Post-Closure Care Plan
for
Ordot Dump Post-Closure Facility

Prepared for
Gershman, Brickner & Bratton, Inc.,
Receiver for the Guam Solid Waste Authority
October 2021

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Brown AND Caldwell

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List of Abbreviations

CFR	Code of Federal Regulations
COR	Condition of Readiness
CWA	Clean Water Act
ERP	Emergency Response Plan
Facility	Ordot Dump Post-Closure Facility
GARR	Guam Administrative Rules and Regulations
GBB	Gershman, Brickner & Bratton, Inc.
geocell	high-density polyethylene geocell
GEPA	Guam Environmental Protection Agency
GovGuam	Government of Guam
GSWA	Guam Solid Waste Authority
GWA	Guam Waterworks Authority
HDPE	high density polyethylene pipe
KO	knock-out
LCRS	leachate collection and removal system
LFG	landfill gas
LLDPE	linear low-density polyethylene
MH	manhole
MSGP	Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity
MW	monitoring well
NPDES	National Pollutant Discharge Elimination System
PCCP	Post-Closure Care Plan
Permit	Post-Closure Care Permit
PLCT	Perimeter Leachate Collection Trench
SCADA	supervisory control and data acquisition
SVE	soil vapor extraction
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
USEPA	United States Environmental Protection Agency
WLIT	Western Leachate Interceptor Trench
WOTUS	waters of the United States

Section 1

Introduction, Purpose and Organization

This document is the Post-Closure Care Plan (PCCP) for the Ordot Dump Post-Closure Facility (Facility). This Plan includes the procedures for monitoring and inspection activities during the 30-year post-closure period in accordance with Title 22, Division 4, Chapter 23, Section 23602 of the Guam Environmental Protection Agency (GEPA) regulations.

The post-closure activities include sampling and inspection of the groundwater monitoring wells (MWs), landfill gas management and monitoring, leachate collection, removal, and monitoring and inspection, maintenance and repair of the cover system, security system, and surface water erosion and drainage control structures.

The purpose of this PCCP is to provide the requirements, procedures, directions, and guidance necessary to operate, maintain, repair, monitor, inspect, and report the post-closure care of the Facility in accordance with the conditions of the applicable regulations and permit requirements. The PCCP provides a basis for developing annual post-closure care cost estimates and financial assurance in accordance with applicable regulations and permit requirements.

This PCCP is organized as presented in the Table of Contents in an orderly and functional approach that establishes the document through an introduction, purpose, organization, and background of the Facility through its current status as a closed solid waste management unit in post-closure care. The sections of the PCCP present applicable requirements, processes for revisions and updates, emergency response, post-closure care land use, and describes the environmental monitoring and control systems, followed by the post-closure care monitoring, inspection, and maintenance programs (grouped by system and activity), and post-closure compliance reporting requirements. The remaining sections describe post-closure cost estimates, financial assurance, and professional certification.

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Section 2

Background

The Facility location is shown on Figure 1-1. The Facility is a 98-acre site that contains a 43.5-acre unlined waste disposal facility (or dump) owned and operated by the Government of Guam (GovGuam).

The Facility was first used by the Japanese military and then by the United States (U.S.) Navy military forces in the 1940's. On November 1, 1950, the Facility was transferred from the U.S. Navy to GovGuam. In 2003, a civil lawsuit was filed by the U.S. Government against GovGuam for continued violations of the Clean Water Act (CWA) attributed to the Facility. The settlement of the lawsuit resulted in a Consent Decree on February 11, 2004 (U.S. District Court of Guam, Civil Case No. 02-00022, Document Number 55) by parties from both the U.S. Government and GovGuam. Waste disposal operations continued until 2011. Closure activities began in 2012, with closure completed on March 1, 2016, and the cessation of leachate discharges (Appendix I) to the waters of the United States (WOTUS). The as-built construction certification report was completed with corresponding United States Environmental Protection Agency (USEPA) and GEPA Acceptance of Certification of Closure Construction Complete issued on May 12, 2017, and August 10, 2017, respectively (see Appendix A). Interim Post-Closure Operations were initiated on March 1, 2016 and were performed until the Facility operations began being managed and operated since June 1, 2017, under a Post-Closure Operations Contract.

Closure construction features included an engineered cover system, leachate collection and removal system, landfill gas collection and treatment system, and a stormwater management system (see Figure 1-2). As-built information and drawings related to the closure construction are provided in Appendix M.

In 2018, a soil vapor extraction (SVE) system was constructed to address methane detected in excess of regulatory standards reported at the northern boundary of the Facility. The SVE system layout and location is shown on Figure 7-4. Details of the SVE system and as-built drawings are provided in Appendix E.

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Section 3

Applicable Requirements

3.1 Regulatory Criteria and Requirements

Regulatory criteria and requirements applicable to the Facility are summarized in Table 3-1.

3.2 Permits

A list of Facility permits and approvals is provided in Table 3-2. Copies of the permits or associated documentation is provided in Appendix A.

3.3 Responsible Persons

Permitting Authority:
Name: Guam Environmental Protection Agency (GEPA)
Air and Land Division
Address:17-3304 Mariner Avenue
City, State, Zip Code: Tiyan Barrigada, Guam 96913
Telephone Number: (671) 300-4760
Email address: Conchita.Taitano@epa.guam.gov

Facility Owner:
Name: Guam Solid Waste Authority (GSWA)
Address: 542 North Marine Drive
City, State, Zip Code: Tamuning, GU, 96913
Telephone Number: 703-853-7806
Email address: clund@gbbinc.com

Facility Operations Contractor:
Name: Brown and Caldwell Constructors
Address: 414 West Soledad Avenue, GCIC Building Suite 602
City, State, Zip Code: Hagatna, GU, 96910
Telephone Number: 671-300-4220
Email address: PBourke@BrwnCald.com

Gershman, Brickner & Bratton, Inc. (GBB), Receiver for the Guam Solid Waste Authority (GSWA), will operate the Facility until the issuance of a Post-Closure Care Permit (Permit) by GEPA. Upon issuance of the Permit, GSWA will be responsible for operating the Facility. For a period of three months following the issuance of the Permit, the Receiver will prepare the succeeding entities (Owner – GSWA and Permitting Authority – GEPA) with regards to operations and regulatory compliance. The term and conditions for this transition will be determined through consultation of the three parties.

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Section 4

Process for Revisions and Updates to the PCCP

The PCCP will be revised when significant changes occur and are approved in accordance with Guam Administrative Rules and Regulations (GARR) Title 22, Division 4, Chapter 23, Article 6, § 23602(c). GEPA must be notified if post-closure maintenance changes have occurred that require revisions to the PCCP. Any changes to the post-closure land use at the Facility will also require revision to the PCCP and approval by GEPA.

All or parts of the PCCP may be revised at any time, as required.

- For each revision or amendment of the PCCP, the revision number and date of the revision will be included for those sections that have been revised.
- If only an Appendix or Standard Procedure is revised, and it is not necessary to revise the body of the PCCP, note the revision number and date only on the revised Appendix or Standard Procedure.
- Submit draft revisions to GEPA for approval.
- Implement final revisions as approved by the regulatory agencies.

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Section 5

Emergency Response Plan

An Emergency Response Plan (ERP) for the Facility is in Appendix K of this PCCP. The ERP describes procedures to address emergencies resulting from personnel injuries, property damage, fire, natural phenomena, and hazardous material spills. The ERP also provides an emergency response contact list which should be regularly updated and posted at the Facility.

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Section 6

Post-Closure Use

The Facility will remain as a secured open space and will remain under ownership of GSWA and must be maintained for 30 years by GSWA and GovGuam. The property is approximately 98 acres in size, of which approximately 60 acres contains all the closure systems and appurtenances within a security fence, inaccessible to the public. Per (GARR) Title 22, Division 4, Chapter 23, Article 6, § 23601 (i) and (j), GSWA will record a notation on the deed to the Facility property (as well as the consolidated property map) and notify the GEPA Administrator that the notation has been recorded and a copy has been placed in the operating record. The notation on the deed must in perpetuity notify any potential governmental entity intending to use the property that the land has been used as a landfill facility and its use is restricted.

After the 30-year post-closure care period (as determined by GEPA), the ownership and maintenance of the Facility will be determined at that time.

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Section 7

Environmental Monitoring and Control Systems

7.1 Cover System

The final cover at the Facility is a multi-layered system comprised of five layers of materials listed from top to bottom below:

- Six- or eight-inch high-density polyethylene geocell (geocell) infilled with coralline limestone gravel/soil mixture (two feet of coralline limestone gravel/soil mixture covers approximately three acres on the top deck where geocell does not exist)
- 300-mil geocomposite drainage layer
- 60-mil linear low-density polyethylene (LLDPE) geomembrane
- 250-mil geocomposite drainage layer
- 18-inch coralline limestone gravel/soil foundation layer

The cover system includes concrete anchoring structures for the geocell as well as Kevlar and polyester tendons used during construction to hold the geocell in place until the geocells were filled. Geocells filled with concrete serve as the stormwater swales on each slope-bench of the cover system and as channels or down-drains which are spaced at regular intervals to convey stormwater to the four stormwater management ponds, with associated engineered inlet and outlet control structures. To reduce stormwater velocities, there are multiple energy dissipaters located at each level of the cover system. Conveyance of stormwater off the cover consists of box culverts and a 60-inch diameter high density polyethylene (HDPE) pipe with precast box manholes at regular intervals.

Cover grades at the completion of closure construction are shown on Figure 7-1. The closure construction certification report (see Appendix M) includes details of construction and as-built drawings of the final cover. Appendix A includes the closure acceptance letters from GEPA and USEPA.

7.2 Groundwater Monitoring

The groundwater monitoring system at the Facility consists of 12 monitoring wells: three upgradient wells (MW-1C, MW-2A, and MW-14) and nine downgradient wells (MW-5A, MW-6, MW- 9, MW-10, MW-11R, MW-12, MW-13, MW-15, and MW-16) locations of which are shown on Figure 8-1 and described in the Conceptual Site Model (Appendix G). The Facility's Sampling and Analysis Plan is provided in Appendix J.

Installation logs for the compliance monitoring wells are in Appendix F.

7.3 Stormwater Drainage System

Storm run-off from the top deck and side slopes of the Facility is collected by a series of berms, diversion channels, down-drains, and culverts directed towards the four detention basins located around the perimeter of the Facility. Run-off from the detention basins is directed offsite to existing drainage areas on the west, south, and east sides of the Facility.

The top deck at completion of closure construction was sloped at approximately eight percent. Sheet flow from the top deck is diverted by soil berms along the perimeter edges where the top deck transitions (or breaks) to the side slopes and connected to concrete-lined open channel down-drains.

Benches on the side slopes drain to main collection points where water is conveyed down to the perimeter swales via concrete-lined down-drains. Swales were constructed along the inside of each bench. Each of these swales was graded to drain to specified down-drains located at various locations on the side slopes. Swales are lined with concrete to minimize erosion along these lines of concentrated flow. Due to the energy that is generated in the down-drains, energy dissipaters were installed at appropriate locations where water is routed into lower bench swales or perimeter swales. Box culverts route flow under the perimeter access road to the perimeter box channels and detention ponds.

Stormwater drainage features are shown on Figure 7-1. The closure construction certification report (see Appendix M) includes details of construction and as-built drawings of the stormwater drainage system.

7.4 Landfill Gas

7.4.1 Landfill Gas Management

The Landfill Gas (LFG) Management System is designed to collect LFG generated within the waste beneath the cover system as waste decomposes and to combust the LFG using an open flare. Positive pressure is generated in the waste mass by anaerobic decomposition, which primarily produces methane and carbon dioxide. If not relieved, pressure within the waste mass can force these gases into the atmosphere or laterally through the ground, potentially causing hazardous conditions to develop in underground structures. The LFG system is designed to relieve the positive pressure by applying a vacuum throughout the waste mass. The LFG is conveyed to a skid-mounted open flare, located on the eastern side of the Facility, adjacent to the access road.

The system consists of the following main components:

- 26 LFG extraction wells
- 13 connections to horizontal collectors
- A piping network through which a vacuum can be applied to all collection points
- Condensate management structures to separate water vapor from the LFG
- Blower to apply a vacuum to the LFG extraction points and to send the LFG to the flare
- A flame arrestor to prevent flashbacks from the flare to the piping network
- An open flare to destroy the LFG

The system was installed in two phases. Phase 1 of the system (see Figure 7-2) included the installation of the components on the eastern half of the Facility and the flare, and Phase 2 (see Figure 7-3) included installation of the components on the western half of the Facility. The two phases are interconnected to form a header loop to convey LFG and condensate to the sump adjacent to the flare skid.

The system incorporates valves and a transverse header to provide a degree of flexibility in the application of the vacuum at the extraction points. Therefore, the vacuum can be selectively applied based upon actual LFG generation at specific extraction points. The design also allows for sections of LFG lines to be segregated for maintenance while the remainder of the system is operated.

When LFG is extracted from a waste mass, a change in temperature and pressure occurs that results in condensation within the LFG extraction system piping. The condensate travels through the LFG collection pipes to the underground condensate drop-out structure located adjacent to the flare skid. Condensate collected by this structure flows by gravity to the condensate sump, which discharges directly into the perimeter leachate collection drain at manhole (MH)-4. Condensate is also collected at the above-ground

knockout pot at the flare skid and routed through the sump to the perimeter leachate collection drain at MH-4. The de-misting screen in the knock-out (KO) pot must be cleaned periodically for unhindered performance. The cleaning frequency may vary based on the amount of condensate collected and temperature changes.

The closure construction certification report (see Appendix M) includes details of construction and as-built drawings of the LFG management system.

7.4.2 Soil Vapor Extraction System

After completion of closure construction, and during post-closure operations, testing revealed methane concentrations near Dero Road above the regulatory threshold. As a result, an SVE system was installed to recover the methane. The SVE system includes:

- Vertical soil gas extraction wells
- Horizontal shallow soil gas extraction wells
- Soil gas lateral piping
- Piping manifolds
- Soil gas header piping
- Condensate discharge pipe with a trap
- A flare system with KO tank and blower
- A mobile SVE system

The condensate discharge pipe is connected to the Perimeter Leachate Collection Trench (PLCT) at

MH-1.

A skid-mounted blower system is planned for installation in late 2021 to provide an additional vacuum to the soil extraction wells and enhance the system's operability.

Additional details related to the SVE system are provided in the Soil Vapor Extraction System Operation, Maintenance and Monitoring Plan (see Appendix E). The SVE wells and conveyance piping are shown on Figure 7-4.

7.5 Leachate Management System

A leachate collection and removal system (LCRS) was installed as part of the closure of the Facility and includes the following components:

- Perimeter Leachate Collection Trench (PLCT)
- Western Leachate Interceptor Trench (WLIT)
- Three above-ground leachate storage tanks
- Duplex pumping system with controls
- Force-main that discharges into the Guam Waterworks Authority (GWA) sewer through a flow meter near the Facility entrance

The LCRS has been collecting leachate since January 2015 and has controlled and ceased leachate discharges to WOTUS since March 1, 2016.

Leachate is collected in the PLCT that encircles the entire cover system. A separate collection trench was installed along a portion of the western cover system perimeter to manage groundwater/leachate seepage observed at a lower elevation. This separate system is referred to as the WLIT and consists of a perforated pipe placed in a trench enveloped by gravel and geocomposite. The WLIT is nearly 1,500 feet in length. Approximately 300 feet of the WLIT at its northern end has a perforated collection pipe installed at the

former location of the western stream channel (the closure design required the relocation of the western stream channel to the west of its original alignment).

Both the PLCT and the WLIT flow by gravity into a three-tank storage system through an above-ground horizontal 12-inch diameter pipe which splits the flow into three inlets, one per tank and overflow lines between the tanks. Each tank is a glass-fused, bolted steel tank with a volume of approximately 19,000 gallons each. All three tanks are inside a concrete secondary containment vault. The secondary containment volume is approximately 29,500 gallons.

Leachate is pumped from the tanks via a four-inch diameter force-main, through a flow meter owned by GWA near the Facility entrance, to a manhole of the GWA gravity sewer in Dero Road. Daily flow is recorded manually by reading the flow totalizer during week-day operations.

The duplex pumps were each sized to convey 80 gallons per minute (115,200 gallons per day) with one pump operating. Operation of the pumps is controlled by adjustable liquid level transducers in the tank closest to the pumps. The pumps function in a lead-lag operation with the lead pump alternating between pumping cycles. A supervisory control and data acquisition (SCADA) system was added in 2018 and is used to adjust pump controls and track tank liquid levels and pump on/off cycles.

A second flow meter is in the force-main approximately 20 feet from the pumps. This flow meter is used to view instantaneous pumping rates for Facility operations. Neither of the flow meters are interfaced with the SCADA system.

Additional details related to the Leachate Management System are provided in Appendix C. The closure construction certification report (see Appendix M) includes details of construction and as-built drawings of the leachate management system.

7.6 Site Security

The Facility is enclosed with a chain link security fence around the perimeter of the closure area (approximately 60 acres). The security fence is eight-feet-high with an additional section of three-strand barbed wire attached to the top of the line posts. The line posts are founded in concrete footings. The entrance gates consist of two sections and a 12-foot spacing. In addition, a concrete strip was installed under the tension wire to prevent feral pigs from digging underneath the fence. The approximate location of the fence is shown on Figure 1-2. The closure construction certification report (see Appendix M) includes details of construction and as-built drawings of the fence.

Section 8

Post-Closure Inspection, Monitoring and Maintenance Program

8.1 Cover System

8.1.1 Inspection

Inspection of the cover system shall be conducted as needed but no less than quarterly. Each inspection shall document areas of the cover exhibiting the following:

- Damage
- Settlement
- Erosion
- Evidence of ponded water
- Odors
- Exposed waste
- Cracks
- Slope failure or slippage
- Leachate seeps

Areas of the cover exhibiting the preceding conditions shall be investigated to assess the cause of the condition repairs and shall be conducted as needed.

Standard procedures for inspection and maintenance of the final cover are provided in Appendix B. Inspections of the cover system shall also be conducted after any rain event that exceeds the 10-year, 24-hour storm (approximately nine inches of rain) and following earthquakes or typhoons.

8.1.2 Maintenance

Maintenance of the cover system includes activities to address the following:

- **Erosion.** If significant areas of erosion are identified, they should be graded smooth and/or filled with soil, lightly compacted, and reseeded. This type of repair would be completed with a small backhoe or small, low ground-pressure dozer. Efforts should be made to identify and mitigate the cause of the erosion rills. If erosion rills are determined as not significant, they will be monitored to ensure the rills are not expanding.
- **Subsidence.** Localized areas of differential settlement may result in ponding on the cover. It is anticipated that this would be limited to the top deck area and side slope benches, and unlikely to occur on the slopes. Minor subsidence may be repaired by placing new cover fill material and grading. Significant subsidence may require removal of the overlying soils and barrier layer to allow the foundation grades to be re-established and to provide positive grade for surface drainage.

Closure construction included the installation of three settlement monitoring monuments on the top deck of the cover system. These monuments must be surveyed once each year. The results shall be reported to GEPA.

Every five years the entire area of the cover system, inside the perimeter road, shall be surveyed and mapped by a professional licensed land-surveyor. The results shall be reported to GEPA.

Standard procedures for the inspection and maintenance of the cover system are provided in Appendix B of this PCCP.

8.2 Groundwater Monitoring

8.2.1 Monitoring

Groundwater monitoring is required at the Facility. The monitoring shall be performed in accordance with the Facility's Sampling and Analysis Plan in Appendix J of this PCCP.

8.2.2 Groundwater Protection Standards

Groundwater Protection Standards and background water quality have been established for the Facility and must be assessed during groundwater monitoring. Data analysis requirements are described in the Facility's Sampling and Analysis Plan in Appendix J of this PCCP. The basis for development of the groundwater protection standards is provided in Appendix H.

8.2.3 Maintenance

Twice each year, each groundwater monitoring well shall be inspected and its condition documented as described below:

- Surface monument (including lid, lock, casing, concrete pad, and bollards)
- Well cap
- Paint condition and wellhead identification
- Dedicated bailer, if applicable
- Encroachment of vegetation

The condition of each monitoring well shall be documented on the groundwater sampling forms.

Monthly maintenance shall be conducted to maintain vegetation clearances within the area of the bollards surrounding each well and along the access routes to each well. Vegetation removal shall be conducted using appropriate equipment and/or hand tools. **Defoliants, herbicides, weed killers, gasoline, stump removers, and other chemicals shall not be used to control or remove vegetation**.

Standard procedures for monitoring well inspection and maintenance are provided in Appendix B.

8.3 Stormwater Drainage System

8.3.1 Monitoring

The Facility's stormwater management system is under the authority of the National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) administered by the USEPA. Pursuant to the MSGP, a Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the Facility. Monitoring requirements are described in the MSGP (see Appendix A) and the Facility's SWPPP.

8.3.2 Inspection

Prior to the rainy season and on a quarterly basis, the condition of all stormwater drainage facilities, including benches, swales, sedimentation basins, and inlet and outlet structures shall be inspected and documented. Inspections shall also be conducted after any rain event that exceeds the 10-year, 24-hour storm and following earthquakes and typhoons. Inspections shall note breaches, settlement collapse, siltation, vegetation accumulation, and other conditions that affect site drainage. Standard procedures for inspection of the stormwater drainage system are provided in Appendix B.

8.3.3 Maintenance

All maintenance activities are performed with the objective to maintain the design capacity of the stormwater drainage system. Maintenance of the stormwater drainage system includes the following:

- Repairing drainage ditches and retention ponds by removing excessive vegetation and debris and removing eroded soils to re-establish positive runoff and storage.
- Repairing breached, eroded, cracked or settled portions by regrading and reconstructing the damaged portion.
- Removing vegetation from the ditches, channels, culverts and inlets, as needed.
- Repairing/replacing damaged or collapsed permanent drainage structures such as inlets, outlets, headwalls, and storm drains. Repairs made should not affect the functionality of other drainage components. The removal of sediments from the retention ponds shall be conducted when the depth of sediment reaches one foot.

Standard procedures for maintenance of the stormwater drainage system are provided in Appendix B.

8.4 Landfill Gas

8.4.1 Monitoring

Landfill gas monitoring will be performed as outlined below.

- **Landfill Gas Management (LFG) System.** Monitoring for LFG shall be performed at 18 perimeter landfill gas monitoring wells on a quarterly basis. Standard procedures for monitoring are provided in Appendix B.
- **Soil Vapor Extraction (SVE) System.** Performance monitoring is required for the soil vapor extraction system adjacent to Dero Road at 9 soil gas observation probes. The requirements for monitoring are described in the Soil Vapor Extraction System Operation, Maintenance and Monitoring Plan (see Appendix E).

8.4.2 Inspection

The LFG monitoring wells and soil gas observation probes shall be inspected and documented on a quarterly basis, as described below:

- Surface monument (including lid, lock, casing, and concrete pad)
- Sample collection tubing and/or labcock valve
- Paint condition and wellhead identification
- Encroachment of vegetation

The condition of each monitoring well shall be documented in the Facility record. Standard procedures for inspection of LFG monitoring wells are provided in Appendix B. Standard procedures for inspection of the soil gas observation probes are provided in Appendix E.

8.4.3 Maintenance

Vegetation surrounding each well and along the access routes to each well shall be maintained at least monthly. Vegetation removal shall be conducted using appropriate equipment and/or hand tools. **Defoliants, herbicides, weed killers, gasoline, stump removers, and other chemicals shall not be used to control or remove vegetation**.

Standard procedures for maintenance are provided in Appendix B. Maintenance requirements related to the flare are provided in Appendix D.

8.5 Leachate Management System

8.5.1 Monitoring

The flow of leachate to GWA's sewer at the totalizer meter shall be read and recorded daily. In addition, the amount of rainfall and day-after discharge (to the GWA sewer) for rainfall events greater than or equal to three inches in 24-hours, shall be recorded as described in LCRS As-Built Design Capacity Evaluation (see Appendix C).

On a quarterly basis, a sample shall be collected from the leachate system as described in Standard Operating Procedures – Leachate Collection System (see Appendix C) and submitted to GWA.

Pump operability and liquid level in the leachate storage tanks may be monitored from a remote location via the Facility's SCADA system. Details about the SCADA system are in Standard Operating Procedures – Leachate Collection System (see Appendix C).

8.5.2 Inspection

The leachate management system requires daily inspections to assess conditions such as:

- Condition of pumps, piping, and appurtenances
- Condition of leachate storage tanks
- Liquid level in the leachate storage tanks
- Observation of the secondary containment area
- Flow meters

On a quarterly basis, visual observations of the entire LCRS including pipes, pumps, tanks, leachate manholes, and other system components shall be conducted. The presence of leachate seeps, obstructions, or vegetation inhibiting direct observation of the system components shall be recorded and addressed.

Details for the necessary inspections are provided in Standard Operating Procedures – Leachate Collection System (see Appendix C). The document also provides example report forms.

8.5.3 Maintenance

Maintenance of the leachate management system includes:

- Repairs to pipes and fittings that are leaking or broken
- Cleaning of leachate collection pipes, manholes, and sumps
- Cleaning of leachate storage tanks
- Cleaning of leachate pumps and force-main
- Calibration of the leachate flowmeter

Details for maintenance are provided in Standard Operating Procedures – Leachate Collection System (see Appendix C).

8.5.4 Storm Planning and Response

Pre-storm planning and post-storm response are critical elements in the operation of the leachate management system. When a Condition of Readiness (COR) III has been declared or there is a weather forecast for rainfall greater than three inches in 24 hours, pre-storm planning and preparations as indicated in the LCRS Operations and Management Contingency Plan for Storms (see Appendix C) must be implemented.

Pre-storm planning and preparation includes:

- Assessment and management of the liquid inventory in the leachate storage tanks.
- Verification that necessary valves are open for operation and pump operability.
- Removal of liquids from the secondary containment.
- Flushing of force-main, as necessary, to maintain pumping rates.
- Verification of the generator fuel level.
- Verification of the operability and accessibility of the SCADA system.

In addition to the above preparations, coordination with the subcontractor for pumping services is needed to ensure readiness to manage liquids, as necessary.

After the storm, when deemed safe and COR returns to Condition IV, a post-storm inspection of the Facility shall be conducted to record conditions, restore normal operations, develop incident reports, and coordinate repairs, if necessary. The following activities should be part of a post-storm response:

- Post-storm site inspection and preparation of post-storm report.
- Preparation of incident reports for any spills or releases.
- Assessment of system operations.
- Restoration of normal system operations to the extent possible.
- Coordination of system repairs and clean-up, as deemed necessary.

8.6 Site Security

8.6.1 Inspection

On a quarterly basis, comprehensive inspection of site security elements, including the perimeter fence, lighting, gates, and locks shall be conducted. Condition and integrity of the fence, presence of signage, damage from weather, earthquakes, plants, and animals, and evidence of vandalism shall be noted. The gates and locks shall be inspected and tested for proper operation.

Standard procedures for inspection of the perimeter fence are provided in Appendix B.

8.6.2 Maintenance

Damaged perimeter fence, gates and locks must be repaired and/or replaced. Maintenance includes control and management of vegetation or growth on or at either side of the fence. A firebreak, 50 feet in width, should be maintained along the perimeter of the Facility. Centering of the firebreak to the fence is not needed, where the terrain outside of the fence does not allow for it. Clearance on either side the fence should be sufficiently maintained to prevent tree fall damage.

Facility signs shall be repainted or replaced, as necessary to maintain visibility.

Standard procedures for maintenance of the perimeter fence are provided in Appendix B.

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Section 9

Post-Closure Reporting Requirements

Table 9-1 provides a list of reports required during the post-closure care period of the Facility.

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Section 10

Post-Closure Cost Estimate

Table 10-1 provides a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care in accordance with the PCCP, as required by GARR Title 22 §23703(a). The cost estimate is based on actual costs incurred for post-closure care activities being conducted at the Facility updated for final activities required by the PCCP.

Table 10-1 includes specific line item cost estimates and subtotals by activity category (e.g., site security, final cover maintenance, groundwater monitoring program, etc.). Additionally, it includes cost estimates for related GSWA direct pay items which include technical support to GEPA, electric power, Trustee costs, property insurance, performance bond, permit fees, and general administration. Rationale and assumptions for the cost estimates are provided by line item in the footnotes. Supporting assumptions are provided in Appendix L.

The total annual cost estimate (in 2021 dollars) is $1,146,295. Financial assurance is required to cover the annual cost estimate multiplied by the remaining years required for post-closure care. It is assumed that since final closure was completed 5.8 years of post-closure care has been conducted. Therefore, the multiplier required is 24.2 (30 – 5.8 years) and the required financial assurances for remaining post-closure care is $27,740,327.

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Section 11

Financial Assurance Mechanism

Post-closure care financial assurances will be updated annually for inflation based on the annual Implicit Price Deflator for Gross National Product as published annually by the U.S. Department of Commerce in its Survey of Current Business. Additionally, the cost estimate will be updated on a minimum 5-year basis for the GEPA Permit review to account for potential changes in equipment and labor rates, subcontractor bids, and changes in post-closure care activities.

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Section 12

Professional Certification

Section 23602(e) of Title 22, Division 4, Chapter 23, Article 6 of the GEPA regulations requires that following completion of the post-closure care period for the Facility, the Owner must notify the GEPA Administrator that a certification, signed by an independent registered professional engineer and approved by the Administrator, verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record. The independent registered engineer must be a third-party and may not be an employee of the Owner, the GSWA, or GovGuam. This certification will be submitted to GEPA for documentation under the Facility's Post-Closure Care Operating Permit record.

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