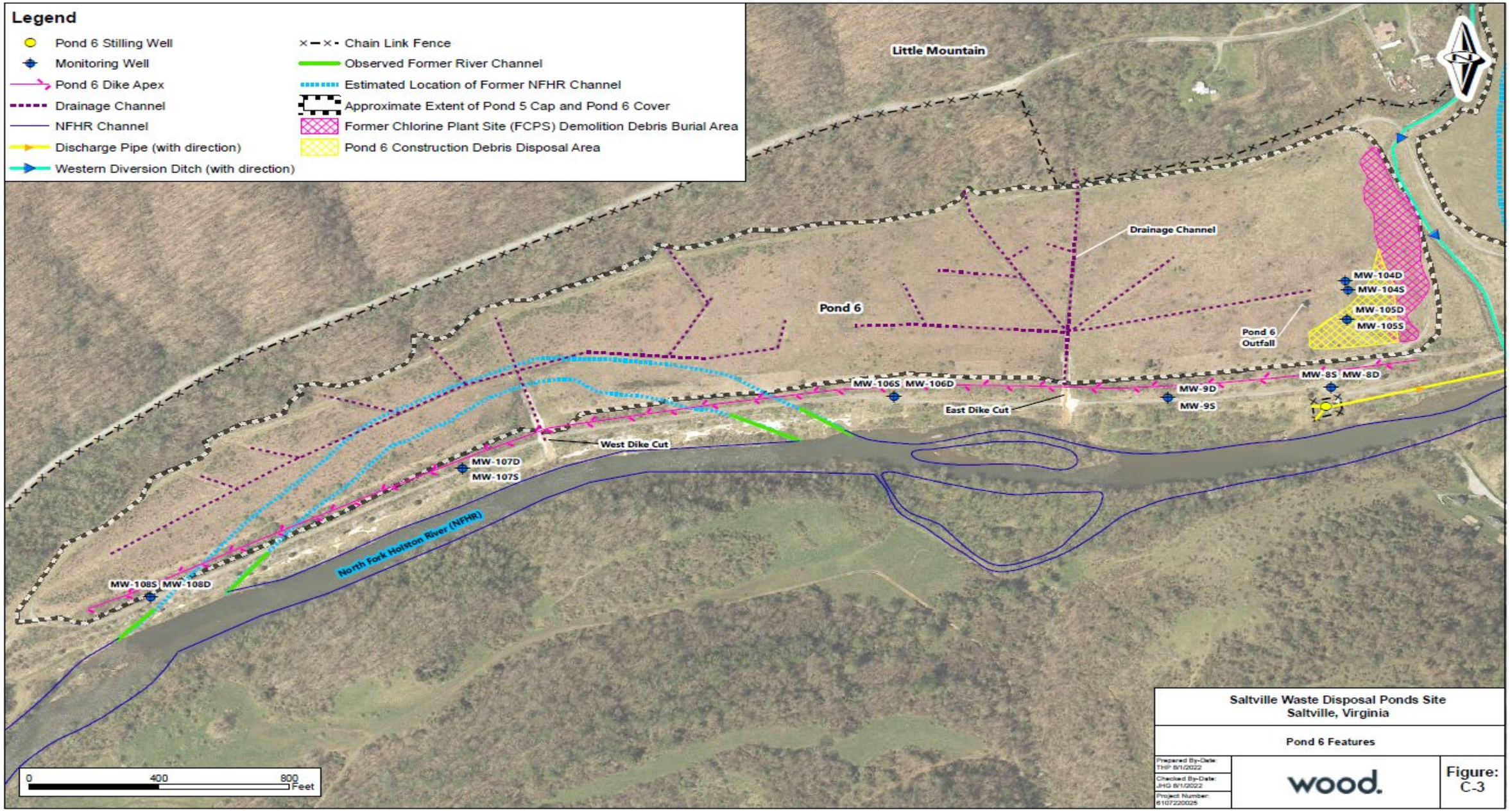
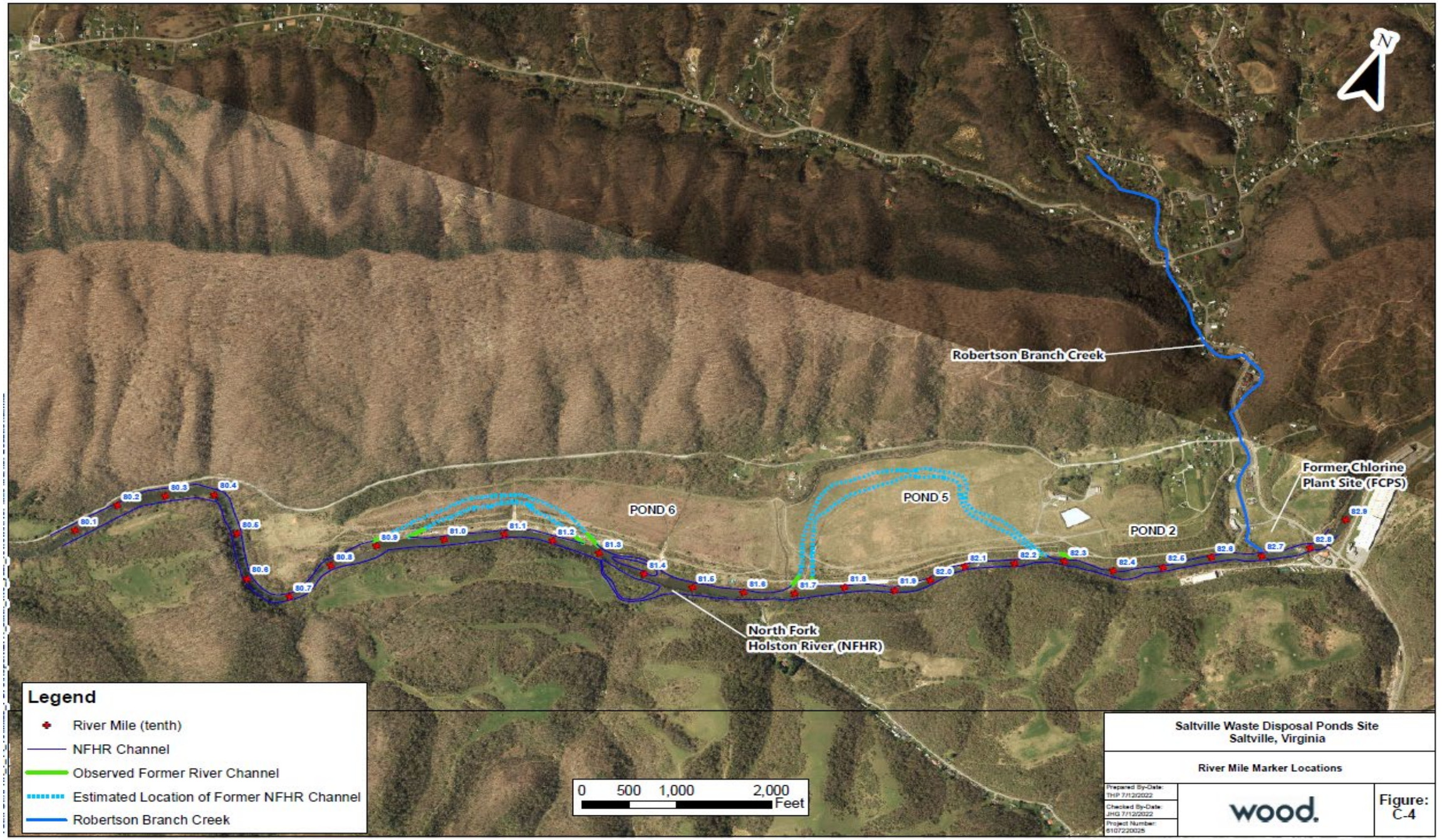


Figure C-4. River Miles



APPENDIX D – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Saltville Waste Disposal Ponds	**Date of Inspection:** 2/16/2022
Location and Region: Saltville, Virginia 3	**EPA ID: VAD003127578**
Agency, Office or Company Leading the Five-Year Review: EPA Region 3	**Weather/Temperature:** sunny/55 degrees F

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Other: leachate treatment plant
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____Name _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached:_____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached:_____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone No.
Problems/suggestions ☐ Report attached:_____

4. **Other Interviews** (optional) ☐ Report attached: _____

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☒ O&M manual	☒ Readily available	☒ Up to date	☐ N/A
☒ As-built drawings	☒ Readily available	☒ Up to date	☐ N/A
☒ Maintenance logs	☒ Readily available	☒ Up to date	☐ N/A

Remarks: _____

2. **Site-Specific Health and Safety Plan** ☒ Readily available ☐ Up to date ☐ N/A

☒ Contingency plan/emergency response plan ☒ Readily available ☒ Up to date ☐ N/A

Remarks: Health and Saftey Plan was in the process of being updated at the time of the site inspection.

3. **O&M and OSHA Training Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: Training certificates and records on site in SSTP control room

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A

Remarks: No permit for effluent

5. **Gas Generation Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

6. **Settlement Monument Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: Surveyed in December 2021

7. **Groundwater Monitoring Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

9. **Discharge Compliance Records**

☐ Air	☐ Readily available	☐ Up to date	☒ N/A
☒ Water (effluent)	☒ Readily available	☒ Up to date	☐ N/A

Remarks: _____

10. **Daily Access/Security Logs** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: Access restricted by locking gate

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for state

☒ PRP in-house ☐ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

Remarks: Olin operates the treatment plant and performs monitoring.

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place ☐ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: Fencing generally in good condition, gates typically secured with locks.

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☐ N/A

Remarks: Signage posted on fencing. Fish consumption warning signs also posted near North Fork Holston River.

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by): _____

Frequency: _____

Responsible party/agency: _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☐ Yes ☐ No ☒ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☒ No ☐ N/A

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☐ Report attached

Environmental Easement required by ROD-2 has been implemented. Environmental Easement requirements were updated in the 2022 ESD to extend to Pond 2. The required update has not yet been completed. Site inspection confirms that no inappropriate land use is occuring.

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks: Based on available information, institutional controls appear to be adequate however the existing Environmental Easement must be updated to include Pond 2 and correct a typo.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: None.

2. **Land Use Changes On Site** ☒ N/A

Remarks: None.

3. **Land Use Changes Off Site** ☒ N/A

Remarks: None.

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads Damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: Roads in good condition

B. Other Site Conditions

Remarks: None.

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on site map ☒ Settlement not evident

Aerial extent: _____ Depth: _____

Remarks: _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident

	Lengths: _____	Widths: _____	Depths: _____
	Remarks: _____		
3.	**Erosion**	☐ Location shown on site map	☒ Erosion not evident
	Aerial extent: _____		Depth: _____
	Remarks: _____		
4.	**Holes**	☐ Location shown on site map	☒ Holes not evident
	Aerial extent: _____		Depth: _____
	Remarks: None.		
5.	**Vegetative Cover**	☒ Grass	☒ Cover properly established
	☒ No signs of stress	☒ Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: Grass cover, well-established on Pond 5 cap. Grass and ~11,000 trees on Pond 6 cover.		
6.	**Alternative Cover** (e.g., armored rock, concrete)		☒ N/A
	Remarks: _____		
7.	**Bulges**	☐ Location shown on site map	☒ Bulges not evident
	Aerial extent: _____		Height: _____
	Remarks: _____		
8.	**Wet Areas/Water Damage**	☒ Wet areas/water damage not evident	
	☐ Wet areas	☐ Location shown on site map	Aerial extent: _____
	☐ Ponding	☐ Location shown on site map	Aerial extent: _____
	☐ Seeps	☐ Location shown on site map	Aerial extent: _____
	☐ Soft subgrade	☐ Location shown on site map	Aerial extent: _____
	Remarks: N/A		
9.	**Slope Instability**	☐ Slides	☐ Location shown on site map
	☒ No evidence of slope instability		
	Aerial extent: _____		
	Remarks: _____		
B. Benches		☐ Applicable ☒ N/A	
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
2.	**Bench Breached**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
3.	**Bench Overtopped**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
C. Letdown Channels		☐ Applicable ☒ N/A	

(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ No evidence of settlement
   Aerial extent: _____ Depth: _____
   Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
   Material type:_____ Aerial extent: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
   Aerial extent: _____ Depth: _____
   Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
   Aerial extent: _____ Depth: _____
   Remarks: _____

5. **Obstructions** Type: _____ ☐ No obstructions
   ☐ Location shown on site map Aerial extent: _____
   Size: _____
   Remarks: _____

6. **Excessive Vegetative Growth** Type: _____
   ☐ No evidence of excessive growth
   ☐ Vegetation in channels does not obstruct flow
   ☐ Location shown on site map Aerial extent: _____
   Remarks: _____

D. Cover Penetrations ☒ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A
   Remarks: _____

2. **Gas Monitoring Probes**
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A
   Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)
   ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: Four wells on Pond 6; no wells on Pond 5.

4. **Extraction Wells Leachate**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A

Remarks: _____

5. **Settlement Monuments** ☒ Located ☒ Routinely surveyed ☐ N/A

Remarks: There are 23 monuments on Pond 5. Last surveyed in December 2021. Not in cap cover itself; they sit 6 inches above the cap's liner.

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**

☐ Flaring ☐ Thermal destruction ☐ Collection for reuse

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)

☐ Good condition ☐ Needs maintenance ☐ N/A

Remarks: _____

F. Cover Drainage Layer ☒ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☒ Functioning ☐ N/A

Remarks: _____

2. **Outlet Rock Inspected** ☒ Functioning ☐ N/A

Remarks: Rocks at Pond 6 dike cuts covered in pink, white and tan discoloration.

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A

☐ Siltation not evident

Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____

☐ Erosion not evident

Remarks: _____

3. **Outlet Works** ☐ Functioning ☐ N/A

Remarks: _____

4. **Dam** ☐ Functioning ☐ N/A

Remarks: _____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident

Horizontal displacement: _____ Vertical displacement: _____

Rotational displacement: _____

Remarks: _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident

Remarks: _____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

Remarks: Tree root caused damage to the grout blanket of Swale 1 of the interceptor system. Repairs planned.

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Area extent: _____ Depth: _____

Remarks: Minor siltation in swale 1-5 interceptor system and eastern and western diversion ditches. Swales and diversion ditches cleaned annually.

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

☐ Vegetation does not impede flow

Area extent: _____ Type: _____

Remarks: Minor vegetation growth in swale 1-5 interceptor system and eastern and western diversion ditches. Swales and diversion ditches cleaned annually.

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident

Area extent: _____ Depth: _____

Remarks: _____

4. **Discharge Structure** ☒ Functioning ☐ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☒ Applicable ☐ N/A

1. **Settlement** ☐ Location shown on site map ☒ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Performance Monitoring** Type of monitoring: Visual

☐ Performance not monitored

Frequency: Annual ☐ Evidence of breaching

Head differential: _____

Remarks: Benchmark assessment on dike slope conditions performed in December 2021. Inspections using the benchmark assessment as basis of comparasion will continue annually.

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing and Electrical**

☐ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A

Remarks: Pump stations 5 and 6 upgraded in 2019

2. **Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☒ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: N/A

B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps and Electrical**

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

☐ Air stripping ☐ Carbon adsorbers

☒ Filters: carbon filtration (2 tanks)

☐ Additive (e.g., chelation agent, flocculent): _____

☒ Others: sulfuric acid to address pH

☒ Good condition ☐ Needs maintenance

☒ Sampling ports properly marked and functional

☐ Sampling/maintenance log displayed and up to date

☒ Equipment properly identified

Average quantity of water treated annually (2017-2020): 33,000,000 gallons

Remarks: Extensive modifications/upgrades implemented in 2018-2020.

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐ N/A ☒ Good condition ☐ Needs maintenance

Remarks: Extensive modifications/upgrades implemented in 2019.

3. **Tanks, Vaults, Storage Vessels**

☐ N/A ☒ Good condition ☒ Proper secondary containment ☐ Needs maintenance

Remarks: _____

4. **Discharge Structure and Appurtenances**

☒ N/A ☐ Good condition ☐ Needs maintenance

Remarks: _____

5. **Treatment Building(s)**

☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair

☒ Chemicals and equipment properly stored

Remarks: _____

6. **Monitoring Wells** (pump and treatment remedy)

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☒ N/A

Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).

The primary component of OU1 was designed to divert Pond 5 surface water. OU2 is the SSTP and was designed to treat leachate from Pond 5 (and is also currently treating leachate from Pond 6). OU3 includes the Pond 5 cap, Pond 6 cover, collection, and treatment of leachate-contaminated groundwater from Pond 6, engineering controls for diversion/management of clean storm water and groundwater, institutional controls, and long-term monitoring. The remedies for OU1, OU2 and OU3 are generally functioning as designed.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

O&M procedures have been implemented as designed and in accordance with site plans. Equipment appeared to be in good condition and properly maintained. Precipitate reduces the volume of the equalization basin and is removed periodically. Olin indicated precipitate was most recently removed from the equalization basin in 2018.

Swales and diversion ditches had minor siltation and vegetation growth present at the time of the site visit, however this did not appear to impede surface flow. Vegetation, siltation and debris is cleared from diversion ditches and swales on an annual basis. Site inspection participants observed the damaged grout blanket and exposed geomembrane in Swale 1. Olin indicated that the damage was from a tree root on the northern upstream side of the swale and noted they were planning a repair. Site participants noted Olin should consider clearing vegetation from the swales more frequently in the future to avoid this issue.

	Vegetation on Pond 5 and Pond 6 appeared healthy and well-established. Pond 5 was vegetated with grass and at the time of the site inspection had been recently mowed. Pond 6 had a variety of larger vegetation to attract wildlife, including trees and shrubs; deer were spotted on site. Pond 5 and Pond 6 diversion channels appeared to be in good condition and minimal erosion was observed. All monitoring wells observed were secured with locks and clearly labeled. A locking gate restricts access to the Olin trailer, Ponds 5 and 6, and the SSTP. Participants noted pink, tan, and white discoloration on the Pond 6 dike cuts. This observation has been made in the past (including during the fifth FYR) and an investigation is underway.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. N/A
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Groundwater monitoring was recently optimized by decommissioning a number of wells that historically were sampled regularly. Additionally, recently, Olin optimized reporting deliverables by streamlining the structure in which data is reported.

Site Inspection Roster:

Eric Newman, EPA co-remedial project manager
Evelyn Sorto, EPA co-remedial project manager
Nate Doyle, EPA hydrogeologist (dialed in remotely to beginning only)
Eric Pollard, EPA community involvement coordinator (dialed in remotely to beginning only)
William Lindsay, VDEQ (dialed in remotely to beginning only)
James Cashwell, Olin
Julie Peoples, Olin
Stanley Haynes, Olin
Rich Opem, CDM Smith
Katie Young, CDM Smith

APPENDIX E – PRESS NOTICE

EPA PUBLIC NOTICE

EPA REVIEWS CLEANUP

SALTVILLE WASTE DISPOSAL PONDS SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is reviewing the cleanup that was conducted at the Saltville Waste Disposal Ponds Superfund Site located in Saltville, Virginia. EPA conducts Five-Year Reviews to ensure that cleanups continue to protect public health and the environment. EPA conducted the previous Five-Year Review in 2017 and concluded that the remedies were protective in the short-term. EPA will make the findings from this Five-Year Review available in September 2022.

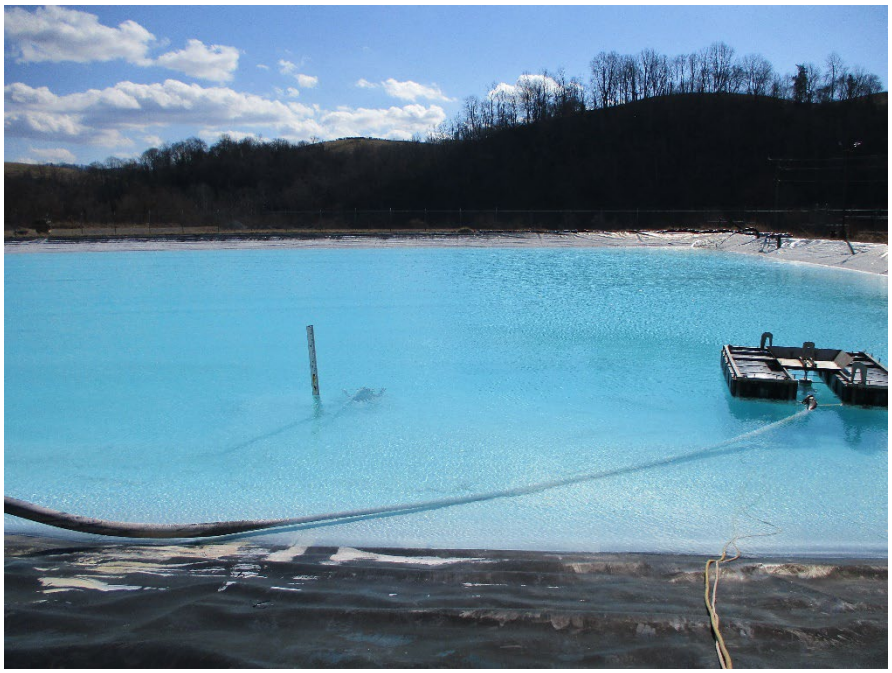
To access site information, including the Five-Year Review, visit:
www.epa.gov/superfund/saltville

For questions or to provide site-related information for the review, contact:
Meg Broughton, EPA Community Involvement Coordinator
215-814-5494 or keegan.megan@epa.gov

APPENDIX F – SITE INSPECTION PHOTOS

Daily composite water sample system inside SSTP

Carbon adsorption unit inside SSTP



Equalization basin

Acid feed tank

Fence and private property sign around Pond 5


Fence along Route 611

Swale 1 Interceptor System, grout blanket damaged and geomembrane exposed (facing south)

Swale 1 Interceptor System, grout blanket damaged and geomembrane exposed (facing northwest)

Swale 1 Interceptor System, grout blanket damaged and geomembrane exposed (facing north)

Swale 2 Interceptor System

Swale 3 Interceptor System

No trespassing sign near North Fork Holston River

Fish health advisory sign near North Fork Holston River


North Fork Holston River

Pond 5 and Little Mountain (facing northwest)

Pond 5 survey monument

Pond 5 and Little Mountain (facing northeast)

Pond 5 drainage swale (facing north)

Western diversion ditch (facing northeast)

Western diversion ditch (facing southwest)

View of Pond 6 from Route 611 (facing southeast)

Pond 6 pumping station

Inside Pond 6 pumping station

Monitoring Well 108D

Eastern dike cut on Pond 6 (facing north)

Eastern dike cut on Pond 6 (facing south towards North Holston Fork River)

Pond 6 drainage channels and cover (facing north)

APPENDIX G – SELECT TABLES AND CHARTS FROM THE ANNUAL COMPREHENSIVE DATA REPORT - 2021

TABLE 2.2A
SALTVILLE SITE TREATMENT PLANT DISCHARGE DATA

Date	Total Daily Treated Discharge (gal)	Average Daily Treated Discharge Rate (gpm)	pH (SU)	Total Dissolved Solids[1] (mg/L)	Chlorides[1] (mg/L)	Mercury Concentration[1] (ppb) in Daily Composite	Calculated Daily Effluent Load[2] (grams/day)	Average River Flow[3] (cfs)	Calculated Hg Concentration in River[4] (ppb)
1/1/2021	241,122	167	6.57	3,400	1,500	0.28	0.26	380	0.00027
1/2/2021	256,968	178	6.48	3,800	1,400	0.30	0.29	700	0.00017
1/3/2021	253,404	176	6.42	3,600	1,500	0.34	0.33	780	0.00017
1/4/2021	254,034	176	6.45	4,600	1,400	0.38	0.37	618	0.00024
1/5/2021	199,292	138	6.46	4,600	1,400	0.40	0.30	485	0.00025
1/6/2021	99,327	69	6.50	4,800	1,400	0.36	0.14	402	0.00014
1/11/2021	244,037	169	6.49	4,100	1,400	0.37	0.34	239	0.00058
1/12/2021	248,105	172	6.47	3,500	1,400	0.34	0.32	233	0.00056
1/13/2021	194,058	135	6.54	4,200	1,800	0.37	0.27	229	0.00048
1/18/2021	235,548	164	6.51	3,800	1,100	0.31	0.28	206	0.00055
1/19/2021	254,070	176	6.54	4,300	1,400	0.34	0.33	193	0.00069
1/20/2021	220,709	153	6.58	4,300	1,300	0.39	0.33	184	0.00072
1/25/2021	253,992	176	6.41	3,400	1,400	0.25	0.24	207	0.00047
1/26/2021	281,532	196	6.44	3,400	1,400	0.27	0.29	2,850	0.000041
1/27/2021	232,910	162	6.53	3,400	1,100	0.26	0.23	2,190	0.000043
2/1/2021	231,845	161	6.44	3,600	1,100	0.18 J	0.16	583	0.00011
2/2/2021	252,577	175	6.53	3,600	1,100	0.17 J	0.16	584	0.00011
2/3/2021	236,025	164	6.50	4,000	1,100	0.20	0.18	467	0.00016
2/4/2021	206,260	143	6.48	3,900	1,100	0.23	0.18	386	0.00019
2/5/2021	229,119	159	6.58	3,900	1,200	0.32	0.28	368	0.00031
2/6/2021	190,624	132	6.61	3,900	1,100	0.31	0.22	356	0.00026
2/7/2021	120,488	84	6.48	3,800	1,100	0.21	0.10	358	0.00011
2/8/2021	112,327	78	6.40	3,700	1,100	0.36	0.15	330	0.00019
2/9/2021	53,821	37	6.42	3,400	1,100	0.33	0.07	314	0.000087
2/10/2021	174,752	121	6.44	3,600	1,100	0.34	0.22	348	0.00026
2/11/2021	229,485	159	6.39	3,400	1,100	0.31	0.27	644	0.00017
2/12/2021	229,637	159	6.51	3,300	1,000	0.28	0.24	2,610	0.000038
2/13/2021	179,202	124	6.46	3,200	1,000	0.32	0.22	2,270	0.000039
2/15/2021	195,747	136	6.64	4,300 J	1,300	0.29	0.21	1,540	0.000057
2/16/2021	196,337	136	6.58	3,900	1,200	0.24	0.18	1,260	0.000058
2/17/2021	172,855	120	6.56	3,600	1,100	0.33	0.22	1,010	0.000087
2/18/2021	183,872	128	6.50	3,400	1,100	0.3	0.21	2,470	0.000035
2/19/2021	180,273	125	6.72	3,600	1,100	0.3	0.20	3,300	0.000025
2/20/2021	186,841	130	6.61	3,600	1,100	0.32	0.23	1,790	0.000052
2/21/2021	176,537	123	6.46	3,800	1,100	0.38	0.25	1,130	0.000092
2/22/2021	188,833	131	6.60	3,600	1,100	0.40	0.29	932	0.00013
2/23/2021	193,605	134	6.54	3,700	1,100	0.40	0.29	1,010	0.00012
2/24/2021	226,619	157	6.38	3,800	1,100	0.45	0.39	861	0.00018
2/25/2021	220,158	153	6.40	4,000	1,100	0.45	0.38	689	0.00022
2/26/2021	226,616	157	6.38	3,800	1,100	0.42	0.36	566	0.00026
2/27/2021	225,901	157	6.42	3,600	1,100	0.31	0.27	884	0.00012
2/28/2021	211,747	147	6.52	3,400	1,000	0.4	0.32	2,910	0.000045
3/1/2021	181,516	126	6.52	3,600	980	0.24	0.16	4,160	0.000016
3/2/2021	225,049	156	6.48	3,800	940	0.19 J	0.16	3,120	0.000021
3/3/2021	188,325	131	6.51	4,300	980	0.28	0.20	1,700	0.000048
3/4/2021	229,832	160	6.71	4,400	1,000	0.37	0.32	1,110	0.00012
3/5/2021	230,046	160	6.44	3,800	1,100	0.33	0.29	767	0.00015

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 2.2A
SALTVILLE SITE TREATMENT PLANT DISCHARGE DATA

Date	Total Daily Treated Discharge (gal)	Average Daily Treated Discharge Rate (gpm)	pH (SU)	Total Dissolved Solids[1] (mg/L)	Chlorides[1] (mg/L)	Mercury Concentration[1] (ppb) in Daily Composite	Calculated Daily Effluent Load[2] (grams/day)	Average River Flow[3] (cfs)	Calculated Hg Concentration in River[4] (ppb)
3/6/2021	197,929	137	6.62	4,000	1,000	0.34	0.25	560	0.00019
3/7/2021	212,409	148	6.54	3,800	1,000	0.34	0.27	437	0.00026
3/8/2021	229,771	160	6.32	3,900	1,100	0.36	0.31	356	0.00036
3/9/2021	229,748	160	6.65	4,100	1,200	0.3	0.26	311	0.00034
3/10/2021	211,966	147	6.61	3,900	1,100	0.33	0.26	282	0.00038
3/11/2021	217,334	151	6.64	4,000	1,100	0.22	0.18	260	0.00028
3/12/2021	237,824	165	6.74	3,800	1,200	0.51	0.46	244	0.00077
3/13/2021	224,043	156	6.51	4,000	1,100	0.58	0.49	232	0.00087
3/14/2021	215,113	149	6.72	3,900	1,100	0.24	0.20	216	0.00037
3/15/2021	236,375	164	6.73	4,000 J	1,000	0.48	0.43	204	0.00086
3/16/2021	236,589	164	6.72	3,900 J	960	0.49	0.44	196	0.00091
3/17/2021	235,383	163	6.74	3,900 J	1,000	0.49	0.44	189	0.00094
3/18/2021	210,834	146	6.62	3,700	1,000	0.49	0.39	328	0.00049
3/19/2021	235,597	164	6.90	3,800	930	0.45	0.40	1,710	0.000096
3/20/2021	219,405	152	6.95	3,800	1,000	0.38	0.32	1,480	0.000087
3/21/2021	229,762	160	6.94	3,500	1,000	0.41	0.36	836	0.00017
3/22/2021	216,059	150	6.84	3,000	960	0.48	0.39	562	0.00029
3/23/2021	227,535	158	6.74	3,700	1,100	0.53	0.46	431	0.00043
3/24/2021	225,421	157	6.72	3,500	1,100	0.52	0.44	355	0.00051
3/25/2021	214,394	149	6.74	3,500	1,100	0.58	0.47	327	0.00059
3/26/2021	224,568	156	6.78	3,300	1,200	0.55	0.47	756	0.00025
3/27/2021	210,785	146	6.77	3,300	1,200	0.53	0.42	1,150	0.00015
3/28/2021	221,588	154	6.72	3,200	1,000	0.49	0.41	5,170	0.000032
3/29/2021	196,366	136	6.82	3,900 J	910	0.60	0.45	3,590	0.000051
3/30/2021	201,614	140	6.55	3,700	900	0.57	0.44	1,780	0.00010
3/31/2021	205,187	142	6.54	3,900	970	0.53	0.41	1,300	0.00013
4/1/2021	207,408	144	6.52	3,900	960	0.53	0.42	1,180	0.00014
4/2/2021	192,559	134	6.77	3,900	910	0.52	0.38	980	0.00016
4/3/2021	207,282	144	6.65	3,800	960	0.57	0.45	776	0.00024
4/4/2021	207,154	144	6.58	4,000	960	0.50	0.39	623	0.00026
4/5/2021	206,648	144	6.77	3,900 J	1,000	0.55	0.43	519	0.00034
4/6/2021	178,024	124	6.78	4,200	1,100	0.67	0.45	444	0.00042
4/7/2021	201,870	140	6.71	3,500	1,000	0.59	0.45	383	0.00048
4/8/2021	215,670	150	6.72	3,500	1,000	0.58	0.47	344	0.00056
4/9/2021	215,226	149	6.70	3,600	1,100	0.56	0.46	312	0.00060
4/10/2021	220,509	153	6.68	3,500	1,000	0.59	0.49	289	0.00070
4/11/2021	228,417	159	6.69	3,500	1,100	0.68	0.59	751	0.00032
4/12/2021	220,554	153	6.68	3,000 J	1,100	0.57	0.48	752	0.00026
4/13/2021	206,755	144	6.77	3,100	1,100	0.27	0.21	529	0.00016
4/14/2021	233,735	162	6.77	3,000	1,100	0.25	0.22	424	0.00021
4/15/2021	242,946	169	6.79	3,100	1,000	0.45	0.41	384	0.00044
4/16/2021	280,484	195	6.86	3,100	1,100	0.44	0.47	330	0.00058
4/17/2021	277,985	193	6.96	3,200	1,000	0.39	0.41	292	0.00057
4/18/2021	273,835	190	6.76	3,200	1,000	0.47	0.49	267	0.00074
4/19/2021	233,088	162	6.77	3,700 J	890	0.51	0.45	247	0.00074

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 2.2A
SALTVILLE SITE TREATMENT PLANT DISCHARGE DATA

Date	Total Daily Treated Discharge (gal)	Average Daily Treated Discharge Rate (gpm)	pH (SU)	Total Dissolved Solids[1] (mg/L)	Chlorides[1] (mg/L)	Mercury Concentration[1] (ppb) in Daily Composite	Calculated Daily Effluent Load[2] (grams/day)	Average River Flow[3] (cfs)	Calculated Hg Concentration in River[4] (ppb)
4/20/2021	279,109	194	6.58	3,200 J	1,000	0.41	0.43	228	0.00078
4/21/2021	253,509	176	6.77	3,700	970	0.41	0.39	214	0.00075
4/22/2021	203,938	142	6.68	3,700	1,100	0.45	0.35	203	0.00070
4/23/2021	260,203	181	6.93	3,800	1,100	0.40	0.39	190	0.00085
4/24/2021	263,775	183	6.81	3,700	990	0.46	0.46	192	0.00098
4/25/2021	251,528	175	6.78	3,700	1,100	0.51	0.49	227	0.00087
4/26/2021	221,109	154	6.85	3,700	910	0.39	0.33	201	0.00066
4/27/2021	259,139	180	6.83	3,500	930	0.38	0.37	182	0.00084
4/28/2021	261,226	181	6.88	3,500	960	0.57	0.56	176	0.0013
4/29/2021	200,878	139	6.82	3,500	930	0.44	0.33	174	0.00078
4/30/2021	178,238	124	6.89	3,400	910	0.49	0.33	187	0.00072
5/1/2021	192,019	133	6.88	3,400	950	0.41	0.30	188	0.00065
5/2/2021	189,103	131	6.93	3,600	950	0.48	0.34	177	0.00079
5/3/2021	187,053	130	6.88	3,000 J	960	0.61	0.43	182	0.00097
5/4/2021	183,470	127	6.85	3,100	1,000	0.6	0.42	201	0.00085
5/5/2021	191,078	133	6.91	3,100	1,000	0.36	0.26	245	0.00043
5/6/2021	184,135	128	6.86	3,200	1,000	0.38	0.26	241	0.00045
5/10/2021	165,086	115	6.78	3,900	1,200	0.39	0.24	202	0.00049
5/11/2021	219,861	153	6.92	3,900	1,200	0.29	0.24	192	0.00051
5/12/2021	223,012	155	6.85	3,800	1,200	0.26	0.22	174	0.00051
5/13/2021	220,850	153	6.88	4,000	1,200	0.27	0.23	163	0.00056
5/17/2021	179,316	125	6.68	3,300 J	1,100	0.29	0.20	136	0.00059
5/18/2021	190,418	132	6.94	3,600	1,200	0.25	0.18	134	0.00055
5/19/2021	183,077	127	6.84	3,600	1,300	0.31	0.21	128	0.00068
5/24/2021	122,121	85	6.77	3,600	1,200	0.29	0.13	97	0.00057
5/25/2021	191,190	133	6.88	3,600	1,200	0.31	0.22	94	0.00098
5/26/2021	187,782	130	6.85	3,700	1,200	0.42	0.30	90	0.0014
6/1/2021	177,885	124	6.84	3,700	1,100	0.30	0.20	92	0.00090
6/2/2021	198,232	138	6.88	3,500	1,100	0.23	0.17	86	0.00082
6/3/2021	185,996	129	6.86	3,600	1,100	0.21	0.15	84	0.00071
6/8/2021	174,497	121	6.91	3,500	1,200	0.27	0.18	134	0.00054
6/9/2021	168,909	117	6.98	3,700	1,200	0.25	0.16	116	0.00056
6/16/2021	236,857	164	6.84	3,600	1,300 B	0.35	0.31	135	0.00095
6/17/2021	261,796	182	6.90	3,500	1,500 B	0.17 J	0.17	108	0.00064
7/6/2021	249,207	173	6.64	4,000	1,500	0.19 J	0.18	61	0.0012
7/7/2021	289,643	201	6.88	4,000	1,500	0.20 U	0.0^	55	0.0^
10/8/2021	298,612	207	7.13	3,800	2,000	0.19 J	0.21	147	0.00060
10/9/2021	361,329	251	7.03	3,900	2,500	0.19 J	0.26	140	0.00076
10/10/2021	357,796	248	6.95	3,900	2,600 J	0.18 J	0.24	128	0.00078
10/11/2021	345,279	240	6.92	3,800	2,500	0.22	0.29	95	0.0012

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 2.2A
SALTVILLE SITE TREATMENT PLANT DISCHARGE DATA

Date	Total Daily Treated Discharge (gal)	Average Daily Treated Discharge Rate (gpm)	pH (SU)	Total Dissolved Solids[1] (mg/L)	Chlorides[1] (mg/L)	Mercury Concentration[1] (ppb) in Daily Composite	Calculated Daily Effluent Load[2] (grams/day)	Average River Flow[3] (cfs)	Calculated Hg Concentration in River[4] (ppb)
Average	217,257	151	6.68	3,686	1,153	0.38	0.31	682	0.00019
1Q21	15,479,578								
2Q21	11,296,544								
3Q21	538,850								
4Q21	1,363,016								
2021 Total	28,677,988								

Notes:

[1]- The analyses were performed by ALS Environmental Laboratory in Holland, Michigan and reported in sample delivery groups (SDGs) 21031507, 21032471, 21032739, 21040564, 21041197, 21041762, 21042379, 21050203, 21050941, 21051534, 21052318, 21052556, 21060617, 21061163, 21061936, 21070724, and 21101262.

[2]- Calculated based on the average daily treated discharge rates and external analytical mercury results for the respective daily composite effluent samples.

[3]- Data from North Fork Holston River Streamflow Gauge USGS 03488000 N F Holston River near Saltville, VA (RM 85)

[4]- In a letter dated November 22, 2000, the Virginia Department of Environmental Quality approved a maximum effluent concentration of 3.6 ppb of mercury when the North Fork Holston River (NFHR) flow is higher than 160 cubic feet per second. Below that level, the letter approved reductions of flow from the Saltville Site Treatment Plant to assure that NFHR concentrations be maintained below 0.012 ppb (or 12 ppt) at all stream flows greater than the lowest established 10-year, 7-day average flow.

^ - Mercury not detected in the daily composite; Non-detect was treated as zero (per the method used by VDEQ)

gal - gallons
gpd - gallons per day
gpm - gallons per minute
cfs - cubic feet per second
ppb - parts per billion (or micrograms per liter [µg/L])
mg/l - milligrams per liter
ppt - parts per trillion (or nanograms per liter)
su - standard units

U - Analyte was not detected; value is Reporting Limit (RL)
J - The result is an estimated concentration based on data validation or the concentration was detected between the Method Detection Limit and the RL
B - Analyte detected in the associated Method Blank above the RL

Conversion Factors:

1 µg/L = $1x10^{-6}$ grams/L
1 cubic foot (cf) = 28.31 L
1 cfs = 86,400 cubic feet per day (cfd)
1 gpm = 0.002228 cfs

Equations

Daily Effluent Load (grams-Hg/day) = *Hg Concentration in Daily Composite (grams/cf) x Average Daily Treated Discharge Rate (cfd)*
Annual Effluent Load (grams-Hg/year) = *Summation of Daily Effluent Loads (grams-Hg/day) for the year*

$$\text{Calculated Hg Concentration in River (ppb)} = \frac{Hg\ Concentration\ in\ Daily\ Composite\ (ng/L)\ x\ Average\ Daily\ Treated\ Discharge\ Rate\ (cfs)}{Average\ Daily\ Treated\ Discharge\ Rate\ (cfs) + Average\ River\ Flow\ (cfs)}$$

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 3.1B
GROUNDWATER QUALITY AND ANALYTICAL DATA
BACKGROUND AND FCPS MONITORING WELLS

Well ID	Date	Time	pH (su)	Specific Conductance (mS/cm)	Temperature (°C)	Turbidity (NTU)	Total Hg[1] (ppb)		Filtered Hg[1] (ppb)		Comments
Background Wells											
CP-13	3/16/2021	10:50	6.48	0.401	12.8	0.5	< 0.20	U	< 0.20	U	
CP-13	6/15/2021	09:05	6.93	0.315	14.9	1.0	< 0.20	U	< 0.20	U	
CP-13	9/7/2021	14:35	6.64	0.375	20.1	2.3	< 0.20	U	< 0.20	U	
CP-13	11/15/2021	15:39	6.69	0.550	16.7	2.5	< 0.20	U	< 0.20	U	
MW-16	3/16/2021	11:30	6.57	0.520	12.6	0.5	< 0.20	U	< 0.20	U	
MW-16	6/15/2021	09:30	6.88	0.385	14.6	1.2	< 0.20	U	< 0.20	U	
MW-16	9/7/2021	15:10	6.87	0.260	18.8	0.9	< 0.20	U	< 0.20	U	
MW-16	11/16/2021	09:50	7.09	0.330	15.4	1.2	< 0.20	U	< 0.20	U	
FCPS Wells											
CP-6	3/16/2021	4:40 PM	7.47	1.11	14.5	1.7	0.30	J	< 0.20	U	
CP-6	6/15/2021	12:30 PM	7.64	1.13	14.7	4.1	0.72	J	< 0.20	U	
CP-6	9/8/2021	11:00 AM	7.59	0.897	15.8	1.9	0.35		< 0.20	U	
CP-6	11/16/2021	3:10 PM	7.86	1.19	14.6	3.6	0.32		< 0.20	U	
CP-7	3/17/2021	10:35 AM	7.00	3.90	13.9	7.9	1.0		0.32		
CP-7	6/15/2021	1:30 PM	7.25	6.94	15.3	5.0	2.4	J	0.61	J	
CP-7	9/8/2021	1:40 PM	7.64	6.22	16.9	4.8	1.4		0.79		
CP-7	11/16/2021	4:40 PM	8.00	8.50	14.5	2.1	1.5		1.1		
CP-9	3/17/2021	12:50 PM	7.14	0.617	14.2	2.0	360		330		
CP-9	6/15/2021	2:05 PM	7.54	0.459	14.0	0.2	250		230		
CP-9	9/8/2021	2:10 PM	7.52	0.383	17.5	0.4	290		270		
CP-9	11/17/2021	9:10 AM	7.77	0.350	15.9	2.2	260		230		
CP-11	3/17/2021	3:30 PM	7.08	1.68	13.9	0.8	2.7		0.34		
CP-11	6/15/2021	3:45 PM	7.16	1.77	14.3	0.4	0.57		0.28		
CP-11	9/8/2021	4:05 PM	7.04	1.62	17.9	1.3	0.83		0.29		
CP-11	11/17/2021	11:05 AM	7.18	1.31	16.2	4.2	1.4		< 0.20	U	
MW-11S	3/16/2021	2:30 PM	7.26	0.775	12.3	2.1	0.45		< 0.20	U	
MW-11S	6/15/2021	10:05 AM	7.41	1.00	13.9	1.7	0.25		< 0.20	U	
MW-11S	9/8/2021	9:30 AM	7.32	0.867	15.3	2.5	0.39		< 0.20	U	
MW-11S	11/16/2021	1:55 PM	7.50	1.14	15.4	3.4	0.23	J	< 0.20	U	
MW-11BD	3/16/2021	3:50 PM	7.56	1.22	13.9	1.5	< 0.20	U	< 0.20	U	
MW-11BD	6/15/2021	10:40 AM	7.93	1.51	15.1	4.3	< 0.20	U	< 0.20	U	
MW-11BD	9/8/2021	10:30 AM	7.55	1.25	16.4	1.9	< 0.20	U	< 0.20	U	
MW-11BD	11/16/2021	1:30 PM	7.40	1.58	15.0	3.0	< 0.20	U	< 0.20	U	
MW-11D	3/16/2021	3:15 PM	7.26	0.460	13.8	3.6	< 0.20	U	< 0.20	U	
MW-11D	6/15/2021	11:05 AM	7.44	0.508	13.5	3.7	< 0.20	U	< 0.20	U	

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 3.1B
GROUNDWATER QUALITY AND ANALYTICAL DATA
BACKGROUND AND FCPS MONITORING WELLS

Well ID	Date	Time	pH (su)	Specific Conductance (mS/cm)	Temperature (°C)	Turbidity (NTU)	Total Hg[1] (ppb)		Filtered Hg[1] (ppb)		Comments
MW-11D	9/8/2021	10:05 AM	7.31	0.457	14.7	1.9	< 0.20	U	< 0.20	U	
MW-11D	11/16/2021	2:35 PM	7.44	0.630	14.7	3.7	0.21		< 0.20	U	
MW-12S	3/17/2021	9:00 AM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-12S	6/14/2021	12:40 PM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-12S	9/8/2021	12:30 PM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-12S	11/16/2021	3:20 PM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-12D	3/17/2021	9:40 AM	7.29	3.02	13.5	0.9	42		34		
MW-12D	6/15/2021	1:05 PM	7.39	0.848	14.1	0.4	3.1		2.1		
MW-12D	9/8/2021	1:00 PM	7.26	0.520	15.8	1.6	0.99		0.82		
MW-12D	11/16/2021	3:55 PM	7.36	0.740	14.9	1.6	2.0		0.78		
MW-13S	3/17/2021	2:05 PM	7.25	0.605	13.3	1.6	170		140		
MW-13S	6/15/2021	2:55 PM	7.66	0.471	14.7	0.6	150		62		
MW-13S	9/8/2021	3:00 PM	7.67	0.394	18.9	0.8	150		130		
MW-13S	11/17/2021	10:05 AM	7.78	0.360	16.4	2.1	150		130		
MW-13D	3/17/2021	1:25 PM	10.61	0.879	14.9	1.9	5.3		3.3		
MW-13D	6/15/2021	2:30 PM	10.75	0.925	14.9	2.4	4.2		2.4		
MW-13D	9/8/2021	2:35 PM	10.43	0.676	17.7	1.2	3.0		2.7		
MW-13D	11/17/2021	9:35 AM	10.56	0.610	15.3	3.0	3.4		2.8		
MW-14S	3/17/2021	4:15 PM	7.15	0.441	11.9	1.7	0.90		0.50		
MW-14S	6/16/2021	4:45 PM	7.23	0.545	14.8	2.3	2.1		0.21		No recharge after purging 300 milliliters
MW-14S	9/7/2021	4:10 PM	NS	NS	NS	NS	NS		NS		Insufficent water for sample collection; no sample collected
MW-14S	11/17/2021	12:00 PM	NS	NS	NS	NS	NS		NS		Insufficent water for sample collection; no sample collected
MW-14D	3/17/2021	4:55 PM	7.66	1.25	14.9	2.8	0.77		0.47		
MW-14D	6/15/2021	4:20 PM	7.58	1.87	14.6	0.6	0.25		< 0.20	U	
MW-14D	9/8/2021	4:35 PM	7.56	1.66	16.8	0.9	< 0.20	U	< 0.20	U	
MW-14D	11/17/2021	12:30 PM	7.64	1.62	16.9	3.8	0.22		< 0.20	U	
MW-15BD	3/18/2021	9:25 AM	6.89	1.01	15.0	0.7	< 0.20	U	< 0.20	U	
MW-15BD	6/16/2021	9:00 AM	7.07	0.926	16.4	1.4	< 0.20	U	< 0.20	U	
MW-15BD	9/9/2021	9:10 AM	6.99	0.728	16.3	1.5	< 0.20	U	< 0.20	U	
MW-15BD	11/17/2021	1:25 PM	7.32	0.430	17.0	2.7	< 0.20	U	< 0.20	U	
MW-15D	3/18/2021	8:55 AM	7.08	0.484	13.3	2.3	0.54		< 0.20	U	
MW-15D	6/17/2021	8:10 AM	7.23	0.524	16.5	5.4	< 0.20	U	NA		Only enough water to collect Total Hg sample
MW-15D	9/9/2021	8:40 AM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-15D	11/17/2021	1:00 PM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-17	3/17/2021	2:55 PM	7.95	1.44	15.1	1.7	74		0.75		
MW-17	6/15/2021	3:20 PM	8.24	1.54	15.6	4.7	23		1.2		
MW-17	9/8/2021	3:35 PM	8.11	1.37	17.6	1.1	4.7		1.4		
MW-17	11/17/2021	10:40 AM	8.38	0.850	15.5	1.4	6.2		0.21		

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 3.1B
GROUNDWATER QUALITY AND ANALYTICAL DATA
BACKGROUND AND FCPS MONITORING WELLS

Well ID	Date	Time	pH (su)	Specific Conductance (mS/cm)	Temperature (°C)	Turbidity (NTU)	Total Hg[1] (ppb)		Filtered Hg[1] (ppb)		Comments
Wells South of North Fork Holston River											
MW-112S	3/18/2021	4:45 PM	7.28	0.357	12.6	1.4	0.47		< 0.20	U	
MW-112S	9/9/2021	3:28 PM	7.26	0.335	14.6	7.2	< 0.20	U	< 0.20	U	
MW-112D	3/18/2021	4:47 PM	7.11	5.09	13.1	1.0	< 0.20	U	< 0.20	U	
MW-112D	9/9/2021	3:30 PM	7.01	5.15	15.2	7.1	< 0.20	U	< 0.20	U	
MW-113S	3/23/2021	4:53 PM	7.32	7.05	13.4	0.4	< 0.20	U	< 0.20	U	
MW-113S	9/9/2021	3:34 PM	7.23	6.92	14.1	1.4	< 0.20	U	< 0.20	U	
MW-113D	3/23/2021	4:55 PM	9.45	3.96	13.7	1.0	< 0.20	U	< 0.20	U	
MW-113D	9/9/2021	3:35 PM	9.37	3.71	14.1	1.6	< 0.20	U	< 0.20	U	
Wells West of Robertson Branch Creek											
MW-125	3/16/2021	4:33 PM	6.14	7.84	13.5	4.3	1.5		< 0.20	U	
MW-125	9/8/2021	9:00 AM	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-114S	3/16/2021	4:37 PM	8.68	2.88	13.0	3.0	1.0		0.57		
MW-114S	6/16/2021	1:40 PM	8.88	3.32	13.1	2.6	1.2		0.92		
MW-114S	9/7/2021	1:57 PM	8.78	2.84	14.8	4.9	1.3		1.1		
MW-114S	11/16/2021	2:15 PM	8.97	3.95	13.2	2.4	1.3		1.2		
MW-114D	3/15/2021	4:38 PM	8.40	2.10	13.1	1.5	0.28		< 0.20	U	
MW-114D	6/16/2021	1:42 PM	8.54	2.42	13.5	0.7	0.24		0.30		
MW-114D	9/7/2021	1:59 PM	8.40	2.10	14.7	3.6	0.25		< 0.20	U	
MW-114D	11/16/2021	2:16 PM	8.57	2.87	13.2	2.0	0.41		0.35		

Notes:

[1] - The analyses were performed by ALS Environmental Laboratory in Holland, Michigan and reported in sample delivery groups (SDGs) 21032430, 21062097, 21091786, and 21112121.

FCPS = Former Chlorine Plant Site
su = standard units
mS/cm = milliSiemens per centimeter
°C = degrees Celsius
NTU = Nephelometric Turbidity Units
ppb = parts per billion (or micrograms per liter)

NA = Not Analyzed
NS = Not Sampled
U = The analyte was not detected at or above the associated Reporting Limit (RL)
J = The result is an estimated concentration based on data validation or the concentration was detected between the Method Detection Limit (MDL) and the RL

Prepared By/Date: RMB 03/02/22
Checked By/Date: RJB 03/03/22

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 2.1C
GROUNDWATER QUALITY AND ANALYTICAL DATA
POND 5 DIKE MONITORING WELLS

Well ID	Date	Time	pH (su)	Specific Conductance (mS/cm)	Temperature (°C)	Turbidity (NTU)	Total Hg[1] (ppb)		Filtered Hg[1] (ppb)		Comments
Pond 5 Dike Wells											
MW-5S	3/22/2021	14:15	7.76	7.37	16.4	2.2	< 0.20	U	< 0.20	U	
MW-5S	6/16/2021	13:25	7.68	43.0	19.4	4.9	2.60		< 0.20	U	
MW-5S	9/14/2021	16:02	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-5S	11/17/2021	14:13	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-5D	3/18/2021	16:00	7.06	51.5	19.8	1.0	< 0.20	U	< 0.20	U	
MW-5D	6/16/2021	13:50	7.50	56.9	19.5	1.7	< 0.20	U	< 0.20	U	
MW-5D	9/14/2021	16:49	7.39	43.9	19.2	3.4	< 0.20	U	< 0.20	U	
MW-5D	11/17/2021	10:12	7.00	44.6	14.8	31.8	< 0.20	U	< 0.20	U	
MW-6S	3/17/2021	10:58	11.68	23.1	14.5	0.8	< 0.20	U	< 0.20	U	
MW-6S	6/16/2021	10:50	10.60	27.2	15.9	3.0	< 0.20	U	< 0.20	U	
MW-6S	9/14/2021	09:45	10.53	19.5	15.4	5.3	< 0.20	U	< 0.20	U	
MW-6S	11/16/2021	15:28	11.06	20.8	16.3	4.7	< 0.20	U	< 0.20	U	
MW-6D	3/17/2021	13:10	7.31	23.7	15.6	3.5	< 0.20	U	< 0.20	U	
MW-6D	9/14/2021	10:21	7.48	20.4	16.1	4.4	< 0.20	U	< 0.20	U	
MW-109S	3/18/2021	14:30	9.40	42.3	14.7	4.7	< 0.20	U	NA		
MW-109S	9/15/2021	08:42	9.31	41.7	15.6	8.1	< 0.20	U	NA		
MW-109D	3/18/2021	14:58	7.18	49.2	14.8	1.4	< 0.20	U	NA		
MW-109D	9/15/2021	09:09	7.17	48.3	16.0	6.7	< 0.20	U	NA		
MW-110S	3/22/2021	16:00	12.72	5.10	15.8	1.2	0.28		NA		
MW-110S	9/14/2021	14:10	12.46	6.62	16.9	1.6	0.46		NA		
MW-110D	3/23/2021	09:20	8.41	14.7	14.0	1.1	< 0.20	U	NA		
MW-110D	9/14/2021	14:35	8.04	11.8	17.0	1.6	< 0.20	U	NA		
MW-111S	3/17/2021	13:56	7.64	2.09	17.5	19.0	< 0.20	U	< 0.20	U	
MW-111S	9/14/2021	11:15	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-111D	3/17/2021	15:02	7.25	19.8	15.8	1.2	< 0.20	U	NA		
MW-111D	9/14/2021	11:11	7.34	16.4	17.2	3.5	< 0.20	U	NA		

Notes:

[1] - The analyses were performed by ALS Environmental Laboratory in Holland, Michigan and reported in sample delivery groups (SDGs) 21032430, 21062097, 21091786, and 21112121.

su = standard units
mS/cm = milliSiemens per centimeter
°C = degrees Celsius
NTU = Nephelometric Turbidity Units
ppb = parts per billion (or micrograms per liter)
NA = Not Analyzed
NS = Not Sampled
U = The analyte was not detected at or above the associated Reporting Limit (RL)

Prepared By/Date: RMB 03/02/22
Checked By/Date: RJB 03/03/22

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 2.1D
GROUNDWATER QUALITY AND ANALYTICAL DATA
TRIGGER WELLS AND POND 6 DIKE MONITORING WELLS

Well ID	Date	Time	pH (su)	Specific Conductance (mS/cm)	Temperature (°C)	Turbidity (NTU)	Total Hg[1] (ppb)		Filtered Hg[1] (ppb)		Comments
Trigger Wells (Demolition Debris Burial Area)											
MW-104S	3/17/2021	16:02	12.34	7.32	15.8	1.3	< 0.20	U	< 0.20	U	
MW-104S	6/16/2021	15:45	12.54	8.70	19.7	2.2	0.22		< 0.20	U	
MW-104S	9/14/2021	15:16	12.75	6.71	18.5	5.2	< 0.20	U	0.30		
MW-104S	11/14/2021	15:50	NS	NS	NS	NS	NS		NS		Pump refusal at 14.5 ft.; no sample collected
MW-104D	3/22/2021	14:45	12.94	7.90	13.9	0.2	< 0.20	U	< 0.20	U	
MW-104D	6/18/2021	08:30	12.15	8.44	15.9	11.0	< 0.20	U	< 0.20	U	
MW-104D	9/15/2021	17:44	12.46	5.23	16.8	11.1	0.22		< 0.20	U	
MW-104D	11/17/2021	11:00	12.72	4.35	13.9	3.1	< 0.20	U	< 0.20	U	
MW-105S	3/22/2021	13:30	12.81	6.91	15.0	0.5	0.54		0.34		
MW-105S	6/18/2021	10:45	12.23	10.9	21.4	10.6	5.10		0.90		
MW-105S	9/15/2021	16:40	NS	NS	NS	NS	NS		NS		Refusal at 22.08 ft.; no sample collected
MW-105S	11/17/2021	15:39	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-105D	3/22/2021	14:05	12.83	7.05	15.0	0.9	0.53		0.20		
MW-105D	6/17/2021	12:25	12.35	8.29	15.8	1.4	0.41		< 0.20	U	
MW-105D	9/15/2021	16:50	NS	NS	NS	NS	NS		NS		Obstruction encountered in well; no sample collected
MW-105D	11/17/2021	12:02	NS	NS	NS	NS	NS		NS		Refusal at 26.2 ft.; no sample collected
Pond 6 Dike Wells											
MW-8S	3/18/2021	16:50	12.62	7.39	15.6	1.6	< 0.20	U	NA		
MW-8S	9/14/2021	09:20	12.27	5.97	16.5	1.9	< 0.20	U	NA		
MW-8D	3/18/2021	17:20	7.20	24.7	15.6	1.7	< 0.20	U	NA		
MW-8D	9/14/2021	09:45	6.85	40.5	16.5	0.1	< 0.20	U	NA		
MW-9S	3/23/2021	15:25	11.87	6.66	14.8	3.8	1.20		NA		
MW-9S	9/13/2021	16:10	NS	NS	NS	NS	NS		NS		Insufficient water for sample collection; no sample collected
MW-9D	3/18/2021	10:29	6.65	42.9	13.8	0.4	< 0.20	U	NA		
MW-9D	9/13/2021	16:30	6.75	41.1	15.1	3.0	< 0.20	U	NA		
MW-106S	3/18/2021	15:05	7.76	6.57	13.4	3.0	< 0.20	U	NA		
MW-106S	9/13/2021	15:20	7.81	6.27	15.5	5.3	< 0.20	U	NA		

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 2.1D
GROUNDWATER QUALITY AND ANALYTICAL DATA
TRIGGER WELLS AND POND 6 DIKE MONITORING WELLS

Well ID	Date	Time	pH (su)	Specific Conductance (mS/cm)	Temperature (°C)	Turbidity (NTU)	Total Hg[1] (ppb)		Filtered Hg[1] (ppb)		Comments
MW-106D	3/18/2021	15:35	6.85	11.1	13.8	1.6	< 0.20	U	NA		
MW-106D	9/13/2021	15:55	6.75	10.5	16.9	6.8	< 0.20	U	NA		
MW-107S	3/18/2021	13:55	11.19	51.9	14.7	6.8	< 0.20	U	NA		
MW-107S	9/13/2021	14:20	11.02	47.5	18.0	3.3	< 0.20	U	NA		
MW-107D	3/18/2021	14:30	6.58	67.3	14.6	2.4	< 0.20	U	NA		
MW-107D	9/13/2021	14:45	6.67	64.0	18.0	42.2	< 0.20	U	< 0.20	U	
MW-108S	3/18/2021	12:50	6.01	55.4	14.2	17.4	< 0.20	U	NA		
MW-108S	9/13/2021	13:30	6.06	52.0	16.0	5.5	< 0.20	U	NA		
MW-108D	3/18/2021	13:20	6.39	47.7	14.3	5.6	< 0.20	U	NA		
MW-108D	9/13/2021	13:55	6.38	44.9	16.3	9.6	< 0.20	U	NA		

Notes:

[1] - The analyses were performed by ALS Environmental Laboratory in Holland, Michigan and reported in sample delivery groups (SDGs) 21032430, 21062097, 21091786, and 21112121.

su = standard units
mS/cm = milliSiemens per centimeter
°C = degrees Celsius
NTU = Nephelometric Turbidity Units
ppb = parts per billion (or micrograms per liter)
NA = Not Analyzed
NS = Not Sampled
U = The analyte was not detected at or above the associated Reporting Limit (RL)

Prepared By/Date: RMB 03/02/22
Checked By/Date: RJB 03/03/22

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

TABLE 3.5
DIVERSION DITCH AND DIKE CUT MERCURY CONCENTRATIONS

Location	Date	Time	Total Hg[1] (ppb)	
Pond 5 East Channel	3/23/2021	NS	NS	
Pond 5 Eastern Diversion Ditch	3/23/2021	11:10	< 0.20	U
Pond 5 Dike Cut	3/23/2021	11:00	< 0.20	U
Pond 5 Western Diversion Ditch	3/23/2021	11:05	< 0.20	U
Pond 6 East Dike Cut	3/23/2021	10:55	< 0.20	U
Pond 6 West Dike Cut	3/23/2021	10:50	< 0.20	U

Notes:

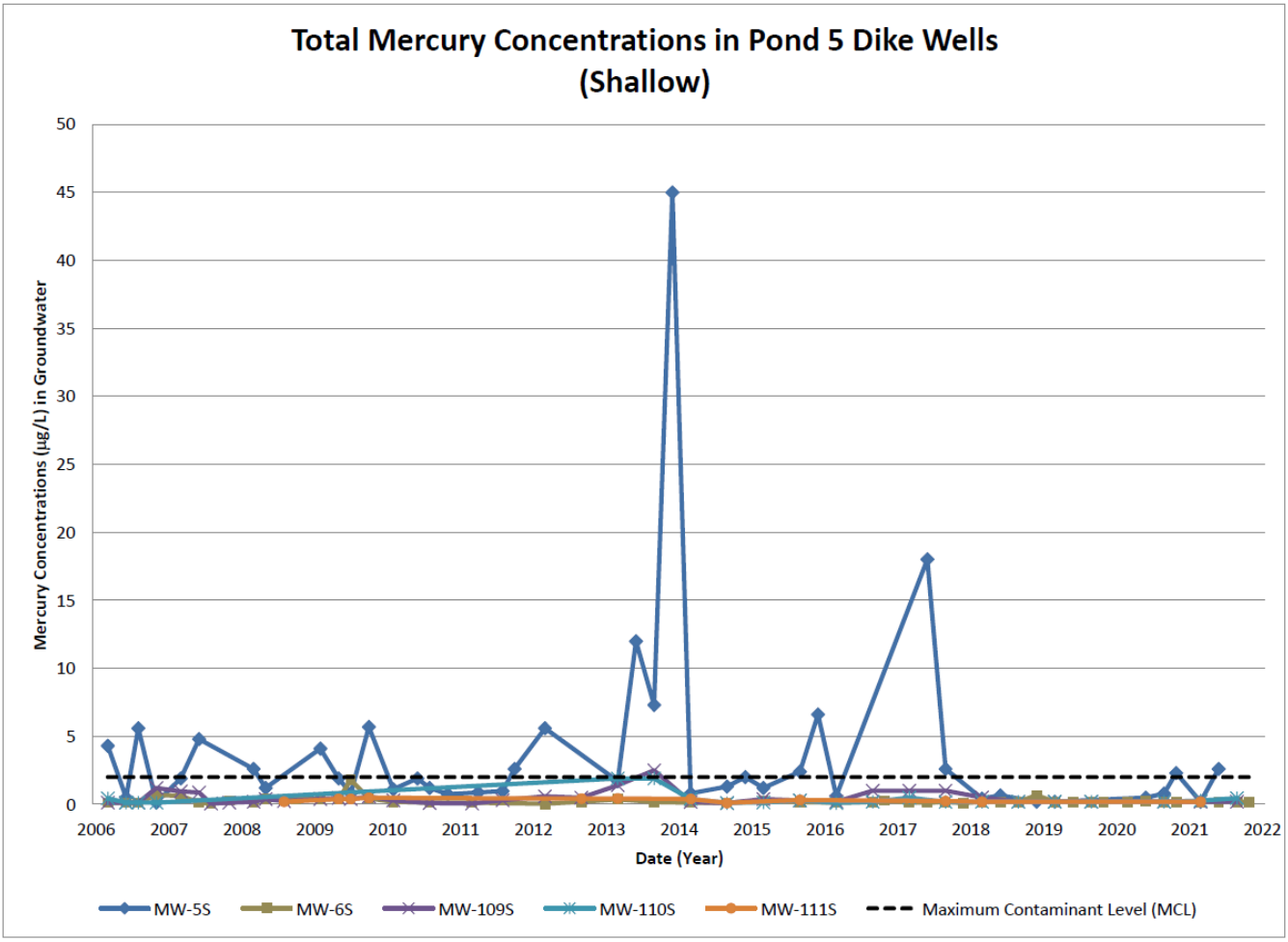
[1] - The analyses were performed by ALS Environmental Laboratory in Holland, Michigan and reported in sample delivery group (SDG) 21032430.

ppb = parts per billion (or micrograms per liter)
NS = Not Sampled
U = The analyte was not detected at or above the associated Reporting Limit (RL)

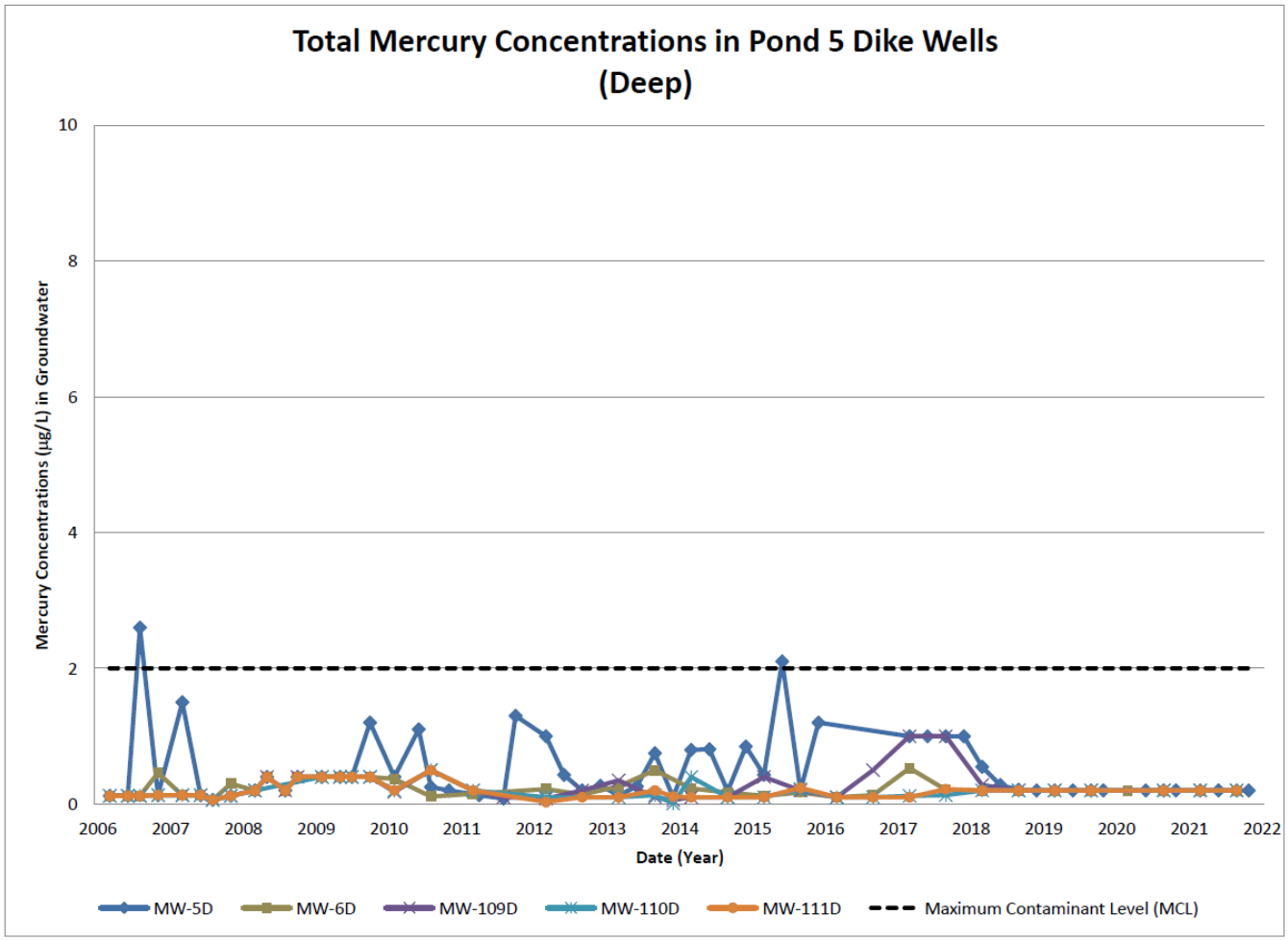
Prepared By/Date: RMB 03/03/22
Checked By/Date: RJB 03/03/22

Source: Annual Comprehensive Data Report – 2021, Saltville Waste Disposal Ponds Site, March 2022.

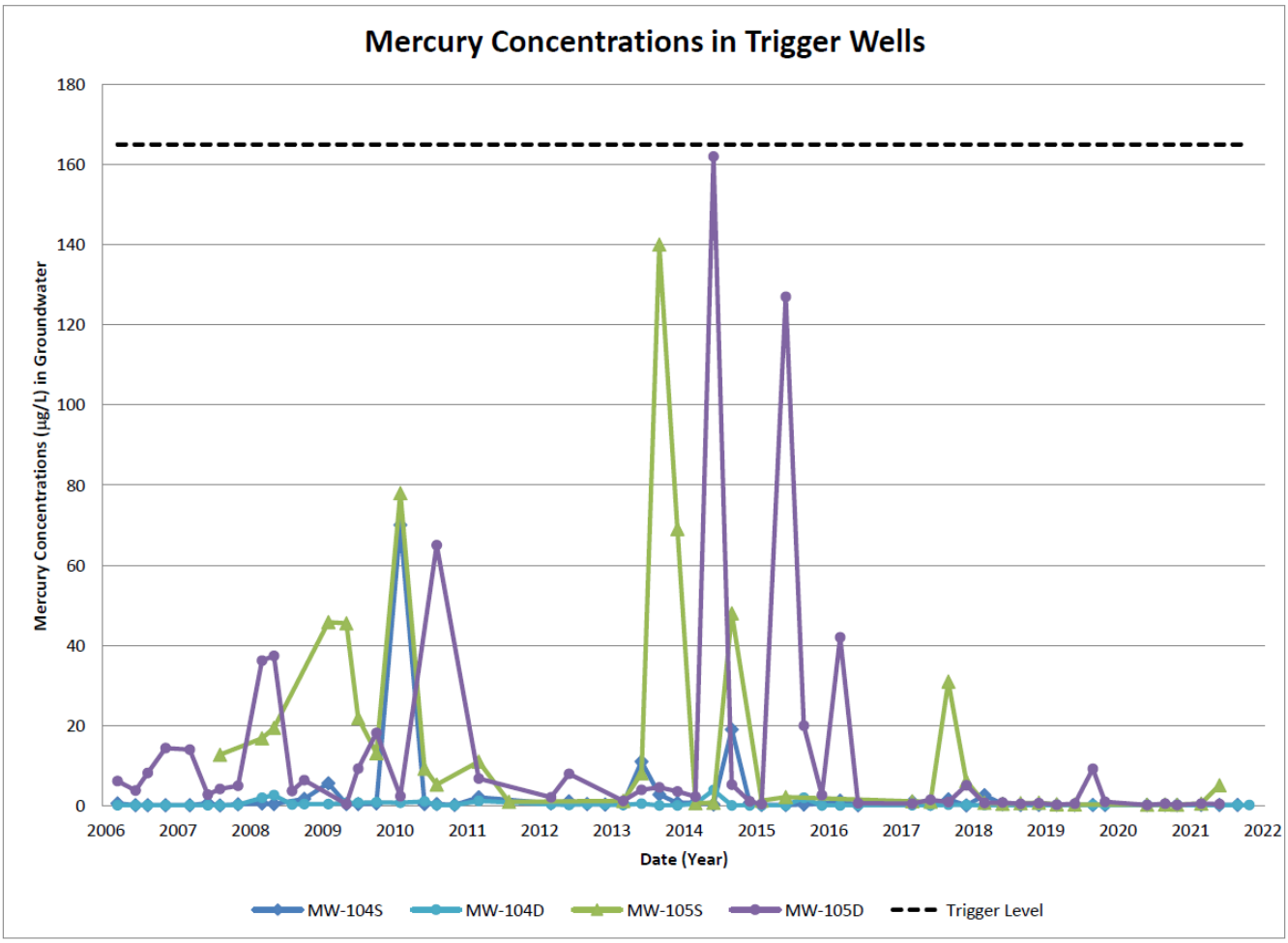
Graph G-1: Total Mercury Concentrations in Pond 5 Dike Wells (Shallow)



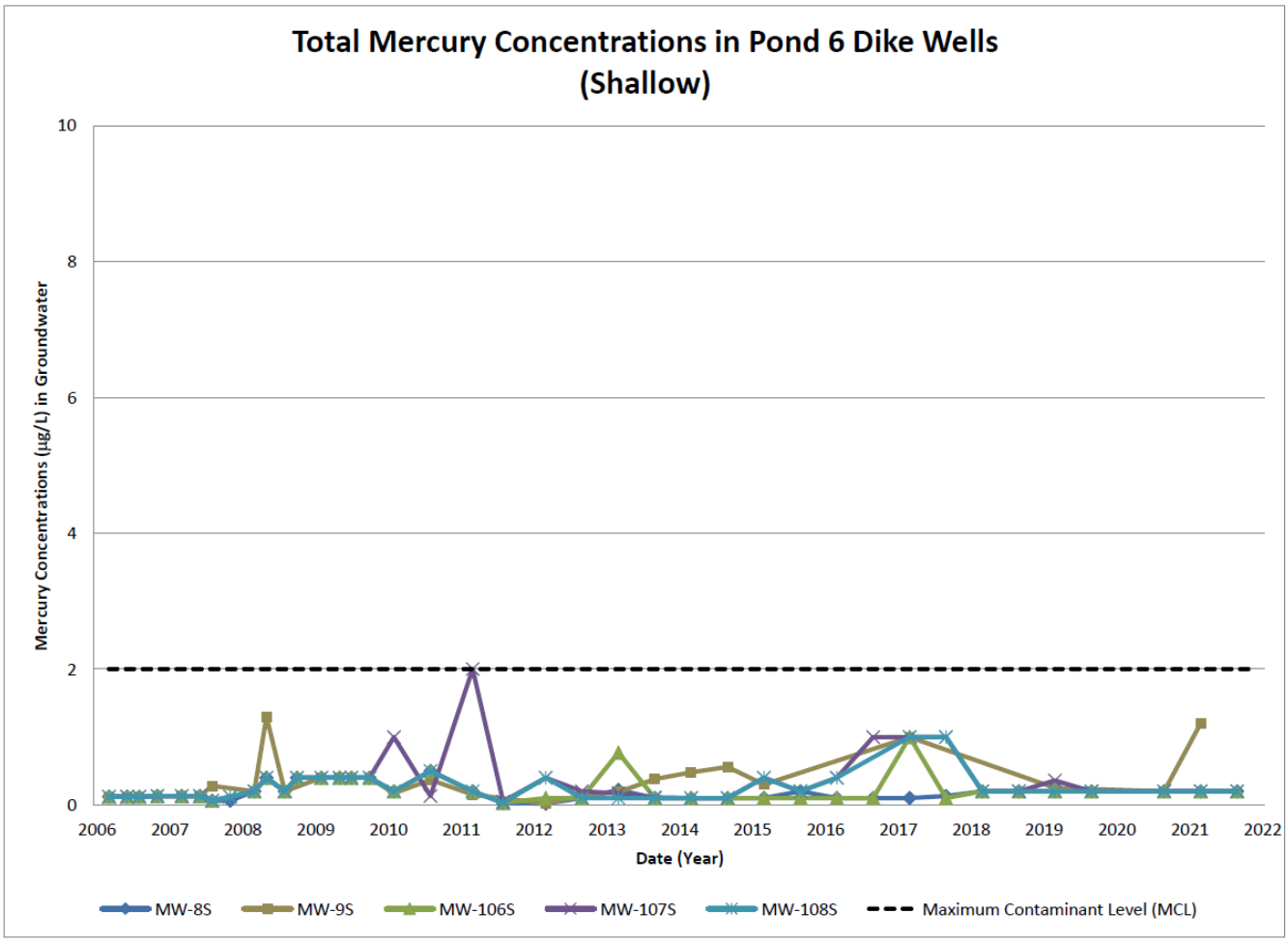
Graph G-2: Total Mercury Concentrations in Pond 5 Dike Wells (Deep)



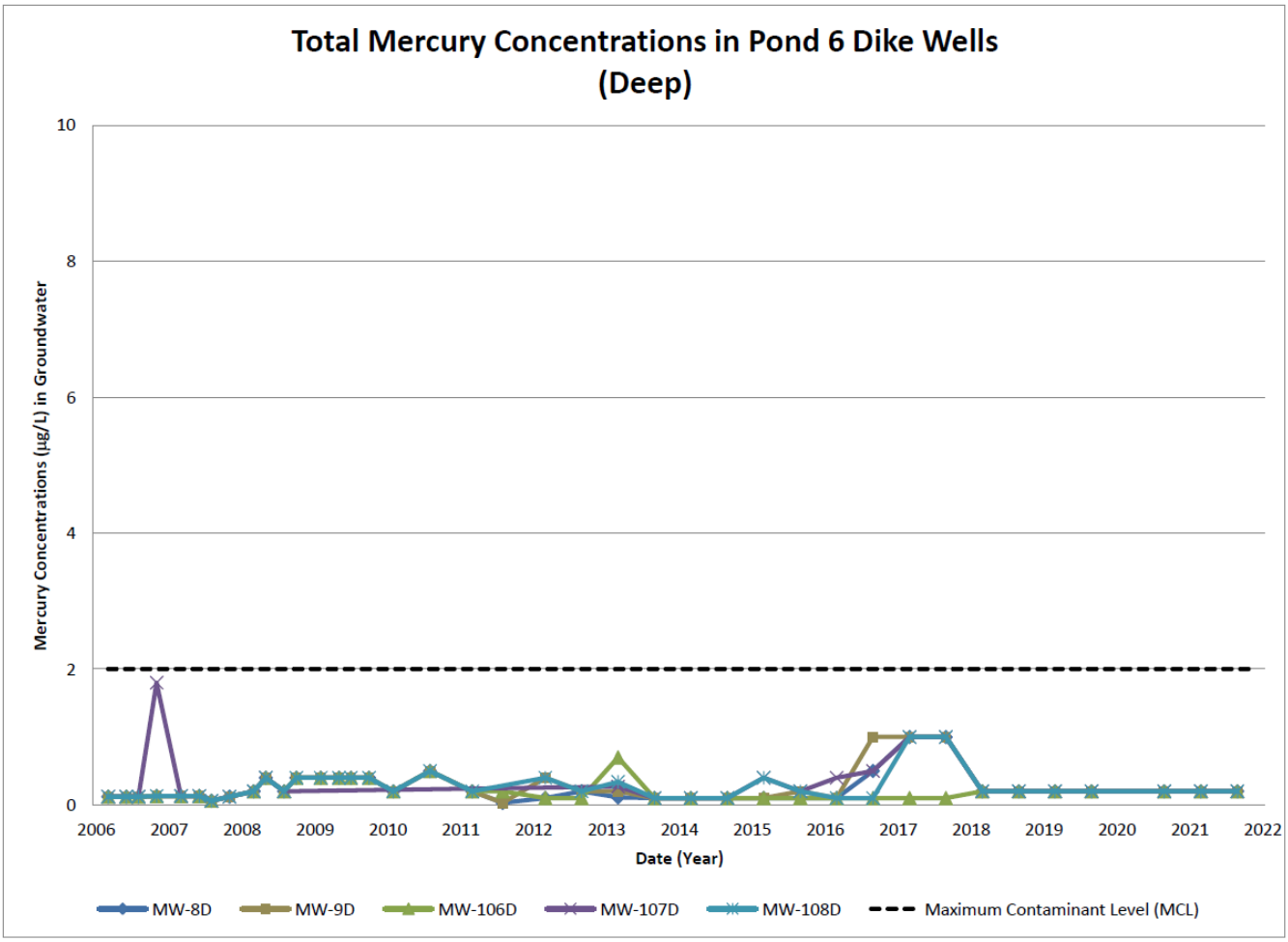
Graph G-3: Mercury Concentrations in Trigger Wells



Graph G-4: Total Mercury Concentrations in Pond 6 Dike Wells (Shallow)



Graph G-5: Total Mercury Concentrations in Pond 6 Dike Wells (Deep)



APPENDIX H – INTERVIEW FORMS

INTERVIEW RECORD

Site Name: Saltville Waste Disposal Ponds	**EPA ID No.: VAD003127578**	
Subject: Five-Year Review	**Time: 11:00AM**	**Date: 2/8/22**
Type: Telephone Visit ✓ Other **Location of Interview:** Virtual Meeting (Microsoft Teams)		

Contact Made By:

Name: Evelyn Sorto	**Title: Remedial Project Manager**	**Organization: EPA Region 3**

Individual Contacted:

Name: Redacted-Resident 1	**Title: Facilitator**	**Organization: Saltville Community Liaison Panel**

Summary Of Conversation

1. **What is your overall impression of the project and the effectiveness of the cleanup?** Olin has done a very good job given the site's engineering complexity. Olin has also done good job of engaging with the community.

2. **What effects have the current site operations had on the surrounding community, if any?** The answer to this question has evolved over time. Today many people, especially younger people, have no idea site exists. When the Community Liaison Panel (CLP) was first established, there was lots of hostility about site. People felt Olin contaminated area and tried to flee. The main concern is the fishing advisory and negative stigma towards the Town.

3. **Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.** A community member expressed concerns regards potholes on Perryville Road and this issue was raised to Olin. There are also concerns about the ability to reuse site for anything else (i.e., fields for sports/wildlife, solar panels).

4. **Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details**. When driving near the site trailers there have been instances where the fence appeared damaged. It is unknown whether the damage was due to vandals or if it could be attributed to normal wear and tear. There is also speculation regarding illicit activity near the boat ramp.

5. **Do you feel well informed about EPA's activities and progress?** Feel well informed in "spurts", but communication is sporadic. When EPA engages with CLP, the communication is good. There are periods of time where there are minimal updates regarding the site.

6. **How do you want to be informed about upcoming work at the site?** CLP occasionally receives fact sheet or letter from EPA. Notices in newspapers are antiquated and ineffective. If EPA can't attend CLP Meetings in person, it would be best for EPA to provide written update that can be read at CLP meeting. CLP suggested that Olin develop social media page, but this was not implemented.

7. **Do you have any comments, suggestions, or recommendations regarding EPA's current management or operation of the site?** Suggest consistent approach. There are long periods of time with minimal updates to CLP. Recommend establishing a schedule of routine updates. Perhaps issue a spring/fall update.

8. **What extent of community involvement do you wish to have during the future work at the site?** See response to question #7.

INTERVIEW RECORD

Site Name: Saltville Waste Disposal Ponds		EPA ID No.: VAD003127578	
Subject: Five-Year Review		**Time: 11:00AM**	**Date: 2/17/22**
Type: Telephone ✓ Visit Other **Location of Interview: Site Trailer**			
Contact Made By:			
Name: Evelyn Sorto	**Title: Remedial Project Manager**	**Organization: EPA Region 3**	
Individual Contacted:			
Name: Redacted-Resident 2	**Organization: Community Member**		

Summary Of Conversation

1. **What is your overall impression of the project and the effectiveness of the cleanup?** Olin has done an excellent job with the cleanup.

2. **What effects have the current site operations had on the surrounding community, if any?** None.

3. **Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.** No, not aware of any community concerns regarding the site. The fence is maintained, and Pond 5 is mowed.

4. **Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.** No.

5. **Do you feel well informed about EPA's activities and progress?** Yes.

6. **How do you want to be informed about upcoming work at the site?** Prefer to receive email updates.

7. **Do you have any comments, suggestions, or recommendations regarding EPA's current management or operation of the site?** No.

8. **What extent of community involvement do you wish to have during the future work at the site?** Receive periodic updates from Facilitator for Community Liaison Panel and this works well.

INTERVIEW RECORD

Site Name: Saltville Waste Disposal Ponds	EPA ID No.: VAD003127578	
Subject: Five-Year Review	**Time: 2/25/22**	**Date: 2:00PM**

Type: ✓ Telephone Visit Other
Location of Interview: Conference Call

Contact Made By:

Name: Evelyn Sorto	Title: Remedial Project Manager	Organization: EPA Region 3

Individual Contacted:

Name: Redacted-Resident 3	Organization: Community Member

Summary Of Conversation

1. **What is your overall impression of the project and the effectiveness of the cleanup?** The cleanup work has been great. I was employed with Olin when the cap was installed and got to see the work.

2. **What effects have the current site operations had on the surrounding community, if any?** None.

3. **Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.** Not aware of any concerns regarding the site. Younger people are not familiar with the site.

4. **Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.** Not aware of any recent events, incidents, or activities, but trespassing was common in the 1980s (i.e., climbing site fence).

5. **Do you feel well informed about EPA's activities and progress?** Yes, felt well informed up until recently. There haven't been any Community Liaison Panel (CLP) meetings since 2020.

6. **How do you want to be informed about upcoming work at the site?** Prefer letters or updates from CLP.

7. **Do you have any comments, suggestions, or recommendations regarding EPA's current management or operation of the site?** No. I feel like the site is safe and doesn't need as much management due to cleanup.

8. **What extent of community involvement do you wish to have during the future work at the site?** See response to question #6.

INTERVIEW RECORD

Site Name: Saltville Waste Disposal Ponds	EPA ID No.: VAD003127578	
Subject: Five-Year Review	**Time: 3/7/22**	**Date: 1:00PM**

Type: ✓ Telephone Visit Other
Location of Interview: Conference Call

Contact Made By:

Name: Evelyn Sorto	Title: Remedial Project Manager	Organization: EPA Region 3

Individual Contacted:

Name: Redacted- Resident 4	Organization: Community Member

Summary Of Conversation

1. **What is your overall impression of the project and the effectiveness of the cleanup?** Olin is doing a great job. Stanley Haynes keeps Community Liaison Panel (CLP) informed of water treatment (during CLP meetings), progress at site, and mercury concentrations.

2. **What effects have the current site operations had on the surrounding community, if any?** Olin did a great job of installing a cap on Pond 5 and a soil cover on Pond 6. The soil cover on Pond 6 functions as a reserve for animals (i.e. squirrels, deer, rabbits).

3. **Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.** Not now. In the early 2000s, there were concerns that mercury was causing cancer (i.e. rectal, colon, brain cancer).

4. **Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.** Nothing recent. Occasionally, people cut the fence. I report this to Stanley Haynes and it is quickly repaired. I haven't heard about break-ins at the site trailer.

5. **Do you feel well informed about EPA's activities and progress?** Yes, I receive letters from Jane Knox (Facilitator of CLP).

6. **How do you want to be informed about upcoming work at the site?** See response to question #5.

7. **Do you have any comments, suggestions, or recommendations regarding EPA's current management or operation of the site?** Everything is going well. Stanley is doing a good job of managing the site.

8. **What extent of community involvement do you wish to have during the future work at the site?** See response to question #5.

INTERVIEW RECORD

Site Name: Saltville Waste Disposal Ponds		EPA ID No.: VAD003127578	
Subject: Five-Year Review		**Time: 12:00PM**	**Date: 2/17/22**
Type: Telephone ✓ Visit Other **Location of Interview:** Site Trailer			
Contact Made By:			
Name: Eric Newman	**Title: Remedial Project Manager**	**Organization: EPA Region 3**	
Individual Contacted:			
Name: Stanley Haynes	**Title: Saltville Site Manager**	**Organization: Olin**	

Summary Of Conversation

1. **What is your overall impression of the project?** Wish work were "finished". Pleased with progress and hope work will be completed by retirement. Everything we've done has had value. We'll be finished when fish can be consumed.

2. **What is your assessment of the current performance of the performance of the remedy in place at the site?** Pleased with the performance of the cap and it has performed better than expected. Not aware of any outstanding issues.

3. **What are the findings from the monitoring data? What are the key trends in contaminant levels that being documented over time at the site?** The treatment plant is achieving end-of-pipe requirements and the mercury levels have been consistent since cap was installed.

4. **Is there a continuous O&M presence? If so, please describe staff responsibilities and activities. If there is not a continuous on-site presence, describe staff responsibilities and frequency of site inspections and activities.** Yes, the Primary Site Manager has two back-ups.

5. **Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.** Yes, equipment updates and improvements have been implemented. These updates have improved water treatment and the alarm system and enabled digital data collection. In 2019 and 2020, the site experienced heavy rainfall and the treatment plant kept up with increased water treatment demand. Hoping that upgrades to the treatment plant will minimize the use of emergency frac tanks during heavy rain. The sampling program hasn't changed all that much. All controls and wires for the treatment plant were changed from pneumatic to electric. Optimistic the life of the new electric system will be over 50 years since previous system was over 20 years old.

6. **Have there been unexpected O&M difficulties or costs at the site since start-up or in the last five years? If so, please describe.** See response to question #5. The updates for the treatment plant were considered a maintenance update due to the age of system.

7. **Have there been opportunities to optimize O&M, or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.** See response to question #5. Olin installed flow meters for the Ponds 5 and 6 headers. Olin also cleared out the pipe going to equalization basin because the pipe was clogged.

8. **Do you have any comments, suggestions, or recommendations regarding the project?** No. EPA and Olin should have symbiotic relationship and work together.

APPENDIX I – SMYTH COUNTY PUBLIC WATER ORDINANCE

Accessed 2/22/2022 at
https://library.municode.com/va/smyth_county/codes/code_of_ordinances?nodeId=CH53UT_ARTIIIWA

Sec. 53-76. - Connection to public water system.

(a) *Service connection required.* The owner, tenant, or occupant of all commercial buildings, industrial plants, institutional establishments, structures and properties used for human occupancy, business, employment, recreation, and industrial or other purposes, and which abut upon any street, alley, public right-of-way, or public easement containing a public water line hereafter made available by the county, and such building or dwelling is not greater than 200 feet from a public water line, shall connect such building or dwelling with such water line within 180 days after such line becomes available, and shall cease to use any other source of water supply for domestic use except for hereafter provided.

(b) *Installation of water lines.* The county may only install water lines in a predominately residential area after a majority of at least 60 percent of the property owners with a residence in the service area, as defined hereafter, file a sworn affidavit with the county administrator's office in favor of the proposed water line project. The requirement of a 60 percent majority shall not apply where the proposed water line will serve commercial or industrial facilities. A residence shall be considered to be located in the service area if the residence is 200 feet or less from the proposed line, or if the property owner has signed a service agreement and the residence is located more than 200 feet from the proposed line.

(c) *Fees and deposits.* The owner shall pay a connection fee and an application fee set by the county to connect to the water system. Tenants who have obtained a signed landlord authorization form shall pay an application fee and a security deposit as set by the county.

(d) *Exceptions to required connection.* The county administrator shall be allowed to grant exceptions to this requirement where it is not physically feasible to make the connection.

(e) *Domestic supply.* Notwithstanding any other provision of this section, those persons having a domestic supply or source of potable water shall not be required to discontinue the use of same. However, persons not served by a water supply system as defined in Code of Virginia, § 15.1-341, producing potable water meeting the standards established by the Virginia Department of Health, shall be required to pay a monthly service availability charge, which charge shall not be more than that proportion of the minimum monthly user charge, imposed by the county, as debt service bears to the total operating and debt service costs.

(f) *Exemptions.*

(1) Annually, beginning March 1 and not later than May 31 of each taxable year, the person claiming the exemption must notify the county administrator in writing that the person is claiming the exemption.

(2) The county administrator shall contact the treasurer to see that the proper certification has been filed with the treasurer's office to ensure that the person is entitled to said exemption or deferral, and upon confirmation, shall notify the billing department of the amount of said exemption or deferral.

(Ord. of 6-26-2014)