Interim Remedial Action Plan, Ephrata Landfill Corrective Action, Contaminated Soil Removal and Confirmation Sampling for the Neva Lake Road Extension

and

October 2012

Parametrix

PGG

Interim Remedial Action Plan, Ephrata Landfill Corrective Action, Contaminated Soil Removal and Confirmation Sampling for the Neva Lake Road Extension

Prepared for

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CERTIFICATION

The technical material and data contained in this document, other than the Neva Lake Road project documents contained in Appendices A and B, were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below. The materials in Appendices A and B are provided for information.

EXPIRES 01-08-2013

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ACRONYMS AND ABBREVIATIONS

ARI	Analytical Resources, Inc.
BTEX	benzene, toluene, ethylbenzene, and xylene
CAP	cleanup action plan
CFR	Code of Federal Regulations
CH_4	methane
City	City of Ephrata
CLP	Contract Laboratory Program
CO	carbon monoxide
CO_2	carbon dioxide
COC	contaminant of concern
County	Grant County
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
H_2S	hydrogen sulfide
HASP	health and safety plan
ID	identification
IRAP	interim remedial action plan
LEL	lower explosive limit
mg/kg	milligrams per kilogram
N_2	nitrogen
NES	north end soils
O_2	oxygen
OSHA	Occupational Safety and Health Administration
PCE	tetrachloroethene
PGG	Pacific Groundwater Group
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
QA/QC	quality assurance/quality control
QAP	quality assurance plan
RI/FS	remedial investigation and feasibility study
SAP	sampling and analysis plan
sf	square feet

ACRONYMS AND ABBREVIATIONS (CONTINUED)

TCE	trichloroethene
TLV	Threshold Limit Values
UTS	universal treatment standards
VOC	volatile organic compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act

1. INTRODUCTION

This interim remedial action plan (IRAP) was prepared consistent with the Model Toxics Control Act (MTCA), Chapter 70.105D Revised Code of Washington, and its implementing regulations, Chapter 173-340 Washington Administrative Code (WAC) to address the removal of certain contaminated soil and refuse from the north end of the Ephrata Landfill parcel (site) in Grant County, Washington, in preparation for the extension of Neva Lake Road across the north end of the site. The contaminated area and the road corridor through the north end of the site are shown on Figure 1. The uncapped, contaminated soil and refuse in the area shown on Figure 1 are commonly referred to as north end soils (NES).

Included in this IRAP are a summary of the Neva Lake Road Extension project, as well as the sampling analysis, quality assurance, and health and safety plan (SAP/QAP/HASP) for the confirmation sampling that will be conducted during NES removal.

1.1 REGULATORY BASIS FOR THE INTERIM ACTION

This IRAP has been prepared by Parametrix and Pacific Groundwater Group (PGG) under the terms of Agreed Order DE 3810, dated January 30, 2007, between Grant County (the County), the City of Ephrata (the City), and the Washington State Department of Ecology (Ecology). The Agreed Order provides the administrative framework for addressing historical releases of hazardous substances at Ephrata Landfill. This interim action is being conducted in conjunction with the Remedial Investigation and Feasibility Study (RI/FS) for the Ephrata Landfill.

The RI/FS was recently performed to evaluate cleanup requirements in accordance with Chapter 173-340 WAC, and agency draft reports have been submitted to Ecology (PGG 2010, 2012; Parametrix 2012). The FS identified NES as a potential source of continued groundwater contamination and developed various excavation and capping and monitoring options as components of several cleanup action alternatives (Parametrix 2012). NES cleanup actions beyond those performed in this IRAP, if any, will be addressed in the final cleanup action plan (CAP) for the site.

The planned Neva Lake Road corridor comprises the paved roadway and unpaved margins of exposed, existing ground between the pavement and fences along both sides of the road. Unless NES in the road corridor is removed, the general public could potentially be exposed through direct contact with NES in the unpaved margins. The general public could also be exposed to inhalation of airborne NES (dust), and removing NES from the road corridor would reduce that exposure. Concentrations of hazardous substances in NES were also calculated in the FS to be high enough to potentially cause exceedances of MTCA Method B groundwater cleanup standards (Parametrix 2012).

This IRAP was prepared consistent with the MTCA Cleanup Regulation, including WAC 173-340-430, which specifies requirements for conducting an interim remedial action.

Removing NES to bedrock within the road corridor and replacing it with clean fill will reduce human exposure to hazardous substances (WAC 173-340-430(1)(a)) in the NES.

By removing NES within the road corridor as an interim action now, the County can avoid costly road removal and replacement later (WAC 173-340-430(1)(b)) should the final cleanup action include NES removal, partial removal, or capping. The road extension project bid price was about $450,000, excluding County costs for contract document preparation and construction administration.

This interim action is anticipated to achieve soil cleanup standards (WAC 173-340-430(2)(a)) within the Neva Lake Road corridor or provide partial cleanup (WAC 173-340-430(2)(b)).

The final cleanup action for the Ephrata Landfill Site is not yet defined, although cleanup action alternatives are described in the FS (Parametrix 2012). Removal of NES from the road corridor is a cleanup action alternative component in the FS and will not foreclose reasonable cleanup action alternatives (WAC 173-340-430(3)(b)).

The Neva Lake Road extension project is scheduled for construction in the fall of 2012. Work in the NES area is planned to occur before the final cleanup action for the site will be defined. This is acceptable timing for an interim action, which may occur any time during the cleanup process (WAC 173-340-430(4)(a)).

The report prior to conducting an interim action (WAC 173-340-430(7)) comprises this IRAP, the Neva Lake Road construction documents (Appendix A), the contractor-prepared health and safety plan (Appendix B), the analytical results from NES and associated groundwater samples (Appendix C), the field log and chain of custody forms (Appendix D), and the health and safety summary and hospital map (Appendix E). This IRAP, including the information contained in the appendices, is a complete description of the interim action.

Section 3, Background, contains a summary of relevant RI information (PGG 2010, 2012), pertinent information from the FS (Parametrix 2012) is noted throughout this subsection (WAC 173-340-430(7)(b)), and analytical results from NES samples and groundwater samples collected in the NES area during the RI are contained in Appendix C (WAC 173-340-430(7)(b) and (b)(i)).

Although other possible interim actions were considered (WAC 173-340-430(7)(b)(ii)), NES removal to bedrock is the most complete NES cleanup action. In addition to excavation to bedrock, the FS evaluates other possible cleanup actions related to NES: (1) leaving NES in place, monitoring groundwater, and evaluating capping or removal if groundwater concentrations increase; (2) leaving NES in place and installing a geomembrane cover system (cap); and (3) removing a 3-foot layer of NES within the road corridor, capping the NES area and road corridor, and bringing the road corridor back to original grade with clean fill over the cap (Parametrix 2012). Since these alternatives would have involved leaving some or all the NES within the road corridor in place, thus requiring long-term management and preserving the possibility of future NES-related actions, NES removal to bedrock within the road corridor and north to the property line was selected as the interim action.

Appendix A contains design and construction information (WAC 173-340-430(7)(c)).

Compliance monitoring plans (WAC 173-340-430(7)(d)) are addressed in Section 5, Soil Sampling and Analysis Plan, Section 8, Health and Safety Plan, and in the contractor-prepared health and safety plan (Appendix B). Section 5 covers field screening procedures and confirmation sampling in the excavation. Section 8 covers protection monitoring for PGG personnel conducting field operations. The contractor-prepared health and safety plan (Appendix B) covers protection monitoring for contractor and subcontractor personnel and the public.

Health and safety plans (Section 8, Appendix B) for this interim action are consistent with requirements at WAC 173-340-810 (WAC 173-340-430(7)(e)).

Section 5, Soil Sampling and Analysis Plan, meets the applicable requirements of WAC 173-340-820 (WAC 173-340-430(7)(f)).

1.2 NEVA LAKE ROAD EXTENSION PROJECT SUMMARY

The County is extending Neva Lake Road to provide a connection from Dodson Road to State Highway 28. The planned road alignment crosses NES area (Figure 1). To avoid building the road over contaminated ground, NES will be removed to bedrock (3 to 8 feet below ground surface) within an 80-foot-wide road corridor centered on the new road alignment (Figure 1). The small area of NES immediately north of the road corridor to the property line will also be excavated to bedrock. NES removal in the road corridor and the small area north of the road is part of this interim remedial action.

The County prepared the road project plans, including the plans for NES excavation and management, under the supervision Derek Pohle, P.E, Director of Grant County Public Works/Grant County Engineer. Appendix A contains a copy of the road contract documents.

The road construction, including NES excavation, will be performed by Tommer Construction Company, Inc., of Ephrata, Washington. The road extension contract requires the contractor to prepare a health and safety plan addressing compliance with Chapter 296-843 WAC for work in the NES area. Appendix B contains the contractor's health and safety plan.

Major elements of the contractor's health and safety plan include the following:

- Contact information for the health and safety officer and other key personnel
- Contractor employee training and certification
- Personal protective equipment (PPE)
- Air monitoring
- Site control measures
- Dust control
- Decontamination
- Emergency response and spill containment

In summary, Tommer will delineate a hot zone with cones and warning tape around the NES excavation area, monitor the breathing zone for volatile organic compounds (VOCs), methane (CH_4), carbon monoxide (CO), and hydrogen sulfide (H_2S) using a combined photoionization detector (PID)/combustible gas meter, visually monitor for dust and dampen soils as needed to control dust, decontaminate equipment (an excavator) before moving it from the NES excavation area by brushing dry soil or washing wet soil from the tracks and bucket, and implementing personnel training, decontamination, PPE, and hygiene protocols.

Although NES are contaminated at concentrations exceeding certain standards under the MTCA Cleanup Regulation (Chapter 173-340 WAC), they are not expected to exceed universal treatment standards (UTS; 40 Code of Federal Regulations [CFR] Part 268, §286.48). Excavated NES will be hauled onsite directly to the active, lined landfill on the site. Wet NES will first be spread to dry in a bermed, lined area shown on construction plan sheet 5 (Appendix A). An additional stockpile area (Alternative A2 area, plan sheet 5, Appendix A) will be constructed if needed to stage dry excavated NES.

1.3 SAP/QAP/HASP SUMMARY, PURPOSE, AND OBJECTIVE

The SAP/QAP/HASP described in this document apply to PGG personnel and pertain to observation, monitoring, and sampling activities related to NES excavation. Soil field

screening and confirmation soil sampling will be performed. The SAP/QAP/HASP herein complement the contractor's health and safety plan (Appendix B).

PGG prepared the SAP/QAP/HASP elements of this IRAP. The purpose of the SAP/QAP/HASP is to provide details of field investigations, laboratory analyses, and quality assurance measures to support the interim action.

Soils will be removed to bedrock within an 80-foot-wide road corridor along the new road alignment and a small area north of the road to the property line, and soil field screening and confirmation soil sampling will be performed.

The plan also identifies data quality objectives for the investigation, and presents the data generation, assessment, and validation procedures so that the collected data will achieve its planned quality assurance/quality control (QA/QC) performance criteria.

The plan also presents project-specific health and safety requirements for environmental sampling and other investigative work to be conducted during and after the soil removal. The HASP was exclusively designed for PGG employees and presents health and safety requirements during this project. This HASP is not intended to address the health and safety of parties other than PGG, and through distribution of this plan, PGG does not assume any liability for other parties' health and safety practices or failure to implement health and safety practices.

The SAP/QAP/HASP portion of the IRAP was prepared to be consistent with requirements in WAC 173-340-820 and 830.

2. PROJECT ORGANIZATION AND MANAGEMENT

The following project organization and management elements describe project roles and responsibilities, documentation, and reporting requirements.

2.1 PROJECT ORGANIZATION

The project team is formed by members of the County and its consultants, Parametrix and PGG, Tommer Construction, the City and its consultant AECOM Environment, and Ecology. PGG will subcontract for laboratory services required by this SAP.

The project site is currently owned and operated by the County. Derek Pohle is the project manager for the County, and the engineer of record for the Neva Lake Road extension project. The County will make arrangements for site access and provide an onsite laboratory truck for the investigation presented in this plan. Tommer Construction is the County's contractor for the road construction and all earth work, including NES removal and disposal.

The project site was formerly owned and operated by the City. Wes Crago is the City Manager and project manager for the City. The City has retained AECOM Environment to consult regarding environmental cleanup. Thom Booth is the project manager for AECOM.

Ecology is the lead regulatory agency for the project. Cole Carter is Ecology's site manager providing regulatory oversight and approvals.

The primary consultants for the soil removal and investigation presented in this plan will be PGG and Parametrix. PGG personnel will be responsible for field investigative activities, data collection, data management, and reporting.

The following table provides a summary of key personnel involved in the implementation of this interim remedial action.

Person	Organization	Primary Phone No.	Role
Charles Ellingson, LHG	PGG	206-329-0141	Project Manager, Soil Sampling
Dawn Chapel, LG	PGG	206-329-0141	Assistant Project Manager, Field Manager, Project QA/QC Manager, Soil Sampling
Travis Klaas	PGG	206-329-0141	Field and Analysis Support, Soil Sampling
Wayne Rennick	PGG	206-329-0141	GIS Specialist, Soil Sampling
Brian Pippin, P.E.	Parametrix	425-458-6370	Ephrata Landfill RI/FS Project Engineer
Derek Pohle, P.E.	Grant County	509-754-6082	Public Works Director, County Engineer, Neva Lake Road Project Manager
Chris Tommer	Tommer Construction	509-750-8954	Neva Lake Road Project Manager
Kelly Judkins	Tommer Construction	509-760-4207	Neva Lake Road Project Site Safety Supervisor
Sheila McConnell, CIH	McConnell & Associates	425-681-7516	Certified Industrial Hygienist Retained by Tommer Construction
Cole H. Carter	Ecology	509-329-3609	MTCA Cleanup Site Manager

2.2 SPECIAL TRAINING AND CERTIFICATION

All personnel conducting field activities will comply with the Washington Industrial Safety and Health Act (WISHA) per Chapter 49.17 Revised Code of Washington.

All personnel conducting field activities will be trained in accordance with the applicable requirements of Chapter 296-843 WAC.

Laboratory services will be performed by labs accredited by Ecology.

2.3 DOCUMENTATION AND RECORDS

The following data management tools will be used to archive data collected during the investigation:

- Soil data will be imported into a Microsoft Access database established for all soil data collected as part of this investigation. Data will include coordinates of sample locations, station identifications (IDs), and all soil sampling results (both field-screening and laboratory analyses).
- Daily field logs documenting all field activities and observations will be scanned and retained electronically.

PGG performs daily backups and monthly archiving of networked hard drive contents.

2.4 REPORTING

Following completion of sampling and analysis under the tasks identified in this SAP/QAP/HASP, PGG will produce a memorandum summarizing the field data, and comparisons to project goals and potential soil cleanup levels.

All confirmation analytical soil data will be submitted to Ecology in both printed and electronic forms in accordance with WAC 173-340-840(5) and Environmental Information Management Submittal Guidelines version 2006.01 (Ecology 2006).

3. BACKGROUND

This section provides a brief overview of the site hydrogeology and NES contamination at the site.

3.1 HYDROGEOLOGY

The RI identified two water-bearing zones and seven aquifers, aquitards, and formations related to the site (PGG 2010, 2012). These are listed below from shallowest to deepest:

- P1 zone
- P2 zone
- Roza aquifer
- Interflow aquifer
- Outwash aquifer
- Ringold aquifer
- Frenchman Springs aquifer
- Vantage aquitard
- Grand Ronde formation

The P1, P2, Roza, Interflow, and Frenchman Springs occur in permeable weathered zones within the Wanapum Basalt. The P1 also occurs within unconsolidated sediments above the top of basalt within the drum area and in saturated sediments above bedrock in the vicinity of the contaminated NES.

Residual contamination from the drum area, the original landfill and Hole, and contaminated NES were identified in the RI as site sources of groundwater contamination (PGG 2010, 2012).

The RI identified two groundwater contaminant plumes originating from site sources:

- A northerly plume originating from the drum area, the Hole, the old scale and maintenance shop area, and the north end of the original landfill and extending northward in the Roza aquifer, then to saturated alluvium and downward to the Interflow aquifer, toward the north and the northeast.
- A landfill plume originating beneath the original landfill and extending radially in the Interflow aquifer to the west, south, and east where the Interflow aquifer discharges to the Outwash aquifer. Some vertical migration to the deeper Frenchman Springs aquifer may also occur.

The hydrogeology and nature and extent of contamination are discussed in detail in the RI (PGG 2010, 2012).

3.2 CONTAMINATED NORTH END SOILS

During the RI, a soil investigation was conducted to assess potential sources of contamination around the old scale and maintenance shop. A number of test pits and soil borings were excavated to bedrock, and soil samples were collected for analytical testing. The results of the investigation indicated contaminated soils and refuse occur in the vicinity of the old scale and maintenance shop immediately north of the original landfill (NES; Figure 1). Soils were analyzed for site contaminants of concern (COCs) identified in the original RI/FS Work Plan

(PGG and Parametrix 2006). Most COCs are VOCs. Total VOCs detected in NES were low to moderate, ranging from not detected to 16.6 milligrams per kilogram (mg/kg) (Appendix C and PGG 2012). The highest concentrations occurred where abundant refuse and construction material was observed (T-12, T-13, and T-5) (Figure 1). In general, BTEX (benzene, toluene, ethylbenzene, and xylene) was the dominant group of VOCs detected in the soils. Other detected VOCs in one or more soil samples include:

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- Vinyl Chloride
- 1,4-Dichlorobenzene
- 1,2-Dichloropropane
- Methylene Chloride

The FS evaluated human and ecological health risks associated with NES and found that COC concentrations in soils did not exceed regulatory limits under MTCA Method C for direct contact. However, a fixed parameter three-phase partitioning model (WAC 173-340-747(4)) indicated NES could be a potential source of groundwater contamination.

The contaminated NES area was not included in the 2008 interim action of capping the original landfill because the old scale and maintenance shop were still in use. The extent of uncapped contaminated soils and refuse is about 72,000 square feet (sf) total. Of this, about 12,000 sf consists of landfill refuse and about 60,000 sf consists of soils mixed with construction material (metal, glass, asphalt, and wood). Except for a few low-level detections of methylene chloride (0.005 mg/kg or less), VOCs were not detected in soils that visually appeared to be clean (i.e., not mixed with refuse or construction material). The correlation of COCs to refuse and construction debris will be used to screen soils for this interim action.

The thickness of contaminated soils in the road alignment is generally less than 8 feet (Figure 1). The soil investigation also identified shallow water above bedrock at some locations, interpreted as the P1 zone. Monitoring well MW-41a currently monitors the P1 zone in this area and indicates about 2 feet of saturation above bedrock. The new road alignment is expected to extend through a portion of the saturated area (Figure 1).

4. SOIL REMOVAL AND FIELD OBSERVATIONS

Tommer Construction will remove NES to bedrock within an 80-foot-wide road corridor and small area immediately north of the road corridor to the property line (Figure 1). The southern limit of the excavation will be 40 feet from the road center line. The eastern limit will be at or near bedrock outcrops. The western limit of soil removal to bedrock will be determined in the field based on visual observations and field screening as described below. To the north, excavation will be to the road corridor limit, or approximate delineated NES boundary as confirmed by field screening, bedrock outcrop, or to the property line. Confirmation samples will also be collected along the west and north limits of the area excavated to bedrock. Outside the NES area, the contractor will cut and fill only as required to meet the grades specified for road construction.

Dry or slightly damp excavated soils and refuse will be disposed directly into the new lined landfill. Wet soils and refuse will be stockpiled in a bermed, lined area and allowed to dry before disposal to the landfill.

PGG will be on site to observe soil removal within the NES area. Visual observations during soil removal will include the following:

- Location and character of visually clean soils and soils mixed with potential sources of contamination (e.g., construction material and/or landfill refuse)
- Approximate depth to bedrock beneath the removed soils
- Lateral extent of removed soils
- Areas of saturation above bedrock
- Distribution and thickness of soil remaining in excavation, if any

All visual observations will be mapped and documented with digital photographs. Longitudinal locations of visual observations and samples will be mapped in the field using stationing established by the contractor and shown on bid documents. Lateral locations (perpendicular to center line) will be recorded as distance from the center line in feet north, or feet south.

5. SOIL SAMPLING AND ANALYSIS PLAN

PGG will be on site to perform field screening and soil confirmation sampling.

As mentioned above, the western limit and parts of the north limit of soil removal will be based on field screening. Soils observed to be mixed with potential sources of contamination (e.g., construction material and/or refuse) will be removed. Once soils along the west wall contain no refuse, soils will continue to be field-screened with the PID approximately every 1 to 2 feet until PID readings are consistent with background. This procedure will also be followed where the delineated NES area extends north of the north road corridor limit, bedrock outcrop, or to the property line.

Upon completion of soil removal, confirmation soil samples will be collected for laboratory analysis. Confirmation sample analytical results will be used to evaluate COC concentrations in remaining soils. Soils will be removed to bedrock both vertically and to the east. Removal to the south will be limited to the 80-foot-wide road corridor. As mentioned above, additional NES cleanup actions beyond those performed in this IRAP, if any, will be addressed in the final CAP for the site.

PGG will collect soil samples at 20-foot intervals along the west and north limits of the excavation where soils remain above bedrock to document COC concentrations in remaining soils. Each sample will consist of a vertically integrated sample composited across the soil profile from just below structural fill to the bottom of the excavation. Samples from the west excavation limit within the road corridor will be analyzed within 48 hours to evaluate whether further excavation to the west is needed.

Bedrock in the NES area is probably uneven, and traces of soil are anticipated to remain in cracks and low spots in the bottom of excavation. PGG will document soil thickness and extent with photographs and maps tied to the local coordinate system and collect soil samples from the bottom of the excavation where remaining soil is more than 3 inches thick. Up to four composite samples are planned. Each sample will be a composite of soils collected from discrete locations where soil remains in the bottom of the excavation near the recorded sample location.

Analytical parameters to be tested for by the lab will be site COCs (Table 1). Samples will be submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington. ARI is an accredited laboratory in accordance with Chapter 173-50 WAC, Accreditation of Environmental Laboratories.

5.1 PROCEDURES FOR FIELD SCREENING SOILS WITH PID

Field-screening analyses will be performed by PGG personnel. Field-screening activities will be recorded in field logs, including calibration of PID probe, sample ID numbers, measurement readings, date and time of measurements, sample locations, and name of personnel performing the measurements.

The PID instrument will be operated and calibrated in accordance with manufacturer's guidelines. Ambient vapor conditions on site and *in-situ* clean soil gas will be measured with the PID prior to field screening to define the range of background concentrations. At least eight background soil samples will be collected from clean soils.

Details for field-screening procedures follow.

Total VOC Field Screening

To conduct total VOC field screening, PGG will:

- Calibrate the PID probe in accordance with manufacturer's specifications on a daily basis.
- Prior to making individual PID measurements of the soil samples, PID readings of the ambient air, as well as the air in the 8-ounce sample jar, will be made and recorded.
- A clean, clear, graduated, 8-ounce glass jar will be filled with soil from the aliquot up to the 4-ounce fill line. Preference will be given to collection of soil matrix (sand-sized and smaller), and samplers will wear disposable (latex/nitrile) sampling gloves. A piece of aluminum foil will be placed over the mouth of the jar. The jar will then be manually agitated for 30 seconds to allow for release of volatile compounds into the headspace.
- The aluminum foil septum will then be pierced, the PID instrument will be inserted into the headspace, and a measurement of the maximum VOC concentration in the headspace maintained over 5 seconds will be recorded.
- Care will be taken to make sure the PID inlet tube does not become dirty or wet during the PID measurements to minimize contamination of the PID sensor.

5.2 CONFIRMATION SOIL SAMPLING

Samples submitted for laboratory analysis will be collected from the aliquots collected as part of the confirmation sampling as follows:

- Immediately following field screening, the sample will be placed into a laboratory supplied container. Preference will be given to the soil matrix (sand-sized and smaller), and samplers will wear disposable (latex/nitrile) sampling gloves.
- For most soils, U.S. Environmental Protection Agency (EPA) Sample Method 5035A will be used for VOC samples. For soils too coarse in texture for Method 5035A, a decontaminated spatula will be used to collect samples in a laboratory supplied 2-ounce wide-mouth jar.
- Record sample ID on all laboratory containers. The sample label on all samples should include at least the following information:
    1. Project name and number
    2. Name of collector
    3. Date and time of collection
    4. Location of collection
    5. Sample ID (tied to location)

Sample containers to be submitted for laboratory analysis will be immediately secured in iced coolers for delivery to the laboratory.

5.2.1 Sampling Equipment Decontamination

Sampling equipment (i.e., shovel and spatula, plug puller) will be decontaminated between sampling with a three-step wash.

1. Decontamination detergent (such as Alconox) and water wash
2. Tap water rinse
3. Deionized water rinse

Disposable gloves (latex/nitrile) will be discarded after each use.

5.2.2 Parameters and Analytical Methods

The analytical parameters to be tested for by the laboratory will be the site COCs (Table 1).

Laboratory methods acceptable for analysis of soil samples shall be among those described in EPA publication number SW-846, Test Methods for Evaluating Solid Waste Physical Chemical Methods; EPA-600/4-91-010, Test Methods for Determination of Metals in Environmental Samples; or EPA-600/4-79-010, Test Methods for Chemical Analysis of Water and Wastes. All laboratory analyses will be completed by ARI.

Target practical quantification limits, or reporting limits, for relatively simple matrices will be sufficiently low to allow data to be compared to the MTCA screening levels (Chapter 173-340 WAC) for parameters listed in Table 1. However, sample reporting limits will vary between samples due to sampling matrices and individual laboratory batches.

5.3 SOIL SAMPLING PROCEDURES

The sampling procedures described below include procedures for VOC field screening of soils with a PID instrument and soil collection for laboratory analysis. All sampling activities, field measurements, equipment calibration, and site observations made during soil sampling will be recorded in daily field logs.

Soils will be collected *in-situ* using a decontaminated shovel. To preserve sample integrity at a site where dust and wind are likely, a large volume aliquot will be collected and placed into a gallon size zip-lock bag and transferred to the onsite laboratory truck for immediate field screening (PID) and or sampling for offsite laboratory analysis.

Samplers will wear disposable (latex/nitrile) sampling gloves. Each aliquot sample bag will be labeled before transferring to the laboratory truck:

- Name of collector
- Date and time of collection
- Location of collection
- Sample ID (tied to location)

Labels will consist of separate tags that are adhered to the zip-lock bag. No labeling will be done directly on the zip-lock bag.

6. RECORD KEEPING

Sampling procedures, sampling locations, field measurements, and general site observations will be recorded with ink on daily field logs and chain-of-custody forms.

6.1 DAILY FIELD LOGS

Daily field logs may be maintained in either a bound, weather-proof field notebook or on separate daily log forms suitable for a three-ring binder. Each daily field log will include the date and field personnel name. The following information will be included in the daily field logs:

- Soil observations and location
- Sample point ID number for coordinating sample location and time of collection with PID results and analytical samples
- Appearance of sample (i.e., color, sediment texture, odor, or sheens)
- Equipment calibration and decontamination notes

A copy of the daily field log forms to be used is provided in Appendix D.

6.2 CHAIN-OF-CUSTODY FORMS

Laboratory chain-of-custody form(s) will be completed for confirmation samples and placed in the shipping cooler for travel with the sample shipment. These forms are provided by the analytical laboratory as a record for tracking samples from the point of collection to the laboratory. A copy of a chain-of-custody is provided in Appendix D. Upon transfer of sample possession to subsequent custodians, this form will be signed by the person taking custody of the sample container. As part of the chain-of-custody procedure, each sample container being delivered will be tracked by the site name, sample number, analytical testing to be performed, and other pertinent information.

7. QUALITY ASSURANCE/QUALITY CONTROL

The following sections describe the QA/QC measures to be performed during soil sampling at the site.

7.1 FIELD QUALITY CONTROL

Field QA/QC samples will consist of field matrix spike/matrix spike duplicates and trip blanks. The QA/QC field sampling methods are described below.

- A field matrix spike and matrix spike duplicate will be collected during confirmation sampling. Three sets of samples will be collected from a given location, one labeled with the identification for the original analysis, one labeled with the identification and suffix "-MS," and the final labeled with the identification and suffix "-MSD." The laboratory will analyze the three samples and will perform matrix spike and matrix spike duplicate analyses on the two extra sets of samples.
- A laboratory trip blank for a water VOC analysis will be provided by the laboratory in order to assess cross contamination. The laboratory will prepare 40-milliliter VOC containers with laboratory-supplied water for transport with the clean bottles from the laboratory to the field and back to the laboratory. The analytical laboratory will analyze the trip blank for VOCs using method 8260B.

Target acceptance criteria will be in accordance with the Contract Laboratory Program (CLP) National Functional Guidelines or analytical laboratory guidelines.

7.2 LABORATORY QUALITY CONTROL

ARI will perform the soil analyses for the investigation. ARI is accredited in accordance with Chapter 173-50 WAC. ARI will follow their standard QA protocol during analysis of soil samples.

7.3 QUALITY ASSURANCE OBJECTIVES

Quality assurance objectives for soil analytical data are usually expressed in terms of bias and precision. The soil analytical data will be evaluated using the parameters discussed below.

Bias. A matrix spike is prepared by adding a known amount of a pure compound to the environmental sample. A blank spike is prepared by adding a known amount of a pure compound to a laboratory-prepared blank sample. The spikes check for analytical interferences. The calculated percent recovery of the spike is taken as a measure of the bias of the total analytical method. When there is no change in volume due to the spike, percent recovery is calculated as follows:

$$PR = \frac{(O - X) \times 100}{T}$$

where:

PR = percent recovery

O = measured value of analyte concentration after addition of spike

X = measured value of analyte concentration in the sample before the spike is added

T = value of the spike

Tolerance limits for the acceptable percent recovery of matrix spikes and blank spikes are established by the lab in accordance with CLP Guidelines.

Precision. Laboratory replicates are used to indicate precision. Laboratory replicates are aliquots made in the laboratory of the same sample, and each aliquot is treated the same throughout the analytical method. The percent difference between the values of the replicates, as calculated below, is taken as a measure of the precision of the analytical method.

$$RPD = \frac{2\times(D_1 - D_2)\times 100}{(D_1 + D_2)}$$

where:

RPD = relative percent difference

D_1 = first aliquot value

D_2 = second aliquot (replicate) value

If the precision values for the laboratory replicate are outside the laboratory tolerance limit, the laboratory should recheck the calculations and/or identify the problem. Reanalysis may be required. If the precision values for either the laboratory replicate or field duplicate are outside the tolerance limit, sample results associated with the out-of-control precision results may be qualified at the time of validation.

7.4 LABORATORY DATA REVIEW

Analytical data will be evaluated by PGG with respect to the requirements of the project as specified herein. PGG will evaluate the data following Level III data-validation guidelines. These guidelines require the laboratory to report method blank, matrix spike, and laboratory replicate results, but not raw data or instrument-calibration information. These guidelines are found in the CLP Guidelines.

7.5 PHOTOIONIZATION DETECTOR QUALITY CONTROL

The PID instrument will be calibrated with 10 parts per million (ppm) isobutylene gas. Natural gases at the site (oxygen [O_2], carbon dioxide [CO_2], nitrogen [N_2], and CH_4) will not be ionized by the PID and will therefore not generate a detector's response and interfere with results.

Ambient vapor conditions on site and *in-situ* clean soil gas will be measured with the PID instrument prior to field screening in order to establish background conditions on site. At least eight background soil samples will be collected from clean soils and follow the PID procedures outlined in Section 5.1.

8. HEALTH AND SAFETY PLAN

This HASP presents project-specific health and safety requirements for environmental sampling and other investigative work to be conducted at the site for this interim action. This HASP was exclusively designed for PGG employees and presents health and safety requirements during this project. This HASP is not intended to address the health and safety of parties other than PGG, and through distribution of this plan, PGG does not assume any liability for other parties' health and safety practices or failure to implement health and safety practices.

8.1 HAZARD ASSESSMENT

The primary hazards associated with the field work are physical hazards, chemical hazards, and driving hazards. A discussion of potential hazards and the appropriate procedures for minimizing the risks related to each hazard follows.

8.1.1 Physical Hazards

Physical hazards anticipated during field activities include 1) head injuries and other accidents associated with heavy equipment, 2) slips or trips associated with uneven footing on cobbles and rock, and 3) back strain associated with improper or excessive lifting. Risk-minimization procedures for each hazard are described below.

Working around heavy equipment such as excavators and large trucks requires careful attention during field activities, and protective gear such as hardhats and steel-toed boots. Whenever possible, employees shall avoid working in the vicinity of potential physical hazards, or maintain the maximum possible distance from the potential hazard. Employees shall wear high-visibility reflective vests when working near operating equipment and remain in eye sight of heavy equipment operators. When within 20 feet of heavy equipment, employees should also wear earplugs.

All mapping and sampling activities should be conducted outside of the excavation as much as possible. Employees will only enter the excavation when side slopes are laid back no steeper than 1:1. Employees shall never enter the excavation without an observer. When entering the excavation employees shall wear at a minimum a Tyvek™ suit, reflector vest, protective gloves, steel-toed boots, hard hat, and safety glasses.

Employees shall not attempt to lift heavy items without assistance, and shall never bend at the waist when lifting. Employees may choose to use back supports.

8.1.2 Chemical Hazards

Chemical hazards are potential exposure to organic compounds during mapping and sampling of the soils. Threshold Limit Values (TLV) for employee exposure to potential organic chemicals are listed in Table E-1 of Appendix E. Any compound in Table E-1 can affect the body if inhaled or swallowed, or if contact occurs with the eyes or skin. The principal route of exposure at the site is from inhalation and skin contact.

Exposure risk will be minimized by wearing PPE, including protective clothing and footwear, hardhats, eye protection, and possibly respirators. Organic vapor twin-cartridge respirators will be available for use when the working area total organic vapor concentration exceeds 5 ppm in the breathing zone. Monitoring procedures and information related to the use of respirators and other PPE are discussed below.

8.2 DRIVING

Driving to, from, and around the work site also presents potential hazards to PGG personnel. Personnel should not attempt to drive to or from a site when extremely fatigued, or in a condition in which judgment or reflexes may be impaired. Appropriate precautions, such as the use of chains or snow tires, should be taken for adverse driving conditions. Personnel should pay close attention to traffic and set speed limits associated with the operations of the landfill. This includes incoming garbage trucks and landfill operating equipment and trucks.

The speed limit within the landfill property is 10 miles per hour.

8.3 AIR MONITORING

Air quality monitoring in the work space will be performed using a combustible gas meter (O_2, lower explosive limit [LEL], CO, and H_2S) as well as a PID for measuring total VOC vapors.

If working space combustible gas vapors reach the following limits, personnel will retreat to fresh air:

- $23.5 > O_2 < 19.55$
- LEL > 10%
- CO > 20 ppm
- H_2S >10 ppm

If work space VOC vapors reach the following limits, personnel will retreat to fresh air and don half-faced respirators if work must continue:

- VOC > 5 ppm

Respirators will be equipped with cartridges rated for organic vapors and particulate aerosols. If the concentration of VOCs in the air exceeds 25 ppm in the presence of mitigations, the site will be vacated.

8.4 PERSONAL PROTECTIVE EQUIPMENT

The minimum level of protection in which field work will be conducted is Level D. Level D includes wearing Tyvek™ suits, along with steel-toed boots, gloves, a hardhat, and safety glasses. The level of protection will be raised to Level C, which includes wearing a half-face respirator, if air quality monitoring in the work space indicates organic vapors are above 5 ppm. If organic vapors are above 25 ppm, the site will be vacated.

8.5 SITE CONTROL AND DECONTAMINATION

PPE will be decontaminated or disposed of and replaced at the end of each day, or more often, if appropriate. Whenever possible, PPE will be decontaminated at the work site to prevent spreading contaminated materials and exposure to other people, the environment, and samples. If decontamination at the work site is not possible, contaminated PPE such as Tyvek™ suits will be placed in a disposable container such as a plastic bag and transported to a receptacle appropriate for disposal. Contaminated water generated during de-contamination procedures will be disposed of to the onsite lined landfill leachate evaporation pond.

8.6 TRAINING

All PGG employees conducting field activities on the site must be trained in accordance with the federal requirements at 29 CFR 1920.120 and be current with their annual 8-hour refresher course.

All personnel working at the site will be briefed on potential site hazards, health and safety procedures, site construction rules and requirements, and sampling procedures.

8.7 PROJECT SAFETY PERSONNEL

Personnel responsible for implementing this (soil sampling) HASP are the Site Safety Officer, Dawn Chapel, and the Project Manager, Pony Ellingson. In the event of an emergency, the Site Safety Officer must notify the PGG office Health and Safety Officer, Ms. Janet Knox. Illnesses and minor injuries occurring onsite must be reported to the Project Manager and attended to immediately.

8.8 EMERGENCY CONTACTS AND PROCEDURES

In the event of a major accident or life-threatening situation, the designated Site Safety Officer shall direct another member of the field crew, if available, to contact appropriate local emergency response crews. Personnel not required to assist must move to a safe area. Emergency phone numbers to be called in the event of an emergency are the following:

(911)

The nearest hospital to the site is Columbia Basin Hospital, located 3.5 miles from the work site. A map showing a route to the hospital is provided in Appendix E. Directions to hospital are summarized in Table E-1 and follow:

> Head west out of old landfill entrance to Washington State Hwy 28. Turn right and head north on Hwy 28 toward Ephrata. Travel 3.1 miles and, once in Ephrata, turn right onto 3rd Ave SW. Proceed 0.1 mile and continue on Nat Washington Way for 0.4 mile until you reach the hospital.

8.9 STANDARD OPERATING PROCEDURES

Before commencing field work, all PGG personnel must have an approved medical examination.

All PGG workers will also meet the requirements of WISHA, the federal Occupational Safety and Health Administration (OSHA), and EPA health and safety training. Such requirements may be met by formal course training (40 hours initially, plus 8 hours annually). The Project Manager and/or Site Safety Officer shall hold a meeting of all field personnel before work commences. During the meeting, all personnel shall be provided with a copy of this SAP/QAP/HASP. The plan shall be reviewed and discussed, and questions shall be answered.

The PPE specified in this plan must be provided to all PGG field personnel. Personnel requiring corrective lenses for proper vision must be informed that contact lenses cannot be worn at any time onsite. The contact lens requirements comply with OSHA regulations .

A daily log (or project field notebook) should be used to record the following information: 1) entry and exit dates and times of PGG personnel, other personnel, and project site visitors; 2) descriptions of accidents and illnesses; 3) incidences of safety infractions by field

personnel; 4) air quality and personal exposure monitoring data; and 5) other safety-related matters.

A safety station containing at least one first aid kit, fire extinguisher, and eyewash station will be available at all times.

The "buddy system" will be used whenever PGG personnel work in groups of two or more and any time PGG personnel enter the excavation. "Buddy system" means a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other employee in the group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

PGG site personnel have read the above plan and are familiar with its provisions.

9. REFERENCES

Pacific Groundwater Group and Parametrix. 2006. Remedial Investigation/Feasibility Study (RI/FS) Work Plan Ephrata Landfill Corrective Action. Consultant's report prepared for Grant County Public Works and City of Ephrata.

Pacific Groundwater Group, 2010. Agency Review Draft Remedial Investigation Report Ephrata Landfill. Consultant's report prepared for Grant County and City of Ephrata

Pacific Groundwater Group, 2012. Addendum to Remedial Investigation. Consultant's report prepared for Grant County and City of Ephrata

Parametrix, 2012. Agency Review Draft Ephrata Landfill Feasibility Study. Consultant's report prepared for Grant County and City of Ephrata.

TABLES

Table 1. Ephrata Landfill Contaminants of Concern

COC[1]	Group[2]	Group Classes[3]	Analytcial Method
1,2-Dichloropropane	Organic-VOC	12-DCP	8260B
Benzene	Organic-VOC	BTEX	8260B
Ethylbenzene	Organic-VOC	BTEX	8260B
o-Xylene	Organic-VOC	BTEX	8260B
Toluene	Organic-VOC	BTEX	8260B
Xylene Isomers, M+P	Organic-VOC	BTEX	8260B
1,1,1-Trichloroethane	Organic-VOC	Ethanes	8260B
1,1,2-Trichloroethane	Organic-VOC	Ethanes	8260B
1,1-Dichloroethane	Organic-VOC	Ethanes	8260B
1,2-Dichloroethane (EDC)	Organic-VOC	Ethanes	8260B
Chloroethane	Organic-VOC	Ethanes	8260B
1,1-Dichloroethene	Organic-VOC	Ethenes	8260B
cis-1,2-Dichloroethene	Organic-VOC	Ethenes	8260B
Tetrachloroethene (PCE)	Organic-VOC	Ethenes	8260B
Trichloroethene (TCE)	Organic-VOC	Ethenes	8260B
Vinyl Chloride	Organic-VOC	Ethenes	8260B
2-Butanone	Organic-VOC	Ketone	8260B
2-Hexanone	Organic-VOC	Ketone	8260B
4-Methyl-2-Pentanone (MIBK)	Organic-VOC	Ketone	8260B
Acetone	Organic-VOC	Ketone	8260B
Methylene Chloride	Organic-VOC	MC	8260B
1,2,4-Trimethylbenzene	Organic-VOC	TMB	8260B
1,3,5-Trimethylbenzene	Organic-VOC	TMB	8260B
1,3-Dichlorobenzene	Organic-VOC	Other	8260B
4-Isopropyltoluene	Organic-VOC	Other	8260B
Bromobenzene	Organic-VOC	Other	8260B
Chloroform	Organic-VOC	Other	8260B
Chloromethane	Organic-VOC	Other	8260B
Naphthalene	Organic-VOC	Other	8260B
n-Butylbenzene	Organic-VOC	Other	8260B
sec-Butylbenzene	Organic-VOC	Other	8260B
Bis(2-ethylhexyl) Phthalate	Organic-SVOC	SVOC	8270B
2-Methylphenol	Organic-SVOC	SVOC	8270B
4-Methylphenol	Organic-SVOC	SVOC	8270B
Nitrate as Nitrogen	Inorganic	Inorganic	353.2
Chloride	Inorganic	Inorganic	325.2
Sulfate	Inorganic	Inorganic	375.2
Total Dissolved Solids[4]	Inorganic	Inorganic	NA
Arsenic, Total	Metals	Metals	200.8
Iron, Dissolved	Metals	Metals	6010B
Iron, Total	Metals	Metals	6010B
Manganese, Dissolved	Metals	Metals	6010B
Manganese, Total	Metals	Metals	6010B

Note

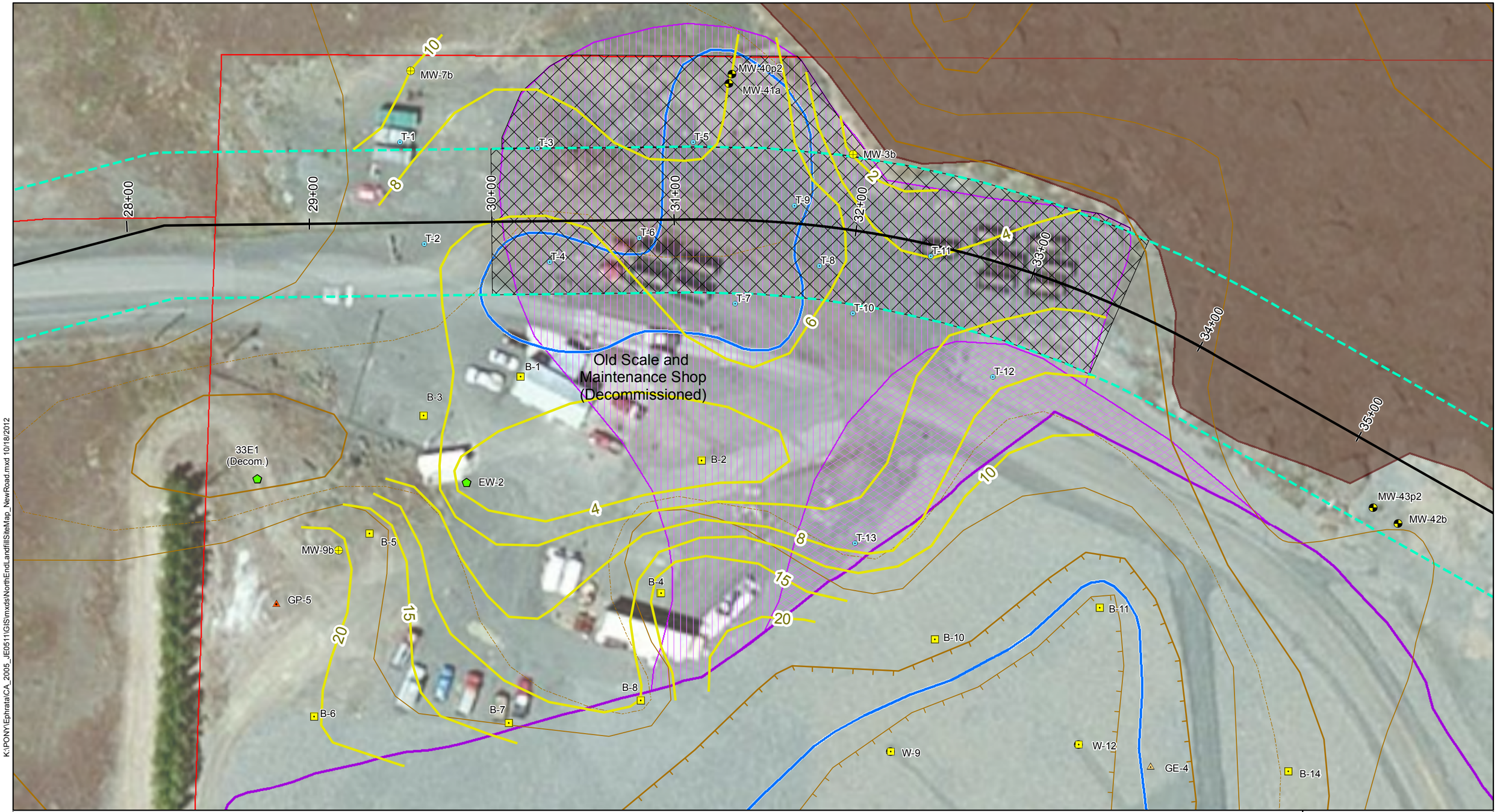
1. Site COCs are based on groundwater concentrations above RI screening levels (PGG, 2010 and 2012)

2. COCs are grouped into volatile organic compounds (VOCs), semi-VOCs (SVOCs), Inorganics and Metals

3. COC groups are further organized into VOC classes (i.e. chloro-ethenes)

4. Total dissolved solids (TDS) analysis is not applicable (NA) to soil samples.

FIGURES



K:\PONY\Ephrata\CA_2005_JE0511\GIS\mxds\NorthEndLandfillSiteMap_NewRoad.mxd 10/18/2012

- Quarterly Monitoring Well (MW)
- Remedial Investigation Monitoring Well (MW)
- Gas Extraction (GE)
- Gas Probe (GP)
- Other Wells
- RI Soil Boring
- RI Test Pit

- Capped Unlined Landfill Extent
- Approximate Area of Landfill Refuse Not Capped
- Approximate Area of Contaminated Soils Not Capped
- Approximate Extent of Saturation Above Bedrock
- County Owned Parcels

- Soil Thickness Contours (feet)
- Neva Lake Road Center Line
- 80-foot Coridor
- Approximate Extent of Soil to be Removed to Bedrock
- Approximate Basalt Outcrops

Top of Basalt Elevation Contours
- 20-foot Contour
- 10-foot Contour
- 20-foot Depression Contour
- 10-foot Depression Contour

0 Feet 50

N

June 2011 Bing Aerial Photo

Figure 1
North End of Ephrata Landfill Map

Ephrata Landfill
RIFS

PgG

APPENDIX A

Neva Lake Road Construction Contract Documents

APPENDIX B

Contractor's Health and Safety Plan

TOMMER
CONSTRUCTION
COMPANY, INC.
PO Box 1150 5720 Hwy 28 West
Ephrata, Washington 98823
509-787-3312 509-787-3632 fax

HEALTH AND SAFETY PLAN

NEVA LAKE ROAD CONSTRUCTION
EPHRATA LANDFILL

Prepared by
McConnell & Associates, Inc.
3111 108 Avenue SE
Bellevue, WA 98004
(425) 681-7516

1.0 INTRODUCTION

This Health and Safety Plan (HASP) provides a general description of the levels of personal protection and safe operating guidelines expected of each employee, of Tommer Construction at the Ephrata Landfill, Ephrata, WA. Included are chemical and physical hazards known to be associated with this property.

Any changes to this plan will be generated as necessary and will be inserted as an attachment in the front of the plan. The information will be understood by field personnel prior to the start of applicable work activities.

1.1 GENERAL

The provisions of this HASP are mandatory for all personnel engaged in fieldwork being conducted at the subject site. A copy of this HASP and any applicable Supplements shall be maintained on site and available for review at all times. Record keeping will be maintained in accordance with this HASP. In the event of a conflict between this HASP and federal, state, and local regulations, workers shall follow the most stringent / protective requirements.

1.2 POLICY STATEMENT

It is Tommer Construction's policy to provide a safe and healthy work environment for all of its employees. Tommer Construction considers no phase of operations or administration is of greater importance than injury and illness
Prevention. Safety takes precedence over expediency or shortcuts. At Tommer Construction, we believe every accident and injury is avoidable. We will take every reasonable step to reduce the possibility of injury, illness, or accident.

The practices and procedures presented in this HASP and any supplemental documents associated with this HASP are binding on all Tommer Construction's employees while engaged in the subject work. In addition, all site visitors shall abide by these procedures as the minimum acceptable standard for the work site. Operational changes to this HASP and supplements that could affect the health or safety of personnel, the community, or the environment will not be made without prior approval of the Project Manager (PM), the CIH (Certified Industrial Hygienist), and the Project Superintendent/Site Health & Safety Officer.

1.3 MANAGEMENT AND CONTACTS

Company	Person & Title	Contact Phone Number
Tommer Construction	Kelly Judkins – Project Superintendent/Site Health & Safety Officer	Cell: (509) 760-4207
	Chris Tommer, Pres. Project Manager	Cell: (509) 750-8954
	Tommer Construction Main Office	(509) 787-3312
Grant County Public Works	Sean Simpson, Inspector	Cell: (509) 760-7217
	Bob Bersanti, Construction Engineer	Cell: (509) 760-2496
	Todd Mittge, Asst County Road Engineer	Cell: (509) 398-1880
	Derek Pohle, Director GCPW County Road Engineer	Cell: (509) 760-0106
McConnell & Associates	Sheila McConnell, CIH	Cell: (425) 681-7516

Project Manager

The Project Manager (PM) has overall management authority and responsibility for all site operations, including safety. The PM will provide the Site Superintendent with work plans; staff and budgetary resources appropriate to meet the safety needs of the project operations.

Site Superintendent

The Site Superintendent has the overall responsibility and authority to direct work operations at the job site according to the provided work plans. The PM may act as the Site Superintendent while on site.

1.4 APPROVAL & AGREEMENT WITH THIS PLAN

NAME	SIGNATURE
Chris Tommer, Project Manager	
Kelly Judkins, Superintendent	
Sheila McConnell, CIH	S McConnell

2.0 SITE INFORMATION AND SCOPE OF WORK

Tommer Construction will construct a new road approximately 0.50 miles long at the Ephrata Landfill described below. Work will be performed in accordance with the applicable specifications, Statement of Work (SOW) and other Work Plans developed for this project.

SITE LOCATION: Neva Lake Road, Grant County, WA
CONTRACT NO: CRP 10-06
ESTIMATED DURATION: 30 Working Days

SCOPE OF WORK:
This contract provides for the construction of 0.50 miles of county road in Grant County, WA. The project calls for the removal of approximately 6000 cubic yards of contaminated soil during the road construction. Tommer Construction will take approximately 2 to 3 working days to remove and place the contaminated and/or saturated (wet) soil in the designated location as outlined in the plans provided by Grant County Public Works on page 5 of 6 in the project specifications.

If the soil is saturated it will be placed in a separate stockpile location until dry, then moved to the primary soil stockpile location. This area is to be bermed and covered with 2 layers of 6 ml plastic prior to stockpiling any material.
The anticipated contaminated area is approximately 300' long, 80' wide, and 2-6 feet deep.

Tommer Construction personnel will conduct an oversight role for all the activities and will perform the air sampling according to this plan. Knowledgeable personnel will perform all sampling.

2.1 Additional Work Operations

The following additional tasks will also be performed as necessary in support of planned site activities:

Mobilization/Demobilization:
Mobilization and demobilization represent limited pre and post-task activities. These activities include driving to and from the site; initial site preparations; and post-work activities.

Equipment Decontamination:
If the equipment needs to be removed from the property and the equipment has been used on contaminated soils, Tommer Construction personnel will decontaminate the equipment prior to removal. The soil samples provided indicate levels of contaminants that are well below OSHA permissible exposure limits and MTCA cleanup levels (as per Grant County documents and the Parametrix Interim Action Report dated October, 2009).

Equipment decon will occur when moving from the contaminated area (approx. the first 330 feet, into the uncontaminated location following). Decon will consist of dry brushing any visible soils and debris from the equipment if the materials are dry, or wet washing to remove any visible soil if it is wet. Decontamination equipment will be available on the property. The materials brushed or washed from the equipment will remain on landfill site and become part of the roadbed excavation.

2.2 ENVIRONMENTAL CONTAMINANT EXPOSURE HAZARDS

The following is a discussion of the potential hazards from chemical contaminants known to be present at the landfill. Hazards with any chemical products (vehicle fuels and oils) brought to the site are addressed separately. Under the Hazard Communication standard, all MSDS shall be provided by each firm for any substances brought to the site. MSDS are required to be maintained on site for all items present on the property and shall be available on a daily basis to all personnel working there. Chemical Substances Identified are:

CHEMICAL INFORMATION
http://www.osha.gov/web/dep/chemicaldata/default.asp#target

CHEMICAL / CAS	Chemical Properties PPE Polymer	EXPOSURE LIMITS PPE Polymer	I.P.	Relative Response	Reading to Be at PEL
Paint sludge and mixed solvents.			10.54 eV		
Hydrogen Sulfide (H2S)	LEL=4% UEL=44% MW= 34 (>air) Flamm Gas	OSHA Pel: C 20 ppm 50 ppm [10-minute maximum peak]IDLH=100 ppm	10.54 eV	n/a	n/a
Methylene Chloride	LEL =12% UEL = 23% VP = 350 mm Hg	PEL: 25 ppm IDLH = 2300 ppm	11.32 eV	n/a	n/a
1,2,4-Trimethylbenzene	LEL =0.8% UEL = 6.6% VP = 1 mm hg S.G=0.89	No PEL No IDLH	8.48 eV	25	

CHEMICAL / CAS	Chemical Properties PPE Polymer	EXPOSURE LIMITS PPE Polymer	I.P.	Relative Response	Reading to Be at PEL
Trichloroethene (TCE)	LEL=8% UEL=10.5% VP = 58 mm Hg	PEL = 100 ppm IDLH = 1000 ppm Ca	9.45 eV	0.51	**90 ppm**
1,2-Dichloroethane	LEL=5.4% UEL=11.4% VP = 182 mm Hg	PEL = 100 ppm IDLH = 3000 ppm	11.06 eV	n/a	n/a
Styrene	LEL=0.9% UEL=6.8% VP = 5 mm Hg	PEL = 100 ppm C = 200 ppm IDLH = 700 ppm	8.40 eV	0.47	
Xylene	LEL=0.9% UEL=6.7% VP = 7 mm Hg	PEL = 100 ppm IDLH = 900 ppm	8.56 eV	0.54	
Toluene	LEL 1.1% UEL= 7.1% VP = 21 mm Hg	PEL = 200 ppm C = 300 ppm IDLH = 500 ppm	**8.82 eV**	**0.53**	
Chlorobromomethane	LEL= n/a UEL= n/a VP = 115 mm Hg	PEL = 200 ppm IDLH = 2000 ppm	10.77 eV	n/a	n/a
2-Butanone (MEK)	LEL=1.4% UEL=11.4% VP = 78 mm Hg	PEL = 200 ppm IDLH = 3000 ppm	**9.54 eV**	**0.90**	
Acetone	LEL-2.5% UEL = 12.8% VP = 180 mm Hg	**PEL: 1000 ppm** **IDLH: 2500 ppm**	**9.69 eV**	1.24 = 1.0	**1000 ppm**
Natural Gas		NIOSH REL: TWA 800 ppm (1900 mg/m^3) Flammable Gas			Avoid all skin contact through PPE and decontamination

- **Total Petroleum Hydrocarbons**

Around the old Shop buildings there could be diesel & oil petroleum hydrocarbons in the soil although soil sampling did not indicate this specifically. The OSHA PEL for TPH is 100 PPM. Initial exposure could be during mass excavation. Air monitoring will be conducted as necessary to determine baseline levels of exposure, and PPE compliance. To mitigate potential exposures, wet methods (keeping excavated soils moist and visible dust eliminated) will be used. **Tommer Construction will utilize a water truck with a hose equipped to wet dust above the excavation.**

Known health effects of TPH: direct soils contact may cause mild eye irritation (stinging, watering, redness). **Skin** contact can be a severe irritant recognized by redness, itching burning, and skin damage. Prolonged contact can worsen irritation causing drying, cracking, lead to dermatitis. Not toxic by skin absorption, but prolonged repeated contact may be harmful.
Inhalation studies indicate low degree of toxicity from breathing vapors.
Ingestion eating contaminated soils presents a low degree of toxicity, but poses a risk of aspiration hazard where aspirated into lungs during swallowing, or vomiting causing lung inflammation or damage.
Signs & Symptoms: Effects of overexposure may include irritation of nose, throat, or digestive tract causing nausea, diarrhea and transient excitation followed by signs of nervous system depression, headache, drowsiness, dizziness, loss of coordination, disorientation, and fatigue.
There is a possibility of skin cancer, limited evidence from animal studies that overexposure may lead to kidney problems, or make existing medical conditions worse.

- **Arsenic**

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton plants. Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs. Ingesting high levels of inorganic arsenic can result in death. Lower levels of arsenic can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet.

Skin contact with inorganic arsenic may cause redness and swelling. Several studies have shown that inorganic arsenic can increase the risk of lung cancer, skin cancer, bladder cancer, liver cancer, kidney cancer, and prostate cancer. The World Health Organization (WHO), the Department of Health and Human Services (DHHS), and the EPA have determined that inorganic arsenic is a human carcinogen. The OSHA PEL for Arsenic (As) is 0.01 mg/m3 (10 ug/m3) and the levels identified in soil in the area to be excavated were found to be as high as 14 mg/kg (ppm) in soil. It is unlikely that we will see levels approaching permissible or action levels during this project.

Because OSHA and WA State regulations have specific standards for Arsenic exposures, 37 mm cassettes will be used to document exposures below permissible limits. Wet methods and no visible dust practices will be used continuously during excavation until lab analysis indicates airborne arsenic levels below the 5 ug/m3 Action Level.

2.2.1 Assessment of Exposure Hazards

Inhalation – Excavation activities have potential for airborne release of contaminants, however the wet methods should negate any possibility of airborne dust during excavation.

Skin Contact – **Direct contact to skin will be minimized because all work is to be done from the excavator cab. There will be no work with hand tools and no work expected that would result in contact with soils.** A water truck with a spray hose will be used as an engineering control to minimize airborne dust.

Regardless of the controls it is recommended that personnel thoroughly wash hands and face with ordinary soap and water or wet wipes prior to leaving the work area, and prior to eating drinking or using tobacco products.

After working in or walking on contaminated soils, Boots will be dry brushed to remove any visible soil prior to getting into personal vehicles or otherwise leaving the work site.

Ingestion – Protection against exposure via ingestion can be accomplished by thoroughly washing hands and face prior to exiting contaminated work areas and by eliminating hand to mouth contact.

2.2.2 Physical Hazards

General physical hazards are slips, trips, falls, and, working with heavy equipment. If work continues into cold months, cold stress may be of concern and will be addressed by layering clothing and staying dry in inclement weather. Punctures through shoe soles or into skin are always an issue during work on a landfill. Vehicular traffic is a major concern both to and from private citizens delivering items to the landfill, so personnel must be cautious when walking or driving in the vicinity. **Interfacing with the public and vehicular traffic should not be an issue since the road construction will take place in a location secured by a locked gate and on the far side of the landfill away from the general public.**

2.2.3 Exposure Monitoring Procedures

Extensive and continuous air monitoring was performed by Parametrix during the drum excavation and is explained in their Interim Action Report dated October 2009. The activities occurred in locations directly in contact with drums and refuse so the airborne concentrations should be much higher than during new road construction in the locations where Tommer will be working.

The **airborne levels previously documented have been well below established permissible exposure limits.** Tommer Construction personnel will be operating heavy equipment at a much greater distance (15-20 feet) from the existing soils and other

materials so potential exposure levels are anticipated to be lower than those previously documented.

Initial Monitoring shall be performed within the work area in order to detect the presence and relative levels of toxic substances. The data collected throughout monitoring shall be used to determine the appropriate levels of PPE.

- Health and Safety Action Levels

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone.

If ambient levels are measured which exceed the action levels the Superintendent shall immediately contact the PM and the CIH to determine a course of corrective action.

INITIAL AIR MONITORING IN THE CAB OF EXCAVATOR OR ROCK TRUCK DURING EXCAVATION IN CONTAMINATED SOILS		
PID/4 Gas Meter	**Reading**	**Action**
Get background levels and monitor in the breathing zone (cab) during excavation. Monitor initially and at least once an hour documenting readings. Monitor more frequently if conditions change	0 LEL, 0-10 PPM H2S, <20 PPM SUSTAINED ON PID	Continue working
	1-5% LEL	Safe from fire hazard, but need better dust control or respiratory protection
	>10% LEL	STOP WORK & CALL PM & CIH
	<10 PPM H2S	Continue normal work
	>10 PPM H2S	Contact PM & CIH, use better dust control or respiratory protection
	20 PPM (PID) Above background sustained for 10 minutes	

Tommer Construction staff working on this site shall wear hard hats, safety glasses, protective footwear, and hearing protection as needed if it is difficult to carry on conversation at arm's length. Persons driving trucks shall wear typical work clothing as required by their employer or Tommer Construction UNLESS they are walking on the

landfill face. **Anyone walking on the landfill face or on soils potentially contaminated with refuse MUST wear protective footwear capable of resisting punctures, i.e. no tennis or rubber soled shoes.** Footwear shall be leather or equally firm material. Personnel should also be able to upgrade or downgrade their level of protection with the concurrence of the Superintendent or the PM.

All persons potentially contacting contaminated soils shall wear disposable gloves (heavier than surgical weight) and shall decontaminate prior to eating, drinking, using tobacco products, or leaving the immediate work area.

Reasons to upgrade:

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas, vapor, or dust emission.
- Change in work task that will increase the exposure or potential exposure to hazardous materials.

PPE REQUIREMENTS AS PER THE EPA LEVELS OF PROTECTION (A-D) DESCRIPTIONS FOR EACH TASK & LEVEL OF PROTECTION PROVIDED BELOW			
Task	Level	Mask Cartridge	Additional PPE
Mobilization & general equipment use	D	N/A	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.
Excavation in "clean" soil	D	N/A	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.
Excavation in possibly contaminated soils	C-D	OV/HEPA Half or full facepiece mask	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.
Driving a truck onto landfill face or elsewhere to deposit soils	D	N/A	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.
Decontaminating equipment or personnel	D	N/A	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.

Persons encountering soils or areas with nuisance odors or dust may voluntarily wear a filtering facepiece respirator.	C/D	OV/HEPA or P-100	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.
Visitors shall wear PPE comparable to that worn by Tommer and other site personnel.	D	N/A	Hardhats, safety glasses, work clothing (at least short sleeves & long pants), gloves, boots with soles resistant to puncture (no tennis shoe soles), hearing protection as needed.

Reasons to downgrade:

- New information indicating that the situation is less hazardous than was originally suspected.
- Change in site conditions that decrease the potential hazard.
- Change in work task that will reduce exposure to hazardous materials.

2.3 BEST MANAGEMENT PRACTICES: HANDLING CONTAMINATED SOILS

On this project potentially contaminated soils will be placed into the active landfill cell as new refuse. WET or saturated soils shall be placed into a location designated for such stockpiling. Once dry these soils will be place into locations specified by the County or Landfill personnel. If there is any question about location or placement the PM shall be contacted immediately.

1. Personnel shall take the following precautions if temporary stockpiling in a new location is necessary:

    - Cover the stockpile with plastic sheeting or tarps.
    - Install a berm around the stockpile to prevent runoff from leaving the area especially into waterways or drains.
    - Do not stockpile in or near storm drains or watercourses and report any potential spills immediately to the PM and Superintendent.

2.4 SPILL PREVENTION & CONTROL

1. Materials that could possibly spill during this project are typical vehicle and heavy equipment fuels and additives: diesel, oils, transmission fluid, hydraulic oil, and possibly gasoline.

2. Care shall be exercised at all times to prevent Oil and Hazardous Substances (OHS) from entering the ground, drainage areas, or local bodies of water.

3. **If the spill is gasoline or a similar solvent material and someone has placed an absorbent pad onto the spill great. If a pad was not used, do not return to place one. Move from the immediate area to a safe location, make sure there are no ignition sources, and let the material evaporate on its own. Let people in the vicinity know and if there is ANY possibility of fire, call 9-1-1 immediately.**

4. If the spill is incidental and easily addressed, the vehicle operator or a knowledgeable person shall put absorbents on the material and then notify the Site Superintendent or PM regarding cleanup.

5. **For all other vehicle materials use the appropriate sorbent material (pads, kitty litter, etc.) to absorb the spill. Using gloved hands and a shovel if needed, collect the soaked pads for disposal.**

6. All vehicles working on this site shall be equipped with spill pads for the fuels and other items that they are carrying. Personnel shall determine immediately if the spill is an emergency and, if so, shall call 9-1-1, the PM and the Site Superintendent immediately. If it is an emergency untrained persons shall not attempt to respond.

7. For ALL spills of fuel into waterways or into drains leading to waterways several agencies must be notified including the US Coast Guard National Response Center, the WA Department of Emergency Management and the WA Department of Ecology. These are also required notifications for spilled materials potentially affecting the environment to air, water, or soil.

8. Daily inspections will be conducted to determine that the site is prepared for a spill or other incident, to ensure that no equipment is leaking, and to verify that any stored materials and their containers are in good shape.

9. No OHS (oil or hazardous substances) will ever be disposed into a sanitary sewer system, storm drainage system, waterway or trash container/dumpster.

10. Construction equipment will be operated so as to prevent any spillage of oil or fuels into the environment. Drip pans shall be placed under all equipment that would have any possible leak source. All valves, connections, hoses, pipes and waste chutes shall be inspected regularly for leaks. Any of these that are found to be leaking shall immediately be isolated, repaired or replaced. Any leaked material shall be cleaned up in accordance with the spill response measures, based on the size of the leak and the type of materials that have leaked. Temporary drip pans, with the absorbent pads, shall be placed under fueling points at the time of fueling operations and any spills will be contained within the pan. Equipment and materials stored on the ground, which could become pollutants if they become airborne or are inadvertently discharged into the water shall be stored on pallets, or otherwise raised from the ground, covered when not in use, and protected from inadvertent mechanical damage from vehicles or handling equipment.

11. When loading, unloading or transferring hazardous materials (HM), employees will:
    - Inspect drums, cartons and containers for leaks.
    - Ensure all containers are labeled and have lids.
    - Ensure all containers are placed within secondary containment when necessary.

12. All catch basins have socks. Storm drain catch basins, sanitary sewer manholes, floor drains, and other access holes within 50 feet of the discharging/receiving units shall be covered with a sock, plug, or other suitable device to prevent flow into storm water or sewer system.

13. All equipment (i.e. valves, fill lines, etc.) exposed externally from an OHS container and/or system shall be protected to minimize the potential of a spill event.

14. Spill prevention for Hazardous Materials (HM) like solvents, hydraulic fluid, transmission fluid, etc: All HMs will be stored in proper containers and regularly checked during the facility inspections.

    a. HM containers shall be stored in secondary containment where a spill would be contained and would not get outside the building or run off an impervious surface, such as asphalt or concrete on to pervious surfaces such as gravel, dirt or grass.

15. Any temporary storage of HM in bulk:

    a. HM containers will be stored in secondary containment where a spill would be contained and would not get outside the building or run off an impervious surface, such as asphalt or concrete.

    b. Any outside storage of HM will be stored in a covered secondary containment area.

Spill Response

All employees and subcontractors shall have access to emergency phone numbers and shall be easily accessible and posted on the job site. Be aware that cell phones are transferred to your local carriers area code unless you let 9-1-1 dispatcher know where you want response sent (i.e. a 509 Moses Lake phone exchange could be sent to a Moses Lake address, not the location desired)

General Responsibilities: Everyone working on this project has the responsibility to take proper action when confronted with a spill. Depending on the size and nature of the spill, a person may attempt to clean the spill themselves, but only if they are trained. A person should ask themselves the following questions:

1. Are sufficient personnel available to clean up the spill?
2. Do I know the hazards of the spilled material?

3. Do I know how to protect myself from those hazards?
4. Is the spill contained within some type of impervious container? (Material entering the air, land, or water, or any drain, outlet or exhaust fans is not contained.)

If the answer is "NO" or "I DON'T KNOW", to any of these questions, then LEAVE THE SPILL ALONE and call the Fire Department at **9-1-1**. Send someone out to guide responders to the desired location. **Tommer Construction personnel will NOT attempt to fight a fire at the landfill unless satisfactorily trained to do so.**

In the event of an emergency spill, immediately isolate the spill area until arrival of cleanup team. Notify the Site Superintendent, the PM as soon as possible. They will notify the County, and/or client's main office.

In the event of a hazardous substance spill or release, immediately take the following measures to keep the spill from entering sewer or storm drains, spreading off-site, or affecting human health. In all cases caution and common sense must be maintained with the primary goal to prevent and/or limit personal injury.

Stop, contain, and clean up the chemical spill if you can do so safely and if:

- The spilled chemical and its hazardous properties have been identified;
- The spill is small and easily contained;
- You are aware of the chemicals' hazardous properties.

If a spill or release cannot be controlled or injuries have occurred due to the release of HM, the following procedures should be implemented:

- Summon help or alert others of the release;
- Evacuate immediate area, and provide care to the injured- Call 9-1-1 and assign someone to meet the fire truck and direct firefighters to the incident location;
- If potential fire or explosion hazards exist, initiate evacuation procedures- Call 911;
- Respond defensively, **NOT OFFENSIVELY** to any uncontrolled spills:
    - Use appropriate personal protective equipment when responding to any spill;
    - Attempt to shut off the source of the release (only if safe to do so);
    - Eliminate sources of ignition (if safe to do so);
    - Protect drains by use of adsorbent, booms or drain covers (if safe to do so).
- Notify onsite emergency contact(s);
- Notify other trained staff to assist with the spill response and cleanup activities;
- Coordinate response activities with local emergency personnel (fire department);

- Be prepared to provide MSDS information to fire department, EMT, hospital or physician;
- Notify appropriate agency if a release has entered the environment.

Evacuation Procedures

In the event of a hazardous substance release that has the potential for fire, explosion or other human health hazards the following procedures will be implemented:

- Employees and subcontractors will be notified of evacuation by one or more of the following method(s): [Verbal, Cell Phone,
- Notification to emergency services will be performed- Call **911**.
- Employees and subcontractors will follow predetermined evacuation routes and assemble at designated areas. Evacuation route shall be determined at the initial safety meeting before the project begins.
- Individuals responsible for coordinating evacuations must confirm, from a safe location, that the site has been completely evacuated.

3.0 TRAINING

While chemicals have been identified in soils on this landfill property and in the locations to be excavated for the new road, the levels in the area of excavation are below MTCA cleanup levels and below OSHA/WADOSH permissible exposure limits. Tommer personnel are basically doing new construction through 330 feet of soil with contaminants less than MTCA cleanup levels and the remainder in native soils adjacent to and at least 50 feet from a capped landfill cell. Since there has been extensive air monitoring conducted in the active face of the landfill during excavation and since the levels were below action levels, 24 Hours of training is acceptable on this "well characterized" site.

Personnel have successfully completed training meeting the provisions established in 29 CFR 1910.120(e)(2) and (e)(3)(iii) (24-hour initial training).

If site monitoring procedures indicate that a possible exposure has occurred above the OSHA permissible exposure limit (PEL), employees may be required to receive 16 hours of supplemental training and medical screening for respirator use warranted by the particular materials present.

The following training requirements will be conducted and/or verified by the Superintendent and/or Project Manager:

Employee Training includes:

- Orientation to site, hazardous awareness training;
- Types of hazardous materials to be expected on the project;
- Spill prevention;
- Spill Notification;
- Spill clean up;
- Location of spill containment kits;
- Information on emergency first aid treatment in case of exposure to Hazardous Materials;
- Notification procedures for emergency medical aid.

All employees will be informed of the location of the safe area, and trained in emergencies that would require the employee to assemble at the safe area.

4.0 SITE CONTROL

The purpose of site control is to minimize potential contamination of workers, protect the public from site hazards, and prevent vandalism. The degree of site control necessary depends on the site characteristics, site size, and the surrounding community.

Controlled work areas will be established at each work location, and if required, will be established directly prior to the work being conducted.

Each HAZWOPER controlled work area will consist of the following three zones:

- Exclusion Zone: Contaminated work area.
- Contamination Reduction Zone: Decontamination area.
- Support Zone: Uncontaminated or "clean area" where personnel should not be exposed to hazardous conditions.

The Exclusion Zone and the Contamination Reduction Zone are considered work areas. The Support Zone is accessible to the public (e.g., vendors, inspectors). Each zone will be periodically monitored.

The Exclusion Zone (Hot Zone) will be established by the excavation operator and the Site Superintendent daily and shall be approximately twenty feet beyond the area being excavated or where work may occur in potentially contaminated soils. The Hot Zone will be designated with barrier tape, cones or other mechanism if there are personnel beyond the excavation crew working on the site. Immediately adjacent to the Hot Zone will be the Warm Zone (Contamination Reduction Zone) where decontamination shall occur.

All persons shall enter and exit through the decon corridor to ensure proper decon control. Beyond the Warm Zone is the Support or Cold Zone where paperwork, supplies, etc. are kept.

4.1 SITE SECURITY

1. **The site is within the landfill perimeter and secured after hours. It is also in a location away from public access.**
2. Knowledgeable personnel will accompany visitors at all times. All visitors contacting potentially contaminated soils shall provide their own PPE and shall decontaminate thoroughly prior to leaving the work area.

4.2 HOUSEKEEPING

During work all areas will be continuously cleared of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can) prior to disposal. At no time will recycle debris, or trash be intermingled with waste PPE or contaminated materials.

Smoking, Eating, or Drinking

Using tobacco products and eating will not be permitted inside the Hot Zone at any time. Personnel will be able to drink from a clean disposable water bottle kept in the cab of the excavator or the truck. They will thoroughly wash hands and face prior to drinking and immediately after leaving controlled work areas (and always prior to eating or using tobacco products). Consumption of alcoholic beverages is prohibited at any Tommer Construction site.

4.3 Decontamination and Personal Hygiene

All persons potentially contacting contaminated soils shall wear disposable gloves (heavier than surgical weight) and shall decontaminate prior to eating, drinking, using tobacco products, or leaving the immediate work area.

The following personal hygiene requirements will be observed:

Water Supply: A water supply meeting the following requirements will be utilized:

Potable Water - An adequate supply of potable water (at least a quart per person) will be available for field personnel consumption. Potable water can be provided in the form of water bottles, canteens, water coolers, or drinking fountains. Potable water containers will be properly identified in order to distinguish them from non-potable water sources and shall have a cleaning log posted on the container to ensure that it has been kept clean.

Non-Potable Water - Non-potable water may be used for hand washing and cleaning activities. Nonpotable water will not be used for drinking purposes. All containers of non-potable water will be marked with a label stating:

Non-Potable Water
Not Intended for Drinking Water Consumption

Toilet Facilities: A portable toilet is available at the fence near the gate where the crew will park their vehicles.

Washing Facilities: Employees will be provided hand washing facilities at the decon station. The use of water and hand soap (or similar substance) will be required by all employees following exit from the Hot Zone, prior to breaks, and at the end of daily work activities.

Buddy System

All field personnel will use the buddy system when working within any controlled work area. Personnel belonging to another organization on site can serve as "buddies" for personnel. Under no circumstances will any employee be present alone in a controlled work area.

5.0 HEAT AND COLD STRESS

Heat and cold stress may vary based upon work activities, PPE/clothing selection, geographical locations, and weather conditions. To reduce the potential of developing heat/cold stress, be aware of the signs and symptoms
of heat/cold stress and watch fellow employees for signs of heat/cold stress.

Heat stress can be a significant field site hazard, particularly for non-acclimated personnel however is not anticipated to be of concern on this project. Cold stress is likely not an issue either, as long as personnel stay dry and dress for the weather. Site personnel will be instructed in the identification of a heat or cold stress victim, the first-aid treatment procedures for the victim and the prevention of heat or cold stress casualties. Work-rest cycles will be determined and the appropriate measures taken to prevent heat stress.

6.0 STOP WORK AUTHORITY

Stop unsafe activity. **All Tommer Construction employees have the right and duty to stop work when conditions are unsafe, and to assist in correcting these conditions.** Whenever the Site Superintendent determines that workplace conditions present an uncontrolled risk of injury or illness to employees, immediate resolution with the appropriate Superintendent shall be sought. Should the Superintendent be unable or unwilling to correct the unsafe conditions, the next senior person is authorized and required to stop work, which shall be immediately binding on all affected employees and subcontractors.

Upon issuing the stop work order, the Superintendent shall implement corrective actions so that operations may be safely resumed. Resumption of safe operations is the primary

objective; however, operations shall not resume until the Superintendent or the PM has concurred that workplace conditions meet acceptable safety standards.

7.0 Emergency Planning

EMERGENCY RESPONSE PLANNING	
Element	Location, Specification or Reason for Use
Nearest Hospital	Columbia Basin Hospital 200 Nat Washington Way Ephrata, WA 98823 (509) 754-4621
Nearest telephone	Cell phones and Landfill Scales/office
First Aid Kit(s)	In the vehicles
Fire Extinguisher	Excavator, all vehicles, Landfill shops **Personnel will call 9-1-1 FIRST then discharge only ONE extinguisher, then wait for the fire department to arrive Tommer Construction personnel will NOT attempt to fight a landfill fire unless they are sufficiently trained in firefighting & the activity is approved by the PM**
Eyewash & Emergency Shower	Portable wash water & facilities will be available at the decon station adjacent to excavation operations
Injury requiring medical treatment	Decon the person first, if it is necessary and IF the injury is no life threatening. Call 9-1-1 and determine if it is preferable to transport them to the hospital or wait for responders to arrive.

Tommer Construction Company Inc.
Site Health And Safety Plan Consent Agreement

I have reviewed the safety plan prepared for this project. I understand the purpose of the plan and I consent to adhere to its policies, procedures, and guidelines while an employee of Tommer Construction.

Employee signature	Firm	Date
Employee signature	Firm	Date
Employee signature	Firm	Date
Employee signature	Firm	Date
Employee signature	Firm	Date
Employee signature	Firm	Date
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Spill Prevention Control and Countermeasure (SPCC) Plan

For - Grant County Public Works Department

Neva Lake Road - CRP 10-06 Grant County, Washington

Type of project - Construction of 0.5 miles of a county road in Grant County, Washington.

Provided By - Tommer Construction Co., Inc.

INTRODUCTION

Tommer Construction Co., Inc.
Spill Prevention Control and Countermeasure Plan

This Spill Prevention Control and Countermeasure (SPCC) Plan has been prepared by **Tommer Construction Co., Inc.** to satisfy the contractual specifications with Grant County Public Works Department (GCPW) in developing a site-specific SPCC plan that covers the project scope of work (including equipment, materials, and activities) we have agreed to under contract.

Federal regulations governing the requirements of fixed facility SPCC plans are found under 40 Code of Federal Regulations (CFR) 110 and 40 CFR 112. The state regulations regarding fixed facility SPCC plans are found under Washington Administrative Code (WAC) 173-181. These regulations were used as guidelines for the development of a SPCC plan to be used on GCPW sites.

GCPW contracts specify that this SPCC Plan be prepared by the contractor and include all hazardous substances (including oil and other petroleum products).

SITE INFORMATION

The Grant County Public Works project for which this SPCC plan was developed is the Neva Lake Road – CRP 10-06 Project. Tommer Construction Co. Inc. was contracted to construct .5 miles of a county road in Grant County, Washington, and includes roadway excavation, embankment compaction, crushed surfacing base course, maintenance rock, drainage items, hot mix asphalt, monuments, seeding, fertilizing, mulching and other work all in accordance with the plans, provisions and Standard Specifications.

Topography and Surface Water, and Groundwater Flow

The project site is generally flat and the surface material is free draining so water run off from the site will infiltrate to ground water.

Potential Spill Sources

Potential spill sources at the site include materials and equipment brought on-site, and potential unknown site conditions.

Known Site Contamination Related Sources:

- The Contractor is aware of contaminated soil as shown on drawings for this project.
- The Contractor is unaware of existing on site containers such as cans, drums, or tanks that store hazardous substances (i.e., fuel, paint, solvents) and/or waste products (i.e., drill cuttings, decontamination rinse water).

Equipment Brought on Site:

- Dozers, Scrapers, Loaders, Rock Trucks, Rock Drill, Excavators, Backhoes, Water Trucks.
- Portable Compaction Equipment.

Support Materials Planned to be brought on site:
-Fuel – see site map

The Contractor plans bulk fuel storage of diesel.

The Contractor plans to have a vehicle and/or equipment storage area.

Unknown Conditions

- The Contractor is aware of the potential that contaminated soil and/or groundwater could be encountered on site based on specs, plans and drawings given to us by Grant County Public Works Dept.
- The Contractor has no reason to believe that abandoned USTs and underground pipelines may exist at the site based on historical site information and/or past land usage.

Contractor Personnel

The Tommer Construction designated person responsible for managing, implementing, and maintaining this SPCC plan is Kelly Judkins. His designated alternative is Chris Tommer. Project phone numbers are as follows:

Tommer Construction Office	(509) 787-3312
Kelly Judkins Cell phone	(509) 760-4207
Chris Tommer Cell phone	(509) 750-8954

GCPW Personnel

Grant County Public Works Department Project Personnel as follows:

Sean Simpson – Inspector	(509) 760-7217
Bob Bersanti – Const. Engineer	(509) 760-2496
Todd Mittge – Assistant County Road Engineer	(509) 398-1880
Derek Pohle – GCPW Director County Road Eng.	(509) 760-0106

Spill Prevention and Containment

Spill Prevention Best Management Practice

This section describes spill prevention methods (e.g., Best Management Practices (BMPs) that will be used.

Equipment Staging and Maintenance

Store and maintain equipment in a designated area.

Fueling area

Fueling will be done by mobile fueling unit equipped with spill control materials.
Do not "top-off" tanks.
Use secondary containment (drain pan) to catch spills.
Use proper equipment (pumps, funnels) to transfer fluids.
Keep spill kits readily accessible.
Inspect fueling areas routinely for leaks and spills.

Hazardous Material Staging Area

The 'Hazardous Material Staging Area' is clearly outlined on sheet 5 of 6 from the drawings provided to us by Grant County Public Works Dept.

Hazardous Waste Storage Area

Hazardous waste, if found, will be stored in appropriate containers until disposed of.

Pre-existing Soil and Groundwater Contamination

Inspect excavated areas for signs of contamination soil and groundwater.
Remove contaminated soil and groundwater promptly.
Store contaminated soil in a designated area away from storm drains. Line and cover stockpile with plastic and berm with hay bales to prevent migration of liquid.
Arrange for transport, treatment, and disposal of contaminated soil.
Collect contaminated groundwater in a portable double-wall tank and store in the hazardous materials staging area.

Unknown Conditions

Observe worksite for any unanticipated conditions that may present themselves.
Follow plans specific to the site.

Unknown Soil and Groundwater Contamination

Stop work and secure the area.
Notify project supervisor and GCPW project engineer.
Project supervisor and project engineer evaluate situation.
Contact environmental response contractor to sample and analyze contaminated soil.
Manage, store, transport, and dispose of soil consistent with regulatory requirements.

Spill Containment Methods

This section identifies the types of secondary containment of diversionary structures that will be used to handle each of the spill sources identified in the Project Site Description section.

Equipment Staging and Maintenance Area

All equipment will be stored at the staging and maintenance area.

Fueling Area

A Spill during fueling operations will be contained within a spill pallet for small container handling, or secondary containment berms in the bulk fuel storage areas. The transfer of fuel into portable equipment will be performed using a funnel and/or hand pump, and a spill pad used to absorb any incidental spills or drips. A leak of a drum will be repaired with a patch kit. A spill response kit will be located near the fueling area for easy access. The spill response kit will include plastic sheeting, tarps, over-pack drums, kitty litter and shovels.

Hazardous Material Staging Area. A spill from containers or drums in the material staging area will be contained within the hooded spill pallets.

Waste Storage Area. Any spills from waste storage will be self-contained within a spill pallet.

Contaminated Soil. Contaminated soil encountered during grading and trenching activities will be contained by constructing a soil berm around the contaminated soil. The soil will be placed on a plastic liner and covered with plastic at the end of each work day. A soil berm or hay bales or hay bales will be used to contain the stock pile and prevent migration of contaminated liquids.

Contaminated Groundwater. Contaminated groundwater encountered during construction will be contained in the trench. A sump pump will be used to transport the groundwater from the trench to a portable double-walk tank. The tank will be stored in the hazardous materials staging area prior to transport off-site to an approved treatment facility.

Unknown Potential Spill Sources

Unknown soil and groundwater contamination. Contaminated soil encountered during drilling and trenching will be placed on a plastic liner and contained within a soil berm or with hay bales. The stockpile will be covered with plastic at the end of each workday. A soil berm or hay bales will be used to contain the stockpile and prevent migration of contaminated liquids. Contaminated groundwater will be pumped into a portable double-walk tank and stored in the hazardous material staging area.

Underground storage tanks.

There are no underground storage tanks in this worksite.

Underground pipelines.

If a leaking or severed underground pipeline is encountered, the leaking material will be contained within the excavation. Our responsible person for the SPCC plan will implement spill response measures as appropriate.

Table 4 Agency Notification Reference List

Agency & Responsibilities	Phone Contacts
City of Ephrata – Fire fighting-Emergency medical response- Community evacuation	911
City of Ephrata Police Dept. Police Authority	911
Washington State Department of Ecology Toxics Cleanup Program-Reporting spills to soil	(360) 407-7170
National Response Center-Reporting Spills to Water	(800) 442-8802
Washington State Emergency Management Division-Reporting spills to water	(800) 258-5990
Spill Response Contractor-Emergency spill Response	(800) 555-5000

Program Management

Site security measures, site inspection procedures, and personnel training related to spill prevention, containment, response, management and cleanup are outlined below.

Security

Proper site security is important to minimize accidents, trespassing, and potential spills and releases. Equipment staging and maintenance, fueling, hazardous material staging, and waste storage areas for the project are located in a fenced area. The fence and all heavy equipment are locked up at the end of each workday. Only authorized personnel are permitted onto the project site.

Construction hours are from 7 a.m. to 5 p.m. throughout the term of this project. The portable lighting units on site are adequate to allow for the detection and response to any spill scenarios we recognized in this SPCC plan.

Site Inspections

Tommer Construction will conduct daily inspections of the site and adjacent storage areas to ensure that spill control measures are in place. Inspections of the project site for general housekeeping and BMPs will be performed weekly.

Personnel Training

Tommer Construction employees will be trained on the contents of this SPCC plan including spill prevention planning, spill source and receptor recognition, spill prevention and containment techniques, spill response measures, and spill reporting protocol. All subcontractors have been forwarded the SPCC plan and have been briefed on its contents.

General Responsibilities for Personnel

All personnel have responsibility for spill prevention. Any Tommer Construction employee or subcontractor employee who notices a leak will respond as appropriate based on their training, or if a spill has occurred, they will assume a defensive posture by avoiding the area and immediately notifying Kelly Judkins.

The designated person responsible for assessing spills, managing, implementing, and maintaining this SPCC plan, and contracting regulatory agencies is Kelly Judkins of Tommer Construction. His alternate is Chris Tommer. These individuals have knowledge associated with the HAZWOPER First Responder Operations Level [WAC 296-62-3112(b)] requirements.

Local Fire Department. The local fire department is responsible for emergency containment procedures when called to the site. The fire department takes measures

necessary to prevent fire and explosion and to protect people and property in the event of a fire or explosion.

Spill Response Contractor. The spill response contractor is responsible for cleanup activities when Tommer Construction does not have the training, equipment, or materials to clean up spills safely and effectively.

Equipment Decontamination. If the equipment needs to be removed from the property and the equipment has been used on contaminated soils, Tommer Construction personnel will decontaminate the equipment prior to removal. The soil samples provided indicate levels of contaminants that are well below OSHA permissible exposure limits and MTCA cleanup levels (as per Grant County documents and the Parametrix Interim Action Report dated October, 2009).

Equipment decon will occur when moving from the contaminated area (approx. the first 330 feet, into the uncontaminated location following). Decon will consist of dry brushing any visible soils and debris from the equipment if the materials are dry, or wet washing to remove any visible soil if it is wet. Decontamination equipment will be available on the property. The materials brushed or washed from the equipment will remain on landfill site and become part of the roadbed excavation.

PROJECT SITE DESCRIPTION

This section describes the location of items brought on-site (equipment staging and maintenance, fueling, hazardous, material staging and waste storage areas).

Items Brought On-Site

Equipment staging and maintenance, fuel staging, hazardous material staging, and waste storage areas are located at the NW corner of the Landfill, aka 'Old Landfill Shop Area.'
Spills within this site area will be collected, along with any contaminated soil, and replaced with clean material. Contaminated soil will be removed in sealed containers for disposal.

Table 1 summarizes equipment and materials brought onsite. Maximum quantity and staging are identified for each spill source.

Equipment Staging and Maintenance Area

Heavy equipment and smaller portable equipment will be stored off site in a secured area. All repairs and routine maintenance will be performed in this area.

Potential Spill Sources at this site include:

Unknown soil and groundwater contamination

Tommer Construction will carefully monitor all excavated soils for evidence of contamination. There will be no release to surface waters due to the infiltration nature of the soils in the area.

Fueling Area. The fueling area is the equipment staging and maintenance area. Spill absorbent pads are available in the Tommer Construction job area.

Hazardous Material Staging Area. There are no hazardous materials allowed for storage directly on the work site.

Waste Storage Area. Drums of contaminated soil, if discovered, will be labeled and stored on spill pallets.

Pre-existing Site Conditions

There are known contaminants shown on sheet 5 of 6 from the drawings provided to us by Grant County Public Works Dept.

Table 1 Items Brought Onsite

Equipment Used On- Site	Quantity	Materials Brought On-Site	Maximum Quantity
Dozers	1	Fuel	400 gallons
Scrapers	2		
Loaders	2		
Rock Trucks	1		
Excavators	1		
Backhoes	1		
Water Trucks	1		
Portable Compaction Equipment	1		

Spill Response

Response in the first ten to fifteen minutes is critical to minimize the impacts to human health and the environment and to minimize property damage and cleanup cost.

Tommer Construction will respond immediately to spills of regulated material. Our personnel and sub-contractors are properly trained to respond to spills. Our standard approach toward spill response is as follows:

1. **Asses Hazard**
   Stop operations
   Notify Kelly Judkins, Tommer Construction

- Determine if spill is "incidental." Incidental material is known and definable material.
  Tommer Construction has the resources (trained people, equipment, and supplies) onsite to safely and effectively respond to the spill.
  If one or more of the criteria are not met, the spill is not "incidental." Direct safe evacuation if the area and notify the fire department (911) and emergency response contractor.
- If spill is incidental, then:
  Assess the quantity of substance spilled.
- Assess the extent of the affected area.

2. **Secure Spill Response and Personnel Protective Equipment**

- Secure the area
- Obtain appropriate spill response equipment and personal protective equipment.

3. **Contain and Eliminate Spill Source**

- Contain the spill to prevent entry to catch basins, storm drains, or ditches.
- Seal or stop the source of the spill by closing valves, providing containment, or deactivating pumps.

Mitigating, Removing, and Disposing of Spilled Material

Only trained personnel will perform spill cleanup activities. The spill response contractor is responsible for cleanup activities as a result of spills or leaks when Tommer Construction does not have training, equipment, or materials to clean up spills.

- **Spills Onto the Ground (Soil):** Clean up the spill immediately. – Apply absorbent material, berm, divert or contain the spill. – Collect spilled material and place into labeled drums. – Collect absorbent and other material used to clean up the spill, label the container, and properly dispose of waste at an appropriate disposal facility. – Notify the Department of Ecology Toxics Cleanup Program – Decontaminate the affected area, equipment and surfaces that have contacted the spilled material. – Restore habitat, if necessary.
- **Spills Into Waterways:** - Notify the National Response Center and the State if Washington Emergency Management Division. – Notify a spill response contractor, if necessary. – Stop the source of the spill immediately. – Shut sown all equipment and ignition sources in the area. – Deploy boom and absorbent to

contain the spill. – Clean up absorbent and waste materials and dispose of at approved waste disposal facility. – Decontaminate the affected area, equipment and surfaces that have contacted the spilled material.

Standby, ON-SITE MATERIAL AND EQUIPMENT

Spill response equipment will be stored in spill response kits. The project site must have at least one spill response kit, but more that one kit may be necessary or warranted.

Spill containment equipment and materials will be kept on the site for any spills or contamination that may occur during construction. This includes spill containment pads, shovels, PPE where necessary, pumps and hoses. Also on site will be containers, plastic liners, poly bags, poly sheeting, labels, sandbags and other devices necessary to contain any contamination.

REPORTING

The Tommer Construction, Co., responsible person for the SPCC plan, Kelly Judkins, will contact Grant County Public Works Project Engineer and the regulatory agencies regarding spill response activities. We will work with the Grant County Public Works Project Engineer to ensure the proper information and data is collected and communicated to the appropriate agencies. Table 4 identifies local, state, and federal authorities and private resources that may be used in implementing this SPCC plan.

The reporting requirement for all leaks, spills, and other incidents are as follows:

- Subcontractors will report to Tommer Construction.
- Tommer Construction will report to Grant County Public Works Dept. and the regulatory agencies.
- Tommer Construction will prepare and submit the incident Report (Attachment B)

SITE CONTROL

The purpose of site control is to minimize potential contamination of workers, protect the public from site hazards, and prevent vandalism. The degree of site control necessary depends on the site characteristics, site size, and the surrounding community.

Controlled work areas will be established at each work location, and if required, will be established directly prior to the work being conducted.

Each HAZWOPER controlled work area will consist of the following three zones:

- Exclusion Zone: Contaminated work area.

- Contamination Reduction Zone: Decontamination area.

- Support Zone: Uncontaminated or "clean area" where personnel should not be exposed to hazardous conditions.

The Exclusion Zone and the Contamination Reduction Zone are considered work areas. The Support Zone is accessible to the public (e.g., vendors, inspectors). Each zone will be periodically monitored.

The Exclusion Zone (Hot Zone) will be established by the excavation operator and the Site Superintendent daily and shall be approximately twenty feet beyond the area being excavated or where work may occur in potentially contaminated soils. The Hot Zone will be designated with barrier tape, cones or other mechanism if there are personnel beyond the excavation crew working on the site. Immediately adjacent to the Hot Zone will be the Warm Zone (Contamination Reduction Zone) where decontamination shall occur. All persons shall enter and exit through the decon corridor to ensure proper decon control. Beyond the Warm Zone is the Support or Cold Zone where paperwork, supplies, etc. are kept.

APPENDIX C

Analytical Results from North End Soils Samples and Groundwater Samples in the North End Soils Area

Table C-1. B-Series Analytical Summary

VOCs		B-1-4.5	B-4-16	B-5-20	B-6-20	B-7-14	B-8-4.5	B-9-15 (W-9)	B-9-30 (W-9)	B-10-9	B-10-15	B-11-9	B-11-38	B-12-10 (W-12)	B-12-48 (W-12)	B-13-7	B-13-37	B-14-28	B-15-31	B-15-36	B-16-14	B-16-24	Avg	Max
1,1-Dichloroethane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichloroethane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichloropropane	mg/kg	U	U	U	U	U	0.0038	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.0038	0.0038
1,4-Dichlorobenzene	mg/kg	U	U	U	U	U	U	0.01	U	0.0018	0.002	0.016	U	U	U	U	U	U	0.13	0.0029	0.0021	U	0.023543	0.13
Benzene	mg/kg	U	U	U	U	U	0.012	0.0024	0.0084	0.0092	0.073	U	0.04	U	U	U	0.086	0.0071	U	0.016	U	U	0.028233	0.086
Chloroethane	mg/kg	U	U	U	U	U	U	U	U	0.0023	U	U	U	U	U	U	U	0.003	U	U	U	U	0.00265	0.003
Chloromethane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
cis-1,2-Dichloroethene	mg/kg	U	U	U	U	U	0.043	U	0.0067	0.0029	0.039	U	0.007	U	U	U	0.0074	0.049	U	0.0042	U	U	0.0199	0.049
Ethylbenzene	mg/kg	U	U	U	U	U	0.0065	0.057	0.0039	0.024	0.023	0.012	0.0052	0.22	0.9	U	0.011	0.004	0.29	0.018	0.0084	U	0.113071	0.9
Methylene chloride	mg/kg	0.0023	U	0.0035	0.005	0.0023	U	0.005	U	U	U	U	U	U	U	U	0.0055	U	0.14	0.0038	U	U	0.020925	0.14
o-Xylene	mg/kg	U	U	U	U	U	0.0056	0.033	0.0043	0.024	0.026	0.004	0.0064	0.2	1.1	U	0.0043	0.0054	0.15	0.025	0.0066	0.0033	0.106527	1.1
Tetrachloroethene (PCE)	mg/kg	U	U	U	U	U	0.019	U	0.0047	U	U	U	0.0021	U	U	U	0.01	0.0014	U	0.0031	U	U	0.006717	0.019
Toluene	mg/kg	U	U	U	U	U	0.016	0.01	0.0064	0.015	0.041	U	0.021	0.33	3.2	0.18	0.04	0.0096	U	0.017	0.0071	0.0013	0.278171	3.2
trans-1,2-Dichloroethene	mg/kg	U	U	U	U	U	U	U	U	U	0.0015	U	U	U	U	U	U	0.0019	U	U	U	U	0.0017	0.0019
Trichloroethene (TCE)	mg/kg	U	U	U	U	U	0.015	U	0.002	U	0.0029	U	0.0019	U	U	U	0.0026	0.0032	U	U	U	U	0.0046	0.015
Trichlorofluoromethane (CFC 11)	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl chloride	mg/kg	U	U	U	U	U	0.069	U	0.033	U	0.011	U	0.0085	U	U	U	0.058	0.069	U	0.02	U	0.0025	0.033875	0.069
Xylene isomers, M+P	mg/kg	U	U	U	U	U	0.016	0.15	0.0074	0.047	0.03	0.016	0.01	0.48	4.4	0.097	0.01	0.0052	0.6	0.031	0.015	0.0016	0.369763	4.4

Inorganics		B-1-4.5	B-4-16	B-5-20	B-6-20	B-7-14	B-8-4.5	B-9-15	B-9-30	B-10-9	B-10-15	B-11-9	B-11-38	B-12-10	B-12-48	B-13-7	B-13-37	B-14-28	B-15-31	B-15-36	B-16-14	B-16-24	Avg	Max
Arsenic, total	mg/kg	2.8	0.8	1.2	0.5	0.8	14.4	1.8	1.4	2	17.3	0.7	6.2	2	8.4	1.2	8.2	3.4	1.7	3.7	0.9	1.1	3.833333	17.3
Iron, total	mg/kg	27400	36900	34100	35500	36200	59400	30700	38500	39500	132000	26900	65100	25800	58000	30500	75500	70200	34300	49500	29400	33400	46133.33	132000
Manganese, total	mg/kg	385	434	371	396	389	378	359	382	446	867	296	937	233	561	298	704	750	395	498	346	391	467.4286	937
Chloride	mg/kg	241	144	220	142	180	410	572	163	102	744	77.6	582	1150	550	366	427	547	638	411	1850	164	460.981	1850
Sulfate	mg/kg	828	693	930	677	822	2540	343	241	382	152	421	1180	16700	1090	679	1270	681	909	985	112	506	1530.524	16700
Nitrate	mg/kg	4.37	2.38	0.9	0.73	4.14	U	U	0.56	0.23	U	U	U	U	U	U	U	U	U	U	U	U	1.901429	4.37
Nitrate+Nitrite	mg/kg	4.37	2.38	0.9	0.73	4.14	U	U	0.56	0.23	U	U	U	U	U	U	U	U	U	U	U	U	1.901429	4.37
Nitrite	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total solids	%	70.1	95.4	96.4	96.6	96.1	76.2	78.1	94.1	85.1	71.1	88.6	90.9	76.6	89.3	92.9	91.6	85.9	86.6	88.8	91.5	92.5	87.35238	96.6

Red = soil boring samples collected from soils by shop that were not capped and that were ***not*** delineated as contaminated by the shop (See Figure 2)

Green = soil boring samples collected in refuse now capped

Not analyzed	B-4-1	B-9-25	B-11-25	B-13-19	B-14-5	B-16-19
	B-4-3	B-9-34	B-11-32	B-13-24	B-14-15	
	B-4-5	B-9-38	B-11-44	B-13-29	B-14-23	
	B-5-14	B-10-7	B-11-46.5	B-13-44	B-15-14	
	B-6-8	B-10-20	B-12-15	B-13-46	B-15-22	
	B-9-20	B-11-20	B-12-30	B-13-54	B-16-8	

Table C-2: T-Series Analytical Summary

VOCs		T-1-9.5	T-2-6.5	T-3-7.3	T-4-4	T-5-7	T-5-7.2	T-5-8	T-6-4	T-7-2.3	T-8-4	T-9-6.4	T-10-4.2	T-11-4	T-12-5	T-12-5.5	T-12-7	T-13-4	T-13-5.5	T-13-6	Avg[1]	Max[1]	Avg[1,2]	Max[1,2]
1,1-Dichloroethane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichloroethane (EDC)	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichloropropane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	2.2	1.5	0.049	1.249667	2.2	U	U
Benzene	mg/kg	U	U	U	0.0052	U	U	U	0.014	0.0079	0.0016	U	0.017	0.01	U	U	0.23	U	U	0.0062	0.036488	0.23	0.040814	0.23
Chloroethane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloromethane	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
cis-1,2-Dichloroethene	mg/kg	U	U	U	U	0.8	1	0.047	U	U	U	U	U	U	U	U	U	U	2.8	0.028	0.935	2.8	0.615667	1
Ethylbenzene	mg/kg	U	U	U	U	U	U	U	0.0016	U	U	U	0.0014	0.0026	0.39	0.26	0.42	0.11	1	0.012	0.244178	1	0.179267	0.42
Methylene chloride	mg/kg	0.0026	0.0027	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
o-Xylene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	0.21	U	0.15	0.15	1.4	0.012	0.3844	1.4	0.18	0.21
Tetrachloroethene (PCE)	mg/kg	U	U	U	U	U	U	U	0.047	0.0025	0.0013	U	0.008	0.011	U	U	U	0.36	4	0.033	0.55785	4	0.01396	0.047
Toluene	mg/kg	U	U	U	0.0015	U	U	U	0.0072	0.0037	0.0014	U	0.0081	0.0093	0.09	0.15	0.26	0.1	2.3	0.021	0.246017	2.3	0.059022	0.26
trans-1,2-Dichloroethene	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene (TCE)	mg/kg	U	U	U	U	0.95	1.1	0.63	U	U	U	U	U	U	U	U	0.13	U	0.63	0.0032	0.573867	1.1	0.7025	1.1
Trichlorofluoromethane (CFC 11	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl chloride	mg/kg	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.28	0.0033	0.14165	0.28	U	U
Xylene isomers, M+P	mg/kg	U	U	U	U	U	U	U	0.0025	0.002	U	U	U	0.0014	0.37	0.23	0.4	0.26	2.7	0.022	0.4431	2.7	0.16765	0.4
Inorganics		**T-1-9.5**	**T-2-6.5**	**T-3-7.3**	**T-4-4**	**T-5-7**	**T-5-7.2**	**T-5-8**	**T-6-4**	**T-7-2.3**	**T-8-4**	**T-9-6.4**	**T-10-4.2**	**T-11-4**	**T-12-5**	**T-12-5.5**	**T-12-7**	**T-13-4**	**T-13-5.5**	**T-13-6**	**Avg**	**Max**	**Avg[1]**	**Max[1]**
Arsenic, total	mg/kg	0.8	1.7	2.6	5.4	4.6	3.4	8.8	14.8	4.8	3.8	2.6	2.8	6.6	1.5	4.4	8.3	1.7	4.3	0.8	4.776471	14.8	5.314286	14.8
Iron, total	mg/kg	36200	34000	28700	24600	74900	35800	38400	95200	25700	52600	35900	48400	52000	31800	57700	98700	43300	27000	56600	48664.71	98700	50028.57	98700
Manganese, total	mg/kg	419	431	375	390	560	443	450	607	366	521	461	535	514	334	497	1880	477	292	611	547.8235	1880	566.6429	1880
Chloride	mg/kg	U	U	95.9	U	266	117	65.5	51.2	116	35.2	10.6	32.5	38.8	222	122	120	151	298	220	122.6063	298	99.43846	266
Sulfate	mg/kg	45.5	37.9	158	16200	668	551	367	746	19400	325	30.4	1560	7900	369	482	326	258	305	490	2949.141	19400	3505.886	19400
Nitrate	mg/kg	0.26	0.61	20.9	10.9	U	0.68	5.64	2.21	77.6	26.8	1.29	65.3	37	0.21	U	U	0.82	U	U	20.77917	77.6	22.59364	77.6
Nitrate+Nitrite	mg/kg	0.26	0.61	21.1	11.1	U	0.83	5.8	2.21	78.1	27	1.29	65.6	37.2	0.21	U	U	1.01	U	U	20.95417	78.1	22.76727	78.1
Nitrite	mg/kg	U	U	0.17	0.16	U	0.15	0.16	U	0.52	0.18	U	0.29	0.2	U	U	U	0.19	U	U	0.224444	0.52	0.22875	0.52
Total Solids	%	96.2	96.8	94.4	82.6	79.4	81.9	83.6	81.5	68.7	87.4	95.4	91.7	92.8	88	85.5	82.4	92.1	82.5	90.2	85.88824	95.4	85.37857	95.4

[1]Data from T-1-9.5 and T-2-6.5 are excluded from calculations because T-1 and T-2 are outside the delineated contaminated area.

[2]In road corridor.

Red = test pit samples collected from soils by shop that were not capped and that were ***not*** delineated as uncapped contaminated soils by the shop (See Figure 2)

Blue = test pit soil samples collected from soils by shop that were not capped and that were delineated as uncapped contaminated soils (see Fig 2)

Yellow = test pit soil samples collected from soils by shop that were not capped and that were delineated as uncapped refuse (see Fig 2)

Not analyzed	T-1-3.5	T-5-1	T-5-6	T-8-7.3
	T-2-5	T-5-2	T-5-6.5	T-9-5
	T-3-3	T-5-3.5	T-6-2.8	T-12-2.3
	T-3-5	T-5-5	T-6-7.3	T-12-4
	T-4-2.5	T-5-5.5	T-7-6.5	T-13-2

Table C-3. B-29-P1 Analytical Summary

Analyte	Unit	Result
Acetone	ug/L	17
Benzene	ug/L	0.5
Carbon disulfide	ug/L	0.3
Tetrachloroethene (PCE)	ug/L	1
Arsenic, dissolved	ug/L	2.3
Chloride	mg/L	233
Iron, dissolved	ug/L	2460
Manganese, dissolved	ug/L	7160
Nitrate	mg/L	12.9
Nitrate+Nitrite	mg/L	14
Nitrite	mg/L	1.11
Sulfate	mg/L	1860
TDS	mg/L	3320

Table C-4. MW-41a Analytical Summary

Constituent	Units	CAS ID	Method	9/23/2009	10/15/2009	1/13/2010	6/18/2010	9/15/2010	3/8/2011	6/23/2011	9/27/2011	12/13/2011	3/5/2012
1,1,1,2-Tetrachloroethane	ug/L	630206	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,1,1-Trichloroethane	ug/l	71556	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,1,2,2-Tetrachloroethane	ug/L	79345	SIM-VOA			0.02U							
1,1,2,2-Tetrachloroethane	ug/L	79345	SW8260C	0.2U			0.2U	0.2U					
1,1,2-Trichloroethane	ug/L	79005	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,1,2-Trichlorotrifluoroethane	ug/L	76131	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,1-Dichloroethane	ug/L	75343	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,1-Dichloroethene	ug/L	75354	SIM-VOA			0.02U	0.02U	0.02U					
1,1-Dichloroethene	ug/L	75354	SW8260C	0.2U									
1,1-Dichloropropene	ug/L	563586	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,2,3-Trichlorobenzene	ug/L	87616	SW8260C	0.5U		0.5U	0.5U	0.5U					
1,2,3-Trichloropropane	ug/L	96184	SW8260C	0.5U		0.5U	0.5U	0.5U					
1,2,4-Trichlorobenzene	ug/L	120821	SW8260C	0.5U		0.5U	0.5U	0.5U					
1,2,4-Trimethylbenzene	ug/L	95636	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,2-Dibromo-3-chloropropane	ug/L	96128	SW8260C	0.5U		0.5U	0.5U	0.5U					
1,2-Dichlorobenzene	ug/L	95501	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,2-Dichloroethane (EDC)	ug/L	107062	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,2-Dichloropropane	ug/L	78875	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,3,5-Trimethylbenzene	ug/L	108678	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,3-Dichlorobenzene	ug/L	541731	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,3-Dichloropropane	ug/L	142289	SW8260C	0.2U		0.2U	0.2U	0.2U					
1,4-Dichlorobenzene	ug/L	106467	SW8260C	0.2U		0.2U	0.2U	0.2U					
1-Methylnaphthalene	ug/L	90120	SW8270D					1U					
2,2-Dichloropropane	ug/L	594207	SW8260C	0.2U		0.2U	0.2U	0.2U					
2,2-Oxybis(1-Chloropropane)	ug/L	540545	SW8270D					1U					
2,4,5-Trichlorophenol	ug/L	95954	SW8270D					5U					
2,4,6-Trichlorophenol	ug/L	88062	SW8270D					5U					
2,4-Dichlorophenol	ug/L	120832	SW8270D					5U					
2,4-Dimethylphenol	ug/L	105679	SW8270D					1U					
2,4-Dinitrophenol	ug/L	51285	SW8270D					10U					
2,4-Dinitrotoluene	ug/L	121142	SW8270D					5U					
2,6-Dinitrotoluene	ug/L	606202	SW8270D					5U					
2-butanone	ug/L	78933	SW8260C	5U		5U	5U	5U					
2-Chloroethylvinylether	ug/L	110758	SW8260C	1U		1U	1U	1U					
2-Chloronaphthalene	ug/L	91587	SW8270D					1U					
2-Chlorophenol	ug/L	95578	SW8270D					1U					
2-Chlorotoluene	ug/L	95498	SW8260C	0.2U		0.2U	0.2U	0.2U					
2-Hexanone	ug/L	591786	SW8260C	5U		5U	5U	5U					
2-Methyl-4,6-dinitrophenol	ug/L	534521	SW8270D					10U					
2-Methylnaphthalene	ug/L	91576	SW8270D					1U					
2-Methylphenol	ug/L	95487	SW8270D					1U					
2-Nitroaniline	ug/L	88744	SW8270D					5U					
2-Nitrophenol	ug/L	88755	SW8270D					5U					
3,3'-Dichlorobenzidine	ug/L	91941	SW8270D					5U					
3-Nitroaniline	ug/L	99092	SW8270D					5U					
4-Bromophenyl Phenyl Ether	ug/L	101553	SW8270D					1U					
4-Chloro-3-methylphenol	ug/L	59507	SW8270D					5U					
4-Chloroaniline	ug/L	106478	SW8270D					5U					
4-Chlorophenyl Phenyl Ether	ug/l	7005723	SW8270D					1U					
4-Chlorotoluene	ug/L	106434	SW8260C	0.2U		0.2U	0.2U	0.2U					
4-Isopropyltoluene	ug/L	99876	SW8260C	0.2U		0.2U	0.2U	0.2U					
4-Methyl-2-pentanone (MIBK)	ug/L	108101	SW8260C	5U		5U	5U	5U					
4-Methylphenol	ug/L	106445	SW8270D					1U					
4-Nitroaniline	ug/L	100016	SW8270D					5U					
4-Nitrophenol	ug/L	100027	SW8270D					5U					
Acenaphthene	ug/L	83329	SW8270D					1U					
Acenaphthylene	ug/L	208968	SW8270D					1U					
Acetone	ug/L	67641	SW8260C	5U		5U	5U	5U					
Acrolein	ug/L	107028	SW8260C	5U		5U	5U	5U					
Acrylonitrile	ug/L	107131	SW8260C	1U		1U	1U	1U					
Alkalinity (as CaCO3)	**mg/L**		**SM 2320**	**486**		**251**	**323**	**555**					
Anthracene	ug/L	120127	SW8270D					1U					
Arsenic, Dissolved	ug/L	7440382	E200.8	**0.8**		**0.8**	**0.5U**	**0.9**					
Benz(a)anthracene	ug/L	56553	SW8270D					1U					
Benzene	ug/L	71432	SW8260C	0.2U		0.2U	0.2U	0.2U					
Benzo(a)pyrene	ug/L	50328	SW8270D					1U					
Benzo(b)fluoranthene	ug/L	205992	SW8270D					1U					
Benzo(g,h,i)perylene	ug/L	191242	SW8270D					1U					
Benzo(k)fluoranthene	ug/L	207089	SW8270D					1U					
Benzoic Acid	ug/L	65850	SW8270D					10U					
Benzyl Alcohol	ug/L	100516	SW8270D					5U					
Bicarbonate As CaCO3	mg/L		SM 2320			**251**	**323**	**555**					
Bicarbonate as HCO3	mg/L	71523	SM 2320	486									
Bis(2-chloroethoxy)methane	ug/L	111911	SW8270D					1U					
Bis(2-chloroethyl) Ether	ug/L	111444	SW8270D					1U					
Bis(2-ethylhexyl) Phthalate	ug/L	117817	SW8270D					1U					
Bromobenzene	ug/L	108861	SW8260C	0.2U		0.2U	0.2U	0.2U					
Bromochloromethane	ug/L	74975	SW8260C	0.2U		0.2U	0.2U	0.2U					
Bromodichloromethane	ug/L	75274	SW8260C	0.2U		0.2U	0.2U	0.2U					
Bromoethane	ug/L	74964	SW8260C	0.2U		0.2U	0.2U	0.2U					
Bromoform	ug/L	75252	SW8260C	0.2U		0.2U	0.2U	0.2U					

Table C-4. MW-41a Analytical Summary

Constituent	Units	CAS ID	Method	9/23/2009	10/15/2009	1/13/2010	6/18/2010	9/15/2010	3/8/2011	6/23/2011	9/27/2011	12/13/2011	3/5/2012
Bromomethane	ug/L	74839	SW8260C	0.5U		0.5U	1U	1U					
Butylbenzyl Phthalate	ug/L	85687	SW8270D					1U					
Calcium, Total	mg/L	7440702	SW6010B			121	196	296					
Carbazole	ug/L	86748	SW8270D					1U					
Carbon dioxide	mg/L	124389	RSK SOP-175			19							
Carbon Disulfide	ug/L	75150	SW8260C	0.2U		0.2U	0.2U	0.2U					
Carbon Tetrachloride	ug/L	56235	SW8260C	0.2U		0.2U	0.2U	0.2U					
Carbonate as CaCO3	mg/L	471341	SM 2320			1U	1U	1U					
Carbonate as CO3	mg/L	3812326	SM 2320	1U									
Chloride	mg/L	16887006	EPA 300.0	196									
Chloride	mg/L	16887006	EPA 325.2				88.2	173					
Chlorobenzene	ug/L	108907	SW8260C	0.2U		0.2U	0.2U	0.2U					
Chloroethane	ug/L	75003	SW8260C	0.2U		0.2U	0.2U	0.2U					
Chloroform	ug/L	67663	SW8260C	0.2U		0.2U	0.2U	0.2U					
Chloromethane	ug/L	74873	SW8260C	0.5U		0.5U	0.5U	0.5U					
Chrysene	ug/L	218019	SW8270D					1U					
cis-1,2-Dichloroethene	ug/L	156592	SIM-VOA			0.02U							
cis-1,2-Dichloroethene	ug/L	156592	SW8260C	0.2U			0.2U	0.2U					
cis-1,3-Dichloropropene	ug/L	10061015	SW8260C	0.2U		0.2U	0.2U	0.2U					
Depth to Water	feet			8.64	8.31	7.36	7.17	8.35	7.42	7.75	9	9.27	8.79
Dibenz(a,h)anthracene	ug/L	53703	SW8270D					1U					
Dibenzofuran	ug/L	132649	SW8270D					1U					
Dibromochloromethane	ug/L	124481	SW8260C	0.2U		0.2U	0.2U	0.2U					
Dibromomethane	ug/L	74953	SW8260C	0.2U		0.2U	0.2U	0.2U					
Diethyl Phthalate	ug/L	84662	SW8270D					1U					
Dimethyl Phthalate	ug/L	131113	SW8270D					1U					
Di-n-butyl Phthalate	ug/L	84742	SW8270D					1U					
Di-n-octyl Phthalate	ug/L	117840	SW8270D					1U					
Dissolved Oxygen	mg/L	7782447		1.5		2	0.2						
Ethane	ug/L		RSK 175	2.9									
Ethene	ug/L		RSK 175	1.1U									
Ethylbenzene	ug/L	100414	SW8260C	0.2U		0.2U	0.2U	0.2U					
Ethylene Dibromide (EDB)	ug/L	106934	SW8260C	0.2U		0.2U	0.2U	0.2U					
Fluoranthene	ug/L	206440	SW8270D					1U					
Fluorene	ug/L	86737	SW8270D					1U					
Hexachlorobenzene	ug/L	118741	SW8270D					1U					
Hexachlorobutadiene	ug/L	87683	SW8260C	0.5U		0.5U	0.5U	0.5U					
Hexachlorobutadiene	ug/L	87683	SW8270D					1U					
Hexachlorocyclopentadiene	ug/L	77474	SW8270D					5U					
Hexachloroethane	ug/L	67721	SW8270D					1U					
Hexane	ug/L		SW8260C	0.5U									
Hydroxide (as CaCO3)	mg/L		SM 2320	1U		1U	1U	1U					
Indeno(1,2,3-cd)pyrene	ug/L	193395	SW8270D					1U					
Iron, Dissolved	ug/L	7439896	SW6010B	9220		1770	3060	2530					
Iron, Total	ug/L	7439896	SW6010B				4350	4560					
Isophorone	ug/L	78591	SW8270D					1U					
Isopropylbenzene (Cumene)	ug/L	98828	SW8260C	0.2U		0.2U	0.2U	0.2U					
Magnesium, Total	mg/L	7439954	SW6010B			42.1	61.7	118					
Manganese, Dissolved	ug/L	7439965	SW6010B	756		174	271	428					
Manganese, Total	ug/L	7439965	SW6010B				290	488					
Methane	ug/L		RSK 175	32.6									
Methyl iodide	ug/L	74884	SW8260C	1U		1U	1U	1U					
Methyl tert-Butyl Ether	ug/L	1634044	SW8260C	0.5U									
Methylene Chloride	ug/l	75092	SW8260C	0.5U		0.5U	0.5U	0.5U					
Naphthalene	ug/L	91203	SW8260C	0.5U		0.5U	0.5U	0.5U					
Naphthalene	ug/L	91203	SW8270D					1U					
n-Butylbenzene	ug/L	104518	SW8260C	0.2U		0.2U	0.2U	0.2U					
Nitrate as Nitrogen	mg/L as N	17778880	Calculated	1.92		3.17	6.19	16.1					
Nitrate+Nitrite as Nitrogen	mg/L as N	17778880	EPA 353.2	2.2		3.2	6.54	17.3					
Nitrite as Nitrogen	mg/L as N	17778880	EPA 353.2	0.275		0.034	0.348	1.2					
Nitrobenzene	ug/L	98953	SW8270D					1U					
N-Nitrosodi-n-propylamine	ug/L	621647	SW8270D					1U					
N-Nitrosodiphenylamine	ug/L	86306	SW8270D					5U					
n-Propylbenzene	ug/L	103651	SW8260C	0.2U		0.2U	0.2U	0.2U					
Oxidation Reduction Potential	mV					-54	-160	-6.8					
o-Xylene	ug/L	95476	SW8260C	0.2U		0.2U	0.2U	0.2U					
Pentachlorophenol	ug/L	87865	SW8270D					5U					
pH	std. units			7.3		7	7.25	7.68					
Phenanthrene	ug/L	85018	SW8270D					1U					
Phenol	ug/L	108952	SW8270D					1U					
Potassium, Total	mg/L	7440097	SW6010B			29.5	41.4	63.2					
Pyrene	ug/L	129000	SW8270D					1U					
sec-Butylbenzene	ug/L	135988	SW8260C	0.2U		0.2U	0.2U	0.2U					
Sodium, Total	mg/L	7440235	SW6010B			66.1	85.7	116					
Specific Conductance @ 25C	umhos/cm			2610			1940	2208					
Styrene	ug/L	100425	SW8260C	0.2U		0.2U	0.2U	0.2U					
Sulfate	mg/L	14808798	EPA 300.0	675									
Sulfate	mg/L	14808798	EPA 375.2			317	385	718					
Temperature, 0 F	0 F			68.18		49.3	58.46	66.2					
tert-Butylbenzene	ug/L	98066	SW8260C	0.2U		0.2U	0.2U	0.2U					
Tetrachloroethene (PCE)	ug/L	127184	SIM-VOA			1.3	2.2	1.4					

Table C-4. MW-41a Analytical Summary

Constituent	Units	CAS ID	Method	9/23/2009	10/15/2009	1/13/2010	6/18/2010	9/15/2010	3/8/2011	6/23/2011	9/27/2011	12/13/2011	3/5/2012
Tetrachloroethene (PCE)	ug/L	127184	SW8260C	1.8									
Toluene	ug/L	108883	SW8260C	0.2U		0.2U	0.2U	0.2U					
Total Dissolved Solids	mg/L		EPA 160.1	1850		821	1220	1910					
Total Kjeldahl Nitrogen	mg/L as N		EPA 351.2			0.9							
Total Organic Carbon	mg/L		EPA 415.1	14.3		12.3	11.2	22.2					
trans-1,2-Dichloroethene	ug/L	156605	SIM-VOA			0.02U							
trans-1,2-Dichloroethene	ug/L	156605	SW8260C	0.2U			0.2U	0.2U					
trans-1,3-Dichloropropene	ug/L	10061026	SW8260C	0.2U		0.2U	0.2U	0.2U					
trans-1,4-Dichloro-2-butene	ug/L	110576	SW8260C	1U		1U	1U	1U					
Trichloroethene (TCE)	ug/L	79016	SIM-VOA			0.2	1.2	0.31					
Trichloroethene (TCE)	ug/L	79016	SW8260C	0.2									
Trichlorofluoromethane	ug/l	75694	SW8260C	0.2U		0.2U	0.2U	0.2U					
Vinyl Acetate	ug/L	108054	SW8260C	1U		1U	1U	1U					
Vinyl Chloride	ug/L	75014	SIM-VOA			0.02U	0.081	0.046					
Vinyl Chloride	ug/L	75014	SW8260C	0.2U									
Xylene Isomers, M+P	ug/L		SW8260C	0.4U		0.4U	0.4U	0.4U					

APPENDIX D

Daily Field Logs and Chain of Custody

SOIL INVESTIGATION - Neva Lake Road Interim Action (2012 IRAP)

SAMPLE ID _____
Date/Time _____
XYZ _____

Ephrata Landfill RI JE0714
Date _____
Personnel _____
Oraganization _____

Photo Date/Time	ID (XYZ)	Notes

Ambient Air Date/Time	PID Reading	Units	Ambient Jar Date/Time	PID Reading (units)

Soil Field Screening Date/Time	PID Reading	Units	Physical Desc. (color, texture, moisture, odor)

Soil Laboratory Sample Date/Time	Parameter	Bottle Type/Quantity	Preservative	Collection Method	Notes
	VOC	40 mL vials/3	2 Sodium Bisulfate 1 Methanol	Plastic Syringe	Method 8260/5035A
	VOC	2 oz glass/1	None	SS Spoon	Method 8260
	Metals	4 oz WMG/1	None	SS Spoon	Arsenic, Iron, Manganese
	Inorganics	4 oz WMG/1	None	SS Spoon	Chloride, Sulfate, Nitrate

Laboratory	ARI
Shipment Method	
Date Shipped	

FIELD INSTRUMENT CALIBRATION SHEET

Ephrata Landfill RI JE0714
Date
Personnel

Date/Time	Instrument	Calibration Standard	Calibration Notes

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:				Date:										
ARI Client Company:	Phone:				Page:	of									
Client Contact:					No. of Coolers:	Cooler Temps:									
Client Project Name:					Analysis Requested									Notes/Comments	
Client Project #:	Samplers:														
Sample ID	Date	Time	Matrix	No. Containers											
Comments/Special Instructions	Relinqushed by: (Signature)				Received by: (Signature)				Relinquished by: (Signature)				Received by: (Signature)		
	Printed Name:				Printed Name:				Printed Name:				Printed Name:		
	Company:				Company:				Company:				Company:		
	Date & Time:				Date & Time:				Date & Time:				Date & Time:		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

APPENDIX E

Site Health and Safety Summary and Hospital Map

Table E-1 Site Health and Safety Summary and Hazard Assessment
Ephrata Landfill Neva Lake Road Interim Action (2012)

Job No.	JE0714a
Name of Site:	Ephrata Landfill, property owner is Grant County
Address of Site:	3802 Neva Lake Road Ephrata, WA 98823
Client:	Grant County
Site Contact:	(509) 754-6082 Derek Pohle or Janice Goeden (509) 754-4319 Ephrata Landfill
Site Activities Planned:	North End Soil Screening and Confirmation Sampling

Activity	**Location**	**Date**
Soil Screening and Confirmation Sampling	North end of Ephrata landfill	Late Summer/Fall 2012

Estimation of Direct Exposure Hazard to Pacific Groundwater Group Personnel

High___ Medium___ Low___X__ None___

Physical Description of the Facility (attach map):

Flat and/or hilly area of covered refuse and cobbles and bedrock outcrops

Operational Description of the Facility:

Delivery of refuse by medium-sized and large-sized trucks; gently rolling to flat topography

Site Status

Active ☒ Inactive ☐ Abandoned ☐ Unknown ☐

HAZARD ASSESSMENT					
Chemical State:	Liquid ☒ In soil	Solid ☒ In soil	Gas ☒	Unknown ☐	Other ☐
Chemical Characteristics:					
Corrosive ☒	Flammable ☒	Toxic ☒	Volatile ☒	Inert ☒	Other ☐

List the Chemicals of Concern:

Chemical Name	Physical/Chemical Characteristics	Regulatory Standards	Exposure Routes/Symptoms
1,2-Dichloroethane (EDC)	Colorless liquid with a pleasant, chloroform-like odor.	OSHA PEL = TWA 50 ppm, C 100 ppm	***Exposure Routes*** inhalation, ingestion, skin absorption, skin and/or eye contact ***Symptoms*** Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]
1,1-Dichloroethane	Colorless, oily liquid with a chloroform-like odor.	OSHA PEL = TWA 100 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation skin; central nervous system depression; liver, kidney, lung damage
1,1,1-Trichloroethane	Colorless liquid with a mild, chloroform-like odor.	OSHA PEL = TWA 350 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin; headache; lassitude; central nervous system depression; poor equilibrium; dermatitis; cardiac arrhythmias; liver damage
Chloroethane	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor.	OSHA PEL = TWA 1000 ppm	***Exposure Routes*** inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact ***Symptoms*** Incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage
Tetrachloroethene (PCE)	Colorless liquid with a mild, chloroform-like odor.	OSHA PEL = TWA 100 ppm, C 200 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms***

			Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]
Trichloroethene (TCE)	Colorless liquid (unless dyed blue) with a chloroform-like odor.	OSHA PEL = TWA 100 ppm, C 200 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]
1,1-Dichloroethene	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.	OSHA PEL none	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]
cis-1,2-Dichloroethene	No data available	No data available	No data available
trans-1,2-Dichloroethene	No data available	No data available	No data available
Vinyl Chloride	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations.	OSHA PEL = TWA 1 ppm, C 5 ppm	***Exposure Routes*** inhalation, skin, and/or eye contact (liquid) ***Symptoms*** Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]
Chloromethane	Colorless gas with a faint, sweet odor which is not noticeable at dangerous concentrations.	OSHA PEL = TWA 100 ppm, C 200 ppm	***Exposure Routes*** inhalation, skin and/or eye contact (liquid) ***Symptoms*** Dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive,

			teratogenic effects; [potential occupational carcinogen]
Dichloromethane (Methylene Chloride)	Colorless liquid with a chloroform-like odor. [Note: A gas above 104°F.]	OSHA PEL = TWA 25 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numbness, tingle limbs; nausea; [potential occupational carcinogen]
Trichlorofluoromethane	Colorless to water-white, nearly odorless liquid or gas (above 75°F).	OSHA PEL = TWA 1000 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite
1,2-Dichloropropane	Colorless liquid with a chloroform-like odor. [pesticide]	OSHA PEL = TWA 75 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, respiratory system; drowsiness, dizziness; liver, kidney damage; in animals: central nervous system depression; [potential occupational carcinogen]
Benzene	Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]	OSHA PEL = TWA 1 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]
Toluene	Colorless liquid with a sweet, pungent, benzene-like odor.	OSHA PEL = TWA 200 ppm, C 300 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney

			damage
Ethyl benzene	Colorless liquid with an aromatic odor.	OSHA PEL = TWA 100 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma
Xylene (m, p, o)	Colorless liquid with an aromatic odor.	OSHA PEL = TWA 100 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis
Styrene (vinyl benzene)	Colorless to yellow, oily liquid with a sweet, floral odor.	OSHA PEL = TWA 100 ppm, C 200 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, nose, respiratory system; headache; lassitude; confusion; malaise; drowsy; unsteady gait; narcosis; dermatitis; possible liver injury; reproductive effects
1,2-Dichlorobenzene	Colorless to pale-yellow liquid with a pleasant, aromatic odor.	OSHA PEL = C 50 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, nose; liver, kidney damage; skin blisters
1,4-Dichlorobenzene	Colorless or white crystalline solid with a mothball-like odor. [insecticide]	OSHA PEL = TWA 75 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Eye irritation, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]
1,2,4-Trichlorobenzene	Colorless liquid or crystalline solid (below 63 degrees F) with an aromatic odor.	OSHA PEL = TWA None NIOSH = C 5 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact

			Symptoms Eye irritation; skin; mucous membrane; liver and kidney damage in animals; possible teratogenic effects. swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]
1,3,5-Trimethylbenzene	Clear, colorless liquid with a distinctive, aromatic odor.	OSHA PEL = TWA None NIOSH = 25 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, nose, throat and respiratory system; bronchitis; hypochromic anemia; headache; drowsiness; lassitude; dizziness; nausea; incoordination; vomiting; confusion; chemical pneumontitis (aspiration liquid).
1,2,4-Trimethybenzene	Clear, colorless liquid with a distinctive, aromatic odor.	OSHA PEL = TWA None NIOSH = 25 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, nose, throat and respiratory system; bronchitis; hypochromic anemia; headache; drowsiness; lassitude; dizziness; nausea; incoordination; vomiting; confusion; chemical pneumontitis (aspiration liquid).
n-Propylbenzene	No data available	No data available	No data available
n-Butylbenzene	No data available	No data available	No data available
Phenol	Colorless to light pink, crystalline solid with a sweet, acrid odor. [Note: phenol liquefied by mixing with about 8% water]	OSHA PEL = TWA 5 ppm (19 mg/m_3) [skin]	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Itching, irritation, reddening skin; hepatitis; hemolytic anemia, abdominal cramps; tachycardia; kidney damage; skin photophobia sensitization.
2-Methylphenol (cresol-o)	White crystals with a sweet, tarry odor. [Note: A liquid above 88 degrees F]	OSHA PEL = TWA 5 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms***

			Irritation eyes, skin, and mucous membrane; central nervous system effects; confusion; depression; respiratory failure; dyspnea (breathing difficulty); irregular rapid respiration; weak pulse; eye and skin burns; dermatitis; lung, liver, kidney, pancreas damage.
4-Methylphenol (cresol-p)	Crystalline solid with a sweet, tarry odor. [Note: A liquid above 95 degrees F]	OSHA PEL = TWA 5 ppm	***Exposure Routes*** inhalation, skin absorption, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, and mucous membrane; central nervous system effects; confusion; depression; respiratory failure; dyspnea (breathing difficulty); irregular rapid respiration; weak pulse; eye and skin burns; dermatitis; lung, liver, kidney, pancreas damage.
2,4-Dimethylphenol	No data available	No data available	No data available
Benzoic Acid	No data available	No data available	No data available
Benzyl Alcohol	No data available	No data available	No data available
Isophorone	Colorless to white liquid with a peppermint-like odor.	OSHA PEL = TWA 25 ppm	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, nose, throat; headache; nausea; dizziness; lassitude (weakness, exhaustion); malaise; narcosis; dermatitis; kidney and liver damage in animals.
Acetone	Colorless liquid with a fragrant, mint-like odor	OSHA PEL = TWA 1000 ppm	***Exposure Routes*** Inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, nose, throat; headache; dizziness; central nervous system depression; dermatitis.
2-Butanone (MEK)	Colorless liquid with a moderately sharp, fragrant, mint-or acetone-like odor.	OSHA PEL = TWA 200 ppm	***Exposure Routes*** Inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis.
Hexone (MIBK)	Colorless liquid with a	OSHA PEL = TWA	***Exposure Routes*** Inhalation, ingestion, skin and/or eye

	pleasant odor.	100 ppm	contact ***Symptoms*** Irritation eyes, skin, nose; headache; narcosis; coma; dermatitis; liver and kidney damage in animals.
2-Hexanone (MBK)	Colorless liquid with an acetone-like odor.	OSHA PEL = TWA 100 ppm	***Exposure Routes*** Inhalation, ingestion, skin absorption; skin and/or eye contact ***Symptoms*** Irritation eyes, nose; peripheral neuropathy; lassitude; paresthesia; dermatitis; headache; drowsiness.
Naphthalene	Colorless to brown solid with an odor of mothballs. [Note: shipped as a molten solid]	OSHA = TWA 10 ppm	***Exposure Routes*** Inhalation, ingestion, skin absorption; skin and/or eye contact ***Symptoms*** Irritation eyes; headache; confusion; excitement; malaise; nausea; vomiting; abdominal pain; irritated bladder; profuse sweat; jaundice; hematuria (blood in urine); renal shutdown; dermatitis; optical neuritis; corneal damage.
1-Methylnaphthalene	No Data Available	No Data Available	No Data Available
2-Methylnaphthalene	No Data Available	No Data Available	No Data Available
Bis(2-ethylhexyl) Phthalate	Colorless, oily liquid with a slight odor.	OSHA PEL = TWA 5 mg/m^3	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation eyes, mucous membrane; in animals: liver damage; teratogenic effects; [potential occupational carcinogen]
Dimethylphthalate	Colorless, oily liquid with a slight, aromatic odor [Note: A solid below 42 degree F]	OSHA = TWA 5 mg/m^3	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation to eyes and upper respiratory system; stomach pain.
Diethylphthalate	Colorless to water-shite, oily liquid with a very slight, aromatic odor [pesticide]	OSHA = TWA None NIOSH 5 mg/m^3	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation to eyes, skin, nose, and throat;

			headache; dizziness; nausea; lacrimation (discharge of tears); possible polyneur; vestibular dysfunction; pain, numbness, lassitude, and spasms in arms and legs; reproductive effects in animals.
Di-n-Butylphthalate (DBP-)	Colorless to faint-yellow, oily liquid with a slight, aromatic odor.	OSHA = TWA 5 mg/m^3	***Exposure Routes*** inhalation, ingestion, skin and/or eye contact ***Symptoms*** Irritation to eyes, upper respiratory system and stomach.
Butylbenzylphthalate	No Data Available	No Data Available	No Data Available
Di-n-Octyl phthalate	No Data Available	No Data Available	No Data Available
N-nitrosodiphenylamine	No Data Available	No Data Available	No Data Available
Aroclor 1242 (PCB)	Colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.	OSHA = TWA 0.5 mg/m_3 [skin]	***Exposure Routes*** Inhalation, ingestion, skin absorption; skin and/or eye contact ***Symptoms*** Irritation eyes; chloracne; liver damage; reproductive effects; [potential occupational carcinogen]
Aroclor 1260 (PCB)	No Data Available	No Data Available	No Data Available

Hazards of Concern:

Heat Stress ☒ Cold Stress ☐ Explosive/Flammable ☒ Oxygen Deficient ☐

Excessive Noise ☒ Inorganic Chemicals ☒ Organic Chemicals ☒ Other ☐

Describe Potential Environmental Hazards:

Exposure to chemicals of concern.

Describe Potential Worker Hazards:

Potential hazards include:

- Falling and tripping hazards
- Working adjacent to moving vehicles and heavy equipment

Locations of Nearest:

Phone: A cellular telephone will be used by field personnel.
Running Water Source: East side of landfill at the maintenance shop facility
Public Road: State Route 28 and Neva Lake Road
Rest Room: East side of landfill at the maintenance shop facility

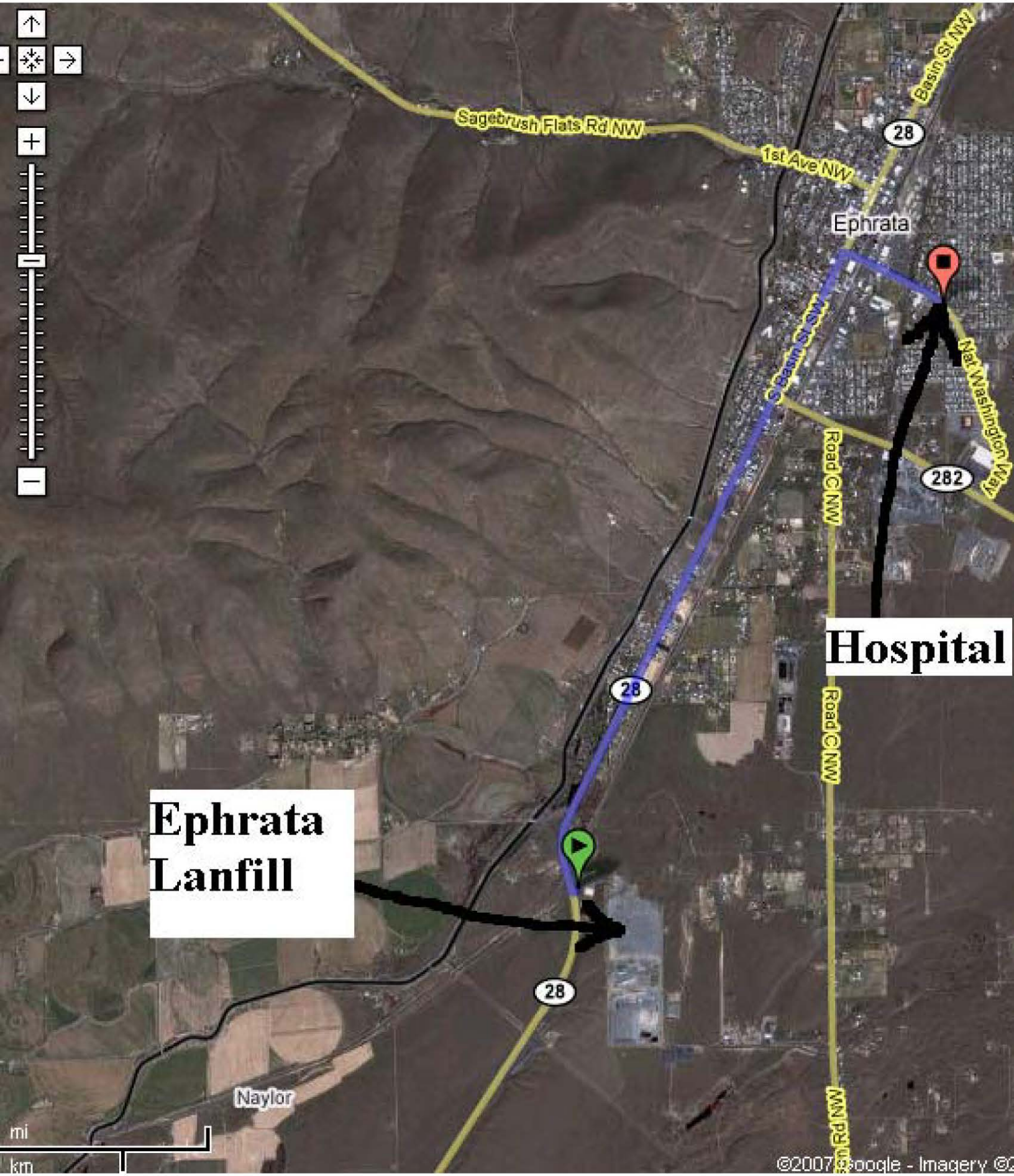
EMERGENCY PLANNING		
Name	**Contact Person**	**Phone Number**
Local Police:		911
Local Ambulance:		911
Local Fire Department:		911
Poison Control Center:		911
Local Hospital:	Columbia Basin Hospital	Hospital Switchboard (509) 754-4631
Address:	200 Nat Washington Way Ephrata, WA 98823	
Ecology:	Cole Carter	(509) 329-3609
Project Manager:	Charles Ellingson	(206) 329-0141

Provide Directions to Nearest Available Medical Facility (attach map):

Head west out of old landfill entrance to Washington State Hwy 28. Turn right and head north on Hwy 28 toward Ephrata. Travel 3.1 miles and once In Ephrata, turn right onto 3rd Ave SW. Proceed 0.1 mile and continue on Nat Washington Way for 0.4 mile until you reach the hospital.

Approvals	**Date**	**Signature**
Sampler:		
Sampler:		
Sampler:		
Site Safety Officer:		
Project Manager:		

cc: Project File


Sagebrush Flats Rd NW
1st Ave NW
Basin St NW
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Ephrata
Nat Washington Way
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Hospital
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