IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, Plaintiff, v. ALMO ANTI-POLLUTION SERVICES, CORP., et al., Defendants.	: : : : : : : : : : :	Civil No. 89-4380 (JBS)

AMENDMENT TO CONSENT DECREE

WHEREAS, the Plaintiff has alleged that the Defendants were liable to the State of New Jersey under Sections 106 and 107 of the Comprehensive Environmental Response, Compensation and Liability Act, as amended ("CERCLA"), 42 U.S.C. §§9606, 9607; and under the Solid Waste Management Act, N.J.S.A. 13:lE-1 et seq., the Sanitary Landfill Facility Closure and Contingency Fund Act, N.J.S.A. 13:lE-100 et seq., the Spill Compensation and Control Act (the "Spill Act"), N.J.S.A. 58:10-23.11 et. seq.; the Water Pollution Control Act, N.J.S.A. 58:1OA-1 et. seq.; water quality legislation set forth at N.J.S.A. 23:5-28; the common law of nuisance; the common law of negligence; and strict liability, all with respect to the Helen Kramer Landfill Superfund Site (the "Site") in Mantua Township, Gloucester County, New Jersey, and the State of New Jersey thereafter lodged a proposed Consent Decree between the Plaintiff and the Defendants.

WHEREAS, the Court approved and entered the Consent Decree on August 13, 1998 (hereinafter the “1998 Consent Decree”).

WHEREAS, the 1998 Consent Decree specified that the Court would retain continuing jurisdiction for the purpose of enforcing and modifying the Consent Decree.

WHEREAS, the parties to this Amendment to Consent Decree (the "Consent Decree Amendment") have agreed to certain modifications to the 1998 Consent Decree, as set forth herein.

WHEREAS, as specified herein, this Consent Decree Amendment extends the time period during which certain Defendants ("Settling Work Defendants"), who were obligated under the 1998 Consent Decree to operate and maintain the Remedy as constructed and in place as of May 12, 1997 ("Remedy"), will be obligated to continue operation and maintenance of the Remedy as set forth in the 1998 Consent Decree.

WHEREAS, the United States Environmental Protection Agency ("EPA") on January 19, 2022 issued a notice to the Settling Work Defendants entitled "Invocation of Reservation for Unknown Conditions in Consent Decree: Request to Perform a Remedial Investigation/Feasibility Study for the Helen Kramer Landfill Superfund Site" ("EPA Reopener Notice Letter") in which it was alleged as follows: "Sampling data collected during O&M show that contaminated groundwater and leachate from the landfill are not contained within the landfill and are escaping the slurry wall. For example, during the 2020 annual sitewide O&M sampling, Site-related CERCLA hazardous substances detected above standards or screening criteria in one or more media outside of the slurry wall included 1,4-dioxane, arsenic, benzene, chlorobenzene, and vinyl chloride. In many sampling locations, these standards were exceeded by large margins in 2020, and have been consistently at a high level of exceedance since first detection."

WHEREAS, EPA has requested that the Settling Work Defendants conduct a Remedial Investigation/Feasibility Study to evaluate the nature and extent of Site-related contaminants in contaminated groundwater, surface water and sediment at the Site, which EPA has designated as the second Operable Unit ("OU2") for the Site;

WHEREAS, some of the SWDs have agreed to negotiate in good faith to perform the RI/FS for OU2 for the Site requested by EPA;

WHEREAS, the Parties recognize, and the Court by entering this Consent Decree Amendment finds, that this Consent Decree Amendment has been negotiated at arms-length and in good faith and that this Consent Decree Amendment is fair, reasonable, and in the public interest.

NOW THEREFORE, before the taking of any testimony, without adjudication of any issue of fact or law, and upon the consent and agreement of the Parties, it is hereby ORDERED, ADJUDGED and DECREED as follows:

AMENDED AND RESTATED CONSENT DECREE PROVISIONS

The 1998 Consent Decree shall remain in full force and effect in accordance with its terms, except as set forth herein, and the following amendments to the 1998 Consent Decree shall become effective no later than May 13, 2023, if entered by this Court.

1) The definition of "Operation and Maintenance" in Paragraph 4 is hereby amended to replace the words "through and including May 12, 2023" with the following: "until the State approves a petition by the Settling Work Defendants for termination of the Consent Decree." In all other respects the definition of "Operation and Maintenance" is unchanged.

2) Paragraph 7(c) is hereby amended to replace the words "through and including May 12, 2023" with the following: "until the State approves a petition by the Settling Work Defendants for termination of the Consent Decree." In all other respects, the provisions of Paragraph 7(c) are unchanged.

3) Paragraph 70(8) is replaced in its entirety with the following: "claims by the State against the Settling Work Defendants to require the Settling Work Defendants to continue

Operation and Maintenance until such date as the State approves a petition by the Settling Work Defendants for termination of the Consent Decree."

4) Appendix C is hereby replaced in its entirety with the Operations and Maintenance Plan attached hereto as Exhibit A.

SIGNATORIES

Each of the undersigned representatives certifies that he or she is fully authorized to enter into the Consent Decree Amendment on behalf of such Parties, and to execute and to bind such Parties to this Consent Decree Amendment. This Consent Decree Amendment may be signed in counterparts.

Dated and entered this_____day of_____, 202___

_____
UNITED STATES DISTRICT JUDGE

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in *State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al.,* Civil No. 89-4380 (JBS)

FOR THE STATE OF NEW JERSEY

Date: 10/3/22

Gwen Zervas, Director of Division of Remediation Management,
New Jersey Department of Environmental Protection

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in *State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al.,* Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, Arkema Inc. (f/k/a Elf Atochem North America, Inc., on behalf of itself, Atochem, Inc., Polyrez Company and Pennwalt Corporation)

Date: 9/26/2022

Darrell Bailey, President – Legacy Site Services LLC, agent for Arkema Inc.

Address:

1902 Independence Parkway South, La Porte, TX 77571

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

David A. Haworth, Esq.

Name

Ballard Spahr

Title

700 East Gate Drive, Suite 330, Mount Laurel, New Jersey 08054

Address

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al., Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, Corteva Agriscience LLC

Date: 9/23/22

Address: 974 Centre Road
Wilmington DE 19805

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

Thomas A. Warnock
Name

Assistant General Counsel
Title

974 Centre Road Wilmington DE 19805
Address

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al., Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, Crown Cork & Seal Company, Inc. (for itself and on behalf of Continental Can Company)

Date: 9-23-2022

Address: 770 Township Line Road
Yardley, PA 19067

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

Michael Rowley

Name

Assistant General Counsel

Title

770 Township Line Road, Yardley PA 19067

Address

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al., Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, Quality Carriers, Inc., as successor to Chemical Leaman Tank Lines, Inc.

Date: 9-30-2022

Address: 1208 E. Kennedy Blvd., Ste. 132, Tampa, FL 33602

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

Meaghan A. Colligan, Esq.

Name

Associate, Holland & Knight LLP

Title

800 17th Street NW, Suite 1100, Washington, DC 20006

Address

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al., Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, Cytec Industries, Inc., on behalf of American Cyanamid Company (n/k/a Wyeth Holdings Corp.)

DocuSigned by:
Jeffry Koenig
C3FCDB5BEE0048B...

Jeffry Koenig, General Counsel North America and Secretary

Date: Sept. 30, 2022

Address: Cytec Industries Inc.
504 Carnegie Center
Princeton, NJ 08540

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

Corporation Service Company

Name

Registered Agent

Title

251 Little Falls Drive, Wilmington, DE 19808

Address

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al., Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, ExxonMobil Oil Corporation (f/k/a Mobil Research & Development Corporation)

[signature] / AGENT + ATTORNEY IN FACT

Date: 9-28-22

Address: 38 JARICK STREET
BROOKLYN NY 11222

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

FRANK MESSINA

Name

AMERICAS SUBFUND MANAGER

Title

38 JARICK STREET BROOKLYN NY 11222

Address

THE UNDERSIGNED PARTY enters into this Amendment to Consent Decree in State of New Jersey Department of Environmental Protection v. Almo Anti-Pollution Services Corp. et al., Civil No. 89-4380 (JBS)

FOR SETTLING WORK DEFENDANT, Rohm and Haas Company

Date: 9/30/22

Address: 400 Arcola Road
Collegeville, PA 19426

Agent Authorized to Accept Service of Process on Behalf of Above-Signed Party:

CT Corporation
Name

Title

1209 Orange Street, Wilmington, DE 19801 USA
Address

EXHIBIT A

Helen Kramer Landfill Superfund Site

392 Boody Mill Road

Mantua, NJ

Leachate Collection, Pre-Treatment, Landfill Gas, Cap & Slurry Wall and Security Systems

Operation, Maintenance & Monitoring Plan

Updated: September 2022

Prepared by: ***de maximis, inc.***

186 Center Street, Suite 290

Clinton, New Jersey

Table of Contents

APPENDICES

FIGURES:

List of Acronyms

1,2-DCA	1,2-dichloroethane
As	Arsenic
CBMS	Chatterbox Monitoring System
CEA	Classification Exception Area
CMS	Computer Monitoring System
CO	Cleanout
FM	Flow Meter
GCUA	Gloucester County Utilities Authority
gpm	Gallons per Minute
GWTP	Groundwater Treatment Plant
HASP	Health and Safety Plan
HDPE	High Density Polyethylene
HKLF	Helen Kramer Landfill
hp	Horsepower
Ket	Englishtown Geological Formation
LCS	Leachate Collection System
LFG	Landfill Gas
mA	Milliamps
MW	Monitoring Well
Ni	Nickel
NJDEP	New Jersey Department of Environmental Protection
O&M	Operation and Maintenance
OM&M	Operation, Maintenance, and Monitoring
PAC	Programmable Automation Controllers

List of Acronyms (continued)

PC	Personal Computer
PEQ	Permit Equivalent
PLC	Programmable Logic Controller
PS	Pump Station
PTS	Pretreatment System
rpm	Revolutions per Minute
SMR	Self-Monitoring Report
SOP	Standard Operating Procedure
SWD	Settling Work Defendants
TCL	Target Compound List
TOH	Total Operating Head
VAC	Volts Alternating Current
VFD	Variable Frequency Drive
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Operation, Maintenance and Monitoring Plan ("OM&M Plan") provides information and procedures for operation, maintenance, and monitoring of the current remedy at the Helen Kramer Landfill Superfund Site (the "Site") located in Mantua, New Jersey. This 2022 OM&M Plan updates and replaces the O&M Plan dated April 1998, originally appended to the 1998 Consent Decree between the Helen Kramer Landfill ("HKLF") Superfund Site Settling Work Defendants ("SWDs") and the State of New Jersey.

This 2022 OM&M Plan provides Site background information with an overview of the remedy (Section 2.0) and addresses operation, maintenance, and monitoring requirements for each of the remedial elements including:

- Leachate Collection System (Section 3.0)
- Pretreatment System (Section 4.0)
- Landfill Gas Management System (Section 5.0)
- Landfill Cap and Slurry Wall Systems (Section 6.0)
- Site Security System (Section 7.0)
- Groundwater, Surface Water, and Sediment Monitoring and Reporting requirements (Section 8.0).

Standard Operating Procedures (SOPs) have been prepared in support of the OM&M (Appendix A). Each SOP describes a data collection procedure including its scope, whether it is for a routine or critical task, authorized personnel, hazards and precautions, tools and equipment, procedural steps, supporting documents, deviations, records management, and revision history. SOPs have been prepared for: (1) completing weekly inspections, (2) completing monthly inspections, (3) completing quarterly inspections, (4) collecting piezometer readings along the slurry wall, (5) completing pretreatment facility weekly production reports, (6) performing pump removal and installation in the Leachate Collection System, (7) conducting leachate pump run and pressure testing, (8) cleaning of monitoring wells, and (9) monitoring procedures for the solar sparking landfill gas system. Additional SOPs may be prepared in future for inclusion with the OM&M Plan, as needed, if appropriate for newly identified tasks or activities.

The Site Health and Safety Plan (HASP) is included as Appendix B and the Quality Assurance Project Plan is included as Appendix C. Field inspection checklists are included in Appendix D.

2.0 SITE BACKGROUND

The following sections provide a Site background and history, Site regulatory structure, and an overview of the Site systems.

2.1 Site History

The Site is located at 392 Boody Mill Road in Mantua Township in New Jersey, about 20 miles south of Philadelphia, Pennsylvania, near New Jersey Route 45 between Boody Mill Road and Jessups Mill Road. The site encompasses approximately 80 acres, including approximately 66-acres of the capped refuse area, an 11-acre previously stressed area between the capped refuse area and Edwards Run, and the general support areas within the fence line. A Site location map is included as Figure 1.

Originally operated as a sand and gravel pit, the Site became an operating landfill between 1963 and 1965, during which time, landfilling occurred simultaneously with sand extraction. In the early 1970's, New Jersey Department of Environmental Protection (NJDEP) inspection reports noted that chemical waste was being disposed of in excavated trenches on the Site. In 1974, continued evidence of chemical waste disposal was noted and leachate was observed discharging into Edwards Run from the landfill. Landfilling and disposal of wastes continued until 1981 when the landfill permit was revoked.

In July and August 1981, several subsurface fires reportedly broke out at the Site. The fires reportedly recurred in September and October and were not extinguished until November 1981. Extinguishing the fires required the drilling of a deep well for water supply, which is currently present and located west of the Site.

Remedial actions began in 1988 with a start-up of a pre-treatment facility in the spring of 1992 and a gas treatment facility in February 1993. IT Corporation provided the O&M services at the Site for the State of New Jersey from May 1994 through May 1997. The HKLF SWDs assumed responsibility for O&M of the Site in May 1997. During this period of operation, the SWDs have updated or modified the systems as needed to meet changing remediation requirements, including the following:

- Modification of the leachate collection system (LCS) in 2017 to include pumping groundwater from two Englishtown Formation (Ket) wells (MW-22D, MW-23D).
- Modification of the water quality monitoring plan in 2020 to increase the number of locations that are monitored from eight (8) monitoring wells to thirty-four (34) monitoring wells, as well as the frequency and monitoring parameters for each of the monitoring locations.
- Modification to the Gas Flare System and the LFG Air Pollution Control Permit Equivalent (PEQ) in 2021 to change over from an enclosed flare to a series of solar sparking flares.

- Modification of the pretreatment process in 2022, which included approval by the Gloucester County Utilities Authority (GCUA), and associated Air Pollution Control PEQ issued by the NJDEP Division of Air Quality. These modifications provide for achieving Discharge to Sewer limitations based on flow equalization and emergency storage.

2.2 Regulatory Structure

The Site operates under a Discharge Permit issued by the GCUA and under two air pollution control PEQ approvals issued by the NJDEP Division of Air Quality: one for the landfill gas (LFG) control system, and one for air emissions from the pretreatment facility. Copies of PEQ approvals are included in Appendix E.

2.3 Overview of Site Systems

Systems currently operating at the Site include the following:

- **Leachate Collection System (with the addition of Ket pumping)**

  The LCS consists of a series of pump stations, clean outs, and deep wells that are pumped through a force main to the pretreatment system (PTS). The pumping of leachate is required to ensure leachate levels inside the slurry/barrier wall are contained. Pumping from the Ket wells is performed to mitigate the presence of 1,2-dichloroethane (1,2-DCA) contamination in the Ket discovered in 2016.

- **Pretreatment System**

  The PTS encompasses the treatment steps for collected leachate and groundwater prior to discharge to the GCUA system for final treatment. Key components to the PTS include flow equalization, effluent sampling, emergency power generation, and emergency call-out systems.

- **Landfill Gas Control System**

  The LFG control system consists of a series of solar sparking flares that collect and thermally-oxidize LFG that has accumulated under the landfill cap.

- **Landfill Cap and Slurry Wall Systems**

  The Landfill Cap System consists of a clay capping system that reduces the infiltration of rainwater into the landfill and release of unmitigated LFG. The Slurry Wall System consists of a bentonite clay wall that surrounds the Site. The Landfill Cap and Slurry Wall system act as vertical and horizontal barriers surrounding the Site and functions to reduce and contain leachate within the landfill.

- **Landfill Security Systems.**

The Landfill Security System (e.g., fence, gate) function to ensure that the perimeter of the landfill is secure and that unauthorized personnel are restricted from the limits of the landfill.

A process flow diagram is included as Figure 2.

3.0 LEACHATE COLLECTION SYSTEM

The LCS operates to ensure that leachate produced from within the capped area, and slurry wall surrounding the landfill mass, is removed as needed. This is to ensure the leachate elevation level does not exceed the elevation of the top of the slurry wall.

The LCS is a gravel-filled trench with a drainpipe, cleanout stations and pump stations to collect groundwater and leachate. It extends 3,159 linear feet and is comprised of six pumping locations (three original pump stations plus three converted cleanouts), nine remaining cleanouts, an aboveground force main, and an underground piping system that connects the pump stations and the cleanouts. The horizontal drainpipe connects near the base of the pump stations and cleanout stations. The use of gravel in the drain is intended to allow for rapid vertical drainage of leachate to the horizontal drainpipe. The design of the gravel drain was intended to move leachate quickly to the pump stations and maintain a near uniform leachate level within the gravel drain. Table 1 summarizes the LCS components and Figure 3 depicts the arrangement of a typical pump station or cleanout station:

Table 1: Leachate Collection System Components

LCS Element	Description
Aboveground Force Main	– dual-contained HDPE; insulated and heat-traced – Force main extends to GWTP
LCS Power System	– Currently services six pumping points – 480 Volt, 3-phase
LCS Controls (runs entire length of LCS, to Cleanout 12)	– Level measured at all pump stations (3) and cleanouts (12)
Pump Stations and Converted Pumping Cleanouts	– Three pump stations, two pumps each location; Two clean-outs, one pump each location (CO-5, CO-6, CO-7)
Cleanouts	– 9 COs, no pumps
Drain Pipe	– Six-inch perforated, corrugated, polyethylene pipe

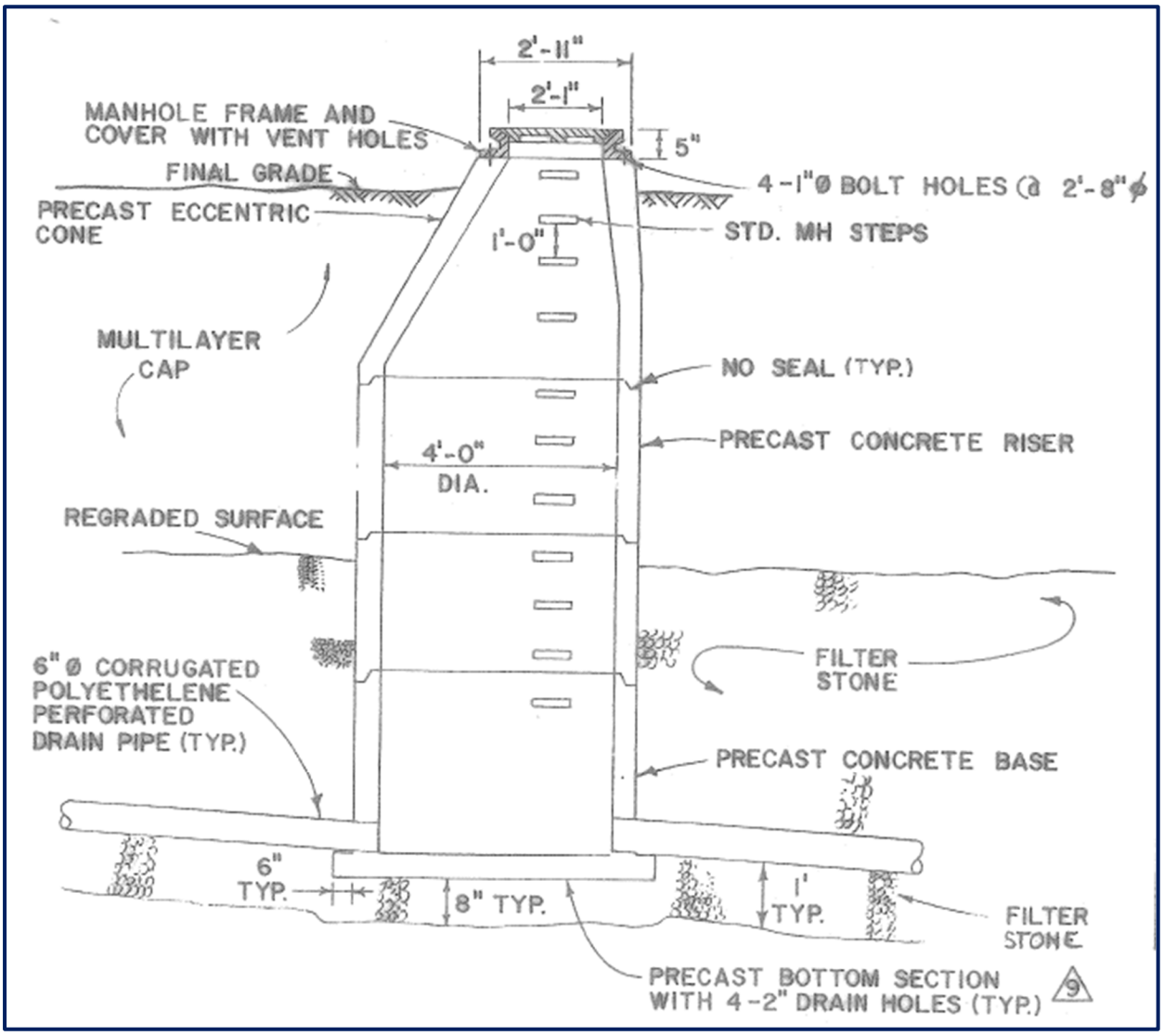


Figure 3: As-Built Cross Section of Typical Cleanout Layout (USACE, 1992, Sheet 28)

The following sections provide descriptions of the LCS force main, pump stations, cleanouts stations, Ket wells, the LCS Computer Monitoring System, and the Leachate Level Alarm System.

3.1 Force Main

The aboveground force main piping consists of 3,590 linear feet of header piping, which conveys leachate/groundwater collected at eight (8) locations: three pump stations (PS-1, 2, and 3), three converted pumping clean-out (CO) stations (CO-5, 6, and 7), and two Ket wells (MW-22D, MW-23D). The aboveground force main leads to a manhole located at the southern end of the landfill. At this manhole, the aboveground piping is directed below ground where it is connected to the underground piping leading to the PTS. The original pumping and converted pumping clean-out

stations, as well as the Ket pumping wells, each include a lateral pipe with check valve and by-pass piping branches to allow work to be performed on the LCS pumps individually without affecting the entire collection system. The aboveground HDPE piping is dual-contained to allow detection of leakage and prevention of spills or releases. Dual-containment is accomplished by means of a carrier pipe enclosed within a containment pipe.

3.2 Pump Stations 1, 2, and 3

Each of the three Pump Stations is equipped with two 5 hp, 3450 rpm, 460 VAC, 3 phase, 6.25-inch-diameter impeller, explosion proof, submersible grinder pumps. The pumps are rated for 85 gpm at 110' total operating head (TOH). The elevation settings for the float switches are set by the operator of the system. The three pump stations are classified as electrical Class 1, Division 1 (hazardous locations) due to the potential to accumulate LFG in the Pump Station sumps.

Two-inch magnetic flow meters are installed at each of the three LCS pumping stations. The flow meters are magnetic flowmeters with remote-mount signal converter and 25' connecting cable, 115 VAC power supply, and 316 stainless steel electrodes. A 4-20 mA readout is sent to the Computer Monitoring System (CMS) located at the Operator's station in the PTS. A rate indicator and totalizer are included, calibrated for a flow range of 0-100 gpm. There are three float switches in each station:

- High-high level (alarm) float switch, which activates secondary pump
- High-level pump on float switch
- Low level pump shut-off float switch

Normal operation is for each pump (lead pump and alternate pump) to alternately activate when the leachate level reaches the "pump on" float. The activated pump will continue to operate until the leachate level drops to the low-level cut-off float, when the pump will then shut off, thereby allowing the leachate level to rise again until it activates the other pump and continues the process. The automatic alternation distributes the run time between both pumps equally. Additionally, duplex pump control panels are mounted on concrete bases approximately 20' from the top of each pumping stations.

3.3 Clean-out Stations 5, 6, and 7

One explosion-proof, submersible pump is installed in each of the three Clean-outs. Electrical classification of COs 5, 6, and 7 have been classified as Class 1, Division 1 (hazardous location) due to the potential to accumulate LFG in the sumps.

The operation of the pump is controlled with one high-level float and one low-level cut-off float. The pump activates when the leachate level reaches the high-level float and continues to pump until the leachate level drops to the low-float. Float levels are to be adjusted by the operator of

the system. Simplex pump control panels are mounted on concrete bases approximately 20' from the top of each of the clean-outs 5, 6, and 7.

Two-inch magnetic flow meters are installed at each station. Each flow meter provides a local readout for rate (gpm) and total flow (gallons). In addition, a 4-20 mA signal is sent to the CMS via signal wire.

3.4 Ket Wells (MW-22D & MW-23D)

Two Ket wells are currently operating as groundwater recovery wells and are designated as MW-22D, and MW-23D. The Ket wells pump groundwater from two locations outside of the Slurry Wall and below the Marshalltown formation. The Marshalltown formation is comprised of a silty-clay soils and acts as an aquitard. The Ket wells are connected to the above ground force main and were put into service starting in December 2017 to mitigate 1,2-DCA contamination in the Ket, discovered in 2016.

Each of the two (2) Ket wells are equipped with one (1) submersible pump which can be controlled either by level or flow and uses a variable frequency drive (VFD) to regulate the flow rate or level.

Each Ket well is equipped with one (1), 2" magnetic flow meter. Each flow meter provides a local readout for rate (gpm) and total flow (gallons). In addition, a water level measurement is measured using a pressure sensor. 4-20mA signals are sent back to the CMS via a signal wire.

3.5 LCS Computer Monitoring System

Pressure transducer signal wires are used to measure water levels in all Pumping Stations, modified pumping COs, non-pumping COs, and Ket wells and are connected to the computer monitoring system (CMS). One of the screens of the CMS provides the following information:

- LCS Pumping Station and Clean-out Pumping Rate
- LCS Pumping Station and Clean-out Trend Charts
    - Water Level in feet below grade
    - Water Level in feet below the top of the slurry wall
    - Water Level in feet above sea level

The operator can select a screen from a drop-down menu in order to review the pumping rate. The operator can select respective trend charts, which will illustrate the leachate levels in each of the fifteen monitoring points from each of the LCS Pumping Stations and clean-outs. Alarm set points are enabled for all fifteen leachate level monitoring points. The alarm set points for high leachate level is selected by the operator of the system.

3.6 Leachate Level Monitoring Alarms

The leachate level is monitored at 15 points along the slurry wall (COs 1 through 12 and Pumping Stations 1, 2, and 3). The operator can view the instantaneous value (digital readout) and trend chart for each of the 15 locations. Alarm set points are established for each location, which are chosen based on the top of the slurry wall elevation.

SOPs for the LCS are included in Appendix A.

4.0 CURRENT PRETREATMENT SYSTEM

In January 2022, the HKLF SWDs applied to the GCUA to modify the pretreatment process, which would not require changes to the Discharge Permit Standards. At the same time, an application was also submitted to the NJDEP Division of Air Quality to allow the modifications pursuant to the Site PEQ. On August 31, 2022, the GCUA informed the Trust that the permit modification, which allowed for the modification of the pretreatment process, will receive final approval from the GCUA on October 12, 2022[1]. Additional approval was also obtained on July 12, 2022 from the NJDEP in the form of a revised PEQ approval. The modified pretreatment process changes included the removal of the oil water separator, air sparge tank, and Hoyt regenerative vapor carbon unit from the pre-treatment process. This OM&M Plan describes the processes that will be put into effect upon approval of the noted modification.

The following subsections provide a brief description of the PTS, a description of the Effluent Sampling System, a description of the Emergency Generator System, a description of the Chatterbox Alarm System, and a description of the programmable logic controller (PLC) system.

4.1 Pretreatment System

The PTS receives water collected from the LCS system via underground piping to the equalization tank (T-101A) where leachate is mixed by a pulse air system to help equilibrate and keep solids in suspension. Tank T-101 is currently used as a highwater overflow for T-101A. After discharging from T-101A, leachate is piped to the pump house and then pumped at up to 120 gpm to the GCUA manhole by the 3-inch-diameter effluent discharge pipeline. Off-gases from tanks T-101A and T-101 are piped to the permitted air discharge location per the NJDEP PEQ.

A 3-inch-diameter magnetic flow meter (FM-100) is located in the discharge piping of the process feed pump (P-101 and P-102) and is used to control the VFD for the programmed discharge flow rate.

4.2 Effluent Sampling System

The GCUA Industrial Pre-Treatment Discharge Permit 011 20221013, Section 2, Effluent Limitations and Self-Monitoring Requirements sets forth requirements for the Site. This permit section describes the location of the outfall, where effluent is discharged, the effluent monitoring frequency, and type of samples to be collected. Reporting of the monitoring results is submitted to the GCUA on the GCUA Industrial Pre-treatment Self-Monitoring Report (SMR) once per month. In addition to any self-monitoring required under the Effluent Limitations and Self-Monitoring Requirements Table, the Site is required to collect and retain a representative composite sample during every discharge period. This sample must be retained for 48 hours.

[1] The Pretreatment Facility is subject to Discharge Standards in effect at the time of operation.

Failure to have representative samples properly collected, handled, and preserved as required would be considered a violation of the permit.

A Sigma 900 Refrigerated Sampler (or equivalent) equipped with four 2.5-gallon sample bottles currently collects composite samples from the outfall during each discharge event.

4.3 Emergency Generator System

The PTS is equipped with a diesel-driven generator rated for 50 kilovolts. Nearby Fuel Tank T-680 (2,000-gallon capacity) provides fuel to the generator. The generator supplies electrical power for critical electric loads when utility power has failed or dropped to an unacceptable level. The Motor Control Center room is equipped with an automatic transfer switch which detects a loss or fluctuation in utility power. This switch transfers supplied power from the emergency generator to an emergency grid where critical electrical components are housed. The emergency backup generator powers both pump stations and converted pumping clean-outs with the purpose of ensuring the leachate levels stay below the top of the slurry wall in case of power failure. Ket pumping locations are not powered by the emergency generator and do not operate during power failure. The emergency generator is tested on a weekly basis.

4.4 Chatterbox Alarm Monitoring System

The PTS is equipped with a voice synthesized, unattended monitoring alarm system (Chatterbox Monitoring System [CBMS]). The CMS automatically dials up pre-programmed phone numbers to alert the operators with a programmable message which tells the exact nature and location of the alarm condition. Two lines of communication to the operators are currently in use for employee notification. Each operator has a home number and cell phone number programmed in CBMS. One process alarm and one power interruption alarm are currently programmed into the CBMS. The system makes the phone calls in progression until the alarm is acknowledged. The operator can access the CBMS using a PC anywhere from a home computer to monitor the alarm condition and effects to the system before entering the Site to correct the problem.

4.5 Programable Logic Control System

The PLC system utilized for the PTS consists of an Opto 22 automation system consisting of integrated components, which include programmable automation controllers (PACs), brain, input/output modules, and software. The PAC is an integral system that provides communication of the LCS and PTS, which allows Site operators to make adjustments and monitor the systems, as needed. This ensures that water is pumped, leachate levels are maintained, and water is processed and discharged to the GCUA.

SOPs for the PTS are included in Appendix A.

5.0 LANDFILL GAS CONTROL SYSTEM

The LFG system was modified in 2021 following approval by the NJDEP Division of Air Quality. The former LFG system consisted of 73 gas collection wells, an aboveground piping network, and a gas treatment plant with an enclosed flare. The current air permit associated with the modification allows for up to six solar sparking flares to be installed. Currently three flares have been installed and, if it is determined that additional flares are required, three additional flares can be added. The current system also utilized eight perimeter gas monitoring wells (located outside of the slurry wall) and 12 former gas collections wells that have been converted to interior gas monitoring wells.

SOPs for monitoring the solar-ignited flares are included in Appendix A.

6.0 LANDFILL CAP AND SLURRY WALL SYSTEMS

The landfill cap and slurry wall systems are described in the following subsections.

6.1 Landfill Cap System

The landfill cap system consists of a multi-layer clay cap and drainage layer that was designed to reduce the infiltration of rainwater into the waste and to isolate the waste material. Maintenance to the cap includes regular inspections, repair of the cap as required, grass reseeding as needed, and vector control in response to burrowing animals.

SOPs for monitoring the landfill cap and conducting monthly and quarterly scheduled inspections are found in Appendix A, and checklists are included in Appendix D.

6.2 Slurry Wall System

The slurry wall system consists of a vertical bentonite slurry barrier wall that surrounds the landfill area of the Site and is keyed into the Marshalltown formation (see Figure 4) located below the waste materials. The purpose of the slurry wall is to ensure that leachate is contained within the footprint of the landfill. Leachate is removed by the LCS system to ensure that leachate levels do not overtop the slurry wall on the east side of the landfill.

The slurry wall system does not have any maintenance requirements with the exception of ensuring that the slurry wall system is not breached as a result of digging or trenching. The LCS system pumping, monitoring, and maintenance are important to ensure that leachate levels are maintained below the top of the slurry wall. An as-built cross section of the slurry wall and LCS is depicted on Figure 4:

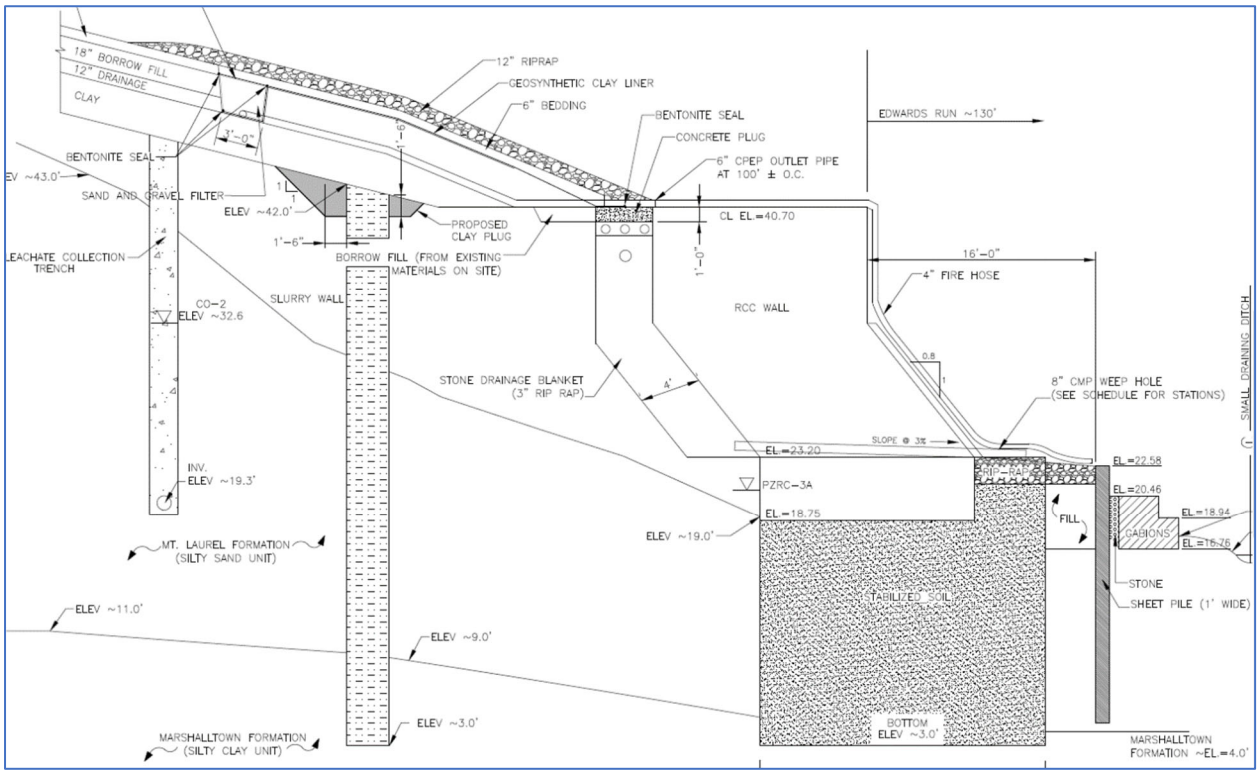


Figure 4: As-Built Cross Section of Slurry Wall and LCS near MW-9S (Station S54+00)

7.0 SITE SECURITY SYSTEM

The Site Security System acts as a barrier to ensure that only authorized personnel are permitted within the landfill boundaries. The Site security system consists of a chain link perimeter fence with locked gates, automated gate system, closed circuit video surveillance system, and alarm systems which protect the plant and office trailer.

Maintenance to the Site security systems includes the inspection of the perimeter fence, gates, and automated gate systems, which are repaired as needed. The surveillance and alarm systems are inspected regularly to ensure they are functioning correctly; any repairs will require coordination with an outside vendor.

Field inspection checklists are included in Appendix D.

8.0 GROUNDWATER, SURFACE WATER, SEDIMENT MONITORING REQUIREMENTS

NJDEP designated an updated Classification Exception Area (CEA) for the Site in May 2022 and in response to submissions provided by the SWDs in April 2022. The Site's CEA references and incorporates NJDEP's March 2020 approval of a Class B Modification to the original O&M Plan, which among other things provides for monitoring and reporting of groundwater quality, surface water, and sediment from Edwards Run.

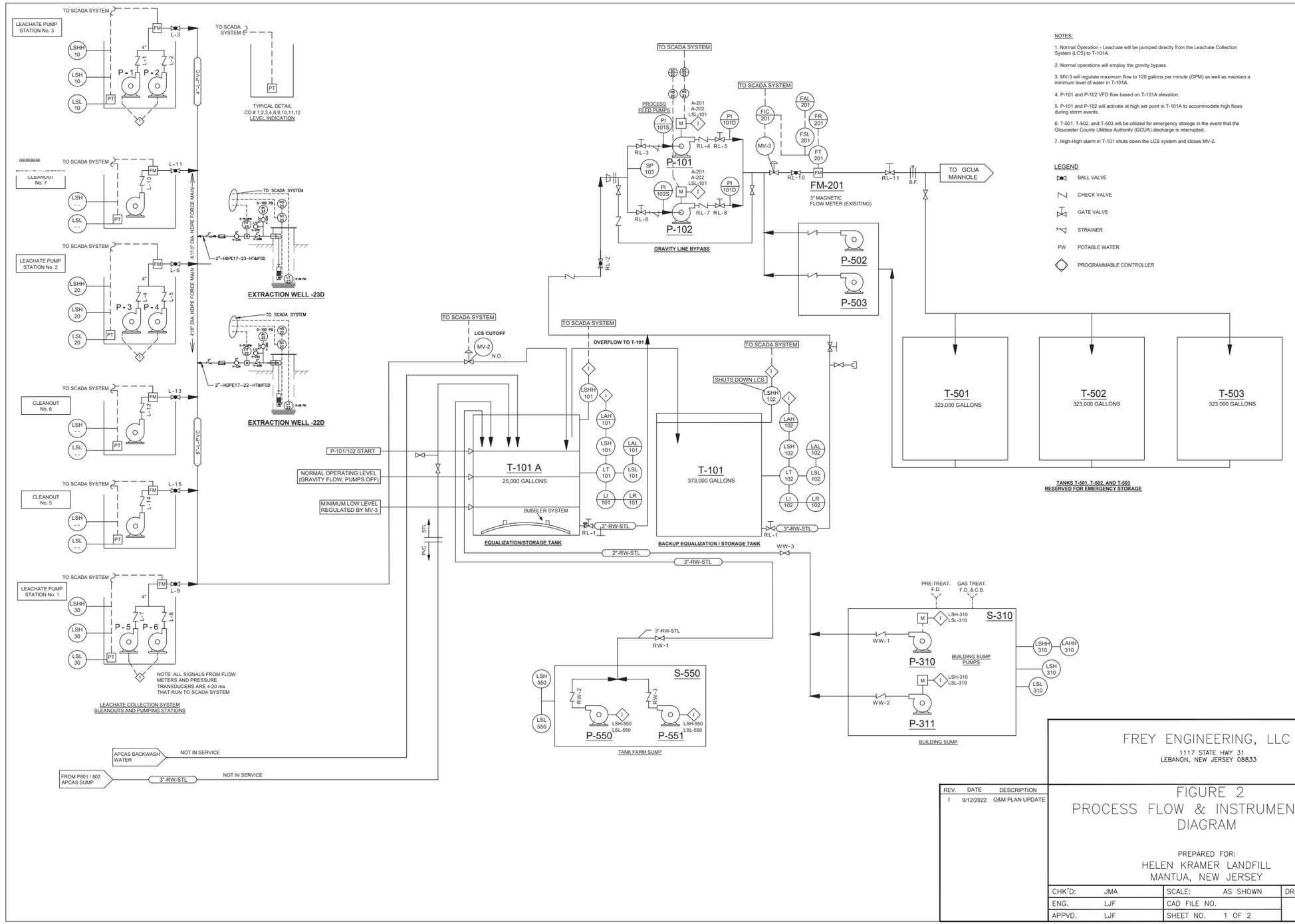
The monitoring plan provides for monitoring groundwater in sentinel, plume, and background locations on an annual basis for certain locations and biennially in others. A total of 39 monitoring locations[2] are identified along with monitoring parameters including Target Compound List (TCL) volatile organic compounds (VOCs), 1,4-dioxane, chloride, and metals (As & Ni only); along with field stabilization parameters. It also provides for monitoring surface water and sediment in Edwards Run on an annual basis.

Annual and biennial sampling events are scheduled to be conducted during a period of low flow in Edwards Run. Based on historical records, this occurs during September or October each year when the target streamflow in Edwards Run ranges between eight to ten cubic feet per second. A report of the groundwater, surface water, and sediment sampling event is submitted annually.

Appendix H provides a table and figure summarizing the monitoring requirements and locations. Further discussion regarding the selection of monitoring locations, frequency of monitoring, and sampling parameters may be reviewed in the March 2020 Class B Modification to the original O&M Plan.

[2] The March 2020 Class B Modification identified 34 locations; however, five (5) new wells have been installed since that time. New MW-33D is now added to the annual sampling event as a Ket sentinel well; new MWs 34D and 35D are added to the biennially sampling event as Ket plume monitoring wells, and; new MWs 35S and 36S are added to biennial events as low-priority shallow sentinel wells. The March 2020 Class B Modification also identified two locations which were not installed at that time as annual shallow sentinel locations and have now been designated as MWs 33S and 34S.

LEGEND:
PROPERTY LINE
SLURRY WALL
SHEET PILE
WATER MAIN
DIRT ROAD
ROAD (ASPHALT)
MW-22D[RW] KET PILOT STUDY RECOVERY WELL LOCATION
PZRC-2A OTHER MONITORING LOCATION
MW-15S SHALLOW MONITORING POINT
MW-30D DEEP MONITORING WELL
CO / PS CLEANOUT / PUMP STATION
LFPZ-2 LANDFILL PIEZMONITOR MONITORING POINT
RIP-RAP
GRAVEL ACCESS
P2 GAS MONITORING WELL
LANDFILL GAS FLARE
NJSPCS NAD 1983
BOODYS MILL ROAD
EAST GREENWICH TOWNSHIP
MUNICIPAL LINE (Not Surveyed)
MANTUA TOWNSHIP
AGRICULTURAL FIELD
BLOCK 1304 - LOT 9
Parcel No. 1
(11.810 Acres)
BLOCK 6 - LOT 13.01
USA C/O DISTRICT ENGINEER NY
(SWM BASIN #1)
(SWM BASIN #2)
Block 6 Lot 1
(87.1 Acres+/-)
KRAMER
BLOCK 6 - LOT 1
Parcel No. 19
(84.1 Acres+/-)
BLOCK 6 - LOT 12
JAMES E & KATHLEEN A PARKS
GROUNDWATER TREATMENT PLANT
BLOCK 6 - LOT 12.01
NJDEP SITE REMEDIATION PROGRAM
(SWM BASIN #3)
LEACHATE COLLECTION SYSTEM
SLURRY WALL
RCC WALL
BLOCK 6 - LOT 3
MATTHEW D. DEHNHARD
EDWARDS RUN
APPROXIMATE EDGE OF MILLPOND AT WATERS' EDGE ON A LINE OF FULL HEAD AT ELEVATION 18.0±
2,791± TOTAL LENGTH ALONG APPROX. EDGE
Parcel 10
(0.914 Acres)
(Temporary Easement)
Parcel No. 9
(1.488 Acres±)
Parcel 11
(1.076 Acres +/-)
Parcel 12
(1.346 Acres)
(Temporary Easement)
MATTHEW D. DEHNHARD
BLOCK 6 - LOT 2
Dbk. 3830
Pg. 276
KRAMER
BLOCK 6 - LOT 1
WET AREA
MW-1S MW-2S MW-3D MW-3S MW-4S MW-5S MW-6S MW-7S MW-8S MW-9S
MW-11S MW-13S MW-14S MW-15S MW-15D MW-16S MW-16D MW-17S MW-18S MW-19S MW-19D
MW-20S MW-20D MW-21S MW-21D MW-22S MW-22D[RW] MW-23S MW-23D[RW] MW-24S MW-24D
MW-25D MW-26D MW-33S MW-33D MW-34S MW-34D MW-35S MW-35D MW-36S X-8S
LFPZ-1 LFPZ-2 LFPZ-4 LFPZ-5 LFPZ-6 LFPZ-7 LFPZ-8 LFPZ-9
LFGF-1 LFGF-2 LFGF-3
RW-1 RW-2
SW-2 SW-4 SW-5 SW-6
CO 1 CO 2 CO 3 CO 4 CO 5 CO 6 CO 7 CO 8 CO 9 CO 10 CO 11 CO 12
PS 1 PS 2 PS 3
P1 P2 P3 P4 P5 P6 P7 P8
TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8 TP-9 TP-10 TP-11 TP-12
BS-1 BS-2 BS-3 BS-4
GRAPHIC SCALE
100 0 50 100 200
SURVEY NOTES
1. MAPPED BY GEOD CORPORATION (LATEST REVISION JULY 2020) USING PHOTOGRAMMETRIC METHODS FROM 5.0cm DIGITAL AERIAL PHOTOGRAPHY DATED 23 MARCH 2017. THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS. HORIZONTAL DATUM: NJSPCS NAD 1983, US FEET. VERTICAL DATUM: NAVD 88.
2. CONVERSION FROM NAVD88 TO NGVD29 FOR THIS SITE IS + 1.22 FEET.
REV. DATE DESCRIPTION BY
FREY ENGINEERING, LLC
1117 STATE HWY 31
LEBANON, NEW JERSEY 08833
Phone 908-238-0502
www.freyengineering.com
No. 24GA2807300
FIGURE 1
SITE PLAN
PREPARED FOR:
KRAMER LANDFILL SUPERFUND SITE
MANTUA TOWNSHIP, GLOUCESTER COUNTY, NJ
CHK: LJF
ENG. LJF
DATE: APRIL 2022
SCALE: 1"=100'
CAD FILE NO. 2021 BaseMap
SHEET
DRAWING NO.
REV. NO. 0
S:\FE-Projects\Kramer Landfill\Drawings\2022 Drawings\O&M Drawings\2022 BaseMap - O&M Drawings w-o Gas Lines.dwg, SITE-D, 6/16/2022 2:45:26 PM, pattyh



NOTES:

1. Normal Operation - Leachate will be pumped directly from the Leachate Collection System (LCS) to T-101A.
2. Normal operations will employ the gravity bypass.
3. MV-3 will regulate maximum flow to 120 gallons per minute (GPM) as well as maintain a minimum level of water in T-101A.
4. P-101 and P-102 VFD flow based on T-101A elevation.
5. P-101 and P-102 will activate at high set point in T-101A to accommodate high flows during storm events.
6. T-501, T-502, and T-503 will be utilized for emergency storage in the event that the Gloucester County Utilities Authority (GCUA) discharge is interrupted.
7. High-High alarm in T-101 shuts down the LCS system and closes MV-2.

LEGEND

- BALL VALVE
- CHECK VALVE
- GATE VALVE
- STRAINER
- PW POTABLE WATER
- PROGRAMMABLE CONTROLLER

FREY ENGINEERING, LLC
1117 STATE HWY 31
LEBANON, NEW JERSEY 08833

REV.	DATE	DESCRIPTION
1	9/12/2022	O&M PLAN UPDATE

FIGURE 2
PROCESS FLOW & INSTRUMENTATION DIAGRAM

PREPARED FOR:
HELEN KRAMER LANDFILL
MANTUA, NEW JERSEY

CHK'D:	JMA	SCALE:	AS SHOWN	DRAWING NO.	REV. NO.
ENG.	LJF	CAD FILE NO.		2	0
APPVD.	LJF	SHEET NO.	1 OF 2		

Appendix A

Standard Operating Procedures (SOPs)

The September 2022 updated OM&M Plan includes the following SOPs:

1. Weekly Landfill Inspection
2. Monthly Landfill Inspection
3. Quarterly Landfill Inspection
4. Landfill Gas Piezometer Readings
5. Pretreatment Facility Project Report
6. Pump Swap Out
7. Weekly Pump Run Pressure Testing
8. Pumping Well Cleaning
9. Solar Flare Operation and Maintenance

Copies of SOPs are maintained at the Site and are available from the Project Portal electronic repository.

Updates, modifications, and/or new SOP development may be made from time to time. Notification via Project Portal will be submitted to the NJDEP-designated personnel regarding any updates or revisions.

Appendix B

Site Health and Safety Plan

The Health and Safety Plan (HASP) for the Helen Kramer Landfill Superfund Site is maintained on Site and is available for review and/or downloading from the Project Portal electronic repository.

The September 2022 OM&M Plan includes the HASP dated April 2019.

Pursuant to OSHA 1919.120, the HASP may be periodically updated and revised as needed to address new site conditions, changes in regulations, and other site-specific modifications. Notification via Project Portal will be submitted to NJDEP-designated personnel for any future HASP updates.

Appendix C

Site Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) is maintained at the Site and is available for review and/or downloading from the Project Portal electronic repository.

The September 2022 OM&M Plan includes the QAPP dated February 2018.

The QAPP may be periodically updated and revised to address new site conditions, changes in regulations, and other site-specific modifications. Notification regarding QAPP updates via Project Portal will be submitted to NJDEP-designated personnel.

Appendix D

Field Inspection Checklists

Field Inspection Checklist forms are maintained on Site and are available for review and/or downloading from the Project Portal electronic repository.

The September 2022 updated OM&M Plan includes the following Field Inspection Checklists:

- Weekly Landfill Inspection Log
- Weekly Landfill Pump Run and Pressure Test
- Monthly Landfill Inspection Log
- Quarterly Landfill Inspection Log
- Pretreatment Facility Weekly Shift Production Report

Updates, modifications, and/or new checklists may be made from time to time. Notification via Project Portal will be submitted to the NJDEP-designated personnel regarding any updates or revisions.

Appendix E

Permits/Permit Equivalent

Permits and Permit/Equivalents are maintained on Site and are available for review and/or downloading form the Project Portal electronic repository.

The September 2022 updated OM&M Plan includes the following permits/permit equivalents:

E.1 GCUA Discharge Permit[1].

E.2 NJDEP Air Permit Equivalent Control for Solar Sparking Flares

E.3 NJDEP Air Permit Equivalent Control for Pretreatment System

Updates, modifications, and/or new permits/permit equivalents will be submitted to the NJDEP-designate personnel via Project Portal notification as needed.

[1] GCUA has issued a draft permit scheduled to be effective October 12, 2022. The electronic repository will maintain permits or relevant approvals in effect at the time of operation.

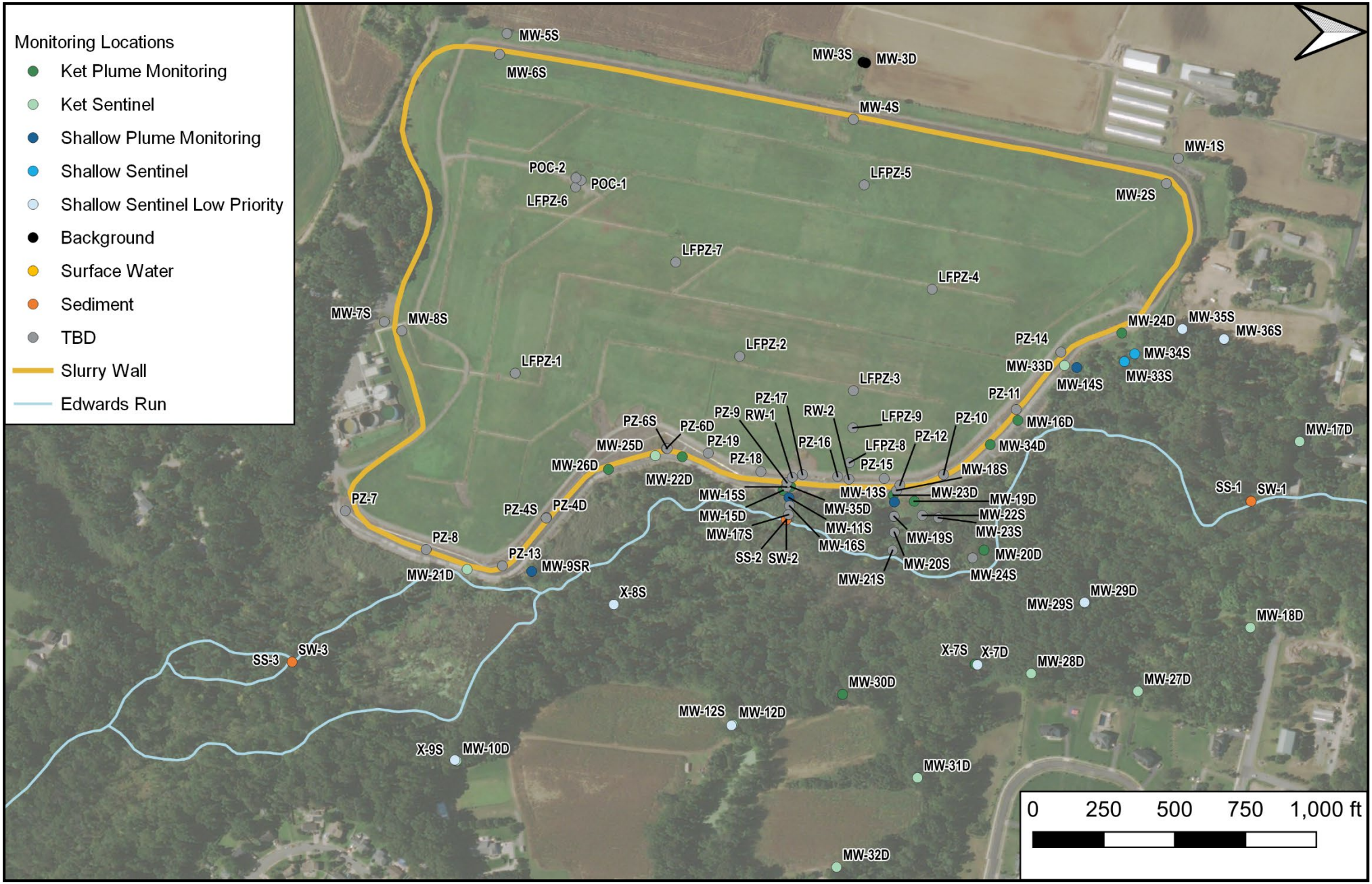
Appendix F

Groundwater, Surface Water, and Sediment Sampling Requirements

Table H-1: Groundwater, Surface Water and Sediment Monitoring Locations and Analyses

# Points	12	12	2	7	4	2	3	3	47		Target Analyses	
Frequency	1-yr	2-yr	1-yr	2-yr	2-yr	2-yr	1-yr	1-yr	N/A			
Class	Ket Sentinel	Ket Plume Monitoring	Shallow Sentinel	Shallow Sentinel Low Priority	Shallow Plume Monitoring	Background	Surface Water[1]	Sediment[1]	TBD As Part of Optimization Evaluation		Parameter	Method
	MW-10D	MW-15D	MW-33S	MW-12S	MW-11S	MW-3D	SW-1	SS-1	MW-1S	LFPZ-6	TCL VOC	SW 846 8260C
	MW-12D	MW-16D	MW-34S	MW-29S	MW-13S	MW-3S	SW-2	SS-2	MW-2S	LFPZ-7	1,4-Dioxane	SW 846 8270C SIM
	MW-17D	MW-19D		MW-35S	MW-14S		SW-3	SS-3	MW-4S	LFPZ-8	Chloride	EPA Method 300.0
	MW-18D	MW-20D		MW-36S	MW-9SR				MW-5S	LFPZ-9	Metals (As & Ni only)	SW 846 6010/6020
	MW-21D	MW-22D		X-7S					MW-6S	PZ-4D		
	MW-25D	MW-23D		X-8S					MW-7S	PZ-4S		
	MW-27D	MW-24D		X-9S					MW-8S	PZ-6D		
	MW-28D	MW-26D							MW-15S	PZ-6S		
	MW-29D	MW-30D							MW-16S	PZ-7		
	MW-31D	MW-34D							MW-17S	PZ-8		
	MW-32D	MW-35D							MW-18S	PZ-9		
	MW-33D	X-7D							MW-19S	PZ-10		
									MW-20S	PZ-11		
									MW-21S	PZ-12		
									MW-22S	PZ-13		
									MW-23S	PZ-14		
									MW-24S	PZ-15		
									POC-1	PZ-16		
									POC-2	PZ-17		
									LFPZ-1	PZ-18		
									LFPZ-2	PZ-19		
									LFPZ-3	RW-1		
									LFPZ-4	RW-2		
									LFPZ-5			

1) Flow requirements will be placed on sample collection to ensure representative flow conditions at time of sampling.
Note : Analyate list may change as need to reflect evolving needs.



Mutch Associates, LLC
Environmental Engineers and Scientists

Figure H-1: Groundwater, Surface Water, Sediment Monitoring Locations
Helen Kramer Landfill Superfund Site