Revised Interim Action Plan
Sudbury Road Landfill Remedial Action
Walla Walla, Washington

March 31, 2010

Prepared for:

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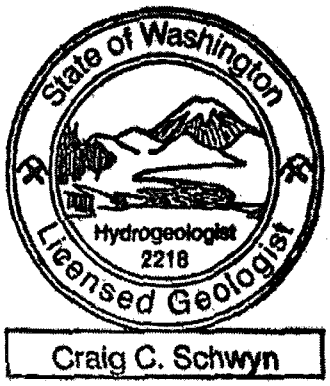
The technical material and data contained in this document were prepared under the supervision and direction of the undersigned Washington Licensed Hydrogeologist.



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1.0 INTRODUCTION

This Interim Action Plan was prepared to document the proposed interim cleanup actions at the City of Walla Walla (City), Washington, Sudbury Road Landfill. An interim action is distinguished from a cleanup action in that an interim action only partially addresses the cleanup of a site. The interim actions proposed for this site consist of the design and construction of the following items:

- Area 6 Closure.
- Construction of stormwater controls on the north side of Area 5 and Area 6.

This document was prepared in general accordance with the Washington State Model Toxics Control Act (MTCA) regulations (chapter 173-340 WAC, Ecology 2007), and the interim action submittal requirements specified in WAC 173-340-430(7). Public participation for this interim action will be accomplished in a manner consistent with WAC 173-340-600.

1.1 PURPOSE AND OBJECTIVES

The purpose of this Interim Action Plan is to fulfill the requirements of WAC 173-340-430, which includes a requirement that, except in certain circumstances, a report be prepared before conducting an interim action under the MTCA. The objectives of the interim actions include:

- Reduce the threat to human health and the environment by eliminating or substantially reducing multiple pathways for exposure to hazardous substances at the site;
- Limit short-term and long-term remedial action costs; and
- Provide cleanup action design compatibility with possible future cleanup actions.

1.2 REPORT ORGANIZATION

This report is organized in the following sections:

- Section 2.0 – Background, provides a brief description of the site, operations, and monitoring history.
- Section 3.0 – Proposed Interim Actions provides a description of the proposed actions, rationale, descriptions and evaluations of each action, other alternatives considered, engineering design, and construction methods.
- Section 4.0 – Supplementary Work Plans provides brief descriptions of the compliance monitoring, health and safety, and sampling and analysis plans that accompany the interim actions.
- Section 5.0 – References.

2.0 BACKGROUND

2.1 SITE LOCATION

The Sudbury Road Landfill is located approximately 3 miles west of the City center in the southwest ¼ ¼ of Section 14, southeast ¼ ¼ of Section 15, northeast ¼ ¼ of Section 22, and the northwest ¼ ¼ of Section 23, Township 7 North, Range 35 East, Willamette Meridian, in Walla Walla County, Washington (Figure 1). The landfill is approximately 125 acres and is located on the western portion of a 909.38-acre City-owned parcel.

2.2 SITE HISTORY

The Sudbury Road Landfill was developed circa 1977 as disposal at the City's Tausick Way Landfill was discontinued. A system of monitoring wells was installed on the City property between 1976 and 1989, and the landfill was operated under the Minimum Functional Standards for Solid Waste Handling (chapter 173-304 WAC) as the regulation was applied in the late 1980's. Until 1993, municipal, medical, and asbestos wastes were disposed of at various locations within the landfill operation area. The approximate waste disposal areas are shown on Figure 2. Detailed records of the disposal activities were not maintained during this period of operation and the boundaries of Areas 1 through 5 are approximate. The waste thicknesses in these areas are also unknown. Verbal reports do suggest that municipal waste may have been deposited near to or below the groundwater level in portions of Area 5. A final cover was placed over Area 5 in 1994 consistent with the WAC 173-304-407 general closure and post closure requirements.

In 1993, Area 6 began operation as a permitted cell under the chapter 173-304 WAC operating criteria. A Solid Waste Transition Permit was issued in March 1994 for Area 6 to transition into compliance with the Criteria for Municipal Solid Waste Landfills (chapter 173-351 WAC) which became effective on November 26, 1993. Area 6 was designed and permitted as an "arid landfill" consistent with the requirements of WAC 173-351-300(2)(b). Therefore, Area 6 does not have a bottom liner to restrict infiltration of leachate or the migration of landfill gas. A permanent cover has not been placed over Area 6.

In 1995, engineering design and operation plans were prepared, geologic and hydrogeologic studies were conducted, and the groundwater monitoring system was upgraded using new and existing monitoring wells to bring Area 6 into compliance with the transition permit, and to begin the landfill expansion permitting process for Area 7. The Hydrogeologic Report (EMCON 1995) was published in June 1995, which summarized the geology and hydrogeology, and presented the compliance monitoring plan with justification of the statistical methods for evaluation of the groundwater monitoring data. In 1997 the Solid Waste Operating Permit for Area 6 was issued by the Walla Walla County Health

Department (WWCHD). Area 6 was mostly filled by 2006; however, minor disposal continued in the area until 2008. In 2006, expansion into a new lined municipal solid waste (MSW) disposal area, Area 7 occurred, and all MSW has been placed in Area 7 since 2009.

Several solid waste permit modifications regarding the groundwater monitoring plan have been submitted and approved by the WWCHD. The modifications included the removal of MW-1, MW-3, and MW-5; replacement of MW-12 with MW-12b, and the addition of MW-14 and MW-15 to the monitoring system. Monitoring wells MW-1 and MW-3 were eliminated from the system because they were constructed with screens deep into the first water bearing zone. Monitoring wells MW-14 and MW-15 were installed to replace MW-1 and MW-3 with screen sections located at the top of the first encountered water bearing zone. The groundwater system now consists of three downgradient monitoring wells (MW-11, MW-14, and MW-15) and one upgradient monitoring well (MW-12b). Upgradient well MW-5 may be included in the quarterly evaluations when the well is accessible for sample collection, primarily as a method of monitoring volatile organic constituents (VOCs) in the upgradient groundwater. The locations of the wells are shown on Figure 2.

In accordance with the solid waste permit, the monitoring wells are sampled each quarter, four times per year. The groundwater samples are analyzed for Appendix I and II detection monitoring constituents, per WAC 173-351-990, plus dichlorodifluoromethane, by an accredited laboratory in accordance with chapter 173-50 WAC.

2.3 GEOLOGY AND HYDROGEOLOGY

2.3.1 GEOLOGY

The Sudbury Road Landfill lies on the northern flank of the Walla Walla Valley. The valley is bounded on the east by the Blue Mountains, which consist of a northeast-trending upland surface of the Columbia River basalt; to the south by Horse Heaven ridge, which is an extension of the Yakima Fold Belt; and to the north by the Touchet slope, which is an undulating surface of the Columbia Plateau that slopes gently southeast into the Walla Walla Valley. The valley intercepts the Columbia River at Wallula, approximately 27 miles west of the site.

The subsurface geology beneath the landfill consists of (from upper to lower) the Palouse silt; reworked lacustrine silt and clay of the Touchet beds; interbedded alluvial gravels in a clayey, silty or sandy matrix, underlain by a basal clay comprising a unit termed the "old gravel and clay" by Newcomb (1965); and Columbia River basalt. The unconsolidated to semi-consolidated deposits overlying the Columbia River basalts may be 600 ft or more in thickness.

2.3.2 HYDROGEOLOGY

The first encountered aquifer beneath the site is located in the lower silt horizon of the Touchet beds and/or the underlying alluvial gravel. Groundwater is generally encountered at depths from approximately 30 to 75 ft below surface. The inferred groundwater flow direction is to the west and southwest with an approximate horizontal gradient of 0.004 ft per foot (ft/ft) beneath the landfill. A vertical downward gradient has been observed between the water levels in MW-3 and MW-15. The horizontal hydraulic conductivity (geometric mean) of the uppermost aquifer beneath the site is 1.52×10^{-3} centimeters per second (cm/sec), based on rising head slug tests conducted in monitoring wells MW-1, MW-3, MW-11, and MW-12 (EMCON 1995). Using this information and an effective porosity of 0.3, the average groundwater flow velocity has been reported to be approximately 2.03×10^{-5} cm/sec (21 ft/year).

A second aquifer is present beneath the alluvial materials in the Columbia River basalts. Information from driller's water well reports, within the vicinity of the site, indicate that the basalt aquifer had a potentiometric surface in the range of 150 to 200 ft below ground surface and a positive upward gradient (EMCON 1995).

2.4 GEOMORPHOLOGY

The Sudbury Road Landfill is located on Pleistocene terrace deposits on the northern flank of the Walla Walla valley. The terrace surface has been dissected by intermittent drainages formed entirely in unconsolidated soils of the Palouse Formation and the Touchet Beds. The southern property boundary of the site generally coincides with the edge of the terrace where it drops steeply (approximately 50 feet) down to the Mill Creek and Walla Walla River flood plain. (EMCON 1995)

The site topography ranges in elevation from 900 feet above mean sea level (MSL) at the top of Area 6 to 780 feet above MSL in the southern drainage area. Natural slopes in the area are 20 percent or lower (EMCON 1995). The site topography is shown on Figures 2.

Intermittent drainages flow to the west and southwest across the site. The drainage channels are typically not associated with an identifiable channel or gully. One intermittent drainage originates in the terrace upland to the east of the landfill and wraps around the east and south edges of Area 1 and Area 7.

A second drainage borders the north side of Areas 5 and 6, originating near a minor drainage divide approximately 1,000 feet northeast of Area 7. The drainage extends west to southwest along the northwest property boundary. The draw is commonly called the "north stormwater drainage". Site drainages are shown on Figure 2.

The permitted closure design of Area 6 (Shaw 2005) directed a portion of the stormwater from the area to the north stormwater drainage area. Additionally, stormwater drainage from portions of MSW

disposal Areas 5, 6, and 7, and farmland located north of the landfill is diverted to a valley bottom located on the north side of Area 5 and Area 6. Historically, stormwater passed through the draw and flowed off site, westward toward Mud Creek. During the last 100 years the "natural channel" has been modified significantly by the Northern Pacific Railroad and by agricultural activities that follow the channel to Mud Creek. Early Area 5 trench design drawings show the northernmost trench to be 20 feet south of the drainage channel and to be cut 17 feet below the surface. However, verbal reports indicate that it is likely that modifications to the original trench design occurred and the trench may have been cut much deeper. Additionally, since the original placement of the MSW in Area 5, the valley bottom has been regularly excavated to control off-site discharges and contain the stormwater for infiltration and evaporation. Several components of the interim action attempt to reduce the volume of stormwater introduced into the north stormwater drainage area and prevent the water from pooling along Area 5.

2.5 SUMMARY OF GROUNDWATER CONTAMINATION

Groundwater monitoring data collected since 1993 indicate the presence of groundwater contamination (primarily VOCs) in samples collected from monitoring wells located upgradient and downgradient of the sprayfarm and landfill areas. These data suggest the presence of area-wide contamination with a source located upgradient of the City property. More recently, groundwater contamination with slightly different characteristics (VOCs with inorganic constituents) has been detected in downgradient monitoring well MW-15. The characteristics of the area-wide and localized MW-15 contamination are described in this section.

2.5.1 AREA WIDE CONTAMINATION

Groundwater monitoring data from the Sudbury Road Landfill indicate that a number of VOCs [including trichloroethene (TCE), tetrachloroethene (PCE), trichlorofluoromethane, 1,1,1-trichloroethane, and chloroform] are present in upgradient wells on the eastern property boundary (over 1.4 miles east, and upgradient, of the waste disposal area), and have been present since at least 1993 when the City began monitoring for VOCs. The upgradient concentrations of PCE (up to 7.1 µg/l) and TCE (up to 4.0 µg/l) have routinely exceeded the Washington State Groundwater Standards (chapter 173-200 WAC) and MTCA cleanup levels. Similarly and slightly lower VOC concentrations have regularly been detected in the downgradient monitoring wells (MW-1, MW-3, MW-11, and MW-14) and several domestic water supply wells (Small and Camp wells) located approximately ¾-mile west and northwest of the landfill. These data have been reported regularly to the WWCHD and the Washington State Department of Ecology (Ecology) since 1993. It is suspected that the area-wide contaminants are also present in the MW-15 samples; however, the localized contamination detected at MW-15 mask the contaminants.

Data from monitoring wells located on the eastern property boundary (MW-7 and MW-9) and other wells located hydraulically upgradient of the landfill (MW-4, MW-5, and MW-8), indicate that an off-site source or sources of VOCs exists. In 1999 Ecology, under cooperative agreement with the U.S. Environmental Protection Agency, conducted a study to evaluate potential sources of the contamination, and published a Contaminant Source Identification/Assessment Report (CSI/A: Ecology 1999). The CSI/A indicated that the relatively high contaminant concentrations observed both up- and down-gradient of the landfill, and the persistence of the concentrations with time, implied that a large continuous source is present. Ecology identified the Washington State Penitentiary, which lies just east (and upgradient) of the site to be a potential source for the VOC contamination at the landfill, because similar VOCs have been used and potentially disposed of on the penitentiary property. In 2009, the Washington State Department of Corrections entered into an Agreed Order with the State to conduct a remedial investigation and feasibility study for the purpose of evaluating cleanup alternatives.

2.5.2 LOCALIZED LANDFILL CONTAMINATION

In July 2001, monitoring well MW-15 was installed in the northwest corner of the landfill to monitor the downgradient groundwater quality of the uppermost zone of the first aquifer. The groundwater quality of the MW-15 samples has been distinct from other samples collected in the vicinity of the landfill. VOCs (including TCE, PCE, trichlorofluoromethane, dichlorodifluoromethane, vinyl chloride, chloroethane, 1,1-dichloroethane, and cis-1,2-dichloroethane) and inorganic constituents [including calcium, sodium, bicarbonate, chloride, alkalinity, and total dissolved solids (TDS)] have been detected at statistically elevated concentrations. An assessment monitoring program was initiated in September 2002 in accordance with WAC 173-351-440, and the results suggested that some of the VOC and inorganic constituents detected in the MW-15 samples were indicators of landfill impact to groundwater. Subsequent steps required by the solid waste regulation are described in WAC 173-351-440(6), which states that, when constituents are detected above background levels and the groundwater protection standard, the owner must initiate an assessment, selection, and implementation of corrective measures as required by the MTCA.

In 2004, the City initiated a remedial investigation (RI) to address these requirements and to characterize the contamination for the purpose of developing and evaluating cleanup action alternatives. A remedial action work plan was prepared to guide the RI process (LAI 2004). A historical study report of the landfilling operations was published in 2006 (Schwyn 2006). Remedial investigation field studies were conducted in 2005 and 2006 by Schwyn; however, the work has not been documented in a report. Landfill gas monitoring wells were installed and sampled once in Area 5 and Area 6 during 2009 as part of the Area 6 closure design studies. Reports of the gas well installation and monitoring are provided by Schwyn (Schwyn 2009) and Shannon & Wilson Inc. (S&W: S&W 2010a). The landfill gas studies

indicated the presence of landfill gas under positive pressure containing VOCs and other constituents. In January 2010, Ecology submitted an Early Notice Letter to the City (Ecology 2010a). The Early Notice Letter indicated that Ecology was aware that a release of hazardous substances had occurred at the Sudbury Road Landfill, and that the site would be added to the database of known or suspected contaminated sites, with further remedial actions to be taken in accordance with the MTCA.

In July 2009, J-U-B Engineers, Inc. (JUB) was contracted by the City to design the closure for Area 6. The MSW cover, landfill gas extraction system, and stormwater designs for the Area 6 closure, along with stormwater controls in the north stormwater drainage constitute the interim action.

2.6 CONCEPTUAL SITE MODEL

The following conceptual site model is based on available geologic, hydrogeologic, and groundwater quality data, and historical landfill construction and operation practices.

- Stormwater from the landfill property historically has passed around the MSW disposal area in two drainages. The larger drainage extends along the east and south perimeters of the landfill. The southern drainage channel is not suspected to be a contaminant source to groundwater. Little MSW is located in the vicinity of the south channel, and the MSW that is present is thought to be at higher elevation. A smaller drainage extends along the north side of Area 5 and Area 6. Excavations in the north drainage valley bottom inhibit off site flow and promote on site infiltration of stromwater. The excavated areas where surface water pools in the north drainage is adjacent to and higher in elevation than the MSW disposed of in the northern most trench of Area 5. Stormwater infiltration in the north drainage area is a possible source of leachate generation, which could add to groundwater contamination observed at the western edge of the landfill.

- Vadose zone soils in the landfill area consist of silt, clayey silt, and fine sandy silt, which are interpreted to be soils of the Palouse Formation and the Touchet Beds. These silty soils exhibit laboratory permeabilities in the range of 10^{-6} to 10^{-5} cm/sec. Underlying the silty soils is a unit consisting of consolidated to semi-consolidated, poorly-graded gravel, silty gravel, and silt, which are interpreted to correlate with the old gravel and clay unit (EMCON 1995). Remolded samples of the gravely silt unit indicated a permeability in the order of 10^{-7} cm/sec.

- Groundwater is encountered in the lower silt horizon of the Touchet Beds or the underlying gravel of the old gravel and clay unit beneath the landfill. The gravels appear to have been deposited in an alluvial environment and form irregular discontinuous lens-like beds, ranging from a few feet to tens of feet thick. Horizontal and vertical facies changes are evident over short distances, making stratigraphic correlation of the gravel channels difficult.

- Conceptually, vertical migration of fluids through the vadose zone is expected to be difficult due to the low permeability of the unsaturated soils. Horizontal groundwater migration is primarily within the more permeable gravel lenses, but may also occur above low permeability depositional features, such as clay and caliche layers.

- Groundwater monitoring data indicate that a number of VOCs are present in upgradient and downgradient monitoring wells. The area-wide contamination has been present since at least the beginning of the VOC monitoring program in 1993, and the contaminant plume may be as much as 2 miles long. The TCE and PCE concentrations have routinely exceeded the Washington State Groundwater Standards and the MTCA cleanup levels. Data from monitoring wells located on the eastern property boundary (MW-7 and MW-9) and other wells located hydraulically upgradient of the landfill (MW-4, MW-5, and MW-8), indicate that an off-site source or sources of VOCs exists. Ecology has identified the Washington State Penitentiary as a potential source of the area-wide contamination.

- VOC and inorganic constituents detected in monitoring well MW-15 groundwater samples are likely indicators of landfill impact to groundwater. Preliminary evaluation of other groundwater quality data suggests that the landfill is not significantly impacting groundwater in the vicinity of MW-11, or MW-14. These data suggest that the source of contamination at MW-15 is most likely Area 5 or Area 6. The occurrence of inorganic constituents in samples from MW-15 suggests that at least some part of the migration pathway is from soil, waste or leachate to groundwater. The migration pathways of the VOCs may include leachate, landfill gas, or both.

- Area 5 has a soil and vegetation cover; however, Area 6 does not. Currently, leachate passing through the Area 6 refuse has full exposure to all contaminants present in the landfill. Leachate draining through the landfill bottom could add to groundwater contamination observed at the western edge of the landfill.

3.0 PROPOSED INTERIM ACTIONS

3.1 PROPOSED INTERIM ACTIONS

The following remedial actions constitute the proposed interim action for this site:

- Closure of Area 6 including:
  - Placement of an evapotranspiration cover over the MSW,
  - Installation of a landfill gas collection and control system, and
  - Construction of Area 6 stormwater controls that divert stormwater away from the north stormwater drainage area.
- Construction of stormwater controls on the north side of Area 5 and Area 6.

3.2 RATIONALE

The proposed interim actions have been identified as effective methods for either removing sources of known contamination at the Sudbury Road Landfill or to reduce the potential for future transport of contamination to groundwater. The cleanup action at the site has not been determined. Therefore, the proposed interim actions will not foreclose reasonable alternatives for the cleanup action. The interim actions may, however, constitute the cleanup action for the site, or portions of the site, if the interim actions are shown to comply with WAC 173-340-350 through WAC 173-340-390.

The U.S. Environmental Protection Agency (EPA) has established presumptive remedies for common categories of sites, based on historical patterns of remedy selection and EPA's scientific and engineering evaluation of performance data on technology implementation. The objective of the presumptive remedies initiative is to use the EPA program's past experience to streamline site investigation and speed up selection of cleanup actions.

The presumptive remedy for municipal landfill remediation endorsed by the EPA, includes closure capping, landfill gas collection and treatment, and engineered surface water controls. These measures are widely recognized as a means of reducing the infiltration of precipitation into the landfill and thus infiltration of water from the refuse into the underlying vadose zone and groundwater. The landfill cap will also prevent direct human and animal contact with refuse, and thus the contaminants. The landfill gas controls prevent the migration of landfill gas to outlying areas and the vadose zone, where vapor phase transfer of contaminants to groundwater may occur. Landfill gas extraction may therefore reduce diffusion of contaminants into the air and groundwater. Active treatment (destruction) of the landfill gas will reduce diffusion of contaminants into the atmosphere. Engineered surface water controls on Area 6 will induce the flow of stormwater away from the north drainage, reducing the volume of stormwater that reaches that area. Surface water controls in the north drainage area will assist the pass through of stormwater through the drainage area, and limit pooling and infiltration in the close vicinity of

Area 5 MSW. Closure capping, gas control and surface water control are consistent with presumptive remedies under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Closure capping, landfill gas controls and surface water controls are also interim actions because they will be accomplished prior to or concurrent with remedial investigation and feasibility study (RI/FS) development and are anticipated cleanup action components.

3.3 DESCRIPTIONS AND EVALUATIONS

3.3.1 AREA 6 CLOSURE

Area 6 does not have a geosynthetic bottom liner, engineered or permitted top cover, leachate collection system, landfill gas extraction and treatment system, or adequate surface water collection and control facilities. Remedial Actions for landfill closure include capping, landfill gas collection, and surface water controls.

3.3.1.1 Landfill Cap

Currently, leachate passing through the Area 6 refuse has full exposure to all contaminants present in the landfill. Leachate draining through the landfill bottom may add to groundwater contamination observed at the western edge of the landfill. The final cover system will limit or prevents the infiltration of incident precipitation and thus reduces production of leachate. The proposed design, construction, selection of materials, and revegetation will prevent erosion of the cover. The cover system is an important component of the engineered systems that will isolate waste constituents from the environment.

JUB designed an evapotranspiration (ET) cover for the Area 6 closure that meets the requirements of WAC 173-351-500(1)(b) for arid areas. The alternative final cover was a design modification to the permitted 2005 closure design (Shaw 2005). The alternative final cover design was described in a detailed report prepared by HWA GeoSciences, Inc. (HWA) dated January 27, 2010 (HWA 2010). The ET cover design was incorporated into the Area 6 Closure Technical Specification [95% design specifications and plans (JUB 2010a)] which were transmitted to the WWCHD and Ecology for review. Ecology reviewed the technical specifications and found that the alternative soil cover meets the design standards of chapter 173-351 WAC, but did comment on the design in a letter transmitted to the WWCHD (Ecology 2010b). Ecology's comments applicable to the soil cover addressed the vegetative species proposed, and the ability to sustain plant life due to stresses caused by landfill gas oxidation and diffusion through the cover. The comments were addressed and the final design was incorporated in the Area 6 Closure Project Manual (JUB 2010b) with construction documents.

HWA performed laboratory and engineering analyses (HWA 2010) to calculate the minimum depth for a monolithic soil layer comprised of on-site soils to ensure that the required water storage of the

cover is less than the available water storage capacity of the soil. Based on computer simulations, the proposed alternative final cover system will transmit less than 4 millimeters of percolation into the underlying waste after three years of typical precipitation and one year of the historically wettest. The alternative final cover will have at least 4.8 feet of earthen material that is capable of sustaining the proscribed ground cover, which will transpire infiltrating water and provide erosion protection. The proposed cover soil consists of native sandy Silt (ML) found at the Sudbury Road landfill site that will be compacted at an in-place density of not less than 82 percent and not more than 88 percent, using Standard Proctor Test ASTM C698. The soils are classified as silt loam using the United States Department of Agriculture (USDA) soil classification and appear to have a water storage capacity ranging between 17 to 20 percent (USDA physical properties for Walla Walla silt loam).

The final cover system design (HWA 2010) is incorporated into the Area 6 Specifications and Plans (JUB 2010b), which have had review and approval by Ecology and WWCHD, and meet applicable requirements of 40 Code of Federal Regulations (CFR) Part 258 (Subtitle D), WAC 173-351-500, and elements of the approved Solid Waste Permit Modification for Lateral Expansion of Sudbury Road Landfill in Compliance with WAC 173-351 (Shaw 2005). It is anticipated that the landfill cover will prevent wildlife and plants from being exposed to hazardous substances via direct contact and thus exclude the requirement for a terrestrial ecological evaluation according to WAC 173-340-7491(1)(b).

3.3.1.2 Landfill Gas Extraction and Treatment System

The landfill gas collection and control system (GCCS) is an important component of the engineered systems that will isolate waste constituents from the environment. Investigation has shown that the landfill gas in Area 6 refuse is under positive pressure and contains VOC and other constituents that could impact groundwater at the Sudbury Road Landfill (S&W 2010a). The GCCS will prevent:

- Uncontrolled migration of landfill gas to off-site and other areas of the landfill;
- Formation of landfill gas condensate water in the soil that could impact underlying groundwater;
- Landfill gas contamination of the vadose zone and infiltration water carrying VOCs to the groundwater; and/or
- Direct contact of the landfill gas with groundwater.

In 2005, the *Solid Waste Permit Modification for Lateral Expansion of Sudbury Road Landfill in Compliance with WAC 173-351* (Shaw 2005) proposed a GCCS as a voluntary means of controlling potential VOC impacts to groundwater in Area 6. The original permit application included a description of the intended GCCS installation, as well as modeling results which predicted emissions from Area 6 and Area 7 at the Sudbury Road Landfill. The emissions reported in the original permit application were as predicted by the EPA's landfill gas emissions model (LandGem). Because the model predicted emitted

concentrations of 1,1,2,2-tetrachloroethane, acrylonitrile, benzene, bromodichloromethane, and vinyl chloride would be above Washington State Acceptable Source Impact Level (ASIL) concentrations, additional modeling was requested by Ecology in 2009 to determine what the property-line concentrations of these constituents would be after air dispersion effects.

As part of the JUB design team, S&W modeled the property-line concentrations of the noted constituents and summarized the results in a letter report dated January 15, 2010 (S&W 2010b). S&W indicated that the GCCS installation at Area 6 in 2010 and Area 7 in 2024 should effectively control pollutant concentrations at the property boundary. Based on the results of the original submission in 2005, and the results of the Ecology requested follow-up air dispersion modeling in 2009, S&W recommended that the Notice of Construction (NOC) Permit Application be approved. Approval of the NOC permit is under consideration by the agencies' at this time.

S&W also noted that the permitted capacity for waste disposal at this landfill is below 2.5 million mega grams of waste. Thus, this landfill is not subject to regulations under New Source Performance Standards for MSW landfills (40 Code of Federal Regulations [CFR] 60 Subpart WWW), the federal Emission Guidelines for MSW landfills (40 CFR Subpart Cc), or the National Emission Standards for Hazardous Air Pollutants for MSW landfills (40 CFR Subpart AAAA). It was S&W's understanding that the regulatory mandate to install the system is based on capturing and destroying pollutants regulated by Ecology. The planned GCCS installation will also result in capture and destruction of methane, which is in addition to the destruction of regulated pollutants, and is voluntary in nature.

Design features of the GCCS are provided in the approved *Solid Waste Permit Modification for Lateral Expansion of Sudbury Road Landfill in Compliance with WAC 173-351* (Shaw 2005), and as updated in the *Area 6 Closure Project Manual* (JUB 2010b). The system shall include 10 landfill gas extraction wells, landfill gas extraction blowers, enclosed landfill gas treatment, moisture removal equipment, flame arrestor, and all necessary pipe, fittings, sampling ports, and instrumentation and controls to construct a complete and operational GCCS. The GCCS was designed and will be constructed to accommodate a possible future connection with an Area 5 landfill gas collection system.

3.3.1.3 Area 6 Stormwater Control System

The Sudbury Road Landfill operates in accordance with an Industrial Stormwater General Permit and Stormwater Pollution Prevention Plan, and complies with WAC 173-351-200(8). These regulatory requirements prevent stormwater from discharging a source of contaminants to the environment. All runoff from the site presently flows to natural drainages on the site, to natural or constructed drainage swales, or infiltrates. The Solid Waste 2005 permit modification (Shaw 2005) describes how stormwater conveyance ditches, berms and culverts will be used to divert water away from the active refuse disposal areas and into the natural drainage courses located along the eastern, southern, and northern property

lines. The 2005 design and operations plan did not consider the potential impacts of waters discharged to the northern stormwater drainage area to potentially migrate into the Area 5 refuse. The JUB design team therefore, modified the Area 6 stormwater collection system to route as much run-off water as possible to the south drainage area (away from Area 5). The landfill will continue to operate in accordance with existing permits and plans after the interim action is implemented.

3.3.2 NORTH DRAINAGE STORMWATER CONTROLS

Construction of stormwater drainage controls in the north drainage area is an important component of the engineered systems that will minimize a possible contaminant pathway of waste constituents to the environment. Stormwater at the Sudbury Road Landfill is handled in accordance with an Industrial Stormwater General Permit and Stormwater Pollution Prevention Plan, and complies with WAC 173-351-200(8). The stormwater is not a contaminant in its surface water state. However, the drainage features of the valley bottom have historically been modified to trap sediments and restrict stormwater from leaving the site. This is accomplished by excavating depressions in the natural drainage channel along the northern boundary of Area 5. Periodically, the sediments are excavated and new depressions in the soil are excavated to restrict the flow of stormwater. Stormwater pools in the depressions, where it either infiltrates and/or evaporates. During large stormwater events the water may exit the site along its natural channel.

Monitoring well MW-15 is located at the western edge of the northern drainage area and northwest corner of Area 5 (Figure 2). The groundwater quality in MW-15 indicates the presence of both organic and inorganic constituents. The presence of inorganic constituents suggests that at least some of the impact to groundwater may be generated from leachate. Preliminary studies of Area 5 indicate that the soil cover is at least 3 feet thick, which should limit the infiltration of incident precipitation and the production of leachate. A possible source of leachate generation could be from the infiltration of the pooled surface water in the north drainage area migrating south in the underlying soils into the Area 5 refuse. The initial design of Area 5 indicated that the northernmost trench should have been excavated within 20 feet of the former valley bottom channel and as much as 17 feet deeper than the valley bottom excavation. Therefore, infiltrating stormwater that migrates 20 feet (or less) south could infiltrate into the refuse and create leachate. The refuse would provide a more permeable conduit to groundwater than the native soils (silt, clay, and caliche) that are commonly found in the deeper reaches of the Touchet Formation. Therefore, migration of the surface water into the refuse is a possible pathway of contaminants to groundwater.

The engineering design features of the interim action include a sedimentation basin which will minimize sediment deposition in the valley bottom, thereby reducing the future need to excavate sediments from the valley bottom, filling of depressions excavated in the valley bottom and surface

grading to slope the valley to the west along the natural drainage channel, installation of a culvert under the western perimeter roadway to allow the stormwater to flow off site, and erosion control mats. The interim action will promote stormwater flow through the valley adjacent to Area 5 and minimize pooling, thereby reducing the quantity of surface water available for infiltration through the refuse. The sedimentation basin will minimize sediment deposition in the valley bottom, thereby reducing the future need to excavate sediments from the valley bottom. Design features are fully described and illustrated in the Project Manual for the Area 6 Closure.

Per WAC 173-340-430(1)(a), the interim action is technically necessary to reduce a threat to human health and the environment by substantially reducing the exposure pathway. The action constitutes an interim engineering control while the RI/FS is in progress. The landfill will continue to operate in accordance with existing stormwater permits and plans after the interim action is implemented.

3.4 ALTERNATIVE INTERIM ACTIONS

3.4.1 AREA 6 CLOSURE

The Area 6 closure is based on the presumptive remedy for municipal landfills remediation endorsed by the EPA. Presumptive remedies are preferred technologies for common categories of sites, based on historical patterns of remedy selection and EPA's scientific and engineering evaluation of performance data on technology implementation. The objective of EPA's presumptive remedies initiative is to use the program's past experience to streamline site investigation and speed up selection of cleanup actions. Presumptive remedies are expected to ensure consistency in remedy selection and reduce the cost and time required to clean up similar types of sites. The proposed interim action also complies with requirements of WAC 173-351-500(1)(b) for arid areas, meets applicable requirements of 40 Code of Federal Regulations (CFR) Part 258 (Subtitle D), and elements of the approved 2005 Solid Waste Permit Modification. The design has gone through preliminary approval by the WWCHD and Ecology. Therefore, other alternatives were not evaluated as a component of this interim action plan.

3.4.2 NORTH DRAINAGE STORMWATER CONTROLS

The following cleanup actions were reviewed for potential effectiveness and implementation, along with cost factors.

- No action: The no action alternative is not compliant with the MTCA and applicable or relevant and appropriate requirements (ARARs), and is not protective of human health and the environment. The no action alternative could be implemented and has low cost. This cleanup action alternative was eliminated for further evaluation because this alternative is not effective and could increase long-term cleanup costs at the site.
- North Drainage Stormwater Channel Construction: Construction of an engineered low permeability drainage channel (such as a concrete or geomembrane liner) was considered.

The RI/FS has not been completed for the site and the final cleanup action has not been determined. This alternative was screened out as a possible cleanup action because it could impact RI efforts and foreclose other reasonable alternatives for the cleanup action.

- Proposed Interim Action: The proposed interim action described herein is proposed as an interim measure to minimize a contaminant pathway to groundwater and reduce long-term cleanup costs. Consistent with WAC 173-340-430(1)(a), the interim action is technically necessary to reduce a threat to human health and the environment by substantially reducing the exposure pathway. The stormwater controls will be effective in the short term and will not foreclose other reasonable alternatives for the final cleanup action.

3.5 ENGINEERING DESIGN

All aspects of the proposed interim action engineering design are provided in the *Area 6 Closure Project Manual* (JUB 2010b) including construction documents. Design aspects of the alternative cover for Area 6 are described in the *Alternative Final Cover Design, Area 6 Closure, Sudbury Road Landfill, Walla Walla, Washington* (HWA 2010). Design aspects of the landfill gas treatment are provided in the *Notice Of Construction Permit Application, Gas Collection And Control System – Area 6, Sudbury Road Landfill, Walla Walla, Washington* (S&W 2010b).

Construction Quality Assurance and Construction Quality Control Plans, Operation and Maintenance Plans, Closure and Post Closure Maintenance and Operation Plans, and SEPA compliance are provided in the *Solid Waste Permit Modification for Lateral Expansion of Sudbury Road Landfill in compliance with WAC 173-35* (Shaw 2005). These plans are being updated as necessary to accommodate modifications to the Area 6 soil cover and GCCS.

Permitting is substantially complete, with current activity pertaining to the GCCS Air Permit and Construction Stormwater Permits. All permits and approvals and any substantive requirements of exempted permits will be obtained prior to construction and meet the requirements of WAC 173-340-400(5).

3.6 CONSTRUCTION

The City solicited bids for the construction of the interim actions on March 15, 2010, and bids are due April 7, 2010. Construction is planned to begin in June 2010. Construction of the interim action shall be conducted in accordance with the construction plans and specifications and other plans identified herein. All aspect of the construction will be performed under the oversight of a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of the professional engineer. Detailed records will be kept of all aspects of the work performed, including but not limited to the construction techniques and materials used, items installed, and tests and measurements performed. At the completion of the construction the responsible engineer will prepare as-built drawings and a report documenting all aspects of the construction. The report shall contain an opinion by the

engineer as to whether the cleanup action was constructed in substantial compliance with the plans and specifications and related documents.

Prior to construction, public notice of the Interim Action Plan, with supplemental engineering plans and specifications will be published for public review and comment. Public participation will be accomplished consistent with WAC 173-340-400(7) and WAC 173-340-600.

4.0 SUPPLEMENTARY WORK PLANS

4.1 COMPLIANCE MONITORING PLANS

A compliance monitoring plan meeting the requirements of 173-340-430 WAC is required for each interim action. Compliance monitoring plans will be developed incrementally, with initial emphasis on monitoring to ensure protection of human health and the environment during interim action construction. An evaluation of the cleanup action effectiveness involves verifying the status of engineered controls and assessing contaminant levels and trends. Methods for evaluating the cleanup action effectiveness will be further developed during the RI/FS.

Protection and performance monitoring for the Area 6 closure and north drainage area stormwater controls will be conducted in accordance with the *Area 6 Closure Project Manual* (JUB 2010b) , and Construction Quality Assurance and Construction Quality Control Plans of the WAC 173-351 Solid Waste Permit Application (Shaw 2005), as modified and approved thereafter. Performance monitoring will include monitoring of groundwater quality in MW-15. Groundwater monitoring shall be conducted in accordance with the groundwater monitoring requirements of the Solid Waste Permit. Landfill gas monitoring will be conducted in accordance with GCCS requirements based on the selected and approved system. Conformational monitoring plans will be developed during later stages of the cleanup action to assess the long-term effectiveness of the interim action once cleanup standards and, if appropriate, remediation levels or other performance standards have be attained.

4.2 HEALTH AND SAFETY PLANS

Health and safety plans are developed incrementally by the City, its consultants, and contractors for their respective operations, construction, and performance monitoring tasks. The health and safety plans will be prepared to comply with WAC 173-340-810.

Schwyn's health and safety plan (HASP) is provided in Appendix A. A HASP will also be prepared by the contractor before beginning work on the site. The contractor's HASP will be prepared consistent with or exceed the requirements of the enclosed HASP provide in Appendix A, and will satisfy the requirements of the City, Ecology (per WAC 173-340-810), the Washington Industrial Safety and Health Act (WISHA) (WAC 296-24,296-62, and 296-155). All workers on the site will be required to read and sign the HASP. A health and safety meeting will be conducted with the contractor, subcontractors, construction testing personnel, and appropriate City employees before starting the work.

Interim action remedial construction activities will be completed in accordance with design criteria, WISHA regulations for construction safety and work at hazardous waste sites, and local standard of practice for construction. During construction, an exclusion zone will be maintained to keep the public outside of the work area.

4.3 SAMPLING AND ANALYSIS PLANS

Sampling and analysis will be conducted in accordance with the sampling and analysis plans described in the Solid Waste Permit Application (Shaw 2005 and EMCON 1995), and the Remedial Investigation Work Plan (LAI 2004).

5.0 REFERENCES

Ecology. 2010a. *Early Notice Letter for groundwater contamination at the Sudbury Road Landfill, 414 Sudbury Road, Walla Walla, WA 9932.* Letter from the Washington State Department of Ecology Waste 2 Resources Program to Mr. Craig Sivley, City of Walla Walla Public Works Director. January 7.

Ecology. 2010b. *Sudbury Landfill Area 6 Closure.* Letter from the Washington State Department of Ecology to Barry Jenkins, Walla Walla County Public Health. March 3.

Ecology. 2007. *Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC.* Compiled by the Washington State Department of Ecology Toxics Cleanup Program. Publication No. 94-06. Revised November 2007.

Ecology. 2002. *Chapter 173-50 WAC, Accreditation of Environmental Laboratories.* State of Washington Department of Ecology. October 1.

Ecology. 1999. *Sudbury Road Landfill Site, Contaminant Source Identification/Assessment Report.* Prepared under a Site Assessment Cooperative Agreement between the Washington State Department of Ecology and the U.S. Environmental Protection Agency. Washington State Department of Ecology. June.

Ecology. 1993. *Chapter 173-351 WAC, Criteria for Municipal Solid Waste Landfills.* Washington State Department of Ecology. October.

Ecology. 1990. *Chapter 173-200 WAC, Water Quality Standards for Ground Waters of the State of Washington.* Washington State Department of Ecology. December.

EMCON. 1995. *Hydrogeologic Report, Sudbury Road Landfill, Walla Walla County, Washington.* June.

HWA. 2010. *Alternative Final Cover Design, Area 6 Closure, Sudbury Rod Landfill, Walla Walla, Washington.* Prepared by HWA GeoSciences, Inc. for J-U-B Engineers. January 27.

JUB. 2010a. *Specifications and Plans, Area 6 Closure, Sudbury Road Landfill.* Prepared by J-U-B Engineers, Kennewick Washington for the City of Walla Walla. January.

JUB. 2010b. *City of Walla Walla Project Manual, Area 6 Closure, Sudbury Road Landfill.* Includes Construction Documents for the Area 6 Closure. Prepared by J-U-B Engineers, Kennewick Washington for the City of Walla Walla. March.

LAI. 2004. *Remedial Investigation Work Plan, Sudbury Road Landfill, Walla Walla, Washington.* Prepared for the City of Walla Walla. Landau Associates, Inc. April 22.

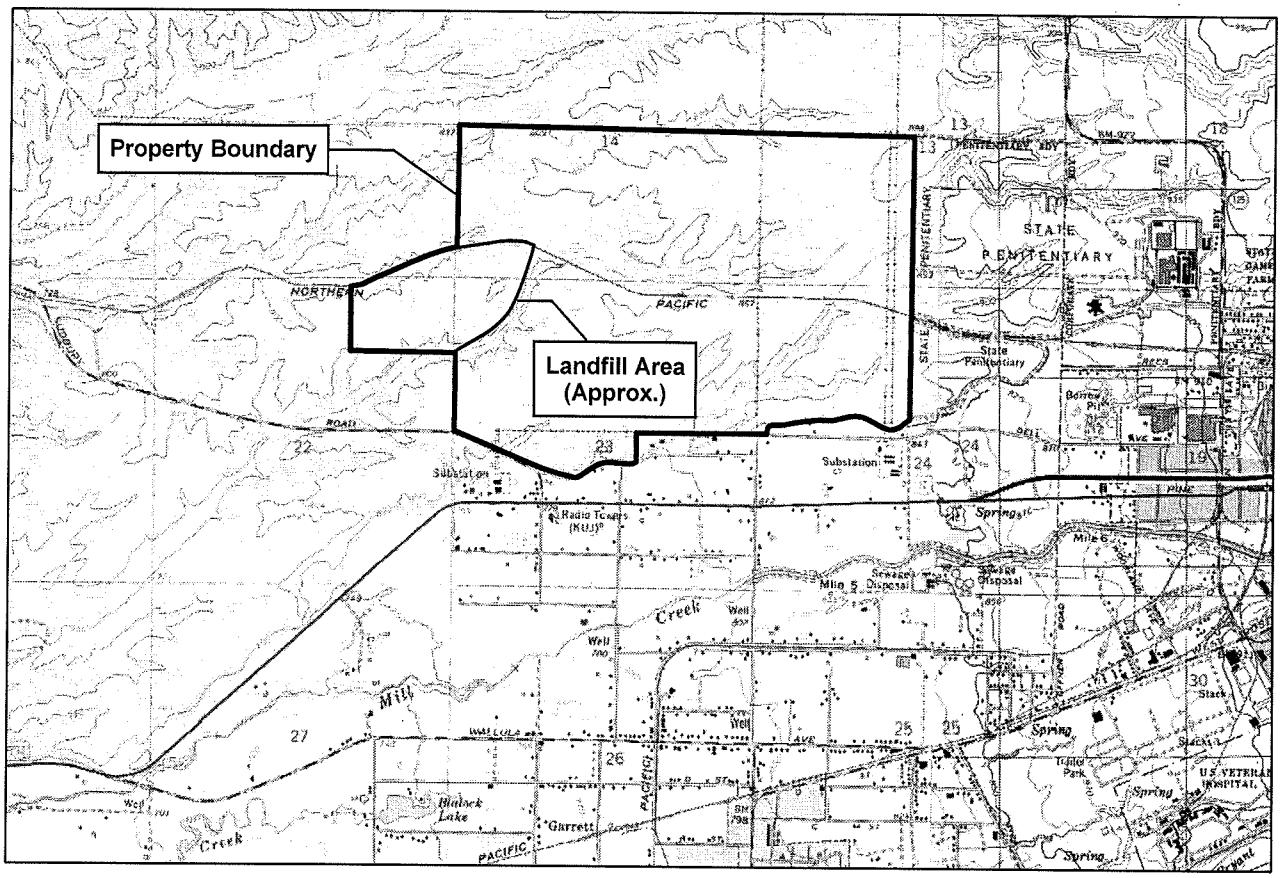
Schwyn. 2009. *Landfill Gas Probe Installation Work Plan for the Sudbury Road Landfill Remedial Investigation, Walla Walla, Washington.* Prepared for the Walla Walla Department of Health and Washington State Department of Ecology by Schwyn Environmental Services, LLC. July 31.

Schwyn. 2006. *Sudbury Road Landfill Historical Study Report, Walla Walla, Washington.* Prepared for the City of Walla Walla Solid Waste Division by Schwyn Environmental Services, LLC. January 17.

Shaw, EMCON/OWT, Inc. 2005. *Solid Waste Permit Modification for Lateral Expansion of Sudbury Road Landfill in compliance with WAC 173-351.* Prepared for the City of Walla Walla November 2004, revised May 2005.

S&W. 2010a. *Sudbury Road Landfill, Field Studies – Gas Sampling At Areas 5 and 6, Walla Walla, Washington.* Prepared by Shannon & Wilson, Inc., for J-U-B Engineers, Inc. January 14.

S&W. 2010b. *Notice Of Construction Permit Application, Gas Collection And Control System – Area 6, Sudbury Road Landfill, Walla Walla, Washington.* Prepared by Shannon & Wilson, Inc., for J-U-B Engineers, Inc. January 15.

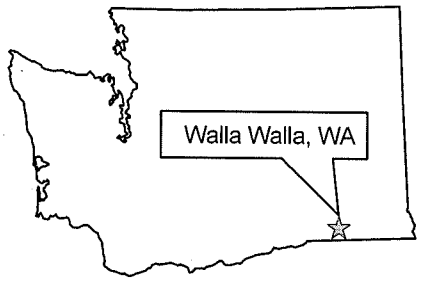


Source: USGS 7.5' Topographic Quad, Walla Walla, WA-OR, 1998, & College Place WASH.-OREG., Photorevised 1978.

North

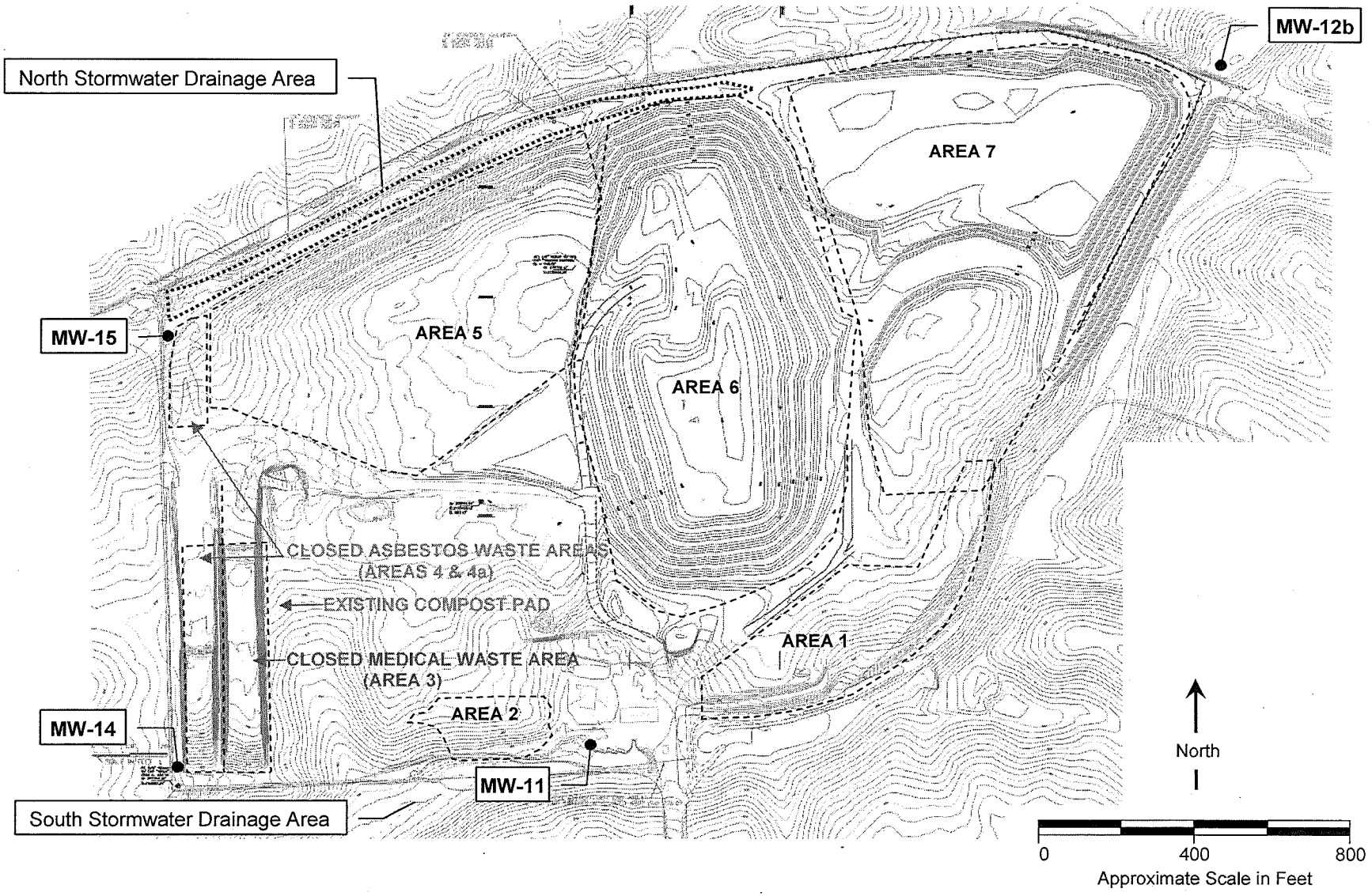
0 0.5 1.0

Approximate Scale in Miles



Schwyn Environmental Services

Sudbury Road Landfill Walla Walla, Washington	**Site Location**	Figure 1



Schwyn Environmental Services

Sudbury Road Landfill Walla Walla, Washington	**Site Plan**	Figure 2

APPENDIX A

Health and Safety Plan

Schuyn Environmental Services

HEALTH AND SAFETY PLAN
AND SAFETY EVALUATION FORM
For
SUDBURY ROAD LANDFILL
WALLA WALLA, WA

Prepared by: Craig Schwyn Prepared for: Schwyn Environmental Services

Date: March 31, 2010

A. WORK LOCATION DESCRIPTION

1. **Project Name:** Sudbury Road Landfill Interim Remedial Action
2. **Location:** Sudbury Road Landfill
   414 Sudbury Road
   Walla Walla, WA
3. **Anticipated Activities:** Closure of Area 6:
   Drilling of gas collection wells
   Construction of a gas collection and treatment system
   Construction of Area 6 cover
   Construction of stormwater control system
   Construction of north drainage area stormwater controls
4. **Size:** 125 Acres
5. **Surrounding Population:** Rural
6. **Buildings/Homes/Industry:** Landfill
7. **Topography:** Rolling hills and gullies
8. **Anticipated Weather:** Varies
9. **Unusual Features:** Landfill gas
10. **Site History:** VOCs in groundwater and landfill gas

B. HAZARD DESCRIPTION

1. **Background Review:** ☒ Complete ☐ Partial

   If partial, why?

2. **Hazardous Level:** ☐ B ☒ C ☒ D ☐ Unknown

   Justification: VOC concentrations in gas

3. **Types of Hazards:** (Attach additional sheets as necessary)

   A. ☒ Chemical ☒ Inhalation ☒ Explosive
   ☐ Biological ☒ Ingestion ☐ O2 Def. ☒ Skin Contact

Describe: Municipal solid waste (MSW) exposure.
Chemicals in MSW, landfill gas, & groundwater.
Methane gas explosion.

B. ☒ Physical ☐ Cold Stress ☒ Noise ☐ Heat Stress ☐ Other

Describe: Drilling and heavy equipment

4. Nature of Hazards:

☒ Air	Describe: Known VOCs and methane.
☐ Soil	Describe:
☐ Surface Water	Describe:
☒ Groundwater	Describe: Known VOCs
☒ Other	Describe: MSW may contain biological and hazardous materials

5. Chemical Contaminants of Concern

Contaminant	PEL	Source/Quantity Characteristics	Routes of Exposure	Symptoms of Acute Exposure	Instruments Used to Monitor Contaminant [a]
VOCs including but not limited to: Vinyl Chloride Dichloromethane (Methylene Chloride) Benzene Trichloroethene Tetrachloroethene	1 ppm or greater	Landfill gas	Inhalation, ingestion, skin absorption, dermal contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage	PID
Hydrogen Sulfide (H_2S)	10 ppm	Landfill gas	Inhalation	Apnea; coma; convulsions; irritated eyes, respiratory system irritation; dizziness; headaches; fatigue; insomnia; GI disturbances	H2S Meter

Notes:
Upgrade to Level C if PID exceeds 5 ppm in breathing zone.
H_2S Meter: move away from work area if H_2S meter reading exceeds 10 ppm.

6. Physical Hazards of Concern ☐ N/A

Hazard	Description	Location	Procedures Used to Monitor Hazard
Explosion	Land fill gas	Near former and active cells	Combustible gas meter Shut down equipment and move offsite if concentration exceeds 50% of LEL
Heavy Equipment			
Trips and falls			
Sharps	Sharp objects	In municipal solid waste	

7. Work Location Instrument Readings ☒ N/A

Location: _____

Percent O_2: _____ Percent LEL: _____

Radioactivity: _____ PID: _____

FID: _____ Other: _____

Other: _____ Other: _____

Other: _____ Other: _____

8. Hazards Expected In Preparation for Work Assignment ☐ N/A

Describe: Possible VOCs, methane, and H_2S in MSW and landfill gas

C. PERSONAL PROTECTIVE EQUIPMENT

1. Level of Protection

☐ A ☐ B ☐ C ☒ D

Location/Activity: Drilling and work performed in direct contact with MSW or landfill gas

☐ A ☐ B ☐ C ☒ D

Location/Activity:
Area 6 closure activities

2. Protective Equipment

Respirator ☐ N/A

- ☐ SCBA, Airline
- ☐ Full-Face Respirator
- ☒ Half-Face Respirator (Cart. organic vapor) (Only if upgrade to Level C)
- ☐ Escape mask
- ☐ None
- ☐ Other:
- ☐ Other:

Clothing ☐ N/A

- ☐ Fully Encapsulating Suit
- ☐ Chemically Resistant Splash Suit
- ☐ Apron, Specify:
- ☒ Tyvek Coverall, as necessary
- ☐ Saranex Coverall
- ☒ Coverall
- ☐ Other:

Head & Eye ☐ N/A
- ☒ Hard Hat
- ☐ Goggles
- ☐ Face Shield
- ☒ Safety Eyeglasses
- ☐ Other:

Hand Protection ☐ N/A
- ☐ Undergloves; Type:
- ☒ Gloves; Type: vinyl, nitrile
- ☒ Overgloves; Type: Durable for sharps
- ☐ None
- ☐ Other:

Foot Protection ☐ N/A
- ☒ Safety Boots
- ☐ Disposable Overboots
- ☐ Other:

3. **Monitoring Equipment** ☐ N/A
- ☒ H_2S Meter
- ☒ Explosimeter
- ☐ Rad Survey
- ☐ Detector Tubes (optional)
- ☒ PID
- ☐ FID
- ☐ Other

Action Levels:
PID: Upgrade to Level C if PID indicates 5 ppm in breathing zone or as determined by site workers.
Explosimeter: Move away from work location if explosimeter reading is greater than 5% by volume LEL
H_2S Meter: move away from work area if H_2S meter reading is greater than 10 ppm.

D. PERSONNEL DECONTAMINATION (ATTACH DIAGRAM)

- ☐ Required
- ☒ Not Required

EQUIPMENT DECONTAMINATION (ATTACH DIAGRAM)

- ☐ Required
- ☒ Not Required

If required, describe and list equipment:

E. PERSONNEL

	Name	Work Location Title/Task	Medical Current	Fit Test Current
1.	**Craig Schwyn**	**Hydrogeologist**	☒	☐
2.			☐	☐
3.			☐	☐
4.			☐	☐
5.			☐	☐
6.			☐	☐
7.			☐	☐
8.			☐	☐
9.			☐	☐
10.			☐	☐

Site Safety Coordinator: **Craig Schwyn**

F. ACTIVITIES COVERED UNDER THIS PLAN

Task No.	Description	Preliminary Schedule
1	Drilling and well/probe installation	Start work during 2010
2	Construction of Gas Collection And Treatment System	
3	Area 6 Closure	
4	Construction of Stormwater Control Systems	
5	Soil, groundwater, and landfill gas sampling	

G. SUBCONTRACTOR'S HEALTH AND SAFETY PROGRAM EVALUATION ☐ N/A

Name and Address of Subcontractor:

EVALUATION CRITERIA

Item	Adequate	Inadequate	Comments
Medical Surveillance Program	☐	☐	
Personal Protective Equipment Availability	☐	☐	
Onsite Monitoring Equipment Availability	☐	☐	
Safe Working Procedures Specification	☐	☐	
Training Protocols	☐	☐	
Ancillary Support Procedures (if any)	☐	☐	
Emergency Procedures	☐	☐	
Evacuation Procedures Contingency Plan	☐	☐	
Decontamination Procedures Equipment	☐	☐	
Decontamination Procedures Personnel	☐	☐	

GENERAL HEALTH AND SAFETY PROGRAM EVALUATION: ☐ Adequate ☐ Inadequate

Additional Comments:

Evaluation Conducted By: _____ Date: _

EMERGENCY FACILITIES AND NUMBERS

Hospital: St. Mary's Hospital
401 West Poplar St.
Walla Walla, WA 99362

Directions:

1: From landfill turn LEFT/southeast on Sudbury Road to US-12.
2: Turn LEFT/EAST on US 12.
3: Exit US-12 at 2nd Avenue, Turn RIGHT/SOUTH on 2nd Ave.
4: Turn RIGHT/WEST on West Poplar Drive.
5: Turn into hospital at 401 West Poplar.

Telephone: 509.525.3320 or 522.5900

Emergency Transportation Systems (Fire, Police, Ambulance) – 911

Emergency Routes – Map (Attachment A)

Emergency Contacts:

	Offsite	Onsite
Craig Schwyn	509-448-3187	509-499-6583

In the event of an emergency, do the following:

1. Call for help as soon as possible. Call 911. Give the following information:
   - WHERE the emergency is – use cross streets or landmarks
   - PHONE NUMBER you are calling from
   - WHAT HAPPENED – type of injury
   - WHAT is being done for the victim(s)
   - YOU HANG UP LAST – let the person you called hang up first.
2. If the victim can be moved, paramedics will transport to the hospital. If the injury or exposure is not life threatening, decontaminate the individual first. If decontamination is not feasible, wrap the individual in a blanket or sheet of plastic prior to transport.

ACTION LEVELS FOR PROTECTION

Monitoring Parameter	Reading	Level of Protection
PID	5 ppm in Breathing Zone	C
Explosivity	5% by volume LEL	Leave Area
H_2S	10 ppm in Breathing Zone	Leave Area

HEALTH AND SAFETY PLAN
APPROVAL/SIGN OFF FORMAT

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing.

Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Site Safety Coordinator	Signature	Date
Health and Safety Manager	Signature	Date
Project Manager	Signature	Date

Personnel Health and Safety Briefing Conducted By:

Name	Signature	Date