Pasco Sanitary Landfill NPL Site

Zone A Removal Action Engineering Design Report

Appendix D Control Plans

FINAL

Pasco Sanitary Landfill NPL Site

Zone A Removal Action
Engineering Design Report

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Appendix D.1
Zone A Removal Action
Stormwater Runoff Management Plan

FINAL

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List of Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
BMP	Best management practice
CAP	C*leanup Action Plan – Pasco Landfill NPL Site*
CESCL	Certified Erosion and Sediment Control Lead
COC	Contaminant of concern
CSGP	Construction Stormwater General Permit
Ecology	Washington State Department of Ecology
EDR	Zone A Removal Action Engineering Design Report
ESC	Erosion and sediment control
°F	Degrees Fahrenheit
GC	General Contractor
GCL	Geosynthetic clay liner
HDPE	High-density polyethylene
IWAG	Industrial Waste Area Generators Group III
MSW	Municipal solid waste
MTCA	Model Toxics Control Act
NPL	National Priorities List

Acronym/ Abbreviation	Definition
RCRA	Resource Conservation and Recovery Act
RE	Resident Engineer
Site	Pasco Sanitary Landfill National Priorities List Site
SOW	Scope of Work and Schedule
SVOC	Semivolatile organic compound
SWMMEW	*Stormwater Management Manual for Eastern Washington*
SWRMP	Zone A Removal Action Stormwater Runoff Management Plan
VOC	Volatile organic compound
WTP	Wastewater Treatment Plant
Zone A	Industrial Waste Area Zone A

1.0 Introduction

This Zone A Removal Action Stormwater Runoff Management Plan (SWRMP) describes the management of stormwater during construction activities for the Industrial Waste Area Zone A (Zone A) at the Pasco Sanitary Landfill National Priorities List (NPL) Site (Site). The requirements set forth in the Construction Stormwater Pollution Prevention section of the *Stormwater Management Manual for Eastern Washington* (SWMMEW; Ecology 2019) were used as guidance in preparing this SWRMP along with other applicable or relevant and appropriate requirements.

This SWRMP has been prepared for the Washington State Department of Ecology (Ecology) on behalf of the Industrial Waste Area Generators Group III (IWAG) to fulfill the requirements of Agreed Order No. DE 9240 and the C*leanup Action Plan – Pasco Landfill NPL Site* (CAP), prepared by Ecology and dated August 2019. The SWRMP is required as part of the Scope of Work and Schedule (SOW) in Exhibit C of the CAP. The SWRMP is part of Task A.1 Zone A Removal Action Engineering Design Report (EDR) Subtask A Drum Waste/Mixed Debris/Soil Excavation and Backfilling.

The Zone A Removal Action is being implemented as a Model Toxics Control Act (MTCA) remedial action with Ecology oversight. Therefore, the project is not required to obtain a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (CSGP), administered by Ecology, but is required to comply with the substantive requirements of a CSGP. Project construction activities will not result in any discharges to waters of the state; however, the extent of the Zone A Removal Action and excavation is greater than 1 acre. Projects that disturb an area of 1 acre or larger must have site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL).

Project planning and coordination is ongoing between members of the IWAG project team and local governments, including the City of Pasco and Franklin County. The City of Pasco may require a Stormwater Plan and Issuance of a Stormwater Construction Permit per Pasco Municipal Code Section 13.80.100. If required by the City of Pasco, this permit will be obtained by the general contractor selected to perform the removal action (General Contractor; GC) along with other applicable municipal permits identified for this project.

This SWRMP is considered a living document. The GC will be responsible for updating this SWRMP prior to mobilization to identify project personnel. As work progresses, the SWRMP will be modified routinely by the GC to reflect changing conditions. The CESCL will inspect best management practices (BMPs) on a regular schedule. The CESCL may be part of IWAG's Resident Engineer (RE) or alternatively may be part of the GC's team. Repairs will be made by the GC as needed. Monitoring and implementation of BMPs will be conducted to ensure that stormwater from the Site is managed in substantial compliance with state and local rules and general provisions of the CSGP.

1.1 PURPOSE

This SWRMP addresses the management of stormwater runoff and identifies the BMPs planned for preventing contaminated soils at the Site from entering the stormwater drainage systems. On construction sites that infiltrate all stormwater runoff, the primary concern in the preparation of

the construction SWRMP is the protection of groundwater from other pollutants. The stormwater controls identified herein have been developed to minimize potential impacts to groundwater during implementation of the Zone A Removal Action and will additionally serve to minimize fugitive dust emissions from the construction project.

In addition to these BMPs, an Incident Spill Response Plan is provided as Attachment D.1.1 and will be updated by the GC prior to mobilization to detail how to prevent spills of petroleum products or hazardous materials and provide efficient and timely cleanup if a spill occurs during the remedial action construction activities. If the GC requires more than 1,320 gallons of fuel storage on site, they will prepare a Spill Prevention, Control, and Countermeasure Plan to meet the requirements described in 40 CFR 112.

1.2 WORK PLAN ORGANIZATION

This SWRMP is divided into the following main sections:

- **Section 1.0—Introduction.** This section describes the objectives and organization of the SWRMP.
- **Section 2.0—Work Area Description.** This section describes the project background, existing conditions in the work area, and construction activities.
- **Section 3.0—Construction Stormwater Best Management Practices.** This section details the BMPs to be implemented based on the 13 required elements in the SWMMEW.
- **Section 4.0—Construction Phasing and Best Management Practice Implementation.** This section describes the timing of the BMP implementation in relation to the project schedule.
- **Section 5.0—Pollution Prevention Team.** This section identifies the appropriate contacts (emergency and non-emergency), monitoring personnel, and an onsite temporary erosion and sediment control (ESC) inspector.
- **Section 6.0—Site Inspection Requirements.** This section describes the requirements for site inspections, including frequencies, and methods.
- **Section 7.0—Reporting and Record Keeping.** This section describes the requirements for documentation of the BMP implementation, site inspections, and changes to the implementation of certain BMPs necessitated by construction activities. It also describes notification procedures in the event of a discharge from the work area.
- **Section 8.0—References.** This section includes all reference material cited in this document.

Supporting documentation and the site inspection form are provided in the Attachment D.1.1 and Attachment D.1.2, respectively.

2.0 Work Area Description

The project area is located along the northeast limit of the City of Pasco, in Franklin County, Washington. The location of the entire Site, including the Groundwater Protection Area, is shown on Figure D.1.1.

The planned removal action will take place within the defined limits of the Zone A. Support and staging areas for the removal action are anticipated to be located in areas adjacent to Zone A within the Site. The preliminary site layout plan is shown in Sheet 6 in Appendix E.

2.1 PRECIPITATION DATA

The Site is located in an arid region of the Columbia Plateau that is surrounded on the west, north, and northeast by mountain ranges. The Cascade Mountains to the west shield the region from the moist and relatively mild air of the Pacific Ocean, and the northern stretches of the Rocky Mountains in Canada provide a barrier to the southward-moving arctic air. Annual precipitation in the Pasco Basin ranges from approximately 4 to 13 inches, with mean precipitation of approximately 7.5 inches. Winter snowfall averages about 14 inches annually.

The Pasco Tri-Cities Airport climate station (National Weather Service station ID KPSC) has been used for continuous local weather data courtesy of the National Weather Service and is located approximately 2.5 miles from the Site. Based on long-term data from KPSC, the following weather conditions have been observed:

- Monthly precipitation ranges from 0.24 inches in August to 1.42 inches in December.
- Average high temperatures range from 40 degrees Fahrenheit (°F) in December to 92 °F in July.
- Average low temperatures range from 28 °F in December to 58 °F in July.
- Average winds range from 5 to 8 miles per hour. Maximum winds range from 11 to 16 miles per hour. Gusts of greater than 25 miles per hour have been observed with large storm events.
- Winds are typically out of the northwest or southwest.
- Barometric pressure averages 30 inches mercury and ranges from 29 to 31 inches mercury. Barometric pressure changes are greatest in November and December, coinciding with large storm events.

According to the SWMMEW, the precipitation in Pasco during 24-hour rainfall events ranges from 0.95 inches for a 2-year mean recurrence interval to 2.28 inches for a 100-year mean recurrence interval and typically occurs during thunderstorms between April and October. According to the nearest Washington State University agricultural weather station (CBC Pasco), the potential evapotranspiration ranges from 0.55 inch in December to 7.75 inches in July.

2.2 EXISTING CONDITIONS IN THE ZONE A WORK AREA

Zone A consists of an approximately 1.6-acre area that received drummed industrial wastes from approximately 1972 through April 1975. The Zone A cell was placed on reworked native soils, some of which included burned municipal waste. The total number of drums placed in Zone A is estimated at about 35,000. It is anticipated that the drummed wastes were initially placed in an unstacked manner and were later stacked and covered. No leachate collection or control system was constructed beneath Zone A. A general site representation of Zone A is indicated in Sheets 6 and 8 in Appendix E.

Currently, an engineered cap compliant with the requirements of the Resource Conservation and Recovery Act (RCRA; i.e., RCRA Subtitle-C-compliant engineered cap) is in place over Zone A. The cap consists of a vegetative layer, geotextile layer, drainage layer, geomembrane, geosynthetic clay liner (GCL), engineered fill, and a geogrid. The cap directs precipitation and runoff into two evaporation basins located on the eastern and western sides of the cap. Surface depressions on the Zone A cap caused by settlement adversely impact the original design function of stormwater runoff. Water accumulates in two localized depressions and must be pumped out. There are two closed depressions present in the surface of the Zone A cover; they are referred to as the northern and southern depressions. The northern depression has two distinct areas within the depression. Sheets 6 and 8 in Appendix E depicts the general plan view of Zone A identifying topographical contours and site features. The landfill cover on Zone A consists of the following components beginning from the top of the zone and continuing downward to the waste itself:

- Vegetative soil layer
- Geotextile
- Drainage layer
- Geomembrane layer
- GCL
- Engineered fill
- Geogrid
- Fill
- Visqueen cover
- Soil cover

Currently, two evaporation basins collect precipitation that runs off the cover soil surface, is pumped from the localized depressions, or has percolated through vegetative cover soils onto the high-density polyethylene (HDPE) geomembrane layer and has followed the drainage layer to the evaporation basin. The basins are lined with a composite system that is an extension of the geomembrane and GCL components of the cover system. The west evaporation basin for Zone A is also underlain by geosynthetic reinforcement.

There are no surface water hydrologic features in the vicinity of the Site. The closest surface water bodies are the Snake River and the Columbia River, located approximately 2.6 miles southeast and south, respectively, of Zone A.

2.3 PROPOSED CONSTRUCTION ACTIVITIES

The planned construction activities addressed under this SWRMP are summarized in this section, with additional details provided in the EDR. Stormwater ESCs are described in Section 3.0.

The drum removal action will take place within Zone A, and adjacent areas of the property will be used for access and staging in support of the removal activities, as indicated on Sheet 6 in Appendix E. Temporary access roads will be constructed into Zone A and between the various staging and support zones that the GC will use to execute the work, maximizing use of existing access roads.

The scope of work for the Zone A Removal Action generally includes the following elements:

1. Mobilization of equipment and crews to the job site, including constructing site staging and access areas.
2. Removal of the Zone A cover system components above the existing geomembrane and GCL. The anticipated lateral extent of excavation is shown in Sheet 7 in Appendix E.
3. Systematic removal of the existing geomembrane and GCL, which serves as a vapor barrier for Zone A.
4. Removal of the engineered soil fill located below the existing geomembrane and within the lateral limits of excavation.
5. Construction of a working platform consisting of 8-millimeter polyethylene sheeting overlain by geogrid and 1 foot of compacted gravel will then be placed in order to provide a stable foundation for the temporary structure, and to limit vapor emissions from the excavation, aid in odor control, and restrict infiltration of precipitation into areas of Zone A outside the temporary structure.
6. Excavation of Zone A and management of contaminated materials. This work will include the following elements:
    A. Installation of a temporary moveable engineered structure with air quality controls to enclose removal action excavations.
    B. Excavation in support of the Zone A Removal Action will occur inside the temporary structure. This will significantly reduce the possibility of stormwater coming into contact with potentially contaminated material.
    C. Activities currently planned to take place outside the temporary structure include stockpiling and management of materials that are to be returned to Zone A; temporary waste handling and container management in designated areas; and loading and transport of wastes to approved offsite treatment, storage, and disposal facilities (TSDFs).

i. The Container Management Area (CMA), was designed and will function as secondary containment for temporary accumulation of containerized wastes. The CMA was designed in accordance with WAC 173-303-630(7). The CMA pad was designed to hold the additional volume that would result from a 25-year storm of 24-hour duration. In addition, as required by WAC 173-303-630(7)(a)(iii), the CMA pad was designed to hold 10% of the volume of all containers holding free liquids or the volume of the largest container, whichever is greater.

   The CMA includes an impervious surface layer (asphalt), a subsurface liner, curbing, a sloped surface, and drainage to a collection sump that will prevent any releases from the CMA (refer to Sheet 14 in Appendix E). Stormwater will be collected in the sump and will be pumped from the sump to a holding tank and then routed to the onsite water treatment plant for treatment (as needed) prior to offsite disposal or onsite reuse. Refer to Section 3.1.6.3 for analytical testing requirements for onsite reuse or offsite disposal of water from the wastewater treatment plant.

   In the unlikely event that materials enter the sump due to a spill or leak, the materials will be collected and re-containerized along with any response materials that were used during response activities (refer to Attachment D.1.1).

ii. Decontamination pads (refer to Sheets 6 and 17 in Appendix E) were designed to manage wet decontamination methods (when used) and will consist of a 40-millimeter HDPE geomembrane-lined gravel pad, containment berms or sidewalls, and drainage controls/grading to a HDPE-lined collection sump that will be located at a central collection point adjacent to the decontamination pad. Stormwater and wash water will be pumped from the sump to a holding tank and then routed to the onsite water treatment plant for treatment (as needed) prior to offsite disposal or onsite reuse. Refer to Section 3.1.6.3 for analytical testing requirements for onsite reuse or offsite disposal of water from the wastewater treatment plant.

7. Placement and compaction of excavated contaminated media and mixed debris that do not require removal for offsite treatment and/or disposal back into the Zone A hole.
8. Backfill of the excavation area.
9. Site restoration. This work includes the following:
   A. Construction of temporary low permeability cover (anticipated to consist of asphalt or concrete) to prepare Zone A for subsequent in situ thermal treatment.
   B. Potential application of additional suitable non-impacted soil material over adjacent municipal solid waste (MSW) disposal areas (mixed debris waste disposal area, Balefill Area, and/or Inert Waste Disposal Area) to satisfy minimum cover system requirements.
10. Characterization of remaining Zone A materials and underlying soils. This work will occur prior to in situ treatment.

11. Demobilization of all equipment. This work will include appropriate decontamination.

The Zone A Removal Action (items 1–10 above) is to be conducted over an approximate 14- to 16-month period, anticipated to begin in summer or fall 2020.

2.4 SUMMARY OF ZONE A AND STORMWATER DRAINAGE DETAILS

A summary of Zone A and stormwater drainage is presented in Table D.1.1.

Table D.1.1
Summary of Site Area and Stormwater Drainage Details

Parameter	Description
Total acreage	The Zone A fenced area is 3.0 acres. Additional acreage for areas including support activities such as offsite equipment staging yards, material storage areas, and borrow areas will be determined by the GC based on staging requirements.
Disturbed acreage	Up to 2.0 acres within the Zone A geomembrane area.
Existing structures	None.
Landscape topography	Gently rolling to flat.
Drainage patterns	Currently Zone A is covered with an engineered landfill cap. Stormwater that falls on the cap is routed to two evaporation basins. The majority of the adjacent areas are vegetated, and stormwater is allowed to infiltrate.
Existing vegetation	Native grasses and vegetation.
Critical areas	Not present. This includes wetlands, streams, high erosion risk, and steep or difficult to stabilize slopes.

Site contaminants of concern (COCs) are described In Section 3.0 of the EDR.

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3.0 Construction Stormwater Best Management Practices

The GC responsible for finalizing this SWRMP may modify the planned BMPs shown on the drawings and described in this section or replace them with equivalent BMPs, based on the planned construction methods. The currently planned Site-specific BMPs are identified in Sections 3.1.1 through 3.1.8.

BMPs presented herein are consistent with SWMMEW (Ecology 2019) for sites east of the crest of the Cascade Mountains. The corresponding Ecology source control, runoff conveyance, and treatment BMP cut sheets are available in Chapter 7, Sections 7.3.1 and 7.3.2 of the SWMMEW (Ecology 2019), which may be accessed at the following link:

https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMEW/2019SWMMEW.htm

This SWRMP should be considered a living document that reflects current conditions and changes throughout the life of the project. These changes may be informal (e.g., handwritten notes and deletions). The SWRMP will be updated when the CESCL has noted a deficiency in the selected BMPs and an alternative is required, or when implemented BMPs deviate from the original design.

3.1 THE 13 ELEMENTS

The 13 elements of the SWMMEW were reviewed for their applicability to the project. In accordance with the SWMMEW, each of the 13 elements must be considered and included in Construction Stormwater Plans unless site conditions render the element unnecessary and the exemption from the element is clearly justified in the site narrative. The following elements were not deemed applicable to this project and area therefore not further discussed.

- **Element 3: Control Flow Rates.** Controls for flow rates are not anticipated to be needed because the grade of the areas surrounding Zone A are vegetated and relatively flat.
- **Element 7: Protect Drain Inlets.** Drain elements are not present within the work area or surrounding areas.
- **Element 8: Stabilize Channels and Outlets.** Channels and outlets are not required for construction and are not currently present within the work area or surrounding areas.
- **Element 10: Control Dewatering.** Soil excavations in support of the planned Zone A Removal Action will not be deep enough to encounter groundwater. Therefore, groundwater dewatering of excavations will not be required.
- **Element 13: Protect Low Impact Development BMPs (Infiltration BMPs).** Low impact developments are not present within the work area.

A discussion of the retained applicable elements is presented in the proceeding sections. As discussed in Section 3.0, the GC will have flexibility in selecting appropriate BMPs to implement

each element. Suggested BMPs for the site are identified under each element. Appendix A of the EDR contains BMP cut sheets as a quick reference tool for the GC and onsite inspector if the suggested BMPs in the following sections are deemed ineffective or inappropriate to satisfy the substantive requirements of a CSGP.

3.1.1 Element 1: Mark Clearing Limits

The BMPs relevant to marking the construction limits that will be applied to this project include the following:

- BMP C101E: Preserving Natural Vegetation
- BMP C102: Buffer Zones
- BMP C103: High-Visibility Fence

To protect the environment and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. As part of site mobilization, engineering surveys and staking will be performed to identify the Zone A excavation limits, as well as to demark the support areas located outside Zone A. Support and access areas for the removal action are shown on Sheet 6 in Appendix E and are anticipated to include the following elements:

- Fencing modifications
- Installation of construction trailers and an onsite HazCat laboratory
- Gravel access roads and parking areas
- Waste handling and container management areas
- Soil stockpile areas
- Perimeter air monitoring stations
- Decontamination pad and other installed spill and stormwater controls identified for the work

The Zone A area is currently fenced and access to that area and active areas of the excavation will be controlled throughout the project removal action. Construction access and staging will occur on the mixed waste area immediately north and northeast of Zone A. Limited construction activity for access and staging may additionally occur on the Balefill Area and Inert Waste Disposal Area. High-visibility fencing may be placed around all or portions of the existing soil cap in areas that will not be used by the GC as a visual indicator to restrict heavy equipment in these areas and to preserve vegetation and topsoil outside the delineated work area. Following the Zone A Removal Action, and consistent with the SOW for the adjacent MSW disposal areas (Balefill Area and Inert Waste Disposal Area), the soil cover thickness over these areas will be investigated and additional soil material will be applied to satisfy minimum cover system requirements.

No Zone A Removal Action activity will occur inside the fenced areas for the MSW landfill, or Zones B, C/D, or E landfill or on their engineered cover systems. Currently the engineered caps are fenced, which will prevent heavy equipment from accessing these areas.

3.1.2 Element 2: Establish Construction Access

The specific BMPs related to establishing construction access that will be applied to this project include the following:

- BMP C105: Stabilized Construction Entrance
- BMP C107: Construction Road/Parking Area Stabilization
- BMP C140E: Dust Control

The current preliminary construction layout includes two entrances along Dietrich Road. All vehicles will access Zone A from Dietrich Road. The interior access roads will be constructed and stabilized with a layer of aggregate or gravel base before remedial action construction begins. These improved surfaces will provide trucking and equipment access to Zone A and the various material staging and management areas and support areas (Sheet 6 in Appendix E). The access roads from Zone A, both to the south and to the CMA will be removed, as well as 4 inches of underlying soil, following completion of the removal action.

The GC shall construct stabilized construction entrances with ramps at the access point to Zone A and at the exit of the temporary structure. Trucks and equipment exiting these areas will be routed through these controls to allow for removal of adhered soils from equipment immediately prior to exiting active areas of Zone A. The temporary structure will be installed and then sequentially relocated to three additional positions as the excavation progresses. Some locations for the engineered structure may necessitate the installation of additional access roads. Stabilized construction entrances will additionally be required along Dietrich Road for trucks and equipment exiting the site.

Any stabilization or decontamination equipment that is installed will be available on site for the duration of the construction work, with the methods of stabilization and decontamination determined by the GC.

3.1.3 Element 4: Install Sediment Controls

Temporary ESCs will be implemented around the construction areas. The following additional specific BMPs are expected to be used to control stormwater runon/runoff where needed:

- BMP C235: Straw Wattles
- BMP C233E: Silt Fence
- BMP C123: Plastic Sheeting

In general, the area of soil disturbance from removal of the Zone A cover system will be maintained and graded as needed to allow infiltration of stormwater that falls within this area. Removal of the Zone A cover system will lower the grade of Zone A to that of the surrounding areas.

Active areas of the removal action will take place within the temporary structure and will not be exposed to stormwater. Following excavation within the temporary structure, the Zone A excavation area will be backfilled with stockpiled engineered soil fill, or other approved offsite fill material, to interim grades including grading and compaction. Therefore, sediment controls in these areas are expected to be minimal.

Stormwater will not be permitted to come in contact with contaminated material staged on site. Contaminated materials designated for offsite disposal will be containerized in overpacks or roll-off bins equipped with rain covers. Contaminated soils generated during the drum removal activities will be managed in the temporary structure. Temporary stockpiles will be constructed for the general and engineered fill removed from the Zone A cap that does not require removal off site and that will be returned to Zone A during backfill and restoration activities. Stockpiled materials will be managed within berms such as wattles or hay bales and will be managed with an appropriate cover system to minimize entrainment of soil in the air.

3.1.4 Element 5: Stabilize Soils

The Site is located in an area with a mean precipitation of less than 12 inches. To prevent erosion, the SWMMEW indicates that exposed and unworked soils should be stabilized within the following time frame:

- During the dry season (July 1 through September 30): within 30 days
- During the regional wet season (October 1 through June 30): within 15 days
- Prior to a holiday, weekend, or end of a shift: if precipitation is indicated in the weather forecast.

The greatest potential for soil erosion, particularly in the dry climate of eastern Washington, is during summer thunderstorms. Soil stabilization measures used will be appropriate for the site conditions, time of year, estimated duration of use, and potential water quality impacts that stabilization agents may have on downstream waters or groundwater.

The specific BMPs for soil stabilization that may be used on this project include the following:

- BMP C123E: Plastic Covering
- BMP C125E: Topsoiling
- BMP C126E: Polyacrylamide (PAM) for Soil Erosion Protection
- BMP C140E: Dust Control
- BMP C150E: Materials on Hand

The GC and the RE will choose one or more of these BMPs based on the time of year, the site conditions, and the estimated duration of work activities. Alternative soil stabilization BMPs are included in Appendix A of the EDR as a quick reference tool for the onsite inspector if, during construction, the BMPs in the previous list are deemed ineffective. These controls will also serve to reduce dust generation. To avoid potential ESC issues, the CESCL will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix A of the EDR after the first sign that the existing BMPs are ineffective or failing.

Gravel bases that may be used by the GC to construct temporary access roads or as surfacing in staging areas should be clean and free of fines. The GC will keep all heavy equipment off existing soils with caps adjacent to temporary access roads to retain the infiltration rate of the soils.

Soil layers of the Zone A cover system will be removed from Zone A and stockpiled on site for later reuse. Engineered fill material removed from beneath the existing geomembrane will be stockpiled and managed separately from the cover soil found above the geomembrane. All stockpiled soils will be stabilized to prevent erosion and protected with sediment trapping measures. In areas of the site outside of the Zone A excavation limits, all stockpiled soils and cover materials will be covered with 10-millimeter plastic sheeting or treated with a soil-encrusting agent (e.g., Gorilla-Snot®) to prevent erosion and protected with sediment-trapping measures, such as straw wattles or silt fencing.

Non-soil components of the cover system (i.e., geotextile, geomembrane, and the GCL) may be staged on site within bermed areas or directly loaded into trucks for offsite disposal at a subtitle D disposal facility. The GC may choose to reuse these materials on site for stockpile coverage or other appropriate use, following approval from the RE.

Long-duration soil stabilization measures will be selected by the GC and installed and maintained within the Zone A work area. Following removal of the existing Zone A cover system and engineered fill, the temporary structure will be placed and will eliminate stormwater contact with the active face of the drum removal area.

It is anticipated that most of the temporary access road improvements will be utilized for future phases of work. After completion of the removal action, any surfacing improvements for staging areas that are not required for future phases of work may be left in place upon approval of the property owner. Additional soil material added to soil covers will be left in place and potentially graded and seeded. If impacts to the existing cover function are observed in staging areas or elsewhere, the GC will be responsible for restoring them to their previous function. This could additionally include potential application of additional soil material over adjacent MSW disposal areas (mixed debris waste disposal area, Balefill Area, and/or Inert Waste Disposal Area) to satisfy minimum cover system requirements.

In Zone A, the final surfacing for the interim cover will be constructed of a low permeability asphalt or concrete surface with grading to support stormwater management and stormwater controls. Vegetated cover for the final cover is anticipated as part of a future phase of work.

3.1.5 Element 6: Protect Slopes

All cut-and-fill slopes will be designed, constructed, and protected in a manner that minimizes erosion. The following specific BMPs may be used to protect slopes for this project:

- BMP C150E: Materials on Hand
- BMP C123E: Plastic Covering

In general, the areas surrounding Zone A are vegetated and relatively flat. Removal of the Zone A cover system will lower the grade of Zone A to that of the surrounding areas. The final interim cover elevation will be determined in the field as the work progresses. If slopes are required, a 3-foot horizontal to 1-foot vertical (3H:1V) grade is generally anticipated. The existing soil bentonite slurry wall at the north end of the excavation wall will be protected during construction, but the top may be lowered to match surrounding grades and maintain slopes.

Slopes in the active excavation area will be constructed under cover of the temporary building and will not be in contact with stormwater. Therefore, any slopes constructed within the temporary structure are not relevant to the SWRMP but will be engineered for safety and stability (generally anticipated a 1H:1V grade). Where these slopes cannot be achieved, the additional needs for sheet pile wall or other suitable shoring method will be determined by the GC and the RE during construction.

3.1.6 Element 9: Control Pollutants

All pollutants, including contaminated waste material or construction debris, that are released on site will be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventive measures will be implemented to ensure that the site is kept clean, well-organized, and free of debris. Refer to the Incidental Spill Response Plan (Attachment D.1.1) for details of the storage and handling of oil and chemical products. If required, BMPs will be implemented to control the following potential sources of pollutants: excavated industrial waste, chemicals associated with vehicle maintenance and repair, wastewater, and contaminated surface water. Additional source controls and BMPs for Site-related COCs are included in the Dust Vapor and Odor Control Plan and the Waste Management Plan of the EDR.

The following specific BMPs may be used to control pollutants for this project:

- BMP C153: Material Delivery, Storage, and Containment
- BMP C151: Concrete Handling
- BMP C154: Concrete Washout Area
- BMP C250E: Construction Stormwater Chemical Treatment

3.1.6.1 Chemicals Associated with Vehicle Maintenance and Repair

- All onsite fuel storage tanks will have secondary containment.
- All vehicles and construction equipment will be regularly inspected to detect any problems and to identify maintenance needs to prevent leaks or spills.

- Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.
- When performing emergency repairs, temporary bermed plastic containment will be placed beneath vehicles, and if raining, plastic will be placed over the vehicle.
- Contaminated surfaces will be immediately cleaned after any discharge or spill incident.
- The provisions of the Incident Spill Response Plan provided in Attachment D.1.1 will be followed.

3.1.6.2 Sanitation Wastewater

- Portable sanitation facilities will be firmly secured, regularly maintained, and emptied by vacuum trucks.

3.1.6.3 Contaminated Wash Water or Surface Water

- Contaminated wash water that is generated from wet decontamination activities[1] conducted on decontamination pads described in Section 2.3 (refer to Sheets 6 and 17 in Appendix E for the two pad locations) will be collected, containerized, and treated on site, as needed, for subsequent offsite disposal or onsite recycled water reuse.
- Stormwater that is collected from the CMA sump and the two decontamination pad sumps described in Section 2.3 will also be collected, containerized, and treated on site, as needed, for subsequent offsite disposal or onsite recycled water reuse.
- The GC will have a water treatment plant on site for the treatment of wash water and stormwater that, at a minimum, will include reduction of solids and polishing with granular activated carbon (refer to Sheet 18 in Appendix E for water treatment plant details). Additional treatment components may be added to the system as necessary to comply with offsite treatment or disposal facility requirements or onsite recycled water reuse. Specific design, operation, and testing requirements for the water treatment plant will be provided by the GC to the design team as part of the construction submittal process.
- Water will be analytically tested to ensure suitability for disposal at an offsite disposal facility or the City of Pasco Wastewater Treatment Plant (WTP), or for reuse on site. Specific analytical methods and limits for offsite disposal will be determined by the receiving facility. For example, based on the recent disposal of purge water from routine Site-wide groundwater monitoring at the City of Pasco WTP and City of Pasco

[1] Dry decontamination methods (such as scraping and brushing) are preferred for truck and equipment decontamination and will be used to the extent practicable.

Municipal Code 13.75.030 Septage requirements, the following analytical testing is anticipated to be required:

- Volatile organic compounds (VOCs) by USEPA Method 8260C (full scan; no SIM)
- Soluble biological oxygen demand by Standard Method 5210B
- Total suspended solids by Standard Method 2540D
- Metals including chromium, copper, lead, molybdenum, nickel, and zinc by USEPA Method 200.8 and mercury by USEPA Method 245.1

Analytical results will be provided to the City of Pasco, or other offsite treatment or disposal facility, for approval prior to disposal.

- For onsite reuse of treated water, the following analytical testing will be conducted:
  - VOCs by USEPA Method 8260C
  - Semivolatile organic compounds (SVOCs) by USEPA Method 8270
  - Total petroleum hydrocarbons by NW-HCID
  - Metals including chromium, copper, lead, nickel, and zinc by USEPA Method 200.8 and mercury by USEPA Method 245.1

The results of analytical testing will be reviewed by the RE prior to onsite recycled water reuse to ensure compliance with the Site-specific CULs and MTCA Method B screening levels for VOCs, SVOCs, and metals and MTCA Method A screening level for total petroleum hydrocarbons.

3.1.7 Element 11: Maintain BMPs

All temporary and permanent ESC BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (refer to Chapter 7 of the SWMMEW; Ecology 2019).

Visual monitoring of all BMPs installed at the Site will be conducted at least once every calendar week and within 24 hours of any stormwater or non-stormwater discharge from the work area. If the work area becomes inactive and is temporarily stabilized, the inspection frequency may be reduced to once every calendar month.

All temporary ESC BMPs shall be removed within 30 days after final restoration is achieved or after the temporary BMPs are no longer needed. Trapped sediment will be managed on site or removed.

Additionally, protection must be provided for all permanent BMPs installed for the control of stormwater from sediment and compaction. Permanent BMPs that were removed or destroyed during construction activities will be replaced or an appropriate alternative will be developed as part of the interim cover design. Undisturbed permanent BMPs (if any) will be inspected following

completion of construction and restored to full operating condition. If sediment enters these BMPs during construction, the sediment shall be removed, and the facility shall be returned to previous conditions.

3.1.8 Element 12: Manage the Project

The construction will be managed in accordance with the following key project components:

- Once earthwork/excavation is completed in any area, the exposed soil in this area will be directly stabilized per BMP C162E (Scheduling).
- Inspection and monitoring:
  - Inspection of BMPs will be conducted by a person knowledgeable in the principles and practices of ESC.
  - Inspection, maintenance, and repair of all BMPs will occur as needed to ensure performance of their intended function.
  - Whenever inspection and/or monitoring indicates that the BMPs identified in this SWRMP are inadequate, appropriate BMPs or design changes will be implemented as soon as possible.
- The SWRMP will be retained on site.
- If an inspection indicates that the SWRMP is ineffective in achieving zero discharge from disturbed areas or in eliminating or significantly minimizing pollutants in stormwater discharges from the construction site, this SWRMP shall be modified as necessary within 7 days of the inspection to include additional or modified BMPs designed to correct the identified problems.

As work progresses, the SWRMP will be modified routinely to reflect changing conditions. The SWRMP will be reviewed monthly to ensure that the content is current.

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4.0 Construction Phasing and Best Management Practice Implementation

The implementation schedule for the BMPs will be driven by the construction schedule, which will be developed in detail following Ecology approval of the final EDR and Notice to Proceed. This section serves as a placeholder for a sequential list of the proposed construction schedule milestones and the corresponding BMP implementation schedule to be prepared by the GC and updated prior to mobilization to the Site.

The GC will revise this SWRMP to provide a BMP implementation schedule in this section keyed to proposed phases of the construction project and will reflect differences in BMP installations and inspections that relate to wet season construction. Because the Site is located in the Central Basin, East of the Cascade Mountain crest, the dry season is typically from July 1 to September 30, and the wet season is typically from October 1 to June 30.

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5.0 Pollution Prevention Team

The names and contact information for individuals identified as members of the pollution prevention team are provided in Table D.1.2. These designated personnel will be responsible for assigning their project responsibilities to a qualified and competent person at times when they may be unavailable. The individuals that will form the Pollution Prevention Team will be identified prior to the start of construction and Table D.1.2 will be updated.

Table D.1.2
Contact Information for Pollution Prevention Team

Title	Name, Company	Phone Number
CESCL	Patrick Brice, PBS	Not yet available
RE	Lance Moen, PBS	(503) 935-5516
	Nathan Bowles, GRAM Northwest	(509) 392-2568
GC Construction Manager	Matt Meyers, ENTACT	(713) 805-0472
GC Superintendent	Edgar Longstreet, ENTACT	(224) 545-3241
Ecology Emergency Contact	Washington Emergency Management Divisions, 24-hour emergency response to report spills. During regular business hours contact Eastern Regional office.	1 (800) OILS-911 (24/7) OR Eastern Regional Office (509) 329-4300
IWAG Emergency Contact	Jessi Massingale, Floyd|Snider	(206) 683-43-07
Ecology Non-Emergency Contact	Chuck Gruenenfelder	(509) 329-3439

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6.0 Site Inspection Requirements

Monitoring includes visual inspection and documentation of the inspection findings in a log book. All BMPs will be inspected, maintained, and repaired as needed to ensure continued performance of their intended function. Inspections will be conducted by or under the direction of the project CESCL. The name and contact information for the CESCL is provided in Section 5.0.

The CESCL will evaluate and document the effectiveness of the installed BMPs and determine whether it is necessary to repair or replace any of the BMPs. All maintenance and repairs will be documented in the log book or on the field inspection form. An example field inspection form is provided as Attachment D.1.2. All new BMPs or design changes will be documented in the SWRMP as soon as possible.

Site inspections will be conducted at least once each week and within 24 hours of any rainfall event. Stormwater quality from the disturbed areas will be inspected for turbidity during rainfall events that occur while construction work is under way. If the Site becomes temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

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7.0 Reporting and Record Keeping

7.1 RECORD KEEPING

A log book will be maintained for all onsite construction activities and will include the following:

- A record of the implementation of the SWRMP and other permit requirements
- A record of Site inspections

An inspection form is included in Attachment D.1.2.

The log book, inspection forms, the SWRMP, and any other relevant documentation will be retained during the life of the construction project and for a minimum of 3 years after construction.

The SWRMP and log book will be retained on site or within reasonable access to the construction site and will be made available to Ecology or representatives of local jurisdictions upon request. A copy of the SWRMP or access to the SWRMP will be provided to the public within a reasonable amount of time when requested in writing.

7.2 UPDATING THE SWRMP

The SWRMP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site; or
- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

The SWRMP will be modified within 7 days if an inspection or investigation determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

7.3 NOTIFICATION OF DISCHARGE

Discharges from the work area are not anticipated. In the unlikely event that there is a discharge from the work area, and it poses a potential threat to human health or the environment, the following steps will be taken:

- Ecology will be notified within 24 hours of the failure to comply by calling the applicable regional office Environmental Report Tracking System phone number:
  - Eastern Region at (509) 329-3400 for Franklin County

- Immediate action will be taken to prevent the discharge/pollution or otherwise stop or correct the noncompliance. If applicable, sampling and analysis of any noncompliance will be repeated immediately, and the results submitted to Ecology within 5 days of becoming aware of the violation.
- A detailed written report describing the noncompliance will be submitted to Ecology within 5 days, unless requested earlier.

8.0 References

Washington State Department of Ecology (Ecology). 2019. *Stormwater Management Manual for Eastern Washington.* Publication No. 18-10-044. August.

Pasco Sanitary Landfill NPL Site

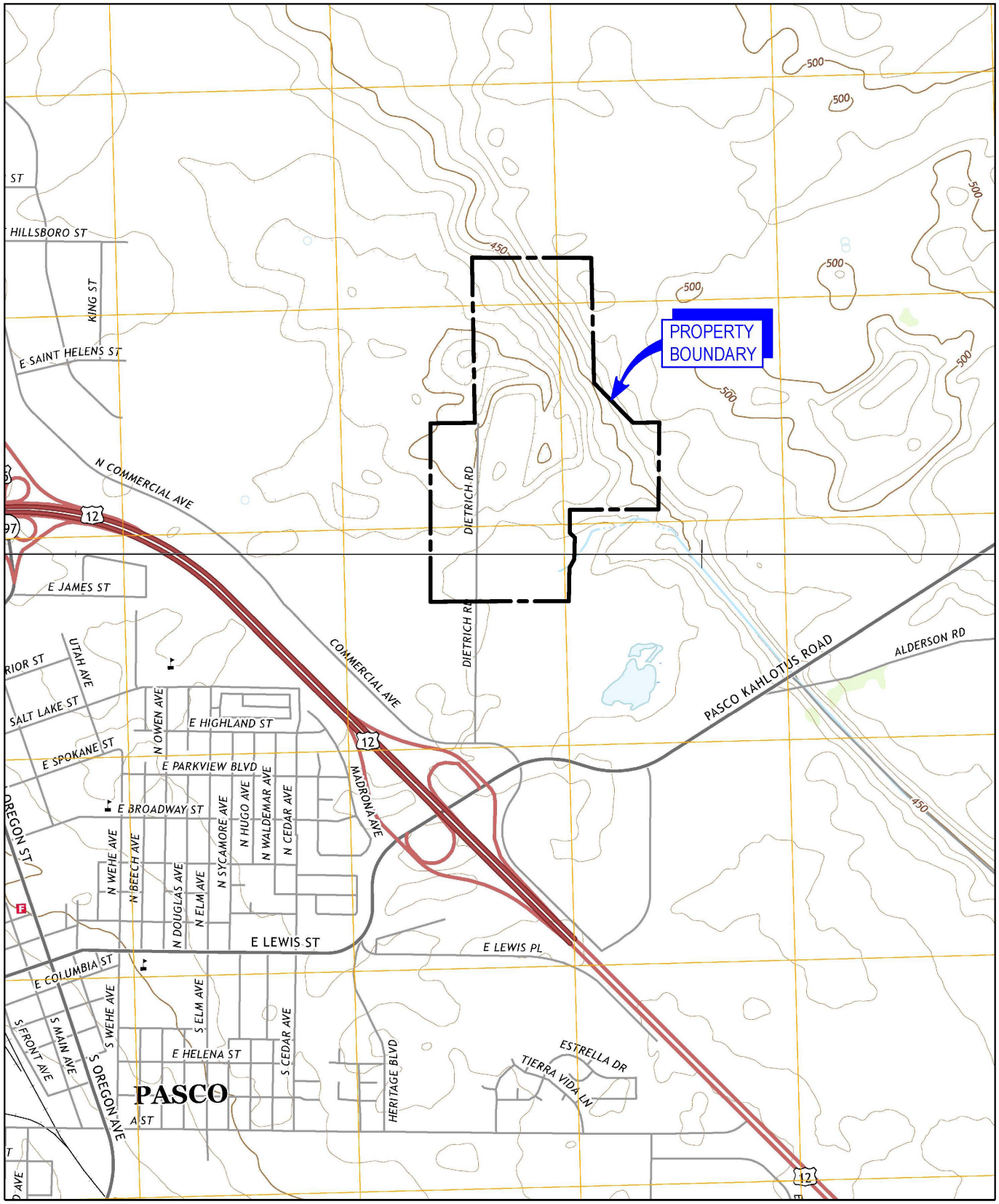
Zone A Removal Action
Engineering Design Report

Appendix D
Control Plans

Appendix D.1
Zone A Removal Action
Stormwater Runoff Management Plan

Figure

FINAL



Source: U.S.G.S Topographic Map Quadrangle : Glade 2017 & Pasco 2017

Zone A Removal Action Engineering Design Report
Pasco Sanitary Landfill NPL Site
Pasco, Washington

Figure D.1.1
Pasco Sanitary Landfill
Property Location

I:\GIS\Projects\IWAG-Pasco\AI\Draft EDR\Figure 1.1 Pasco Sanitary Landfill Property Location.ai
12/02/2019

Pasco Sanitary Landfill NPL Site

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Stormwater Runoff Management Plan

Attachment D.1.1
Incidental Spill Response Plan

FINAL

Attachment D.1.1
Incidental Spill Response Plan

INTRODUCTION

This Incidental Spill Response Plan (Spill Plan) has been prepared as an attachment to the Zone A Removal Action Stormwater Runoff Management Plan (SWRMP) to meet the Scope of Work and Schedule (SOW)'s requirements in Task A.1 Preparation of a Zone A Removal Action Engineering Design Report (EDR) Subtask A Drum Waste/Mixed Debris/Soil Excavation, Waste Segregation, and Excavation Area Backfilling.

This Spill Plan has been established to detail procedures, methods, equipment, and other measures that will collectively be used to prevent the discharge of oil, hazardous waste materials, and chemical substances on land and into water storage and conveyance systems. A discharge (also referred to herein as a "spill") includes, but is not limited to, spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil or other nonpotable liquids. In the unlikely event of a discharge, this Spill Plan will provide guidance to address spills and perform safe, efficient, and timely response to discharges.

The General Contractor (GC) will be responsible for updating and implementing this plan to be specific to their work and materials stored on site. In addition, this plan will be updated annually, whenever there is a change in activities or staff responsible for spill cleanup, or if there is a reportable spill. The GC will post a written summary of the plan at areas with a high potential for spills (e.g., product storage areas, waste storage areas), and a full copy will be available on site in the GC's office trailer.

Roles and Responsibilities

All onsite workers will participate in a site safety and orientation program prior to the start of work on this project. During this training session, the site spill protection program will be discussed and emergency contact information made available.

The GC will designate spill response employees to be on site during construction activities and will provide to the Resident Engineer (RE) a current list of the names and telephone numbers (home and office) of the designated spill response employees who are responsible for implementing the Spill Plan.

The GC's Construction Manager or Project Health and Safety Manager will act as the Emergency Coordinator in the event of a spill of waste material. The Emergency Coordinator will make the appropriate site management team aware of the event and will cooperate with the project environmental manager to ensure that the condition is resolved.

The Emergency Coordinator's phone number, location of the fire extinguishers and spill response material, and the phone number of the fire department shall be posted in the GC's office trailer.

FACILITY STORAGE

All construction-related chemicals stored on site will have a Safety Data Sheet (SDS). Copies of the SDSs for drummed and containerized material will be filed on site in the GC's office trailer. The SDSs for site chemicals will be updated as new chemicals are introduced to the site. Secondary containment must be provided for all chemical liquids, construction water (e.g., potentially impacted water collected as a result of decontamination activities), and petroleum products stored on site. If the GC requires more than 1,320 gallons of fuel storage on site, they will prepare a Spill Prevention, Control, and Countermeasure Plan to meet the requirements described in 40 CFR 112.

Material Staging and Equipment Storage Areas

Drummed and containerized materials related to Zone A Removal Action construction work will be stored within an enclosed facility (Conex box or similar) or within secondary containment to be placed in the support area. Drums and containers will be clearly labeled to identify contents.

Drum and Roll-Off Container Management Areas

The GC will construct a lined and bermed container management area for drums and roll off containers containing material removed from Zone A. Engineering design details for the container management area are shown on Sheet 14 of Appendix E. Design requirements are described in Section 4.0 of Appendix C: Waste Handling, Characterization, and Disposal Plan. The berms will control and contain leaks. Leaks will be reported to the GC's Construction Manager, and repairs/cleanup will be done on a daily basis, as needed.

Petroleum Products

Petroleum products may be stored on site throughout the duration of the project. The GC's Construction Manager or Project Health and Safety Manager will maintain an accurate account of onsite accumulation totals throughout duration of work activity.

Spill Cleanup Kits

Cleanup kits will be stored near areas with a high potential for spills so that they are easily accessible in the event of a spill. The contents of the spill kit must be appropriate to the types and qualities of materials stored or otherwise used at the facility and refilled when the materials are used. Spill kits must be located within 25 feet of all fueling/fuel transfer areas, including onboard mobile fuel trucks.

- Spill kits will be stored in an impervious container and include the following:
  - Salvage drums or containers, such as high-density polyethylene, polypropylene, or polyethylene sheet-lined steel
  - Polyethylene or equivalent disposal bags
  - An emergency response guidebook

- Safety gloves/clothes/equipment
- Shovels or other soil removal equipment
- Oil containment booms and absorbent pads

Fire extinguishers located at the site will be available at multiple locations on site and in close proximity to the temporary aboveground storage tank location. All onsite personnel will be trained in the use of spill kits and fire extinguishers.

SPILL PREVENTION

Spills and leaks can damage public infrastructure and cause a threat to human health or the environment. Spills are often preventable if appropriate chemical and waste handling techniques are practiced effectively and the Spill Plan is immediately implemented.

- All hazardous materials shall be properly maintained and disposed of in accordance with all local, state, and federal regulations.
- Secondary containment shall be provided for all liquid waste to maintain any possible spillage.
- Oil and chemical storage locations shall be inspected regularly.
- Oil transfers shall be monitored to see that hose connections are in good repair and not leaking.
- Equipment that uses hydraulic or lube oils shall be maintained in a manner that prevents leaks.
- Any equipment that leaks shall be repaired or removed from service.

Fleet Fueling

The GC may have leasing companies on site periodically to service equipment and provide fleet fueling services. Prior to performing the intended service, the leasing company will be made aware of the requirements of this plan. The following specific best management practices (BMPs) will be used to minimize spills and control pollutants for this project:

- S419: BMPs for Mobile Fueling of Vehicles and Heavy Equipment

Equipment Maintenance and Repair

Equipment will typically remain within the work or exclusion zone and will be inspected on a daily basis for leaks by the operator. Any leaks will be reported immediately to the RE. Leaking equipment may be “locked out” until the source of the leak is determined and necessary maintenance or repairs are made.

Equipment maintenance is typically handled by the leasing company at their offsite location. If any maintenance is required at the site, such as changing or adding oil, drip pans will be used under the equipment to prevent any discharge of materials to the environment. Maintenance must comply

with the notification and/or training requirements of 29 CFR 1910.120 and the requirements of the GC's Site-Specific Health and Safety Plan (HASP). Any outside vendor personnel who may be conducting any service or repair activities will fall under the GC's HASP and require proper HASP orientation. All onsite maintenance will be performed outside of active, designated cleanup areas of the site if performed by personnel not trained in Hazardous Waste Operations and Emergency Response (HAZWOPER). All equipment to be maintained will be properly decontaminated before non-HAZWOPER-trained personnel will be permitted to work on it.

The following specific BMPs will be used to minimize spills and control pollutants for this project:

- S414: BMPs for Maintenance and Repair of Vehicles and Equipment

SPILL RESPONSE

A procedural diagram for spill response is provided as Exhibit 1. All onsite personnel will be trained to be observant for spills or discharges during the performance of daily work activities. For all spills or leaks, the following guidelines will be followed as closely as possible.

If personnel are injured, contact the ambulance (911) and hospital, and then assess the situation to determine the following:

- Hazards involved
- Magnitude of the problem
- Resources threatened
- Exclusion zone needed, or if evacuation is required

The appropriate spill response is determined by the quantity and/or composition of spilled substance, as follows:

1. A "minor spill" involves a small quantity of oil, gas, paint, etc. that can be controlled by the person discovering the spill upon discovery.
2. A "semi-significant spill" can be controlled by the person discovering the spill with the aid of other personnel and may require cessation of other activity.
3. **A "significant/hazardous spill" is a spill that cannot be controlled by personnel in the immediate vicinity. These types of spills are covered in the Significant/Hazardous Spill Response section.**

If a leak or spill of dangerous or hazardous materials develops, the person discovering the discharge will determine if they can immediately stop the release, without endangering themselves or others (e.g., shutting a valve or placing a discharge hose back into a container or vessel). If the first person cannot take immediate action, they must leave the immediate area and contact emergency responders (call 911, if applicable), the Emergency Coordinator, and the RE. The following information must be provided, to the extent known:

- Person(s) injured and seriousness of injury, if any
- Location of the spill or leak, material involved, and source

- The approximate amount spilled, an estimate of the discharge rate, and the direction of flow (if applicable)
- Whether the spill has been contained, or whether the flow has stopped
- Whether a fire is involved
- Whether the spill entered a waterway

Incidental Spill Cleanup Procedures

If the spill is small enough (i.e., "minor spill" or "semi-significant") and:

1. Can be absorbed, neutralized, or otherwise controlled at the time of release by onsite personnel in the immediate release area;
2. Does not pose an adverse exposure hazard to personnel; and
3. Is within the scope of the personnel's training, then:

The spill will be handled in the following manner:

- Make sure all unnecessary persons are removed from the hazard area.
- If flammable material is involved, remove all ignition sources, and use spark- and explosion-proof equipment and clothing in containment and clean up.
- If possible, try to stop the leak.
- Remove all surrounding materials that could potentially be reactive with the materials in the waste. Determine the major components at the time of the spill.
- Use absorbent pads, spill kits, booms, earth, sandbags, sand, and other inert materials to contain, divert, neutralize and clean up a spill if it has not been contained by a dike or sump. Most spills contained within a dike or sump can be pumped into an appropriate storage tank or drum.
- If the released material is flammable, make sure that all electrical/mechanical equipment used in the response is explosion-proof.
- Place all contaminated containment and cleanup materials in drums for proper waste characterization and disposal.
- Place all recovered liquid wastes in drums for removal to an approved disposal facility.

In addition, the following specific BMPs will be used to minimize spills and control pollutants for this project:

- S426E: BMPs for Spills of Oil and Hazardous Substances

Significant/Hazardous Spill Response

For large or hazardous spills, the Emergency Coordinator will use the following procedure:

- If appropriate, based on the nature of the spill, initiate evacuation of personnel from the area, as necessary.

- Call an ambulance (911) for any injured persons. If necessary, for immediate safety and if it is safe to do so, move injured persons away from hazards and perform first aid.
- Call the fire department (911) if a fire or explosion is involved. Note that there is no water source on the property other than fire hydrants. Note that fire emergencies will generally supersede spill emergencies.
- The RE will be contacted and advised of the situation, and the RE will then notify the Industrial Waste Area Generators Group III (IWAG) Project Coordinator.

For all other hazardous spills requiring additional immediate action, the Emergency Coordinator will contact a commercial spill response firm, as described in the Contingency Plan (Appendix B.2 of the EDR).

All emergency equipment used in the spill response will be returned to ready status prior to resumption of operations in the affected area.

Disposal Methods for Collected Materials

All waste materials generated during a spill response or cleanup will be disposed of in accordance with applicable federal, state, and local regulations.

The material cleaned up from a gasoline or diesel tank will be classified as hazardous waste, and all containers will be clearly labeled and properly disposed of.

SPILL REPORTING PROTOCOLS

Emergency procedures are the responsibility of the Emergency Coordinator. Reporting requirements and contact information for various spill types is presented in Table 1. Detailed procedural flow diagrams for emergencies and notification procedures are described in Appendix B.2: Contingency Plan. Immediate procedures are outlined below:

1. The Emergency Coordinator must identify the character, exact source, amount, and extent of any released materials and assess possible hazards to human health or the environment.
2. If necessary, the Emergency Coordinator will evacuate all personnel within Zone A using predetermined routes described in the GC's Site-Specific HASP and/or Contingency Plan (Appendix B.2). Site personnel will be notified (verbally or via phone).
3. If the Emergency Coordinator determines that there is a major threat to human health or to the environment, it must be reported to local authorities (refer to Table 1); call 911.
4. If it is determined that the spill is of a reportable quantity or greater, the RE or the IWAG Project Coordinator (with concurrence from the IWAG) must report findings immediately to the Washington State Department of Ecology (Ecology) 24-hour spill reporting number.

Table 1
Spill Type, Reporting, and Contact Information

Type of Spill	Reporting Requirements	Required Contacts
Release of hazardous or extremely hazardous substance	Report it immediately. See full Emergency Planning and Community Right-to-Know Act reporting requirements.	• The State Emergency Response Commission (SERC) at (800) 258-5990 • Local Emergency Planning Committee (LEPC): **Sean Davis** Director, Franklin County Emergency Management sdavis@co.franklin.wa.us (509) 545-3546 www.franklinem.org • The National Response Center at (800) 424-8802 • Notify the Ecology Eastern Regional office at (509) 329-3400
Dangerous waste	Report it immediately.	• Call 911 • Notify the Ecology Eastern Regional office at (509) 329-3400
Release to air	Report it immediately.	• Notify the Ecology Eastern Regional office at (509) 329-3400
Leaking underground storage tanks	Report within 24 hours.	• Notify the Ecology Eastern Regional office at (509) 329-3400
Oil and hazardous substance spills to water	Report it immediately.	• The National Response Center at (800) 424-8802 • Washington Emergency Management Division at (800) 258-5990
Oil spills to ground	Report within 90 days.[1]	• Notify the Ecology Eastern Regional office at (509) 329-3400

The following information must be provided to the regulatory agencies when contacted:

- Name and telephone number of the reporter
- Name and address of site (1901 or 1820 Dietrich Road)
- Time and type of incident (i.e., release, fire, explosion, injury)
- Name and quantity of material(s) involved, to the extent known
- The possible hazards to human health or the environment outside the property
- The extent of injuries, if any

[1] Depending on the quantity and location of the spill, the Ecology Site Manager may receive expedited notification.

Exhibit 1
Procedures for Spills or Releases of Hazardous Materials

Procedures for Spills or Releases of Hazardous Materials

Contact Emergency Coordinator and Resident Engineer

Emergency Coordinator – GC	(XXX) XXX-XXXX
1st Alternate – XXX	(XXX) XXX-XXXX
Resident Engineer – XXX	(XXX) XXX-XXXX

Provide the Emergency Coordinator and Resident Engineer with the Following Information:

1. Nature of Emergency
2. Location of Emergency
3. Size and Extent of Emergency
4. Hazardous Materials Involved (if any)
5. Whether Any Personnel Are Injured

Personnel injured?

Yes

Contact Ambulance: 911

Be prepared to give name, address, extent of injuries, extent of emergency, possible chemicals involved and quantity.

No

Emergency Coordinator Will Assess the Situation to Determine:

1. Hazards Involved
2. Magnitude of the Problem
3. Resources Threatened
4. Exclusion Zone Needed or Evacuation Required

Can the spill be neutralized, or otherwise controlled at the time of release by employees in the immediate release area, WITHOUT POSING A SAFETY OR HEALTH HAZARD, AND WITHIN THE SCOPE OF THE EMPLOYEES' TRAINING?

Yes

Contain Spill, Cleanup Spilled Material, and Store Properly for Disposal

Incident Reporting, Investigation, and Documentation

Event Concluded

No

Contact Trained Emergency Response Fire Department: 911

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Zone A Removal Action
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Appendix D.1
Zone A Removal Action
Stormwater Runoff Management Plan

Attachment D.1.2
Site Inspection Form

FINAL

Attachment D.1.2
Site Inspection Form

The site inspection form shall be completely filled out and attached to the Site logbook. The Zone A Removal Action Stormwater Runoff Management Plan (SWRMP) and the site inspection forms shall be kept on site at all times during construction, and inspections will be performed and documented as outlined below.

At a minimum, each site inspection form shall include the following:

- Inspection date/times
- Weather information: general conditions during inspection, approximate amount of precipitation since the last inspection, and approximate amount of precipitation within the past 24 hours
- A summary or list of all best management practices (BMPs) that have been implemented, including observations of all erosion and sediment control structures or practices
- Notations of the following:
    - Locations of BMPs inspected
    - Locations of BMPs that need maintenance
    - The reason maintenance is needed
    - Locations of BMPs that failed to operate as designed or intended
    - Locations where additional or different BMPs are needed and the reason(s) why
- General comments and notes, including a brief description of any BMP repairs, maintenance, or installations made as a result of the inspection

When the site inspection indicates that the BMPs are insufficient to maintain unauthorized discharge from the work area, the inspector shall take immediate action(s) to stop, contain, and clean up the discharges; correct the problem(s); implement appropriate BMPs and/or conduct maintenance of existing BMPs; and achieve zero discharge. Discharges from the work area are not anticipated. In the unlikely event that there is a discharge from the work area, and it poses a potential threat to human health or the environment, the inspector shall comply with the Notification of Discharge requirements in the SWRMP.

General Information				
Project Name:	Zone A Removal Action			
Inspector Name:		**Title:** **CESCL #:**		
Date:		**Time:**		
Inspection Type:		Implementation		
		Weekly		
		After a rain event		
		Other		
Weather:				
Precipitation:	Since last inspection:		In past 24 hours:	

Description of General Site Conditions		**Yes**	**No**	**Comments**
	Stormwater Discharge from Site?			
	Photo Taken?			
	Ecology Notified?			
	Date, Time, and Ecology Contact Name	--	--	

Inspection of BMPs						
	Inspected		**Functioning**			
BMP	**Yes**	**No**	**Yes**	**No**	**NIP**	**Problem/Corrective Action**

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Control Plans

Appendix D.2
Traffic Control Plan Requirements

FINAL

Appendix D.2
Traffic Control Plan Requirements

The General Contractor (GC) shall prepare and implement a Traffic Control Plan (TCP) to be followed by all persons, employees, visitors, public, companies, subcontractors, agencies, owner, and any other entities accessing the Pasco Sanitary Landfill National Priorities List Site (Site) and who may traverse the Site. The TCP shall be prepared in accordance with all applicable local, state, and federal laws and regulations and shall follow all standard and best management practices typical for the industry. In particular, GC shall work closely with the Industrial Waste Area Generators Group III (IWAG) and IWAG's Resident Engineer (RE) to develop a TCP acceptable to all parties. GC shall be responsible for obtaining all relevant permits that may be required from authorities and paying all fees.

IWAG's RE will review and provide comments on the TCP to the GC; however, preparation and implementation of the TCP will remain the sole responsibility of the GC.

In general, the TCP shall identify routes, means, methods, equipment, and other temporary signage, installations designed to protect on-Site personnel and the public to the extent impacted by the Zone A Industrial Waste Area (Zone A) Removal Action activities, and to otherwise facilitate safe execution of the removal action. As a minimum, the TCP shall include or provide for the following:

1. Hours of work at the Site, including transportation and removal of materials to and from the Site, shall be limited to 6 a.m. to 7 p.m., Monday through Friday, exclusive of holidays when the Site will be closed. Any requested variations from the above shall be submitted to IWAG's RE for consideration at least 5 business days prior to the requested variance.
2. Establish haul routes to the selected and approved disposal facilities considering road restrictions mandated by local authorities.
3. Establish communication procedures with the waste transporters and establish expectations for conduct on and off the Site while transporting wastes to the disposal facilities.
4. Site personnel working in close proximity to vehicle travel routes shall wear Class 2 high-visibility vests.
5. Bright colored traffic cones and traffic barrels, temporary fencing, and/or traffic barriers (e.g., concrete Jersey barriers) typical for the industry shall be used to demarcate safe work zones, personnel and vehicular traffic routes around active work areas, and entrance to and exit from the Site, as well as parking areas outside of work zones.
6. Appropriate traffic signage shall be posted to alert the offsite public and onsite persons using roadways and parking areas on and adjacent to the Site of potential traffic hazards and other related conditions that could affect safety or other adverse

impacts. Such signage should notify the offsite public and onsite personnel to use caution when driving and to anticipate trucks turning, more traffic than usual, and other potential traffic impacts that may occur as a result of the Zone A Removal Action activities.

7. Obtain approval from the owner or other applicable authority before altering existing traffic control features on or adjacent to the Site, whether permanent or temporary.
8. Schedule and conduct a preconstruction traffic control meeting with IWAG's RE, Pasco Sanitary Landfill, City of Pasco, Franklin County, local police, and the local fire department. The purpose of the meeting will be to review the contents of the developed TCP and make any required modifications to the TCP.
9. Maintain reasonable traffic access to commercial businesses and industries that may be affected by the Zone A Removal Action activities.
10. The TCP shall provide for the safe and efficient flow of Site traffic and personnel.
11. Pedestrian pathways shall be provided and maintained in a safe and passable form, where required.
12. Include provisions to advise personnel of traffic routes that may change from time to time during the Zone A Removal Action activities, to allow planning for the safe flow of Site traffic and personnel.
13. Include provisions to ensure that mud and debris are not tracked onto public roads, nor relevant onsite roads, and that appropriate vehicle decontamination procedures are documented and followed prior to vehicles leaving the Site. Provide a means to clean impacted roads of mud and debris if tracked onto a public roadway or relevant onsite roads.
14. Conduct regular inspection of traffic control features to confirm adherence by personnel and to confirm that such traffic control features remain intact and effective.
15. Comply with the Basin Disposal, Inc. (BDI) access agreement and traffic control provisions.
16. Provide traffic control measures to limit vehicular traffic on Dietrich Road north of the BDI transfer station.
17. Advise Site visitors where to enter and exit the Site and where to park on site.

Pasco Sanitary Landfill NPL Site

Zone A Removal Action
Engineering Design Report

Appendix D
Control Plans

Appendix D.3
Construction Quality Assurance Project Plan

FINAL

Table of Contents

List of Tables

List of Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
CAP	*Cleanup Action Plan – Pasco Landfill NPL Site*
CQA	Construction quality assurance
CQAPP	Construction Quality Assurance Project Plan
CQC	Construction quality control
Ecology	Washington State Department of Ecology
EDR	Zone A Removal Action Engineering Design Report
GC	General Contractor
HASP	Health and Safety Plan
HazCat	Hazard Categorization
IWAG	Industrial Waste Area Generators Group III
PLP	Potentially liable person
QA	Quality assurance
QC	Quality control
RE	Resident Engineer
RFI	Request for information
Site	Pasco Sanitary Landfill National Priorities List Site
SOW	Scope of Work and Schedule
TSDF	Treatment, storage, and disposal facility
Zone A	Industrial Waste Area Zone A

1.0 Introduction

1.1 INTRODUCTION

This Appendix provides a summary of required quality control testing (i.e., Construction Quality Assurance) as required by Task A.1 of the Scope of Work and Schedule (SOW), which is part of the *Cleanup Action Plan – Pasco Landfill NPL Site* (CAP) for the Industrial Waste Area Zone A (Zone A) Removal Action at the Pasco Sanitary Landfill National Priorities List Site (Site).

1.2 PURPOSE AND ORGANIZATION OF REPORT

This Construction Quality Assurance Project Plan (CQAPP) presents the construction quality assurance (CQA) and construction quality control (CQC) procedures to be implemented during construction of remedial activities for the Site, as detailed in the Zone A Removal Action Engineering Design Report (EDR), to ensure that the construction activities meet or exceed requirements of the EDR. This report is organized as follows:

- **Section 1.0: Introduction.** Presents the background information, purpose, and organization of the report.
- **Section 2.0: Project Description.** Provides a description of the Zone A Removal Action activities.
- **Section 3.0: Project Organization and Responsibilities.** Outlines the project organization and responsibilities.
- **Section 4.0: Project Meetings.** Presents the project meeting requirements.
- **Section 5.0: Inspection and Testing Activities.** Describes the review, inspection, and testing activities required to ensure that construction and materials comply with the project requirements.
- **Section 6.0: Inspection Documentation.** Describes documentation requirements of CQA activities.

In addition to CQA testing identified in this CQAPP, CQC activities also will be implemented during Zone A Removal Action activities. CQA inspections and tests are also summarized in Tables D.3.1 and D.3.2. CQC activities are procedures to be implemented by the General Contractor (GC) to measure and control the characteristics of the materials and the construction methods used during the remedial activities to demonstrate that the materials and construction meet the requirements of the EDR. CQC activities to be implemented by the GC during the remedial activities are identified in the EDR.

The Industrial Waste Area Generators Group III's (IWAG's) Resident Engineer (RE) will provide construction management and associated independent CQA. As an integral part of the CQA program, the RE will review all of the GC's CQC data.

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2.0 Project Description

This CQAPP is one of the engineering control plans prepared as part of the EDR that provides guidance on how to complete the work in accordance with applicable standards, procedures, and regulations.

The additional compliance and control documents and procedures that are included in the EDR include the following:

- Stormwater Runoff Management Plan
- Incidental Spill Response Plan
- Traffic Control Plan Requirements
- Soil Vapor Extraction (SVE) System Reconfiguration Plan
- Waste Handling, Characterization, and Disposal Plan
- Site-Specific Health and Safety Plan (HASP) Requirements
- Contingency Plan
- Perimeter Air Monitoring Plan
- Performance Monitoring Plan
- Bench-Scale Treatability Testing Plan
- Zone A Removal Action Supplemental Groundwater Monitoring Plan
- Post-Excavation Characterization Sampling and Analysis Plan and Quality Assurance Project Plan (for characterization of Zone A material remaining after excavation)
- Zone A Decommissioning and Well Installation Plan
- Project plans and specifications developed as part of the draft final EDR

The Zone A Removal Action activities to be implemented at the Site are detailed in the EDR and summarized in expected order of occurrence as follows:

1. New groundwater monitoring well installation (MW-56S was installed in January 2020)
2. Reconfiguration of the existing SVE system
3. Decommissioning monitoring locations and installation of downgradient groundwater monitoring wells
4. Mobilization of temporary construction facilities (e.g., support zone facilities including GC office trailer, Hazard Categorization [HazCat] Laboratory trailer)
5. Soil erosion and sediment control activities, and stormwater controls per the Stormwater Runoff Management Plan

6. Site preparation including equipment staging areas, container management pad, decontamination pad(s), construction of a working surface, moveable temporary structure with an associated air handling and treatment system, and personnel hygiene/decontamination facilities
7. Excavation and removal of drums (and other containers), drummed waste, pooled free liquids, and potentially combustible material that is readily separable by mechanical means
8. Waste characterization, transportation, and offsite disposal of waste materials
9. Chemical sampling and analyses of drum contents and waste material
10. Backfilling/grading and restoration of excavation areas
11. Construction of a post-excavation interim cover
12. Demobilization

The GC ultimately controls the work in terms of the general approach, sequencing, the project schedule, and subcontractors. The CQAPP, as presented herein, presents the quality assurance (QA) program that will be implemented during the Zone A Removal Action activities to assess the Zone A Removal Action implemented by the GC and to ensure that the various components of the remediation are constructed in accordance with the EDR.

3.0 Project Organization and Responsibilities

The following entities constitute the primary project team organization:

- Owner (IWAG)
- Owner's Representative Project Coordinator
- RE Team
- GC
- Offsite treatment, storage, and disposal facilities (TSDFs)
- QA and quality control (QC) test laboratories

A project organization and communication chart will be developed as part of preconstruction activities. The TSDFs will be directly contracted by the Owner.

A brief description of key positions and duties for CQA are presented below.

3.1 OWNER

In this plan, the Owner refers to the IWAG, which is composed of the potentially liable persons (PLPs) for Zone A. The duties of the Owner (IWAG) are as follows:

- Has overall responsibility for developing and implementing the technical strategy, including remedial action performance and financial management.
- Holds contracts with consultants and contractors.

3.2 OWNER'S REPRESENTATIVE PROJECT COORDINATOR

The duties of the Owner's Representative Project Coordinator and support team member are as follows:

- Provides construction project oversight in the field as directed by the Owner's Representative Project Coordinator.
- Ensures that all resources are available on an as-required basis.
- Participates in key technical discussions with the Washington State Department of Ecology (Ecology), the IWAG and their representatives, the RE, and the GC.
- Provides day to day construction project management.
- Provides overall construction project oversight.
- Provides managerial guidance and technical support to the RE.
- Provides technical representation at project meetings as appropriate.

- Recommends contractors to provide CQA surveying, field, laboratory, and other services.
- Reviews construction documentation and reports.
- Liaises frequently with the RE, GC, the IWAG, and Ecology.
- Enforces overall compliance of the GC's implementation of the Zone A Removal Action with the project requirements.
- Enforces the construction contract.
- Retains third-party structural inspection services firm.
- Participates in pre-final and final inspections.

3.3 RESIDENT ENGINEER

The RE role will be filled by a team who is responsible for both project engineering (engineering services during construction project) and full-time construction oversight of the GC's field activities. Roles of the individual RE Team members will be clarified before construction. The RE Team reports to the Owner's Representative Project Coordinator.

RE tasks cover two general components:

- **Project Engineering Component:**
  - Coordinates requests for information (RFIs) and submittals with the Design Team (PBS and Floyd|Snider); facilitates design changes.
  - Confirms requirements of the EDR, design drawings, specifications, and *Zone A Removal Action—Temporary Structure Air Treatment Summary to Support Compliance with Air Permitting Substantial Equivalency* technical memorandum dated April 9, 2020, are met.
  - Facilitates routine coordination with project team members through daily and weekly meetings and routine communications.
  - Verifies waste characterization and disposal procedures are met.
  - Serves as IWAG-authorized representative for waste profile and manifest signing.
  - Reconciles manifests and invoices for waste material tracking and handling of manifest discrepancies.
  - Serves as Engineer of Record.
  - Participates in pre-final and final inspections.
  - Prepares the *Zone A Excavation, Removal, and Offsite Disposal Construction Completion Technical Memorandum* (hereafter referred to as the Construction Completion Tech Memo).
  - Is present on site to confirm the Zone A Removal Action activities are being implemented in accordance with the intent of the remedial design.

- **Construction Oversight Component:**
  - Reviews, coordinates, and/or negotiates RFIs, design updates, change orders, daily and weekly meetings, and any other issues with the GC.
  - Oversees and documents GC's activities full-time; provides daily report with summary of activities, inspections, testing, equipment, photograph log, deficiencies, and corresponding corrective measures.
  - Oversees adherence to project plans, including health and safety requirements.
  - Periodically reviews GC's schedule.
  - Performs routine periodic and spot-check inspections/reviews of GC's records (timesheets, material delivery tickets, rental equipment summaries, vendor/supplier agreements, subcontractor agreements, etc.).
  - Enforces construction contract in the field. Identifies work that should be accepted, rejected, or uncovered for observation, or that may require special testing, inspection, or approval. Rejects defective work and verifies that corrective measures are implemented.
  - Oversees QA services firms, including testing laboratories, geotechnical testing, and surveying, to perform QA field/laboratory tests, as required.
  - Reviews design criteria, plans, and GC submittals for clarity and completeness so that the CQAPP can be implemented. Conducts or oversees CQA tests and inspections as indicated in this CQAPP. Calibrates and maintains testing equipment to ensure good working order. Accurately records test results and inspections.
  - Reviews CQC data. Performs data validation and assessment. Advises on data corrective measures procedures. Prepares and reviews reports including CQA representation of project activities.
  - Immediately documents whether test results comply with design requirements. Coordinates additional CQA testing activities, if required.
  - Submits change requests (from the GC or RE to the IWAG via the Owner's Representative Project Coordinator) and other items that will require IWAG decision making or approval.

The RE entity may consist of one or more individuals assigned to collectively fulfill the components described here. The individual(s) designated to be the RE will be specified prior to commencement of the construction activities.

3.4 GENERAL CONTRACTOR

The duties of the GC, as they relate to CQA/CQC, are as follows:

- Has overall responsibility to perform, supervise, supply, and direct all work in accordance with drawings, plans, specifications, other relevant requirements (such as the *Zone A Removal Action—Temporary Structure Air Treatment Summary to Support Compliance with Air Permitting Substantial Equivalency* technical memorandum), and

contract with Owner; work tasks include documentation, record-keeping, and updating of schedule and budget.

- Develops and implements a Site-Specific HASP and Contingency Plan.
- Is responsible for performing and documenting all required construction inspections and testing per drawings and specifications. Maintains responsibility for work activities completed by subcontractors of the GC.
- Engages independent laboratories to perform all QC tests required by the EDR, as requested by the RE, and for any re-tests required. Ensures that CQC services firms conduct CQC tests and inspections as indicated in the GC submittals; that CQC services firms conduct self QA tests, including maintenance of testing equipment in good working order and calibrated as required, and that test results and inspections are accurately recorded; and that the RE is immediately notified whether test results comply with the project requirements.
- Maintains set of redline record drawings and specifications. Changes that result in redlines are subject to approval by the RE.
- Completes Daily Construction Report outlining activities completed for that day, including work production and GC-directed inspection and testing activities. At a minimum, the daily report will include field notes, observations, test data sheets, construction considerations, inspection observations, photograph log, deviations, and corrective measures taken. Records daily CQA activities in the GC's site logbook. Documents the labor, materials, and equipment utilized and submits this information to the RE. If imported fill is used, provides documentation verifying that material is from a clean source (as confirmed with required testing results).
- Submits a quarterly report to the RE, documenting performance over the past quarter. Maintains copies of applicable referenced standards.
- Coordinates closely with the RE regarding defining waste limits, waste characterization, and profiling.
- Coordinates closely with the IWAG-contracted TSDFs for waste acceptance and disposal.
- Transports waste to TSDFs.
- Maintains and submits waste characterization, profiling, transport, disposal, and other related documentation to RE and Owner’s Representative Project Coordinator.
- Submits manufacturer's material properties data and QC certificates to the RE. Submits all CQC data to the RE for review.
- Participates in pre-final and final inspections.

3.5 TREATMENT, STORAGE, AND DISPOSAL FACILITIES

The GC will coordinate closely with the RE and IWAG-contracted TSDFs for waste acceptance and disposal as described above to ensure that transportation and disposal, including required documentation, are completed in accordance with applicable regulations and the Waste Handling, Characterization, and Disposal Plan (Appendix C of the EDR). The GC will be responsible for providing the waste characterization and waste records to the RE for verification and record keeping and documentation as described in the Waste Handling, Characterization, and Disposal Plan. The transportation of wastes to IWAG-contracted TSDFs will be conducted by the GC, who will coordinate trucking and delivery to the TSDFs, keeping the RE informed on work progression and potential project delays. The RE and GC will communicate potential delays or changes in TSDFs ability to accept wastes to the Owner and Owner's Representative Project Coordinator for Owner decision making. Ecology will also be notified in a timely manner of any delays or changes in the TSDF's ability to accept waste.

3.6 QA/QC TEST LABORATORIES

QA/QC test laboratories that will conduct CQA or CQC tests will be identified prior to the commencement of the CQA/CQC activities. The duties of the QA/QC test laboratories are to provide QA/QC testing of materials used in the construction activities, as requested by the RE, to confirm construction activities have been implemented according to the project requirements.

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4.0 Project Meetings

Project meetings, as detailed herein, will be held during the construction period to ensure that all tasks are accomplished according to schedule and that they are completed in accordance with the EDR. As discussed below, these progress meetings may be attended by the Owner's Representative Project Coordinator and support team member; the RE representative; GC representative; the IWAG representative(s); Ecology, subject to availability; and other agencies, subcontractors, or project support personnel, as appropriate. The nature and content of the project meetings, as well as anticipated attendees, is detailed below.

For all weekly and monthly meetings held on site during the remedial construction, with the exception of the daily progress meetings, minutes will be taken by the RE or designee. Copies of the minutes will be forwarded to the Owner's Representative Project Coordinator, the IWAG representative(s), Ecology, and all organizations present at the meetings. The meeting minutes will be maintained as part of the field documentation file.

4.1 PRECONSTRUCTION MEETING

- **Purpose:** To review the general project scope, resolve any uncertainties in the project scope of work, and to review levels of responsibility, reporting requirements, and health and safety requirements.
- **Attendance:** Owner's Representative Project Coordinator and support team member, RE Team representative(s), GC representative(s), the IWAG and/or their representative(s) (optional), Ecology representative(s) (optional).
- **Topics:**
  - Introduce each organization and site personnel.
  - Present CQAPP, GC's Site-Specific HASP, Contingency Plan, and other relevant documents.
  - Review the activities to be conducted during construction.
  - Review roles of each organization relative to the EDR and requirements within the CQAPP.
  - Determine any modifications to the CQAPP that may be necessary to ensure that the construction is performed to meet or exceed the specified design criteria.
  - Review lines of authority and communication.
  - Discuss the established procedures or protocol for observations and tests including sampling and testing strategies, and waste disposal characterization.
  - Discuss the established procedures or protocols for handling construction deficiencies, repairs, and retesting.
  - Review methods for documenting and reporting inspection data.
  - Review methods for distributing and storing documents and reports.

- Review work area delineation, security, and safety protocols including a review of emergency plans.
- Discuss the location for storing construction equipment and materials and the protection of these items during inclement weather.
- Review of the project schedule.
- Establish a schedule of meetings and briefings during Zone A Removal Action activities.
- Identify procedures to resolve disputes or misunderstandings during construction.
- Discuss the protection of uncompleted construction work during off hours and during inclement weather.
- Conduct a site tour to review construction areas and equipment and stockpile storage locations.

4.2 DAILY PROGRESS UPDATES

- **Purpose:** To review work schedule progress and ensure that relevant project personnel are coordinated and informed with regards to which activities will be taking place onsite that day. This is intended to be an informal meeting held at the start or at the end of each workday and may be combined with the daily safety tailgate meeting or weekly/monthly progress meetings.
- **Attendance:** RE representative(s), GC representative(s), and others, as appropriate.
- **Topics:**
  - Review previous day's activities and progress.
  - Review work location and activities for upcoming day.
  - Review health and safety deficiencies from the previous workday, health and safety requirements, and potential problems for the next day's activities.
  - Review changes to GC's personnel and equipment assignments, new major elements of work to start, coordination of high-risk activities, and/or major safety issues, as appropriate.
  - Discuss any potential construction problems.

4.3 WEEKLY PROGRESS MEETINGS

- **Purpose:** To provide an update of work schedule progress on a weekly basis and identify schedule slippages and efforts required to get back onto schedule, if required.
- **Attendance:** The RE representative(s), the Owner's Representative Project Coordinator and/or support team member, GC representative(s), GC Safety Officer, IWAG representative(s) (optional), and Ecology (periodically). Weekly meetings will not be necessary for those weeks in which a monthly progress meeting is held (refer to Section 4.4).

- **Topics:**
  - Provide updates on health and safety and current statistics.
  - Present overall statement of weekly progress and activities underway or completed.
  - Compare actual progress to scheduled work activities, noting schedule slippages and actions to be implemented to rectify schedule slippages.
  - Present planned activities for next reporting period including a 3-week look ahead schedule.
  - Discuss issues or concerns arising since most recent reporting period.
  - Resolve previously identified issues or concerns.
  - Review GC's personnel and equipment assignments for the upcoming week.
  - Summarize correspondence during reporting period.
  - Present contractual updates.

Ecology will be updated on construction progress and any issues or concerns that arise on a weekly basis by the RE, Owner's Representative Project Coordinator, or other designee. This communication may be separate from the Weekly Progress Meeting.

4.4 MONTHLY PROGRESS MEETINGS

- **Purpose:** To provide a construction progress update to Ecology. May be conducted informally by conference call and may be combined with weekly meeting, if appropriate.
- **Attendance:** The IWAG representative(s), Owner's Representative Project Coordinator, the RE representative(s), GC's project management personnel, GC Safety Officer, and Ecology representative(s) (optional).
- **Topics:**
  - Discuss health and safety.
  - Review the work activities for the previous month, including issues or problems encountered; deviations from anticipated work approaches or requirements; and overall considerations related to waste handling, characterization, temporary onsite storage, and offsite disposal.
  - Compare actual progress to scheduled work activities, schedule slippages/variances, and actions implemented to rectify schedule slippages/delays.
  - Summarize work activities scheduled for the next month.
  - Review potential construction problems/conflicts for the next month's construction activities and proposed solutions to the potential problems/conflicts.
  - Discuss weekly meeting topics (refer to Section 4.3) when meetings are combined.

4.5 PROBLEM OR WORK DEFICIENCY MEETINGS (AS NEEDED)

- **Purpose:** To address any problems or deficiencies that have or are likely to occur.
- **Attendance:** RE and GC representative.
- **Topics:**
  - Define and discuss problem or deficiency.
  - Review alternative solutions.
  - Develop and implement a plan to resolve the problem or deficiency.

5.0 Inspection and Testing Activities

5.1 SCOPE

Throughout the implementation of the Zone A Removal Action activities, there will be submittal reviews, inspections, and testing requirements for specific work tasks. The review, inspection, and testing requirements will ensure compliance with the project requirements and provide a means of monitoring the quality and progress of work performed.

Key work task components that will require some form of review, inspection, or testing as described by the CQAPP are as follows:

- Administrative requirements (e.g., submittals and shop drawings)
- Execution requirements
- Temporary facilities and controls
- Health and safety
- Excavation and drum removal
- HazCat analysis
- Chemical sampling and analyses
- Waste characterization and profiling
- Transportation and treatment or disposal
- Post-construction grading
- Post-excavation temporary cover
- SVE system

5.2 SUBMITTALS

The assumptions and calculations for the components that will be implemented by IWAG's GC beyond what is in the EDR will be developed by the GC and documented in submittals prior to mobilization (e.g., temporary structure loading calculations). A schedule of submittals (e.g., work plans, shop drawings, test reports, certificates verifying material quality/workmanship) will be developed after the EDR is approved.

For its submittals, the GC shall:

- Provide copies of the submittals to RE;
- Sequentially number the transmittal form, revise submittals with original number and a sequential alphabetic suffix;
- Identify the Project, GC, subcontractor, or supplier, as appropriate;

- Provide space for RE review and comments;
- Make corrections to each submittal as required by the RE, promptly revising and resubmitting, identifying changes made since previous submission and changes other than those requested by RE; and
- Promptly distribute copies of reviewed submittals to other parties, as appropriate.

It will be the responsibility of the GC to review submittals made by suppliers and subcontractors before transmitting them to the RE to ensure proper coordination of the work and to determine that each submittal is in accordance with the GC's desires and that there is sufficient information about materials and equipment for the RE to determine compliance.

Ecology will receive the following submittals for review:

- Progress schedule and schedule updates
- Daily work plan
- Monthly reports
- Quarterly reports
- Submittals for discussion in monthly progress meetings and other meetings with Ecology
- Project organizational chart
- Design drawings
- Zone A Removal Action—Temporary Structure Air Treatment Summary to Support Compliance with Air Permitting Substantial Equivalency (already submitted)
- Contingency Plan (as updated with GC information)
- Stormwater Runoff Management Plan (as updated with GC information)
    - Incident Spill Response Plan (as updated with GC information)

The GC's HASP, the traffic control plan, and submittals to Franklin County Building Department related to the installation and relocation of the temporary structure will also be shared with Ecology as a courtesy for informational purposes.

5.3 INSPECTIONS

Throughout the period of construction, the quality of work completed and material used for each of the work tasks will be confirmed through regular inspections of the work. Inspections will be completed throughout the construction by the RE and CQA support personnel, on a periodic basis, as required.

In general, inspections to be conducted by the RE and CQA support personnel include the following, as appropriate:

- Daily inspections of the work in progress

- Inspection of material as it is delivered to the Site to check for damage during delivery
- Comparison of the material delivered to the Site to the project requirements to ensure that the proper material has been delivered to the Site
- Inspections of materials after they have been installed to ensure that there has not been damage during installation and that the materials have been installed in accordance with the project requirements
- A preconstruction inspection performed prior to beginning work on any major work task, which includes the following:
    - A review of requirements to ensure that all materials and/or equipment has been tested according to applicable standards and project requirements
    - Confirmation that provisions have been made to provide required CQC testing
    - Examination of the work area to ascertain that all applicable/necessary preliminary work tasks have been completed/performed
- General inspections performed periodically as the amount of work completed warrants an inspection, which include the following, as appropriate:
    - Examination of the quality of workmanship
    - Review of health and safety statistics
    - Testing of materials for compliance with the project requirements
    - Identification of any omissions
    - General progress of work performed
    - Inspection of support zones, stockpile areas, and staging areas
    - Review of HazCat and analytical data related to waste characterization
    - Review of drum inventory database
    - Review of waste profiling and manifests
    - Review of containers before transporting off site
    - Inspection of transportation vehicles prior to leaving the Site
    - Review of completed disposal documentation including weigh tickets
- Follow-up inspections performed upon completion of any major work task (e.g., initial setup of the temporary structure, prior to backfilling a completed excavation grid, prior to relocation of temporary structure) of the Zone A Removal Action work to ensure and verify compliance with the project requirements and drawings and to ensure that deficiencies identified in the general inspections have been corrected

These inspections will be performed by the RE, and the results of the inspections will be provided in the Construction Completion Tech Memo. Ecology representatives will be notified by the RE in advance of any pre-final and final inspections. The results of all inspections will be recorded in the daily log book as described in Section 6.0. Copies of the preconstruction, general, and pre-final and final inspection reports will be provided to the RE, the Owner's Representative Project Coordinator, and all parties involved in the inspection, as appropriate.

The components of each work task to be inspected, the types of inspections required, and the frequency of the inspections are summarized in Table D.3.1.

5.4 TESTING

In addition to the daily inspections of the construction progress, material testing will be carried out as required. Material testing will be performed to ensure compliance with material specifications and project requirements as presented in the EDR and GC submittals.

The testing requirements, methods of testing, testing frequency, key acceptance criteria, test sample sizes and locations, and potential corrective measures for each of these work task components are summarized in Table D.3.2. For convenience, the Zone A Removal Action QA/QC requirements specified for the project are listed in Table D.3.2. If a particular test for a contractor material or work activity frequently fails, the RE will increase the rate of QA testing, as determined to be appropriate, for the material/activity that fails.

Zone A Removal Action QC testing will be performed by the GC to measure and control the characteristics of the materials and installation procedures used in the Zone A Removal Action activities in order to demonstrate that the materials and installations meet the project requirements.

6.0 Inspection Documentation

6.1 GENERAL

This section details the documentation requirements for the CQAPP. The proper, thorough, and accurate documentation of all QA site activities is important in ensuring quality installation. QA testing will be documented daily.

6.2 DAILY LOG BOOK

The RE will record daily CQC activities in a Daily Log Book to be kept on site at all times. The log book will include the following information:

- Date and weather conditions
- Personnel on site
- Description of all site activities
- Decisions made regarding approval of units of material or of work, and/or corrective measures to be taken in cases of substandard quality
- Submittals made by suppliers verifying material quality
- Review of disposal records
- Construction delays and causes
- Areas affected by delays
- Construction problems and corrective measures
- Present phase of construction
- Material and/or equipment delivered to site (including equipment demobilization)
- Inspections made
- Health and safety considerations
- QC tests performed and results of tests taken on previous workday
- Instructions given by the RE
- Changed conditions/conflicts encountered
- Remarks

Each daily entry into the log will be signed by the RE as verification to its correctness.

6.2.1 Photograph Documentation

Photographs will be taken and dated showing significant construction activities. The photographer may be the RE and/or the GC. The significant activities, at a minimum, requiring photograph documentation are presented in Table D.3.1. The photograph log will be maintained by the RE.

6.3 INSTRUMENT CALIBRATION

The CQA support personnel will record calibrations and recalibrations of test equipment in an Inspection and Test Log Book, maintained on site by the RE. Actions taken as a result of recalibration will be recorded in the Inspection and Test Log Book, as described in the next section.

6.4 INSPECTION AND TEST LOG BOOK

All observations and QC field tests will be recorded by the CQA support personnel into Inspection and Test Log Books numbered sequentially. Separate log books may be kept for various work task components. These books will be kept on site and maintained by the RE. Results of the CQA inspections and field tests will be added to the CQA Inspection and Test Log Book within 48 hours of completion. The Inspection and Test Log Book will include the following information:

- Date, time, and weather conditions
- Description or title of the inspection or test activity
- Location of the inspection or test activity or location from which the sample increment was obtained
- Type of inspection or test activity and procedure used (reference to standard method when appropriate)
- Recorded observation or test data, with all necessary calculations
- Results of the inspection or test activity and comparison with project requirements
- Notes of important photographs taken or references to photograph logs when deemed appropriate by the RE; for example, photograph documentation will be used in coordination with Ecology to confirm concurrence with the lateral extent of excavations along the perimeter of Zone A.
- Personnel involved in the inspection or test activity.
- Signature of the appropriate CQA inspection/support personnel and concurrence by the RE.

Items above shall be formulated into checklists so that details are not overlooked.

6.5 PROBLEM/CORRECTIVE MEASURES REPORTS

A problem is defined as material or workmanship that does not meet the project requirements. Problem/Corrective Measures Reports will be cross-referenced to specific inspection entries in the Inspection and Test Log Book where the problem was identified. Problem/Corrective Measures Reports will include the following information:

- Unique identifying sheet number for cross-referencing and document control
- Detailed description of the problem
- Location of the problem
- Probable cause
- How and when the problem was located (reference to Inspection and Test Log Book)
- Estimation of how long problem has existed
- Suggested corrective measures
- Documentation of correction (reference to Inspection and Test Log Book)
- Final results
- Photographs or references to photograph logs when deemed appropriate by the RE
- Suggested methods to prevent similar problems
- Signature of the appropriate CQA support personnel, signature by the RE, and signature by GC representative

In some cases, not all of the above information will be available or obtainable.

6.6 FINAL INSPECTIONS AND CONSTRUCTION COMPLETION REPORT

At least 28 calendar days prior to the completion of construction (i.e., GC demobilization), the GC will schedule the pre-final inspection to occur within the 14 calendar days prior to the anticipated completion of construction. At least 7 days prior to the pre-final inspection, the RE will provide documentation that the remedial objectives related to the remedy have been met or will be met at the completion of construction, or otherwise the pre-final inspection will be rescheduled.

The GC's representative, the Owner's Representative Project Coordinator, and the RE will accompany Ecology personnel and/or their representatives on a pre-final inspection. The pre-final inspection shall consist of a walkthrough of the Site to determine the completeness of the construction and its consistency with the final EDR and any Ecology-approved changes. If any items have not been completed, the RE will develop a punch list that details the outstanding items still requiring completion or correction, before acceptance of work. The GC will develop an implementation schedule to complete the punch list items for RE approval.

A final inspection shall be conducted when all of the items on the punch list have been completed. All items indicated as requiring correction on the punch list will be re-inspected. A final punch list and schedule will be developed for any outstanding items still requiring correction.

Following completion of the tasks on the final punch list, the Owner's Representative Project Coordinator and the RE will be available to accompany Ecology personnel and/or their respective representatives on a follow-up inspection.

Inspection and corrective measures reports, if any, will be submitted following completion of field inspection of the corrective measures implementation.

Following receipt of Ecology's determination that construction is complete, the RE, in collaboration with the GC and Owner's Representatives, will submit a draft Construction Completion Tech Memo. Following receipt of Ecology's comments, the Construction Completion Tech Memo will be revised and resubmitted in final form.

6.7 STORAGE OF RECORDS

During construction, the RE will maintain a copy of the following QA/QC-related documents in the site office:

- EDR and design drawings
- Other relevant project requirements such as the *Zone A Removal Action—Temporary Structure Air Treatment Summary to Support Compliance with Air Permitting Substantial Equivalency* technical memorandum
- Contract specifications
- Zone A Removal Action QA/QC inspection and test results
- GC submittals
- GC's Daily Log Book including photograph documentation
- CQA Inspection and Test Log Book
- Problem/Corrective Measures Reports

Once the construction is complete, all CQA documents (originals) will be retained by the RE and a copy sent to the Owner's Representative Project Coordinator for record retention. Retention of records is required under Section VIII.F of Enforcement Order No. 16899 that states: "During the pendency of this Order, and for ten (10) years from the date of completion of the work performed pursuant to this Order, the Enforcement Order PLPs shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order."

Pasco Sanitary Landfill NPL Site

Zone A Removal Action
Engineering Design Report

Appendix D
Control Plans

Appendix D.3
Construction Quality Assurance Project Plan

Tables

FINAL

Table D.3.1
Summary of Construction Quality Assurance Inspections

Key Work Task Component to be Inspected	Key Items to be Checked During Inspection	Frequency of Inspection	Key Contractor Submittals to Resident Engineer
Health and Safety			
• Site-Specific Health and Safety Plan (HASP)	• Has HASP been prepared as specified? • Are health and safety procedures and monitoring being followed? • Are safety data sheets (SDS) provided as specified?	• TBD • Regular periodic during work • TBD	• Site-Specific HASP • Proof of personnel safety training • Air monitoring records and safety statistics • SDS for chemicals to be brought to site
• Air Monitoring	• Are procedures in place for monitoring • Are monitoring stations setup at proper locations • Is monitoring being conducted as specified • Presence of nuisance odors that are not from background sources noticeable at site perimeter	• Prior to commencing work • Daily • Daily • Daily	• Air monitoring plan • None • Air monitoring data • None
Administrative Requirements			
• General	• Are progress meetings and reporting being conducted as specified?	• Prior to start and periodic during work	• Meeting minutes • Progress reports
• Project record documents	• Approved changes to drawings, specifications, change orders, and other modifications • Are waste management databases being maintained as specified?	• Concurrent with work progress • When directed by Resident Engineer team	• Completed record documents • Progress schedules • Electronic copy of databases
Execution Requirements			
• Examination	• Has pre-work inspection of existing conditions been conducted by Resident Engineer and General Contractor (GC)? • Are ongoing inspections being conducted?	• Prior to commencing work • Regular periodic during work	• None required • None required
• Field Survey	• Has current baseline field survey been provided to GC? • Has GC employed Washington Registered Land Surveyor? • Have bench marks/baselines been established?	• Prior to commencing work • Prior to commencing work • Prior to commencing work	• None required • None required • None required
Temporary Facilities and Controls			
• Temporary Utilities	• Have temporary utilities been coordinated with local electrical utility? • Have overhead electrical lines beside Zone A been relocated?	• Periodic during work • Prior to commencing work	• None • None
• Construction Facilities	• Have construction facilities been provided as specified? • Is temporary moveable structure constructed as specified? • Is air treatment system installed and operating correctly? • Is the temporary and air treatment system ready for occupancy?	• Periodic during installation • Engineer inspection of each relocation and certification submittal to County • Periodic during operation • Following setup and prior to entry	• Temporary moveable structure design, design and air handling criteria, and calculations • None • None • None • Container management pad design • Wastewater treatment system design • Wastewater storage tank design
• Clean Imported Common Fill	• Does imported common fill meet specifications?	• Within 7 days of request by Resident Engineer • One composite sample analyses per 1,000 c.y. or less	• Name of source of common fill • Chemical analytical data
• Temporary Controls	• Have temporary controls been provided as specified? • Have barriers, enclosures, and fencing been provided or specified?	• Periodic during work • GC to check perimeter fencing and warning signs on a daily basis • GC to provide security patrol during non-working hours • Periodic during work	• Security log on request • Equipment decontamination file on request • None

Table D.3.1
Summary of Construction Quality Assurance Inspections

Key Work Task Component to be Inspected	Key Items to be Checked During Inspection	Frequency of Inspection	Key Contractor Submittals to Resident Engineer
Temporary Wastewater Treatment System			
• Material	• Does equipment meet specifications?	• Upon delivery	• Product data
• Installation	• Has system been designed and installed as specified? • Is working area free of standing water	• Periodic during installation • Daily as required	• Testing results; solids/sediment waste data; discharge data • Manufacturer's instructions • None
• Ongoing performance	• Is discharge within limits? • Is decommissioning and removal performed as specified?	• Daily as required • Upon completion of work	• Testing results; solids/sediment waste data; discharge data • Testing results and disposal information
Storm Water Management			
• Plan	• Is draft plan updated with site-specific information	• Prior to commencement of construction	• Storm water management plan
• Installation	• Are storm water management measures in place?	• Prior to commencement of construction	• None
• Ongoing performance	• Are storm water management measure working as intended? • Are issues corrected in a timely manner and the plan updated?	• Routinely during work • As required	• None • Storm water management plan update
Fencing and Gates			
• Perimeter fencing Material	• Does fencing meet specifications?	• Prior to installation	• Product data
• Installation	• Has fencing and gates been installed as specified?	• After installation	• Manufacturer Instructions
• Ongoing performance	• Are fencing and gates working as intended? • Are issues corrected in a timely manner?	• Routinely during work • As required	• None • None

Table D.3.1
Summary of Construction Quality Assurance Inspections

Key Work Task Component to be Inspected	Key Items to be Checked During Inspection	Frequency of Inspection	Key Contractor Submittals to Resident Engineer
Excavation and Drum Removal			
• Excavation Plan	• Has Excavation Plan been prepared as specified?	• TBD	• Excavation Plan
• Excavation and Stockpiling of Soil Cover Material Above Geomembrane	• Are excavations and stockpiling being performed as specified?	• Periodic during excavation	• None
• Removal of Existing Geomembrane and Geosynthetic Clay Liner (GCL)	• Is removal and reuse, stockpiling, or disposal being performed as specified?	• Periodic during removal	• None
• Excavation and Stockpiling of Engineered Soil Fill Below Geomembrane and Above Visqueen	• Is excavation and stockpiling being performed as specified?	• Periodic during excavation	• None
• Excavating and Removing Soils, Wastes, and Drums	• Are drums, drummed waste, free liquids, and separated potentially combustible material being removed as specified? • Are completed areas of excavation survey?	• Routinely during removal • Routinely during removal	• Excavation Plan • Survey data
• Removing Drums from the Excavation	• Are drums being removed as specified? • Are drums being preliminarily classified/screened as specified?	• Routinely during removal • Routinely during removal	• Excavation Plan • Excavation Plan
• Overpacking Intact Drums and Drums Containing Liquids	• Is drum overpacking being conducted as specified? • Are free liquids being removed as specified?	• Routinely during removal • Routinely during removal	• Excavation Plan • Excavation Plan
• Removing and Containerizing NAPL Uncovered	• Are pooled free liquids being removed from excavation as specified?	• Routinely during work	• Excavation Plan
• Removing Readily-Separable (by Mechanical Means) Potentially Combustible Material	• Are potentially combustible materials being removed as specified?	• Routinely during work	• Excavation Plan
• Accumulation of Material Removed from the Excavation	• Has container management area been constructed where and as specified?	• Prior to commencement of construction • Periodic during construction	• None • None
• Drum Segregation and Staging	• Have drums been segregated and accumulated based on specified groupings? • Are drums being inspected and logged as specified? • Are drum/waste type groupings being managed as specified?	• Regular periodic during work • Regular periodic during work • Regular periodic during work	• Drum log • Drum log • Drum log
• Spill Prevention and Response	• Is handling of drummed waste being conducted in a controlled and safe manner?	• Routinely during work	• None
• Drum Bulking	• Are drums permitted to be bulked and as specified?	• Routinely during work	• Bulked drum count and location when requested
• Stockpile Management	• Are temporary stockpiles constructed and maintained as specified?	• Routinely during work	• None
• Backfilling Relocated Waste/Backfill Material	• Is material being backfilled as specified?	• Routinely during work	• None
• Quality Control	• Has work been conducted in presence of Engineer?	• Routinely during work	• None
• Relocation of the Temporary Structure	• Is excavation and associated documentation complete for the current temporary structure position? • See Excavating and Removing Soils, Wastes, and Drums above for setup of temporary structure in new position	• Prior to planned relocation of the temporary structure • Engineer inspection of each relocation and certification submittal to County	• Survey data and waste management documentation • See above

Table D.3.1
Summary of Construction Quality Assurance Inspections

Key Work Task Component to be Inspected	Key Items to be Checked During Inspection	Frequency of Inspection	Key Contractor Submittals to Resident Engineer
Chemical Sampling and Analyses			
• GC's Quality Assurance Project Plan (QAPP)	• Does GC's QAPP meet specifications?	• TBD	• QAPP
• HazCat® analyses	• Does every drum have associated HazCat® data?	• Daily during drum excavation	• HazCat® and drum inventory records
• Drum Log, Waste Analyses Data Sheets, Sample Lists	• Do sampling records meet specifications?	• Routinely during work	• Sampling records
• Waste Disposal Proposal	• Does proposal meet specifications?	• As specified and when requested by Resident Engineer team	• Waste Disposal Proposal
• Waste and Drum Sampling Procedures	• Is waste and drum sampling being conducted as specified?	• Routinely during work	• As specified
• Bulked Material Groupings Sampling	• Are bulked material groupings being sampled as specified?	• Routinely during work	• As specified
• Sample Chain-of-Custody and Shipment	• Are sample chain-of-custody and shipment procedures being followed as specified?	• Routinely during work	• As specified
Transportation and Disposal			
• Transportation and Disposal (T&D) Proposal	• Has T&D Proposal been provided as specified?	• 30 days prior to T&D of materials from the site	• Transportation and Disposal Proposal • Operating licenses and permits
• Quality Assurance	• Has GC conducted waste sampling and waste profiling analyses as specified?	• Prior to off-site disposal	• Analytical results and waste profiles
• Transport of Waste Materials	• Are trucks and tankers properly prepared to receive waste materials?	• Routinely during work	• None
• Decontamination of Transportation Vehicles and Containers	• Are vehicles and containers being decontaminated properly?	• Before vehicles and containers leave site	• None
• Disposal of Materials	• Are materials transported and disposed of as specified?	• Routinely during work	• Transportation and Disposal Proposal • Shipping and disposal documents (manifests) • TSDF Weigh Scale documents
Post-Construction Grading Plan			
	• Has temporary interim surface grading of backfilled Zone A excavation been completed as specified?	• During surface grading activities	• Grading plan • Survey data
Post-Excavation Temporary Cover			
• Asphalt and Cellular Concrete	• Does mix design meet specifications?	• Each source of asphalt and cellular concrete	• Asphalt and/or concrete supplier name • Aggregate source • Viscosity data • Manufacturer's test data and certificates • Job mix formula
	• Has asphalt and cellular concrete been installed as specified?	• Continuous during placement	• None
	• Horizontal control	• Following placement	• Survey data
• Granular Base Material	• Does granular base material meet specifications?	• Each source of granular base material	• Source of granular base material • Gradation curve
	• Has granular base material been placed as specified?	• Continuous during placement	• None
	• Horizontal and vertical control	• Following placement	• Survey data

Notes:
- Frequencies of inspections are considered minimum and will be increased or added to as determined necessary by Resident Engineer team.
- This table will be updated and finalized following completion of the project plans and specifications.

Table D.3.2
Summary of Construction Quality Assurance and Quality Control Tests

Work Task Component to be Tested	Type of Test	Standard	Frequency of Tests per Construction Specifications	Key Acceptance Criteria	Sample Size/Location	Potential Corrective Measures	Test Location	Percentage of Test Frequency by Contractor	Percentage of Test Frequency by Engineer
Soil Vapor Extraction System									
• Piping Materials	• Negative pressure test	• Visual, qualitative	• Following installation	• Typical industry standard to be determined based on design	• Pipe joints	• Check joints and re-seal	• Pipe joints	• 0	• 100
• SVE Wellheads	• Negative pressure test	• Industry standard for typical pressure drop	• Following installation	• Typical industry standard to be determined based on design	• Wellheads	• Check wellhead fittings and re-tighten or replace	• Wellheads	• 0	• 100
Temporary Facilities and Controls									
• Asphalt	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD
• Clean Imported Road Gravel	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD
Health and Safety									
• Air Sampling Inside Temporary Structure	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD
Backfilling									
• Clean Imported Common Fill	• VOCs • SVOCs • Pesticides • Herbicides • Metals • Cyanide • PCBs	• SW-846 8260 • SW-846 8270 • SW-846 8081 • SW-846 8151 • SW-846 6000/7000 series • SW-846 9010 or 9012 • SW-846 8082	• One composite sample per 1,000 c.y. per source	• In accordance with State criteria	• Size per SW-846 • Sample collected from stockpile at source	• Locate suitable material and re-test	• Source stockpile	• 100	• 0
Post-Excavation Temporary Cover									
• Asphalt and/or Concrete	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD
• Granular Base Material	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD
Temporary Wastewater Treatment System									
• Water Samples	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD	• TBD

Notes:
Refer to the Waste Handling, Characterization, and Disposal Plan for waste testing information.
TBD - Required submittals, tests, and inspection criteria will be determined following completion of the project plans and specifications.
This table will be updated and finalized following completion of the project plans and specifications.