STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
The City of Walla Walla	No. 8456

TO: **Frank Nicholson**
City Utility Engineer
City of Walla Walla Public Works
55 Moore Street
Walla Walla, WA 99362

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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and the City of Walla Walla (City) under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Order requires the City to conduct a remedial investigation and feasibility study (RI/FS) to investigate the nature and extent of releases or threatened releases at the Sudbury Road Landfill and to propose cleanup options. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

This Agreed Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such party to comply with this Order. The City of Walla Walla agrees to undertake all actions required by the terms and conditions of this Order. The City shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the Sudbury Road Landfill and is generally located at 414 Sudbury Road, Walla Walla, WA 99362, about 4 miles west of the City of Walla Walla and ½ mile north of Highway 12, in the southwest quarter of Section 14, southeast quarter of section 15, northeast portion of Section 22 and northwest portion of Section 23, Township 7

North, Range 35 East, Willamette Meridian. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. Based upon factors currently known to Ecology, the Site is more particularly described in the Site Diagrams (Exhibit A). The Site constitutes a Facility under RCW 70.105D.020(5).

B. Parties: Refers to the State of Washington, Department of Ecology and the City of Walla Walla.

C. Potentially Liable Person (PLP): Refers to the City of Walla Walla.

D. Agreed Order or Order: Refers to this Order and each of the exhibits to this Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to this Order.

F. Area 5: Refers to the northwestern part of the Sudbury Road Landfill used for solid waste disposal from about 1978 to 1990.

G. Area 6: Refers to the center part of the facility, adjacent to the eastern side of Area 5, used for solid waste disposal from about 1988 to 2010.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by the City of Walla Walla:

A. The Sudbury Road Landfill is generally located at 414 Sudbury Road, Walla Walla, WA 99362, about 4 miles west of the City of Walla Walla and ½ mile north of Highway 12, in the southwest quarter of Section 14, southeast quarter of section 15, northeast portion of Section 22 and northwest portion of Section 23, Township 7 North, Range 35 East, Willamette Meridian.

B. The City of Walla Walla purchased property that includes the Sudbury Road Landfill, approximately 1,000 acres, in 1970. Uses for that acreage before ownership were farming. Since the purchase, uses include:

- Approximately 125 acres for the Sudbury Road Landfill on the west portion of the property, with permitted disposal of municipal solid waste, asbestos and other materials beginning in 1978
- Approximately 600 acres for agronomic application of food processing wastewater east of the Sudbury Road Landfill from 1971-2004
- Approximately 200 acres for periodic agronomic application of City wastewater treatment plant biosolids north of the Sudbury Road Landfill
- Ownership of approximately 58 acres of land was transferred to the Washington Department of Transportation in 2009 for Highway 12 realignment
- The remaining acreage for transmission lines and railroad right of way

C. The City installed a groundwater monitoring system in 1976 and has monitored groundwater quality hydraulically upgradient and downgradient of the landfill since 1977 to meet its obligations under applicable regulations. The City has installed 15 groundwater monitoring wells over the years, located throughout the property to distinguish between potential groundwater impacts from adjacent properties, biosolids application areas, wastewater application areas and different parts of the landfill.

D. The current groundwater monitoring system consists of three downgradient monitoring wells (MW-11, MW-14, and MW-15) and one upgradient monitoring well (MW-12). These wells are sampled quarterly. Upgradient well MW-5 may also be included in quarterly evaluations when accessible.

E. In 2001 the City installed monitoring well MW-15 on the west side of the landfill, adjacent to and hydraulically downgradient from unlined portions of the landfill known as Area 5 and Area 6. Sampling of this well showed levels of volatile organic compounds and inorganic constituents at levels above background and groundwater protection standards. An assessment monitoring program beginning in 2002 confirmed the results. Quarterly groundwater monitoring results since 2001 indicate the landfill is at least partly the cause of impacts to groundwater seen in MW-15.

VI. ECOLOGY DETERMINATIONS

A. The City of Walla Walla is an "owner or operator" as defined in RCW 70.105D.020(17) of a "facility" as defined in RCW 70.105D.020(5) because it currently owns and operates the Sudbury Road Landfill.

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(25) and RCW 70.105D.020(10), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to the City of Walla Walla dated March 29, 2010, pursuant to RCW 70.105D.040, -.020(21) and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that the City of Walla Walla is a PLP under RCW 70.105D.040 and notified the City of Walla Walla of this determination by letter dated May 6, 2010.

D. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

E. The City independently conducted part of a Remedial Investigation based on a 2004 Remedial Investigation Work Plan, attached hereto as Exhibit B. This partial investigation complements the additional work needed to complete the Remedial Investigation required under this Order.

F. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard

assessment, remedial investigation/feasibility study or design of a cleanup action. The Sudbury Landfill has unlined areas 5 and 6. Waste disposal into Area 6 mostly ceased in 2006, but Area 6 needed a cap, and landfill gas and stormwater controls to prevent impacts to groundwater. These design elements are commonly used remedies for controlling impacts to groundwater from municipal solid waste landfills. Area 5 was closed under Chapter 173-304 WAC, but stormwater was flowing into waste in Area 5, creating leachate that could affect groundwater. Stormwater controls were needed for Area 5. Areas 5 and 6 were presumed to be contributing to groundwater contaminants found in MW-15 since they are located immediately upgradient of MW-15. Such circumstances warranted interim actions consistent with WAC 173-340-430. The City independently completed the above-mentioned work in accordance with a March 2010 Interim Action Plan, attached hereto as Exhibit C. Ecology has determined that the City carried out these interim remedial actions in accordance with the substantive requirements of Chapter 173-340 WAC.

G. Ecology hereby incorporates into this Order the previous remedial actions described in Sections VI. E and F. Reimbursement for specific project tasks under a grant agreement with Ecology is contingent upon a determination by Ecology that the work performed complies with the substantive requirements of Chapter 173-340 WAC and is consistent with the remedial action required under this Order. The costs associated with Ecology's determination on the past independent remedial actions described in Sections VI.E and F are recoverable under this Order.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that the City of Walla Walla take the following remedial actions at the Site and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. The City will complete a Remedial Investigation. The City completed part of a Remedial Investigation based on a 2004 Remedial Investigation Work Plan, attached hereto as

Exhibit B. The City will evaluate data from field work completed for the 2004 Remedial Investigation Work Plan in order to identify additional information needed for a complete Remedial Investigation. The City will submit a report to Ecology detailing 2004 Remedial Investigation findings and additional information needed to complete the Remedial Investigation. The City will submit for review and approval by Ecology a new Remedial Investigation Work Plan, sampling and analysis plan, health and safety plan and quality assurance project plan for additional field work to be performed.

B. After completion of the Remedial Investigation, the City will submit a Remedial Investigation Report that describes findings from the Remedial Investigation.

C. The City will submit for review and approval by Ecology the cleanup action alternatives it plans to assess in a Feasibility Study. After approval of the alternatives, the City will prepare a Feasibility Study that describes its assessment of each alternative and recommended option for cleanup.

D. The City will perform work and submit reports to Ecology according to the Scope of Work and Schedule attached as Exhibit D.

E. After the start of new Remedial Investigation Work Plan field work, the City will submit written progress reports to the Ecology project coordinator by at least the 15th day of each month. Progress reports will summarize work performed during the reporting period and work anticipated during the following month. The City will conduct additional Remedial Investigation work if needed to further determine the extent and nature of the contamination and to assist in developing remedial actions.

F. The City will manage landfill gas and control stormwater consistent with applicable regulation or permit during the Remedial Investigation/Feasibility Study process.

G. If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this Section, Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notice

RCW 70.105D.030(2)(a) requires that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that this Order is inadequate or improper in any respect.

B. Remedial Action Costs

The City of Walla Walla shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Ecology has accumulated $2,886 in remedial action costs related to this facility as of 2/28/11. Payment for this amount shall be submitted within thirty (30) days of the effective date of this Order. For all costs incurred subsequent to 2/28/11 the City of Walla Walla shall pay the required amount within thirty (30) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70.105D.055, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

C. Implementation of Remedial Action

If Ecology determines that the City of Walla Walla has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to the City, perform any or all portions of the remedial action that remain incomplete. Except in emergency situations, Ecology shall endeavor, where practicable, to provide the City this notice in writing, and a thirty (30) day opportunity to cure. If Ecology performs all or portions of the remedial action because of the City's failure to comply with its obligations under this Order, the City shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.B (Remedial Action Costs), provided that the City is not obligated under this Section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, the City shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

D. Designated Project Coordinators

The project coordinator for Ecology is:

Marni Solheim
Department of Ecology
4601 N. Monroe, Spokane, WA 99205
509-981-3759
marni.solheim@ecy.wa.gov

The project coordinator for the City of Walla Walla is:

Frank Nicholson
City of Walla Walla
55 Moore Street, Walla Walla, WA 99362
509-524-4510
fnicholson@ci.walla-walla.wa.us

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and the City of Walla Walla, and all documents, including reports, approvals, and other correspondence concerning the

activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

E. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

The City of Walla Walla shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

F. Access

Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that the City of Walla Walla either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order;

reviewing the City's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by the City. The City shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by the City where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by the City unless an emergency prevents such notice. All persons who access the Site pursuant to this Section shall comply with any applicable Health and Safety Plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, the City of Walla Walla shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), attached hereto as Exhibit F, and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, the City shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by the City pursuant to implementation of this Order. The City shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow the City and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.F (Access), Ecology shall notify the City prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

A Public Participation Plan is required for this Site. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment, or if no plan exists, Ecology shall develop a Public Participation Plan alone or in conjunction with the City of Walla Walla.

Ecology shall maintain the responsibility for public participation at the Site. However, the City shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop an appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify the City prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by the City that do not receive prior Ecology approval, the City shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. Walla Walla Public Library
238 E. Alder Walla Walla, WA 99362

b. Ecology's Eastern Regional Office
4601 N. Monroe, Spokane, WA 99202

At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured monitoring data; remedial action plans and reports, supplemental remedial planning documents, and all other similar documents relating to performance of the remedial action required by this Order shall be promptly placed in these repositories.

I. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, the City of Walla Walla shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, the City shall make all records available to Ecology and allow access for review within a reasonable time.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section VIII.B (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

a. Upon receipt of Ecology's project coordinator's written decision or the itemized billing statement, the City of Walla Walla has fourteen (14) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

c. The City may then request regional management review of the decision. This request shall be submitted in writing to the Eastern Region Waste 2 Resources Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

d. The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of the City's request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on the City of Walla Walla to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of the City including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by the City;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.M (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of the City.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give the City written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.L (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII.M (Endangerment).

L. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII.N (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and the City of Walla Walla. The City shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.J (Resolution of Disputes).

M. Endangerment

In the event Ecology determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct the City of Walla Walla to cease such activities for such period of time as it deems necessary to abate the danger. The City shall immediately comply with such direction.

In the event the City determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment, the City may cease such activities. The City shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction the City shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with the City's cessation of activities, it may direct the City to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to Section VIII.M (Endangerment), the City's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in

accordance with Section VIII.K (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against the City of Walla Walla to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against the City regarding remedial actions required by this Order, provided the City complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

O. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by the City of Walla Walla without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to the City's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, the City shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, the City shall notify Ecology of said transfer. Upon transfer of any

interest, the City shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by the City of Walla Walla pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. At this time, no federal, state or local requirements have been identified as being applicable to the actions required by this Order.

2. Pursuant to RCW 70.105D.090(1), the City is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, the City shall comply with the substantive requirements of such permits or approvals. At this time, no state or local permits or approvals have been identified as being applicable but procedurally exempt under this Section.

The City has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or the City determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or the City shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, the City shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by the City and on how the City must meet those requirements. Ecology shall inform the City in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. The City shall not

begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and the City shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Indemnification

The City of Walla Walla agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property to the extent arising from or on account of acts or omissions of the City, its officers, employees, agents, or contractors in entering into and implementing this Order. However, the City shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon the City of Walla Walla's receipt of written notification from Ecology that the City has completed the remedial activity required by this Order, as amended by any modifications, and that the City has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. In the event the City of Walla Walla refuses, without sufficient cause, to comply with any term of this Order, the City will be liable for:

a. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and

b. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

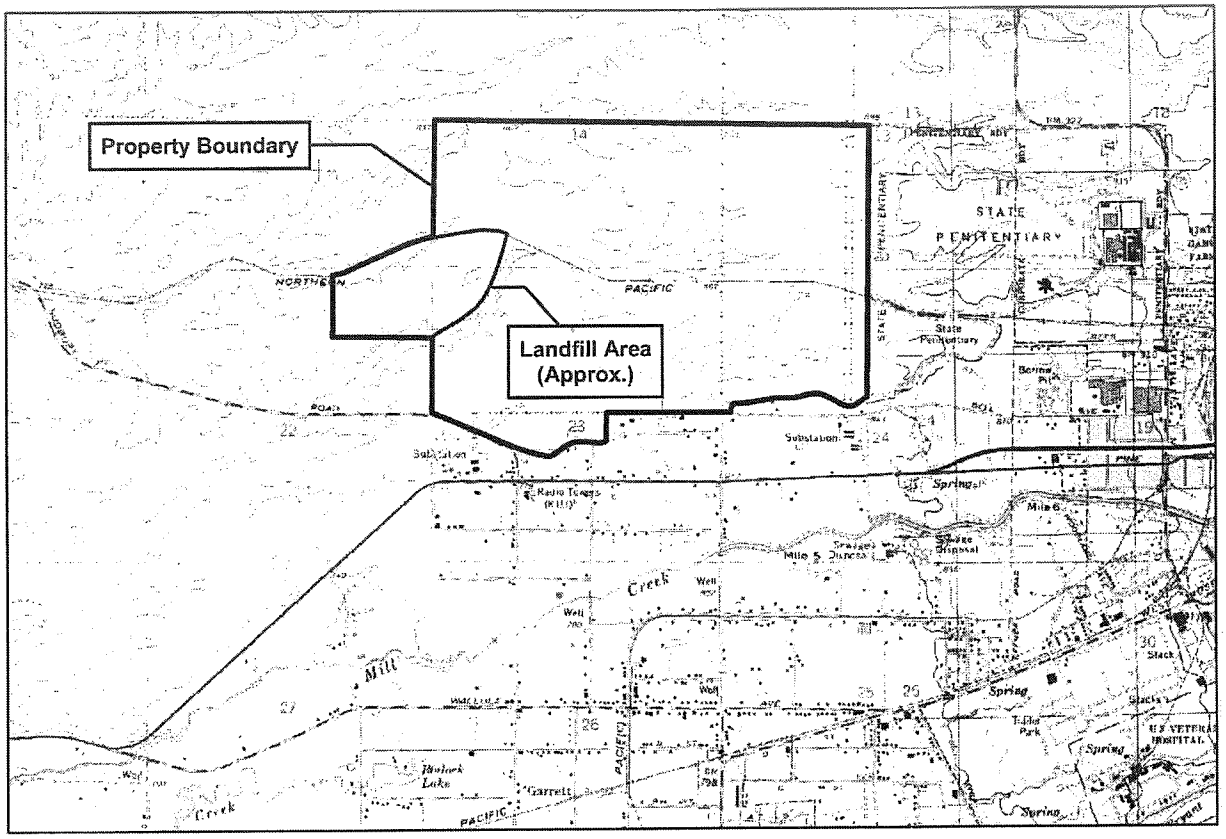
Effective date of this Order: May 26, 2011

CITY OF WALLA WALLA

Nabiel Shawa
City Manager
City of Walla Walla
Telephone: 509-527-4522

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY

Wayne Krafft
Section Manager
Waste 2 Resources Program
Eastern Regional Office
Telephone: 509-329-3438



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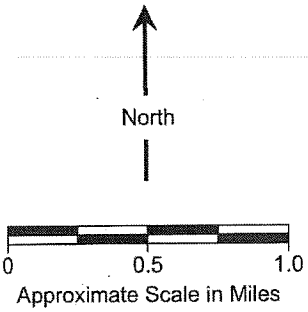
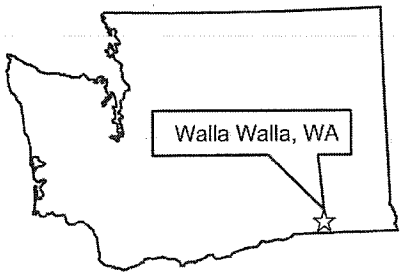
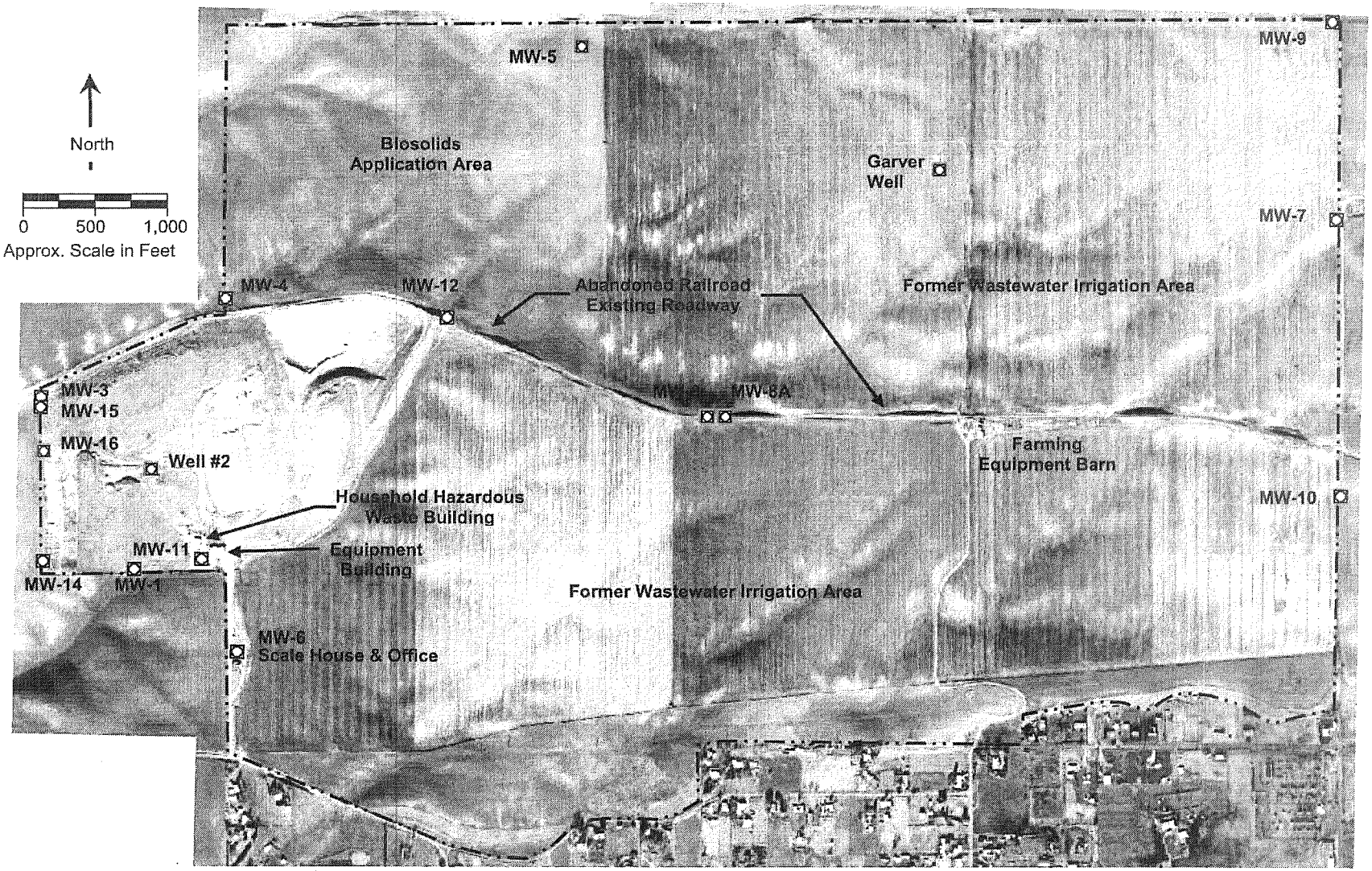




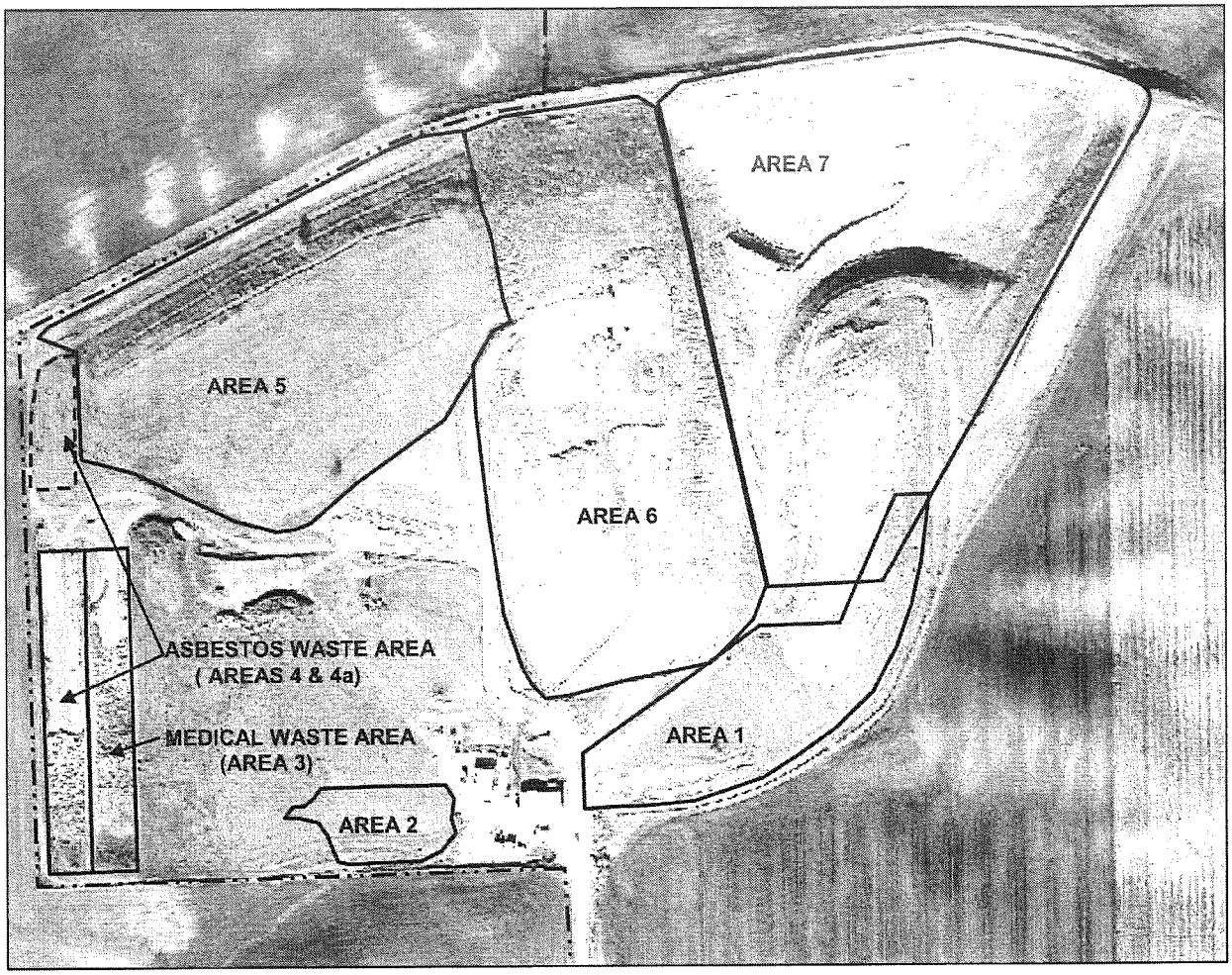
Schwyn Environmental Services	Sudbury Road Landfill Walla Walla, Washington	**Site Location**	Figure 1



Source: City of Walla Walla, March 10, 2003 Aerial Photograph.

Schwyn Environmental Services

Sudbury Road Landfill Walla Walla, Washington	**Waste Management Property Plan**	Figure 2



North

0 430 860

Approximate Scale in Feet

Source: Walla Walla City GIS Department, March 10, 2003 Aerial Photograph.

Schwyn Environmental Services

Sudbury Road Landfill Walla Walla, Washington	**Landfill Area Plan**	Figure 3

Remedial Investigation Work Plan
Sudbury Road Landfill
Walla Walla, Washington

April 22, 2004

Prepared for

City of Walla Walla, Washington

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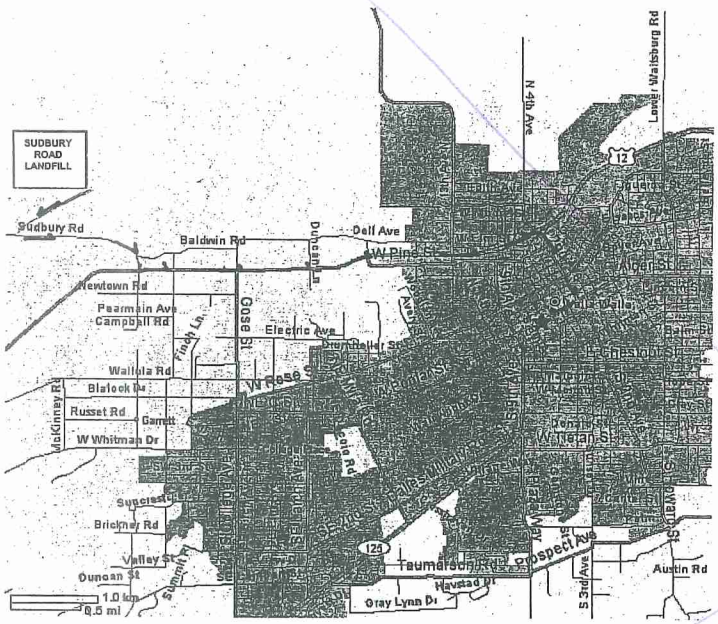

LANDAU ASSOCIATES	Sudbury Road RI Plan Walla Walla, WA	**Emergency Route**	Figure A

4/21/04 \\gpo01\data\470-City Walla\007 Subdury RI PlanFigure.doc

LIST OF FIGURES

1.0 INTRODUCTION

This work plan presents the objectives and scope of work for the remedial investigation (RI) of groundwater contamination detected at the northwest corner of the Sudbury Road Landfill located in Columbia County, Washington (Figure 1). The investigation will be implemented on behalf of the City of Walla Walla, Washington (City), in general accordance with the Criteria for Municipal Solid Waste Landfills (chapter 173-351 WAC, Ecology 1993) and the Washington State Model Toxics Control Act (MTCA) regulations (chapter 173-340 WAC, Ecology 2001).

1.1 GOALS AND OBJECTIVES

The Sudbury Road Landfill is a municipal solid waste landfill operated by the City consistent with chapter 173-351 WAC. The City has installed a groundwater monitoring system to monitor the groundwater quality hydraulically upgradient and downgradient of the landfill, and collects and analyzes groundwater samples on a quarterly schedule. In 2001, monitoring well MW-15 was installed with a screen near the top of the first water bearing zone to replace monitoring well MW-3 which was screened approximately 65 feet below the water table. The groundwater quality of the MW-15 samples have been distinct from other samples collected in the vicinity of the landfill (including adjacent monitoring well MW-3) Numerous volatile organic compounds (VOCs) and inorganic constituents have been detected at statistically elevated levels in groundwater samples collected from MW-15; additionally, the groundwater geochemistry differs from the groundwater in other wells. An assessment monitoring program was initiated in September 2002, and the results suggested that some of the VOC and inorganic constituents detected in MW-15 samples are indicators of landfill impact to groundwater. The next step required by the solid waste regulation is 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:

- (6)(a): Characterize chemical composition of the release, the contaminant fate and transport characteristics, and extent of contamination in all groundwater flow paths by installing additional monitoring wells.
- (6)(b): Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample the well for WAC 173-351-990 Appendix I, II, and III constituents.
- (6)(c): Notify all persons who own or reside on land that directly overlie any part of the contaminant plume if contaminants have migrated off-site.
- (6)(d): Initiate an assessment, selection and implementation of corrective measures as required by the MTCA.

The City plans to perform the RI in a phased approach so that City funds may be allocated over time, and the program may be focused as additional information is obtained. The purpose of this RI plan is to provide a sequenced process for the collection of data to meet the requirements of WAC 173-351-440(6), and the MTCA, specifically the remedial investigation requirements addressed in WAC 173-340-350. The goal of the RI is to determine the most probable source and extent of the contamination, contaminant fate and transport characteristics; to assess the risk to human health and the environment; and to collect sufficient other data to adequately characterize the site for the purpose of developing and evaluating cleanup action alternatives.

1.2 WORK PLAN ORGANIZATION

The remainder of this work plan is organized into the following sections:

- Section 2.0 - Background Information. This section provides a brief description of the site and its history with a preliminary conceptual model of the site and contaminant distribution.
- Section 3.0 - Remedial Investigation. This section presents proposed field activities and data collection efforts, quality assurance/quality control procedures, data evaluation and management protocols, and reporting for the RI activities.
- Section 4.0 - Schedule. This section presents the schedule for investigation activities and reporting.
- Section 5.0 - References. This section identifies the references cited throughout this work plan.

The sampling and analysis plan (Appendix A), and health and safety plan (Appendix B) are included at the end of this work plan.

2.0 BACKGROUND INFORMATION

This section briefly summarizes information that was used in the scoping and development of this work plan.

2.1 SITE DESCRIPTION

2.1.1 SITE LOCATION

The Sudbury Road Landfill is a municipal solid waste landfill operated by the City. The landfill is located approximately 2 miles west of the City in the north one-half of Section 22, Township 7 North, Range 35 East, Willamette Meridian, in Columbia County, Washington (Figure 1). The landfill is approximately 100 acres in size and is located on the western portion of a 1,100-acre, City-owned parcel (Figure 2). Approximately 1,000 acres of the parcel are used for land application of wastewater generated at local food processing facilities.

Dry wheat farming is conducted on large expanses of land to the north and west, and the Washington State Penitentiary is located immediately east of the City property. Rural housing developments are located between the southern property boundary and State Highway 12.

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 below the groundwater level in portions of Area 5.

In 1993, Area 6 began operation as a permitted cell under the chapter 173-304 WAC operating criteria. Final cover material was placed over Area 5 in 1994 consistent with the WAC 173-304-407 general closure and post closure requirements. 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.

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 July 1997 the Solid Waste Operating Permit was issued by the Walla Walla County-City Health Department (WWCCHD).

Two Solid Waste Permit Modifications regarding the groundwater monitoring plan have been submitted (July 26, 1999 and October 2, 2001) and approved by the WWCCHD. The modifications included the removal of MW-1, MW-3, and MW-5, 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 well MW-5 was eliminated from the sampling system because it is very difficult to access during wet periods and during the growing season without damaging the surrounding crops. 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-12). 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 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 normally collected by City personnel, utilizing dedicated groundwater sampling pumps. The groundwater samples are analyzed for Appendix I and II detection monitoring constituents, per WAC 173-351-990, plus dichlorodifluoromethane and cyanide, 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 semiconsolidated 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.

2.4 SUMMARY OF GROUNDWATER CONTAMINATION

Groundwater monitoring data collected since 1993 have 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.

2.4.1 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 VOCs persist in samples collected as recently as 2004. 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. Similar, and slightly lower VOC concentrations have regularly been detected in the downgradient monitoring wells (MW-1, MW-3, MW-11, and MW-14) and a domestic water supply well (Small Ranch Well) located approximately ¾-mile southwest of the landfill. These data have been reported regularly to the WWCCHD 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 (EPA), 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. The VOC parameters have been documented as far west as the Small Ranch domestic water supply well (Figure 1). The VOC constituent types and concentrations ("the fingerprint") present in the Small Ranch Well appear more similar to those coming from the offsite source than the contaminant fingerprint observed in landfill downgradient monitoring well MW-15. This suggests that the area wide contaminant plume may be as much as 2 miles long.

2.4.2 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 elevated levels, and the geochemistry of the samples from MW-15 differ from groundwater in other monitoring wells in the network. An assessment monitoring program was initiated, and the results indicate that it is likely that several of the MW-15 monitoring constituents are indicators of landfill impact to groundwater.

2.5 CONCEPTUAL SITE MODEL

The following conceptual site model is based on available geologic, hydrogeologic, and groundwater quality data, and discussions with City personnel aware of historical landfill construction and operation practices.

- 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 permeability's 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 or impossible with the data available.

- 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 of the old gravel and clay unit; however, the interspersed silt and clay fractions and facies changes are expected to impede flow through the discontinuous and meandering channels.

- 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 impacting groundwater in the vicinity of MW-2, MW-11, or MW-14. These data suggest that the source of contamination at MW-15 is most likely in the vicinity of Area 5 or the northern portion of Area 6. Based on verbal reports of direct deposition of waste below the water table in Area 5 and limited leachate detection beneath Area 6, it is possible that Area 5 is the source area. The occurrence of inorganic constituents in samples from MW-15, such as calcium, sodium, bicarbonate, chloride, alkalinity, and TDS, suggest 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 landfill gas, groundwater, or both.

3.0 REMEDIAL INVESTIGATION

The RI will consist of the following tasks:

- Historical study of landfill disposal practices.
- Contaminant source evaluation.
- Contaminant fate and transport investigation.
- Assessment of risk to human health and environment
- Reporting

These tasks are further described in the following sections.

3.1 HISTORICAL STUDY

The historical study will be conducted to supplement existing information, to document City disposal practices, assess potentially liable parties, and update information on demographics and natural resource uses. The historical information will provide the basis for evaluating the operations that have been conducted at the landfill and adjacent properties, and where former facilities and potential source areas were located. The study will include personnel interviews; review of City files, records and historical site photographs; and research and collection of select public records for the site vicinity. The work to be performed shall include:

- Interviews with former and current site workers, disposal contractors, and others as appropriate. The interviews will be conducted to provide a better understanding of the site disposal history, including waste types, waste disposal locations and practices, and to gather leads on potential additional historical information that may be available, such as photographs and former disposal records.
- Review of City records to search for information on cell construction, operation practices and periods, and potentially liable parties.
- Collection and review of historical site photographs to evaluate operational history.
- Review of USGS, Department of Natural Resources, and Ecology records will be conducted to evaluate if additional regional studies are available since the Hydrogeologic Study Report was prepared in 1995.
- Compile demographic data on land, groundwater, and surface water uses to evaluate potential impacts on human health and the environment .
- Catalog and prepare a summary report of the historical information collected. If potentially liable parties are found during this task, they will be highlighted in the report.

3.2 SOURCE EVALUATION

This task will include collection and review of existing and new data to evaluate the source area of the VOCs and inorganic parameters detected in MW-15 groundwater samples. Based on available information and the conceptual model, the most probable source of the localized groundwater contamination is in Area 5, but could also be from Area 6, or upgradient of the landfill. The presence of inorganic parameters in MW-15 samples above background concentrations suggests that there is direct discharge of contamination to groundwater (soil/waste or leachate pathway to groundwater), because these parameters are not transferred in the gas phase under normal conditions. The VOC source may, however, be transferred by two mechanisms. The VOCs may be discharged directly to groundwater by leachate, partitioned to groundwater in the vapor phase as landfill gas, or may be a combination of direct and vapor phase transport to groundwater. The intent of this task is to determine a probable source location and evaluate the mechanism(s) of contaminant transfer to groundwater.

The source location evaluation will be conducted using temporary Geoprobe™ borings. The landfill gas transport mechanism will be evaluated by collecting landfill gas samples from existing or new landfill monitoring wells or a new landfill gas probe. Geoprobe™, drilling, well installation, landfill gas probe, and landfill gas monitoring procedures are presented in the Sampling and Analysis Plan (Appendix A). All borings and wells will be installed and abandoned in general accordance with the Washington State Minimum Standards for Construction and Maintenance of Wells (chapter 173-160 WAC).

3.2.1 SOURCE LOCATION

A Geoprobe™ boring/sampling program will be conducted to provide information on (1) the Area 5 waste thickness to assess whether waste was disposed of below the water table, (2) leachate migration through the vadose zone beneath the waste, and (3) the groundwater quality beneath Area 5, and downgradient and upgradient of Area 6. The Geoprobe™ sampling tool is a direct push technology, and there is potential that the compact silt present onsite may prevent penetration to the desired depths. In that event, an alternate technology, such as hollow stem auger drilling may be required.

The proposed Geoprobe™ locations are shown on Figure 3. The following paragraphs describe the proposed location rational.

- Geoprobe™ locations GP-1 through GP-8 will be utilized to assess the waste thickness, contaminant levels at the native soil-waste interface, and the groundwater quality at various locations beneath the waste. Soil from the soil-waste interface will be visually observed for the presence of nonaqueous phase liquid (NAPL), and a portion of the native soil will be submitted for laboratory analysis of VOCs. The Geoprobe™ boring will be extended into groundwater and a sample will be collected for laboratory analysis of VOCs and inorganic parameters (calcium, sodium, chloride, and TDS). Select samples may also be analyzed for magnesium, potassium, sulfate, and nitrate as nitrogen so that cation-anion balance and trilinear diagram evaluations may be conducted.

- GP-9 and GP-10 will be installed between Area 5 and Area 6 to evaluate groundwater quality hydraulically upgradient of Area 5 and downgradient of Area 6. Groundwater samples will be collected and analyzed for VOCs and inorganic parameters (calcium, sodium, chloride, and TDS). Select samples may also be analyzed for magnesium, potassium, sulfate, and nitrate as nitrogen so that cation-anion balance and trilinear diagram evaluations may be conducted.

- GP-11, GP-12 and GP-13 will be installed on the north and east side of Area 6 to evaluate the groundwater quality hydraulically upgradient of Area 6. Groundwater samples will be collected and analyzed for VOCs and inorganic parameters (calcium, sodium, chloride, and TDS). Select samples may also be analyzed for magnesium, potassium, sulfate, and nitrate as nitrogen. These Geoprobe™ locations may be modified or eliminated based on data obtained from GP-1 through GP-8.

3.2.2 LANDFILL GAS TRANSPORT EVALUATION

Landfill gas monitoring will be conducted to evaluate if VOCs in landfill gas are being transferred to groundwater at the gas/water interface. Headspace monitoring for landfill gas constituents, including methane, carbon dioxide, and oxygen, will be conducted within the casings of the monitoring wells MW-11, MW-12, MW-14, and MW-15 (monitoring wells with screens extending above the water table) using a portable vapor analyzer for landfill gas constituents. Monitoring will be conducted at discrete depth intervals within the casings to assess the depth where the highest concentrations are present. If greater than 10% methane and/or carbon dioxide is detected, then headspace gas samples will be collected for VOC analysis immediately above the water table and at the depth where the highest landfill gas concentrations are observed. The samples shall be collected in laboratory supplied summa canisters or tedlar bags for laboratory analysis of VOCs.

In the event that quality information can not be collected from the existing monitoring wells, a landfill gas probe will be installed near MW-15. The landfill gas probe shall consist of two PVC casings with 5-ft screen sections, installed in a single boring. The deepest screen section shall be located approximately 1 ft above the high water table elevation, and the second screen section shall be installed approximately 12 ft above the top of the lower screen. A 10-ft thick hydrated bentonite seal shall be installed between the two probe screen sections. Landfill gas samples shall be collected for laboratory analysis from each probe no sooner than 24 hours after the landfill gas probe is installed. The well installation and sampling methods are further described in the Sampling and Analysis Plan (Appendix A).

3.2.3 REPORTING

The data developed during the contaminant source study will be evaluated and compiled into a summary report. The report will include a description of the field activities and analyses conducted, a summary of the analytical data generated, tables and figures as appropriate, and a summary of the findings of the source evaluation. The findings will address the most probable source location and contaminant transport mechanisms.

3.3 EXTENT OF GROUNDWATER CONTAMINATION

Groundwater contamination consisting of VOCs and inorganic parameters has been documented in groundwater samples collected from MW-15. The groundwater conditions observed in MW-3 and MW-14 provide some boundaries on the lateral and vertical limits of contamination, because the contamination in these wells is more similar to the area-wide contamination, rather than the localized contamination observed in MW-15 samples.

The following two-phased approach is recommended to characterize the horizontal extent of the localized groundwater contaminant plume. The first phase consists of a Geoprobe™ groundwater sampling and analysis program to provide preliminary information on the boundaries of the localized contaminant plume. The second phase consists of the installation of monitoring wells so that reproducible groundwater analytical data can be obtained to verify the preliminary information, and to meet the requirements of WAC 173-351-440(6)(b), which states that at least one additional monitoring well be installed downgradient at the facility boundary and be sampled for Appendix I, II, and III constituents.

This RI plan does not include an assessment of vertical extent of contamination because data from MW-3 (located adjacent and screened deeper than MW-15) do not indicate the presence of elevated VOCs or inorganic parameter concentrations at depth. In the event that high concentrations or a large plume is discovered, characterization of the vertical extent may be required.

3.3.1 PHASE I EVALUATION

3.3.1.1 Geoprobe™ Evaluation

A Geoprobe evaluation will be conducted to provide preliminary groundwater quality information on the extent of contamination located south, north, and west of Area 5. Permission to explore on offsite properties will be required to conduct this task, and it is expected that the schedule will be constrained to periods when agricultural crops and land will not be damaged.

The results of the Geoprobe™ evaluation will be used to design a groundwater monitoring system from which the Geoprobe™ groundwater data may be verified. The proposed Geoprobe™ locations are shown on Figure 3. The following paragraphs describe the proposed location rationale.

- GP-14 and GP-15 will be installed south of Area 5 to assess the southern extent of the localized groundwater contamination. Groundwater samples will be collected and analyzed for VOCs and inorganic parameters (calcium, sodium, chloride, and TDS).
- GP-16, GP-17, and GP-18 will be installed north of Area 5 to assess the northern extent of the localized groundwater contamination. Groundwater samples will be collected and analyzed for VOCs and inorganic parameters (calcium, sodium, chloride, and TDS).
- GP-19 through GP-23 will be installed west of MW-15 to assess the downgradient extent of groundwater contamination. These Geoprobe™ locations should be modified accordingly based on data obtained during previous phases of the RI. The groundwater samples shall be collected from the top of the water bearing zone and analyzed for VOCs and inorganic parameters (calcium, sodium, chloride, and TDS).
- Additional Geoprobe™ borings may be installed, as needed, to delineate the extent of localized groundwater contamination located hydraulically downgradient of the landfill.

3.3.1.2 Groundwater Monitoring Plan

A groundwater monitoring plan, containing proposed monitoring well locations and analytical parameters, shall be prepared based on the laboratory analytical results of the groundwater samples collected from the Geoprobe borings. The monitoring plan shall indicate the location for installation of monitoring wells to verify the extent of contamination. The monitoring plan shall also stipulate the sampling schedule and analytical parameters that will be used to characterize the extent of contamination.

3.3.2 PHASE II EVALUATION

3.3.2.1 Monitoring Well Installation

The groundwater monitoring plan prepared during the Phase I investigation will be implemented during this task, and will consist of installing groundwater monitoring wells and monitoring the groundwater flow and quality characteristics. The locations of the monitoring wells will be identified in the groundwater monitoring plan based on the analytical results of the Geoprobe™ groundwater samples.

All wells will be drilled and installed in accordance with applicable Washington State regulations (chapter 173-160 WAC). The wells will be constructed of 2-inch-diameter Schedule 40 PVC pipe with 15 ft screen sections. The screens shall be installed in the top 10 ft of the first water-bearing zone unless other specific data, such as vertical migration, is desired. Drilling, soil sampling, well construction, and well development procedures are presented in Appendix A.

3.3.2.2 Water level measurement

Water levels will initially be measured in the new wells following development, and during each monitoring event thereafter. The procedures for measuring water levels are provided in Appendix A. The measured water level data will be converted to elevations, and utilized to evaluate the direction and magnitude of the horizontal groundwater gradient.

3.3.2.3 Groundwater Sampling

Groundwater samples will be collected from the new monitoring wells no sooner than one day after development. Samples from all wells will be analyzed for all chemical constituents of concern including, but not limited to, VOCs and inorganic parameters as addressed in the groundwater monitoring plan. A least four groundwater samples shall be collected from each new well a minimum of 30 days apart to establish the groundwater concentrations. Groundwater samples will also be tested in the field for temperature, pH, and conductivity. The groundwater monitoring methods are summarized in Appendix A.

3.4 HANDLING OF INVESTIGATION-DERIVED WASTES

Investigation-derived wastes, such as water and soil cuttings generated during drilling activities, water purged from the wells during development and sampling, and waste decontamination liquids, will be collected and stored in a temporary staging area at the site until proper disposal methods are determined. Solid residuals (e.g., Tyvek, gloves, etc.) will be disposed of as solid waste at the landfill. These investigation-derived wastes will be disposed of appropriately, in a manner consistent with the analytical results and in accordance with local, state, and federal regulations.

3.5 MONITORING WELL/BORING SURVEY

A vertical and horizontal survey will be conducted by a licensed professional land surveyor to determine and map the location and elevation of each newly installed monitoring well, landfill gas probe and Geoprobe™ boring. The survey information will include northing and easting state plane coordinates, existing ground surface elevations, and the elevation of a water level measurement reference point for each monitoring well (generally the top of the casing). The survey will be referenced to the existing site benchmark.

3.6 QUALITY ASSURANCE/QUALITY CONTROL

It is anticipated that the RI data will be used to evaluate potential receptors, exposure scenarios, and to support development of appropriate site cleanup action alternatives. Therefore, the data must be collected in a manner that both provides for, and documents, an acceptable level of precision and accuracy. A quality assurance/quality control (QA/QC) program designed to provide the necessary level of precision and accuracy, and to demonstrate completeness, representativeness, and comparability, is presented in detail in Appendix B, the Quality Assurance Project Plan. The QA/QC program will include, among other elements, identification of data quality objectives, specific QA/QC procedures for sample collection and handling, analytical protocols for the analytical laboratories, the use of QC samples, and data validation procedures.

3.7 PRELIMINARY RISK ASSESSMENT

A preliminary assessment of the risk of the contamination to human health and the environment will be conducted to assist in development of the remedial action objectives. The preliminary assessment will consider the toxicity of the constituents of concern, media of concern, and potential exposure scenarios based on the information collected during the RI.

3.8 REPORTING

Individual summary reports will be prepared for each phase of work to document the field methods and findings. An RI report will be prepared after all phases of the RI are complete and the field and laboratory data are compiled and validated. The documentation will consolidate and incorporate data generated during each phase of the investigation. The report will describe general facility information, site history, RI investigation activities, geologic and hydrogeologic conditions, the nature and extent of contamination including exposure pathways and identification of preliminary cleanup levels, preliminary determination of indicator hazardous substances, contaminant fate and transport, and a summary of preliminary cleanup options.

4.0 SCHEDULE

The RI will be conducted in a phased approach contingent on available funds, anticipated risk to human health and the environment, and the findings of the individual RI phases. The RI report will be completed within 6 months of completing all phases of the RI.

5.0 USE OF THIS REPORT

This Remedial Investigation Work Plan has been prepared for the exclusive use of the City of Walla Walla for specific application to the Sudbury Road Landfill. The reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

We appreciate the opportunity to provide these services and look forward to assisting you in the future. Please contact us if you have any questions regarding the information contained in this report.

LANDAU ASSOCIATES, INC.

Craig C. Schwyn, L.G.
Associate Hydrogeologist

CCS/RCM/pcs

6.0 REFERENCES

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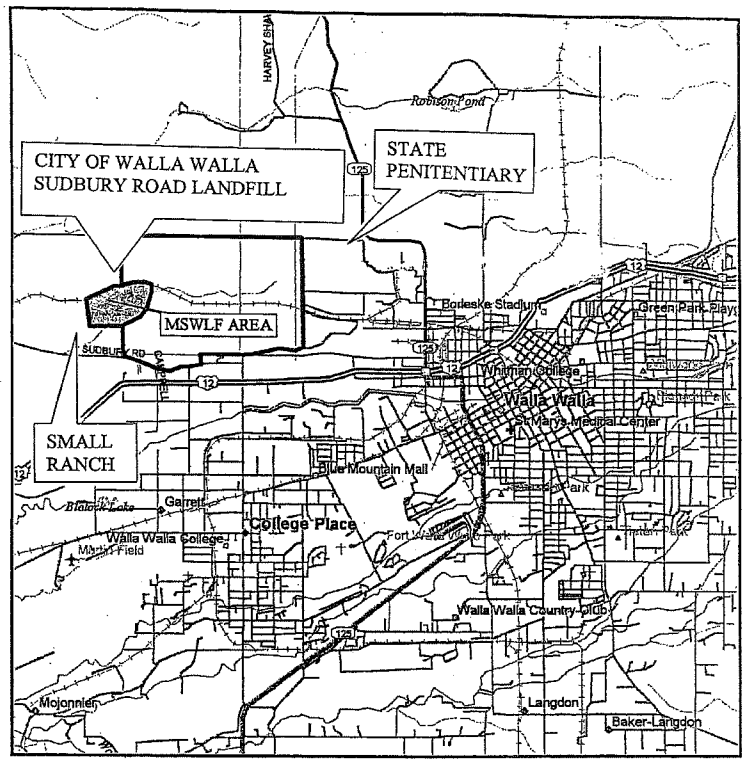

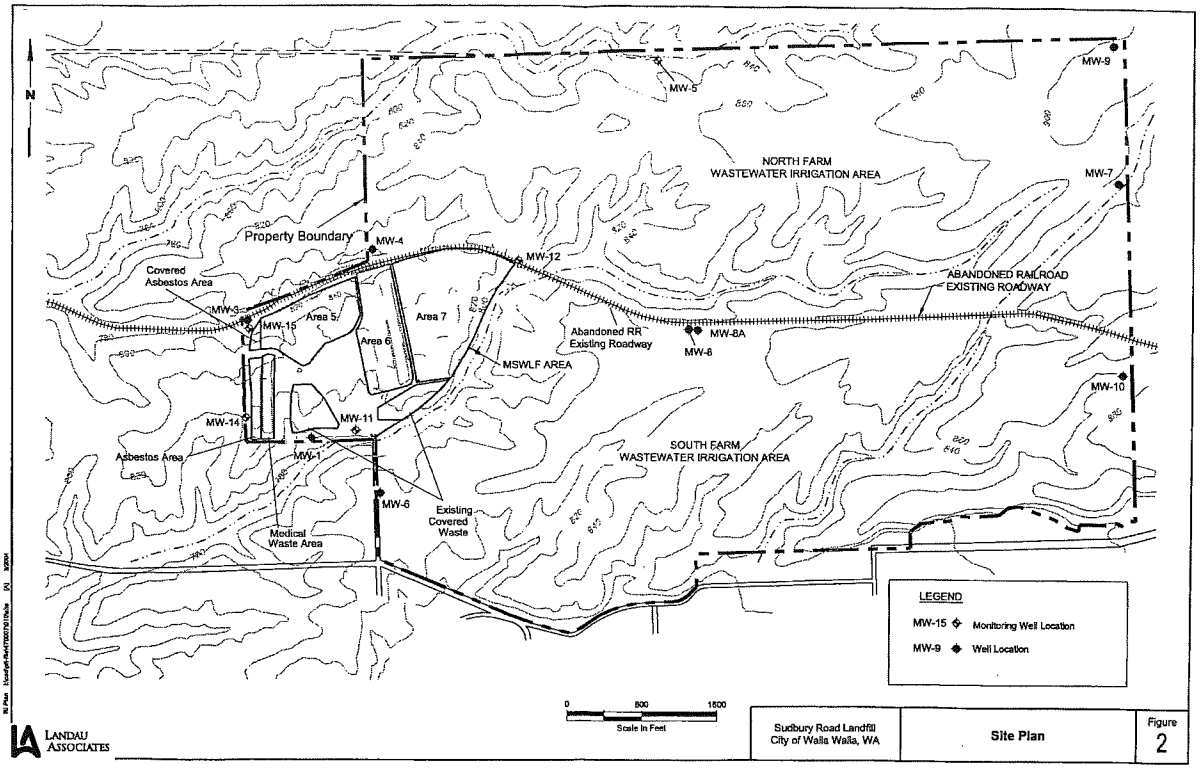
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MW-9
NORTH FARM
WASTEWATER IRRIGATION AREA
MW-7
Property Boundary
MW-4
MW-12
Covered
Asbestos Area
MW-3
MW-15
Area 5
Area 6
Area 7
ABANDONED RAILROAD
EXISTING ROADWAY
Abandoned RR
Existing Roadway
MW-8A
MW-8
MSWLF AREA
MW-10
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MW-6
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Waste
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LEGEND
MW-15 Monitoring Well Location
MW-9 Well Location
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800
1600
Scale In Feet
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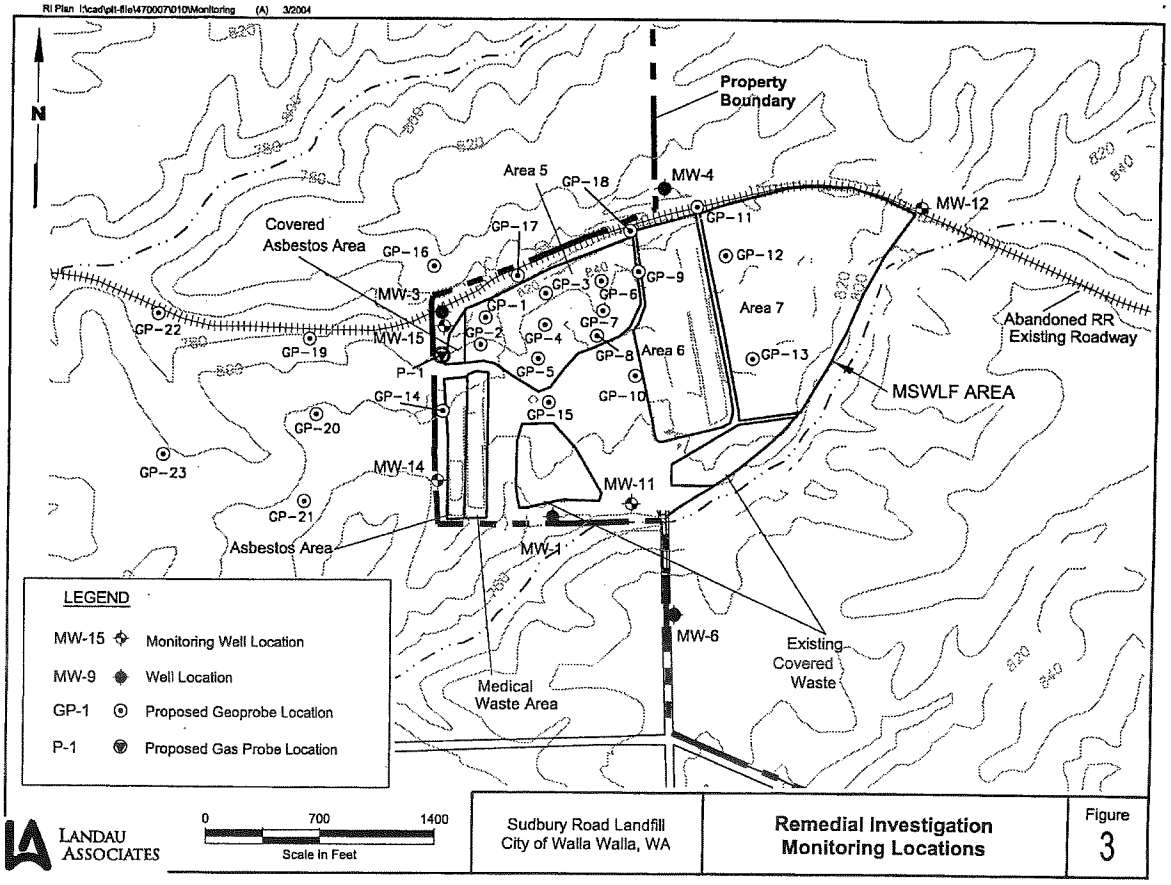
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GP-18
MW-4
MW-12
GP-11
Covered
Asbestos Area
GP-17
GP-16
GP-12
MW-3
GP-9
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GP-7
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GP-15
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1.0 INTRODUCTION

This sampling and analysis plan (SAP) describes procedures for conducting field activities and laboratory analyses during the remedial investigation (RI) at the City of Walla Walla (City) Sudbury Road Landfill located in Walla Walla County, Washington. The primary objective of this plan is to provide field and laboratory procedures that will maximize accuracy, reproducibility, and comparability of data between sampling events. The sampling methods described in this plan are based on procedures outlined in U.S. Environmental Protection Agency (EPA) guidance documents (EPA 1987, 1988).

This field sampling plan is divided into the following sections:

- Section 2.0 - Field and Laboratory Procedures
- Section 3.0 - Quality Assurance
- Section 4.0 - Health and Safety
- Section 5.0 - Reporting
- Section 6.0 - References.

1.1 SCOPE

The RI will be conducted in accordance with the requirements of the Criteria for Municipal Solid Waste Landfills (chapter 173-351 WAC, Ecology 1993) and the Washington State Model Toxics Control Act (MTCA) regulations (chapter 173-340 WAC, Ecology 2001), specifically the remedial investigation requirements addressed in WAC 173-351-440(6) and WAC 173-340-350. The goal of the RI is to determine the most probable source location, contaminant fate and transport characteristics, risk to human health and the environment, and sufficient other data to adequately characterize the site for the purpose of developing and evaluating cleanup action alternatives related to volatile organic compound (VOC) and inorganic constituent contamination observed in monitoring well MW-15 groundwater samples. The RI will consist of a historical study, an evaluation of the contaminant source location, mechanism of transport, extent of contamination, and an assessment of the potential risk to human health and the environment. This SAP pertains to the RI field and laboratory tasks, completed to assess the source location, transport mechanism(s), and the extent of contamination. The remedial investigation goals and rational are described in the Remedial Investigation Work Plan.

2.0 FIELD AND LABORATORY PROCEDURES

This section describes the sampling strategy and procedures (sample location, collection methods, and laboratory analyses) that will be used during the Sudbury Road Landfill RI.

2.1 SOIL SAMPLING

Potential soil contamination is expected to be limited to soils beneath the solid waste disposal areas or in soils impacted by contaminated groundwater. Therefore, for the most part, chemical analysis of soil samples will be limited to samples collected from beneath waste disposal Area 5 and in the vicinity of the water table. Soil samples will also be collected, on an as-needed basis, for lithologic evaluation and to assess soil conditions. The specific depth intervals from which samples will be submitted for laboratory analysis will be based on field observations (i.e., a sample will be collected from a depth interval where photoionization detector (PID) results, any sheen, or odor are identified).

2.1.1 SOIL SAMPLE LOCATIONS

As described in the RI Work Plan (Landau Associates, 2004), specific sampling locations have been selected to identify the source and extent of contamination. The sampling areas are located both inside and outside of the disposal areas on the landfill property and at offsite locations downgradient of the landfill. The sample locations associated with each area are shown on Figure 3.

Each sampling location will be established in the field based on site features. Prior to initiation, each proposed sampling location will be checked in the field to locate underground and aboveground utilities, or other physical limitations that would prevent drilling at the proposed location. If refusal is encountered at locations within the waste disposal areas, the sampling points may be relocated to another location in the close vicinity. All offsite locations will require property owner permission for access, and it is expected that the investigation will be constrained to periods when agricultural crops and land will not be damaged.

2.1.2 SAMPLE DEPTH INTERVALS

At each sampling location within the waste disposal area (GP-1 through GP-10), one soil sample will be collected from native soil approximately one foot below the waste/native soil interface. Subsequent soil samples will be collected at 5-ft intervals to the depth near where a groundwater sample will be collected, and the boring is terminated.

Soil samples shall be collected in temporary borings GP-11 through GP-23 and any monitoring well boring at the surface (grab sample), at 10-ft intervals, and at changes in lithology within the vadose zone to a point within 5 ft of the water table. Soil samples shall be collected at 5-ft intervals from 5 ft above the water table to the bottom of the boring.

2.1.3 SAMPLE COLLECTION METHODS

Soil samples from GP-1 through GP-23 will be collected from direct-push borings. Soil samples located within the hollow-stem auger borings will be collected using split spoon samplers. One surface grab sample will also be collected of the upper 6 to 8 inches of soil at each boring. Each of these sampling methods is described below.

2.1.3.1 Direct-Push Sampling

A truck-mounted Geoprobe™ rig will be used for borings where soil samples will be collected using the direct-push method. The soil samples will be obtained from the borings using a closed-piston sampling device with a 48-inch long, 1.5-inch inside-diameter (ID) core sampler. The sampler will be advanced to the top of the sample interval with the piston in a locked position. The piston tip will then be loosened and the sampler will be advanced through the desired depth interval, thereby coring the soil inside the sampler's disposable, single use liner. The sampler will then be withdrawn to retrieve the liner and soil sample. The liner will be cut to remove the soil sample. A new liner will be placed in the core sampler and this process will be repeated until all soil samples have been obtained. Between samples, the core sampler, including the piston tip and rods, will be decontaminated, as specified in Section 2.7.

2.1.3.2 Split-Spoon Sampling

Soil samples obtained by conventional drilling methods will be collected using a 2.5- to 3.5-inch diameter split-spoon sampler. The sampler will be attached to a drive hammer, lowered through the hollow-stem auger to the target depth, and driven into the soil ahead of the auger bit by the repeated drop of the hammer from a height of approximately 30 inches. The number of hammer blows required to drive the 18-inch long split-spoon sampler into the soil will be recorded by 6-inch increments. Upon retrieval the split-spoon will be opened and the soil will be field-screened, packaged for transportation and analysis, and described as presented in Sections 2.14.

2.1.3.3 Grab Sampling

Soil grab samples will be collected at the surface and from drill cuttings. These soils will be used for lithologic descriptions only.

2.1.4 Soil Sample Screening and Packaging

After collection, the soil samples will be observed for the presence of contamination, and then field-screened using a PID. An examination for discoloration, odor, and the presence of sheen or NAPL will then be made and the observations will be recorded on the Log of Exploration form. A portion of the soil sample will be placed in a sealed container (e.g., plastic reclosable bag or foil-topped plastic or glass container) and allowed to equilibrate to ambient air temperature for a minimum of 10 minutes. A PID reading will then be measured from a small puncture in the sample container and recorded on the Log of Exploration form. The presence of any odor will also be documented.

Once the field screening has been completed, the soil sample will be classified in accordance with the Unified Soil Classification System and recorded on the Log of Exploration form. A portion of the soil sample representing the specified depth interval will be placed in a decontaminated stainless-steel bowl and homogenized using a stainless-steel spoon. Larger-sized material (gravel greater than about ¼- to ½-inch in diameter) will be removed by hand sorting. The sample will then be transferred to the appropriate sample container, labeled, and placed in a chilled cooler for transport to the laboratory. Any samples to be analyzed for VOCs will not be placed in a bowl for homogenization and instead will be taken directly from the sampler, placed into the sample container, and sealed with a lid.

The Log of Exploration form will also be used to document the following information: sampling depths, sampling methods, sample recoveries, soil types, any stratifications observed, any evidence of contamination as indicated through visual observation and the use of a PID, groundwater conditions, and other pertinent information. Soil sample data may also be documented on a Soil Sample Collection form. To preserve sample integrity, sample handling and documentation will be conducted in accordance with the procedures described in Section 2.4.

2.2 GROUNDWATER SAMPLING PROCEDURES

Groundwater samples will be collected for laboratory analyses from temporary well points installed using the Geoprobe™ direct-push methodology. A monitoring well installation plan will be prepared based on the groundwater analytical results from the temporary Geoprobe™ borings. This section describes the procedures for sampling groundwater using from either temporary well points or monitoring wells.

2.2.1 Sampling Locations

Temporary Geoprobe™ borings will be installed at the locations shown on Figure 3. The rationale for each location is presented in the RI Work Plan.

The location of one or more monitoring wells will be selected based on the groundwater analytical results of the Geoprobe™ groundwater sampling program. Prior to initiation of Geoprobe™ or monitoring well drilling program, the location of each boring will be checked in the field to locate underground and aboveground utilities, or other physical limitations that would prevent drilling at the proposed location.

2.2.2 Temporary Well Points

Groundwater samples will be collected from temporary well points installed using a Geoprobe™ direct-push drilling rig. Following soil sample collection, a decontaminated, shielded, temporary well screen will be pushed to the target depth. For this investigation, the temporary well screens will be 4-ft long, 1-inch outside-diameter (OD), 0.010-inch slot size, and made of stainless steel. The screen will be placed so that about 1 ft of the screen extends above the water table and 3 ft of screen extends below the water table. Once the well screen has been advanced to the target depth, the protective shield will be withdrawn exposing the screen, and groundwater will be extracted as described in Section 2.2.4.

2.2.3 Monitoring Well Installation and Construction

Groundwater samples may also be collected from new monitoring wells to verify groundwater data collected from the temporary well points. This section provides the specifications for the monitoring well installation and design, and well development methods.

2.2.3.1 Monitoring Wells

Drilling, installation, and construction of the monitoring wells will be conducted in accordance with the *Minimum Standards for Construction and Maintenance of Wells* (chapter 173-160 WAC). Drilling will extend approximately 10 ft below the water table, using a hollow-stem auger drill rig with 4.25-inch ID and 8-inch nominal OD augers.

The monitoring wells will be constructed of flush-threaded 2-inch Schedule 40 PVC casing with 15-ft machine-slotted screen (0.010-inch). The screened interval will extend across the top of the water table, from approximately 10 ft below to 5 ft above the water table.

A filter pack will be installed around each screen, extending from the bottom of the end cap to about 3 ft above the screen. Filter pack material will consist of commercially prepared, pre-sized, and pre-washed No. 10-20 silica sand. The filter pack will be carefully poured down the annulus between the well casing and the auger flights in a manner to maintain 1 to 2 feet of material inside the augers as they are slowly withdrawn. During placement, the distribution and depth of the filter pack will be monitored with a weighted tape. Once the well is installed, the total depth of the well will be verified by lowering a weighted tape to the bottom of the well casing.

The annular space above the filter pack will be filled with bentonite chips to about 1 ft below ground surface (BGS). An above-ground or flush-mount steel monument will be cemented in place at the surface to a depth of at least 1 ft. The monument and concrete will be slightly raised at ground surface and the concrete sloped away from the monument to divert rainfall away from the monument. The well casing will also be capped with a lockable, watertight lid. Three steel bollards will be placed around any above ground completions.

2.2.3.2 Monitoring Well Development

Each monitoring well will be developed within 24 hours following well installation. Well development will be accomplished using a pump, bailer, or other mechanical surging device. Development will continue until at least 5 to 10 casing volumes have been removed and turbidity of the purge water is visibly low. All well development information will be recorded on a Well Development Record form.

Temporary well points will not be developed; instead, the wells will be purged just prior to sampling, as described in Section 2.2.4.

2.2.4 Groundwater Sample Collection Methods

Groundwater is sampled on a quarterly schedule from MW-11, MW-12, MW-14, and MW-15, and occasionally from MW-5, using dedicated groundwater sampling pumps. Any samples from these wells will be collected using the established sampling protocols.

The following procedures will be used to collect groundwater samples for the RI from the temporary well points and new monitoring wells:

- Before sampling, depth to water will be measured to the nearest 0.01 ft and recorded on the sample collection form. From this, the water column height in the well will be calculated.

- Specific conductivity, pH, and dissolved oxygen meters will be calibrated according to manufacturer's specifications at the beginning of each sample day. Calibration data will be recorded in a log maintained for each instrument. Meter calibration will be checked at least twice during a sample day (middle and end of day) or when meter drift is suspected, and data will be recorded in the calibration log or sample collection form. The meters will be calibrated with solutions buffered closest to known field parameters.

- Before sampling, the well will be purged using a purge pump or bailer. Purging will continue until at least 3 casing volumes of water have been removed, the specific conductance and temperature has stabilized (when the replicate sample measurements vary by no more than 10 percent), or until the well is dry. Purge volume will be calculated based on the following formula:

  1 well volume (gallons) = $\pi r^2 h$ x 7.48 gal/ft^3,
  where π = 3.14, r = inside radius of well casing in feet, h = height of water column from the bottom of the well, in feet.

  - The wells will be purged at a rate below the rate that was used for development and will be conducted so that the entire water column above the screen has been removed prior to sampling.

  - The well will not be purged at a rate that allows formation water to vigorously cascade down the sides of the screen.

  - Purge data will be recorded on the sample collection form, including purge volume, time of beginning and termination of purging, and observations regarding color, turbidity, or other factors that may be important in evaluation of sample quality.

  - Purge and decontamination water will be contained in drums or in a storage tank located in a temporary staging area at the site for proper disposal.

- Groundwater sampling will begin immediately following purging or, if the well purges dry, as soon as enough water is available in the well for sampling. Sample data will be recorded on the sample collection form, including sample number and time collected, the observed physical characteristics of the sample (e.g., color, turbidity, etc.), field parameters (pH, specific conductance, dissolved oxygen, and temperature), and other data that may be important in the evaluation of sample quality.

- On low-yielding wells, pH, temperature, dissolved oxygen, and specific conductance will be measured at the beginning and end of sampling.

- Groundwater samples will be collected for all parameters using a bailer or a dedicated groundwater sampling pump. Clean gloves will be worn when collecting each sample.

- The sample water will be discharged slowly and carefully into appropriate sample containers to minimize aeration. Volatile organic analyses (VOA) containers will be completely filled so that no head space remains. VOA sample containers will be checked for air bubbles by turning the bottle upside down and tapping it lightly to make air bubbles move to the bottom of the sample bottle. If air bubbles are observed in any of the VOA containers, the container will be topped off (once only) or a new container used. Water for major ion or dissolved metal analyses will be collected last and field filtered through a 0.45-micron, in-line, disposable filter. A note will be made on the sample label, sample collection form, and chain-of-custody form to indicate the sample has been field filtered. Samples will be chilled on ice immediately after sample collection.

- Duplicate samples will be collected by alternately discharging the pump or bailer into duplicate sample bottles. Duplicate samples will be labeled with a separate sample number and the number will be noted on the sample collection form. Duplicate samples will receive a designation unrelated to the primary sample and traceable to the sample location only through sample collection forms and log notation.

All sampling will be conducted in accordance with the appropriate provisions of the project health and safety plan (Appendix B).

2.3 LANDFILL GAS MONITORING

2.3.1 HEADSPACE MONITORING AND SAMPLE COLLECTION

Headspace monitoring will be conducted within the casings of monitoring wells MW-11, MW-12, MW-14, and MW-15 using a portable vapor analyzer for landfill gas constituents including methane, carbon dioxide, and oxygen. Depth discrete monitoring will be conducted within the casings to assess the depth where the highest concentrations are present. The discrete gas samples shall be collected using Teflon tubing connected to the gas meter. The tubing shall be purged of 1.5 tubing volumes prior to measuring and recording the constituent concentration.

If greater than 10% methane and/or carbon dioxide is detected, then headspace gas samples will be collected for laboratory analysis. Teflon tubing will be lowered to the desired sampling depth; either directly above the water table or at the depth where the highest landfill gas concentrations are observed, and ambient air will be evacuated using a mechanical air pump. A landfill gas sample will be collected into a laboratory-supplied summa canister or tedlar bag attached to a sampling valve on the tubing. The vacuum-release valve on the summa canister will opened slowly to allow landfill gas to enter the sample container and to prevent rapid vacuum application and possible intrusion of ambient air. Tedlar bags will be filled only half full and sealed to prevent rupture during shipment to the laboratory. Immediately after collection the landfill gas samples will be labeled, packed on ice in a cooler, and transported to the laboratory for analysis. The samples will be analyzed for oxygen, carbon dioxide, carbon monoxide, methane, and VOCs.

2.3.2 LANDFILL PROBE INSTALLATION

A landfill gas probe will be installed near MW-15 in the event that quality information can not be collected from the existing monitoring wells. Drilling, installation, and construction of the probes will be conducted in accordance with the *Minimum Standards for Construction and Maintenance of Wells* (chapter 173-160 WAC). The landfill gas probe shall consist of two 1-inch diameter PVC casings with 5 ft screen sections, installed in a single boring. The deepest screen section shall be located approximately

1 ft above the high water table elevation. The second screen section shall be installed approximately 12 feet above the top of the lower screen, with a 10 ft thick hydrated bentonite installed between the two probe screen sections. A filter pack will be installed around each screen, extending from the bottom of the end cap to about 1 ft above the screen. Filter pack material will consist of commercially prepared, pre-sized, and pre-washed rounded free-flowing pea-gravel. The filter pack will be carefully poured down the annulus between the probe casing and the auger flights, as the auger is slowly withdrawn. During filter pack placement, the distribution and depth of the filter pack will be monitored with a weighted tape.

The annular space above the filter pack will be filled with bentonite chips to about 1 ft BGS. An above-ground steel monument will be cemented in place at the surface to a depth of at least 1 ft. The monument and concrete will be slightly raised at ground surface and the concrete sloped away from the monument to divert rainfall away from the monument. Each probe will be labeled to indicate the screen depth (shallow or deep), and will be capped with a threaded or slip cap.

2.4 SAMPLE TRANSPORTATION AND HANDLING

The transportation and handling of soil, groundwater, and gas samples will be accomplished in a manner that protects the integrity of the sample and also prevents release of hazardous substances from the samples. Samples will be kept in coolers on ice until delivery to the analytical laboratory. All samples will be logged on a COC form that will accompany each shipment of samples to the laboratory.

2.5 SAMPLE CUSTODY AND DOCUMENTATION

The primary objective of sample custody is to create an accurate, written record that can be used to trace the possession and handling of samples so that their quality and integrity can be maintained from collection until completion of all required analyses. Adequate sample custody will be achieved by means of approved field and analytical documentation. Such documentation includes the COC record that is initially completed by the sampler and is, thereafter, signed by those individuals who sequentially accept custody of the sample. A sample is in custody if at least one of the following is true:

- It is in someone's physical possession
- It is in someone's view
- It is secured in a locked container or otherwise sealed so that tampering will be evident
- It is kept in a secured area, restricted to authorized personnel only.

Sample control and COC in the field and during transportation to the laboratory will be conducted in general conformance with the procedures described below:

- As few persons as possible will handle samples.
- Sample bottles will be obtained new or pre-cleaned from the laboratory performing the analyses.
- The sampler will be personally responsible for the completion of the COC record and the care and custody of samples collected until the samples are transferred to another person or dispatched properly under COC rules.
- The coolers in which the samples are shipped will be accompanied by the COC record identifying their contents. The original COC record and the laboratory copy will accompany the shipment (sealed inside the shipping container). The other copy will be forwarded to Landau Associates along with sample collection forms.
- Coolers will be sealed with strapping tape for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information will be entered in the "remarks" section of the COC record and traffic report.

When samples are transferred, the individuals relinquishing and receiving the samples will sign the COC form and record the date and time of transfer. The sample collector will sign the form in the first signature space. Each person taking custody will observe whether the shipping container is correctly sealed and in the same condition as noted by the previous custodian. Any deviations in the procedure will be noted on the appropriate section of the COC record.

All documentation and other project records will be safeguarded to prevent loss, damage, or alteration. If an error is made on a document, the necessary corrections will be made by drawing a single line through the error, and entering the correct information. The erroneous information will not be obliterated. Corrections will be initialed and dated and, if necessary, a footnote explaining the correction will be included. Errors will be corrected by the person who made the entry, whenever possible.

2.6 CHEMICAL ANALYSES

This section describes the chemical analyses to be conducted on the soil and groundwater samples collected at the subject property. Laboratory analyses will be performed by the City of Walla Walla's contract laboratory at the time the investigation is conducted, which shall be an Ecology-accredited laboratory in accordance with chapter 173-50 WAC.

2.6.1 SOIL SAMPLES

Initially, all soil samples selected for analysis will be analyzed for VOCs using EPA Method 8260. Additional samples may be archived and other selected analyses may be conducted based on the groundwater analytical results.

2.6.2 GROUNDWATER SAMPLES

All of the groundwater samples collected from temporary well points and new monitoring wells will be analyzed for VOCs, calcium, sodium, chloride, and TDS. Select samples may also be analyzed for magnesium, potassium, sulfate, and nitrate as nitrogen so that cation-anion balance and trilinear diagram evaluations may be conducted. Groundwater samples from a minimum of one new monitoring well will be analyzed for all WAC 173-351-990 Appendix I, II, and III parameters.

2.6.3 LANDFILL GAS SAMPLES

Landfill gas samples will be analyzed by the laboratory for methane by ASTM Method 3416; oxygen, carbon dioxide, and carbon monoxide by ASTM Method 1945, and VOCs by EPA Method TO-15.

2.7 EQUIPMENT DECONTAMINATION

The decontamination procedures described below are to be used by field personnel to clean drilling, sampling, and related field equipment. Deviation from these procedures must be documented in field records.

2.7.1 SAMPLING EQUIPMENT

All sampling equipment used (i.e., stainless-steel bowls, stainless-steel spoons, etc.) will be cleaned using a three-step process, as follows:

1. Scrub surfaces of equipment that would be in contact with the sample with brushes using an Alconox solution.
2. Rinse and scrub equipment with clean tap water.
3. Rinse equipment a final time with deionized water to remove tap water impurities.

Decontamination of the reusable sampling devices will occur between collection of each sample. Decontamination of sampling equipment that is suspected to have come into contact with free-phase liquid or that contains a visible sheen will include a hexane rinse (or other appropriate solvent) prior to the tap water rinse.

2.7.2 DRILLING RIG

The drilling and Geoprobe™ equipment that are used downhole, or that contact material and equipment going downhole, will be cleaned by a hot water, high-pressure wash before use, between each exploration point, and at the completion of the project.

2.8 RESIDUAL WASTE MANAGEMENT

This section describes the waste management of the soil, purge water, and decontamination water generated during this investigation.

2.8.1 SOIL CUTTINGS

Soil cuttings generated from Area 5 will be placed in 55-gallon drums or other containers and disposed of in the active solid waste disposal area. Soil cuttings generated from boring locations outside of the waste disposal areas will be deposited on the ground near the boring. In agricultural areas, the disposal method should be discussed and agreed upon with the property owner.

2.8.2 WELL DEVELOPMENT, PURGE , AND DECONTAMINATION WATER

Well development, purge, and decontamination water will be temporarily stored in 55-gal drums. The drums will be properly labeled and stored onsite for disposal by the City.

2.9 UTILITY LOCATE

Prior to initiation of the boring activities, a site reconnaissance shall be conducted with City facility personnel to mark sampling locations, identify above- and below-ground utilities, and discuss access issues. One-Call Utility Locating Service shall be notified of the proposed boring locations before any subsurface exploration is conducted. The boring locations will be adjusted, as possible within the objectives for the project, based on access and utility considerations.

3.0 QUALITY ASSURANCE

This section establishes the quality assurance/quality control (QA/QC) requirements for this investigation.

3.1 DATA QUALITY OBJECTIVES

Results from this investigation and data generated for this project must be precise, accurate, representative, complete, and comparable. Precision of the data will be determined through evaluation of the relative percent difference (RPD) between matrix spike and matrix spike duplicates and blind field duplicates. Control limits for the matrix spike and matrix spike duplicates will be compared to laboratory acceptance limits generated according to EPA guidelines. Control limits for the field duplicates will be 35 percent for soil and 20 percent for groundwater. If duplicate sample values are within 5 times the quantitation limit, then the control limit interval will be plus or minus the quantitation limit for water, and plus or minus two times the quantitation limit for soil.

Accuracy of the data will be determined through recovery of spiked analytes. Control limits for spike recovery will be compared to laboratory acceptance limits generated according to EPA guidelines.

Representativeness of the data will be optimized through appropriate selection of sampling locations and methods. Analyses will be performed promptly, within established holding times.

Completeness for the project will be established as the proportion of data generated that is determined to be valid. The data quality objective for completeness is 90 percent.

Comparability is an expression of the confidence with which one data set can be compared to another. In this project, standard methods, promulgated by EPA or state authorities where available, will be used. Data generated will be reported in units consistent with EPA or state guidelines.

3.2 DATA REDUCTION, VALIDATION, AND REPORTING

Laboratory analytical reports will be accompanied by sufficient backup data and QC results to enable reviewers to determine the quality of the data. The Landau Associates quality assurance officer (QAO) for this project is responsible to the project manager for conducting checks for internal consistency, transmittal errors, laboratory protocols, and for complete adherence to the QC elements in this plan. The QAO will also prepare a laboratory data quality evaluation report, based on appropriate sections of the EPA validation guidelines. This report will include evaluation of the following:

- Chain-of-custody records
- Holding times

- Laboratory method blanks
- Surrogate recoveries
- Laboratory matrix spikes and matrix spike duplicates
- Completeness
- Overall assessment of data quality.

3.3 FIELD AND LABORATORY QUALITY CONTROL SAMPLES

3.3.1 Laboratory Matrix Spike

Laboratory matrix spikes will be analyzed for all constituents at a frequency of approximately 1 in 20 samples per sample matrix (i.e., soil and groundwater). The matrix spikes will be performed using a project sample; therefore, triple sample volume will be collected for samples to be used as matrix spikes, and matrix spike duplicates or laboratory duplicates as described below.

3.3.2 Laboratory Matrix Spike Duplicate

Laboratory matrix spike duplicates will be analyzed for organic constituents at a frequency of approximately 1 in 20 samples per sample matrix (i.e., soil and groundwater). The matrix spike duplicates will be performed using the same project samples used as a matrix spike for organic constituents.

3.3.3 Laboratory Duplicates

A laboratory duplicate will be analyzed for inorganic parameters at a frequency of approximately 1 in 20 samples per sample matrix (i.e., soil and groundwater). The laboratory duplicates spikes will be performed using the same project sample used as a matrix spike for metals.

3.3.4 Laboratory Method Blanks

Laboratory method blanks will be analyzed for all parameters at a frequency of 1 in 20 samples, one every 12 hours, and one per batch of samples analyzed (if fewer than 20 samples are analyzed), to assess possible laboratory contamination. Dilution water will be used whenever possible. Method blanks will contain all reagents used for analysis.

4.0 HEALTH AND SAFETY PLAN

A project health and safety plan for implementation of field activities described in this work plan is provided in Appendix B. All Landau Associates employees will follow the procedures described in this plan. All subcontractors will either adopt this plan or prepare their own plan that is at least as protective as this plan.

5.0 REPORTING

Soil and groundwater sample analytical results will be validated for QA purposes as described above. The results of the investigation, including a description of field activities, laboratory data, summary tables of the testing results, and a sample location figure will be presented in a report. The results will also be evaluated to assess the need for further investigative or cleanup actions, if appropriate. The results of the evaluation will be included in the report.

6.0 REFERENCES

Ecology. 2001. *Chapter 173-360 WAC, Model Toxics Control Act Cleanup Regulation.* Washington State Department of Ecology. Publication No. 94-06. Amended February 12, 2001.

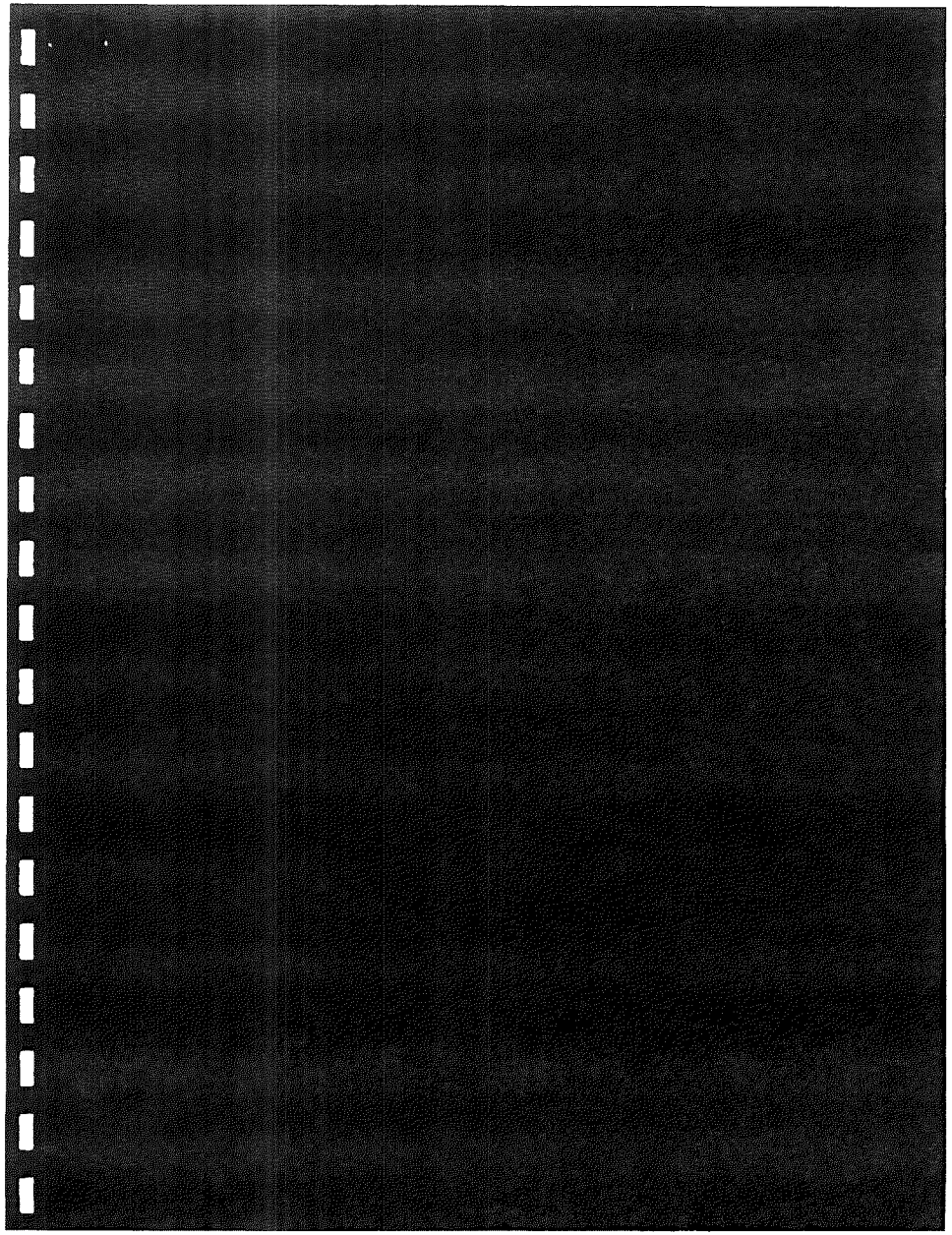
Ecology. 1993. *Chapter 173-351 WAC, Criteria For Municipal Solid Waste Landfills.* Washington State Department of Ecology. October.

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.

EPA. 1988 *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA.* EPA/540/G-89/004. OSWER Directive 9355.3-01. U.S. Environmental Protection Agency, Washington, D.C. October

EPA. 1987. *A Compendium of Superfund Field Operations Methods.* 540/P-87/001. U.S. Environmental Protection Agency. December.



LANDAU ASSOCIATES
ENVIRONMENTAL | GEOTECHNICAL | NATURAL RESOURCES

WORK LOCATION PERSONNEL PROTECTION AND SAFETY EVALUATION FORM

Attach Pertinent Documents/Data
Fill in Blanks As Appropriate

Job No.:	470007		
Prepared by:	RCM	Reviewed by:	CCS
Date:	April 21, 2004	Date:	April 2004

A. WORK LOCATION DESCRIPTION

1. **Project Name:** Remedial Investigation
   City of Walla Walla Sudbury Road Landfill
2. **Location:** Walla Walla, Washington
3. **Anticipated Activities:** Obtain subsurface information by drilling borings, installing monitoring wells, collecting soil, groundwater, and landfill gas samples.
4. **Size:** 100 acre landfill, 700 acre sprayfield
5. **Surrounding Population:** Minimal
6. **Buildings/Homes/Industry:** Landfill
7. **Topography:** Rolling hills and gullies
8. **Anticipated Weather:**
9. **Unusual Features:**
10. **Site History:** Detected VOCs in groundwater since 1993

B. HAZARD DESCRIPTION

1. **Background Review:** ☒ Complete ☐ Partial
   If partial, why?
2. **Hazardous Level:** ☐ B ☐ C ☒ D ☐ Unknown
   Justification: Low level VOC concentrations
3. **Types of Hazards:** (Attach additional sheets as necessary)
   A. ☒ Chemical ☒ Inhalation ☒ Explosive
   ☒ Biological ☒ Ingestion ☐ O2 Def. ☒ Skin Contact

Describe: Open municipal solid waste/asbestos and medical waste cells. Chemicals in groundwater. Landfill gas

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

Describe:

C. ☐ Radiation

Describe:

4. **Nature of Hazards:**

☒ Air Describe: Landfill gas chemicals or explosion hazard.

☐ Soil Describe:

☐ Surface Water Describe:

☒ Groundwater Describe: VOCs

☒ Other Describe: Solid Waste, Asbestos, and Medical Waste

5. Chemical Contaminants of Concern

Contaminant	PEL	I.D.L.H.	Source/Quantity Characteristics	Routes of Exposure	Symptoms of Acute Exposure	Instruments Used to Monitor Contaminant [a]
VOCs including: Trichloroethene	50 ppm	1,000 ppm	9.9 µg/L detected in groundwater	Inhalation, ingestion, dermal contact, ingestion, inhalation	Eye, nose, and throat irritation; headache, nausea	PID
Vinyl Chloride	1 ppm	Unknown (carcinogen)	2.8 µg/L detected in groundwater	Inhalation, ingestion, dermal contact	Weakness, abdominal pain	PID
cis-1,2-Dichloroethene	200 ppm	4,000 ppm	8.6 µg/L detected in groundwater	Inhalation, ingestion, dermal contact	Dizziness, nausea, dermatitis, irritation of mucous membranes	PID

Notes:
Upgrade to level C if PID exceeds 1 ppm Vinyl Chloride

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
Trips/falls			
Heavy Equipment			

Notes: Shut down equipment and move offsite if concentration exceeds 50% of LEL

7. Work Location Instrument Readings ☐ N/A

Location:
Percent O_2: Percent LEL:
Radioactivity: PID:
FID: Other:
Other: Other:
Other: Other:

Location:
Percent O_2: Percent LEL:
Radioactivity: PID:
FID: Other:
Other: Other:
Other: Other:

Location:
Percent O_2: Percent LEL:
Radioactivity: PID:
FID: Other:
Other: Other:
Other: Other:

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: Landfill Gas

C. PERSONAL PROTECTIVE EQUIPMENT

1. Level of Protection

☐ A ☐ B ☐ C ☒ D

Location/Activity: Drilling and sampling

☐ A ☐ B ☒ C ☐ D

Location/Activity: Do not enter medical or asbestos waste disposal areas

2. Protective Equipment (specify probable quantity required)

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
- ☐ Saranex Coverall
- ☒ Coverall
- ☐ Other:

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

Hand Protection ☐ N/A
- ☐ Undergloves; Type:
- ☒ Gloves; Type: nitrile
- ☐ Overgloves; Type:
- ☐ None
- ☐ Other:

Foot Protection ☐ N/A
- ☒ Neoprene Safety Boots with Steel Toe/Shank
- ☐ Disposable Overboots
- ☐ Other:

3. **Monitoring Equipment** ☐ N/A

☒ CGI	☒ PID
☒ O^2 Meter	☐ FID
☐ Rad Survey	☐ Other
☐ Detector Tubes (optional)	

Type:

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.	**Ryan Molsee**	**Staff Hydrogeologist**	☒	☒
2.	**Tom Briggs**	**Senior Project Hydrogeologist**	☐	☐
3.	**Craig Schwyn**	**Associate Hydrogeologist**	☐	☐
4.			☐	☐
5.			☐	☐
6.			☐	☐
7.			☐	☐
8.			☐	☐
9.			☐	☐
10.			☐	☐

Site Safety Coordinator: _____

F. ACTIVITIES COVERED UNDER THIS PLAN

Task No.	Description	Preliminary Schedule
1	Geoprobe™ boring through solid waste	TBD
2	Geoprobe™ borings outside of solid	
3	Drilling and well/probe installation	
4	Landfill gas survey	
5	Groundwater 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	509.327.9737	509.995.1665
Dennis Rakestraw		509.527.4591

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 RESPIRATORY PROTECTION

Monitoring Parameter	Reading	Level of Protection
PID	1 ppm in Breaking Zone	C
Explosimeter	50% of LEL	Shut down equipment and move offsite

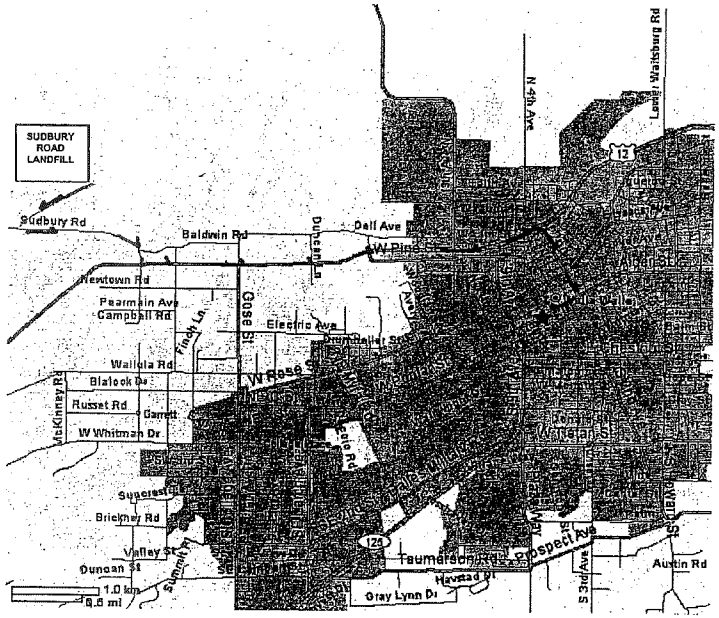
HEALTH AND SAFETY PLAN APPROVAL/SIGN OFF FORMAT

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
Landau Health and Safety Manager	Signature	Date
Project Manager	Signature	Date

Personnel Health and Safety Briefing Conducted By:

Name	Signature	Date



LANDAU ASSOCIATES

Sudbury Road RI Plan Walla Walla, WA	**Emergency Route**	Figure A

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

March 31, 2010

Prepared for:

City of Walla Walla
Solid Waste Division

Prepared by:

Schuyn Environmental Services
4621 South Custer
Spokane, WA 99223
(509) 448-3187

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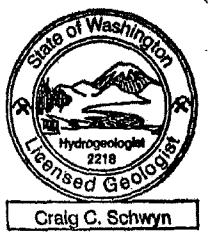
SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

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



Craig C. Schwyn — March 31, 2010

Craig C. Schwyn, L.HG. — Date
Principal Hydrogeologist

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).

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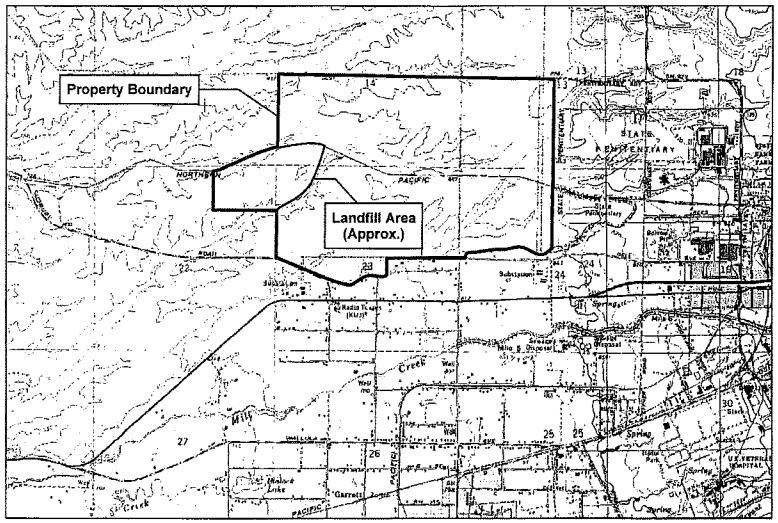
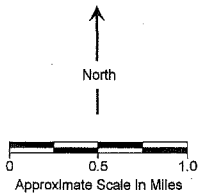
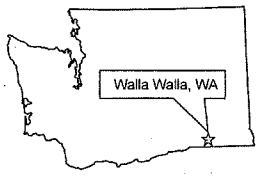
S&W. 2010b. *Notice Of Construction Permit Application, Gas Collection And Control System – Area 6, Sudbury Road Landfill, Walla Walla, Washington.* Prepared by Shannon & Wilson, Inc., for J-U-B Engineers, Inc. January 15.

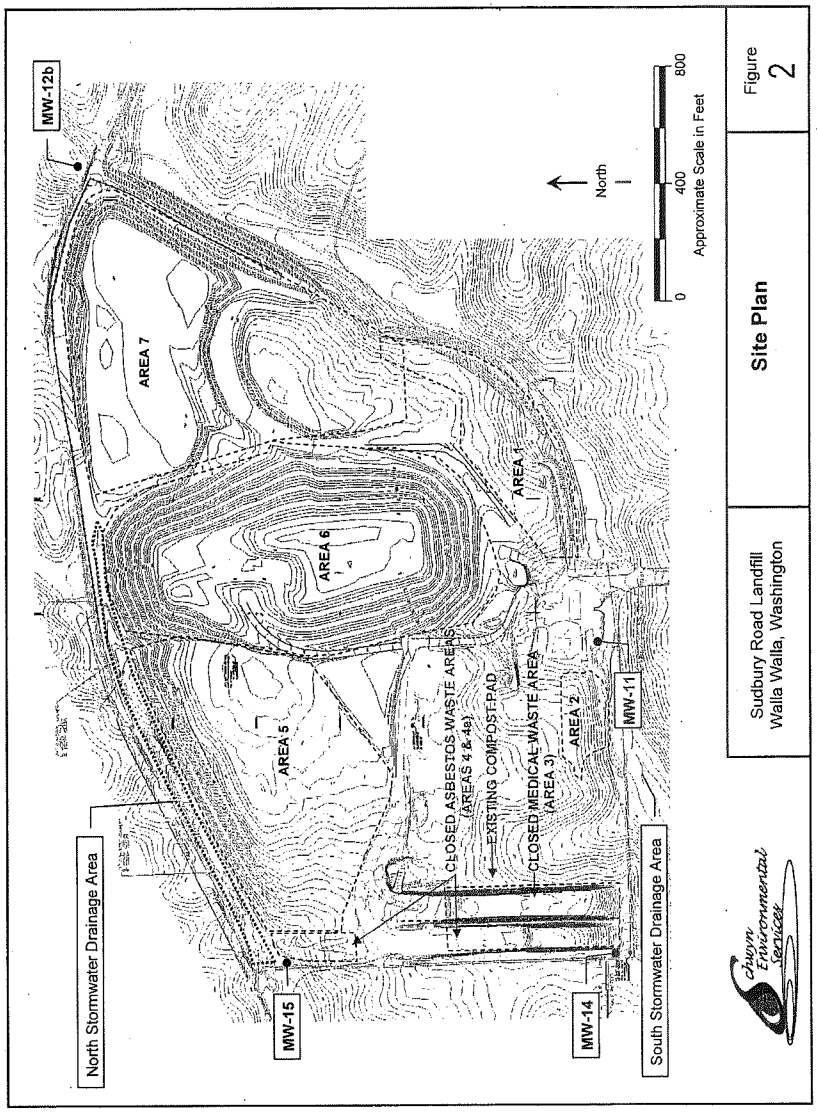


Source: USGS 7.5' Topographic Quad, Walla Walla, WA-OR, 1998, & College Place WASH.-OREG., Photorevised 1978.





Schuyn Environmental Services	Sudbury Road Landfill Walla Walla, Washington	**Site Location**	Figure 1



Schuyn Environmental Services	Sudbury Road Landfill Walla Walla, Washington	**Site Plan**	Figure 2

APPENDIX A

Health and Safety Plan

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

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

March 31, 2010

Prepared for:

City of Walla Walla
Solid Waste Division

Prepared by:

Cheyn Environmental Services
4621 South Custer
Spokane, WA 99223
(509) 448-3187

EXHIBIT D
SCOPE OF WORK AND SCHEDULE

This scope of work is for investigation of contamination at the Sudbury Road Landfill Site (Site) in Walla Walla, Washington. This scope of work, prepared by the Department of Ecology, is to be used by the potentially liable party (PLP) to develop Work Plans and to complete a Remedial Investigation and Feasibility Study (RI/FS) at the Site.

The RI will supplement existing data and determine the nature and extent of contamination by hazardous substances at the Site. The FS shall assess remedial action alternatives applicable to the Site. The PLP shall use data gathered during the RI/FS to determine if it needs additional data and to determine an appropriate remedial action. The PLP shall furnish all personnel, materials, and services necessary for, or incidental to, performing the Remedial Investigation at the Site.

The RI/FS shall include the following tasks:

Task 1: RI Project Plan

A. RI Work Plan
A work plan outlining procedures for the Remedial Investigation shall include the following information:

1. Background Summary
Any pertinent Site information including, but not limited to:

   a. Maps – topographical, property lines, underground tank locations, surface water bodies near the vicinity of the Site, previous Site investigations; all maps shall be consistent with the requirement set forth in WAC 173-340-840(4) and be of sufficient detail and accuracy to locate and report all current and future work performed at the Site;

   b. Property history.

2. Evaluation of Existing Data
A brief discussion of activities and data already collected during previous investigations or through ongoing groundwater and gas monitoring at the Site.

3. New Data
New data to be gathered to complete the Remedial Investigation (see Task II below) including a schedule for work and state and federal laws that apply to the work proposed to gather the new data.

B. Sampling and Analysis Plan
The PLP shall prepare a Sampling and Analysis Plan for use during all Site characterization studies. The Sampling and Analysis Plan shall contain:

1. Field Sampling and Testing Plans - The plan shall describe in detail the sampling, testing, and data gathering methods, locations, frequency and other field study procedures the PLP will use to obtain data required to complete the RI/FS. The Sampling and Testing Plan shall include the following:

   a. Specific sampling methods, including number and type of assurance/quality control (QA/QC) samples;

b. Sampling locations and designations, including access considerations;
c. Types of media to be sampled and the number of samples of each;
d. Schedule and task assignments;
e. Supplies and equipment;
f. Monitoring well construction requirements;
g. Analytical procedures, methods and detection limits;
h. Sample custody procedures, including holding times, containers, and preservation;
i. Shipping and handling arrangements.

2. Quality Assurance Project Plan (QAPP)

a. Field quality assurance/quality control (QA/QC) methods;
b. Chain of custody procedures;
c. Decontamination procedures;
d. Laboratory QA/QC methods.

3. Health and Safety Plan

a. Level of chemical protection;
b. Hazard evaluation;
c. Waste characteristics;
d. Special considerations and emergency information.

Task II: Remedial Investigation

The purpose of the Remedial Investigation is to obtain information needed to supplement and verify existing data. The PLP will use the information to characterize the Site and source(s), type(s) and extent of contamination. The resulting data shall meet the criteria set out in the QAPP and be of sufficient quality to complete the Feasibility Study and select an appropriate remedial action for the Site. The investigation shall meet the requirements stated in WAC 173-340-350, and more specifically, shall include the following elements:

A. Site Characterization
Collect analytical data on groundwater contamination near the Site. Considering information on historical operations and hydrogeology, the data must be sufficient to delineate the depth, areal extent, velocity and direction of contaminant movement, type and concentration of contaminants.

1. Collect background information from the previous environmental investigations, other Ecology information and any other historical data.

2. Hydrogeology
An investigation of the regional and Site-specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the Site.

a. Evaluate and monitor groundwater in monitoring wells identified in the RI Work Plan;
b. Install new groundwater monitoring wells and soil borings where needed;
c. Measure water levels in all identified wells and new borings;
d. Characterize regional stratigraphy and lithology based on well logs, maps, and any other information available;

e. Estimate hydraulic conductivity and porosity based on well logs, samples, and other general information available;
f. Prepare maps showing water levels and regional/Site hydrogeology.

3. Soils

a. Install soil borings and/or test pits, where needed;
b. Characterize soil samples using the Unified Soil Classification System (USCS);
c. Prepare boring logs for each boring.

B. Source and Contamination Characterization

1. Sampling locations will be selected to characterize the contamination;

2. Analytical data collected must help describe the nature, extent and potential sources of contamination.

C. Potential Receptor Information
Collect data on the surrounding human and ecological populations that may be in contact with contaminants and potential routes of exposure for those populations.

1. Public Use/Site Access – Potential uses of the affected properties and the presence or absence of controls on access;

2. Potential Groundwater/Surface Water Uses – Any consumptive, recreational, or other use of groundwater and surface water in the area, and by which populations;

3. Environmental Receptors – Information on the presence of endangered or threatened species, potential habitats and ecological environments.

Task III: RI/FS Reporting

The PLP will complete reports documenting the Remedial Investigation and Feasibility Study as required by WAC 173-340-350(7) and (8). This reports will include the following elements:

A. Remedial Investigation

1. Background Information

a. Site History
b. Previous Studies

2. Nature and Extent of Contamination
The PLPs will prepare an assessment and description of the degree and extent of contamination. This should include:

a. Data Analysis – Analyze all data collected during Task II and prepare supporting maps and tables;
b. Lab reports, previous investigations, well and boring logs, and any other documentation of characterization activities must be included.

3. ARARs Analysis
   Identify Applicable State and Federal Laws for cleanup of the Site in accordance with WAC 173-340-710.

4. Cleanup Levels/Risk Assessment Analysis
   Perform a baseline Model Toxics Cleanup Act (MTCA) cleanup levels analysis/baseline risk assessment characterizing current and potential threats to public health and the environment that hazardous substances at the Site may pose. The assessment will integrate cleanup standards and risk assessment as required by WAC 173-340-357 and WAC 173-340-708.

5. Discussion and Recommendations

   a. Interpret and discuss data to determine the nature and extent of the contamination and to support final recommendations for the Site;
   b. Summarize possible and suspected source areas of contamination based on the data collected;
   c. Discuss known or potential risks to the public health, welfare, and the environment;
   d. Provide recommendations and identify additional data requirements.

B. Feasibility Study
   The PLP will submit to Ecology the cleanup action alternatives it plans to assess in a Feasibility Study. After approval of the alternatives, the PLP will prepare a Feasibility Study that describes its assessment of each alternative and recommended option for cleanup. The Feasibility Study will include the following elements:

   a. Identification of contamination to be remediated;
   b. Identification and initial screening of treatment technologies;
   c. Proposed remedial alternatives and evaluation with respect to MTCA criteria;
   d. Recommended remedial alternative for the site.

SCHEDULE

Action	To be completed within X months from AO Effective Date	Deliverable report by PLP?	Date to be complete
Agreed Order (AO) Effective Date **May 26, 2011** • Includes Public Participation Plan • Includes 30-day public comment period	N/A	N/A	N/A
Interim Action Plan	0	Yes	N/A
Interim Action Field Work	0	No	N/A
Remedial Investigation (RI):			
2004 RI Work Plan, Sampling & Analysis Plan, Health and Safety Plan, Quality Assurance Project Plan	0	Yes	N/A
2004 RI field work	0	No	N/A
2004 RI Report/2011 RI Work Plan, Sampling & Analysis Plan, Health and Safety Plan, Quality Assurance Project Plan*	9	Yes	January 12, 2012
2011 RI field work • City to perform April 2012-February 2013	21	No	February 5, 2013
Written progress reports during 2011-2012 RI field work	Monthly	Yes	N/A
Remedial Investigation Report - Final Draft	28	Yes	September 9, 2013
Feasibility Study Report – Final Draft	38		July 15, 2014
Remedial Investigation and Feasibility Study Reports - Final • Includes 30-day public comment period	40		September 2, 2014

*Must obtain Ecology approval of these plans before conducting field work

Resource Contact: Policy and Technical Support Staff *Effective:* *August 1, 2005*
References: *WAC 173-340-840(5)* *Revised:* *March 31, 2008*
http://www.ecy.wa.gov/eim/
http://www.ecy.wa.gov/programs/tcp/smu/sedqualfirst.htm
http://www.ecy.wa.gov/biblio/0309043.html
Replaces: *Procedure 840*

Policy 840: Data Submittal Requirements

Purpose: Contaminated site investigations and cleanups generate a large volume of environmental monitoring data that need to be properly managed to facilitate regulatory decisions and access to this data by site owners, consultants, and the general public. The purpose of this policy is to describe the requirements for submitting environmental monitoring data generated/collected during the investigation and cleanup of contaminated sites under the Model Toxics Control Act (MTCA) and the Sediment Management Standards.

Application: This policy applies to Ecology staff, potentially liable parties, prospective purchasers, state and local agencies, and Ecology contractors that investigate or manage the cleanup of contaminated sites.

1. Unless Otherwise Specified by Ecology, All Environmental Monitoring Data Generated during Contaminated Site Investigations and Cleanups Shall Be Required to be Submitted to Ecology in both a Written and Electronic Format.

Environmental monitoring data include biological, chemical, physical, and radiological data generated during site investigations and cleanups under the Model Toxics Control Act Cleanup Regulation (WAC 173-340) and the Sediment Management Standards (WAC 173-204).

Data generated/collected during site investigations and cleanups conducted under an order, agreed order or consent decree, permit, grant, loan, contract, interagency agreement, memorandum of understanding or during an independent remedial action, are considered environmental monitoring data under this policy.

Data generated/collected for non site-specific studies, site hazard assessments that result in no further action and initial site investigations are not considered environmental monitoring data under this policy.

2. Orders, Agreed Orders, Consent Decrees, or Permits Issued After the Effective Date of this Policy Shall Include a Condition that Site-Specific Data Be Submitted in Compliance with this Policy.

Reports on such work that do not include documentation that the data have been submitted in compliance with this policy shall be deemed incomplete and a notice of such provided to the

submitter. These reports generally should not be reviewed until that information is provided. The assistant attorney general assigned to the site should be consulted in these situations.

3. Opinions on Independent Remedial Actions Submitted for Review Under Ecology's Voluntary Cleanup Program Shall Not Be Issued Until Sampling Data Have Been Submitted in Compliance with this Policy.

Ecology **will not** issue No Further Action (NFA) opinions under the Voluntary Cleanup Program if environmental sampling data have not been submitted in the required Environmental Information Management System (EIM) format. To avoid unreasonable delays, sampling data should be submitted in the required EIM format along with the cleanup report.

4. Grants, Contracts, Interagency Agreements or Memoranda of Understanding Issued After the Effective Date of this Policy Shall Include a Condition that Site-Specific Data Be Submitted in Compliance with this Policy.

Reports on such work shall not be accepted as complete until the data have been submitted in compliance with this policy. If a payment or transfer of funds is involved in the transaction, the relevant payment or transfer shall be withheld until this requirement has been met.

Example language to include in these documents is attached in Appendix A.

5. Data Generated During Upland Investigations and Cleanups Shall Be Submitted Electronically Using Ecology's Environmental Information Management System (EIM).

EIM is Ecology's main database for environmental monitoring data. Proper submission of data through this system meets the requirement of submitting such data in an electronic format. Electronic data shall be submitted to Ecology simultaneously with the accompanying printed report.

Additional information on EIM, including instructions for data submittal, can be found on Ecology's EIM web site at http://www.ecy.wa.gov/eim/. Toxic Cleanup Program's (TCP) EIM Coordinator also is available for technical assistance to site managers and consultants using EIM.

6. Data Generated During Sediment Investigations and Cleanups Shall Be Submitted Electronically Using Ecology's Environmental Information Management System (EIM).

Effective March 1, 2008, EIM is Ecology's data management system for sediment-related data. Proper submission of data through this system meets the requirement of submitting such data in an electronic format. Electronic data should be submitted to Ecology simultaneously with the accompanying printed report.

SEDQUAL was Ecology's data management system for sediment-related data. For a limited time, Ecology will accept electronic data in SEDQUAL format if the approved Sampling and Analysis Plan requires data submittal in that format. Beginning September 1, 2008, data submitters must contact the site manager to obtain approval to submit electronic data in SEDQUAL format.

Additional information on EIM, including instructions for data submittal, can be found on Ecology's EIM web site at http://www.ecy.wa.gov/eim/. Toxic Cleanup Program's (TCP) EIM Coordinator also is available for technical assistance to site managers and consultants using EIM.

For additional information on sediment sampling and analysis plan requirements, see Ecology publication 03-09-043 "Sediment Sampling and Analysis Plan Appendix", February, 2008. A copy of this document can be obtained from Ecology's publication office or downloaded from the following web site: http://www.ecy.wa.gov/biblio/0309043.html

TCP's EIM Aquatic Land Cleanup Unit (ALCU) Sediment Data Coordinator is also available for technical assistance.

7. Data Submitted Electronically Using EIM Shall be Checked by the Toxics Cleanup Program's (TCP) EIM Coordinator Prior to Loading the Data into EIM.

Normally, notice that data have been submitted through EIM will come to TCP's EIM Coordinator. Upon receipt of such a notice the EIM Coordinator should notify the site manager. Similarly, if the Ecology site manager receives a notice of an EIM submittal, they should notify TCP's EIM Coordinator. Upon receipt of the data, TCP's EIM Coordinator reviews the submittal for quality control and officially loads the data into the system.

Approved

James J. Pendowski, Program Manager
Toxics Cleanup Program

Policy Disclaimer: This policy is intended solely for the guidance of Ecology staff. It is not intended, and cannot be relied on, to create rights, substantive or procedural, enforceable by any party in litigation with the state of Washington. Ecology may act at variance with this policy depending on site-specific circumstances, or modify or withdraw this policy at any time.

APPENDIX A: MODEL GRANT AND PERMIT CONDITION

The following condition is to be inserted in permits, grants, loans, contracts, interagency agreements, memorandum of understandings where site-specific environmental monitoring data is expected to be generated:

All sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840: Data Submittal Requirements. Electronic submittal of data is not required for site hazard assessments that result in no further action and initial site investigations. (FOR GRANTS & CONTRACTS ADD: Failure to properly submit sampling data will result in Ecology withholding payment and could jeopardize future grant funding.)

EXHIBIT F

Public Participation Plan
for the
Sudbury Road Landfill Remedial Action

As required by
Agreed Order No. 8456

Prepared by:
Washington State Department of Ecology
City of Walla Walla

Para asistencia en Español (360)407-7528 Richelle Perez

March 2011

GETTING INVOLVED IN CLEANUP AT SUDBURY ROAD LANDFILL

Ecology encourages the public to be informed and get involved in decision-making related to cleanup at the Sudbury Road Landfill Site (site). Opportunities for involvement are available during investigation and cleanup of contaminants.

This Public Participation Plan (plan) outlines when public notice will occur, deadlines for comments, location of the potentially affected area, and ways for the public to provide feedback. It also provides site background, a community profile, community concerns, and an overview of cleanup requirements under the Model Toxics Control Act (MTCA).

Overview of the Model Toxics Control Act (MTCA) and Public Participation Plan

Cleanup of contaminated sites in Washington is required under authority of the Model Toxics Control Act. MTCA is a "citizen- mandated" law that became effective in 1989. This law sets standards to make sure cleanup is protective of human health and the environment. A glossary of MTCA terms is included as Appendix C of this plan.

Current and former owners or operators, as well as any other party that may have contributed to contaminants at a site, may be held responsible for cleanup and are called Potentially Liable Persons (PLPs). The Department of Ecology (Ecology) has identified the City of Walla as PLP to this site. Ecology may identify other PLPs during the investigation process.

Ecology looks into reports of contamination through an initial investigation and site hazard assessment. Based on findings, Ecology ranks a site for cleanup prioritization and places it on a hazardous sites list. Because the City and Ecology had sufficient information about contaminants at this site through on-going monitoring at the landfill, Ecology did not do an initial investigation and site hazard assessment. So, Sudbury Road Landfill is not ranked nor is it on the hazardous sites list.

Public participation is an important part of cleanup under MTCA. Participation needs are assessed at each site according to the level of public interest and degree of risk posed by contaminants. Individuals who live on or near the site, community groups, businesses, government, other organizations and interested parties are provided an opportunity for involvement in the cleanup process. Participation may include interviews, citizen advisory groups, questionnaires or workshops.

This plan includes requirements for public notice such as:

- Repositories where reports are available for review;
- Public comment periods; and
- Public meetings or hearings.

Public Participation Grants and Technical Assistance

Citizen groups living near contaminated sites may apply for public participation grants (during open application periods). The grants help citizens receive technical assistance in understanding the cleanup process and create additional public participation avenues. **NOTE:** Ecology currently does not have a citizen technical advisor for providing assistance on issues related to the investigation and cleanup of this site.

Amendments to this Plan

This plan complies with the Model Toxics Control Act regulations (Chapter 173-340-600 WAC). Ecology will review it as cleanup progresses and amend it if necessary. Also, anyone may submit suggestions for amendments to Ecology's site manager, Marni Solheim. Ecology will make final approval of any amendments.

Project Contacts

If individuals are interested in knowing more about the site or have comments about this plan, please contact one of the individuals listed below.

WA Department of Ecology Contacts:

Marni Solheim, Site Manager
WA State Department of Ecology, Waste 2 Resources Program
4601 N. Monroe, Spokane, WA 99205, (509)329-3564, marni.solheim@ecy.wa.gov

Kari Johnson, Public Disclosure
WA State Department of Ecology
4601 N. Monroe, Spokane, WA 99205, (509)329-3415, kari.johnson@ecy.wa.gov

Sudbury Road Landfill Contact:

Frank Nicholson, City Utility Engineer
City of Walla Walla Public Works
55 Moore St., Walla Walla, WA 99362, (509)524-4510, fnicholson@ci.walla-walla.wa.us

SITE BACKGROUND

The Sudbury Road Landfill is generally located at 414 Sudbury Road, Walla Walla, WA 99362, about 4 miles west of the City of Walla Walla and ½ mile north of Highway 12 (see Appendix A). The landfill sits on 125 acres in a primarily rural area. The City of Walla Walla has always owned and operated the landfill. It began disposing of municipal solid waste and other materials in 1978 and continues to landfill municipal solid waste today.

Farmers conduct dry wheat farming on large expanses of land to the north and west of the landfill. Three rural homes are located more than ¾-mile west of the site. Rural housing developments are located south of State Highway 12, about 500 feet south of the landfill scale house. The Washington State Penitentiary is located immediately east of City property and more than one mile east of the landfill. Ecology does not expect significant changes to land uses around the site in the near future.

The City has tested groundwater around the landfill regularly since 1977. In 2001, the City installed a new well. Tests on water from this new well show the groundwater contains contaminants known as volatile organic compounds (VOCs) and other substances at levels that may be harmful to human health and the environment. Follow-up tests indicate the landfill is contributing to these impacts to groundwater.

The City of Walla Walla will complete a Remedial Investigation and Feasibility Study at the Sudbury Road Landfill. It will do so under an Agreed Order, which is a legal document Ecology issues. The purpose of the Remedial Investigation is to gather more information to see where and how much contamination may be in soil and groundwater. The purpose of the Feasibility Study is to assess cleanup options for the contamination.

Geology

Information about the types of soil and water beneath a cleanup site is important to understand where contaminants might end up. This section provides some of that information.

The first aquifer (underground water source) beneath the site is 30-75 feet below ground surface. Water in this aquifer flows from the east to the west-southwest at a rate of about 21 feet per year. Contaminant transport time may differ significantly from the groundwater flow rate.

Starting at the ground surface, the soil types beneath the landfill consists of: Palouse silt; reworked lacustrine silt and clay of 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"; and Columbia River basalt. Soils overlying Columbia River basalt may be 600 feet or more in thickness.

Contaminants of Concern

Groundwater is contaminated with volatile organic compounds (VOCs) that include perchloroethylene (PCE), trichloroethylene (TCE), trichlorofluromethane, dichlorodifluoromethane, vinyl chloride, chloroethane, 1,1-dichlororethane and cis-1,2-dichloroethane. Inorganic substances with elevated levels include calcium, sodium, bicarbonate, chloride, alkalinity and dissolved solids.

COMMUNITY BACKGROUND

Early inhabitants of the Walla Walla region included several Native American Tribes who named the area "Walla Walla" which means "many waters." According to the 2010 Census, the population of Walla Walla is 31,731. Hispanics make up the second largest group after Caucasians. Blacks, Asians, American Indians/Alaska Natives, Native Hawaiian/Pacific Islander and "Other Race" follow in descending order of population.

Walla Walla lies at the foot of the Blue Mountains in a community rich in agricultural lands, rivers, and streams. The soil is fertile from past volcanic activity, and the county holds some of the oldest farms in Washington. Crops farmed include wheat, barley, corn, peas, onions and an increasing number of wine grapes. Some outdoor activities in the region include skiing, golfing, fishing and camping. In addition to farming, the area has a community college, two four-year colleges, several historic sites, museums and a state penitentiary. Employers range from state and local government to food processors, machinery and irrigation manufacturers, local farmers, and other businesses.

PUBLIC PARTICIPATION ACTIVITIES AND TIMELINE

Ecology will notify the public of opportunities for participation and place documents for review in the following manner:

- A **mailing list** will be created to notify people about the site (see Appendix B). The list will include adjacent property owners, property owners within ½ mile of the site, and other potentially affected properties; City and County officials; media; and others interested in receiving information about the site. Ecology will mail Fact Sheets regarding the cleanup via first-class mail. If interested in being on the mailing list, please contact Marni Solheim (contact information on page 4).

- **Public Repositories** will contain copies of any documents that go through the public review process and can be found at the following locations:

    - **Ecology's Web Site** at www.ecy.wa.gov/programs/tcp/sites/Sudbury/Sudbury-hp.html

    - **Walla Walla Public Library,** 238 E. Alder, Walla Walla, WA 99362, (509)527-4550

    - **WA Department of Ecology,** 4601 N. Monroe, Spokane, WA 99205
      Contact Kari Johnson, Public Disclosure Coordinator, (509)329-3415 or
      kari.johnson@ecy.wa.gov

- **Opportunity to Comment**

    - Ecology creates **Fact Sheets** when public comment periods are required, with input from the

City of Walla Walla, and then mails them to individuals on the mailing list. These Fact Sheets explain the site background, stage of cleanup, next steps in the cleanup process, times and location for public meetings or hearings (if any), and asks for comment from the public. Fact sheets will be available in English and Spanish.

- A **30-day comment period** allows interested parties time to comment on documents out for review. The Fact Sheet contains information on where to submit comments.

❖ Ecology will publish **display ads or legal notices** in the Walla Walla-Union Bulletin, ethnic newspapers when available, and on Ecology's Public Events Calendar at http://www.ecy.wa.gov . Ecology publishes these notices at the beginning of 30-day comment periods uses them to announce public meetings and public hearings.

❖ **Public meetings, workshops, open houses and public hearings** may be held based on the level of community interest. Ecology will hold a public hearing based on the subject of a public notice if requested by ten or more people. Ecology will gather formal comments at any hearing. Meetings, workshops or hearings will be held at a suitable location as near as the site as possible for the expected number of participants. The facility will meet ADA standards. Ecology announces these events using display ads or legal notices as explained above.

❖ Flyers and bulletins may be posted in various locations throughout the community (e.g. local businesses, schools, libraries, etc.) and at the site to announce public comment periods, meetings, workshops, etc.

Answering Questions from the Public

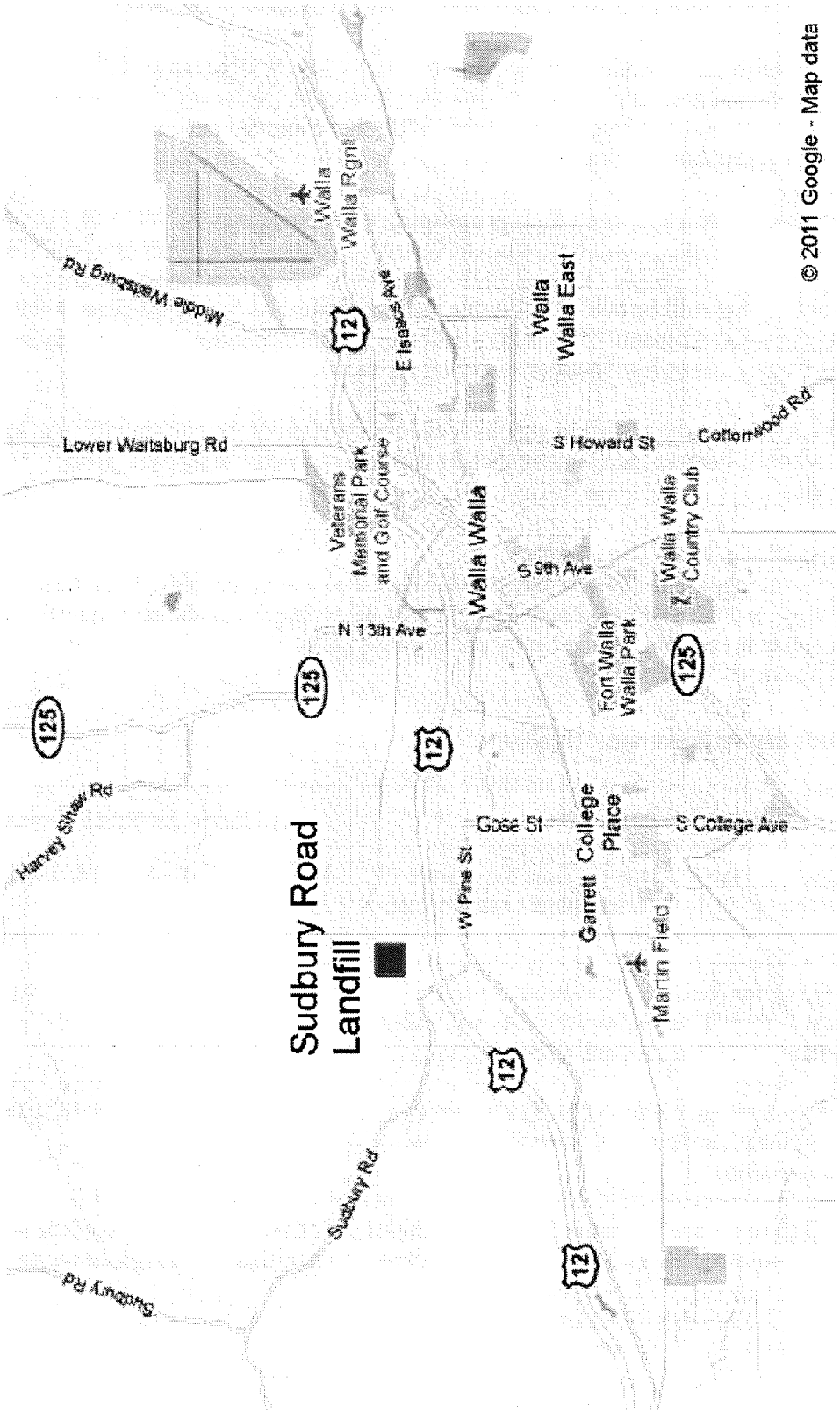
Individuals may want to ask questions to better understand the cleanup process. Page 4 lists the contacts for Ecology and the Sudbury Road Landfill. If you are interested and have questions, you are encouraged to contact the people on that list by phone or e-mail to obtain information about the site, the process and potential decisions.

Comment Periods and Approximate Timeline

Documents for Review	Public Comment Period
Draft Interim Action Plan - describes plans for closure of certain parts of the landfill and corrections to stormwater flow	April 15, 2010 – May 14, 2010
Draft Agreed Order for Remedial Investigation and Feasibility Study – formalizes actions the City will take to investigate contaminants and propose cleanup actions	April 11, 2011 – May 11, 2011
Draft Remedial Investigation/Feasibility Study Report – describes finding from the Remedial Investigation and proposes cleanup actions	July 18, 2014 – August 18, 2014
Draft Consent Decree for site cleanup - formalizes actions the City must take to complete cleanup. This will include a Draft Cleanup Action Plan. This will also be combined with issuance of a SEPA DNS (State Environmental Policy Act, determination of non-significance).	Following completion of the actions identified in the Agreed Order.

APPENDIX A

SITE MAP



APPENDIX B

CURRENT MAILING LIST

Please see separate attachment.

APPENDIX C

GLOSSARY

Agreed Order: A legal document issued by Ecology which formalizes an agreement between the department and potentially liable persons (PLPs) for the actions needed at a site. An agreed order is subject to public comment. If an order is substantially changed, an additional comment period is provided.

Applicable State and Federal Law: All legally applicable requirements and those requirements that Ecology determines are relevant and appropriate requirements.

Area Background: The concentrations of hazardous substances that are consistently-present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

Carcinogen: Any substance or agent that produces or tends to produce cancer in humans.

Chronic Toxicity: The ability of a hazardous substance to cause injury or death to an organism resulting from repeated or constant exposure to the hazardous substance over an extended period of time.

Cleanup: The implementation of a cleanup action or interim action.

Cleanup Action: Any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with cleanup levels; utilizes permanent solutions to the maximum extent practicable; and includes adequate monitoring to ensure the effectiveness of the cleanup action.

Cleanup Action Plan: A document which identifies the cleanup action and specifies cleanup standards and other requirements for a particular site. After completion of a comment period on a Draft Cleanup Action Plan, Ecology will issue a final Cleanup Action Plan.

Cleanup Level: The concentration of a hazardous substance in soil, water, air or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

Cleanup Process: The process for identifying, investigating, and cleaning up hazardous waste sites.

Consent Decree: A legal document approved and issued by a court which formalizes an agreement reached between the state and potentially liable persons (PLPs) on the actions needed at a site. A decree is subject to public comment. If a decree is substantially changed, an additional comment period is provided.

Containment: A container, vessel, barrier, or structure, whether natural or constructed, which confines a hazardous substance within a defined boundary and prevents or minimizes its release into the environment.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

Enforcement Order: A legal document, issued by Ecology, requiring remedial action. Failure to comply with an enforcement order may result in substantial liability for costs and penalties. An enforcement order is subject to public comment. If an enforcement order is substantially changed, an additional comment period is provided.

Environment: Any plant, animal, natural resource, surface water (including underlying sediments), groundwater, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington.

Exposure: Subjection of an organism to the action, influence or effect of a hazardous substance (chemical agent) or physical agent.

Exposure Pathways: The path a hazardous substance takes or could take form a source to an exposed organism. An exposure pathway describes the mechanism by which an individual or population is exposed or has the potential to be exposed to hazardous substances at or originating from the site. Each exposure pathway includes an actual or
potential source or release from a source, an exposure point, and an exposure route. If the source exposure point differs from the source of the hazardous substance, exposure pathway also includes a transport/exposure medium.

Facility: Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly-owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed or, placed, or otherwise come to be located.

Feasibility Study (FS): A study to evaluate alternative cleanup actions for a site. A comment period on the draft report is required. Ecology selects the preferred alternative after reviewing those documents.

Free Product: A hazardous substance that is present as a nonaqueous phase liquid (that is, liquid not dissolved in water).

Groundwater: Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

Hazardous Sites List: A list of sites identified by Ecology that requires further remedial action. The sites are ranked from 1 to 5 to indicate their relative priority for further action.

Hazardous Substance: Any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) (any discarded, useless, unwanted, or abandoned substances including, but not limited to, certain pesticides, or any residues or containers of such substances which are disposed of in such quantity or concentration as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes; (a) have short-lived, toxic properties that may cause death, injury, or illness or have mutagenic, teratogenic, or carcinogenic properties; or (b) are corrosive, explosive, flammable, or may generate pressure through decomposition or other means,) and (6) (any dangerous waste which (a) will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazard and may affect the genetic makeup of man or wildlife; and is highly toxic to man or wildlife; (b) if disposed of at a disposal site in such quantities as would present an extreme hazard to man or the environment), or any dangerous or extremely dangerous waste as designated by rule under Chapter 70.105 RCW: any hazardous substance as defined in RCW 70.105.010 (14) (any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste as described in rules adopted under this chapter,) or any hazardous substance as defined by rule under Chapter 70.105 RCW; petroleum products.

Hazardous Waste Site: Any facility where there has been a confirmation of a release or threatened release of a hazardous substance that requires remedial action.

Independent Cleanup Action: Any remedial action conducted without Ecology oversight or approval, and not under an order or decree.

Initial Investigation: An investigation to determine that a release or threatened release may have occurred that warrants further action.

Interim Action: Any remedial action that partially addresses the cleanup of a site.

Mixed Funding: Any funding, either in the form of a loan or a contribution, provided to potentially liable persons from the state toxics control account.

Model Toxics Control Act (MTCA): Washington State's law that governs the investigation, evaluation and cleanup of hazardous waste sites. Refers to RCW 70.105D. It was approved by voters at the November 1988 general election and known is as Initiative 97. The implementing regulation is WAC 173-340.

Monitoring Wells: Special wells drilled at specific locations on or off a hazardous waste site where groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and amounts of contaminants present.

Natural Background: The concentration of hazardous substance consistently present in the environment which has not been influenced by localized human activities.

National Priorities List (NPL): EPA's list of hazardous waste sites identified for possible long-term remedial response with funding from the federal Superfund trust fund.

Owner or Operator: Any person with any ownership interest in the facility or who exercises any control over the facility; or in the case of an abandoned facility, any person who had owned or operated or exercised control over the facility any time before its abandonment.

Polynuclear Aromatic Hydrocarbon (PAH): A class of organic compounds, some of which are long-lasting and carcinogenic. These compounds are formed from the combustion of organic material and are ubiquitous in the environment. PAHs are commonly formed by forest fires and by the combustion of fossil fuels.

Potentially Liable Person (PLP): Any person whom Ecology finds, based on credible evidence, to be liable under authority of RCW 70.105D.040.

Public Notice: At a minimum, adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city or county) newspaper of largest circulation; and opportunity for interested persons to comment.

Public Participation Plan: A plan prepared under the authority of WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

Recovery By-Products: Any hazardous substance, water, sludge, or other materials collected in the free product removal process in response to a release from an underground storage tank.

Release: Any intentional or unintentional entry of any hazardous substance into the environment, including, but not limited to, the abandonment or disposal of containers of hazardous substances.

Remedial Action: Any action to identify, eliminate, or minimize any threat posed by hazardous substances to human health or the environment, including any investigative and monitoring activities of any release or threatened release of a hazardous substance and any health assessments or health effects studies.

Remedial Investigation (RI): A study to define the extent of problems at a site. When combined with a study to evaluate alternative cleanup actions it is referred to as a Remedial Investigation/Feasibility Study (RI/FS). In both cases, a comment period on the draft report is required.

Responsiveness Summary: A compilation of all questions and comments to a document open for public comment and their respective answers/replies by Ecology. The Responsiveness Summary is mailed, at a minimum, to those who provided comments and its availability is published in the Site Register.

Risk Assessment: The determination of the probability that a hazardous substance, when released into the environment, will cause an adverse effect in exposed humans or other living organisms.

Sensitive Environment: An area of particular environmental value, where a release could pose a greater threat than in other areas including: wetlands; critical habitat for endangered or threatened species; national or state wildlife refuge; critical habitat, breeding or feeding area for fish or shellfish; wild or scenic river;

rookery; riparian area; big game winter range.

Site: See Facility.

Site Characterization Report: A written report describing the site and nature of a release from an underground storage tank, as described in WAC 173-340-450 (4) (b).

Site Hazard Assessment (SHA): An assessment to gather information about a site to confirm whether a release has occurred and to enable Ecology to evaluate the relative potential hazard posed by the release. If further action is needed, an RI/FS is undertaken.

Site Register: Publication issued every two weeks of major activities conducted statewide related to the study and cleanup of hazardous waste sites under the Model Toxics Control Act. To receive this publication, please call (360) 407-7200.

Surface Water: Lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the state of Washington or under the jurisdiction of the state of Washington.

TCP: Toxics Cleanup Program at Ecology

Total Petroleum Hydrocarbons (TPH): A scientific measure of the sum of all petroleum hydrocarbons in a sample (without distinguishing one hydrocarbon from another). The "petroleum hydrocarbons" include compounds of carbon and hydrogen that are derived from naturally occurring petroleum sources or from manufactured petroleum products (such as refined oil, coal, and asphalt).

Toxicity: The degree to which a substance at a particular concentration is capable of causing harm to living organisms, including people, plants and animals.

Underground Storage Tank (UST): An underground storage tank and connected underground piping as defined in the rules adopted under Chapter 90.76 RCW.

Washington Ranking Method (WARM): Method used to rank sites placed on the hazardous sites list. A report describing this method is available from Ecology.

Mailing List as of May 13, 2011

Category	Title	First Name	Last Name/Organization	Address	City	State	Zip
16th Legislative District Legislators	Representative	Terry	Nealey	PO Box 40600	Olympia	WA	98504
16th Legislative District Legislators	Representative	Maureen	Walsh	PO Box 40600	Olympia	WA	98504
16th Legislative District Legislators	Senator	Mike	Hewitt	PO Box 40416	Olympia	WA	98504
5th Congressional District Legislators	U.S. Representative	Cathy	McMorris-Rodgers	29 S Palouse St	Walla Walla	WA	99362
5th Congressional District Legislators	U.S. Senator	Maria	Cantwell	825 Jadwin Ave, Ste 205	Richland	WA	99352
5th Congressional District Legislators	U.S. Senator	Patty	Murray	402 E Yakima Ave, Ste 390	Yakima	WA	98901
City Officials	City Council	Conrado V.	Cavazos, Jr.	15 N 3rd	Walla Walla	WA	99362
City Officials	City Council	Jerry	Cummins	15 N 3rd	Walla Walla	WA	99362
City Officials	City Council	Dominick	Elia	15 N 3rd	Walla Walla	WA	99362
City Officials	City Council	Shane	Laib	15 N 3rd	Walla Walla	WA	99362
City Officials	City Council	Fred L.	Mitchell	15 N 3rd	Walla Walla	WA	99362
City Officials	City Manager	Nabiel	Shawa	15 N 3rd	Walla Walla	WA	99362
City Officials	Mayor	Barbara	Clark	15 N 3rd	Walla Walla	WA	99362
City Officials	Mayor Pro-Tem	Jim	Barrow	15 N 3rd	Walla Walla	WA	99362
City Public Works	Director	Ki	Bealey	55 Moore St	Walla Walla	WA	99362
County Commissioners	Commissioner	Perry	Dozier	314 W Main	Walla Walla	WA	99362
County Commissioners	Commissioner	Gregg C.	Loney	314 W Main	Walla Walla	WA	99362
County Commissioners	Commissioner	Greg	Tompkins	314 W Main	Walla Walla	WA	99362
Fire Chief	Chief	Terry	Thomas	15 N 3rd	Walla Walla	WA	99362
Fire Chief	Deputy Chief	Bob	Yancey	200 S 12th	Walla Walla	WA	99362
Health Department	Environmental Health Director	Barry	Jenkins	PO Box 1753	Walla Walla	WA	99362
Interested party	Blue Mountain Action Council	Steve	Moss	3442 Catherine St	Walla Walla	WA	99362
Interested party			Kooskooskie Commons	209 N Lincoln St	Walla Walla	WA	99362

Interested party			Walla Walla 2020	PO Box 1222	Walla Walla	WA	99362
Interested party			Walla Walla Basin Watershed Council	810 S Main	Milton-Freev	OR	97862
Interested party			Walla Walla Watershed Alliance	500 Tausick Way	Walla Walla	WA	99362
Media - Newspapers, Radio, TV			KUJ 1420 AM	45 Campbell Rd	Walla Walla	WA	99362
Media - Newspapers, Radio, TV			Times	139 Main	Waitsburg	WA	99361
Media - Newspapers, Radio, TV			Valley Herald	408 N Main	Milton-Freev	OR	97862
Media - Newspapers, Radio, TV			Walla Walla-Union Bulletin#	PO Box 1358	Walla Walla	WA	99362
Non-English speaking groups in the area	Walla Walla Community College		MultiCultural Center	500 Tausick Way	Walla Walla	WA	99362
Non-English speaking groups in the area	Washington State Commission on Hispanic Affairs (Walla Walla County)	Gilberto F.	Mireles	PO Box 40924	Olympia	WA	98504
Police Chief	Chief	Chuck	Fulton	15 N 3rd	Walla Walla	WA	99362
Potentially Affected Properties within site vicinity*	Bonneville Power Administration Walla Walla Office	William	Erickson	1520 Kelly Place #100	Walla Walla	WA	99362
Potentially Affected Properties within site vicinity*	WA State Penitentiary Dept of Corrections, Superintendent	Steve	Sinclair	1313 N 13th St.	Walla Walla	WA	98362
Potentially Affected Properties within site vicinity*	WA State Penitentiary Dept of Corrections	Shane	Loper	1313 N 13th St.	Walla Walla	WA	98362
Potentially Affected Properties within site vicinity*		Diana M.	ANDERSON	153 N CAMPBELL RD	WALLA WALI	WA	99362
Potentially Affected Properties within site vicinity*			BNSF RAILWAY COMPANY	PO BOX 961089	FORT WORTI	TX	76161

Potentially Affected Properties within site vicinity*		CAMP PROPERTIES LLC	2110 SUDBURY RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*		CITY OF WALLA WALLA	PO BOX 478	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Casey & Sandra	GOODWIN	3192 HERITAGE RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Marlene E. Williams	HAASE	1311 BIAGI LN	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Bruce & Katherine	HANEY	2836 HERITAGE RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Walter & Vickie	HARTWELL	2948 HERITAGE RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*		J P FARMS INC	PO BOX 1594	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Alice	JENNINGS	2876 HERITAGE RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Jerry & Tara	LIGHTFOOT	401 N CAMPBELL RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Gail	MARTIN	3134 HERITAGE RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Gabriel	MORENO	361 N CAMPBELL RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*		RESIDENT	1002 S HUSSEY ST	WALLA WAL WA	99362-8279
Potentially Affected Properties within site vicinity*		RESIDENT	1027 S HUSSEY ST	WALLA WAL WA	99362-8279
Potentially Affected Properties within site vicinity*		RESIDENT	1057 S HUSSEY ST	WALLA WAL WA	99362-8279
Potentially Affected Properties within site vicinity*		RESIDENT	1076 NEWTOWN RD	WALLA WAL WA	99362-8186
Potentially Affected Properties within site vicinity*		RESIDENT	1115 S HUSSEY ST	WALLA WAL WA	99362-8278
Potentially Affected Properties within site vicinity*		RESIDENT	1159 S HUSSEY ST	WALLA WAL WA	99362-8278
Potentially Affected Properties within site vicinity*		RESIDENT	1164 S HUSSEY ST	WALLA WAL WA	99362-8278

Potentially Affected Properties within site vicinity*	RESIDENT	1181 S HUSSEY ST	WALLA WALLA WA	99362-8278
Potentially Affected Properties within site vicinity*	RESIDENT	2041 WALLULA AVE	WALLA WALLA WA	99362-8284
Potentially Affected Properties within site vicinity*	RESIDENT	2105 WALLULA AVE	WALLA WALLA WA	99362-6262
Potentially Affected Properties within site vicinity*	RESIDENT	2115 SUDBURY RD	WALLA WALLA WA	99362-6240
Potentially Affected Properties within site vicinity*	RESIDENT	2155 WALLULA AVE	WALLA WALLA WA	99362-6262
Potentially Affected Properties within site vicinity*	RESIDENT	2238 WALLULA AVE	WALLA WALLA WA	99362-8285
Potentially Affected Properties within site vicinity*	RESIDENT	227 BALDWIN RD	WALLA WALLA WA	99362-8939
Potentially Affected Properties within site vicinity*	RESIDENT	230 BUNCHGRASS LN	WALLA WALLA WA	99362-9588
Potentially Affected Properties within site vicinity*	RESIDENT	2306 WALLULA AVE	WALLA WALLA WA	99362-8286
Potentially Affected Properties within site vicinity*	RESIDENT	2329 WALLULA AVE	WALLA WALLA WA	99362-8286
Potentially Affected Properties within site vicinity*	RESIDENT	2415 WALLULA AVE	WALLA WALLA WA	99362-8287
Potentially Affected Properties within site vicinity*	RESIDENT	245 BALDWIN RD	WALLA WALLA WA	99362-8939
Potentially Affected Properties within site vicinity*	RESIDENT	2450 WALLULA AVE	WALLA WALLA WA	99362-8287
Potentially Affected Properties within site vicinity*	RESIDENT	2460 WALLULA AVE	WALLA WALLA WA	99362-8287
Potentially Affected Properties within site vicinity*	RESIDENT	253 PEARMAIN AVE	WALLA WALLA WA	99362-8504
Potentially Affected Properties within site vicinity*	RESIDENT	256 BUNCHGRASS LN	WALLA WALLA WA	99362-9588
Potentially Affected Properties within site vicinity*	RESIDENT	257 PEARMAIN AVE	WALLA WALLA WA	99362-8504
Potentially Affected Properties within site vicinity*	RESIDENT	285 BALDWIN RD	WALLA WALLA WA	99362-8939

Potentially Affected Properties within site vicinity*	RESIDENT	307 BALDWIN RD	WALLA WAL WA	99362-8536
Potentially Affected Properties within site vicinity*	RESIDENT	333 BALDWIN RD	WALLA WAL WA	99362-8536
Potentially Affected Properties within site vicinity*	RESIDENT	377 CREEKSIDE LN	WALLA WAL WA	99362-8290
Potentially Affected Properties within site vicinity*	RESIDENT	387 PEARMAIN AVE	WALLA WAL WA	99362-8506
Potentially Affected Properties within site vicinity*	RESIDENT	401 N CAMPBELL RD	WALLA WAL WA	99362-6241
Potentially Affected Properties within site vicinity*	RESIDENT	435 PEARMAIN AVE	WALLA WAL WA	99362-8505
Potentially Affected Properties within site vicinity*	RESIDENT	439 BALDWIN RD	WALLA WAL WA	99362-8535
Potentially Affected Properties within site vicinity*	RESIDENT	44 HARDING RD	WALLA WAL WA	99362-8288
Potentially Affected Properties within site vicinity*	RESIDENT	4665 OLD HIGHWAY 12	WALLA WAL WA	99362-6250
Potentially Affected Properties within site vicinity*	RESIDENT	47 N CAMPBELL RD TRLR 1	WALLA WAL WA	99362-6255
Potentially Affected Properties within site vicinity*	RESIDENT	47 N CAMPBELL RD TRLR 3	WALLA WAL WA	99362-6255
Potentially Affected Properties within site vicinity*	RESIDENT	47 N CAMPBELL RD TRLR 5	WALLA WAL WA	99362-6255
Potentially Affected Properties within site vicinity*	RESIDENT	5211 OLD HIGHWAY 12	WALLA WAL WA	99362-6251
Potentially Affected Properties within site vicinity*	RESIDENT	544 NEWTOWN RD	WALLA WAL WA	99362-8929
Potentially Affected Properties within site vicinity*	RESIDENT	545 BALDWIN RD	WALLA WAL WA	99362-8533
Potentially Affected Properties within site vicinity*	RESIDENT	580 CREEKSIDE LN	WALLA WAL WA	99362-8291
Potentially Affected Properties within site vicinity*	RESIDENT	606 CREEKSIDE LN	WALLA WAL WA	99362-6259
Potentially Affected Properties within site vicinity*	RESIDENT	647 BALDWIN RD	WALLA WAL WA	99362-8638

Potentially Affected Properties within site vicinity*		RESIDENT	75 HARDING RD	WALLA WAL WA	99362-8288
Potentially Affected Properties within site vicinity*		RESIDENT	764 NEWTOWN RD	WALLA WAL WA	99362-9595
Potentially Affected Properties within site vicinity*		RESIDENT	790 S HUSSEY ST	WALLA WAL WA	99362-8282
Potentially Affected Properties within site vicinity*		RESIDENT	805 S HUSSEY ST	WALLA WAL WA	99362-8281
Potentially Affected Properties within site vicinity*		RESIDENT	816 S HUSSEY ST	WALLA WAL WA	99362-8281
Potentially Affected Properties within site vicinity*		RESIDENT	838 S HUSSEY ST	WALLA WAL WA	99362-8281
Potentially Affected Properties within site vicinity*		RESIDENT	848 NEWTOWN RD	WALLA WAL WA	99362-8925
Potentially Affected Properties within site vicinity*		RESIDENT	87 PEARMAIN AVE	WALLA WAL WA	99362-8510
Potentially Affected Properties within site vicinity*		RESIDENT	894 S HUSSEY ST	WALLA WAL WA	99362-8281
Potentially Affected Properties within site vicinity*		RESIDENT	900 S HUSSEY ST	WALLA WAL WA	99362-8280
Potentially Affected Properties within site vicinity*		RESIDENT	918 NEWTOWN RD	WALLA WAL WA	99362-9596
Potentially Affected Properties within site vicinity*		RESIDENT	942 NEWTOWN RD	WALLA WAL WA	99362-9596
Potentially Affected Properties within site vicinity*		RESIDENT	958 S HUSSEY ST	WALLA WAL WA	99362-8280
Potentially Affected Properties within site vicinity*		RESIDENT	982 NEWTOWN RD	WALLA WAL WA	99362-9596
Potentially Affected Properties within site vicinity*		SCHAFER, DORIS MAE TRUSTEE OF THE WILSON TRUST	213 VIA BALLENA	SAN CLEMEN CA	92672
Potentially Affected Properties within site vicinity*	Kevin & Gretchen	SHENEFIELD	407 N CAMPBELL RD	WALLA WALI WA	99362
Potentially Affected Properties within site vicinity*	Mark	Small	1890 Sudbury Rd	Walla Walla WA	99362
Potentially Affected Properties within site vicinity*	Norman Jay	WALCOTT	63 N CAMPBELL RD	WALLA WALI WA	99362

Potentially Affected Properties within site vicinity*			WASHINGTON STATE DEPT OF TRANSPORTATION	PO BOX 12560	YAKIMA	WA	98909
Standard Contact for all MTCA Sites		JOHN	OSBORN	2421 W MISSION AVE	SPOKANE	WA	99201
Standard Contact for all MTCA Sites		RACHAEL	OSBORN	2421 W MISSION AVE	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	CENTER FOR JUSTICE	BONNE	BEAVERS	35 W MAIN ST	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	CENTER FOR JUSTICE	BREEAN	BEGGS	35 W MAIN ST	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	CENTER FOR JUSTICE AND RIVERKEEPERS	RICK	EICHSTAEDT	35 W MAIN ST	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	CENTER FOR JUSTICE AND RIVERKEEPERS	BART	MIHAILOVICH	35 W MAIN ST	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	EASTERN WA DIRECTOR	ERIN	VINCENT	10 N POST ST STE 600	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	EXECUTIVE DIRECTOR	MIKE	PETERSON	25 W MAIN ST STE 222	SPOKANE	WA	99201
Standard Contact for all MTCA Sites	INLAND WILDLIFE COUNCIL	ROBERT	PANTHER	6116 N MARKET ST	SPOKANE	WA	99207-6445
Standard Contact for all MTCA Sites	KETTLE FALLS POLICE CHIEF	KENDLE	ALLEN	580 MEYERS ST P.O. BOX 457	KETTLE FALL	WA	99141
Standard Contact for all MTCA Sites	LAKE ROOSEVELT FORUM	ANDY	DUNAU	2206 S SHERMAN ST	SPOKANE	WA	99203
Standard Contact for all MTCA Sites	NORTHWEST WILDLIFE COUNCIL	JAMES	LAYMAN	6116 N MARKET ST	SPOKANE	WA	99207
Standard Contact for all MTCA Sites	RUSSIAN TRANSLATION BUREAU & SVCS	TATYANA	BISTREVSKY	8027 E ELDE DR	SPOKANE	WA	99212
Standard Contact for all MTCA Sites	SPOKANE COMMUNITY COLLEGE	ANDREW	BUDDINGTON	MS 2070 1810 N GREENE STREET	SPOKANE	WA	99217-5399
Standard Contact for all MTCA Sites	SPOKANE TRIBE OF INDIANS	RANDY	CONNOLLY	P.O.BOX 100	WELLPINIT	WA	99040
Standard Contact for all MTCA Sites	U.S. ARMY CORPS OF ENGINEERS	TIM	ERKEL	27223 N BEAR LAKE RD	CHATTAROY	WA	99003

Standard Contact for all MTCA Sites	U.S. DEPARTMENT OF INTERIOR	DAN	AUDET	1103 N FANCHER RD	SPOKANE VA	WA	99212
Standard Contact for all MTCA Sites	WA DEPT OF FISH & WILDLIFE	KAREN	DIVENS	600 CAPITOL WAY N	OLYMPIA	WA	99501-1091
Standard Contact for all MTCA Sites	WA DOH OFFICE OF ENVIRON HEALTH SITE ASSESSMENT	DAN	ALEXANIAN	P.O. BOX 47846	OLYMPIA	WA	98504-7846
Standard Contact for all MTCA Sites	WA DOH OFFICE OF ENVIRON HEALTH SITE ASSESSMENT	ERIN	KOCHANIEWICZ	P.O. BOX 47846	OLYMPIA	WA	98504-7846
Standard Contact for all MTCA Sites	WA DOH OFFICE OF ENVIRON HEALTH SITE ASSESSMENT	BARBARA	TREJO	P.O. BOX 47846	OLYMPIA	WA	98504-7846
Standard Contact for all MTCA Sites	WA ENVIRONMENTAL COUNCIL	DORIS	CELLARIUS	1063 S CAPITOL STE 212	OLYMPIA	WA	98501-1272
Standard Contact for all MTCA Sites	WA STATE SENATOR	LISA	BROWN	25 W MAIN ST STE 239	SPOKANE	WA	99201
Sudbury Landfill Cleanup Contacts	Assistant Attorney General	Lee	Overton	1125 Washington St SE	Olympia	WA	98504
Sudbury Landfill Cleanup Contacts	Attorney	Bill	Joyce	1601 Fifth Ave, Ste 2040	Seattle	WA	98101
Sudbury Landfill Cleanup Contacts	City Utility Engineer	Frank	Nicholson	55 Moore St	Walla Walla	WA	99362
Sudbury Landfill Cleanup Contacts	Consultant	Craig	Schwyn	4621 S Custer Court	Spokane	WA	99223
Sudbury Landfill Cleanup Contacts	Harris & Smith Public Affairs	Barbara	Smith	3820 S Ferdinand	Seattle	WA	98118
Tribes			Confederated Tribes of the Umatilla Indian Reservation	46411 Timine Way	Pendleton	OR	97801
WA Dept. of Ecology-to be notified via email	Administration - ERO	Cathy	Cochrane				
WA Dept. of Ecology-to be notified via email	Administration - ERO	Janis	Gilbert				

WA Dept. of Ecology-to be notified via email	Air Quality-ERO	Karon	Wood
WA Dept. of Ecology-to be notified via email	Environmental Assessment-ERO	Jim	Ross
WA Dept. of Ecology-to be notified via email	Hazardous Waste & Toxics Reduction-ERO	Lisa	Brown
WA Dept. of Ecology-to be notified via email	Regional Director-ERO	Grant	Pfeifer
WA Dept. of Ecology-to be notified via email	Shorelands and Environmental Assistance-ERO	Sara	Hunt
WA Dept. of Ecology-to be notified via email	Spills-ERO	Mark	Stephens
WA Dept. of Ecology-to be notified via email	Toxic Cleanup Program-CRO	Valerie	Bound
WA Dept. of Ecology-to be notified via email	Toxic Cleanup Program-ERO	Mike	Hibbler
WA Dept. of Ecology-to be notified via email	Toxic Cleanup Program-HQ	Pete	Kmet
WA Dept. of Ecology-to be notified via email	Toxic Cleanup Program-HQ	Jim	Pendowski
WA Dept. of Ecology-to be notified via email	Toxic Cleanup Program-NWRO	Bob	Warren
WA Dept. of Ecology-to be notified via email	Toxic Cleanup Program-SWRO	Rebecca	Lawson
WA Dept. of Ecology-to be notified via email	Waste 2 Resources-CRO	Darlene	Frye
WA Dept. of Ecology-to be notified via email	Waste 2 Resources-ERO	Wayne	Krafft
WA Dept. of Ecology-to be notified via email	Waste 2 Resources-HQ	Laurie	Davies
WA Dept. of Ecology-to be notified via email	Waste 2 Resources-NWRO	Peter	Christiansen
WA Dept. of Ecology-to be notified via email	Waste 2 Resources-SWRO	Peter	Lyon

WA Dept. of Ecology-to be notified via email	Water Quality-ERO	Jim	Bellatty
WA Dept. of Ecology-to be notified via email	Water Resources-ERO	Keith	Stoffel
WA Dept. of Ecology-to be notified via email (only for SEPA-related documents)	Shorelands and Environmental Assistance-ERO	Terri	Costello

[#] Announcements for public comment periods will be in the Walla Walla-Union Bulletin.

* Includes any property owner and residents within ½ mile north, south and east of site, within 2 miles west of site, and any other potentially affected