IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF SNOHOMISH

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. CITY OF EVERETT, Defendant.	NO. 01 2 03640 6 SUMMONS

TO: City of Everett;

AND TO: The Clerk of the above-entitled Court.

A lawsuit has been started against you in the above-entitled court by the State of Washington, Department of Ecology, Plaintiff. Plaintiff's claim is stated in the written complaint, a copy of which is served upon you with this Summons.

The parties have agreed to resolve this matter by entry of a Consent Decree. Accordingly, this Summons shall not require the filing of an answer.

Respectfully submitted this 26th day of March, 2001.

CHRISTINE O. GREGOIRE
Attorney General

KEN LEDERMAN, WSBA #26515
Assistant Attorney General
Attorneys for Plaintiff
Department of Ecology
(360) 586-4607

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF SNOHOMISH

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. CITY OF EVERETT, Defendant.	NO. 01 2 03640 6 COMPLAINT

I. JURISDICTION

1.1 This court has jurisdiction over the parties and over the subject matter under the Model Toxics Control Act, chapter 70.105D RCW.

II. PARTIES

2.1 Plaintiff State of Washington Department of Ecology (Ecology) is a state agency charged with the implementation of the Model Toxics Control Act.

2.2 Defendant is the City of Everett. Defendant has agreed to enter into a Consent Decree with Ecology under the Model Toxics Control Act to remedy the release of hazardous substances on Facility.

III. FACTUAL ALLEGATIONS

3.1 The site is referred to as the Everett Landfill/Tire Fire Site, hereinafter known as the "Facility", as defined in RCW 70.105D.020(4), and is located at 2902-36th Street East,

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 438-7743

Everett, Washington. The Facility is more particularly described in Exhibit A of the Consent Decree that is being submitted to settle this action.

3.2 Ecology has determined that there has been a release or threatened release of hazardous substances at the Facility. Ecology has further determined that this release or threatened release requires remedial action to protect human health, welfare, and the environment; and that the Defendant is the potentially liable person with respect to this Facility.

3.3 Ecology and Defendant has entered into a Consent Decree regarding remedial actions to be taken at the Facility.

3.4 The Consent Decree has been the subject of public notice and comment under RCW 70.105D.040(4)(a). The Consent Decree is being submitted to the court along with this Complaint.

Ecology has determined that entry of the Consent Decree will lead to a more expeditious cleanup of the Facility.

IV. CAUSE OF ACTION

4.1 Plaintiff realleges all preceding paragraphs.

4.2 Plaintiff alleges that the Defendant is responsible for remedial action at the Facility pursuant to the MTCA, chapter 70.105D RCW.

V. PRAYER FOR RELIEF

5.1 Ecology and the City of Everett request that the court sign and enter the Consent Decree in this matter.

5.2 Ecology and the City of Everett further request that the court retains jurisdiction to enforce the terms of the Consent Decree.

///

///

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 438-7743

Respectfully submitted this 26th day of March, 2001.

CHRISTINE O. GREGOIRE
Attorney General

KEN LEDERMAN, WSBA #26515
Assistant Attorney General
Attorneys for Plaintiff
Department of Ecology
(360) 586-4607

F:EVERETT LANDFILL\COMPLAINT

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 438-7743

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF SNOHOMISH

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY,

Plaintiff,

v.

CITY OF EVERETT,

Defendant.

NO. 01 2 03640 6

MOTION FOR ENTRY OF CONSENT DECREE AND MEMORANDUM IN SUPPORT OF MOTION

I. INTRODUCTION

Plaintiff, Washington State Department of Ecology (Ecology), represented by Christine O. Gregoire, Attorney General, and Ken Lederman, Assistant Attorney General, brings this motion seeking entry of the attached Consent Decree. This motion is based upon the pleadings filed in this matter, including the Declaration of Ken Lederman.

II. RELIEF REQUESTED

Ecology requests that the Court approve and enter the attached Consent Decree that requires certain remedial actions at the Everett Landfill/Tire Fire Site, a Facility where there has been a release of hazardous substances. Ecology also requests that the Court retain jurisdiction over this action until the work required by the Consent Decree is completed and the parties request a dismissal of this action.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

III. AUTHORITY

RCW 70.105D.030 authorizes Ecology to issue such orders as may be necessary to effectuate the purposes of the Model Toxics Control Act, chapter 70.105D RCW, and to enter into consent decrees through judicial proceedings. In addition, RCW 70.105D.040(4) authorizes the Attorney General to agree to a settlement with a potentially liable person and to request that the settlement be entered as a consent decree in the superior court of the county where a violation is alleged to have occurred.

IV. CONCLUSION

Ecology believes it is appropriate for the Court to exercise its judicial discretion and approve the attached Consent Decree, and hereby requests that the Court enter the attached Order.

DATED this 26th day of March, 2001.

CHRISTINE O. GREGOIRE
Attorney General

KEN LEDERMAN, WSBA #26515
Assistant Attorney General
Attorneys for Plaintiff
Department of Ecology
(360) 586-4607

F:EVERETT LANDFILL\MOTION FOR ENTRY

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF SNOHOMISH

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. CITY OF EVERETT, Defendant.	NO. 01 2 03640 6 DECLARATION OF KEN LEDERMAN

I, Ken Lederman, declare under penalty of perjury under the laws of the State of Washington that the following is true and correct.

1. I am over twenty-one years of age and am competent to testify herein. The facts set forth in this Declaration are from my personal knowledge.

2. I am an Assistant Attorney General assigned to represent the Washington State Department of Ecology and the Attorney General's Office on legal matters relating to the site in Everett, Washington referred to as the Everett Landfill/Tire Fire Site.

3. On behalf of Ecology and the Attorney General's Office, I took part in the negotiations that led to the Consent Decree that is being presented to the court.

4. The Consent Decree was the subject of public notice and public comment as required by RCW 70.105D.040(4)(a).

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

5. Ecology has determined that the proposed remedial action will lead to a more expeditious cleanup of hazardous substances in compliance with cleanup standards under RCW 70.105D.030(2)(e).

I declare under penalty of perjury of the laws of the state of Washington that the foregoing is true and correct.

DATED this 26th day of March, 2001, in Olympia, Washington.

KEN LEDERMAN

F:EVERETT LANDFILL\KEN LEDERMAN DEC

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF SNOHOMISH

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY,

Plaintiff,

v.

CITY OF EVERETT,

Defendant.

NO. 01 2 03640 6

ORDER ENTERING CONSENT DECREE

Having reviewed the Consent Decree signed by the parties to this matter, the Motion for Entry of the Consent Decree, the Declaration of Ken Lederman, and the file herein, it is hereby

ORDERED AND ADJUDGED that the Consent Decree in this matter is entered and that the Court shall retain jurisdiction over the Consent Decree to enforce its terms.

DATED this _____day of APR 02 2001, 2001.

JUDGE
Snohomish County Superior Court

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Presented by:

CHRISTINE O. GREGOIRE
Attorney General

KEN LEDERMAN, WSBA #26515
Assistant Attorney General

Attorneys for Plaintiff
State of Washington
Department of Ecology
(360) 586-4607

DATED: 3/26/01

City of Everett

PETER B. CAMP
Asst City Atty
WSBA 13925
4/2/01

F:EVERETT LANDFILL\ORDER ENTERING CD

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF SNOHOMISH

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. CITY OF EVERETT, Defendant.	NO. CONSENT DECREE

TABLE OF CONTENTS

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

I. INTRODUCTION

A. The Landfill Tire Fire Site is located in Everett, Washington and owned by the City of Everett. The Site is a closed municipal landfill site that operated from approximately 1917 through 1974 on approximately 70 acres in a predominately commercial area.

B. From approximately 1977 through 1984 approximately 2 million tires were accumulated on the Site by a tire chipping business. In 1983 and 1984, two fires occurred burning approximately one million tires. The City of Everett commenced an environmental investigation regarding the tire fire ash in 1985.

C. In 1989, Ecology named the City of Everett as a potentially liable party for the Site under the Model Toxics Control Act, RCW Chapter 70.105D.

D. In 1990, the City of Everett and Ecology signed a Remedial Action Order on Consent to conduct a Remedial Investigation/Feasibility Study (RI/FS) of the Site. The study identified the Site as a potential threat to human health and the environment. The study indicated that landfill leachate was seeping uncontrolled into the Snohomish River. In addition, the tire fire ash was originally classified at that time as dangerous waste under WAC Chapter 173-303 the "Dangerous Waste Regulation" of 1990. However, in November 1995, the "Dangerous Waste Regulation" was amended to make the criteria less stringent for zinc, the principal constituent of tire fire ash. Re-evaluation of the Site ash under the new criteria concluded that the ash was a solid, not a dangerous waste.

E. In 1994, Ecology issued an Enforcement Order to the City of Everett, which required the City of Everett to conduct a Supplemental RI/FS and interim actions. The supplemental RI included investigation of landfill gas and the existing landfill cover. The Supplemental FS evaluated the City of Everett's proposed ash treatment alternative. The interim actions included surface water control and installation of a leachate system along the entire eastern border of the landfill. In 1995, the landfill area (except the tire fire ash area) was

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

regraded and covered by a minimum of two feet of clean soil to achieve better surface water control.

F. In 1997, Ecology amended the 1994 Enforcement Order to include redesigning the leachate collection system and covering the tire fire ash area as interim actions. The collection system was re-located fifty feet inward of the landfill's eastern boundary from the original design. These two interim actions were completed in the spring of 1998.

G. In entering into this Consent Decree (Decree), the mutual objective of the Washington State Department of Ecology (Ecology), and the City of Everett is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Decree requires the City of Everett to undertake the remedial actions specified in the Cleanup Action Plan and Scope of Work and Schedule attached as Exhibit C and D to this Consent Decree. Ecology has determined that these actions are necessary to protect public health and the environment.

H. The Complaint in this action is being filed simultaneously with this Decree. An answer has not been filed, and there has not been a trial on any issue of fact or law in this case. However, the parties wish to resolve the issues raised by Ecology's complaint. In addition, the parties agree that settlement of these matters without litigation is reasonable and in the public interest and that entry of this Decree is the most appropriate means of resolving these matters.

I. In signing this Decree, the City of Everett agrees to its entry and agrees to be bound by its terms.

J. By entering into this Decree, the parties do not intend to discharge non-settling parties from any liability they may have with respect to matters alleged in the complaint. The parties, including the City of Everett's or its Successors and Assigns, retain the right to seek reimbursement, in whole or in part, from any liable persons for sums expended under this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

K. This Decree shall not be construed as proof of liability or responsibility for any releases of hazardous substances or cost for remedial action nor an admission of any facts; provided, however, that the City of Everett shall not challenge the jurisdiction of Ecology in any proceeding to enforce this Decree.

L. The Court is fully advised of the reasons for entry of this Decree, and good cause having been shown:

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED AS FOLLOWS:

II. AUTHORITY, JURISDICTION, AND VENUE

A. This Court has jurisdiction over the subject matter and over the parties pursuant to Ch. 70.105D RCW, the Model Toxics Control Act (MTCA).

B. Authority is conferred upon the Washington State Attorney General by RCW 70.105D.040(4)(a) to agree to a settlement with any potentially liable person if, after public notice and hearing, Ecology finds the proposed settlement would lead to a more expeditious cleanup of hazardous substances in compliance with cleanup standards. RCW 70.105D.040(4)(b) requires that such a settlement be entered as a consent decree issued by a court of competent jurisdiction.

C. Ecology has determined that a release or threatened release of hazardous substances has occurred at the Site which is the subject of this Decree.

D. Ecology has given notice to the City of Everett, as set forth in RCW 70.105D.020(16), of Ecology's determination that the City of Everett is a potentially liable person for the Site and that there has been a release or threatened release of hazardous substances at the Site.

E. The City of Everett has agreed to undertake the actions specified in this Decree and consents to the entry of this Decree under the MTCA.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

F. The actions to be taken pursuant to this decree are necessary to protect public health, welfare and the environment.

III. PARTIES BOUND

This Decree shall apply to and be binding upon the signatories to this Decree (parties), their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Decree and to execute and legally bind such party to comply with the Decree. The City of Everett agrees to undertake all actions required by the terms and conditions of this Decree and not to contest state jurisdiction regarding this Decree. No change in ownership or corporate status shall alter the responsibility of the City of Everett under this Decree. The City of Everett shall provide a copy of this Decree to all agents, contractors and subcontractors retained to perform work required by this Decree and shall ensure that all work undertaken by such contractors and subcontractors will be in compliance with this Decree.

IV. DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Consent Decree that are defined in MTCA or in regulations promulgated thereunder shall have the meanings assigned to them in MTCA or in such regulations. Whenever terms listed below are used in this Consent Decree, the following definitions shall apply:

A. Site: The Site, referred to as the Everett Landfill/Tire Fire Site is located at 2902-36th Street East, Everett, Washington, (the Property), and where all hazardous substances from the Property have come to be located..

B. Property: The Property is more particularly described in Exhibit A to this Decree, which is a detailed site diagram, and in the legal descriptions contained in Exhibit B.

C. Parties: Refers to the Washington State Department of Ecology and the City of Everett.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

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

V. STATEMENT OF FACTS

Ecology makes the following findings of fact without any express or implied admissions by the City of Everett:

1. The City of Everett presently owns an approximately 70-acre property located at 2902-36th Street East, Everett, Washington. The Site is a closed municipal landfill that operated from approximately 1917 through 1974. The Site includes some property currently owned by the Burlington Northern and Santa Fe Railroad, Co. The Site is bounded on the east and west by the innermost railroad track. The facility accepted waste from both the City of Everett and from the rest of Snohomish County.

2. From 1977 through 1984, approximately 2 million tires were accumulated on the Site by a tire chipping business. In 1983 and 1984, two fires occurred burning approximately one million tires. The ash covered about 7 acres of the Site.

3. By letter dated August 23, 1989, Ecology notified the City of Everett of its status as a "potentially liable person" for the Site under RCW 70.105D.040 after notice and opportunity to comment.

4. The City of Everett is an "owner or operator" as defined by RCW 70.105D.020(12) of a "facility" as defined in RCW 70.105D.020(4).

5. The City of Everett has performed environmental investigations at the Site pursuant to administrative orders issued by the Department of Ecology and conducted a Remedial Investigation/Feasibility Study in 1994 and a Brownfield Feasibility Study in 2000 of the Site. These investigations are described more fully in the Brownfield Feasibility Study and Chapter 2 of the Landfill Cleanup Action Plan (CAP) attached to this Decree as Exhibit C.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Based on these studies and additional background reports contained in Ecology's files, Ecology finds as follows: The investigations have documented the "release", as defined in RCW 70.105D.020(20) of hazardous substances into the environment. The City of Everett has completed remedial actions at the Site consistent with the prior orders issued by Ecology. These remedial activities have included installing a landfill cover, construction of a leachate collection system and other actions. The work outlined in Section VI and the attached CAP, including work already performed consistent with the CAP, is necessary and appropriate to complete cleanup for existing Site conditions and to ensure that future uses will be consistent with the cleanup requirements and be protective of human health and the environment.

6. The City of Everett intends to facilitate the redevelopment of the Site for uses consistent with this Consent Decree, the attached CAP, and applicable City of Everett zoning provisions and comprehensive plan designations.

VI. WORK TO BE PERFORMED

This Decree contains a program designed to protect public health, welfare and the environment from the known release, or threatened release, of hazardous substances or contaminants at, on, or from the Site. The requirements of this program are set forth in detail in the Cleanup Action Plan (CAP) for Everett Landfill attached as Exhibit C, and the Scope of Work and Schedule attached as Exhibit D. The Exhibits are incorporated by reference in this Decree. The City of Everett shall complete the cleanup actions selected in the attached CAP and Scope of Work and Schedule for existing conditions and any future redevelopment at the Site.

The City of Everett agrees not to perform any remedial actions outside the scope of this Decree that are substantial unless approved in writing by Ecology or the parties agree to amend the Scope of Work to cover these actions. Nonsubstantial actions may occur if approved in

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

writing by Ecology. All work conducted under this Decree shall be done in accordance with WAC Chapter 173-340 unless otherwise provided herein.

VII. DESIGNATED PROJECT COORDINATORS

The project coordinator for Ecology is:

Hao (Sunny) Lin
Department of Ecology
Northwest Regional Office
3190 160th Ave. S.E.
Bellevue, WA 980008-5452
Telephone: (425) 649-7187

The project coordinator for the City of Everett is:

Tom Thetford
City of Everett
Public Works Department
3200 Cedar Street
Everett, WA 98201-4599
Telephone: (425) 257-8824

Each project coordinator shall be responsible for overseeing the implementation of this Decree. The Ecology project coordinator will be Ecology's designated representative at the Site. To the maximum extent possible, communications between Ecology and the City of Everett and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Decree, 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 remedial work required by this Decree. The project coordinators may agree to minor modifications to the work to be performed without formal amendments to this Decree. Minor modifications will be documented in writing by Ecology.

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

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

VIII. PERFORMANCE

All work performed pursuant to this Decree shall be under the direction and supervision, as necessary, of a professional engineer or hydrogeologist, or equivalent, with experience and expertise in hazardous waste site investigation and cleanup. Any construction work undertaken as part of the remediation must be under the supervision of a professional engineer. The City of Everett shall notify Ecology in writing as to the identity of such engineer(s) or hydrogeologist(s), or others and of any contractors and subcontractors to be used in carrying out the terms of this Decree, in advance of their involvement at the Site.

IX. ACCESS

Ecology or any Ecology authorized representatives shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of overseeing and verifying remedial actions being performed, including, inter alia: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing the City of Everett's progress in carrying out the terms of this Decree; 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 Decree; and verifying the data submitted to Ecology by the City of Everett. Without limitation on Ecology's rights under this Section, Ecology will provide the City of Everett advance notice of its entry onto the Site when feasible. All parties with access to the Site pursuant to this paragraph shall comply with approved health and safety plans and all applicable federal and state safety and health requirements.

X. SAMPLING, DATA REPORTING, AND AVAILABILITY

With respect to the implementation of this Decree, the City of Everett shall make the results of all sampling, laboratory reports, and/or test results generated by it, or on its behalf available to Ecology.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

In accordance with WAC 173-340-840(5), ground water sampling data shall be submitted pursuant to the Compliance Monitoring and Contingency Plan (CMCP), which is an attachment to the CAP (Exhibit C).

If requested by Ecology, the City of Everett, or its Successors in Interest and Assigns, shall allow split or duplicate samples to be taken by Ecology and/or its authorized representatives of any samples collected by the City of Everett pursuant to the implementation of this Decree. The City of Everett shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow split or duplicate samples to be taken by the City of Everett or its Successors in Interest and Assigns, or its authorized representatives, of any samples collected by Ecology pursuant to the implementation of this Decree provided it does not interfere with the Department's sampling. Without limitation on Ecology's rights under Section IX, Access, Ecology shall endeavor to notify the City of Everett prior to any sample collection activity.

XI. MONITORING REPORTS

The City of Everett shall submit monitoring reports to Ecology summarizing the results of required monitoring and describing any issues that have arisen regarding implementation and maintenance of the Cleanup Action Plan pursuant to the CMCP.

XII. RETENTION OF RECORDS

The City of Everett shall preserve, during the pendency of this Decree and for ten (10) years from the date this Decree is no longer in effect as provided in Section XXV, all records, reports, documents, and underlying data in its possession relevant to the implementation of this Decree and shall insert in contracts with project contractors and subcontractors a similar record retention requirement. Upon request of Ecology, the City of Everett shall make all non-archived records available to Ecology and allow access for review. All archived records shall be made available to Ecology within a reasonable period of time.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

XIII. TRANSFER OF INTEREST IN PROPERTY

A. Everett shall not consummate any conveyance of title, easement, lease or other interest in the Site without adequate and complete provision for the continued operation, maintenance and monitoring of the cleanup action undertaken pursuant to this Decree. Everett shall restrict leases to uses and activities consistent with this Consent Decree and notify all lessees of the restrictions on the use of the property.

B. During the Effective Period of this Decree, as defined in Section XXV, Everett shall notify Ecology of its intent to convey any interest in the Site.

C. This Consent Decree was not based on circumstances unique to the City of Everett as defined in RCW 70.105D.040(4)(e). RCW 70.105D.040(4)(e), as found in MTCA as of the effective date of this Consent Decree, will apply to any owner or operator who is a successor in interest to the City of Everett if all statutory provisions are met.

XIV. RESOLUTION OF DISPUTES

A. In the event a dispute arises as to an approval, disapproval, proposed modification or other decision or action by Ecology's project coordinator, the parties shall utilize the dispute resolution procedure set forth below.

1. Upon receipt of the Ecology project coordinator's decision, the City of Everett shall have fourteen (14) days within which to notify Ecology's project coordinator of its objection to the decision.

2. 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.

3. The City of Everett may then request Ecology management review of the decision. This request shall be submitted in writing to the Toxics Cleanup Program Manager within seven (7) days of receipt of Ecology's project coordinator's decision.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

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

B. If Ecology's final written decision is unacceptable to the City of Everett, the City of Everett shall have the right to submit the dispute to the Court for resolution. The parties agree that one judge should retain jurisdiction over this case and shall, as necessary, resolve any dispute arising under this Decree. In the event the City of Everett presents an issue to the Court for review, the Court shall review the action or decision of Ecology on the basis of whether such action or decision was arbitrary and capricious and render a decision based on such standard of review.

C. The parties may agree to substitute an Alternative Dispute Resolution ("ADR") process, such as mediation, for the formal dispute resolution process set forth in paragraphs A and B above.

D. 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. Where either party utilizes the dispute resolution process in bad faith or for purposes of delay, the other party may seek sanctions.

E. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Decree, unless Ecology agrees in writing to a schedule extension or the Court so orders.

XV. AMENDMENT OF CONSENT DECREE

A. This Decree may only be amended by a written stipulation among the parties to this Decree that is entered by the Court or by order of the Court. Such amendment shall

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

become effective upon entry by the Court. Agreement to amend shall not be unreasonably withheld by any party to the Decree.

B. The City of Everett shall submit any request for an amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in a timely manner after the request for amendment is received. If the amendment to the Decree is substantial, Ecology will provide public notice and opportunity for comment. Reasons for the disapproval shall be stated in writing. If Ecology does not agree to any proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section XIV of this Decree.

XVI. EXTENSION OF SCHEDULE

A. An extension of the 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. In addition, an extension of schedule shall be granted if Ecology's entry onto the Site under Section IX interferes with the City of Everett's performance of work required under this Decree. A request for an extension may be deemed timely if submitted fewer than thirty (30) days prior to the deadline if the City of Everett could not reasonably have anticipated the need for an extension earlier. All extensions shall be requested in writing. The request shall specify the reason(s) the extension is needed.

An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. A requested extension shall not be effective until approved by Ecology or the Court. Ecology shall act upon any written request for extension in a timely fashion, preferably within fifteen (15) days of receipt of the request. It shall not be necessary to formally amend this Decree pursuant to Section XV when a schedule extension is granted.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

B. The burden shall be on the City of Everett 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 includes, but is not limited to, the following:

1. Circumstances beyond the reasonable control and despite the due diligence of the City of Everett, 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 of Everett; or

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

3. Endangerment as described in Section XVII.

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

C. Ecology may extend the schedule for a period not to exceed ninety (90) days, except where an extension is needed as a result of:

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

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

3. Endangerment as described in Section XVII.

Ecology shall give the City of Everett written notification in a timely fashion of any extensions granted pursuant to this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

XVII. ENDANGERMENT

In the event Ecology determines that activities implementing or in noncompliance with this Decree, or any other circumstances or activities, are creating or have the potential to create a danger to the health or welfare of the people on the Site or in the surrounding area or to the environment, Ecology may order the City of Everett to stop further implementation of this Decree for such period of time as needed to abate the danger or may petition the Court for an order as appropriate. During any stoppage of work under this Section, the obligations of the City of Everett with respect to the work under this Decree which is ordered to be stopped shall be suspended and the time periods for performance of that work, as well as the time period for any other work dependent upon the work which is stopped, shall be extended, pursuant to Section XVI of this Decree, for such period of time as Ecology determines is reasonable under the circumstances.

In the event the City of Everett determine that activities undertaken in furtherance of this Decree or any other circumstances or activities are creating an endangerment to the people on the Site or in the surrounding area or to the environment, the City of Everett may stop implementation of this Decree for such period of time necessary for Ecology to evaluate the situation and determine whether the City of Everett should proceed with implementation of the Decree or whether the work stoppage should be continued until the danger is abated. The City of Everett shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after such stoppage of work, and thereafter provide Ecology with documentation of the basis for the work stoppage. If Ecology disagrees with the City of Everett's determination, it may order the City of Everett to resume implementation of this Decree. If Ecology concurs with the work stoppage, the City of Everett's obligations shall be suspended and the time period for performance of that work, as well as the time period for any other work dependent upon the work which was stopped, shall be extended, pursuant to

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Section XVI of this Decree, for such period of time as Ecology determines is reasonable under the circumstances. Any disagreements pursuant to the clause shall be resolved through the dispute resolution procedures in Section XIV.

XVIII. INDEMNIFICATION

The City of Everett 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 loss or damage to property arising from or on account of acts or omissions of the City of Everett, its officers, employees, agents, or contractors in entering into and implementing this Decree. However, the City of Everett shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in implementing the activities pursuant to this Decree.

XIX. DISCLAIMER

This Decree does not constitute a representation by the State of Washington that the Site is fit for any particular purpose.

XX. COMPLIANCE WITH APPLICABLE LAWS

A. All actions carried out by the City of Everett pursuant to this Decree shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in paragraph B of this Section.

B. Pursuant to RCW 70.105D.090(1), the known and substantive requirements of chapters 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals for the remedial action under this Decree that are known to be applicable at the time of entry of the Decree have been included in the CAP (Exhibit C, and are binding and enforceable requirements of the Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Defendant 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 Decree. In the event either Ecology or the City of Everett determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree, it shall promptly notify the other party of this determination. Ecology shall determine whether Ecology or the City of Everett shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, the City of Everett 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 of Everett and on how the City of Everett must meet those requirements. Ecology shall inform the City of Everett in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Decree. The City of Everett shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

Ecology shall ensure that notice and opportunity for comment is provided to the public and appropriate agencies prior to establishing the substantive requirements under this Section.

C. 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 which is necessary for the State to administer any federal law, the exemption shall not apply and the City of Everett 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.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

XXI. REMEDIAL AND INVESTIGATIVE COSTS

The City of Everett agrees to pay costs incurred by Ecology pursuant to this Decree. These costs shall include work performed by Ecology or its contractors for, or on, the Site under Ch. 70.105D RCW subsequent to the issuance of this Decree for investigations, remedial actions, and Decree preparation, negotiations, oversight and administration. Ecology costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). The City of Everett agrees to pay the required amount within ninety (90) 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. Failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement will result in interest charges.

XXII. IMPLEMENTATION OF REMEDIAL ACTION

If Ecology determines that the City of Everett has failed without good cause to implement the remedial action, Ecology may, after notice to the City of Everett, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of the City of Everett's failure to comply with its obligations under this Decree, the City of Everett shall reimburse Ecology for the costs of doing such work in accordance with Section XXI, provided that the City of Everett is not obligated under this Section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Decree.

XXIII. FIVE YEAR REVIEW

As remedial action, including ground water monitoring, continues at the Site, the parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of site monitoring as often as is necessary and appropriate under the

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

circumstances. At least every five years the parties shall meet to discuss the status of the Site and the need, if any, of further remedial action at the Site. Ecology reserves the right to require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of the Decree.

XXIV. PUBLIC PARTICIPATION

Ecology shall maintain the responsibility for public participation at the Site regarding the remedial action under the CAP. However, the City of Everett shall cooperate with Ecology and, if agreed to by Ecology, shall:

A. 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 and engineering design reports. Ecology will finalize (including editing if necessary) and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings;

B. 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 regarding the cleanup action as required under the CAP. Likewise, Ecology shall notify the City of Everett prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments;

C. 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;

D. In cooperation with Ecology, arrange and/or continue information repositories to be located at the City of Everett and Ecology's Northwest Regional Office at 3190 - 160th Avenue SE, Bellevue, WA 98008-5452. At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured ground water, surface water, soil sediment, and

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

air monitoring data; remedial actions plans, supplemental remedial planning documents, and all other similar documents relating to performance of the remedial action required by this Decree shall be promptly placed in these repositories.

E. This Section applies only to public participation required under MTCA related to cleanup, monitoring and other actions addressed in this Decree and the CAP. It does not apply to redevelopment, zoning or other activities of the City of Everett at the Site.

XXV. DURATION OF DECREE

This Decree shall remain in effect and the remedial program described in the Decree shall be maintained and continued until the City of Everett has received written notification from Ecology that the requirements of this Decree have been satisfactorily completed. The Decree shall remain in effect until the City of Everett has received written notification from Ecology that the requirements of this Decree have been satisfactorily completed. Ecology shall provide such written notification or notice of any deficiencies in the completion of the requirements of this Decree within sixty (60) days of receiving notice from the City of Everett that the requirements of this Decree have been satisfied. Within sixty (60) days of the City of Everett's written notice that any noted deficiencies have been corrected, Ecology shall provide written notification that the requirements of the Decree have been satisfied or notice of any deficiencies that still remain. The provision set forth in Section XXVII (Contribution Protection); Section XXVIII (Covenant Not to Sue), Section XVIII (Indemnification) and such other continuing rights of the City of Everett or Ecology under this Decree shall survive the termination of this Decree pursuant to this paragraph. This Decree shall in no way limit the authority of Ecology to obtain all legal or equitable remedies available against persons not party to this Decree and against all persons, parties or non-parties, for releases of hazardous substances at the Site not addressed by this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Certifications by Ecology. The City of Everett Property may be redeveloped in phases. The City of Everett may from time to time provide notice and demonstrate to Ecology that it has attained cleanup levels for certain media in certain parts of the Property. In order to facilitate the timely redevelopment of the Property, Ecology shall, within a reasonable time of receiving such notice and adequate documentation (including, but not limited to, design reports and monitoring results), certify in writing that cleanup levels have been met in portions of the Property specifically requested. In addition to these certifications, Ecology shall within a reasonable time of receiving notice from the City of Everett that it has satisfactorily completed work, certify in writing that the City of Everett has completed all cleanup activities that are required pursuant to the CAP, with the exception of any required institutional controls and monitoring as described in the CAP.

XXVI. CLAIMS AGAINST THE STATE

The City of Everett and its Successors in Interest and Assigns, hereby agrees that it will not seek to recover any costs accrued in implementing the remedial action required by this Decree from the State of Washington or any of its agencies; and further, that the City of Everett or its Successors in Interest and Assigns will make no claim against the State Toxics Control Account or any Local Toxics Control Account for any costs incurred in implementing this Decree. Except as provided above, however, the City of Everett or its Successors in Interest and Assigns expressly reserves its right to seek to recover any costs incurred in implementing this Decree from any other potentially liable person. Nothing is this paragraph shall preclude the City of Everett from applying for State Toxics Control Account or any Local Toxics Control Account funding in the future.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

XXVII. CONTRIBUTION PROTECTION

With regard to claims for contribution against the City of Everett for matters addressed in this Decree, the City of Everett is entitled to protection from contribution actions or claims as is provided by MTCA, RCW 70.105D.040, or as otherwise provided by law.

XXVIII. COVENANT NOT TO SUE

A. In consideration of the City of Everett's compliance with the terms and conditions of this Decree, Ecology agrees that compliance with this Decree shall stand in lieu of any and all administrative, legal, and equitable remedies and enforcement actions available to Ecology against the City of Everett for the release or threatened release of known hazardous substances addressed pursuant to this Consent Decree and the CAP. For purposes of this paragraph, "known hazardous substances" shall include the hazardous substances identified in the Brownfield Feasibility Study conducted at this Site (RI/FS), which are described in the CAP and Paragraph V.5 of the Decree.

1. REOPENER: Ecology specifically reserves the right to institute legal or administrative action against the City of Everett following twenty (20) days written notice to Everett, seeking to require it to perform additional remedial action at the facility, and to pursue appropriate cost recovery in accordance with provisions set out in RCW 70.105D.050, under the following requirements:

(a) In the event that the City of Everett fails to comply with the terms and conditions of this Decree, including all exhibits.

(b) In the event new information becomes available regarding factors not known at the time of entry of this Decree which present a previously unknown threat to human health or the environment, and Ecology determines, in light of this information, that further remedial action is necessary at the facility to protect human health or

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

the environment, and the City of Everett, after notice from Ecology, fails to take necessary action within a reasonable time.

(c) In the event conditions at the facility cause an endangerment to human health or the environment under Section XVII of the Decree, and the City of Everett, after notice from Ecology, fails to eliminate the endangerment within a reasonable time.

(d) To the extent the City of Everett exacerbates the known, documented contamination described in this Decree and the CAP;

(e) In the event the City of Everett interferes with any remediation of the facility conducted or required by Ecology.

2. APPLICABILITY: The Covenant Not to Sue set forth above shall have no applicability whatsoever to:

(a) Criminal Liability;

(b) Liability for damages to natural resources; or

(c) Any Ecology action against potentially liable parties not a party to this Decree, including cost recovery.

XXIX. LAND USE RESTRICTIONS

A. For all property within the Site owned by the City of Everett, the City of Everett agrees to record the Restrictive Covenant (Exhibit F) with the office of the Snohomish County Auditor within twelve (12) months of the entry of this Decree. The Restrictive Covenant shall restrict future users of the Site. The City of Everett will provide Ecology with a copy of the recorded Restrictive Covenant within thirty (30) days of the recording date.

B. For those properties within the Site not owned by the City of Everett where residual concentrations of hazardous substances for which cleanup levels have been established in the CAP will exceed residential cleanup levels following completion of the cleanup action, the City of Everett will use its best efforts to obtain a recorded restrictive covenant that fulfills

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

the requirements of WAC 173-340-440 within eighteen (18) months from the date of entry of this Decree. If the City of Everett obtains a restrictive covenant for these properties, then the City of Everett agrees to record the restrictive covenant with the office of the Snohomish County Auditor. The City of Everett will provide Ecology with a copy of the recorded restrictive covenant within thirty (30) days of the recording date.

If after eighteen (18) months, the City of Everett has failed to record a restrictive covenant that fulfills the requirements of WAC 173-340-440 for these properties despite the use of best efforts, then the City of Everett may request Ecology's assistance in obtaining a restrictive covenant for these properties. The City of Everett may request Ecology's assistance prior to eighteen (18) months from the date of this entry of this Decree if the City of Everett can show that it used best efforts to obtain a recorded restrictive covenant and that further efforts are not likely to be successful. In providing assistance to the City of Everett, Ecology will undertake all reasonable efforts to facilitate the recording of the restrictive covenant pursuant to Chapter 173-340 WAC. The City of Everett's use of best efforts to obtain a restrictive covenant for these properties will satisfy its obligations under this subparagraph.

XXX. EFFECTIVE DATE

This Decree is effective upon the date it is entered by the Court.

XXXI. PUBLIC NOTICE AND WITHDRAWAL OF CONSENT

This Decree has been the subject of public notice and comment under RCW 70.105D.040(4)(a). As a result of this process, Ecology has found that this Decree will lead to a more expeditious cleanup of hazardous substances at the Site.

If the Court withholds or withdraws its consent to this Decree, it shall be null and void at the option of any party and the accompanying Complaint shall be dismissed without costs and without prejudice. In such an event, no party shall be bound by the requirements of this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

The undersigned parties enter into this Consent Decree on the date specified below.

SO ORDERED this _____ day of APR 02 2001 2000.

JUDGE
Snohomish County Superior Court

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

JIM PENDOWSKI
Program Manager, Toxics Cleanup Program

DATE: 3/7/01

CHRISTINE O. GREGOIRE
Attorney General

MARY SUE WILSON, WSBA #19257
Assistant Attorney General

DATE: 3-7-01

CITY OF EVERETT

MARK SOINE, WSBA #06664
City Attorney, for the City of Everett

DATE: 3/1/01

PRESTON GATES & ELLIS, LLP

ROSS A. MACFARLANE, WSBA #14863
Attorneys for Defendant the City of Everett

DATE: 2/28/01

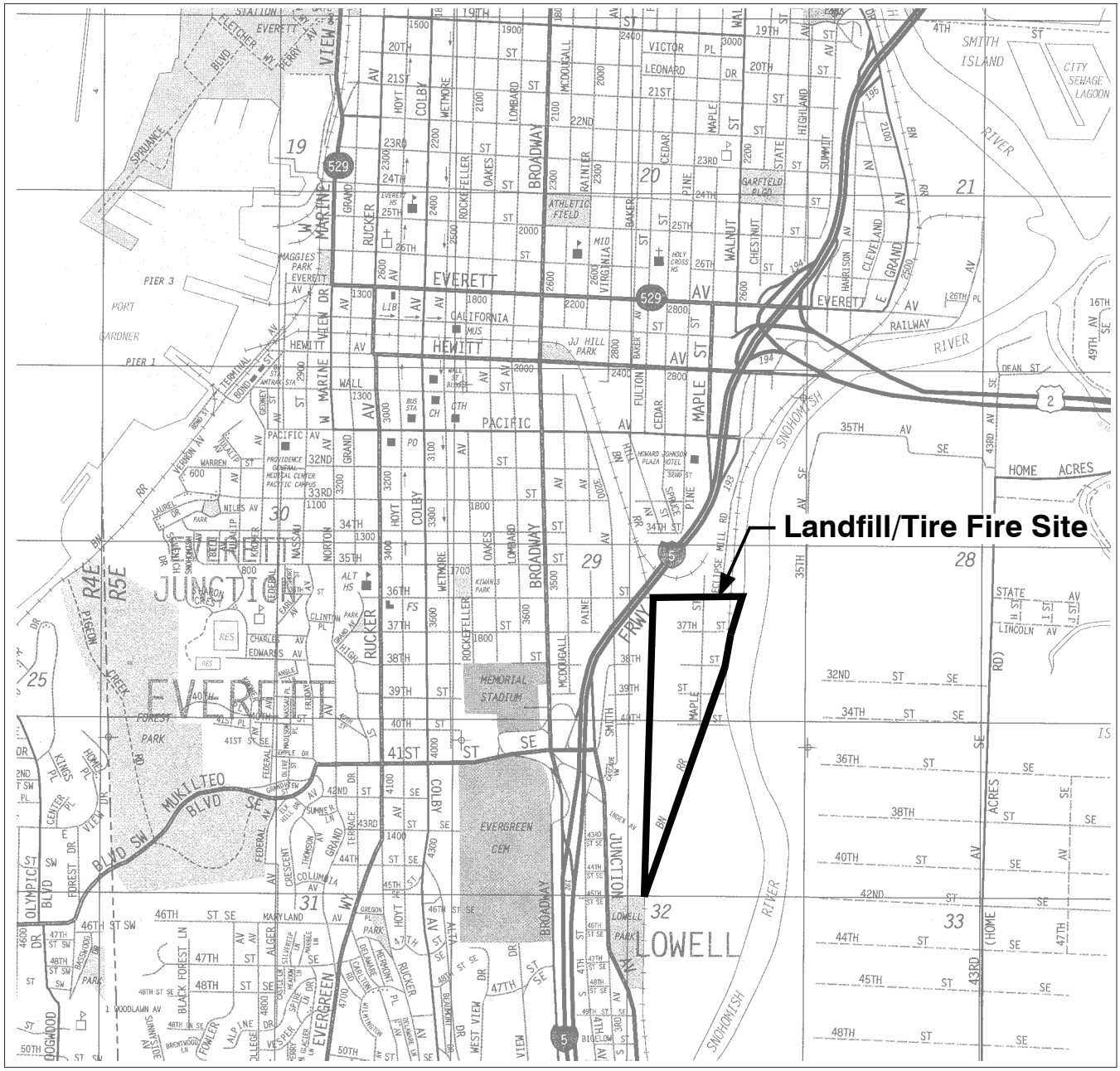
ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

EXHIBIT A

SITE DIAGRAM FOR THE CITY OF EVERETT PROPERTY

EVERETT LANDFILL/TIRE FIRE SITE

FINAL



NOT TO SCALE

Everett Landfill / Tire Fire Site

CONSENT DECREE EXHIBIT A
SITE DIAGRAM

9/15/00 \evrt2000\VicinityMap2.cdr

EXHIBIT B

LEGAL DESCRIPTION FOR THE CITY OF EVERETT PROPERTY

EVERETT LANDFILL/TIRE FIRE SITE

FINAL

RT-71) TH PTN OF BNRR R/W LY IN NE1/4 LESS THAT PTN OF BNRR R/W ASSESSED AS OPERATING PROPERTY EFFECTIVE 1-1-88 & LESS FDT - BEG AT INT OF N LN GOVT LOT 2 WITH A LN DRAWN PLW & 500FT ELY OF AS MEAS AT R/A TO W LN GOVT LOT 2 TH SLY PLW SD W LN GOVT LOT 2 TO PT OF INT WITH A LN DRAWN PLW & 150FT NWLY OF AS MEAS AT R/A TO SD RR CO'S NELY-BOUND MAIN TR C/L AS LOC & CONST 12-15-88 TH SWLY PLW SD NELY- BOUND MAIN TR C/L TO PT OF INT WITH A LN DRAWN PLW & 25FT ELY OF AS MEAS AT R/A TO BNRR COS SPUR TR C/L SERVICING OLD NP FREIGHT HOUSE AS LOC & CONST 12-15-88 TH NLY PLW SD SPUR TR C/L TO N LN GOVT LOT 2 TH ELY TO POB ALSO LESS FDT - ALL TH PTN BNRR COS 40FT WIDE CONNECTING TR R/W BEING 20FT WIDE ON EA SIDE OF SD RR COS HEREINAFTER DESC TR C/L IN GOVT LOT 2 LY BTW A LN DRAWN PLW & 500FT ELY OF AS MEAS AT R/A TO W LN SD GOVT LOT 2 & A LN DRAWN PLW & 50FT NWLY OF AS MEAS AT R/A TO SD RR COS NELY-BOUND MAIN TR C/L AS LOC & CONST 12-15-88 - CONNECTING TR C/L DESC - COM AT N1/4 COR SEC TH ELY ALG N LN SEC 846FT TO POB OF CRV CONCAVE TO N WITH A RAD OF 383.06FT SD PT BEING TPB OF CONNECTING TR C/L TO BE DESC - TH SWLY ALG SD CRV TO PT OF INT WITH A LN DRAWN PLW & 500FT ELY OF AS MEAS AT R/A TO W LN SD GOVT LOT 2 & THERE TERM

TH PTNS GOVT LOTS 5 & 6 IN SEC 29 & GOVT LOTS 2 & 3 IN SEC 32 DAF - BEG AT INT OF S R/W LN OF 36TH ST EXT WLY PER PLAT OF J.S. SINES AC TRS & A LN DRAWN PLW & 25FT ELY OF AS MEAS AT R/A TO BNRR COS SPUR TR C/L SERVICING THE OLD NP FREIGHT HOUSE AS LOC & CONST 12-15-88 TH ELY ALG SD S R/W LN OF 36TH ST TO NW COR BLK 13 IN J.S. SINES AC TRS TH SLY AT R/A TO LAST DESC CRSE TO PT OF INT WITH S LN SD GOVT LOT 6 TH WLY ALG S LN SD GOVT LOT 6 (ALSO BEING N LN SD GOVT LOT 2) TO PT OF INT WITH A LN DRAWN PLW & 500FT ELY OF AS MEAS AT R/A TO W LN SD GOVT LOT 2 TH SLY PLW SD W LN GOVT LOT 2 TO PT OF INT WITH A LN DRAWN PLW & 150FT NWLY OF AS MEAS AT R/A TO SD RR COS NELY-BOUND MAIN TR C/L AS LOC & CONST 12-15-88 TH SWLY PLW SD NELY-BOUND MAIN TR C/L TO PT OF INT WITH A LN DRAWN PLW & 25FT ELY OF AS MEAS AT R/A TO SD SPUR TR C/L SERVICING OLD NP FREIGHT HSE TH NLY PLW SD SPUR TR C/L TO POB

ALL TH PTN BNRR COS 40FT WIDE CONNECTING TR R/W BEING 20FT WIDE ON EA SIDE OF SD RR COS HEREINAFTER DESC TR C/L IN GOVT LOT 2 LY BTW A LN DRAWN PLW & 500FT ELY OF AS MEAS AT R/A TO W LN SD GOVT LOT 2 & A LN DRAWN PLW & 50FT NWLY OF AS MEAS AT R/A TO SD RR COS NELY-BOUND MAIN TR C/L AS LOC & CONST 12-15-88 - CONNECTING TR C/L DESC - COM AT N1/4 COR SEC TH ELY ALG N LN SEC 846FT TO POB OF CRV CONCAVE TO N WITH A RAD OF 383.06FT SD PT BEING TPB OF CONNECTING TR C/L TO BE DESC - TH SWLY ALG SD CRV TO PT OF INT WITH A LN DRAWN PLW & 500FT ELY OF AS MEAS AT R/A TO W LN SD GOVT LOT 2 & THERE TERM

ALL THAT PTN OF BLOCKS 13, 14, 16 (LESS WEST 30 FEET), 17, 18, 27, 28, 30 (LESS WESTERLY 50 FEET), 41 ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 11 RECORDS OF SNOHOMISH COUNTY, WASHINGTON TOGETHER WITH ABUTTING VACATED RIGHTS-OF-WAY ATTACHED THERETO BY OPERATION OF LAW.

CHICAGO TITLE INSURANCE COMPANY

A.L.T.A. COMMITMENT
SCHEDULE A
(Continued)

Order No.: 362156
Your No.: BURLINGTON

LEGAL DESCRIPTION EXHIBIT
(Paragraph 4 of Schedule A continuation)

PARCEL NO. 1:

A PORTION OF BLOCK 31 OF THE PLAT OF J.S. SINES ACRE TRACTS, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 11, RECORDS OF SNOHOMISH COUNTY, WASHINGTON DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTH LINE OF BLOCK 31, IN THE SAID PLAT OF J. S. SINES ACRE TRACTS 79 FEET WEST OF THE WEST LINE OF MAPLE STREET IN SAID PLAT OF J.S. SINES ACRE TRACTS;
THENCE EAST ALONG THE SOUTH LINE OF SAID BLOCK 31, A DISTANCE OF 79 FEET TO A POINT IN THE WEST LINE OF SAID MAPLE STREET;
THENCE NORTH ALONG SAID WEST LINE OF MAPLE STREET, A DISTANCE OF 401 FEET TO A POINT IN THE NORTH LINE OF SAID BLOCK 31;
THENCE WEST ALONG THE SAID NORTH LINE OF BLOCK 31, A DISTANCE OF 6.5 FEET TO A POINT;
THENCE IN A SOUTHWESTERLY DIRECTION FOLLOWING THE CIRCUMFERENCE OF A CURVE WITH RADIUS OF 1860 FEET A DISTANCE OF ABOUT 487.5 FEET TO PLACE OF BEGINNING.

TOGETHER WITH THAT PORTION OF THE SOUTH HALF OF 39TH STREET, THE NORTH HALF OF 40TH STREET AND WEST HALF OF MAPLE STREET ADJOINING VACATED BY ORDINACE #462 RECORDED UNDER AUDITOR'S FILE NUMBER 7708110131.

PARCEL NO. 2:

A PORTION OF BLOCK 40 OF THE PLAT OF J.S. SINES ACRE TRACTS, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 11, RECORDS OF SNOHOMISH COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE LINE BETWEEN SECTIONS 29 AND 32, TOWNSHIP 29 NORTH RANGE 5 EAST W.M., 670 FEET EAST OF THE QUARTER CORNER BETWEEN SAID SECTIONS 29 AND 32 AND 16 FEET EAST OF THE WEST LINE OF BLOCK 40 IN THE PLAT OF J.S. SINES ACRE TRACTS TO THE CITY OF EVERETT, WASHINGTON;
THENCE WITH AN ANGLE TO THE RIGHT OF 66°01' A DISTANCE OF 242 FEET TO A POINT;
THENCE ON THE CIRCUMFERENCE OF A CURVE TO THE LEFT WITH A RADIUS OF 1860 FEET TANGENT TO LAST DESCRIBED COURSE, A DISTANCE OF 136 FEET TO A POINT ON THE NORTH LINE OF BLOCK 40 OF THE SAID J.S. SINES ACRE TRACTS;
THENCE EAST FOLLOWING THE NORTH LINE OF SAID BLOCK 40 A DISTANCE OF 105 FEET TO A POINT ON THE WEST LINE OF MAPLE STREET IN THE SAID PLAT OF J.S. SINES ACRE TRACTS;
THENCE SOUTH FOLLOWING THE SAID WEST LINE OF MAPLE STREET, A DISTANCE OF ABOUT 56.5 FEET TO A POINT IN THE WEST LINE OF THE RIGHT OF WAY OF THE EVERETT & MONTE CRISTO RAILWAY COMPANY DESCRIBED IN THE ORDER OF THE COURT IN THE CONDEMNATION SUIT OF THE EVERETT & MONTE CRISTO RAILWAY COMPANY AGAINST J.S. SINES AND OTHERS AND RECORDED IN VOLUME 24 OF DEEDS AT PAGE 553, SNOHOMISH COUNTY RECORDS;
THENCE IN A SOUTHWESTERLY DIRECTION FOLLOWING THE WEST LINE OF SAID EVERETT & MONTE CRISTO RAILWAY COMPANY'S RIGHT OF WAY TO A POINT IN THE LINE BETWEEN

CHICAGO TITLE INSURANCE COMPANY

A.L.T.A. COMMITMENT
SCHEDULE A
(Continued)

Order No.: 362156
Your No.: BURLINGTON

LEGAL DESCRIPTION EXHIBIT
(Paragraph 4 of Schedule A continuation)

SECTIONS 29 AND 32, TOWNSHIP 29 NORTH, RANGE 5 EAST W.M., A DISTANCE OF ABOUT
FEET;
THENCE WEST ALONG SAID LINE BETWEEN SECTIONS 29 AND 32, A DISTANCE OF 149.5 FE
TO THE PLACE OF BEGINNING.

TOGETHER WITH THAT PORTION OF THE SOUTH HALF OF 40TH STREET AND OF MAPLE STRE
ADJOINING VACATED BY ORDINANCE #462-77 RECORDED UNDER AUDITOR'S FILE NUMBER
7708110131.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

EXHIBIT C

CLEANUP ACTION PLAN

EVERETT LANDFILL/TIRE FIRE SITE

FINAL

EXHIBIT C

EVERETT LANDFILL/ TIRE FIRE SITE

WASHINGTON STATE
Department of Ecology
TOXICS CLEANUP PROGRAM
Northwest Regional Office
Bellevue, Washington 98008

CLEANUP ACTION PLAN

March 2001

FINAL

DECLARATIVE STATEMENT

Consistent with Chapter 70.105D RCW, "Model Toxics Control Act", as implemented by Chapter 173-340 WAC, "Model Toxics Control Act Cleanup Regulation", it is determined by Ecology that the selected cleanup actions are protective of human health and the environment, attain Federal and State requirements which are applicable or relevant and appropriate, comply with cleanup standards and provide for compliance monitoring. The cleanup actions satisfy the preference expressed in WAC 173-340-360 for the use of permanent solutions within a reasonable time frame, and consider public concerns raised during public comment on the draft Cleanup Action Plan.

Sunny Lin

Hao (Sunny) Lin
Project Manager,
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

April 2, 2001
Date

Steve Alexander
Section Head,
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

3-29-01
Date

TABLE OF CONTENTS

List of Figures

Figures are located at the end of the document.

List of Tables

Tables are located at the end of the document.

List of Attachments

Attachments are located at the end of the document.

Abbreviation and Acronyms

ARAR	Applicable or relevant and appropriate requirements
ASIL	Acceptable Source Impact Levels
ATSDR	Agency for Toxic Substances and Disease Registry
BACT	Best available control technologies
BFS	Brownfield Feasibility Study
Black & Veatch	Black & Veatch Special Projects Corp.
BNSF	Burlington Northern Santa Fe Railroad
CAP	Cleanup Action Plan
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CMCP	Compliance Monitoring and Contingency Plan
COD	Chemical oxygen demand
c-PAHs	carcinogenic - Polynuclear Aromatic Hydrocarbons
Ecology	Washington Department of Ecology
EPA	U.S. Environmental Protection Agency
ERM	ERM-Northwest, Inc.
FSI	Floyd & Snider Inc.
kg	kilogram
L	liter
LEL	Lower explosive limit
MCL	Maximum contaminant level
MFS	Minimal Functional Standards for Solid Waste Handling
MSW	Municipal solid waste
MTCA	Washington Model Toxics Control Act
MW	Monitoring well
OSHA	Occupational Safety and Health Act
ppm	parts per million
PQL	Practical Quantitation Limit
PSCAA	Puget Sound Clean Air Agency
RCW	Revised Code of Washington
RI/FS	Remedial Investigation/Feasibility Study
SEPA	State Environmental Policy Act
SW	Surface water
SWPPP	Storm Water Pollution Prevention Plan
TBC	Standard To Be Considered
TPH	Total Petroleum Hydrocarbons
µg/L	Micrograms per liter
VOC	Volatile organic compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act

1.0 Introduction

1.1 CLEANUP ACTION PLAN

1.1.1 Purpose

This document presents the Cleanup Action Plan (CAP) for the Everett Landfill/Tire Fire Site (Site) in Everett, Washington. This document is required by the site cleanup process established by the Washington State Department of Ecology (Ecology) under Chapter 173-340 WAC, "Model Toxics Control Act – Cleanup Regulation" and meets requirements specified in WAC 173-340-360(10), Draft Cleanup Action Plan.

The purpose of the CAP is to:

- Summarize the status of the Site following the interim and independent cleanup actions.
- Describe the selected cleanup actions and compliance monitoring requirements for existing and future conditions.
- Provide a document through which public comment may be solicited regarding the cleanup actions.

The CAP is one in a series of documents used by Ecology to monitor the progress of site investigation and cleanup. A summary of site investigations and the Site's regulatory history is provided in Section 2.4 and Table 2-1.

1.1.2 Applicability

This Cleanup Action Plan is applicable only to the Everett Landfill/Tire Fire Site. The cleanup actions have been developed as an overall remediation process conducted with Ecology oversight.

1.1.3 Scope

The City of Everett (City) and Ecology have been working together for approximately 14 years to evaluate and control potential environmental risks from the closed Everett Landfill/Tire Fire Site. Following two interim actions conducted under Enforcement Orders to regrade and cap the Site and construct a leachate collection system (see Section 2.4.1), the City and Ecology entered into negotiation of a formal CAP and Consent Decree (CD) to finalize administrative requirements for cleanup. In early 1999, Ecology prepared a Draft CAP addressing landfill cleanup requirements. This Draft CAP assumed the Site would remain as a closed landfill, without substantial future redevelopment. This assumption did not reflect the City's current zoning and growth management plans for the Site.

Between August 1994 and July 1997, the City revised its Comprehensive Plan in accordance with Growth Management Act requirements. These Comprehensive Plan revisions were supported by an Environmental Impact Statement with substantial public involvement. The 1997 Comprehensive Plan prioritizes development of the Everett Landfill/Tire Fire Site "with

high quality development that provides public access to the river shoreline and includes a variety of activities and uses that aesthetically improve this highly visible part of the city." (City of Everett, 1997; page I-13). In August 2000, the City's Shoreline/Brownfields Committee adopted a vision statement for future development of the Landfill/Tire Fire Site "as a high quality, master planned *lifestyle entertainment center*." This vision statement is being refined in planned revisions to the City's Comprehensive Plan and Shoreline Management Plan. Although there is no specific proposal for redevelopment at this time, the City of Everett and Ecology believe that the selection of appropriate cleanup actions for the Site should include consideration of the range of uses contemplated in the City's comprehensive plans and zoning.

This CAP describes the evaluations and recommendations for cleanup action requirements under existing conditions, as well as under the range of potential future developed conditions consistent with the City's redevelopment vision. Proposed cleanup actions address four potential environmental exposure pathways that are relevant to the Everett Landfill/Tire Fire Site: gas, groundwater, direct contact, and surface water.

1.2 SITE OBJECTIVES

1.2.1 Objectives for Existing Conditions

Cleanup actions to prevent environmental exposure to contaminants along the groundwater and direct contact pathways have been previously implemented with Ecology approval. These actions are defined as:

- Minimum of two feet of clean soil cover
- Minimum 2 percent, maximum 33 percent grading requirement
- Leachate collection and treatment
- Public access controls (fence and locked gates) to all portions of the Site, except as required to allow public access to existing facilities (Animal Shelter, Transfer Station and City Yard)

Additional cleanup actions are necessary for existing conditions to prevent environmental exposure to contaminants along the gas and surface water pathways.

The Animal Shelter, Transfer Station and the City Yard are existing uses of the Site that will remain in the near term. These facilities were not constructed to meet the specific design criteria outlined in this CAP for new construction. Therefore, they must remain operational, with appropriate mitigation measures to address existing environmental exposure pathways. The selected cleanup alternative includes provisions to address continued operation of these facilities through specific monitoring and maintenance provisions.

Objectives for existing conditions are summarized as follows:

- Landfill/MTCA Site remediation:
  - Complete the definition of cleanup actions
  - Define and implement compliance monitoring plans
  - Prepare contingency plans

- Define and implement institutional controls
- Maintain integrity of cleanup actions already in place

- Existing uses to remain near-term

1.2.2 Objectives for Future Conditions

The City, as landowner, is seeking to facilitate potential future development of the Everett Landfill/Tire Fire Site consistent with its Comprehensive Plan. This goal is supported by the United States Environmental Protection Agency (USEPA) through that agency's Brownfields Pilot Program, and by Ecology.

As noted above, the City does not have a specific development proposal at this time. Instead, the CAP considers potential exposure pathways and remediation alternatives associated with the range of future uses contemplated under the Comprehensive Plan and existing zoning. Under potential future developed conditions, Site use and access characteristics will change. Additionally, development may alter contaminant pathways at the Site.

The selected cleanup alternative and environmental requirements for potential future development ensures that all exposure pathways remain controlled during and after development. The following objectives for future conditions ensure that all potential exposure pathways at the Site are permanently controlled based on all applicable regulatory requirements and a use and access scenario consistent with the Comprehensive Plan:

- Define additional cleanup actions
- Define development restrictions
- Define and implement compliance monitoring plans
- Prepare contingency plans
- Define and implement institutional controls

Inclusion of these requirements in the CAP provides the City and subsequent owners or developers of the Site with an approved understanding of site constraints under MTCA necessary to proceed with stimulating redevelopment consistent with the Comprehensive Plan. It also ensures that these MTCA requirements will be implemented and enforced in potential future developments.

In order to do this, the CAP specifies remedial measures for the broad range of uses defined in the Comprehensive Plan and Zoning Code, to the extent consistent with Site cleanup objectives. Many of the remedial measures for future conditions will be contingent upon and phased with future development. The CAP recognizes that the City may transfer property ownership to potential purchasers.

For future development, this CAP only specifies remedial action requirements. It does not address other environmental or permit requirements that may apply. Any potential future development will undergo SEPA review, and obtain all necessary permits and approvals that may include, but not be limited to, shoreline permits, floodplain development permits, review under the Endangered Species Act, land use and building permits.

2.0 Site Description and History

2.1 SITE DESCRIPTION

The City of Everett Landfill/Tire Fire Site (Site), located west of the downtown Everett business district, is approximately 70 acres in size, of which approximately 66 acres have been landfilled. The landfill is generally bounded by 36th Street to the north, Burlington Northern Santa Fe (BNSF) railroad tracks (spur "turkey" track and mainline) to the west, and two BNSF tracks to the east. The junction of the BNSF west turkey track and the westernmost eastern track forms the southerly point of the triangular Site. On both the western and eastern sides of the landfill, the Site boundary is defined as the innermost edge of ballast for the BNSF tracks. The Site therefore includes some portion of BNSF right-of-way in these areas. Category I wetlands and the Snohomish River are east of both the landfill and the BNSF spur lines. The old Simpson mill site is located south and southeast of the landfill. See Figure 2-1, Vicinity Map, and Figure 2-2, Site Map.

Various portions of the landfill Site were historically used for landfill purposes from approximately 1917 to 1974. Originally, waste was placed on the northern portion of the Site in the low-lying lands within the Snohomish River floodplain, between the western and eastern railroad tracks. Because the ballasts of the railroad tracks were in place prior to the placement of refuse, the Site is bounded by the innermost tracks. Therefore, the Site is bounded on the east and west side by the ballast of the tracks closest to the landfill: the ballast of the easternmost western track (turkey track) and the ballast of the westernmost eastern track. The Site is defined on the north by the current property boundary. Land west of the turkey track as well as land east of the innermost eastern track is not considered part of the Landfill/Tire Fire Site.

The thickest part of the landfill refuse, at 30 to 35 feet thick, is located within the center portion of the landfill. The thickest areas of refuse also correspond with former drainages or "ravines" – as described by former landfill operators. Elsewhere on the Site, the average refuse ranges from 10 to 30 feet. Along the eastern edge of the Site, boring and well logs document over 20 feet of wood debris, including wood chips, sawdust, and logs. This material is reportedly demolition wood debris and other waste from former mills located in the proximity of the Site.

Soils directly beneath the refuse on the eastern two-thirds of the Site are characterized by recent alluvium, which is also referred to as the aquitard layer. These alluvial soils are comprised of peat at the surface, and underlain and interbedded by soft silt and clay soils. The deposits are five to 40 feet thick and generally exhibit low shear strength and high compressibility. The aquitard layer separates the shallow (leachate) aquifer from the deep aquifer and is considered a significant barrier to vertical flow between the two aquifers where it is present. Hydraulic conductivity testing of the aquitard material has indicated low permeability characteristics.

The refuse on the western third of the Site is underlain by transitional beds and shallower glacial soils. The transitional beds consist predominantly of thinly bedded stiff to hard clay and silt with some fine sand and sand interbeds and occasional coarser-grained sands and fine gravel layers. This geologic unit has generally horizontal contacts with the surrounding strata and is

about 25 to 30 feet thick. The transitional beds are underlain by medium dense to very dense, slightly silty to clean sand.

Two man-made perimeter drainage ditches, the East and West Ditches, are within the Site boundary. The East Ditch, recently classified as a Category III wetland (Associated Earth Sciences, Inc., 2000), discharges through culverts into the Snohomish River. An additional ditch, the Mid-East Ditch, is located between the two eastern railroad tracks and is not within the Site boundary. An elevated railroad ballast separates the two ditches. The Mid-East Ditch does not directly receive runoff from the landfill. The Mid-East Ditch has been classified as a Category I wetland due to its hydrological connection to the off-site Category I wetlands located between the most easterly BNSF tracks and the Snohomish River, east of the Site.

Ponded water exists in the southern point of the triangular Site, outside the landfill security fence. The ponded water is bounded on the west by the BNSF "turkey" track, on the east by the westernmost of the two eastern tracks and to the north by the southern slope of the landfill. This ponded water discharges into the East Ditch. There are three inflows to this pond: 1) a large upland off-site watershed, 2) the West Ditch, and 3) a culvert near the intersection of the BNSF tracks.

2.2 SITE HISTORY

Over the years, the Site was used as a burn dump, a scrap metal recycling and burial yard, and a municipal landfill. The southern portion of the Site was the last active fill area, and November 1974 was the last month that waste was received. The next year, the entire landfill was graded and closed in compliance with the then current Regulations Relating to Minimum Functional Standards for Solid Waste Handling (WAC 173-301) and a 12-inch soil layer was placed over the waste and seeded.

In 1977, a commercial recycling operation began storing and handling old rubber tires within the central and eastern half of the landfill. Subsequently, two separate fires occurred in the tire piles – one in 1983 and one in 1984. The residue and ash from these fires caused Ecology to request the City perform an environmental characterization of the tire fire ash. The City conducted a preliminary assessment in 1985 and a Remedial Investigation and Feasibility Study (RI/FS) in 1986. The Site was listed in 1989 under the newly enacted Model Toxics Control Act because of concerns relating to the Tire Fire ash. Subsequent regulatory actions and interim and independent cleanup actions implemented to address concerns at the Site are described in Section 2.4.

2.3 EXISTING FACILITIES AND UTILITIES

Currently, three separate facilities operate on the Site: the City of Everett Animal Shelter (Animal Shelter), the City of Everett General Maintenance and Storage Facility (City Yard), and the Everett Recycling and Transfer Station (Transfer Station) operated by Snohomish County. The only access to the Site is from 36th Street East, an existing city road that provides access to both the facilities on the landfill and industrial properties to the north.

The existing Animal Shelter, at the northwestern corner of the landfill property, was constructed in 1996 with approval from the City building department, the City Fire Department and Ecology. Building construction details included a landfill gas barrier consisting of a geomembrane liner and sand vent layer beneath a slab foundation. The area on which it was constructed has shallow waste thickness.

Established in the late 1970s, the City Yard, accessible only to City employees, is used to store construction materials such as gravel, topsoil, and drainage and sewer pipes. Large equipment, such as street sanders, is also stored on-site. The only structure is a simple covered shelter (approximately 20 feet by 120 feet), used to protect a sand and salt stockpile. The City Yard is also used as a recycling center for non-hazardous materials that the City has excavated over the course of work elsewhere in Everett. Equipment present for this purpose includes sifters and rolling drums that are used for classifying the material. Stormwater run-off from the City Yard is collected and sent to the sanitary sewer system for treatment.

The Transfer Station, operated by Snohomish County on property leased from the City, was built nearly 25 years ago in the northeast portion of the Site. The area on which it was constructed is composed of some of the thicker and oldest refuse fill. The facility consists of a pile-supported structure, employee lunchroom trailer, truck scale and scale house, and associated gravel surfaced and asphalt paved areas. Approximately 50 steel piles were installed for the foundation, through the waste to the bearing layers below.

Existing utilities serving the Site are minimal and primarily support the existing facilities. These utilities include underground water, electrical, and sewer lines. The majority of the underground utilities are located along the perimeter of the Site.

Currently, the City maintains the unused portions of the Site. In conformance with Ecology requirements for landfill closure, the landfill soil cover is graded to a minimum of 2 percent (33 percent maximum), and hydroseeded for grass establishment. A secured fence surrounds the unused portions of the Site.

2.4 REGULATORY HISTORY

Following the tire fires in 1983 and 1984, Ecology asked the City to perform an environmental characterization of the tire fire areas. The City conducted a preliminary assessment in 1985 and a RI/FS in 1986. In 1989, the year MTCA was enacted by the State, Ecology performed a Preliminary Assessment of the Everett Landfill/Tire Fire Site and listed the Site on the site register. Ecology subsequently notified Potentially Liable Parties, including the City and BNSF. In the following year, 1990, Ecology issued a Consent Order for ash sampling and investigation of the Tire Fire Site. An Enforcement Order followed after 4 years of sampling and studies that led the way for two Interim Actions, completed by the City, to address regrading, capping, and leachate collection. Refer to Table 2-1 for a comprehensive list of regulatory actions.

2.4.1 Interim and Independent Cleanup Actions

The first Interim Action construction, “Everett Landfill Site Grading,” began in the fall of 1995. This project provided for improvements to the site grading and the control of surface water. The entire Site (except for the two tire fire areas) was graded to allow the collection and control of

surface water and to reduce leachate generation. An additional two feet of soil cover was placed over the waste areas, and the East Ditch was regraded to improve drainage.

The second Interim Action occurred in 1997 and 1998 for the installation of the leachate collection trench and transmission system. This project provided a geomembrane cover on the eastern side slopes of the landfill to control leachate seeps and thus avoid overland transit of leachate to the East Ditch. The leachate collection system consists of a lined leachate collection trench, two pump stations, a force main and access road. Additional interim action measures included site fencing, site cover and control of water on the eastern portion of the Site, removal off-site of remaining tires, and on-site disposal of tire fire ash. Ash from the 1983 tire fire was moved to the site of the 1984 fire. This tire fire area was then filled with spoils from the leachate trench and capped with two feet of clean fill. The placement of two feet of clean soil was deemed appropriate by Ecology because the tire fire ash was no longer classified as dangerous waste under the new Dangerous Waste Regulations (Chapter 173-303 WAC, amended November 1996).

While not part of the formal Interim Action, the City also conducted an independent action removing one to two feet of debris and soil from the East Ditch to address debris and potential sediment contamination (Black & Veatch, 1995) in the ditch. Excavated material from the East Ditch was placed within the landfill and covered with four feet of clean soil.

2.4.2 Brownfields Pilot Project

In the fall of 1998, the City received an EPA Brownfields Pilot Project Grant to evaluate redevelopment requirements for the former landfill and adjacent Simpson properties. Under the Brownfields Pilot Project grant, the City produced a summary of existing conditions, performed a geotechnical investigation of the Site, and produced a preliminary evaluation of requirements that would be necessary to allow potential future redevelopment consistent with the Comprehensive Plan, while ensuring the environmental integrity of the Site. This preliminary evaluation of environmental requirements for Site redevelopment was reviewed with Ecology. Ecology requested the preparation of a Brownfields Feasibility Study to support definition of environmental cleanup requirements in the CAP that could anticipate future Site redevelopment consistent with the Comprehensive Plan.

3.0 Cleanup Standards and Nature and Extent of Contamination

Applicable or relevant and appropriate requirements (ARARs), cleanup standards and a summary of the nature and extent of contamination for each environmental exposure pathway are described in the following sections.

3.1 GAS EXPOSURE PATHWAY

3.1.1 Gas ARARs

Potential ARARs for the Everett Landfill/Tire Fire Site are described in attachment CAP-1. ARARs specific to the landfill gas exposure pathway are summarized below.

- MTCA regulations indicate that the "solid waste closure requirements of Ch. 173-304 WAC" shall be minimum requirements for cleanup actions for solid waste landfill cleanups [WAC 173-340-710(6)(c)]. Closure standards are found in Section 173-304-407, *General closure and post-closure requirements.* Ecology has determined that requirements of WAC 173-304-460 (3)(e) and (f) are relevant and appropriate for gas management.
- When monitoring during the post-closure period, the minimum functional standards for performance for air quality and toxic air emissions of WAC 173-304-460(2)(b) are appropriate. Ecology and the City have agreed that 100 ppm by volume of hydrocarbons, expressed as methane, is an appropriate action level for publicly accessible structures built on the landfill that are not associated with solid waste handling and disposal.
- MTCA requires that best available control technologies (BACT), consistent with the requirements of Chapter 70.94 RCW, be applied to releases of hazardous substances to the air resulting from cleanup actions at the Site [WAC 173-340-710(6)(b)].
- The Puget Sound Clean Air Agency's (PSCAA) Regulation III focuses on toxic air pollutants including those emitted by landfills. Regulation III requires new sources, and in some cases existing sources, to demonstrate that emissions from the source do not cause or contribute concentrations of toxic air pollutants at levels that could pose a threat to human health or welfare. PSCAA uses Acceptable Source Impact Levels (ASILs) for specific air toxics, which are provided in the regulations as screening tools for identifying those cases that deserve more scrutiny.

3.1.2 Gas Cleanup Standards

Cleanup levels for ambient air concentrations of landfill gas pollutants are established using Method B [WAC 173-340-750(3)]. Method B is used to calculate proposed cleanup levels except as noted below.

Background concentrations are used as cleanup levels for the pollutants where background information is available and it exceeds the cleanup standard calculated by Method B. Values for

air pollutant background concentrations are from the Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profiles.

In some cases, both the background concentration and the cleanup level calculated by Method B are lower than the Practical Quantitation Limit (PQL) for that particular compound. In those cases, MTCA allows the PQL to be used as the cleanup level [WAC 173-340-700(6)].

Table 3-1 presents the cleanup levels for all detected air pollutants at the Everett Landfill/Tire Fire Site. The cleanup level is the concentration calculated by the Method B equation of WAC 173-340-750(3). If the Method B level is less than the natural background, then the background concentration is proposed as the cleanup level. If the laboratory PQL is greater than both the Method B concentration and the background concentration, then the laboratory PQL concentration is proposed as the cleanup level. If the compound is not listed in the MTCA CLARC II Update, then no cleanup level is proposed.

3.1.3 Nature and Extent of Gas Contamination

The following conclusions are derived from the information presented in the Brownfield Feasibility Study (BFS) (FSI, 2000):

- Generation of landfill gas is approximately 230 cubic feet per minute (cfm) and is declining at a rate of approximately 7.5 cfm per year over the next ten years. In 2010, it is projected to be about 155 cfm and will continue to decline steadily.
- The impacts of landfill gas emissions on ambient air do not exceed MTCA cleanup standards.
- Insufficient data exists to fully determine the extent and magnitude of subsurface migration of landfill gas beyond the Site boundary.
- Landfill gas perimeter monitoring probes along the east, north and west property boundaries are finished in refuse, or in immediate proximity to it, and data from these probes are not representative in relation to establishing whether or not landfill gas is migrating past the Site boundary. These probes are not part of a proposed future compliance monitoring system. Figure 3-1 shows existing landfill gas probes as well as proposed locations for compliance monitoring probes.
- Native, organic, peat soils beneath the surface may contribute to the presence of methane on the east and north Site boundaries.
- Buried refuse extends beyond some portions of the boundary of the City's property.
- There have been two occasions where flammable gas was detected above 100 ppm during off-site building monitoring. One was in a roof drain that connects directly to a manhole of the City's sewer system. The other was recorded from floor cracks where the instrument was drifting between non-detect and a maximum of 120 ppm. Neither measurement has been repeated during subsequent monitoring rounds.
- The highest flammable gas concentration measured in the Animal Shelter and Everett Transfer Station from several separate monitoring events was approximately 7,000 ppm within the women's restroom floor drain, approximately 15% of the explosive limit of 50,000 ppm. The flammable gas concentration measured just two inches above the floor drain was less than 20 ppm for all monitoring events. There was no evidence of accumulation of methane gas within the restroom above the floor

drain. The drain has been sealed and currently no landfill gas is detectable within the restroom.

3.2 GROUNDWATER EXPOSURE PATHWAY

3.2.1 Groundwater ARARs

Potential ARARs for the Everett Landfill/Tire Fire Site are described in an attachment CAP-1. ARARs specific to the groundwater exposure pathway are summarized below.

- Water Quality Standards for the Surface Waters of the State of Washington, Section 90.48 RCW; Section 173-201A WAC
- Federally Promulgated Water Standards, 40 CFR 131 and 141
- Group A Public Water Systems, Chapter 246-290-310 WAC

3.2.2 Groundwater Cleanup Standards

Cleanup standards [WAC 173-340-700] consist of selected appropriate levels of cleanup applied at a defined point of compliance. Appropriate levels of cleanup for groundwater are determined by the highest beneficial use of that groundwater. For the Everett Landfill/Tire Fire Site, cleanup standards are slightly different for the shallow (leachate) aquifer and the deep aquifer.

3.2.2.1 Shallow (Leachate) Aquifer

The shallow (leachate) aquifer is not a current or potential drinking water source. Water in this aquifer is collected and conveyed off-site for treatment by the leachate collection system. Shallow aquifer cleanup standards are therefore based on the protection of water quality in the deep aquifer and in the adjacent surface water bodies.

The shallow aquifer point of compliance is located on the strip of land between the leachate collection trench and the East Ditch. Compliance criteria for the shallow aquifer will be based on hydraulic control through operation of the leachate collection system. Demonstration of hydraulic control would occur by monitoring water levels to show that hydraulic gradients are toward the leachate collection system, indicating no shallow aquifer discharge to surface water. If, at some point in the future, shallow (leachate) groundwater quality meets cleanup levels, hydraulic control through operation of the leachate collection system would no longer be necessary.

3.2.2.2 Deep Aquifer

The deep aquifer located under the Landfill/Tire Fire Site is a potential future source of drinking water under MTCA although currently cannot be used directly for drinking water purposes per well installation regulations. The deep aquifer does, however, discharge to the Snohomish River, which is classified as a potential drinking water source. Therefore, deep aquifer cleanup levels are based on:

1. The most stringent of the following standards: MTCA A or MTCA B for groundwater (drinking water standards), drinking water maximum contaminant levels (MCLs), or surface water standards based on consumption of organisms, OR

2. Method PQL, OR
3. Accepted background concentrations if higher than the lowest (most stringent) cleanup level determined via #1, above.

Since the highest beneficial use of Site groundwater is proposed to be the protection of surface water quality, the proposed point of compliance for the deep aquifer is located:

1. Downgradient of the landfill, between the landfill and the point of discharge into the Snohomish River,
2. Outside the boundary of landfilled materials,
3. No further than 100' east of the most easterly existing railroad tracks, and
4. Within property able to be restricted by institutional controls under the Consent Decree (property controlled by the City or BNSF).

Appropriate institutional controls prohibiting the withdrawal of groundwater for domestic water supply are included to ensure that if existing regulations change, the restriction will remain with the Site in perpetuity.

3.2.3 Nature and Extent of Groundwater Contamination

Groundwater samples collected from the Everett Landfill/Tire Fire Site indicate that water quality in the deep aquifer is generally in compliance with cleanup standards. This condition is evident in data from both the earlier and recent site investigations. Evaluation Monitoring as described in the Compliance Monitoring and Contingency Plan (CMCP, attachment CAP-2) will utilize consistent sampling procedures and an improved monitoring well network in order to confirm conditions in the deep aquifer. Shallow aquifer data do not indicate that widespread contamination exists in the leachate. See Tables 3-2 and 3-3 for contaminants detected in the deep and shallow aquifers. Figure 3-2 shows the existing groundwater monitoring well network.

All groundwater data collected to date support the conclusion that there is a low risk of shallow groundwater impacting the deep aquifer above the cleanup levels even at a significant distance upgradient of the compliance point. Reasons for this conclusion are as follows:

- High natural organic content of shallow aquifer material, including significant quantities of peat, enhances degradation of contaminants.
- Horizontal flow in the shallow aquifer is two to four orders of magnitude greater than potential vertical flow through the aquitard.
- Low groundwater flow gradients and low permeability sediments present in both aquifers allow time for chemical breakdown reactions to occur.
- The leachate collection trench, installed as an interim action under an Ecology Enforcement Order, acts as a hydraulic barrier for the shallow aquifer preventing flow of leachate to the east.
- The western one-third of the landfill overlies natural glacial silt and sand soil that are not considered aquitard soils (i.e., the clayey silt or organic soil). Refuse has been placed in this western one-third of the landfill and has generated leachate (based on observed conditions during recent drilling). Monitoring Wells MW-2, -4, -10, and -15 were completed in this part of the landfill where the aquitard is absent. Water quality

data from these wells indicate that even where there is no separation between the shallow aquifer and the deep aquifer, there has not been a significant impact to the deep aquifer.

- Existing cover soils on the Everett Landfill/Tire Fire Site have significantly reduced potential recharge from precipitation and near surface stormwater recharge to the shallow aquifer. Improvements in site cover will further reduce the amount of leachate generated.
- Contaminant concentrations detected in the shallow aquifer are below cleanup levels in most instances. Variable exceedances have occurred in discrete wells. Overall, the data do not indicate that widespread contamination remains in the leachate, which, as presented in the previous section, is consistent with the landfill setting and history.

Analytical testing indicates that only four compounds (bis(2-ethylhexyl)phthalate, copper, lead, and zinc) have been detected in the deep aquifer in exceedance of cleanup levels. Bis(2-ethylhexyl)phthalate was the only such exceedance in the most recent (1999) deep aquifer sampling event, and this compound exceeded cleanup levels in only two wells. Because the sampling procedures and monitoring well network have varied between sampling rounds, Evaluation Monitoring will determine if deep aquifer exceedances are statistically significant (e.g., bis(2-ethylhexyl)phthalate may be a laboratory contaminant; metal exceedances may be due to excess sample turbidity or describe area background conditions).

3.3 DIRECT CONTACT EXPOSURE PATHWAY

3.3.1 Direct Contact ARARs

Potential ARARs for the Everett Landfill/Tire Fire Site are described in an attachment CAP-1. ARARs specific to the direct contact exposure pathway are listed below.

- Occupational Safety and Health Act (OSHA), 29 U.S.C. 653, 655, 657; Occupational Safety and Health Standards, 29 CFR 1910
- Washington Industrial Safety and Health Act (WISHA), RCW 49.17; Washington Industrial Safety and Health Regulations, WAC 296-62, WAC 296-155

3.3.2 Direct Contact Cleanup Standards

In order to address the potential direct contact hazards of buried refuse and tire fire ash, performance objectives, rather than cleanup levels, are proposed.

1. Prevent public contact with landfill materials. In this case, the public is defined as any individual not trained in health and safety precautions, *and* not associated with construction or maintenance activities at the Site.
2. Control vector and nuisance conditions, such as human pathogen vectors and exposed refuse.

The point of compliance for this pathway is at the surface of the Site, where either humans or wildlife could come in direct contact with contaminated material. Under both existing and future

Site conditions, surface materials that could be available for direct contact to Site users must meet direct contact cleanup levels.

3.3.3 Nature and Extent of Contamination

The Everett Landfill/Tire Fire Site does have buried refuse, tire ash, and potentially contaminated sediments that could be hazardous if directly contacted. These materials must be isolated from direct contact with Site users who are not trained in health and safety requirements for contaminated material. The interim and independent cleanup actions, completed in 1995 and 1998, buried the tire ash, debris and sediments/spoils from the East Ditch, and refuse material under a minimum two-foot cap of clean soil. This soil cap is vegetated with grass and maintained by the City. This remedy prevents direct contact with buried refuse, East Ditch spoils and tire ash, and facilitates the prevention of erosion. Additionally, in order to prevent unauthorized access, a secured fence has been installed around the unused portions of the Site to prevent penetration of the site cover by untrained personnel.

3.4 SURFACE WATER EXPOSURE PATHWAY

The surface water pathway also describes conditions relative to sediment in drainage ditches.

3.4.1 Surface Water ARARs

Potential ARARs for the Everett Landfill/Tire Fire Site are described in an attachment CAP-1. ARARs specific to the surface water exposure pathway are listed below.

- Water Quality Standards for the Surface Waters of the State of Washington, Section 90.48 RCW; Section 173-201A WAC
- Federally Promulgated Water Standards, 40 CFR 131
- Clean Water Act, NPDES Permit Program, 33 USC 1251; 40 CFR 123; Section 90.48 RCW; Section 173-220 WAC
- City of Everett Drainage Ordinance

3.4.2 Cleanup Standards

The groundwater cleanup levels described in Section 3.2.2 are applicable to surface water as well. The Snohomish River is the receiving water body for surface water runoff from the Everett Landfill/Tire Fire Site.

MTCA Method A cleanup levels for residential soils [WAC 173-340-740(2)(a)] are cleanup standards for sediment in the perimeter ditches. These ditches are accessible beyond the landfill boundary fence. Sediments in the ditch are evaluated based on a direct contact pathway risk.

The principal receiving water body is the Snohomish River. The point of compliance for surface water is where the drainage discharge from the landfill discharges into the outlet to the Snohomish River. The compliance point, surface water drainage features and previous sampling locations are shown on Figure 3-3.

The potential exposure pathway for sediments in the perimeter ditches is direct contact. The point of compliance for direct contact is the exposed surface of the sediments.

3.4.3 Nature and Extent of Contamination

3.4.3.1 Surface Water

Surface water cleanup levels were exceeded in the most recent (November 1999) sampling for copper, nickel and zinc at SW-4 in the West Ditch (see Figure 3-3 for sampling locations). This location receives surface water runoff contribution from the small, western watershed of the landfill. It also receives a small contribution from the BNSF spur (turkey) line. The source of the zinc, copper, and nickel could have originated from either the landfill surface or the spur rail line. Additional investigation will be required to verify the validity of this sample result and determine its likely source.

Zinc only slightly exceeded the surface water cleanup levels at SW-2, the discharge into the Snohomish River. Copper and nickel were below cleanup levels at SW-2. The concentrations of zinc, copper and nickel measured at SW-1 (where the northern reach of East Ditch discharges from the Everett Landfill/Tire Fire Site) were less than the cleanup levels. No other surface water samples were collected between SW-4 (West Ditch) and SW-2. Nor were any samples collected at the confluence of the north and south reaches of East Ditch before its discharge to the drainage channel to the Snohomish River. Although it is possible that the zinc result at SW-2 represents a dilution of the higher reading at SW-4, there are insufficient data to reasonably draw that conclusion. Additional monitoring is required to further evaluate the validity, extent and source of the zinc results. Future compliance monitoring is required to include sufficient sampling sites to differentiate between contamination potentially originating from the landfill and contamination originating from off-site sources.

3.4.3.2 Ditch Sediment

The cleanup level for total c-PAHs was exceeded at location SED-3 in the most recent (November 1999) sampling. This location is considered background to the East Ditch. Environmental Partners (1999) discovered c-PAHs in the Mid-East Ditch, outside any runoff from the landfill. This suggests another source of c-PAH contamination other than the landfill. One such source could be rail ties from adjacent rail lines.

The slight arsenic exceedance in the duplicate sample SED-6 is not considered representative given the substantially lower arsenic concentration in the other duplicate sample, SED-5. When averaged, the result is well below the cleanup standard.

The cleanup level for TPH, as measured in March 1997, was exceeded at an off-site sampling location where the culvert carrying flow from the East and Mid-East Ditches discharges to the Snohomish River. TPH is likely originating from urban runoff from the upland drainage basin and from runoff from the adjacent railroad tracks. Environmental Partners (1999) also found TPH-D (diesel) at 180 ppm and TPH-O (heavy oil) at 1,500 ppm in Mid-East Ditch sediments where the Mid-East Ditch discharges to the channel flowing to the Snohomish River. Since the sampling location is off-site and the Mid-East Ditch is not subject to landfill runoff, these results support the conclusion that any TPH is originating off-site.

4.0 Existing Conditions: Proposed Cleanup Action

The proposed cleanup action for existing conditions is applicable to current landfill conditions, and to any portions of the Site that remain undeveloped in future conditions.

The proposed cleanup action for existing conditions includes all of the following:

- Control of landfill gas through compliance monitoring and contingency plans for existing on-site buildings and representative off-site buildings. New perimeter compliance monitoring probes will be installed. Perimeter landfill gas migration controls will be installed if compliance monitoring demonstrates landfill gas is migrating past the Site boundary.
- Groundwater protection through continued operation and maintenance of the existing leachate collection system, maintenance of landfill cover, grading of surface topography to control surface water and to reduce the production of leachate, and institutional controls preventing groundwater withdrawal other than for leachate collection or monitoring.
- Direct contact exposure prevention through maintenance of existing landfill cover, erosion controls and access controls.
- Surface water pathway protection through maintenance of existing landfill cover and perimeter ditch system, as well as site inspections for and appropriate responses to possible leachate seeps, on-site ponding and existing stormwater system disruptions due to differential settlement.
- Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for existing conditions.
- Associated institutional controls and comprehensive compliance monitoring.

4.1 PHYSICAL CHARACTERISTICS

The proposed cleanup action for existing conditions relative to the groundwater, surface water and direct contact pathways would not change any physical characteristics of the existing Site.

A minimum of two feet of clean soil cover would be maintained on all portions of the Site, graded to a minimum of 2% slope, and vegetated. Surface water would not be allowed to pond on the Site. The existing leachate collection system would remain operational.

Existing facilities operating on the Site will remain. Public access to the undeveloped portions of the Site will be restricted, with fencing and signage.

New perimeter compliance landfill gas monitoring probes will be installed around the Site boundary at a spacing of 200’ along the western Site boundary and 100’ along the northern Site boundary. Perimeter landfill gas migration controls would be installed to control landfill gas if proven necessary during perimeter compliance monitoring. These controls could either be vertical extraction wells or a perimeter barrier trench.

4.2 COMPLIANCE MONITORING AND CONTINGENCY PLAN OBJECTIVES

Compliance monitoring plans would be implemented for groundwater, surface water and landfill gas. See the Compliance Monitoring and Contingency Plan (CMCP) for more detail.

4.2.1 Landfill Gas Compliance Monitoring and Contingency Plan Objectives

Landfill gas monitoring includes compliance monitoring at the Site boundary to ensure landfill gas does not migrate undetected past the compliance point. New compliance monitoring landfill gas probes will be installed around the Site boundary, outside the limits of buried waste, at a spacing of 200' along the western Site boundary and 100' along the northern Site boundary. They will be monitored in accordance with the approved compliance monitoring plan, which includes quarterly monitoring for flammable gas with a compliance limit of 5% methane by volume.

Monitoring of the existing Animal Shelter and Transfer Station will also continue. This monitoring includes installed, continuous sensors with an action level of 1,000 ppm and periodic hand-held sensors with an action level of 100 ppm.

Representative off-site buildings will continue to be monitored for a minimum of three years. If there are no confirmed landfill gas concentrations above 100 ppm during this period, then off-site monitoring will cease. If there is a confirmed landfill gas measurement exceeding 100 ppm, then monitoring will continue for another three years. Thus, three, consecutive years of undetected landfill gas measurements are required before off-site monitoring can be terminated. Off-site building monitoring would be reinstated if perimeter gas monitoring confirmed migration of subsurface gas at the Site boundary. In this case, monitoring of off-site buildings within 500 feet of the affected probes would begin and continue until the probe reading became less than 5% methane by volume.

4.2.2 Groundwater Compliance Monitoring and Contingency Plan Objectives

Groundwater pathway inspection requirements for developed conditions include periodic observation of leachate collection system and monitoring well heads.

The groundwater compliance monitoring plan will include additional monitoring wells located downgradient of the landfill, outside the boundary of landfilled materials, between the landfill and the point of discharge into the Snohomish River, no further than 100' east of the most easterly BNSF tracks. Area background wells will also be installed upgradient, west, of the Site. Existing wells that are shown to be no longer useful will be abandoned. The first three years of evaluation monitoring will measure area background concentrations, concentrations at the point of compliance, establish a statistically significant database of existing contaminant concentrations in each monitoring well, and demonstrate that groundwater gradients in the deep and shallow aquifers support the design of the groundwater monitoring well network. For the first two years, monitoring wells will be monitored quarterly in accordance with a sampling and analysis plan approved by the City and Ecology. After the first two years, monitoring will occur semi-annually, using a parameter list narrowed to include only compounds that appear to be present or are of concern.

Performance monitoring will be conducted semi-annually for a minimum of ten years after evaluation monitoring is completed. Performance monitoring of the shallow aquifer involves

water level monitoring only to show that compliance criteria for the shallow aquifer, based on hydraulic control through operation of the leachate collection system, is being met. Demonstration of hydraulic control will occur by monitoring water levels to show that hydraulic gradients are toward the leachate collection system, indicating no shallow aquifer discharge to surface water. Results will be submitted to Ecology annually.

Semi-annual performance monitoring of the deep aquifer will involve water quality monitoring. Results will be submitted to Ecology annually. Exceedances of groundwater cleanup standards in the deep aquifer at the point of compliance will first be verified with additional monitoring. If the exceedance occurs in the re-sample, quarterly monitoring of that well will occur. Contingency plan measures will be triggered if the exceedance continues or if analyte concentrations are statistically significant as described in the CMCP.

Confirmational monitoring will occur semi-annually for a minimum of ten years following performance monitoring to confirm the long-term effectiveness of the cleanup action. Confirmational monitoring of the shallow aquifer will involve water elevation monitoring only, as described for performance monitoring. Reports to Ecology will be submitted on a bi-annual basis.

If an exceedance is confirmed during compliance monitoring, the contingency plan will require an evaluation of potential sources of the exceedance and will involve submitting a contingency investigation plan to Ecology for review and approval. Results of that investigation will identify implementation measures to address the exceedance, such as increasing leachate pumping or reducing water infiltration.

4.2.3 Direct Contact Compliance Monitoring and Contingency Plan Objectives

Inspections of the entire Landfill/Tire Fire Site will occur on a quarterly basis. The objective of the inspection is to identify and record areas of the cap/cover and Site security that have been compromised and require repair. Immediate notification of problem areas, and the corresponding Inspection Form record, will trigger contingency measures to address the problem area.

4.2.4 Surface Water Compliance Monitoring and Contingency Plan Objectives

Compliance monitoring of water quality in the perimeter ditches will occur for a minimum of three years to confirm whether Site runoff is exceeding cleanup levels for monitored parameters at the point of compliance. Currently available data is not sufficient to determine whether landfill runoff is causing a water quality violation or not, nor determine the extent of such a potential violation. If additional monitoring determines that landfill runoff is affecting ditch surface water quality above cleanup levels, contingency measures will be implemented to remedy this problem. Compliance monitoring will include semi-annual samples collected during the summer (dry season) and winter (wet season), from both background, downstream and compliance point locations. The parameters to be tested will include the metals arsenic, cadmium, copper, lead, nickel, and zinc.

4.3 INSTITUTIONAL CONTROLS

Institutional controls are physical, legal, and administrative measures that will be implemented at the Site to limit or prohibit activities that may interfere with the integrity of any cleanup action, physical control, and/or monitoring system that exists on the Site as part of the CAP. Institutional controls are also established to prohibit actions of individuals that could potentially result in exposure to hazardous substances at the Site. Institutional controls may be enforced by Ecology under the terms of a restrictive covenant attached to the deed for the property.

Institutional controls for the existing conditions are:

- The owner of the Site shall adhere to the requirements of Consent Decree and Cleanup Action Plan. Any activity on the Site that may interfere with the Cleanup Action is prohibited.
- In compliance with the Cleanup Action Plan, the owner of the Site must install, operate, monitor, maintain and repair all containment, control, treatment, and monitoring systems installed or required for the Site. This requirement includes continued maintenance and applicable operation of landfill cover, and the leachate collection system until such time that the shallow aquifer may be proven to meet chemical cleanup standards.
- Landfill gas institutional controls include signage, training, and confined space entry procedures where appropriate.
- No groundwater may be withdrawn for any purpose except groundwater monitoring or leachate collection.
- Fencing with locked gates, and related signage shall be maintained to prohibit unauthorized access to undeveloped portions of the Site. Undeveloped portions of the Site should be accessible only to authorized personnel for maintenance or construction activities.
- Health and safety training for contaminated materials must be required for any subsurface work that would penetrate below cover soils. Clean cover soils shall be replaced and revegetated following disturbance.
- The owner of the Site shall allow authorized representatives of Ecology the right to enter the Site at reasonable times and with reasonable prior notice for the purpose of evaluating compliance with the Cleanup Action Plan and to inspect records that are related to the Cleanup Action. Access must be provided to facility manholes, vaults, foundation and basements, or other required locations on the Site or building.

4.4 WORK TO BE PERFORMED CHECKLIST

Items listed in the following checklist are activities required for existing conditions at the Landfill/Tire Fire Site. Compliance monitoring and contingency plan requirements are defined in detail in the associated CMCP for the Site (see attachment CAP-2).

WORK TO BE PERFORMED CHECKLIST FOR THE CLEANUP ACTIONS FOR EXISTING CONDITIONS	
Gas Exposure Pathway	
	Conduct field investigation to determine accurate waste boundary. Install new perimeter compliance landfill gas monitoring probe network. Monitor the perimeter compliance sampling locations in accordance with the CMCP.
	Prepare design report to define alternatives for contingent perimeter landfill gas migration controls. Conduct easement negotiations if necessary.
	Continued monitoring of the Animal Shelter, Transfer Station, and off-site buildings in accordance with the CMCP.
	Implement institutional controls such as signage and training.
Groundwater Exposure Pathway	
	Continued operation and maintenance of the leachate collection system until such time that the shallow aquifer may be proven in compliance with chemical cleanup criteria.
	Installation of new compliance monitoring and upgradient monitoring wells.
	Compliance monitoring includes deep aquifer groundwater quality monitoring as well as monitoring of water levels in leachate collection system and shallow aquifer east of leachate collection trench.
	Maintenance of landfill cover and grading of surface topography.
	Institutional controls to prevent groundwater withdrawal other than for leachate collection or monitoring.
Direct Contact Exposure Pathway	
	Erosion control measures.
	Institutional controls regarding Site use, maintenance of landfill cover, health and safety requirements.
	Maintenance of Site access controls (fencing, locked gates, signage).
Surface Water Exposure Pathway	
	Compliance monitoring includes semi-annual sampling of surface water within the Site boundary to determine compliance with cleanup standards at the point of compliance
	Prepare and implement a SWPPP
	Site inspections for and appropriate responses to leachate seeps, on-site ponding and existing stormwater disruptions due to differential settlement

5.0 Existing Conditions: Cleanup Action Alternatives and Justification

The following sections summarize the alternative cleanup actions for existing conditions that were considered in the BFS, and describe the justification under MTCA for selecting the proposed cleanup action described in Chapter 4.0.

For the groundwater and direct contact pathways, previously completed interim and independent actions have met requirements for protection of human health and the environment under existing conditions. The Interim Actions were previously approved by Ecology under the 1994 Enforcement Order. The proposed cleanup action, described in Chapter 4.0, consists of maintaining conditions created by the interim and independent actions and instituting long-term monitoring. For the groundwater pathway, continued operation and maintenance of the leachate collection system is required, as well as long-term monitoring. The proposed cleanup action for the direct contact pathway includes maintaining the minimum two-foot cover of clean soil, positive drainage, and access controls to undeveloped portions of the Site. The remedies for groundwater and direct contact under existing conditions are in place and need no evaluation. No alternatives were considered.

Proposed cleanup actions for the gas and surface water pathways were selected from a list of alternatives and evaluated according to MTCA [WAC 173-340-360(2) and (3)].

WAC 173-340-360(2) specifies four threshold criteria that any cleanup action must satisfy. The threshold criteria are: 1) protect human health and the environment, 2) comply with cleanup standards, 3) comply with applicable state and federal laws, and 4) provide for compliance monitoring. All evaluated alternatives for all pathways, whether for existing conditions or for future conditions, meet the threshold criteria.

WAC 173-340-360(3) specifies three other criteria that any alternative meeting the threshold requirements must also achieve. They are 1) use permanent solutions to the maximum extent practicable, 2) provide for a reasonable restoration time frame, and 3) consider public concerns raised during public comment on the draft cleanup action plan.

Ecology also recognizes that permanent solutions may not be practicable for all sites. A determination that a cleanup action satisfies the requirement to use permanent solutions to the maximum extent practicable is based upon consideration of a number of factors. The following criteria are used to determine whether a cleanup action is “permanent to the maximum extent practicable”. [WAC 173-340-360(5)(d)].

1. Overall protectiveness of human health and the environment
2. Long-term effectiveness
3. Short-term effectiveness
4. Permanent reduction of toxicity, mobility and volume of the hazardous substance
5. Ability to be implemented
6. Cleanup costs
7. The degree to which community concerns are addressed

Justification for cleanup action selection for each environmental exposure pathway is organized by the three criteria from WAC 173-340-360(3) and presented in the following sections.

5.1 CLEANUP ACTION ALTERNATIVES FOR GAS

In addition to the proposed cleanup action, which includes existing building controls, perimeter compliance monitoring and contingent installation of perimeter landfill gas migration controls, the following alternatives were evaluated:

- Existing building controls, perimeter compliance monitoring and immediate installation of perimeter landfill gas migration controls
- Excavation and removal of landfilled materials

5.2 JUSTIFICATION OF PROPOSED CLEANUP ACTION FOR GAS

5.2.1 Permanent Solutions to the Maximum Extent Practicable

The proposed gas cleanup action provides overall protection to human health and the environment. The Animal Shelter and Transfer Station are protected through appropriate mitigation measures, compliance monitoring and contingency plans. Compliance monitoring is implemented for perimeter subsurface migration as soon as possible. A perimeter landfill gas migration control system will be installed if subsurface landfill gas migration past the Site boundary is confirmed by compliance monitoring conducted in accordance with the approved CMCP.

The proposed cleanup action provides long-term effectiveness against subsurface landfill gas migration. Compliance monitoring would be implemented immediately. Perimeter landfill gas migration controls will be installed if compliance monitoring demonstrates it is necessary. The magnitude of residual risk with this alternative is minimal since landfill gas ambient emissions do not exceed MTCA cleanup standards and do not present an explosive risk. This alternative also includes corrective actions, compliance monitoring and contingency plans for the Animal Shelter, Transfer Station, and off-site buildings.

The proposed cleanup action for gas has acceptable short-term risks from construction and implementation. Exposure is limited to construction of the landfill gas probes, the perimeter landfill gas controls if constructed, and implementing corrective actions at the Animal Shelter and Transfer Station. Worker health and safety plans will be implemented to reduce the risk during construction.

The proposed cleanup action for gas achieves a permanent reduction in landfill gas mobility by reducing its ability to migrate into the Animal Shelter, Transfer Station, and off-site buildings. It will demonstrate that landfill gas is not migrating beyond the Site boundary, or it will achieve permanent reduction in subsurface landfill gas migration through the construction of perimeter landfill gas controls, if landfill gas is confirmed above the compliance levels per the CMCP. The contribution from landfill gas toxics to ambient air does not exceed MTCA cleanup standards, and human health and the environment are not affected.

The proposed cleanup action for gas can be implemented. Existing building control measures have been and will continue to be implemented including corrective actions and compliance monitoring. The perimeter landfill gas compliance monitoring probes will be installed as soon as possible pending investigation and necessary approvals.

There are no known or anticipated public concerns that this cleanup action does not address.

The proposed cleanup action for gas thus meets all the criteria to be considered "permanent to the maximum extent practicable".

The alternative "Excavate and Remove Landfilled Materials" was rejected. Because this alternative has been evaluated for multiple pathways, please see Section 7.9 for justification.

The other alternative, which requires immediate installation of perimeter landfill gas migration controls, was rejected because existing landfill gas monitoring data does not allow appropriate evaluation of whether or not landfill gas may be migrating beyond the Site boundary. Installation of new perimeter probes is required for this evaluation. Compliance monitoring of the new perimeter probe network may never show an exceedance of regulatory standards beyond the Site boundary. The preferred alternative allows the City to incur the estimated $0.9-1.9 million for perimeter migration controls only if the necessity of these controls is confirmed.

5.2.2 Provide for Reasonable Restoration Time Frame

The proposed cleanup action for gas may result in some lag between determination of a potential regulatory exceedance at the Site boundary and construction of associated perimeter controls. However, temporary vacuum extraction wells could control landfill gas migration within the vicinity of where migration is occurring in the interim if necessary. Thus, immediate installation of perimeter landfill gas migration control alternative offers no substantial advantage over the proposed cleanup action relative to implementation time frame.

5.2.3 Consider Public Concerns Raised during Public Comment on the Draft Cleanup Action Plan

Public concerns are unknown at this time. The public has not had an opportunity to comment on the draft cleanup action plan as of this date. Evaluation of the alternatives against this criterion can be done after such comments are received.

5.3 CLEANUP ACTION ALTERNATIVES FOR SURFACE WATER

The proposed cleanup action for existing conditions includes compliance monitoring and source identification, maintenance of the landfill cover depth and slope, inspection and control of leachate seeps, and preparation of a SWPPP. The only alternative to the proposed cleanup action included all the components listed above except for the preparation of a SWPPP for existing conditions.

5.4 JUSTIFICATION OF PROPOSED CLEANUP ACTION FOR SURFACE WATER

5.4.1 Permanent Solutions to the Maximum Extent Practicable

The surface water alternatives are identical except for the addition of a SWPPP under the proposed cleanup action for surface water. Neither alternative proposes a new cleanup action beyond those already completed under previous interim and independent cleanup actions. Both alternatives are intended to maintain the integrity and effectiveness of the earlier corrective actions through monitoring, inspection and maintenance. Both alternatives take actions to determine the source of existing contamination and implement plans to address source control. Both alternatives provide overall protectiveness of human health and the environment.

Both alternatives have long-term effectiveness. They include standard procedures implemented routinely in surface water management and landfill post-closure inspection and maintenance. The proposed cleanup action for surface water would be slightly more effective in the long-term since the inclusion of a SWPPP provides a management tool that would likely lead to more effective implementation and documentation.

Each alternative is effective in the short-term in that they can be implemented immediately, require no new construction and create no new short-term risks. The proposed cleanup action for surface water would take slightly longer to implement completely due to the preparation of a SWPPP.

Permanent reduction in the mobility and release of hazardous substances has been achieved through earlier interim and independent actions. The proposed cleanup action for surface water is slightly more effective since the SWPPP will assist in the reliable and continuous implementation of the cleanup actions.

Both alternatives can be implemented readily. They use routine and accepted practices that are commonly applied in similar situations.

Both alternatives have similar operations and maintenance costs that are appropriate to the incremental degree of protection achieved.

Community concerns are unknown at this time. After public review and comment any concerns will be addressed.

The proposed cleanup action for surface water thus meets all the criteria to be considered “permanent to the maximum extent practicable”.

The alternative that includes a SWPPP is selected because it provides an added benefit as a management tool with minimal additional cost.

5.4.2 Provide for a reasonable restoration time frame

Cleanup has already occurred for this pathway under previous interim and independent cleanup actions including preventing leachate intrusion to East Ditch, cleaning up and preventing future leachate seeps, covering and grading the landfill surface, and removing contaminated sediment from the East Ditch. The inspection, maintenance and monitoring requirements of the proposed cleanup action for surface water will be implemented promptly upon approval.

5.4.3 Consider Public Concerns Raised during Public Comment on the Draft Cleanup Action Plan

Public concerns are unknown at this time. The public has not had an opportunity to comment on the draft cleanup action plan as of this date. Evaluation of the alternatives against this criterion can be done after such comments are received. It is not anticipated that there will be substantive public comment given the extent of prior cleanup actions to correct surface water exposure pathways and the common application and proven effectiveness of the proposed cleanup action to prevent surface water contamination.

6.0 Future Conditions: Proposed Cleanup Actions

The proposed cleanup actions for potential future developed conditions consists of the following components, organized by pathway:

Landfill Gas Pathway:

- Codes, covenants, and restrictions incorporating the requirements of the preferred alternative for future development.
- Compliance monitoring for buildings, pavement, open space, and undeveloped areas. Buildings would include continuous monitoring systems for all ground floor rooms that would automatically notify qualified landfill gas control system operations and maintenance personnel and activate increased interior HVAC system ventilation if flammable gas was detected at 1,000 ppm within the building. If flammable gas concentration reached 10,000 ppm, or 20% of the lower explosive limit, alarms would be activated that would cause the building to be evacuated. Additionally, buildings and exterior areas will be monitored with hand-held instruments every two weeks after the building and/or exterior area is opened for public access. If results do not show an air quality concern for three months, monitoring will be performed quarterly. Any result exceeding 100 ppm inside buildings or 500 ppm for exterior areas would be subject to corrective contingency measures.
- An active landfill gas control system will be installed with development phases. It will collect landfill gas from beneath buildings, pavement and open spaces associated with developed portions of the Site. See Figures 6-1 and 6-2 for conceptual cross section and plan view of the phased active landfill gas control system. This phased active vacuum extraction system consists of perforated pipes running generally east-west on minimum 100-foot centers buried in gravel above the landfilled materials. The perforated pipes are connected to a header system that directs collected gas to one or more vacuum blowers and discharge points. PSCAA will be consulted for any future discharge of landfill gas. Discharge could be treated (biofilter, carbon filter canister, flare) or untreated. If untreated, and modeling of the discharge demonstrates the discharge would not cause exceedance of ASIL standards, PSCAA permitting would not be necessary. If treatment is proposed, PSCAA permitting and approvals will be required. Modeling of both treated and untreated conditions has demonstrated that various discharge scenarios are able to meet MTCA cleanup levels and ASIL standards.
- Confirmational modeling at landfill gas discharge points would also be completed to confirm that constituents of gas emitted from constructed discharge locations are consistent with the assumptions of landfill gas pollutant concentrations and landfill gas flow used in the modeling to design the gas control systems.
- Buildings will be protected by a geomembrane beneath the foundation slab that will be booted and sealed around piles and utility penetrations as appropriate. A full-time continuous ground floor monitoring system will automatically activate installed HVAC systems and centralized alarms if flammable gas concentration exceeds 1,000 ppm. Temporary enclosures erected over pavement or open space areas will contain continuous monitors that would activate an alarm if triggered.

- To prevent atmospheric intrusion into the extraction pipes, a low permeable barrier is required in open space areas. This is assumed to be the same as the hydraulic barrier required for groundwater protection. In some areas of thick fill placement above collection pipes, the fill thickness may provide the barrier to atmospheric intrusion. Pavement that meets specified low-permeability (less than or equal to 10-5 cm/sec) criteria will operate effectively as a low permeable barrier for gas system purposes.
- Utilities, manholes, and catch basins in the pavement, open space and undeveloped areas will be coated, sealed or booted to reduce the likelihood of landfill gas intrusion. The general public will be restricted from accessing undeveloped areas. There may be enclosures such as utility manholes in undeveloped areas. They will have the same coating and sealing requirements as manholes in the pavement or open space areas. All utility vaults or manholes in undeveloped or developed areas will be accessible only to trained, qualified personnel using confined space entry procedures that include monitoring immediately prior to entering the enclosed space, and will be labeled accordingly.
- Light fixtures, fence posts and similar structures would either be finished above the underlying gas barrier or, if penetrating the gas barrier, be internally sealed and booted to the barrier layer to preclude intrusion of LFG. Piling or foundations that would penetrate the barrier layer would be booted or sealed to the barrier layer. Temporary trailers, tents or similar enclosures that might be set up over pavement or open space areas would include continuous methane monitors set to sound an alarm if the concentration of methane exceeded 1,000 ppm. No overnight camping would be allowed at the site.
- Special consideration will be given to boundary conditions between developed and undeveloped areas to preclude excessive air intrusion into the refuse from the active collection system along this boundary.
- Phased active landfill gas controls will be designed and constructed such that, in the future when landfill gas generation rates have dropped to a level that renders the active system unnecessary, the landfill gas controls may be operated as a passive venting system, without vacuum extraction.
- The Owner/Developer(s) will contract with a single, licensed professional to perform operations, reporting, maintenance and repairs on all landfill gas control system components installed in the developed areas of the Site.

Groundwater Pathway:

- Continued operation and maintenance of the Leachate Collection System will be required until such time that the shallow aquifer may be proven in compliance with chemical cleanup criteria.
- To minimize infiltration of rain and irrigation water to the shallow aquifer, a hydraulic barrier is required to be constructed in developed areas. This hydraulic barrier requirement can be met through the installation of pavement and building structures. In landscaped areas, this hydraulic barrier requirement can be met through installation of a membrane, low permeability soil layer or other material with a permeability similar to asphalt pavement.

- Stormwater will be collected for conveyance off-site for discharge. Where conveyance of subdrainage from landscaped areas to the stormwater system is impracticable, release of subdrainage to the subsurface will be accepted, as long as the gas collection system is not compromised by such drainage.
- Stormwater conveyance piping located on the Site is required to have leak-tight joints in order to minimize infiltration of stormwater into subsurface soils and reduce leachate generation.
- Restrictions against infiltration of collected stormwater into Site subsurface soils are included to minimize leachate generation. Condensate drained from landfill gas collection piping will be discharged to the leachate collection system. Where impracticable to pipe this liquid directly to the leachate collection system, condensate will be allowed to drain into subsurface soils for eventual collection in the leachate collection system.
- A one-time sampling of the shallow aquifer will be performed to determine if there are zones where shallow aquifer quality has the potential to cause an exceedance of cleanup levels at the point of compliance in the deep aquifer if migration from the shallow to deep aquifer were to occur. Based on the results of this study, zones of the Site may have restrictions on the type of piling (deep foundations) that future development may use. Augercast piling will be required where it is shown that penetration of the aquitard could potentially result in deep aquifer cleanup level exceedances.
- Institutional controls are required preventing groundwater withdrawal other than for leachate collection or monitoring.
- Compliance monitoring and contingency plan commitments are required. Initiation of compliance monitoring is required before pile installation can commence.

Direct Contact Pathway:

- Development areas are required to provide cover of subsurface soils. Covers will include a minimum of 2 feet of clean soil, pavements, building slabs or a combination of these.
- Clean backfill, meeting current WSDOT/APWA Specification #9-03.12(3) or equivalent, in utility corridors with geotextile separation from existing materials is required to prevent contact with landfilled materials during maintenance activities.
- Security fencing (locked gates, adequate height, etc.) and signage is required to prevent public access to undeveloped portions of the Site.
- Institutional controls are required to govern maintenance of developed area covers, and compliance with health and safety requirements for penetrations of that cover.
- Institutional controls prohibiting private residential ground-level ownership of landfill property are required.
- Construction methods to contain risk of direct contact to landfilled materials and site groundwater within construction zones are required. They include:
    - Dust and odor controls
    - Erosion and surface water controls

- Health and safety requirements for construction crews
- Construction dewatering procedures
- Construction performance monitoring, inspection and contingency plans.

The requirements for construction are described in more detail in Table 6-1.

- Controlled on-site relocation and re-capping of excavated refuse during construction activities is allowed. Location and quantities will be approved prior to excavation.

Surface Water Pathway:

- A SWPPP for future conditions will be developed in order to manage storm water run-off quality and quantity for off-site discharge.
- Comprehensive compliance monitoring and maintenance inspection commitments are required.

6.1 PHYSICAL CHARACTERISTICS

The physical characteristics of the recommended cleanup alternative for future conditions include construction and operation requirements for the potential future developed areas of the Site. These remedial actions are listed in detail in Table 6-1.

6.2 COMPLIANCE MONITORING AND CONTINGENCY PLAN OBJECTIVES

Compliance monitoring plans will be implemented for landfill gas, groundwater, direct contact and surface water. Compliance monitoring for developed conditions includes both inspection requirements to ensure that developed conditions remain in compliance with environmental objectives, and compliance monitoring to ensure that the exposure pathway receptors are not affected by development at levels of concern. See the CMCP for more detail.

6.2.1 Landfill Gas Compliance Monitoring and Contingency Plan Objectives

Compliance monitoring will be implemented for buildings, pavement, open space, and undeveloped areas. Buildings will include continuous monitoring systems for all ground floor rooms that will automatically notify appropriate operations and maintenance personnel and activate increased interior HVAC system ventilation if flammable gas was detected at 1,000 ppm within the building. If flammable gas concentration reached 10,000 ppm, alarms will be activated that will cause the building to be evacuated.

Buildings and exterior areas will be monitored with hand-held instruments every two weeks after the building and/or exterior area is opened for public access. If results do not show an air quality concern for three months, monitoring will be performed quarterly. Monitoring will be conducted by a trained, qualified technician using a hand-held flammable gas meter capable of detecting flammable gas at less than 100 ppm. This technician will monitor buildings to locate sources of landfill gas intrusion by measuring cracks, utility penetrations, and the like. The technician will also monitor enclosed spaces such as utility vaults, catch basins, and manholes in pavement, open space and undeveloped areas. Any detections of flammable gas in excess

of 100 ppm in the buildings and enclosures accessible to the general public and 500 ppm in enclosed spaces in the pavement, open space or undeveloped areas will lead to corrective action to seal, block or otherwise stop the leak. Enclosed spaces in the pavement, open space and undeveloped areas will not be accessible to the general public and will only be entered by trained, qualified personnel using confined space entry procedures that include monitoring prior to entry. Warning labeling on all such spaces will clearly identify restricted entry. Pavement cracks will also be monitored and detections of flammable gas in excess of 500 ppm will lead to corrective action to seal the crack.

Confirmational modeling at landfill gas discharge points would also be completed to confirm that constituents of gas emitted from constructed discharge locations are consistent with the assumptions of landfill gas pollutant concentrations and landfill gas flow used in the modeling to design the future landfill gas control systems.

6.2.2 Groundwater Compliance Monitoring and Contingency Plan Objectives

Groundwater pathway inspection requirements for developed conditions include periodic observation of leachate collection system, monitoring well head conditions, and stormwater management facilities.

Compliance monitoring and contingency plans for developed conditions are identical to compliance monitoring and contingency plans for existing conditions, except that the installation of piles through the aquitard will impact the timing and/or duration of performance and/or confirmational monitoring. The ten-year minimum period for performance monitoring will be reset after the first pile installation event that penetrates the aquitard. If confirmational monitoring has begun before development, performance monitoring will be reinstated following the first pile installation event that occurs in an area underlain by aquitard. Additional pile installation events will reset performance monitoring only if piles were installed in a zone designated for restricted pile installation.

6.2.3 Direct Contact Compliance Monitoring and Contingency Plan Objectives

Direct contact pathway inspection requirements for developed conditions will include periodic inspection of developed area covers, access controls for undeveloped portions of the Site, and construction activities.

Quarterly inspections of developed area cover conditions will record and direct repair of areas of pavement penetrations or cracking, landscaped area erosion or holes, and building subbasement floor conditions that might result in exposure to buried materials. Access controls to undeveloped portions of the Site will be monitored and repaired if found compromised. Signs of erosion or unauthorized digging in undeveloped portions of the Site will also be recorded and repaired.

Regular inspection of construction activities will ensure compliance with special construction requirements, including, but not limited to, odor, dust and erosion controls, dewatering procedures, and health and safety requirements for workers.

All compromises of cover requirements and access controls will be rectified within a reasonable timeframe. Instances of a contractor's failure to meet construction requirements will be recorded and rectified accordingly.

6.2.4 Surface Water Compliance Monitoring and Contingency Plan Objectives

Surface water pathway inspection requirements for developed conditions will include periodic observation of construction practices and stormwater management facilities. Compliance monitoring and contingency plans for developed conditions are identical to compliance monitoring and contingency plans for existing conditions. See Section 4.2.4 and/or the CMCP for more details.

6.3 INSTITUTIONAL CONTROLS

Institutional controls are physical, legal, and administrative measures that will be implemented at the developed Site to limit or prohibit activities that may interfere with the integrity of any physical controls, treatment systems, and monitoring systems that exist on the Site as part of the CAP. Institutional controls may be implemented and enforced under the terms of a restrictive covenant, which is recorded with title for the property.

Institutional controls for potential future developed conditions at the landfill include:

- The owner of the Site shall adhere to the requirements of Consent Decree and Cleanup Action Plan. Any activity on the Site that may interfere with the Cleanup Action is prohibited. Any activity on the Site that may result in endangerment to human health or the environment by hazardous substances contained on-site or by gas generated by and emitted from the Site is prohibited.
- In compliance with the Cleanup Action Plan, the owner of the Site must install, operate, monitor, maintain and repair all containment, control, treatment, and monitoring systems installed or required for closure of the Site. This requirement includes installation and maintenance of landfill cover, surface water drainage systems and gas management systems; and protection, maintenance and continued operation of leachate collection system.
- Property management controls must be implemented and maintained to ensure security and continued integrity of physical controls at the Site. Workers temporarily penetrating landfill cover materials must comply with OSHA and WISHA health and safety regulations.
- No groundwater may be withdrawn for any purpose except groundwater monitoring or leachate collection.
- The City and all subsequent owners shall provide for the continued operation, maintenance and monitoring of the Cleanup Action.
- Future use of the Site shall be restricted to commercial, industrial, mixed use, recreational, multi-family residential (upper levels only) or public access uses. The owner must notify and obtain approval from Ecology, or from a successor agency, prior to any use of the Site that is inconsistent with the terms of the Restrictive Covenant.
- The owner shall notify all lessees of the restrictions on the use of the property.
- The owner shall allow authorized representatives of Ecology, or a successor agency, the right to enter the Site at reasonable times and with reasonable prior notice for the

purpose of evaluating compliance with the Cleanup Action Plan and to inspect records that are related to the Cleanup Action.

6.3.1 Development Management and Approvals

Both as the Site owner and as the local development approval authority, the City of Everett is responsible to ensure development is consistent with the requirements of this CAP.

6.3.1.1 City Responsibilities for Development Management and Approval

The City will perform the following roles and responsibilities in managing potential future development processes:

Property Sale or Lease. If the City enters into a purchase and sale or lease agreement with any parties for the Site, the agreements will include requirements for implementation of all CD and CAP requirements. Property agreements will clearly define permitted use(s), and the split of responsibilities for implementation of environmental requirements between the City and developers. The City will maintain responsibility for all CAP and CD requirements unless the Purchaser or Lessee specifically agrees to assure certain responsibilities, becomes a signatory to the CD, and Ecology approves the changes.

***City Site Manager*.** One point of contact will be defined within the City to track and coordinate environmental compliance, permitting, development, construction, and property management activities on the Site. This City Site Manager will ensure compliance with environmental requirements, and will coordinate communications with Ecology relative to Site status and activities.

Development Management and Oversight. The City will review and approve all development activities proposed and conducted at the Site, to ensure compliance with CAP requirements. Opportunities for Ecology review and comment will be provided at key milestones in the review and approval process.

Compliance Monitoring Reporting. City will provide, and/or or ensure the owner/developer provides timely, periodic reporting of results to Ecology for compliance monitoring conducted in accordance with the CMCP.

Development Status and Inspection Reports. City will provide timely, periodic reporting to Ecology detailing development activities, development status, permitting status and development inspections. Reporting will accompany compliance monitoring reports to Ecology.

6.3.1.2 City and Ecology Responsibilities in Development Approvals

City and Ecology responsibilities in the development review and approval process are defined in Table 6-2.

Ecology and the City have defined the MTCA requirements that must be met by potential future development on the Site. However, any potential development action proposed for the Site must go through a standard review, approval and permitting process which involves many other Agencies and regulatory requirements. Figure 6-3 depicts the relationship between the MTCA

requirements and the additional review and approval process necessary for development actions on the Site.

6.4 WORK TO BE PERFORMED CHECKLIST

Items listed in this checklist are activities required for future conditions at the Landfill/Tire Fire Site. These items are required in addition to the items listed in Section 4.4, work to be performed under existing conditions. Compliance monitoring and contingency plan requirements are defined in detail in the associated CMCP for the Site.

WORK TO BE PERFORMED CHECKLIST FOR THE CLEANUP ACTIONS FOR FUTURE CONDITIONS	
Gas Exposure Pathway	
	Design, design review, construction, operation and maintenance of phased active landfill gas control systems for buildings, pavement and open space as development occurs. This includes pavement permeability testing in accordance with an approved construction quality assurance plan.
	Installation of continuous monitors and controllers in all ground floor rooms of any new building. Calibration and maintenance in accordance with manufacturer's recommendations.
	Confirmational monitoring of landfill gas discharge locations.
	Hand-held monitoring of buildings, pavement, open space areas, and enclosed spaces in accordance with the compliance monitoring plan.
	Permit and comply with permit requirements for regulated landfill gas discharges.
	Institutional control prohibiting overnight camping.
Groundwater Exposure Pathway	
	Continued operation and maintenance of the leachate collection system
	Compliance monitoring includes deep aquifer groundwater quality monitoring as well as monitoring of water levels in leachate collection system and shallow aquifer east of leachate collection trench
	Maintenance and grading of surface topography in undeveloped areas to maintain positive drainage.
	Maintenance of landfill developed area covers (hydraulic barrier beneath landscaping, pavements, building slabs)
	Institutional controls to prevent groundwater withdrawal other than for leachate collection or monitoring
	Restrictions against infiltration of collected stormwater, including requiring leak-tight joint for conveyance piping

WORK TO BE PERFORMED CHECKLIST FOR THE CLEANUP ACTIONS FOR FUTURE CONDITIONS	
Groundwater Exposure Pathway (continued)	
	Initiation of compliance monitoring prior to pile installation.
	Shallow aquifer quality characterization sampling round and associated evaluation to establish zones for pile-type restrictions, if necessary
	Incorporate any pile-type restrictions into deed restrictions if necessary
Direct Contact Exposure Pathway	
	Erosion control measures
	Maintenance of landfill developed area covers (hydraulic barrier beneath landscaping, pavements, building slabs) and undeveloped area soil cap
	Clean backfill in utility corridors with geotextile separation
	Maintenance of access controls (fencing, locked gates, signage) to undeveloped areas of the Site
	Construction inspections to ensure requirements for construction are met
	Compliance monitoring in the form of site inspections and reporting
	Institutional controls governing health and safety requirements for developed area cover penetration
	Institutional controls prohibiting ground-level private residential ownership of landfill property
Surface Water Exposure Pathway	
	Compliance monitoring includes semi-annual sampling of surface water within the Site boundary to determine compliance with cleanup standards at the point of compliance
	Prepare and implement a SWPPP for future conditions
	Site inspections for and appropriate responses to leachate seeps, on-site ponding and existing stormwater disruptions due to differential settlement
Other Requirements	
	Designation of City Site Manager who will ensure compliance of environmental requirements and coordinate communications with Ecology
	Report compliance monitoring results to Ecology as determined in the CMCP
	City review and approval of development construction plans; provide opportunities for Ecology's review and approval
	Report development activities (status, permitting, construction, inspection) to Ecology as determined in the Consent Decree
	Ecology notification of intent to convey an interest in the Site

WORK TO BE PERFORMED CHECKLIST FOR THE CLEANUP ACTIONS FOR FUTURE CONDITIONS	
Other Requirements (continued)	
	Sale or lease agreements include requirements for implementation of all CD and CAP requirements, permitted uses, and responsibilities between owner and lessees
	Lease restrictions to uses and activities consistent with the Restrictive Covenant and notification to all lessees

7.0 Future Conditions: Cleanup Action Alternatives and Justification

The following sections summarize the alternative cleanup actions for future conditions that were considered in the BFS, and describe the justification under MTCA for selecting the proposed cleanup actions described in Chapter 6.0.

Proposed cleanup actions were selected from a list of alternatives and evaluated according to MTCA [WAC 173-340-360(2) and (3)]. Refer to Chapter 5.0 for a detailed description of the criteria. As stated previously, all evaluated alternatives for all pathways meet the threshold criteria of WAC 173-340-360(2). Justification for cleanup action selection for each environmental exposure pathway is organized by the three criteria from WAC 173-340-360(3) and presented in the following sections.

7.1 CLEANUP ACTION ALTERNATIVES FOR GAS

In addition to the proposed cleanup action for gas, which includes institutional controls, compliance monitoring and phased active landfill gas controls, the following alternatives were evaluated:

- Institutional controls, compliance monitoring, contingent active venting for buildings, and passive venting for pavement and open space
- Institutional controls, compliance monitoring, contingent active venting for buildings, pavement and open space
- Institutional controls, compliance monitoring, and area-wide landfill gas collection system

7.2 JUSTIFICATION OF PROPOSED CLEANUP ACTION FOR GAS

7.2.1 Permanent Solutions to the Maximum Extent Practicable

All alternatives provide overall protectiveness to human health and the environment. All are effective in reducing the risk of fire and explosion from the accumulation of methane. The proposed cleanup action and the alternative with an area-wide landfill gas collection system provide further protection from the accumulation of toxic pollutants in the interior of buildings by maintaining a continuous vacuum beneath the buildings.

The alternatives are effective in the long term. No development would occur on-site without first implementing the technology options from the selected alternative. The technology options of all alternatives except for the area-wide landfill gas collection system alternative would be designed and constructed as an integral part of each component of development. This coordination of design and construction of the technology options for building landfill gas control with the design and construction of the building itself generally provides higher quality and more reliable system performance. The area-wide landfill gas collection system would be more

difficult to integrate with development, as it requires excavation into the refuse and a continuous geomembrane.

The requirement for the area-wide landfill gas collection system to continuously operate with a vacuum with its perforated pipes buried in refuse increases its risk of causing a subsurface landfill fire. This risk is mitigated through regular monitoring and adjustment in accordance with the operations and maintenance manual. The proposed gas cleanup action with phased active landfill gas controls also operates with a continuous vacuum but its perforated pipes are located above the refuse and are therefore less likely to cause a subsurface landfill fire.

Each alternative is effective in the short-term as their technology options are put in place concurrently with development. Short-term exposure to landfill gas during construction will be controlled through the use of contractor health and safety plans. The area-wide landfill gas collection system creates the greatest short-term exposure because it requires exposure of substantial amounts of refuse.

Each alternative provides permanent reduction in the mobility of landfill gas by restricting its movement into future development buildings and associated infrastructure. The proposed cleanup action and the alternative with an area-wide landfill gas collection system are more effective at this as they maintain a vacuum beneath buildings and around associated infrastructure. If collected landfill gas is treated with a flare, the proposed cleanup action and the alternative with an area-wide landfill gas collection system will permanently reduce the toxicity and volume of landfill gas by combusting organic pollutants and oxidizing hydrogen sulfide. New pollutants that are the by-product of combustion would be created, such as carbon monoxide, sulfur dioxide and nitrogen oxides, but they would have to meet PSCAA emission limits. Hydrogen sulfide removal treatment would remove that pollutant if used.

Each of these alternatives can be implemented. The technology options of the contingent active venting alternatives are integrated and implemented concurrently with phased development and are independent systems not relying on integration with previous development control systems. The proposed cleanup action is also implemented concurrently with phased development and requires only integration with any pre-existing header pipe systems. The area-wide landfill gas collection system would be more difficult to integrate and implement with subsequent development phases because the area-wide landfill gas collection system would be installed prior to development and construction activities would have to avoid disturbing the continuous geomembrane and other landfill gas control elements.

The cost for the contingent active venting alternatives are similar, differing only in the cost of providing contingent active controls for pavement and open space areas. The alternative with contingent active venting only for buildings is estimated to cost $9.6 million. The alternative with contingent active venting for all areas is estimated to cost $11.2 million. The proposed phased active landfill gas control system is estimated to cost $8.4 million, less than either contingent active venting alternatives primarily because less pipe and gravel are required when compared to a passive system. The cost estimate for the area-wide landfill gas collection system is approximately $16.2 million, more than the proposed cleanup action (phased active landfill gas controls) because of substantial earthwork requirements and a continuous geomembrane over the Site.

There are no known or anticipated public concerns that the alternatives under consideration do not address. If flare treatment were used as appropriate, consideration would have to be given to noise and vibration concerns.

The proposed cleanup action for the gas pathway thus meets all the criteria to be considered "permanent to the maximum extent practicable".

The alternatives that rely on contingent active venting are rejected because they maintain a vacuum beneath buildings, pavement and open space and because they were estimated to cost $1.2 to $2.8 million dollars more than the proposed cleanup action. The area-wide landfill gas collection system was rejected because it does not provide added benefit for the additional cost and short-term risks that would be incurred.

7.2.2 Provide for a Reasonable Restoration Time Frame

Each of the four alternatives provides reasonable restoration time frame. They are constructed prior to or concurrently with development.

7.2.3 Consider Public Concerns Raised during Public Comment on the Draft Cleanup Action Plan

Public concerns are unknown at this time. The public has not had an opportunity to comment on the draft cleanup action plan as of this date. Evaluation of the alternatives against this criterion can be done after such comments are received.

7.3 CLEANUP ACTION ALTERNATIVES FOR GROUNDWATER

In addition to the proposed cleanup action for groundwater, which includes a hydraulic barrier, stormwater management restrictions and zoned pile installation restrictions, the following alternatives were evaluated:

- Hydraulic barrier and stormwater management restrictions
- Excavate and remove landfilled materials

7.4 JUSTIFICATION OF PROPOSED CLEANUP ACTION FOR GROUNDWATER

7.4.1 Permanent Solutions to the Maximum Extent Practicable

A hydraulic barrier under landscaping (except in areas of steep slopes), in conjunction with pavements and buildings, will result in about 90 percent of the surface area having relatively low impervious surfaces. This barrier will reduce leachate generation by reducing potential recharge to the shallow groundwater system through rainfall or irrigation water input. Stormwater management restrictions that minimize the infiltration of collected stormwater will reduce leachate generation. Reduction in leachate head in the shallow aquifer will increase the potential for upward groundwater gradients at the Site, and reduce the potential for downward migration of leachate contaminants to the lower aquifer.

Given site conditions, the alternative with unrestricted pile construction will not likely degrade lower aquifer quality. However, the proposed cleanup action for groundwater increases the certainty of this conclusion by providing for protection of the deep aquifer in those areas where it is hypothetically most vulnerable - where the shallow aquifer has contaminant concentrations that, if connected to the deeper aquifer, could cause exceedances of cleanup levels at the point of compliance. It also allows flexibility for development in those areas where the shallow aquifer is not significantly impacted or the aquitard is absent.

The area of the landfill that is underlain by aquitard will be sampled to obtain a statistically relevant set of characterization data. If data shows that areas of the landfill contain contaminant concentrations in leachate that could, if connected to the lower aquifer, cause an exceedance of cleanup levels at the point of compliance, pile installation within that zone will be restricted to augercast piling. Drilled augercast piles will have no negative impact on the hydraulic properties of the aquitard since concrete is placed under head as the auger is removed maintaining a strong hydraulic seal at the aquitard. Pile installation restrictions will not be necessary in the western portions of the Site where the aquitard is not present.

Comprehensive compliance monitoring will be approved and initiated prior to pile installation. Contingency plan measures are focused on further reducing leachate quantity in the shallow aquifer if lower aquifer quality is determined to be at risk based on compliance monitoring results.

Through these methods, the proposed cleanup action for groundwater under future conditions increases the certainty of groundwater pathway protectiveness. It meets the cleanup standards and is protective of human health and the environment.

The proposed cleanup action for groundwater provides long-term effectiveness through providing measures that increase the certainty of groundwater pathway protectiveness and commitment to compliance monitoring and contingency measures.

The proposed cleanup action for groundwater is effective in the short-term because the groundwater pathway is in compliance with cleanup standards under existing conditions. Effectiveness of the groundwater pathway alternatives for future conditions is relevant only to increasing the certainty of protectiveness in the long-term.

The proposed cleanup action for groundwater is likely to provide a permanent reduction in the volume and mobility of leachate in the groundwater system due to anticipated reduction in leachate quantity and associated leachate head in the shallow aquifer. The proposed cleanup action for groundwater will not reduce the toxicity of leachate. Therefore, continued operation of the leachate collection system is required unless it can be shown that shallow aquifer groundwater has attained compliance with cleanup standards.

The proposed cleanup action can be implemented using common design, permitting, construction and monitoring practices.

Costs associated with the proposed cleanup action for groundwater above the “base case” costs for hydraulic barrier and stormwater management restrictions include the increased cost of using augercast piling in restricted areas. For the purposes of this evaluation, it is assumed buildings will cover about 14 acres of the Site and that one quarter of the building square footage will have the zoned designation requiring augercast piles. The estimated cost was developed using only the differential cost between steel piles (estimated to be the lowest cost

pile foundation at the Site) and augercast piles. The cost of off-site disposal for half of the potential augercast pile spoils is included, although such disposal may not be necessary if an on-site disposal area is available at time of development. The estimated cost of this alternative above the "base case" costs is $2,500,000.

Through continued monitoring and contingency plan commitment, restriction of pile installation based on shallow aquifer conditions, as well as through an understanding of current compliance with cleanup standards, the proposed cleanup action will address anticipated public concerns regarding protection of the groundwater pathway. t therefore meets all of the criteria to be considered "permanent to the maximum extent practicable."

The alternative without zoned pile installation restrictions was rejected because it does not provide increased certainty of groundwater pathway protectiveness during potential future developed conditions.

The alternative "Excavate and Remove Landfilled Materials" is also rejected. Because this alternative was evaluated for multiple pathways, please see Section 7.9 for justification.

7.4.2 Provide for a Reasonable Restoration Time Frame

The proposed cleanup action provides a reasonable restoration time frame. The groundwater pathway at the Everett Landfill/Tire Fire Site is in compliance with cleanup standards under existing conditions. The proposed cleanup action defines requirements that will be imposed on development to increase the certainty of groundwater pathway protectiveness during and following potential future development actions.

7.4.3 Consider Public Concerns Raised during Public Comment on the Draft Cleanup Action Plan

Public concerns are unknown at this time. The public has not had an opportunity to comment on a draft cleanup action plan as of this date. Evaluation of the alternatives against this criterion will be done after such comments are received.

7.5 CLEANUP ACTION ALTERNATIVES FOR DIRECT CONTACT

In addition to the proposed cleanup action for direct contact, which includes developed area cover, construction requirements, on-site disposal of excavated refuse and access controls for undeveloped areas, the following alternatives were evaluated:

- Developed area cover, construction requirements, off-site disposal of excavated refuse and access controls for undeveloped areas
- Excavate and remove landfilled materials

7.6 JUSTIFICATION OF PROPOSED CLEANUP ACTION FOR DIRECT CONTACT

7.6.1 Permanent Solutions to the Maximum Extent Practicable

Developed area covers, construction requirements and access controls isolate Site users, the surrounding community, and environmental receptors from direct contact with refuse materials. These measures ensure that construction workers coming in contact with exposed refuse will be appropriately health and safety trained. In this manner, the proposed cleanup action for direct contact meets the cleanup standards and is protective of human health and the environment.

This cleanup action provides long-term effectiveness through reliance on institutional controls, compliance monitoring and maintenance of landfill cover. In a landfill setting, reliance on institutional controls for long-term effectiveness is an acceptable and proven alternative.

The proposed cleanup action for direct contact includes construction requirements and institutional controls to control short-term risks from construction and maintenance activities. Construction requirements include construction performance monitoring in addition to physical requirements to ensure that performance standards are met.

The proposed cleanup action for direct contact does not provide a permanent reduction in the toxicity, mobility or volume of the landfilled refuse. Isolation of landfilled refuse from environmental exposure pathways is a proven and acceptable alternative for municipal landfill facilities. Through developed area cover requirements and institutional controls, the proposed cleanup action for direct contact will increase the certainty of isolation of the refuse from uncontrolled direct contact.

The proposed cleanup action for direct contact can be easily implemented during Site development activities.

On-site disposal of refuse excavated during development is expected to be minimal. The same cover and grading requirements will apply to relocated refuse, thus isolating relocated refuse from environmental exposure pathways.

The costs to implement this alternative will be contained within the development costs for the Site. These costs are not expected to make development of the Site impracticable.

Costs for on-site disposal of excavated refuse are estimated to be $35/ton less expensive than for the other alternative that prohibits on-site relocation of excavated refuse. However, it is not possible at this time to estimate whether refuse will be excavated for development or what potential volume of excavated refuse may be included in development plans.

Through institutional controls, construction requirements, construction performance monitoring and public access controls, the proposed cleanup action will address most anticipated public concerns regarding direct contact with, or exposure to landfilled materials. Because the proposed cleanup action for direct contact is not expected to cause the traffic and transportation impacts, nor create the potential risk of off-site contamination, that off-site disposal of excavated refuse would cause, the public may have fewer concerns with on-site relocation of excavated refuse.

The proposed cleanup action for the direct contact pathway thus meets all the criteria to be considered "permanent to the maximum extent practicable".

The alternative requiring off-site disposal of excavated refuse was rejected because off-site disposal of excavated refuse would not significantly reduce the volume of contained refuse at the Everett Landfill/Tire Fire Site, as the volume of refuse excavated during development is expected to be minimal. The toxicity or volume of the refuse excavated for development would not be reduced through off-site disposal, it would simply be transferred to another landfill setting. Additionally, off-site disposal of excavated refuse would cause traffic and transportation impacts, as well as potential risk of off-site contamination. Public concerns may be raised about the environmental effectiveness of transporting waste from one landfill setting to another at increased cost and increased community impact, without achieving increased environmental protection at the Everett Landfill/Tire Fire Site.

The alternative "Excavate and Remove Landfilled Materials" was rejected. Because this alternative was evaluated for multiple pathways, please see Section 7.9 for justification.

7.6.2 Provide for a reasonable restoration time frame

The proposed cleanup action for direct contact pathway protection would be implemented as development occurs, associated with a reasonable restoration time frame.

7.6.3 Consider Public Concerns Raised during Public Comment on the Draft Cleanup Action Plan

While the public has not yet had an opportunity to comment on a draft cleanup action plan, anticipated public concerns regarding the alternatives include traffic and transportation impacts, potential risk of contamination of areas off-site, and potential risks to nearby water ways. The proposed cleanup action avoids these risks by allowing excavated refuse to be relocated within the Everett Landfill/Tire Fire Site. The other direct contact alternatives would likely raise some public concerns; however, public concerns are unknown at this time and evaluation of the alternatives against this criterion can be done after such comments are received during the comment period for the CAP.

7.7 CLEANUP ACTION ALTERNATIVES FOR SURFACE WATER

In addition to the proposed cleanup action for surface water, which includes construction practices and stormwater management requirements, an additional alternative, excavate and remove landfilled materials, was evaluated.

7.8 JUSTIFICATION OF PROPOSED CLEANUP ACTION FOR SURFACE WATER

7.8.1 Permanent Solutions to the Maximum Extent Practicable

The proposed cleanup action for surface water ensures continued overall protectiveness of human health and the environment under developed conditions. Construction practices isolate surface water from refuse. Any surface water contacting temporarily exposed landfilled

materials during construction is contained on-site or directed to the leachate collection system. Development surfaces, such as pavement and landscaping, will meet or exceed the performance of the existing two-foot minimum soil cover in preventing surface water contact with refuse. The stormwater management requirements ensure future development does not create new conditions that could cause exceedance of cleanup standards.

The proposed cleanup action for surface water is effective long-term. Its requirements are practical and employ standard practices for controlling environmental impacts to surface water from development. It provides extra precautions suitable to development on a landfill. The inspection, maintenance, and compliance monitoring requirements ensure long-term reliability. Contingency plans are available if monitoring indicates cleanup levels are being exceeded.

Short-term effectiveness is also achieved by the proposed cleanup action for surface water. Cleanup standards have already been met by sources from on-site. Potential off-site sources contributing to cleanup level exceedances would be identified and appropriate responses initiated. Construction practices ensure surface water cleanup levels are not exceeded as a result of future development construction.

The proposed cleanup action for surface water does not permanently remove the source of potential contamination (landfilled materials). But it does permanently isolate landfilled materials from contact with surface water through the use of existing and future development covers and lined or piped stormwater drainage ways. It also provides for inspection, maintenance, compliance monitoring, and contingency plans to ensure the controls remain effective over time.

The proposed cleanup action for surface water is readily implemented. It applies standard surface water management practices that are well understood and included routinely with development. Additionally, the surface water controls typically associated with landfills and commonly practiced are applied.

The proposed cleanup action for surface water is not substantial and disproportionate to the incremental increase in protection provided.

There are no known community concerns the proposed cleanup action does not meet.

The alternative “Excavate and Remove Landfilled Materials” was rejected. Because this alternative was evaluated for multiple pathways, please see Section 7.9 for justification.

7.8.2 Provide for a reasonable restoration time frame

The proposed cleanup action for surface water can be implemented immediately upon approval and thus meets the reasonable restoration time frame criteria.

7.8.3 Consider Public Concerns Raised during Public Comment on the Draft Cleanup Action Plan

Public concerns are unknown at this time. The public has not had an opportunity to comment on the draft cleanup action plan as of this date. Evaluation of the alternatives against this criterion can be done after such comments are received.

7.9 EXCAVATE AND REMOVE LANDFILLED MATERIALS ALTERNATIVE

This alternative was evaluated in each of the four pathways. For the gas pathway, it was an alternative to remedy existing conditions. For the remaining pathways, the alternative was considered for future conditions. In all evaluations, the "Excavate and Remove Landfilled Materials" alternative was rejected for the following reasons:

- The toxicity or volume of the excavated refuse would not be reduced through removal; it would simply be transferred to another landfill setting. Isolation of landfilled refuse from environmental exposure pathways is a proven and acceptable alternative for municipal landfill facilities.
- Costs are substantial and disproportionate to any reduction in risk. The alternative is estimated to cost $165 million. Even when costs for remedial alternatives for all exposure pathways are considered in aggregate, this aggregate cost is far less expensive than excavating and removing all landfilled materials.
- The "Excavate and Remove Landfilled Materials" alternative would also present substantial short-term risks from exposure to solid waste and its constituents during excavation and hauling, by increasing resuspension of groundwater contaminants, by removing barriers to surface water infiltration, and through impacts to stormwater runoff. Additional impacts to traffic and transportation would be incurred.
- For groundwater, it is not found to be a permanent solution to the maximum extent practicable because continued operation of the leachate collection system through construction, and downgradient monitoring after excavation would be required.
- The "Excavate and Remove Landfilled Materials" alternative is no more protective than either of the other direct contact alternatives, and would result in greater direct contact risks over the short-term.
- Public concerns may be raised about the environmental effectiveness of transporting waste from one landfill setting to another at increased cost and increased community impact, without achieving increased environmental protection at the Everett Landfill/Tire Fire Site.

8.0 References

Associated Earth Sciences, Inc. 2000. *Site review of the outer (western) drainage ditch of the eastern set of BNSF tracks and general review of wildlife habitat conditions in the eastern project area.* Prepared for City of Everett. March.

Black & Veatch. 1995. *Final Interim Action Report, Everett Landfill and Tire Fire Site*. Prepared for City of Everett. December.

_____. 1996. *Final Supplemental Remedial Investigation/Feasibility Study, Everett Landfill and Tire Fire Site*. Prepared for City of Everett. Seattle, Washington.

_____. 1997. *Sediment Sampling / Ditch Survey Results, Everett Landfill and Tire Fire Site*. Prepared for City of Everett. Seattle, Washington. April.

City of Everett. 1997. *Everett Comprehensive Land Use Plan*. July. Everett, Washington.

Floyd & Snider Inc. (FSI). 2000. *Brownfield Feasibility Study.* Prepared for City of Everett. Seattle, Washington. November.

Washington State Department of Ecology (Ecology). 1999. *Draft Cleanup Action Plan*, Toxics Cleanup Program. Olympia, Washington.

ERM-Northwest Inc. 1993. *Final Feasibility Study and Phase II Remedial Investigation, Everett Landfill, Everett, Washington*. September.

Environmental Partners. 1999*. Limited Phase II Investigation Report, Railroad Relocation Plan, Everett, WA.* Prepared for City of Everett. November.

Cleanup Action Plan Tables

Table 2-1
Regulatory History

Date	Action
Landfill Closure and Pre-Consent Order	
1974	Landfill stopped accepting waste
1975	Landfill closed per WAC 173-301
1983	Tire Fire
1984	Tire Fire
August 1985	Preliminary Assessment, SAIC
October 1986	RI/FS and Chemical Fixation Studies, SAIC
1987	Ecology and Environment Investigation
1989	MTCA enacted by the State
January 1989	Preliminary Assessment by Ecology
July 1989	Potential Liable Parties notified by Ecology
Consent Order	
February 1990	Consent Order issued
March 1990	Extended Ash Sampling Program, SAIC
March 1991	Phase I Study, ERM
September 1993	Phase II Study, ERM
December 1995	Interim Action Report, Black & Veatch
January 1996	Supplemental RI/FS, Black & Veatch
Enforcement Order	
June 1994	Enforcement Order issued
August 1995-May 1996	Landfill Grading – Interim Action
June 1997-May 1998	Leachate Collection System Construction – Interim Action
Draft Cleanup Action Plan and Brownfield Project	
September 1998	EPA Brownfield Grant application
March 1999	Draft CAP received from Ecology
March 1999	Geotechnical Investigation, Floyd & Snider
April 1999	Draft Consent Decree
May 1999	Existing Conditions Report, Floyd & Snider
August-September 1999	Ambient Air Sampling & Evaluation, Floyd & Snider
October 1999	Groundwater Cleanup Levels and Point of Compliance Report, Floyd & Snider
October-November 1999	Groundwater Baseline Sampling, HWA GeoSciences
December 1999	Gas Management FFS, Floyd & Snider
September 2000	Brownfield Feasibility Study, Floyd & Snider

Table 3-1
Cleanup Levels for Landfill Gas

CAS number	COMPOUND	PQL[1] (ug/m^3)	Background Level from ATSDR[2] (ug/m^3)	Cleanup Level by MTCA Method B[3] (ug/m^3)	Proposed MTCA Cleanup Levels[4] (ug/m^3)
75-71-8	Dichlorodifluoromethane	1.0	NA[6]	80.0	80.0
74-87-3	Chloromethane	1.0	1.7	1.4	1.7
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.0	NA[6]	NS[5]	NS[5]
75-01-4	Vinyl Chloride	1.0	0.0	0.029	1.0
75-00-3	Chloroethane	1.0	0.11	4600	4600
75-69-4	Trichlorofluoromethane	1.0	NA[6]	320	320
75-35-4	Dichloroethene; 1,1-	1.0	1.53	NS[5]	NS[5]
75-09-2	Methylene chloride	1.0	1.14	NS[5]	NS[5]
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	NA[6]	13,700	13,700
75-34-3	Dichloroethane; 1,1-	1.0	0.223	0.007	1.0
156-59-2	Dichloroethene; cis-1,2-	1.0	0.274	NS[5]	NS[5]
67-66-3	Chloroform	1.0	0.3	0.11	1.0
107-06-2	Dichloroethane; 1,2-	1.0	0.049	0.096	1.0
71-43-2	Benzene	1.0	5.9	0.3	5.9
108-88-3	Toluene	1.0	32.5	183	183
127-18-4	Tetrachloroethene	1.0	5.4	NS[5]	NS[5]
108-90-7	Chlorobenzene	1.0	3.0	8.0	8.0
100-41-4	Ethylbenzene	1.0	2.74	457	457
1330-20-7	m,p-Xylene	1.0	11.5	320	320
100-42-5	Styrene	1.0	32.5	4.4	32.5
95-47-6	o-Xylene	1.0	4.9	320	320
79-34-5	Tetrachloroethane; 1,1,2,2-	1.0	0.038	NS[5]	NS[5]
108-67-8	Trimethylbenzene; 1,3,5-	1.0	NA[6]	NS[5]	NS[5]
95-63-6	Trimethylbenzene; 1,2,4-	1.0	NA[6]	NS[5]	NS[5]
541-73-1	Dichlorobenzene; 1,3-	1.0	NA[6]	NS[5]	NS[5]
106-46-7	Dichlorobenzene; 1,4-	1.0	1.65	366	366
95-50-1	Dichlorobenzene; 1,2-	1.0	NA[6]	64.0	64.0
120-82-1	Trichlorobenzene; 1,2,4-	1.0	NA[6]	4.8	4.8
87-68-3	Hexachlorobutadiene	1.0	0.38	0.112	1.0
78-93-3	2-Butanone (MEK)	1.0	21	460	460
7783-06-4	Hydrogen sulfide	2.8	0.305	0.416	2.8
71-55-6	Trichloroethane; 1,1,1-	1.0	3.05	4,800	4,800
56-23-5	Carbon Tetrachloride	1.0	1.2	0.17	1.2
108-10-1	4-Methyl-2-pentanone (MIK)	1.0	NA[6]	32.0	32.0
67-64-1	Acetone	1.0	16.6	NS[5]	NS[5]
75-15-0	Carbon Disulfide	1.0	0.206	4.6	4.6

1 Laboratory Practical Quantification Limit from Performance Analytical, Inc., Simi Valley, CA.
2 Agency for Toxic Substance and Disease Registry (ATSDR), Toxicological Profiles for Chemical Hazardous Substances.
3 Method B WAC 173-340-750(3) equation. Inhalation Reference Doses and Cancer Potency factors used in the equations were obtained from the MTCA Cleanup Levels and Risk Calculations (CLARC II) Update dated Feb. 1996.
4 Proposed cleanup level is either by Method B, background if it exceeds Method B cleanup level, or PQL if it is higher than either the Method B cleanup level or background. If the compound is not listed in the MTCA CLARC II update then no cleanup standard is proposed.
5 NS = None specified. MTCA CLARC II update does not contain cancer potency factor or inhalation reference dose for this compound.
6 NA = No ATSDR Toxicological Profile exists for this compound.

Table 3-2
Groundwater Detections in the Shallow (Leachate) Aquifer and Cleanup Levels

Analyte	Cleanup Level (ug/L)	1990 Phase I Investigation		1991 Phase II Investigation		November 1998 Sampling		November 1999 Sampling [5]	
		Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location
Metals [1]									
arsenic	BKG	22	MW-1	NA		22(t)	MW-23	7	MW-24
chromium	50	**66**	MW-7	NA		46(t)	MW-17	ND(5)	
copper	10	**43**	MW-7	NA		**450(t)**	MW-23	6	MW-14
iron	BKG	91,695	MW-1	45,000	MW-12	47,000	MW-5	NA	
lead	10	**226**	MW-7	**33 (t)**	MW-14	**34(t)**	MW-5	**35**	MW-14
manganese	BKG	3,180	MW-1	1,100	MW-5	3,400	MW-27	NA	
nickel	10	**86**	MW-7	NA		**140(t)**	MW-23	**20**	MW-7, 24
selenium	20			NA		ND(40)		3	MW-24
zinc	76.6	**1,126**	MW-7	**390(t)**	MW-14	**2,000**	MW-27	**209**	MW-27
Pesticides									
beta-BHC	0.06			NA		ND(0.05)		**0.14**	MW-7
DDD; 4,4-	0.36	**0.6**	MW-12	NA		ND(0.05)		ND(0.1)	
DDT; 4,4-	0.1			NA		0.05	MW-12	ND(0.1)	
Polychlorinated Biphenyls									
aroclor 1242 (PCB)	0.65			ND(0.5)		ND(0.1)		**2.9**	MW-12
aroclor 1254 (PCB)	1	1	MW-12	ND(0.5)		ND(0.1)		ND(1.0)	
Volatile Organics									
acetone [4]	800	49	MW-3	28	MW-14	ND(150)		10	MW-14
benzene	5	**16**	MW-1	**12**	MW-12	**7**	MW-5	**6.2**	MW-5
butanone;2- (MEK)	4,800			ND(10)		ND(25)		5.5	MW-24
n-Butylbenzene	TPH			NA		ND(5)		4.4	MW-5
sec-butylbenzene	TPH			NA		ND(5)		4.3	MW-5
chlorobenzene	100	47	MW-12	37	MW-12	19	MW-12	46	MW-5
chloroethane	No Standard	4	MW-5	5.3	MW-5	47	MW-5	20	MW-5
chloroform	7	ND		ND(1)		ND(5)		0.5	MW-24
chloromethane	10	ND(7)		4	MW-5	ND(5)		1.7	MW-7
cis-1,2-dichloroethene	70	2.2	MW-1	ND(1)		ND(5)		1.8	MW-22
dichlorobenzene;1,2-	600			1.2	MW-12	ND(5)		1.8	MW-7
dichlorobenzene;1,4-	10	**17**	MW-12	**17** [3]	MW-12	6	MW-7	**15**	MW-7
dichloroethane;1,1-	5	2.3	MW-1	ND(1)		ND(5)		0.8	MW-22
dichloromethane	5			NA		NA		0.3	MW-24
ethylbenzene	30	**100**	MW-5	**50**	MW-14	ND(5)		1.7	MW-5
isopropylbenzene	640			NA		16	MW-5	26	MW-5
isopropyltoluene;4-	TPH			NA		ND(5)		0.5	MW-5
n-propylbenzene	TPH			NA		32	MW-5	45	MW-5
toluene	40	**100**	MW-5	**73**	MW-14	ND(5)		1.3	MW-5
trichlorobenzene;1,2,4-	70	8.2	MW-1	ND(4) [3]		ND(5)		ND(0.5)	
trichlorofluoromethane	2,400	3	MW-7	ND(1)		ND(5)		ND(0.2)	
trimethylbenzene;1,2,4-	TPH			NA		5	MW-7	9.2	MW-7
trimethylbenzene;1,3,5-	TPH			NA		ND(5)		0.3	MW-23
vinyl chloride	10			ND(1)		ND(5)		1	MW-22
m,p-xylene	20	**280**	MW-5	**360**	MW-14	ND(10)		3	MW-7
o-xylene	20	**81**	MW-5	**130**	MW-14	ND(5)		1.4	MW-5

Continued on following page.
See notes on following page.

Table 3-2 (continued)
Groundwater Detections in the Shallow (Leachate) Aquifer and Cleanup Levels

Analyte	Cleanup Level (ug/L)	1990 Phase I Investigation		1991 Phase II Investigation		November 1998 Sampling		November 1999 Sampling [5]	
		Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location
Semi-Volatile Organics									
acenaphthene	643	6.4	MW-7	5.7	MW-5	10	MW-25	7.5	MW-25
acenaphthylene	No Standard			ND(2)		ND(2)		5.8	MW-12
anthracene	4,800	2.6	MW-7	ND(2)		ND(2)		0.8J	MW-7
benzoic acid	64,000			ND(40		ND(20)		7.2	MW-14
benzyl butyl phthalate	1,252	2.7	MW-4	ND(2)		ND(2)		ND(1)	
bis(2-ethylhexyl) phthalate [4]	10	**39**	MW-7	**16**	MW-12	**13**	MW-5	**31**	MW-12
carbazole	10			NA		3	MW-5	5.8	MW-5
dibenzofuran	No Standard	4.8	MW-7	2.7	MW-5	3	MW-25	2.7	MW-7
diethylphthalate	12,800	5.2	MW-4	ND(4)		ND(2)		2.4	MW-12
dimethylphenol;2,4-	320	10	MW-4	ND(2)		ND(2)		ND(3)	
di-n-butylphthalate	1,600	6.5	MW-1	ND(2)		ND(2)		ND(1.0)	
fluoranthene	90	7.3	MW-7	ND(2)		ND(2)		3.4	MW-7
fluorene	640			2.6	MW-5	5	MW-25	3.5	MW-7
methylnaphthalene;2-	TPH	20	MW-1	23	MW-12	8	MW-12	5.3	MW-12
methylphenol;4-	TPH	24	MW-1	ND(4)		3	MW-7	1.5	MW-24
naphthalene [4]	320	84	MW-5	97	MW-5	55	MW-25	63	MW-7
n-nitrosodiphenylamine	10	**20**	MW-5	**16**	MW-5	**16**	MW-5	**16**	MW-5
phenanthrene	No Standard	16	MW-7	5	MW-12	4	MW-5,25	7.8	MW-7
phenols	9,600	130	MW-5	NA		NA		ND(2)	
pyrene	480	4.6	MW-7	ND(2)		ND(2)		2.6	MW-7

Notes:

1 Phase I metals assumed total. All others dissolved except where marked with (t).

2 1990 data analysis (ERM, 1991) suggests acetone and bis(2-ethylhexyl) phthalate were found in lab blanks. Bis(2-ethylhexyl) phthalate was also found in 1999 laboratory blanks.

3 Recorded value is as a semi-volatile organic (SVOC).

4 Compound may be analyzed as VOC or SVOC. All values except Phase II calculated as a VOC.

5 Samples from MW-7 and MW-12 reported in November 1999 column were taken February 2000.

BKG Indicates that cleanup level will be determined after area background concentrations are identified.

J Indicates an estimated concentration when the value is less than the calculated reporting limit.

TPH Cleanup level is determined as a sum of all Total Petroleum Hydrocarbons (TPH). That cleanup level is set at 100 ug/L.

NA Not analyzed

ND Not detected (highest detection limit in brackets)

No Standard means that no cleanup level exists for the specific analyte.

Bold indicates exceedance of cleanup level.

Table 3-3
Groundwater Detections in the Deep Aquifer and Cleanup Levels

Analyte	Cleanup Level (ug/L)	1990 Phase I Investigation		1991 Phase II Investigation		November 1998 Sampling		November 1999 Sampling [3]	
		Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location	Maximum Conc. (ug/L)	Location
Metals [1]									
antimony	30			NA		ND(50) (t)		0.2	MW-21
arsenic	BKG	15	MW-11	NA		18 (t)	MW-30	12.6	MW-32
cadmium	5			NA		ND(5) (t)		0.2	MW-21
chromium	50			NA		49 (t)	MW-8	ND(5)	
copper	10			NA		**30 (t)**	MW-31	ND (2)	
iron	BKG	1,675	MW-8	86,000	MW-8	27,000	MW-11R	NA	
lead	10			ND (5)		**17 (t)**	MW-21	ND (1)	
manganese	BKG	2,321	MW-10	1,800	MW-15	1,800	MW-31	NA	
zinc	76.6	**459**	MW-8	ND(20)		**110 (t)**	MW-21	ND (6)	
Volatile Organics									
acetone [2]	800	48	MW-8	27	MW-13	ND (150)		4.4	MW-31
benzene	5	ND		NA		ND(5)		0.9	MW-11R
cis-1,2-dichloroethene	70	ND		1.2	MW-15	ND (5)		0.6	MW-11R
dichloroethane;1,1-	5	ND		ND (1)		ND(5)		0.3	MW-11R
isopropyltoluene;4-	TPH			NA		ND(5)		0.3	MW-31
m,p-xylene	20	2.1	MW-8	ND (1)		ND (10)		ND (0.4)	
toluene	40	1.9	MW-8	ND (1)		ND (5)		0.3	MW-31
vinyl chloride	10			ND (1)		ND(5)		0.2	MW-11R
Semi-Volatile Organics									
bis(2-ethylhexyl) phthalate [2]	10	**37**	MW-10	ND (4)		4	MW-8	**48**	MW-28
diethylphthalate	12,800	ND		ND(4)		ND(5)		5.6	MW-32
dimethylphenol;2,4-	320	2	MW-8	ND (2)		ND (2)		ND (3)	
phenols	9,600	6	MW-10	NA		NA		NA	

Notes:

1 Phase I metals assumed total. All others dissolved except where marked with (t).

2 1990 data analysis (ERM, 1991) suggests acetone and bis(2-ethylhexyl) phthalate were found in lab blanks. Bis(2-ethylhexyl) phthalate was also found in 1999 laboratory blanks.

3 Samples from MW-7 and MW-12 reported in November 1999 column were taken February 2000.

BKG Indicates that cleanup level will be determined after area background concentrations are identified.

TPH Cleanup level is determined as a sum of all Total Petroleum Hydrocarbons (TPH). That cleanup level is set at 100 ug/L.

NA Not analyzed

ND Not detected (highest detection limit in brackets)

Bold indicates exceedance of cleanup level.

Table 6-1
Remedial Actions for Development Components

Development Components	Remedial (Cleanup) Actions
Property Transfer	
Property transfer from the City of Everett to future landowners, and additional ground lease to tenants.	If City enters into a purchase and sale or long-term lease agreement with any parties on the Site, the agreements will include requirements for implementation of all CD and CAP requirements. Property agreements will clearly define permitted use, and split of responsibilities for implementation of CAP requirements between City and developers. The City will maintain responsibility for all CAP and CD requirements unless the Purchaser or Lessee specifically agrees to assure certain responsibilities, becomes a signatory to the CD, and Ecology approves the changes.
Potential subdivision and partial transfer. Probable phased development areas.	The Site may be developed in several separate projects or phases, depending on Site ownership and project plans. In that event, the phases shall be adjacent to Site boundaries and to prior phases, allowing CAP requirements to be fully operational and effective for each phase and in total. Special consideration shall be given to landfill gas system boundary conditions. Access will be controlled during development to maintain separation between developed and undeveloped areas of the landfill, and to prevent damage to environmental systems from subsequent construction.
Construction Disruption	
Site re-grading including cut and fill magnitudes typical for an urban redevelopment site. Assume regrading could encounter refuse, and perched groundwater. Subsurface excavation for utilities and structures. Import and export of soils, potential localized refuse removal, and stockpiling.	Dust and odor controls during construction – During Site construction activities, dust and odor controls would be required to prevent migration of materials outside the construction zone at levels of concern. These measures will include daily cover of any exposed waste, and could include localized wetting, application of suppressant foams, or use of temporary cover materials. Stormwater management – Erosion controls using best management practices, as necessary, in accordance with the City of Everett's Stormwater Management Manual and provisions of a NPDES permit for construction sites greater than five acres, as applicable. Run-on controls to prevent run-on of surface water onto exposed landfilled materials. Direct contact controls – Health and safety requirements for construction crews, to be triggered if construction occurs below the elevation of the clean soil cap. Construction dewatering procedures – Excavation construction for future potential development will likely encounter perched groundwater in portions of the waste. This water must be assumed contaminated and handled accordingly. Pumped dewatering water could be discharged into the leachate collection system provided it is approved by City Industrial Pretreatment Program. Or, the water could be stored in mobile tanks, tested for contaminants and disposed of accordingly. Construction performance monitoring and inspection – During Site construction activities, inspections for adequate perimeter dust controls, erosion controls, and dewatering and odor controls are required. On-site construction oversight by a health and safety professional or inspector is required of all applicable development activities as described in the CMCP. Controlled on-site relocation and re-capping of excavated refuse during construction activities is allowed. Location and quantities will be approved prior to excavation. As necessary, excavated refuse could also be disposed off-site in an active municipal landfill. Following construction, all developed areas of the landfill must be covered with pavement, buildings, or clean soil underlain by hydraulic barrier.

Continued on following page.

Table 6-1 (continued)
Remedial Actions for Development Components

Development Components	Remedial (Cleanup) Actions
Site Infrastructure	
Water lines.	Utility trenches or corridors below developed area cover elevation will be lined with a geotextile and backfilled with clean soil, to allow maintenance without additional health and safety requirements for contaminated materials. Construction methods and materials to accommodate expected settlements are required. Seal entry into buildings or enclosed structures including utility manholes/vaults to prevent landfill gas leaks. Backfill trench with low permeability soil where utility line leaves property.
Sanitary sewer lines.	For sanitary sewer and storm drainage systems, watertight manholes using gasketed riser sections and rubber boot connections are recommended. HDPE piping is recommended. Additional measures to mitigate settlement include flexible telescoping sleeves and flexible connections at vaults and interfaces with buildings, and pipe hangers beneath pile supported structures. Seal entry into buildings or manholes to prevent landfill gas leaks. Backfill trench with low permeability soil where utility line leaves property.
Storm sewer lines.	Stormwater will not be allowed to infiltrate into the landfill. Measures described above for sanitary sewer and storm drainage systems will be taken. All stormwater will be collected for off-site discharge. Seal entry into catch basins and manholes to prevent landfill gas leaks. Backfill trench with low permeability soil where utility line leaves property.
Manholes and maintenance access.	Vaults will be designed with water and gas tight joints and will be clearly labeled for necessary confined space entry procedures per gas pathway requirements.
Electrical, telephone and gas lines.	For electric, telephone, and natural gas systems, settlement can be accommodated by the use of additional wire lengths or flexible piping. Light fixtures and similar features shall either be finished above the underlying gas barrier or, if penetrating the gas barrier, be internally sealed and booted to the barrier layer to preclude intrusion of landfill gas. Seal conduit at building entry to prevent landfill gas leaks. Ensure interior of conduit is sealed as well.
Pavements (concrete and/or asphalt) for roadways, parking lots and sidewalks.	Subgrade reinforcement (such as a geotextile or geogrid material) may be used to minimize areas of localized, uneven settlement. Pavements should be designed to accommodate settlement at boundary conditions to pile-supported buildings. Penetrations below landfill cover sections in paved areas will not be allowed without appropriate procedures to address health and safety and repair. A construction quality assurance plan shall detail pavement permeability testing procedures. Install phased active landfill gas controls including perforated pipes in gravel filled trenches connected to header pipes and a vacuum source. The perforated pipes and gravel bed would be located beneath the pavement. The phased active landfill gas controls will be installed continuously throughout developed areas, below pavement, open space and buildings. Quarterly monitoring with a hand held sensor would trigger repair of pavement cracks if methane concentrations above 500ppm were detected. Routine inspection of paved areas is required to identify and repair areas of pavement cracking or locations where required landfill cover may be compromised.

Continued on following page.

Table 6-1 (continued)
Remedial Actions for Development Components

Development Components	Remedial (Cleanup) Actions
Buildings	
Potential light structures with shallow foundations.	If design of structures can address seismic stability concerns, light structures with shallow foundations would be allowed.
Heavy structures with pile supported foundations	Pile supported structures are anticipated at the Site. Either driven or drilled pile types may be installed, following implementation of the groundwater compliance monitoring program and completion of evaluation re: potential zones of pile-type restrictions. Piles to support structures would be installed through refuse, through the underlying clay and peat layers into bearing sands. Piling or foundations that penetrate the gas barrier layer shall be booted or sealed to the barrier layer. Some areas of the Site may be restricted to augercast type pile construction. This determination will be made following additional shallow aquifer sampling and evaluation.
Potential basement or below grade parking areas.	Excavation requirements are listed under "Construction Disruption" requirements above. Particular care should be given to design of utility and pavement connections at the interface of pile supported buildings and surrounding Site areas, where significant differential settlement is expected. Buildings will be protected by a geomembrane beneath the foundation slab that is booted and sealed around piles and utility penetrations. Phased active gas controls will be installed continuously below developed areas, including perforated extraction piping in gravel trenches, spaced a maximum of 100' on center. Below buildings, extraction piping would be installed in development fill or slab subgrade – above refuse. The extraction piping will be connected to header pipes, a vacuum source and a discharge location. A full-time continuous ground floor methane monitoring system will be installed in all buildings. Methane concentrations exceeding 1,000 ppm will automatically activate the building's HVAC system and notify operations personnel. Methane concentrations exceeding 10,000 ppm will activate audible alarms and trigger building evacuation. Quarterly monitoring with a hand held sensor would be used to identify any locations with methane exceeding 100ppm for repair. Temporary enclosures erected over pavement or open space areas will contain continuous methane monitors that would activate an alarm if triggered.

Continued on following page.

Table 6-1 (continued)
Remedial Actions for Development Components

Development Components	Remedial (Cleanup) Actions
Landscaped or Open Space Areas	
Landscaped areas around buildings and parking areas. Recreational use/park areas and trails.	Landscaped or open space areas will be constructed with a low permeable hydraulic barrier underlying clean soil established with vegetation to prevent erosion. Hydraulic barriers should obtain permeability similar to that of asphalt pavement. Institutional controls and property management procedures are required to prevent unauthorized digging and potential disturbance of hydraulic barrier. Subdrainage is required above the hydraulic barrier, to collect drainage above the barrier for off-site discharge. In landscaped areas where it is impracticable to connect with the storm water system for discharge, a drain may be placed in the hydraulic barrier to allow infiltration into the landfill, as long as it does not compromise gas collection system effectiveness. Phased active gas controls will be installed continuously below developed areas, including perforated extraction piping in gravel trenches, spaced a maximum of 100' on center. Below landscaped areas, extraction piping would be installed in development fill below the hydraulic barrier – above refuse. The extraction piping will be connected to header pipes, a vacuum source and a discharge location. Quarterly surface monitoring with a hand held sensor would be used to identify any locations with methane exceeding 500 ppm for repair. Fence posts shall either be finished above the underlying gas barrier or, if penetrating the gas barrier, be internally sealed and booted to the barrier layer to preclude intrusion of landfill gas. A Stormwater Pollution Prevention Plan and routine inspection of open space areas will be required to ensure cap integrity is not compromised by erosion.
Public Access	
Unlimited public access in developed areas.	Public will be allowed access to all developed areas of the Site, except controlled entry to confined spaces and maintenance corridors. Warning signage may be placed as appropriate. Landfill gas controls must be installed and operational in developed areas for public access.
Access restrictions to undeveloped areas.	Perimeter fencing with secured entries will restrict access to undeveloped portions of the Site.

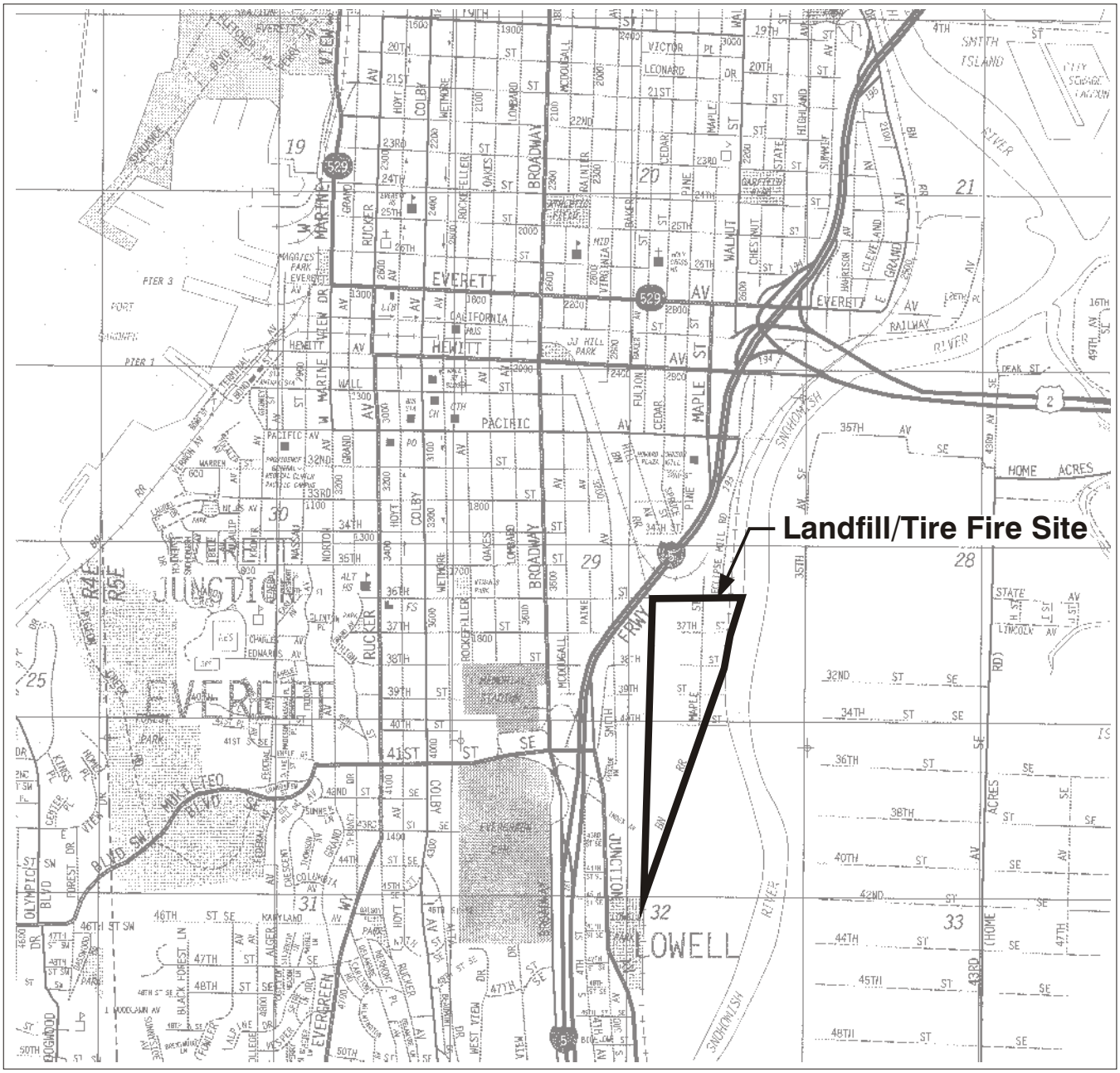
Table 6-2
City and Ecology Responsibilities in Potential Future Development Approvals

Project Stage	Environmental Issues	Development Issues	Outcomes and Comments
CAP/CD	Commitments to environmental cleanup and compliance monitoring made; cleanup actions defined for development; reporting frequency defined.	To extent possible, cleanup actions incorporate and take advantage of development.	Environmental actions are fully defined between City and Ecology for both existing Site and developed conditions, with expected outcomes and commitments. Progress reporting schedule and content defined.
Sale or Lease Agreement	CAP/CD Commitments included/passed down.	Developer contractually and legally commits to completing environmental actions related to development.	Expected outcomes for environmental actions during development as defined in CAP/CD are set in contract. City retains responsibility for key elements of compliance.
Site Development and Review Stage	Clean up action commitments incorporated into this master design phase for full Site build out.	Includes Schematic and Conceptual Designs for Development (approx. 30% of design complete). Developer makes formal application to City in accordance with applicable Federal, State and Local permitting requirements, i.e. SEPA, Shoreline, etc.	Project phasing defined; building footprints and infrastructure type, size, and location is set. Appropriate permitting processes have been performed and determination made. City and Ecology establish how redevelopment satisfies performance standards, including connection and integration between phases. All specific action permits that will be required are fully defined by this stage.
Final Design/ Construction Documents	City reviews plans and specifications, and O&M plan for cleanup actions and provides copies to Ecology for review and comment.	Design for individual phases or buildings submitted to City for review.	Plan review comments will be provided to developer prior to approval of plans and specifications, and O & M Plan. City and Ecology comments will be based on adequacy of clean up actions and conformance with CD/CAP requirements.
Specific Action Permits (e.g., building permits, grading permits, shoreline permits)	City reviews and approves final revisions to development plans and specifications. Copies provided to Ecology and other agencies as appropriate for review and comment.	Developer submits final permit applications along with project level SEPA and construction documents. Specific action permits provided after all comments are addressed.	Specific action permits require that all construction match the plans and specifications.
Construction	City reviews progress and completeness of construction via checklists, Site visits, and periodic updates. Ecology opportunity to review progress as well.	City and other responsible agencies monitor progress via inspections and reporting of activities by developer (e.g., special inspection reports).	Construction documentation report including as-built plans of clean up actions provided to Ecology at end of this stage.

Table 6-2 (continued)
City and Ecology Responsibilities in Potential Future Development Approvals

Project Stage	Environmental Issues	Development Issues	Outcomes and Comments
Occupancy	Environmental clean up actions (as related to specific phase of development) are complete at this point.	Occupancy permit provided after all punchlist items are handled to satisfaction of responsible agencies.	Operations and Maintenance, Monitoring and Reporting Requirements continue throughout occupancy.

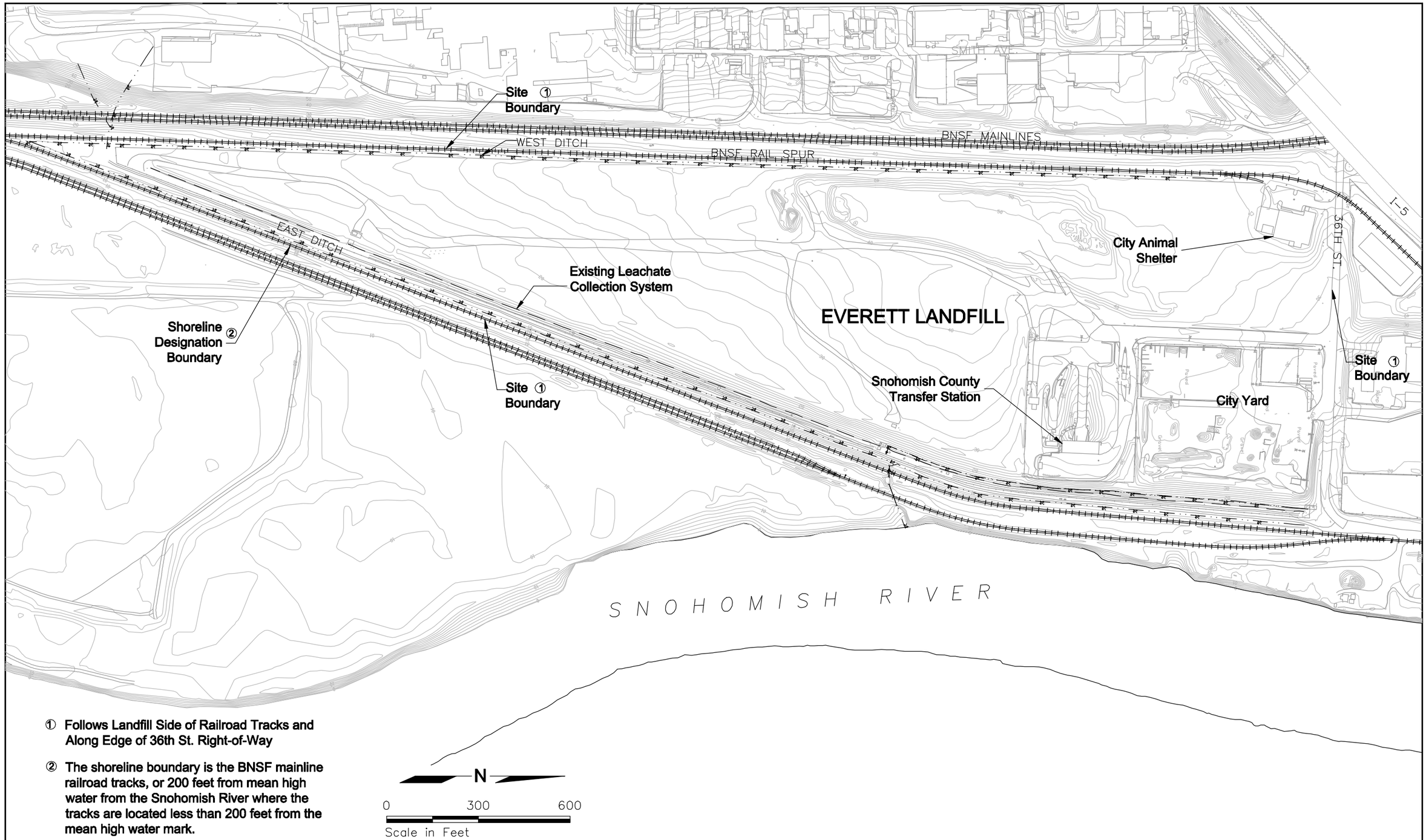
Cleanup Action Plan Figures



NOT TO SCALE

Floyd & Snider Inc. **Landmarc Technologies, Inc.** **HWA GeoSciences, Inc.** **Kleppe Consulting** **MFG, Inc.**	**CLEANUP ACTION PLAN** **Everett Landfill / Tire Fire Site**	PUBLIC WORKS FIGURE 2–1 VICINITY MAP

9/15/00 \evrt2000\VicinityMap.cdr



① Follows Landfill Side of Railroad Tracks and Along Edge of 36th St. Right-of-Way

② The shoreline boundary is the BNSF mainline railroad tracks, or 200 feet from mean high water from the Snohomish River where the tracks are located less than 200 feet from the mean high water mark.

Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

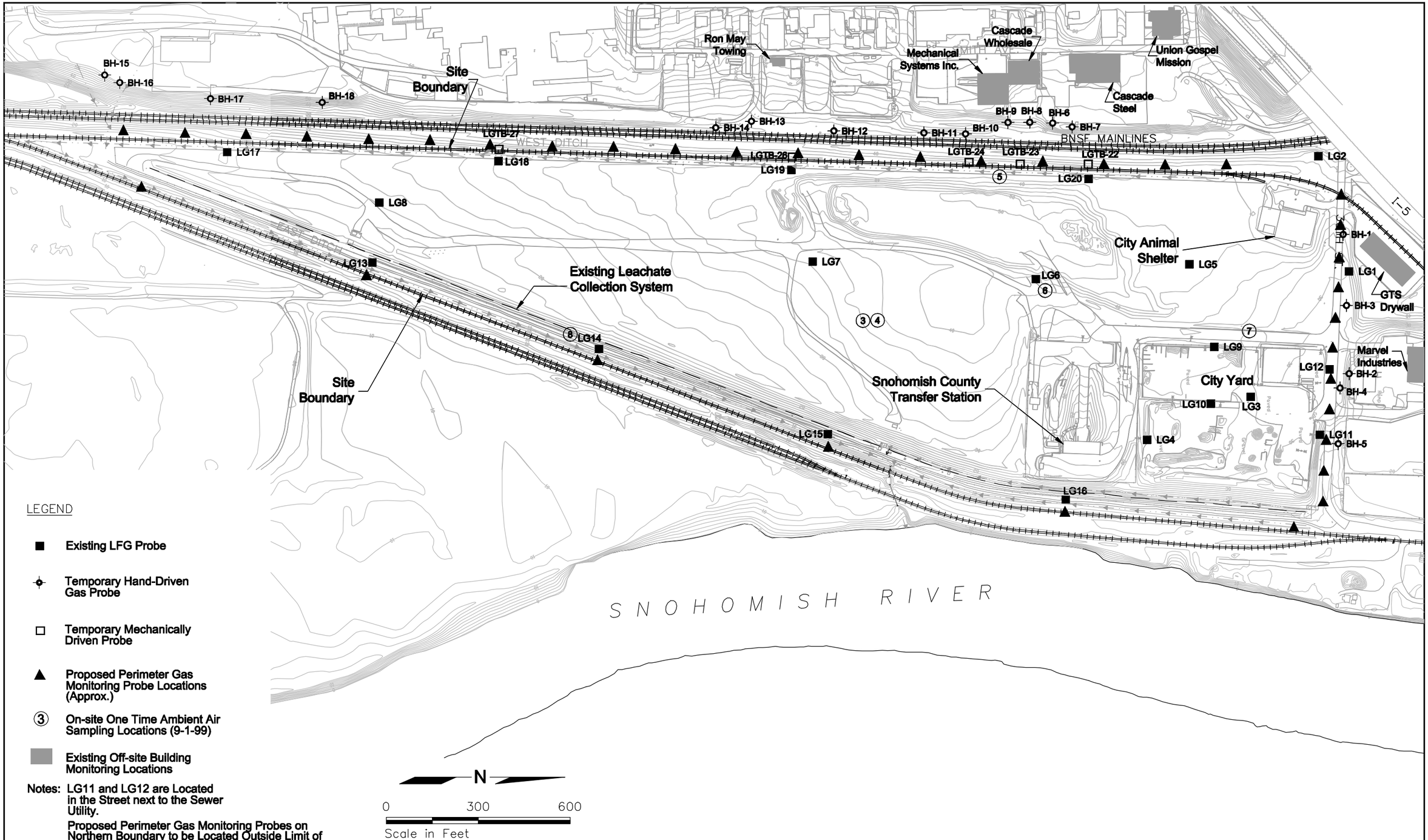
CLEANUP ACTION PLAN

Everett Landfill / Tire Fire Site

PUBLIC WORKS

FIGURE 2–2
SITE MAP

DATE: 02/27/01 10:17am
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CAPfigures6oct00\fs_sepa02x.dwg



LEGEND

- ■ Existing LFG Probe
- ⊙ Temporary Hand-Driven Gas Probe
- □ Temporary Mechanically Driven Probe
- ▲ Proposed Perimeter Gas Monitoring Probe Locations (Approx.)
- ③ On-site One Time Ambient Air Sampling Locations (9-1-99)
- ▭ Existing Off-site Building Monitoring Locations

Notes: LG11 and LG12 are Located in the Street next to the Sewer Utility.

Proposed Perimeter Gas Monitoring Probes on Northern Boundary to be Located Outside Limit of Waste and South of Sewer Utility.

Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

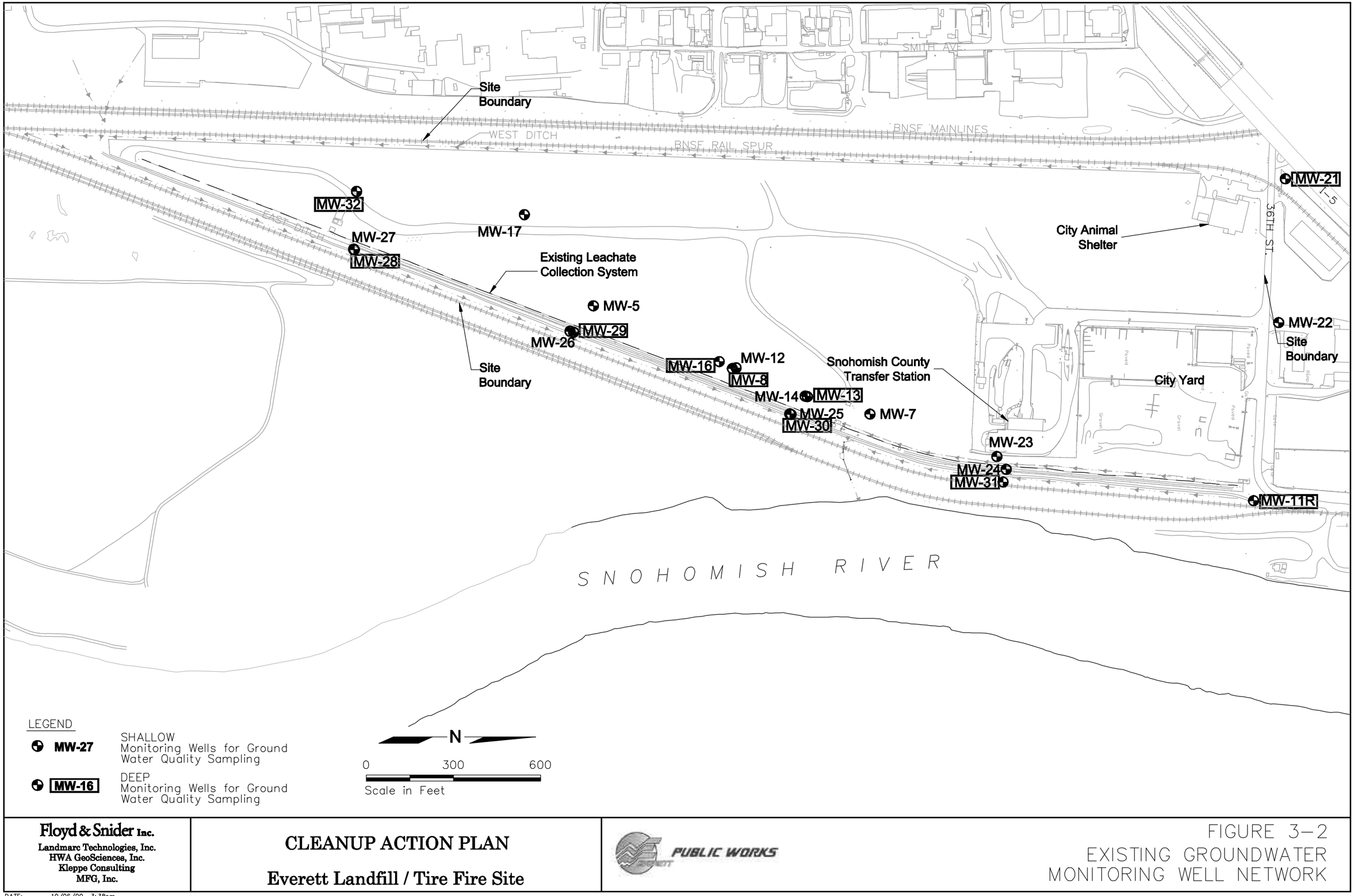
CLEANUP ACTION PLAN

Everett Landfill / Tire Fire Site

PUBLIC WORKS

FIGURE 3–1
LANDFILL GAS PROBES

DATE: 10/06/00 3:38pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CAPfigures6oct00\fig5–1.dwg



Floyd & Snider Inc. Landmarc Technologies, Inc. HWA GeoSciences, Inc. Kleppe Consulting MFG, Inc.	**CLEANUP ACTION PLAN** **Everett Landfill / Tire Fire Site**	PUBLIC WORKS FIGURE 3–2 EXISTING GROUNDWATER MONITORING WELL NETWORK

DATE: 10/06/00 3:38pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CAPfigures6oct00\fs6_4sec.dwg

Upland Storm Drain System

SMITH AVE.

BNSF MAINLINES

BNSF RAIL SPUR

WEST DITCH

SW-4 / SED-4

ENLARGEMENT #1

SW- 3/ SED-3

EAST DITCH

EP-1

SED-5&6

Proposed Future Sampling Location, All Others Shown on Enlargements

MID-EAST DITCH

36TH ST.

SW-1 / SED-1

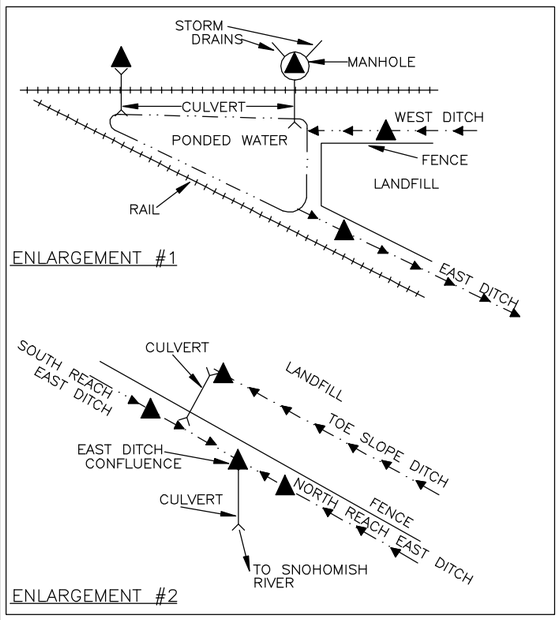
EP-2

SW-2 / SED-2

Outlet

ENLARGEMENT #2

S N O H O M I S H R I V E R



LEGEND

- ■ HWA GeoSciences' November 1999 Sampling Location
- **SW-** Surface Water Sample Number
- **SED-** Sediment Sample Number
- ▲ Proposed Future Surface Water Sampling Locations
- ●**EP-** Environmental Partners' November 1999 Sediment Sampling Location

N

0 300 600

Scale in Feet

Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

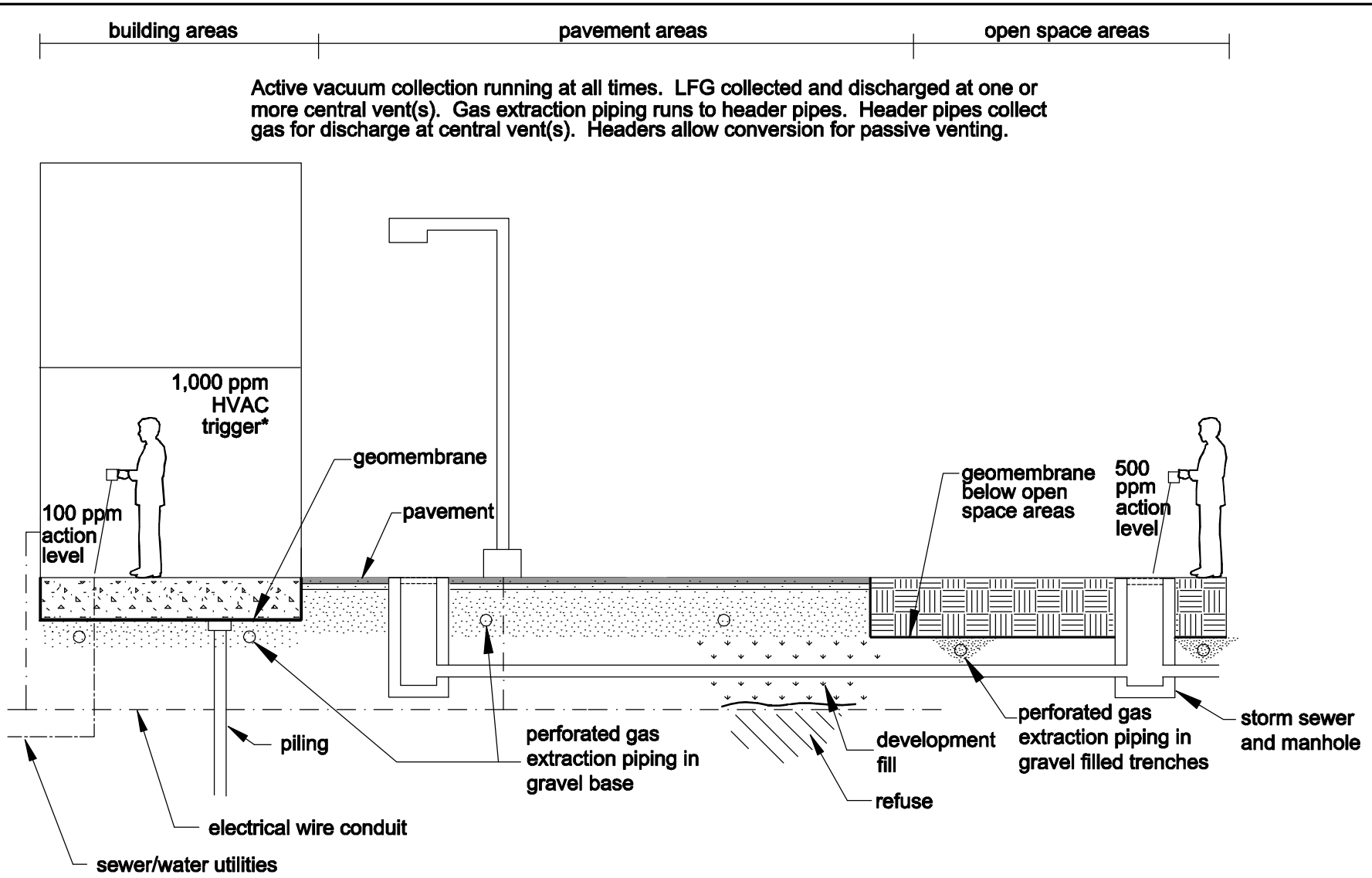
CLEANUP ACTION PLAN

Everett Landfill / Tire Fire Site

PUBLIC WORKS

FIGURE 3–3
SURFACE WATER DRAINAGE FEATURES, SAMPLING LOCATIONS AND POINT OF COMPLIANCE

DATE: 10/06/00 3:44pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CAPfigures6oct00\landmarc_fig02x.dwg

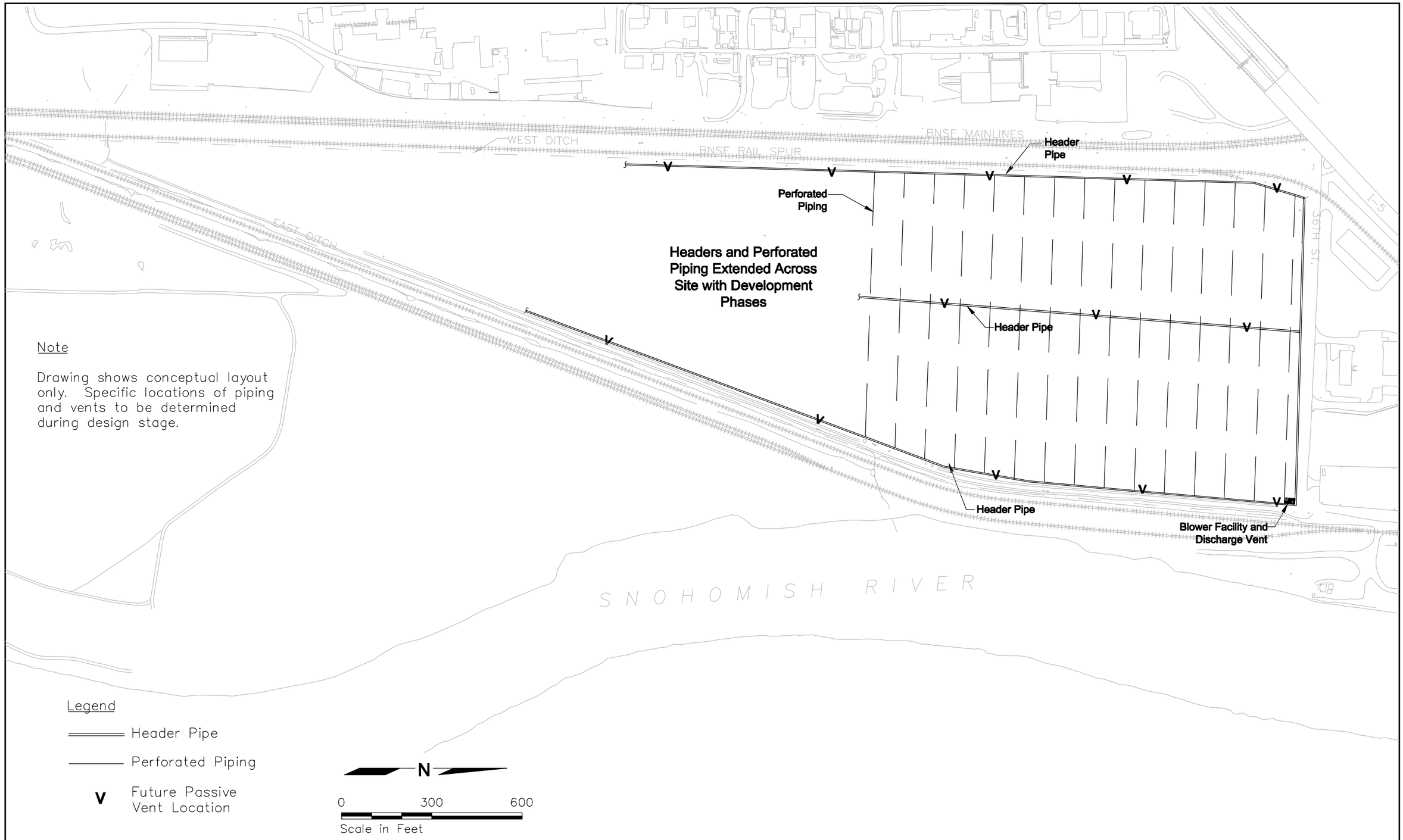


*Manual landfill gas system adjustments and HVAC increase

Schematic Drawing – Not To Scale

Floyd & Snider Inc. Landmarc Technologies, Inc. HWA GeoSciences, Inc. Kleppe Consulting MFG, Inc.	CLEANUP ACTION PLAN Everett Landfill / Tire Fire Site	PUBLIC WORKS	FIGURE 6–1 PHASED ACTIVE LANDFILL GAS CONTROLS – CONCEPTUAL CROSS SECTION

DATE: 10/06/00 4:31pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CAPfigures6oct00\evrt0001.dwg



Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

CLEANUP ACTION PLAN

Everett Landfill / Tire Fire Site

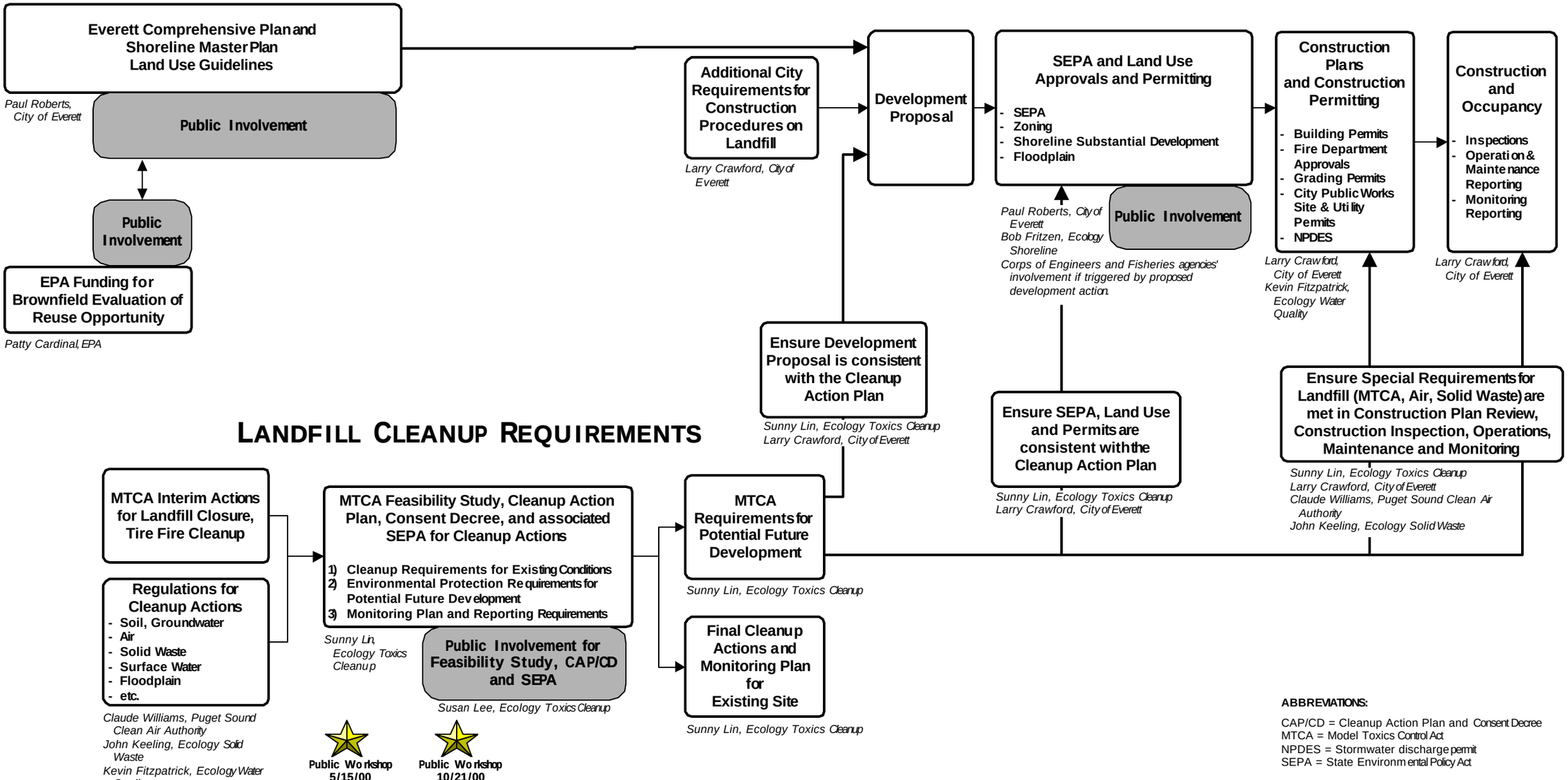
PUBLIC WORKS

FIGURE 6–2
PHASED ACTIVE LANDFILL GAS CONTROLS – CONCEPTUAL PLAN VIEW

DATE: 10/06/00 3:49pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CAPfigures6oct00\evrt0002.dwg

LAND USE PLANNING AND BROWNFIELD PROCESS

RIVERFRONT SITES - FUTURE DEVELOPMENT PROPOSALS



EVERETT LANDFILL/TIRE FIRE SITE AND SIMPSON PROPERTY (RIVERFRONT SITES) CLEANUP AND REDEVELOPMENT PROCESS

November 10, 2000

Figure 6-3

Cleanup Action Plan Attachments

Attachment CAP-1
Potentially Applicable or Relevant and Appropriate Requirements

Attachment CAP-1

Potentially Applicable or Relevant and Appropriate Requirements

Applicable or Relevant and Appropriate Requirements (ARARs) are federal, state and/or local laws and regulations that govern proposed remedial actions. Applicable requirements are those cleanup standards, controls, and other substantial environmental protection requirements, criteria, or limitations promulgated under federal or state law that directly and fully address remedial actions. Relevant and appropriate requirements are those cleanup standards, standards of control, and other human health and environmental requirements, criteria or limitations established under state and federal law that, while not legally applicable to the cleanup action at the site, are determined to address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site. WAC 173-340-710(3) lists criteria used to determine whether requirements are relevant and appropriate.

Additionally, advisories, guidelines, or proposed standards to be considered (TBCs) are identified. TBCs are non-promulgated advisories or guidances issued by the federal or state government that are not legally binding and do not have the status of potential ARARs. However, TBCs can provide useful information or recommendations if ARARs do not address a particular situation.

Previous documents have described ARARs for the Everett Landfill / Tire Fire Site. These ARARs are provided in this Appendix in updated form. The *Final Supplemental Remedial Investigation/Feasibility Study* (Black & Veatch, 1996) outlines site-wide ARARs.

The determination of whether a particular requirement is applicable or relevant and appropriate is highly fact-specific. It depends on the particular circumstances of the proposed cleanup action. The analysis to determine whether a potential ARAR is applicable or relevant and appropriate to any portion of the site, pathway, contaminant, or proposed cleanup action will be completed in the relevant section of the Brownfield Feasibility Study, consistent with the standards set forth in WAC 173-340-710.

This analysis does not address permits or approvals that may be needed for any future development actions on the site. Development actions will go through permitting and environmental review required by applicable laws, which is not foreclosed by the Cleanup Action Plan and Consent Decree.

The following laws and regulations have been identified as potential ARARs in the above-mentioned documents or by Ecology.

REGULATIONS RELATING TO MINIMUM FUNCTIONAL STANDARDS FOR SOLID WASTE HANDLING, CHAPTER 70.95 RCW; CHAPTER 173-301 WAC

The regulations in Chapter 173-301 WAC, that were developed pursuant to Chapter 70.95 RCW, set minimum functional standards for the proper handling of all solid waste originating from residences, commercial, agricultural and industrial operations and other sources to prevent pollution, breeding of flies, harboring of rodents, fire hazards and damage to recreational values, conserve resources, and maintain esthetic values. These regulations provided guidance on solid waste storage, collection and transportation, transfer stations, establishment and operation of a solid waste site, incinerators, sludge management, leachate control, final cover installation, and post-closure maintenance. These regulations have since been replaced with Minimum Functional Standards (Chapter 173-304 WAC). The Everett Landfill was closed in 1976 under Chapter 173-301 WAC.

MINIMUM FUNCTIONAL STANDARDS FOR SOLID WASTE HANDLING, CHAPTER 173-304 WAC

This regulation is promulgated under the authority of Chapter 70.95 RCW to protect public health, to prevent land, air, and water pollution, and conserve the state's natural, economic, and energy resources by:

- Setting minimum functional performance standards for the proper handling of all solid waste materials originating from residences, commercial, agricultural and industrial operations and other sources.
- Identifying those functions necessary to assure effective solid waste handling programs at both the state and local level.
- Following the direction set by the legislature for the management of solid waste in order of descending priority as applicable:
  a) Waste reduction
  b) Waste recycling
  c) Energy recovery or incineration
  d) Landfill
- Describing the responsibility of persons, municipalities, regional agencies, and state and local government under existing laws and regulations related to solid waste.
- Requiring use of the best available technology for siting, and all known available and reasonable methods for designing, constructing, operating, and closing solid waste handling facilities.
- Establishing these standards as minimum standards for solid waste handling to provide a statewide consistency and expectation as to the level at which solid waste is managed throughout the state.

This regulation was adopted in October 1985 to replace Chapter 173-301 WAC. However, the Everett Landfill was closed under Chapter 173-301 WAC [Regulations Relating to Minimum

Functional Standards for Solid Waste Handling] in 1976. Therefore, Chapter 173-304 WAC is not applicable to the Everett Landfill site. This regulation may, however, be relevant and appropriate for particular management or cleanup decisions.

SHORELINE MANAGEMENT ACT, CHAPTER 90.58 RCW; CHAPTER 173-14 WAC; CITY OF EVERETT SHORELINE MASTER PROGRAM

The regulations in Chapter 173-14 WAC were developed pursuant to Chapter 90.58 RCW to protect shoreline values while still fostering reasonable use. These regulations require acquisition of substantial development permits for any project or action that occurs within 200 feet of the ordinary high water mark of state waters and materially interferes with the normal public use of the water or shorelines of the state. The Everett Shoreline Master Program was created to implement the policies of the Shoreline Management Act and defines areas within the shoreline zone. In the vicinity of the landfill site, the Shoreline Designation Boundary's westerly limit is defined by the easterly main line of the Burlington Northern Railroad to its intersection with the Snohomish River Road. The entire landfill site falls outside the shoreline boundary.

ENDANGERED SPECIES ACT, 16 USC 1531 et seq., AND ENDANGERED, THREATENED AND SENSITIVE SPECIES, CHAPTER 232-12 WAC

These regulations identify and protect those species of wildlife and plants determined to be endangered or threatened with extinction and identify their critical habitats. The nearby Snohomish River provides habitat for Chinook salmon and other salmonid species. The Snohomish River may also provide habitat for bull trout. Eagles and other raptors may use areas adjacent to the site for hunting and foraging. The cleanup actions proposed for the Everett Landfill site are not anticipated to have any adverse effect on the Snohomish River or associated critical habitat.

RIVERS AND HARBORS ACT, 33 USC 403; 40 CFR 320, 322, 323

This act prohibits unauthorized activities that obstruct or alter a navigable waterway. Section 10 applies to all structures or work below the mean high water mark of navigable tidal waters and the ordinary high water mark of navigable fresh waters. Actions in wetlands within these limits are subject to Section 10 provisions. U.S. Army Corps of Engineers (Corps) permits are needed for the alteration or the modification of the course, condition, location or capacity of a navigable water of the United States. There are no proposed cleanup actions associated with the CAP/CD that would obstruct or alter the Snohomish River or other navigable waters.

WASHINGTON FLOODPLAIN MANAGEMENT PLAN, CHAPTER 86.16 RCW; CHAPTER 173-158 WAC; CITY OF EVERETT ENVIRONMENTALLY SENSITIVE AREAS ORDINANCE, 1838-91; SECTION 37 ZONING CODE.

In Chapter 173-158 WAC, an advisory standard pertaining to wetlands management suggest that local governments, with technical assistance from Ecology, institute a program that can identify and map critical wetland areas located within base floodplains.

Everett's Environmentally Sensitive Areas (ESAs) Ordinance requires that the planning and design of new development provide for the protection of ESAs. Section 37 of the Zoning Code requires applicants for all proposed land uses or developments on or adjacent to lots containing wetlands to provide studies such as wetland delineations and/or stream surveys describing the environmental conditions of the site.

A portion of the Everett Landfill site falls within the Everett Critical Areas designation. However, there are no proposed cleanup actions associated with the CAP/CD that would alter wetlands.

CLEAN WATER ACT, NPDES PERMIT PROGRAM, 33 USC 1251; 40 CFR 123; CHAPTER 90.48 RCW; CHAPTER 173-220 WAC AND FEDERALLY PROMULGATED WATER STANDARDS, 40 CFR 131 AND 141

Section 402 of the Federal Clean Water Act (CWA) (33 USC 1342) and 40 CFR 122 and 125 establish the NPDES program. This program provides for the issuance of permits for direct discharges to implement the regulations, limitations and standards promulgated pursuant to CWA, including Section 301, 306 (standards of performance for priority dischargers) and 307 (toxic and pretreatment effluent standards). EPA regulations specified in 40 CFR 122 establish conditions for authorizing a discharge; while 40 CFR 125 imposes criteria and standards for discharges. Section 402 of the Clean Water Act (33 USC 1251) requires EPA or a state with delegated authority to issue permits for the discharge of any pollutant to navigable waters. Section 402 of the CWA does not apply to discharges to navigable water that are authorized under Section 404 of the CWA.

Federal regulations (40 CFR 123) allow delegated states to issue NPDES permits. Washington has been delegated this authority. The Washington Water Pollution Control Law (Chapter 90.48 RCW) and regulations (Chapter 173-220 WAC) meet the federal requirements for the state to issue NPDES permits. These regulations list Washington water quality standards which were instituted as required in Sections 301, 302, and 303 of the CWA (33 USC 1311, 1312, and 1313) and 40 CFR 131. These federal regulations require states to develop water quality standards and to control direct discharges by establishing effluent limitations as necessary to meet applicable water quality standards. 40 CFR Parts 131 and 141 have been used to establish cleanup levels for surface water and groundwater at the Everett Landfill/Tire Fire site.

Federal regulations require NPDES permits for certain stormwater discharges, including stormwater from construction involving more than five acres. Washington has issued a general permit for construction stormwater specifying best management practices and reporting requirements.

These regulations are applicable to the Everett Landfill site. Any construction activity that meets NPDES permit criteria would be required to prepare a Stormwater Pollution Prevention Plan and meet surface water quality standards.

CLEAN WATER ACT, DREDGE AND FILL PERMIT, 33 USC 1251 et seq.

The Clean Water Act (CWA) requires the establishment of guidelines and standards to control the direct or indirect discharge of pollutants to waters of the United States. Section 404 requires

permits for the discharge of dredged or fill material to navigable waters, including jurisdictional wetlands.

Discharges of material into navigable waters are regulated under Sections 401 and 404 of the CWA (33 USC 1341 and 1344), 40 CFR 230 (Section 404(b)(1) guidelines), 33 CFR 320 (general policies), 323 and 325 (permit requirements) and 328 (definition of waters of the United States).

The U.S. Army Corps of Engineers issues or denies permits. Actions may either be subject to: 1) an individual permit; 2) covered under the provisions of a general permit; or 3) exempt from regulatory requirements.

Proposed cleanup actions associated with the Everett Landfill CAP/CD would not alter wetlands or discharge dredged or fill material to navigable waters.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

A portion of the landfill site is designated by FEMA as Snohomish River Floodplain. However, this designation needs to be updated and clarified, consistent with current site topography. Proposed cleanup actions associated with the Everett Landfill CAP/CD are not expected to alter surface elevations, or create obstruction within the mapped floodplain.

WATER QUALITY STANDARDS FOR THE SURFACE WATERS OF THE STATE OF WASHINGTON, CHAPTER 90.48 RCW; CHAPTER 173-201A WAC

These regulations establish water quality standards for the surface waters of the state as required by the Clean Water Act and the Water Pollution Control Act (Chapter 90.48 RCW). Specific standards apply for many toxic substances. These surface water quality standards have been used to establish cleanup levels for the groundwater pathway.

WATER QUALITY STANDARDS FOR GROUNDWATERS OF THE STATE, CHAPTERS 90.48 AND 90.54 RCW; CHAPTER 173-200

The regulations in Chapter 173-200 WAC, which were developed pursuant to Chapters 90.48 and 90.54 RCW, establish groundwater quality standards that, together with the state's technology-based treatment requirements, provide for the protection of the environment and human health and protection of existing and future beneficial uses of groundwater. These groundwater quality standards are potential ARARs for groundwater quality.

GROUP A PUBLIC WATER SYSTEMS, CHAPTER 246-290 WAC

Section 310 identifies maximum contaminant levels (MCLs) for public drinking water supplies in Washington State. These MCLs have been used to establish cleanup levels for the groundwater pathway.

CITY OF EVERETT DRAINAGE ORDINANCE

This ordinance requires stormwater controls and a permit from the City for activities that meet specific criteria set forth in the Drainage Ordinance. If such activities are taken as a part of the CAP/CD, the substantive portions of this ordinance must be followed.

TREATY OF POINT ELLIOTT, 12 STATUTE 927

The Treaty of Point Elliott was signed with Native American tribes occupying the lands within the Puget Sound Basin lying north of Point Pulley to the Canadian border and from the summit of the Cascade Mountains to the divide between Hood Canal and Puget Sound. The treaty guarantees "the right of taking fish at usual and accustomed grounds and stations…" to all the signatory tribes and other allied and subordinate tribes and bands of Native American Indians. The Snohomish River is a usual and accustomed fishing area. This treaty will be viewed as an ARAR to ensure that cleanup activities do not interfere with the rights of the tribes. No interference is expected.

HISTORIC PRESERVATION ACT, CHAPTER 27.34 RCW, CHAPTER 27.44 RCW, CHAPTER 27.53 RCW

This act prohibits disturbing any Native American gravesites or other historical or prehistorical archeological resources without a permit or supervision from the proper department or tribe. According to the Washington Department of Community, Trade and Economic Development, no archeological resources are located in the project area of the landfill. This act is a potential ARAR for actions affecting Native American and other historical or prehistorical archaeological resources. No such resources have been identified on the landfill site.

GENERAL REGULATIONS FOR AIR POLLUTION, CHAPTER 70.94A RCW; CHAPTER 173-400 WAC

The regulations in Chapter 173-400, which were developed pursuant to Chapter 70.94A RCW, establish technically feasible and reasonably attainable standards and rules generally applicable to the control and/or prevention of the emission of air contaminants. These regulations include general requirements for prevention of visible emissions, odor, fallout, and fugitive emissions. These regulations also require the owner or operator of "any source which emits a contaminant subject to a national emission standard for hazardous air pollutants" to register the source with Ecology or the appropriate local clean air authority, to submit an inventory of emissions each year and to apply for approval of a notice of construction prior to construction, installation or establishment of a new emissions unit or source. As noted below, the Puget Sound Clean Air Authority has jurisdiction over these requirements.

PUGET SOUND CLEAN AIR AGENCY; REGULATIONS I, II AND III

The Puget Sound Clean Air Agency (PSCAA) was activated in March 1968 by the Washington Clean Air Act, RCW 70.94, as the designated agency to carry out the requirements and purposes of the Washington Clean Air Act and the Federal Clean Air Act within Pierce, King,

Snohomish, and Kitsap counties. Regulation I defines the functions and governance of the Agency, classifies registered air contaminant sources which may contribute to air pollution, and provides permitting and variance information for these sources.

Regulation II was developed to address the need to reduce ozone concentrations as required by amendments to the Federal Clean Air Act. It controls photochemically reactive volatile organic compounds (VOCs), which are precursors to ozone, to meet the National Ambient Air Quality Standard for ozone.

Regulation III is potentially relevant to certain actions at the Everett Landfill. Regulation III focuses on toxic air pollutants including those emitted by landfills. Regulation III requires new sources, and in some cases existing sources, to demonstrate that the emissions from the source do not cause or contribute concentrations of toxic air pollutants at levels that could pose a threat to human health or welfare. PSCAA uses Acceptable Source Impact Levels (ASILs) for specific air toxics, which are provided in the regulations as screening tools for identifying those cases that deserve more scrutiny. Although developed originally by Ecology solely for evaluation of new projects, PSCAA has adopted ASILs and has discretion to use them to evaluate existing projects as well as new projects. They are used by PSCAA as an initial screening analysis to determine if the impacts of a specific project on air toxic levels deserve further investigation. Sources with ambient contributions below ASIL levels are presumed to be insignificant in terms of health and welfare impacts. Those with impacts above ASILs may be required to conduct a formal risk assessment to determine the impact to health and welfare caused by the contribution of the source to ambient levels of toxic air pollutants.

CONTROLS FOR NEW SOURCES OF AIR TOXICS, CHAPTER 70.94 RCW; CHAPTER 173-460 WAC

The regulations in Chapter 173-460 WAC, developed pursuant to Chapter 70.94 RCW, establish the systematic control of new sources emitting toxic air pollutants to prevent air pollution, reduce emissions to the extent possible and maintain such levels of air quality as will protect human health and safety. This regulation is a potential ARAR for actions that may create new sources of air toxics. This regulation is implemented through PSCAA Regulation III.

AMBIENT AIR QUALITY STANDARDS FOR PARTICULATE MATTER, CHAPTER 70.94 RCW; CHAPTER 173-470 WAC

The regulations in Chapter 173-470 WAC, which were developed pursuant to Chapter 70.94 RCW, establish maximum acceptable levels for particulate matter in the ambient air.

WASHINGTON DANGEROUS WASTE REGULATIONS, CHAPTER 70.105 RCW; CHAPTER 173-303 WAC

The regulations found in Chapter 173-303 WAC were developed to implement Chapter 70.105 RCW and are based on the state's authority to administer the Resource Conservation and Recovery Act (RCRA). The Dangerous Waste Regulations provide criteria for determining if solid wastes are dangerous or extremely hazardous. These regulations also provide rules that apply to the generators of hazardous substances and the treatment, manifesting, transporting,

disposal, and storage of these substances. The regulations found in Chapter 173-303 WAC were amended in November 1996. This amendment declassified the tire ash as a dangerous waste. Therefore, WAC 173-303 is not considered an ARAR for the tire fire ash.

PERMIT FOR SOLID WASTE HANDLING FACILITY, RCW 70.95.170, 70.95.180, 70.95.190

Except as provided otherwise in RCW 70.95.305 or 70.95.310, after approval of the comprehensive solid waste plan by the department no solid waste handling facility or facilities shall be maintained, established, or modified until the county, city or other person operating such site has obtained a permit pursuant to RCW 70.95.180 or 70.95.190, described below.

RCW 70.95.180 describes the process for obtaining a permit. Applications for permits to operate a new or modified solid waste handling facility shall be on forms prescribed by the department and shall contain a description of the proposed facilities and operations at the site, plans and specifications for any new or additional facilities to be constructed, and such other information as the jurisdictional health department may deem necessary in order to determine whether the site and solid waste disposal facilities located thereon will comply with local and state regulations.

RCW 70.95.190 contains guidance for permit renewal. Every permit for an existing solid waste handling facility issued pursuant to RCW 70.95.180 shall be renewed at least every five years on a date established by the jurisdictional health department having jurisdiction of the site and as specified in the permit. Prior to renewing a permit, the health department shall conduct a review as it deems necessary to assure that the solid waste handling facility or facilities located on the site continues to meet minimum functional standards of the department, applicable local regulations, and are not in conflict with the approved solid waste management plan.

The Everett Landfill was closed under 173-301 WAC [Regulations Relating to Minimum Functional Standards for Solid Waste Handling] in 1976. The Brownfield Feasibility Study has been prepared to support a Cleanup Action Plan and Consent Decree for both existing and future conditions. Because potential future redevelopment will not include new or modified solid waste disposal facilities, this regulation is not applicable for the Landfill/Tire Fire Site.

MINIMUM STANDARDS FOR CONSTRUCTION AND MAINTENANCE OF WELLS, CHAPTER 18.104 RCW; CHAPTER 173-160 WAC

The regulations in Chapter 173-160 WAC, which were developed pursuant to Chapter 18.104 RCW, establish minimum standards for construction of all wells in the state, including resource protection wells. Resource protection wells include monitoring wells, observation wells, piezometers, geotechnical test borings, landfill gas probes and spill response wells. These standards include guidance for design, installation, surface protective measures, materials, equipment cleaning requirements and abandoning wells.

WASHINGTON HYDRAULIC CODE, CHAPTER 75.20 RCW; CHAPTER 220-110 WAC

This act regulates construction and other work that would use, divert, obstruct or change the natural flow or bed of any salt or fresh waters to protect fish life from damage in all marine and fresh waters of the state. This code is implemented through a permit called the Hydraulic Project Approval that is obtained from the Washington Department of Fish and Wildlife (WDFW).

No proposed cleanup actions would use, divert, obstruct or change the natural flow or bed of the Snohomish River or other waters at the site.

HEALTH AND SAFETY FOR HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE, CHAPTER 296-62 WAC; AND HEALTH AND SAFETY, 29 CAR 1901.120

The Health and Safety for Hazardous Waste Operations and Emergency Response regulate health and safety operations for hazardous waste sites. The Health Safety regulations describe federal requirements for health and safety training for workers at hazardous waste sites.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), 29 U.S.C. 653, 655, 657; OCCUPATIONAL SAFETY AND HEALTH STANDARDS, 29 CFR 1910

The Occupational Safety and Health Act of 1970, and amendments thereto, outline the federal requirements for worker health and safety. Employers must annually report on the safety of their operations. Remediation activities at the site, including remediation phased to coincide with future development, will involve activities common to civil construction that have the potential to expose workers to buried refuse. Employee health and safety regulations for construction activities and general construction standards as well as regulations for fire protection, materials handling, hazardous materials, personal protective equipment, and general environmental controls are included in 29 CFR 1926. Hazardous waste site work requires employees to be trained prior to participation in site activities, medical monitoring, monitoring to protect employees from excessive exposure to hazardous substances and decontamination of personnel and equipment.

WASHINGTON INDUSTRIAL SAFETY AND HEALTH ACT (WISHA), RCW 49.17; WASHINGTON INDUSTRIAL SAFETY AND HEALTH REGULATIONS, CHAPTER 296-62 WAC, CHAPTER 296-155 WAC

The Washington Industrial Safety and Health Act authorizes adoption of rules and regulations which:

- Provide for the preparation, adoption, amendment, or repeal of rules and regulations that establish safety and health standards that govern the conditions of employment in all work places;
- Provide for the adoption of occupational health and safety standards that are at least as effective as those adopted by the Federal OSHA;

- Provide a method of encouraging employers and employees in their efforts to reduce the number of safety and health hazards at their work places;
- Provide for inspection of work places for worker hazards and reporting of such hazards; and
- Provide for the promulgation of standards for safe work practices for dangerous areas such as trenches, excavations and hazardous waste sites.

The Washington Industrial Safety and Health Regulations are administered by the Department of Labor and Industries and govern most aspects of construction and remediation work.

STANDARDS OF PERFORMANCE FOR MUNICIPAL SOLID WASTE LANDFILLS, 40 CFR 60 SUBPART WWW

The provisions of this subpart apply to each municipal solid waste (MSW) landfill that commenced construction, reconstruction or modification on or after May 30, 1991. Physical or operational changes made to an existing MSW landfill solely to comply with Subpart CC of this part are not considered construction, reconstruction, or modification for the purposes of this section. Activities required by or conducted pursuant to a CERCLA, RCRA, or State remedial action are not considered construction, reconstruction, or modification for purposes of this subpart. Section 60.755 is used to determine whether a gas collection system is in compliance.

Since the Everett Landfill was closed in 1976, and subsequent modifications to the landfill occurred prior to May 30, 1991 or were part of activities required under a State remedial action (interim actions), this is not considered applicable to the Everett Landfill site.

Cleanup Action Plan Attachments

Attachment CAP-2
Compliance Monitoring and Contingency Plan

Compliance Monitoring and Contingency Plan

Prepared for:

The City of Everett

Prepared By:

The Floyd & Snider Team

83 S. King Street, Suite 614
Seattle, WA 98104

Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

March 2001

FINAL

Table of Contents

List of Tables

List of Figures

1.0 Introduction

This Compliance Monitoring and Contingency Plan (CMCP) for the Everett Landfill/Tire Fire Site is submitted in conjunction with the Brownfield Feasibility Study (BFS) (Floyd & Snider, 2000), which evaluates and recommends remedial alternatives for environmental exposure pathways under both existing and potential future conditions. This CMCP is incorporated into the Cleanup Action Plan (Exhibit C to the Consent Decree) by reference.

This plan presents compliance monitoring requirements and contingency plans for each of four environmental exposure pathways (gas, groundwater, direct contact and surface water) at the Everett Landfill/Tire Fire Site. For the groundwater and surface water pathways, the proposed compliance monitoring program is the same for both existing and future conditions. For the gas and direct contact pathways, there are additional inspection and monitoring components recommended for future conditions in addition to those recommended for existing conditions.

2.0 Purpose and Objective

2.1 OVERVIEW OF SITE CONDITIONS

After over 50 years of operation, the Everett Landfill stopped accepting waste in 1974 and was closed the following year under WAC 173-301, Regulations Relating to Minimum Functional Standards for Solid Waste Handling. In 1977, a commercial recycling operation began storing and handling old rubber tires on portions of the landfill site. In 1983 and 1984, two separate fires occurred in the tire piles, causing Ecology to request that the City perform an environmental characterization of the tire fire ash. In 1989, the Landfill/Tire Fire Site was listed under the Model Toxics Control Act due to the presence of tire ash, then classified as dangerous waste. A 1996 amendment to the Dangerous Waste Regulations (Chapter 173-303 WAC) declassified the tire ash. In 1995, the City performed the site's first Interim Action, "Everett Landfill Site Grading," which regraded the entire site except for the two tire fire areas to allow the collection of surface water and to reduce leachate generation. The second Interim Action occurred in 1997 and 1998 for the installation of the leachate collection trench and transmission system. See Figure 2-1, Site Map for location of the leachate collection system. This project provided a geomembrane cover on the eastern side slopes of the landfill to control leachate seeps, site fencing, site cover and control of water on the eastern portion of the site, removal off-site of remaining tires, and on-site disposal and capping of tire fire ash. The City also conducted an independent action removing one to two feet of debris and soil from the East Ditch to address debris and potential sediment contamination (Black & Veatch, 1995) in the ditch. Excavated material from the East Ditch was placed within the landfill and covered with four feet of clean soil.

Through the City of Everett's Comprehensive Planning process and the process for Shoreline Master Program revisions, the landfill property is in an area designated for redevelopment. The Comprehensive Plan states:

> *The Snohomish River area south of Highway 2 is encouraged to redevelop with high quality development that provides public access to the river shoreline and includes a variety of activities and uses that aesthetically improve this highly visible part of the city. (City of Everett, 1997; page I-13)*

Before development can reasonably proceed on the site, construction and operation requirements must be defined for development in order to ensure that contaminated materials do not compromise environmental exposure pathways. These environmental requirements for future development are evaluated in the Brownfield Feasibility Study (BFS) (Floyd & Snider, 2000).

Ecology requested that four environmental exposure pathways be addressed in the BFS. These pathways are: gas, groundwater, direct contact and surface water. The site conditions and cleanup levels for each pathway are briefly described below.

The gas pathway considers methane gas produced by decomposing buried refuse. Air quality studies were completed for the site in 1996 and 1999, and included landfill gas sampling,

ambient air sampling and related evaluation. An explosion and fire risk analysis was completed at the request of Ecology to evaluate the explosion and fire risk of the preferred gas management system. Landfill gas volume in 2000 was estimated to be 230 cubic feet per minute (cfm), down from 625 cfm in 1974 at time of closure. A USEPA model predicts an annual landfill gas generation reduction of approximately 7.5 cfm over the next ten years. The landfill gas evaluations conclude that emissions to ambient air do not exceed either the proposed cleanup levels or PSCAA Regulation III Acceptable Source Impact Levels (ASILs). Measurements show that landfill gas may be migrating outside property limits in some perimeter areas of the landfill. Appropriate controls may be needed to ensure that subsurface gas does not extend beyond the site boundary and to manage potential explosion risk in confined spaces.

The groundwater pathway at the site includes both a shallow and a deep aquifer. Within the landfill site, the shallow aquifer contains leachate – potentially contaminated water present within the buried refuse. Leachate flows across the site, west to east, and is then collected at the eastern site boundary by a leachate collection system, installed in 1997-1998 as an interim action. The collected leachate is conveyed off-site for treatment. A post-construction evaluation of the effectiveness of the leachate collection system concludes that landfill leachate as well as shallow groundwater east of the leachate trench is being collected by the system. Compliance monitoring is proposed to ensure the continued effective operation of the leachate collection system. Based on six groundwater sampling events over the previous ten years, there have been neither significant water quality impacts to the deep aquifer that underlies the landfill site, nor impacts to the Snohomish River. Compliance monitoring is proposed to continue during future site conditions.

Direct contact with buried landfilled materials and tire ash is prevented via the existing site cover of clean soil. Additionally, secured fencing surrounds the portion of the site not currently utilized by existing facilities. Isolation of landfilled materials from environmental exposure pathways with a soil cap is a proven and acceptable alternative for municipal landfill facilities.

The surface water pathway could potentially carry landfill and tire ash contaminants at levels of concern to adjacent surface water drainage ditches, wetland areas, and ultimately to the Snohomish River. These surface water drainage ditches also receive runoff from upgradient industrial and residential properties, roadways and active railroad corridors. Previous studies of surface water were generally directed to assess potential tire ash runoff impacts and leachate seeps. Interim actions have address both of these concerns through leachate collection and isolation of the tire ash. Sediment samples taken in 1997 and 1999 measure concentrations of some compounds above MTCA Method A cleanup levels. However, these compounds are either not typical of landfill runoff, or were measured off-site in areas not subject to landfill runoff.

2.2 SUMMARY OF CLEANUP ACTIONS

The BFS (Floyd & Snider, 2000) separately evaluates and recommends alternatives for cleanup actions for each pathway under existing conditions and potential future developed conditions. Recommended cleanup actions are described below.

2.2.1 CLEANUP ACTIONS FOR EXISTING CONDITIONS

The completed interim actions for control of groundwater, direct contact and surface water pathways included construction of the leachate collection and transmission system, geomembrane cover on the eastern side slopes of the landfill to control leachate seeps, site fencing, site cover, control of surface water, removal off-site of remaining tires, and on-site disposal and capping of tire fire ash. These actions were effective in controlling these exposure pathways and fulfilled the most significant needs for physical cleanup actions relative to existing site conditions. The BFS proposes compliance monitoring requirements for groundwater to ensure continued compliance.

In addition, cleanup actions and compliance monitoring programs to address existing conditions for stormwater/sediment runoff and for landfill gas are recommended in the BFS. Recommended cleanup actions for landfill gas includes gas control measures for existing on-site facilities, perimeter monitoring and contingent installation of perimeter landfill gas migration controls. Institutional controls are also proposed in the BFS for the site relative to all pathways of concern.

2.2.2 CLEANUP ACTIONS FOR FUTURE CONDITIONS

Potential future development, consistent with the Everett Comprehensive Plan, will alter the existing conditions of the site by constructing infrastructure components, buildings, and landscaped areas. The property may be transferred to other owners. Public access will be increased, and construction disruption of the clean soil cap will be necessary. Within each pathway, remedial alternatives are recommended which address environmental requirements under MTCA for any potential future site development.

The recommended alternative for landfill gas management controls for future developed conditions involves installing a vacuum extraction system as development occurs. The system would be comprised of perforated, horizontal extraction pipes placed above the refuse, one or more blower locations, vent pipes and options for treatment of releases. Vacuum extraction pipes would be embedded within gravel-filled trenches above the solid waste and generally covered with a barrier layer to reduce atmospheric intrusion. The system has the ability to tie in with perimeter migration control wells if necessary. Special consideration would be given to the conditions at the boundary between developed and undeveloped areas that would be created when a portion of the site is developed. Additionally, the phased active system would eventually be needed to operate effectively as a passive gas venting system as landfill gas generation slows over time. Passive controls, including booting and sealing requirements, are included for such features as light poles and fence posts. Buildings and temporary enclosures would be fitted with full-time sensors and automated alarms. Human health and the environment would thus be protected by the phased active gas management system and concurrent institutional controls and compliance monitoring.

The recommended alternative for the groundwater pathway includes continued operation of the leachate collection system, installation of a hydraulic barrier beneath landscaped areas to reduce leachate generation, and implementation of stormwater management system restrictions to minimize stormwater infiltration.

The BFS evaluated the potential impact to deep aquifer quality that could be caused by installation of pile foundations driven through the landfill and underlying aquitard. The evaluation concluded that due to aquitard consistency, horizontal-favoring groundwater flow gradients, and general compliance of leachate with cleanup levels, either driven or drilled pile foundations could be installed at the landfill without risk to the groundwater pathway. This conclusion is supported by monitoring results from the deep aquifer directly down-gradient of the Snohomish County Transfer station, which was constructed 25 years ago with steel pipe piles driven through the thickest areas of refuse and into bearing sands below.

This CMCP proposes methods to measure that the deep aquifer remains in compliance following pile installation. Additionally, a one-time sampling event at many locations throughout the landfill is proposed to determine whether there are any zones of the landfill at which leachate quality is significantly different from the results acquired from previous monitoring. If these results indicate that there are areas of the landfill where a breach between the shallow and deep aquifers could cause an exceedance of cleanup standards in the deep aquifer, pile foundations in those areas will be restricted to augercast construction.

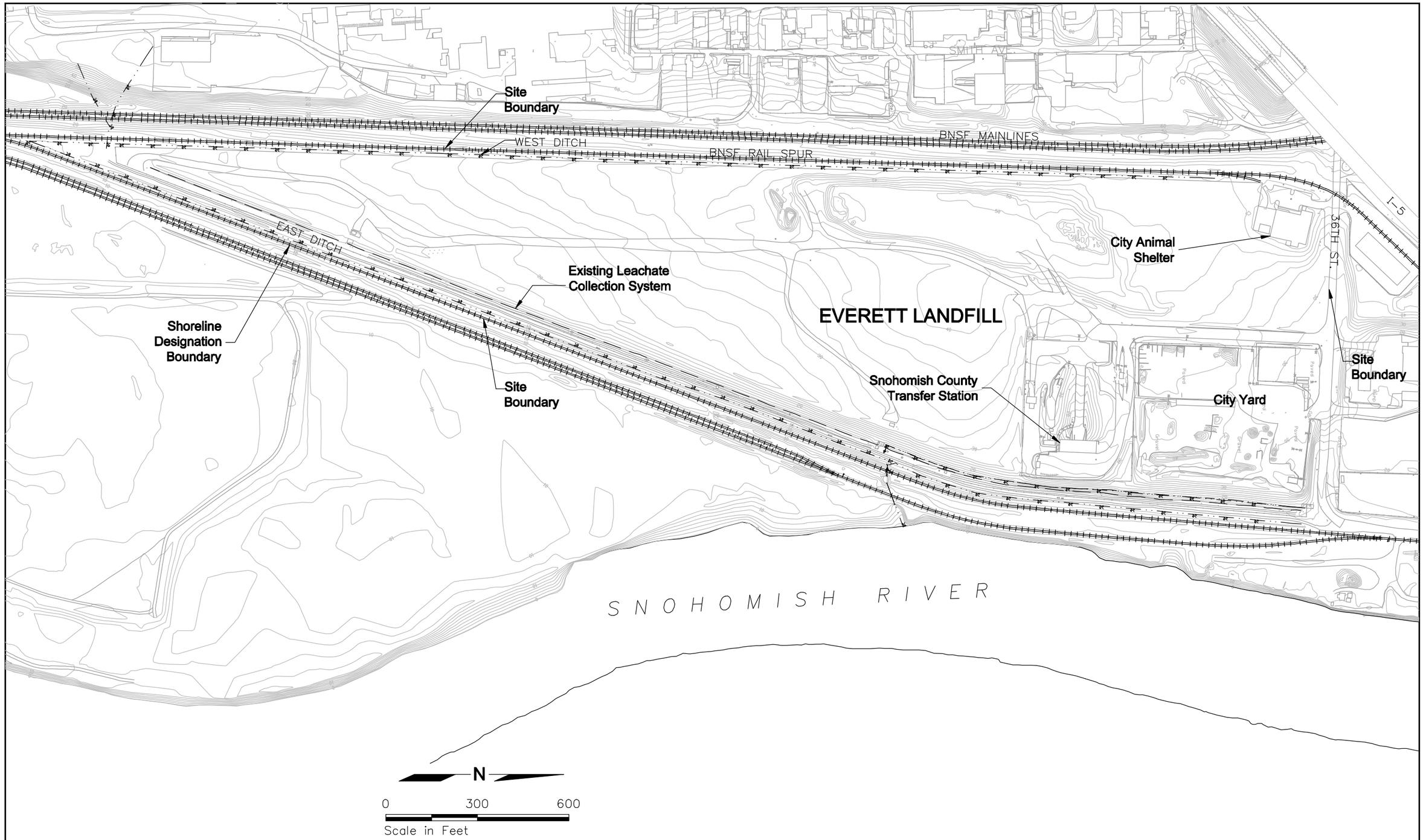
The recommended alternative for the direct contact pathway will require developed area covers to isolate buried landfilled materials, with associated institutional and property management controls to ensure cover materials are not penetrated without proper construction and repair procedures. Developed area cover includes building slabs, pavements, and clean soil for landscaped areas and utility corridors. Special construction requirements will be required to protect the health and safety of construction workers, and minimize off-site impacts of construction activities. These construction requirements include: dust and odor controls, erosion controls, dewatering procedures, extra health and safety training for construction crews and construction performance monitoring and inspection to ensure compliance. The recommended alternative allows on-site relocation and capping of excavated refuse during construction, and maintains site access controls to undeveloped portions of the site.

The recommended alternative for the surface water pathway includes those measures recommended under existing conditions, as well as implementing construction practices and stormwater management requirements unique to the landfill setting that will prevent surface water runoff of contamination and its conveyance to the adjacent drainage ditches.

2.3 MONITORING TYPES AND OBJECTIVES

The purpose of this CMCP is to ensure that necessary and appropriate evaluation, performance and confirmational monitoring, inspections and reporting of results are implemented for the Everett Landfill/Tire Fire Site. Monitoring and inspections are necessary to document compliance with cleanup standards and ensure protection of human health and the environment. This plan also describes triggers for implementing contingency measures and what those contingency measures would entail.

Each pathway is described separately. However, quarterly site inspections for the direct contact and groundwater pathways have been coordinated and combined into one inspection event. Gas pathway inspections and monitoring will completed by trained and qualified technicians only.



Floyd & Snider Inc. Landmarc Technologies, Inc. HWA GeoSciences, Inc. Kleppe Consulting MFG, Inc.	**CITY OF EVERETT** **COMPLIANCE MONITORING AND CONTINGENCY PLAN** **Everett Landfill / Tire Fire Site**	PUBLIC WORKS FIGURE 2–1 SITE MAP

DATE: 03/07/01 4:25pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CMCP\fs_sepa03.dwg

3.0 Gas Pathway

3.1 OBJECTIVES

Compliance monitoring for landfill gas (LFG) has three objectives. They are:

- Demonstrate that landfill methane gas is not migrating beyond the perimeter compliance boundary at a concentration exceeding 5% by volume (50,000 ppmv).
- Provide monitoring to protect public health and safety at the existing City Animal Shelter, Snohomish County's Everett Transfer Station, and off-site buildings.
- Provide monitoring to protect public health and safety in future developed areas at the Everett Landfill.

Monitoring plans for each of these objectives are presented below.

3.2 MONITORING TECHNICIAN QUALIFICATIONS

All monitoring will completed by trained and qualified technicians using instruments capable of detecting flammable gas at a concentration at least one-half that of the performance standard being applied. The technician will calibrate hand-held instruments in accordance with the manufacturer's recommendations immediately prior to each use and record the results of the calibration in the field log. Fixed, continuous reading monitors will be calibrated at least quarterly in accordance with the manufacturer's recommendations.

3.3 PERIMETER SUBSURFACE LANDFILL GAS MONITORING

3.3.1. SAMPLING AND INSPECTION PLAN

The drilling logs indicate that six of the existing twelve sampling locations along the perimeter of the landfill are installed in refuse. All existing sampling locations are immediately adjacent to the edge of the landfill and refuse. Perimeter compliance sampling locations must be outside the perimeter landfill gas controls and buried refuse to demonstrate whether or not gas migration is occurring.

New perimeter compliance sampling locations will be installed outside the proposed location of the perimeter LFG controls and buried refuse. These will be installed on 200-foot centers along the western side. North side locations will be on 100-foot centers, located within the roadway's right-of-way.

The existing perimeter sampling locations along the eastern side of the landfill, LG-13 through LG-16, will continue to be used, but only for informational data, and not for site compliance. The compliance monitoring will be done with new compliance sampling locations east of LG-13 through LG-16.

The new perimeter compliance sampling locations are shown in Figure 3-1.

All of the new perimeter compliance sampling locations will be installed in vertical holes in the soil with perforated tubing in the zone to be sampled (a landfill gas probe). The depth will be to a point above the first groundwater surface. They will be installed in accordance with Chapter 173-160 WAC, Minimum Standards for Construction and Maintenance of Wells.

3.3.2 FREQUENCY OF SAMPLING

Perimeter sampling frequency will be quarterly (four times per year).

3.3.3 EVALUATION METHODS

Perimeter sampling evaluation will be by means of appropriate field monitoring instrument(s) capable of monitoring for methane in percent by volume of the lower explosive limit and in percent of total volume (the instrument is sensitive to 1% or less explosive gas by volume). Readings will be recorded for methane, oxygen and carbon dioxide. Barometric pressure will be recorded the day of monitoring and for the previous day. Depth to water will be measured annually to confirm the location of the screen above groundwater. The results will be logged on field record forms for each sampling location.

3.3.4 REPORTING REQUIREMENTS

The data from the perimeter compliance sampling location evaluation will be reported to Ecology on an annual basis. The report will include the date of sampling, the locations sampled, and the results.

If a measurement exceeds the regulatory limit it will be reported to Ecology within 7 days. The report to Ecology will include the same information as above, as well as actions taken and anticipated to correct the gas migration.

3.3.5 CONTINGENCY PLAN TRIGGERS

The contingency plan trigger concentration will be the lower explosive limit, 5% (50,000 ppm) by volume, measured at any perimeter compliance sampling location.

3.3.6 CONTINGENCY PLAN

If methane is detected above 5% by volume in one or more probes, then those probes will be resampled within 72 hours. If methane is detected above 5% again, then a continuous reading methane sampling and recording device will be placed on one or more of the affected probes. Additionally, the City may collect canister samples for evaluation of gas constituents as discussed below. Continuous gas sampling results will be recorded for one month and the average of all recorded methane readings will be computed. If the average concentration of

methane exceeds 5% and any canister sample results do not give evidence of another source other then the landfill, then subsurface landfill gas migration will be confirmed and the contingency plans of Section 3.3.6 will be implemented.

Canister sampling may be conducted to determine whether the flammable gas originates from migrating LFG or from some other source in the area such as the organic peat deposits. This would be done by sampling and analyzing the gas from the affected sampling probe and comparing the results with an analysis of landfill gas from the interior of the landfill. Fingerprint gasses could include freon 11, 12 and 113, vinyl chloride, chloroethane, chlorobenzene, 1,4 dichlorobenzene, and 1,1 dichloroethene. Isotopic identification, including tritium and carbon-14 could also be used.

If the presence of migrating LFG in excess of the regulatory limit is confirmed as described above, then temporary, localized controls would be evaluated, selected, and installed to control migration in the vicinity of the affected perimeter compliance monitoring location. Perimeter LFG migration control would be implemented in accordance with the Ecology approved Design Report. Additionally, weekly monitoring would begin or be reinstated for representative off-site buildings within 500 feet of the sampling site, if any. This would occur until the affected monitoring probes no longer have methane present at greater than 5%.

3.4 LANDFILL GAS MONITORING FOR EXISTING STRUCTURES

3.4.1 ANIMAL SHELTER

3.4.1.1 Sampling and Inspection Plan

Floor drains with previously detected levels of flammable gas have been plugged and a floor joint has been sealed. Flammable gas monitoring will be conducted weekly for one month after any repair action, which includes plugging the drains and sealing the floor joint. Thereafter, sampling will continue on a monthly basis unless flammable gas levels continue to be detected. If measurements are below the action level for six months, sampling will continue on a quarterly basis. Measurements will be taken at the following locations within the Animal Shelter:

- Restroom drains (sealed) – men's and women's restrooms
- Storage Room floor joint (sealed)
- Other representative floor drains as identified in a survey of the building
- Around all other utility penetrations of the floor
- Around electrical panels where conduit enters from outside the building
- Any other significant crack in the floor or non-grouted tile joints.

A trained, qualified technician will conduct periodic sampling and inspection. The technician will use an appropriate methane detection field instrument capable of accurately measuring concentrations down to less than five ppm. Measurements are to be taken consistent with procedures described in 40 CFR 60 Subpart WWW (Standards of Performance for Municipal

Solid Waste Landfills). The intent of this monitoring is to identify locations where landfill gas may be entering the building.

Permanently mounted, continuous monitors are located in the Animal Shelter. These monitors sound an alarm if flammable gas is detected at 1,000 ppm. They will be calibrated in accordance with the manufacturer's recommendations.

3.4.1.2 Frequency of Sampling

Normal frequency of monitoring will be quarterly. More frequent monitoring as described above will be initiated if a measurement exceeds a contingency trigger.

3.4.1.3 Evaluation Methods

The continuous in-building alarm system will activate if flammable gas concentration reaches 1,000 ppm. Activation of the alarm will cause employees to notify the Everett Public Works Department and the Fire Department and evacuate the building.

The monitoring technician will note and record the readings of the monitoring instrument. Readings in excess of 100 ppm would be cause for further investigation and implementation of contingency plans.

3.4.1.4 Reporting Requirements

The City will transmit compliance monitoring results and status of corrective actions to Ecology on a monthly basis until the MTCA Cleanup Action Plan and Consent Decree are finalized. Thereafter, the City will transmit the results to Ecology annually.

Ecology will be notified within 7 days of any confirmed exceedance that triggers contingency plans.

3.4.1.5 Contingency Plan Triggers

If the 100 ppm (methane) action level is exceeded during periodic monitoring, the City will implement contingency measures. Actuation of the continuous alarm set at 1,000 ppm would also cause the City to implement contingency measures.

3.4.1.6 Contingency Plan

If any monitoring triggers contingency measures they will be implemented in the order they are presented below.

1. The instrument will be recalibrated, or a second instrument will be used, to verify the occurrence. Sampling will be repeated daily for three days to verify occurrence.
2. If the exceedance occurred at an Animal Shelter floor drain, joint or crack, the City will seal or re-seal that location within one week. Compliance monitoring will be performed as described above. If further exceedances are detected during compliance monitoring, the City will install a wall-mounted, full time monitor in that room of the Animal Shelter. The alarm will be set at 1,000 ppm to sound an audible alarm. Employees will be instructed to open doors, increase ventilation, and notify the Public Works Department and Fire Department if an alarm sounds

3. If compliance monitoring of the floor joint in the Animal Shelter storage room exceeds the action level, the storage room door will be removed to increase ventilation.

If measurements exceed the proposed 100 ppm (methane) action level in spite of efforts to seal the source of gas infiltration in the Animal Shelter, corrective measures will be developed and evaluated. This evaluation would take into account the explosion and toxic risk presented by the gas, the probability of success, and time and cost to implement. Measures could include localized vacuum extraction wells to reduce the presence of LFG in the vicinity of the Animal Shelter.

3.4.2 TRANSFER STATION

3.4.2.1 Sampling and Inspection Plan

The Snohomish County Solid Waste Division (SCSWD) has placed full time landfill gas monitors within the lunchroom and scale house. The City will have a trained, qualified technician conduct periodic sampling and inspection of the transfer station lunchroom. The technician will use an appropriate methane detection field instrument capable of accurately measuring concentrations down to less than five ppm.

The City will provide the SCSWD a copy of this Compliance Monitoring Plan. The SCSWD may provide additional monitoring at its transfer station facility beyond that presented in this Compliance Monitoring Plan.

3.4.2.2 Frequency of Sampling

The normal frequency for monitoring by the City will be quarterly. More frequent monitoring will be initiated as described below if a contingency trigger is hit.

3.4.2.3 Evaluation Methods

The continuous in-building alarm system will activate at a flammable gas concentration of 1,000 ppm. Activation of the alarm will cause employees to notify the SCSWD, the Everett Public Works Department and the Fire Department and evacuate the building.

The monitoring technician will note and record the readings of the monitoring instrument. SCSWD will be advised of the results from these readings.

3.4.2.4 Reporting Requirements

Results of Compliance Monitoring will be provided to the SCSWD within 2 business days of sampling.

The City will transmit compliance monitoring results and status of corrective actions to Ecology on a monthly basis until the MTCA Cleanup Action Plan and Consent Decree are finalized. Thereafter, the SCSWD will transmit the results to the City on a monthly basis. The City will report results to Ecology on an annual basis.

3.4.2.5 Contingency Plan Triggers

Actuation of the continuous alarm set at 1,000 ppm would cause the SCSWD to implement contingency measures.

3.4.2.6 Contingency Plan

Contingency measures will be implemented in the order they are presented below.

The alarm will be set at 1,000 ppm to sound an audible alarm. Employees will be instructed to open doors, increase ventilation, and notify the SCSWD, Everett Public Works Department and Fire Department if an alarm sounds.

Additional measures that SCSWD could take include:

- Ventilating the building
- Pinpointing, if possible, the entry point of methane into the building
- Seal, block or otherwise stop the methane entry
- Increase the normal air exchange rate within the building
- Remove skirts from portable buildings
- Improve ventilation beneath buildings
- Improve the traps in sanitary sewers and check that they are full of water
- Post *"Warning/Do Not Enter/No Smoking"* signs at the entry to confined spaces outside and/or underneath the buildings
- Localized vacuum extraction wells

The potential solution would be reviewed and approved by Ecology.

3.4.3 OFF-SITE BUILDING GAS MONITORING

3.4.3.1 Sampling and Inspection Plan

Three buildings on the north side of the landfill and three buildings on the west side of the landfill will be monitored. A trained, qualified technician will conduct periodic sampling and inspection. The technician will use an appropriate methane detection field instrument capable of accurately measuring concentrations down to less than five ppm.

With owner permission, the monitoring technician will check every ground floor room within each building with the monitoring instrument. The breathing zone within the building will be tested generally. Any penetration of the building structure will be tested. Penetrations include cracks in the floor and retaining walls, floor drains, sinks, toilets, showers, and tubs, interior ends of incoming utility conduits, power panels, and phone panels or switchboxes.

The monitoring technician will also check exterior enclosed spaces by inserting the instrument probe into the space (no personnel entry). Enclosed spaces to be checked may include crawl spaces under buildings, manholes, roof drains, and catch basins.

3.4.3.2 Frequency of Sampling

Off-site building sampling frequency will be quarterly (four times per year). Off-site building monitoring will continue for three years unless there is a confirmed LFG detection, in which case monitoring will extend for three years. Off-site monitoring will be discontinued after three years if there is no confirmed LFG detection in any monitored off-site building. Off-site building monitoring would be reinstated if perimeter gas monitoring confirmed migration of subsurface gas at the Site boundary. In this case, monitoring of off-site buildings within 500 feet of the affected probes would begin and continue until the probe reading became less than 5% methane by volume.

3.4.3.3 Evaluation Methods

The monitoring technician will note and record the readings of the monitoring instrument. Readings in excess of 100 ppm would be cause for further investigation and implementation of contingency plans.

3.4.3.4 Reporting Requirements

The data from off-site building monitoring will be reported to Ecology on an annual basis. The report will include the date of sampling, the locations sampled, and the results.

If a result exceeds 100 ppm the City will report to Ecology within 24 hours. The City will submit a report to Ecology within 7 days of the initial exceedance. It will include the same information as above, as well as actions taken and anticipated to correct the condition.

3.4.3.5 Contingency Plan Triggers

The Contingency Plan trigger concentration will be 100 ppm measured at any sampling location.

3.4.3.6 Contingency Plan

Verification monitoring will be initiated in response to an exceedance at any monitoring location. If the exceedance is confirmed with repeated monitoring, sampling may be conducted to determine whether the flammable gas originates from migrating LFG or from some other source in the area such as the organic peat deposits or sanitary facilities. This would be done by monitoring nearby perimeter compliance sampling locations and/or sampling and analyzing the gas from the affected sampling location and comparing the results with an analysis of landfill gas from the interior of the landfill. Fingerprint gasses could include freon 11, 12 and 113, vinyl chloride, chloroethane, chlorobenzene, 1,4 dichlorobenzene, and 1,1 dichloroethene. Isotopic identification, including tritium and carbon-14 could also be used.

If the presence of migrating LFG is confirmed, localized controls would be implemented. These temporary controls would be evaluated, selected, and installed to control LFG in the vicinity of the affected off-site building. These controls could include perimeter controls and/or localized controls at the building site such as a vacuum extraction well.

3.5 LANDFILL GAS MONITORING FOR DEVELOPMENT AREAS

3.5.1 ALARM SYSTEM

Recommendations for future landfill conditions include a continuous sensor system in all ground floor spaces for all future buildings constructed at the site. The system will automatically activate increased interior ventilation via the installed HVAC system and notify appropriate operations and maintenance personnel if the methane concentration reaches 1,000 ppm. If methane concentration reaches 10,000 ppm, alarms will be actuated that will cause the building to be evacuated and the fire department notified. In case of power failure, the system will automatically switch to battery power and activate a trouble light or audible tone.

The alarm system will be tested and approved for performance by a recognized testing laboratory in accordance with Fire Department recognized standards.

3.5.2 SAMPLING AND INSPECTION PLAN

Building sampling and inspection will be performed via two modes: the continuous sensing alarm system described above and periodic sampling and inspection by a qualified technician using methane detection field instruments capable of accurately measuring concentrations down to less than five ppm.

The continuous alarm system sensors will be placed in ground floor locations selected with consideration given to all possible gas entry locations and possible air dilution/diffusion from the point of entry to the sensor.

The technician will check every ground floor room and/or enclosure within each building with the monitoring instrument. The breathing zone within the ground floor rooms will be tested generally. Any penetration of the building structure will be tested. Any penetration of the building structure will be tested. Penetrations include cracks in the floor and retaining walls, drains in floors, sinks, toilets, showers, and tubs, interior ends of incoming utility conduits, power panels, and phone panels or switchboxes.

The technician will also check enclosed spaces outside the buildings. The technician will check these spaces by inserting the instrument probe into the space (no personnel entry). Enclosed spaces to be checked include spaces under buildings due to landfill settlement, spaces under portable buildings, manholes, catch basins, pump station vaults, and cracks in pavement or sidewalks. Other areas to be checked will include the ground surface around the perimeter of the buildings.

3.5.3 FREQUENCY OF SAMPLING

Permanent sensors operate continuously and will be calibrated quarterly. The manual periodic monitoring survey will be performed every two weeks after the building and/or exterior area is opened for public access. If results do not show an air quality concern for three months, monitoring will then be performed quarterly.

3.5.4 EVALUATION METHODS

The continuous in-building alarm system will automatically activate the controls and alarms described above at a flammable gas concentration of 1,000 ppm. Additional alarms and notifications will occur as described above at 10,000 ppm.

The monitoring technician will note and record the readings of the monitoring instrument. Readings in excess of 100 ppm would be cause for further investigation and implementation of contingency plans.

3.5.5 REPORTING REQUIREMENTS

The data from the periodic monitoring will be reported to Ecology on an annual basis. The report will include the dates of sampling, the locations sampled, and the results.

If a result exceeds the regulatory limit it will be reported to Ecology within 7 days. The report to Ecology will include the same information as above as well as actions taken and anticipated to correct the excessive gas migration.

3.5.6 CONTINGENCY PLAN TRIGGERS

The trigger for ground floor monitoring sensors will be 1,000 ppm for initial response and 10,000 ppm for secondary response. Manual, periodic monitoring will initiate contingencies if flammable gas concentration exceeds 100 ppm.

3.5.7 CONTINGENCY PLAN

The ground floor monitoring system will trigger increased ventilation from the installed HVAC system. The increase will provide at least four air changes per hour. The intake will provide 100% outside make-up air. The exhaust will discharge to the outside at a point away from the intake.

The ground floor alarm system will also trigger an auto-dialer to call a tier of responsible persons who can have the building inspected to find the source of the flammable gas. The inspection will attempt to pinpoint the entry point of methane into the building. Once found the leak will be sealed, blocked or otherwise stopped. Additionally, personnel will inspect and adjust the vacuum extraction pipes under the affected building to verify proper operation and increase applied vacuum if necessary.

Above 10,000 ppm, the ground floor monitoring system would activate further alarms causing the building to be evacuated and the fire department notified.

The periodic manual inspection trigger would initiate corrective action at the point where the exceedance was measured. This will typically be a small leak around a joint or through a crack. The leak would be sealed, blocked or otherwise stopped. The effectiveness of the repair would be monitored weekly for one month and thereafter resume normal periodic monitoring.

If all other attempts to control a leak are ineffective, localized vacuum extraction wells could be installed to remove LFG from the problem area.

Phased active landfill gas controls will be designed and constructed such that, in the future when landfill gas generation rates have dropped to a level that renders the active system unnecessary, the landfill gas controls may be operated as a passive venting system, without vacuum extraction. Evaluation of monitoring data will assist in decision-making regarding this transition to a passive venting system.

3.6 CONFIRMATIONAL SAMPLING AT LANDFILL GAS DISCHARGE POINTS

This sampling plan pertains only to untreated discharges of landfill gas. Discharges of treated landfill gas would be sampled in accordance with a permit issued by Puget Sound Clean Air Agency (PSCAA).

3.6.1 SAMPLING AND INSPECTION PLAN

Future development will include active vacuum extraction and discharge of landfill gas to the atmosphere. Future developers could design and construct the vacuum discharge system to require no treatment as discussed in the Brownfield Feasibility Study. The design of such a system would be based on the characterization of the landfill gas as shown in the following Table 1 and estimated landfill gas flows from one or more discharge vents. This data would be modeled using a model like the Industrial Source Complex Model, version 3 (ISC3) currently recommended by USEPA for simulation of concentrations from fugitive emissions and from multiple point sources. The model would determine the location and height of proposed vent stacks so that MTCA cleanup levels and ASIL standards would not be exceeded in ambient air.

Model confirmation sampling would be done after construction and an initial period of vacuum system operation to verify the assumptions regarding landfill gas characterization and flow rate at each of the constructed vents. The initial period of operation would be no less than 30 days in order to allow the system to stabilize and the gas flow and concentration to normalize. Sampling the system earlier may provide results that are not representative of steady-state operating conditions.

A gas sample would be collected from a sample port at each vent location. The sample port would be designed to provide a sample of gas representative of what is in the vent pipe prior to mixing with atmospheric air. The collected sample would be analyzed for the constituents listed in Table 1. The flow rate through the vent would also be measured.

Table 1
Air Quality Modeling Results

CAS	Compound	M.W.	Ambient Standards & Modeled Ambient Air Concentrations						Undiluted Subsurface Landfill Gas Averages[1]		
			ASIL Type	ASIL (ug/m^3)	MTCA Cleanup Standard (ug/m^3)	Modeled Contribution for Developed Conditions[2] with H2S Treatment (ug/m^3)	Modeled Contribution for Developed Conditions[3] without H2S Treatment (ug/m^3)	Modeled Contribution for Existing Conditions[4] (ug/m^3)	Overall Average (ug/m^3)	FSI Average (ug/m^3)	B&V Average (ug/m^3)
75-71-8	Dichlorodifluoromethane	121.0	B	16,000.0	80.0	0.017	0.006	0.007	402.6		402.6
74-87-3	Chloromethane	50.5	B	340.0	1.7	0.001	0.000	0.000	25.8		25.8
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	171.0	B	23,000.0	None	0.052	0.019	0.020	1,205.9		1,205.9
75-01-4	Vinyl chloride	62.5	A	0.012	1.0	0.001	0.000	0.001	189.5	219.4	159.7
75-00-3	Chloroethane	64.5	B	1,000.0	4,600.0	0.011	0.004	0.004	263.2	337.6	188.7
75-69-4	Trichlorofluoromethane	137.0	B	19,000.0	320.0	0.002	0.001	0.001	51.4	48.8	54.0
75-35-4	1,1-Dichloroethene	97.0	B	67.0	None	0.002	0.001	0.001	35.7		35.7
75-09-2	Methylene chloride	84.9	A	0.56	1.1	0.000	0.000	0.000	59.3		59.3
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	187.0	B	27,000.0	13,700.0	0.003	0.001	0.001	69.1		69.1
75-34-3	1,1-Dichloroethane	99.0	B	2,700.0	1.0	0.002	0.001	0.001	40.8	38.2	43.4
156-59-2	cis-1,2-Dichloroethene	96.0	B	2,600.0	1.0	0.002	0.001	0.001	39.4	37.6	41.1
67-66-3	Chloroform	119.0	A	0.043	1.0	0.000	0.000	0.000	44.1		44.1
107-06-2	1,2-Dichloroethane	99.0	A	0.038	1.0	0.000	0.000	0.000	37.3		37.3
71-43-2	Benzene	78.1	A	0.12	5.9	0.003	0.001	0.007	865.3	854.0	876.5
108-88-3	Toluene	92.1	B	400.0	183.0	0.020	0.007	0.008	456.6	230.0	683.1
127-18-4	Tetrachloroethene	166.0	A	1.1	5.4	0.000	0.000	0.000	61.4		61.4
108-90-7	Chlorobenzene	113.0	B	150.0	8.0	0.024	0.009	0.009	552.1	616.0	488.2
100-41-4	Ethylbenzene	106.0	B	1,000.0	457.0	0.042	0.016	0.016	982.5	731.0	1,234.0
1330-20-7	m,p-Xylene	106.0	B	1,500.0	320.0	0.093	0.034	0.036	2,160.7	1,156.0	3,165.4
100-42-5	Styrene	104.0	B	1,000.0	32.5	0.002	0.001	0.001	56.6		56.6
95-47-6	o-Xylene	106.0	B	1,500.0	320.0	0.008	0.003	0.003	184.2	150.0	218.4
79-34-5	1,1,2,2-Tetrachloroethane	167.9	B	23.0	None	0.003	0.001	0.001	72.8		72.8
108-67-8	1,3,5-Trimethylbenzene	120.0		None	None	0.016	0.006	0.006	362.6		362.6
95-63-6	1,2,4-Trimethylbenzene	120.0		None	None	0.053	0.020	0.021	1,244.4		1,244.4
541-73-1	1,3-Dichlorobenzene	147.0		None	None	0.003	0.001	0.001	73.1		73.1
106-46-7	1,4-Dichlorobenzene	147.0	A	1.5	366.0	0.001	0.000	0.002	192.7	181.0	204.4
95-50-1	1,2-Dichlorobenzene	147.0	B	1,000.0	64.0	0.005	0.002	0.002	112.6		112.6
120-82-1	1,2,4-Trichlorobenzene	181.0	B	120.0	4.8	0.010	0.004	0.004	233.8		233.8
87-68-3	Hexachlorobutadiene	261.0	B	0.7	1.0	0.005	0.002	0.002	119.3		119.3
78-93-3	2-Butanone	72.1	B	1,000.0	460.0	0.002	0.001	0.001	42.0	84.0	0.0
78-93-3	Hydrogen sulfide	34.1	B	0.9	0.4	0.202	0.375	0.394	23,501.0		23,501.0

Notes:

1 See Appendix H for data sheets used to calculate averages.

2 Developed conditions: three emission release stacks 35 feet high.

3 Developed conditions: one emission release stack 30 feet high.

4 Existing conditions: emissions are assumed to emanate uniformly from a series of area sources covering the entire surface of the landfill.

3.6.2 FREQUENCY OF SAMPLING

Confirmation sampling at each discharge vent pipe would be done one time after the operating system had reached stable operating conditions. This would be no sooner than 30 days after system start-up and no later than 90 days after system start-up.

3.6.3 EVALUATION METHODS

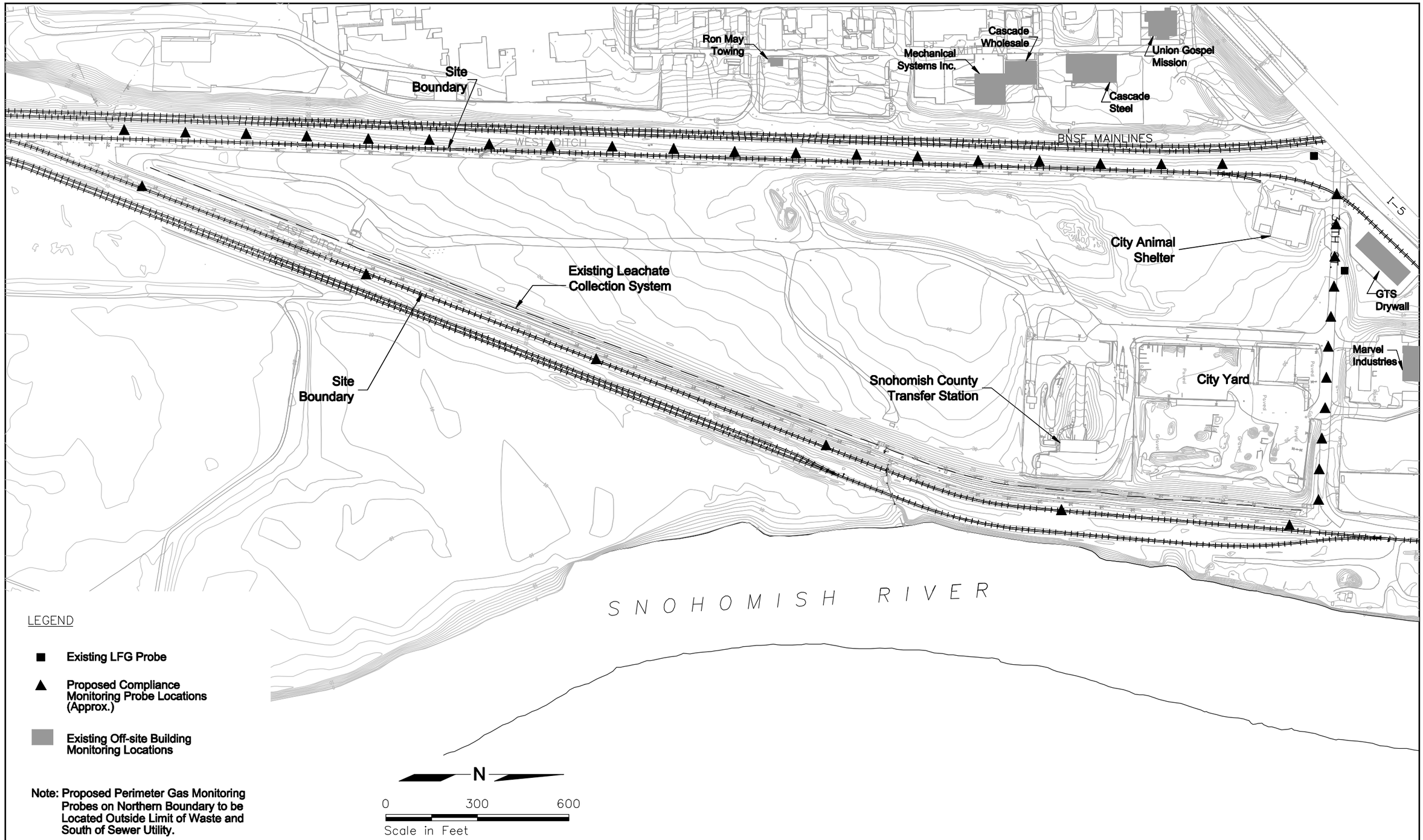
The purpose of the sampling is to determine if the assumptions for pollutant concentration and landfill gas flow used in the design modeling were equal to or less than the actual conditions. Therefore, pollutant concentrations would be compared to the concentrations listed in Table 1. Landfill gas flow would be compared to the value modeled at that vent. If all pollutants found in the samples are less than or equal to the concentration of the pollutants in Table 1 and the measured landfill gas flow is less than or equal to that modeled, then the model assumption would be correct and no further action would be required. If any measured pollutant concentration exceeds its value in Table 1 or the measured landfill gas flow rate exceeds its modeled value, then the contingency measures would be initiated.

3.6.4 REPORTING REQUIREMENTS

Results from the sampling event would be reported to PSCAA and Ecology. The report would include a determination as to whether any further action was required or not. If further action were required, the report would include a description of the intent of further analysis and design and a schedule for completion. Further analysis and design would be as discussed in the contingency plan presented below. The results of the contingency plan analysis and design would also be reported at completion.

3.6.5 CONTINGENCY PLAN

The contingency plan would be executed if it were determined that the model assumptions were exceeded in the measured results. In that case, the expected ambient concentrations would be recalculated based on the measured results. If modeling demonstrates that cleanup levels and ASIL standards are still not exceeded in ambient air, then no further action is required. If modeling demonstrates that there is a potential exceedance, then modifications to the discharge will be designed to correct the condition. The revised design would be modeled using the measured data to demonstrate compliance with MTCA cleanup levels and ASIL standards. If the proposed correction includes a treatment system, that system would be permitted in accordance with PSCAA regulations.



Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

CITY OF EVERETT
COMPLIANCE MONITORING AND CONTINGENCY PLAN
Everett Landfill / Tire Fire Site

PUBLIC WORKS

FIGURE 3–1
PROPOSED LANDFILL GAS COMPLIANCE MONITORING PROBE LOCATIONS

DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CMCP\fig3-1.dwg
DATE: 03/07/01 4:22pm

4.0 Groundwater Pathway

4.1 OBJECTIVES

Groundwater pathway monitoring will consist of three phases of monitoring. Evaluation Monitoring will occur for the first three years to supplement current information regarding baseline conditions at the site. Following the Evaluation Monitoring period, Performance Monitoring will occur for a minimum of ten years, and as triggered by certain development actions. Confirmational Monitoring is implemented once development conditions are stable, and Performance Monitoring is finished.

The supplemental data regarding baseline conditions that will be collected during Evaluation Monitoring will assist in future assessment during Performance Monitoring of seasonal and long-term changes in groundwater quality. Such changes may result from future site development, remedial actions, or local changes to groundwater recharge or discharge. Evaluation Monitoring will provide area background concentrations of metals in order to finalize those cleanup levels. An appropriate well network and analyte list for Performance Monitoring will be selected after the 3-year Evaluation Monitoring period is completed.

The objective of Performance Monitoring as defined by MTCA is to confirm that a cleanup action has attained performance and cleanup standards. Because potential future development is required to meet cleanup standards as defined in the Cleanup Action Plan, the timing of Performance Monitoring will reflect the phasing of specific development actions. Performance Monitoring will occur following Evaluation Monitoring. Additionally, Performance Monitoring will be reset or reinstated after the first significant future pile installation activity occurs on the site. Additional pile installation activities will reset or reinstate Performance Monitoring only if such pile installation occurs in a zone identified for pile restrictions.

In addition to groundwater monitoring requirements, inspection of stormwater management facilities will be made to confirm that collected stormwater is not allowed to infiltrate at the landfill site, and is managed appropriately for off-site discharge. Stormwater infiltration is an issue related to groundwater. These inspections will be coordinated with the site inspections defined in Chapter 5 for the Direct Contact Pathway.

4.2 COMPLIANCE CRITERIA

Groundwater cleanup levels are identified in the BFS as the most stringent of drinking water and surface water standards. Points of compliance for the shallow and the deep aquifers are conditional.

Groundwater in the shallow aquifer (leachate) is collected in the leachate collection system and conveyed off-site for treatment. A small section of the shallow aquifer is present east of the leachate collection system and west of the East Ditch (see Figure 2-1, Site Map). There is residual waste in the strip of land between the leachate collection trench and the East Ditch.

The leachate collection system also collects groundwater from this narrow strip of land and conveys it off-site, preventing discharge to surface water.

The shallow aquifer point of compliance is located on the strip of land between the East Ditch and the leachate collection trench and the compliance criteria for the shallow aquifer is based on hydraulic control through operation of the leachate collection system. Demonstration of hydraulic control is through monitoring of water levels in shallow aquifer monitoring wells and the leachate trench to show that hydraulic gradients are toward the leachate collection system, which would indicate no shallow aquifer discharge to surface water.

The compliance criteria does not preclude the potential for removal of the source of contamination (landfilled materials) within the narrow strip of land east of the leachate collection trench and west of the site boundary (inner eastern railroad track) during future development actions. If the potential source of contamination is removed from this area or a hydraulic barrier is installed on the west edge of the East Ditch, hydraulic control of shallow groundwater east of the leachate collection system trench would not be necessary.

Although no water quality monitoring of the shallow aquifer is proposed as long as the leachate collection trench is operated, future monitoring may occur if there is a desire to demonstrate that the shallow aquifer has achieved the compliance criteria. If future monitoring is implemented and it demonstrates that cleanup levels have been met in the shallow aquifer, the leachate collection system would be turned off.

Because the shallow aquifer is discharging to the leachate collection system, groundwater quality compliance will be measured in the deeper aquifer. Groundwater in the deep aquifer discharges directly and indirectly to the Snohomish River, a designated potential source of drinking water. The proposed point of compliance for the deep aquifer is located downgradient of the landfill, between the landfill and the point of discharge into the Snohomish River, outside the boundary of landfilled materials, and no further than 100' east of the easterly railroad tracks.

No existing deep aquifer groundwater monitoring wells are located at the point of compliance. The proposed number and location of new compliance wells are discussed in section 4.3.1.

Table 2 (see end of Section 4) summarizes the proposed cleanup levels, as well as proposed analytical methods presented in the BFS. As discussed in Section 6.3.2 of the BFS, concentrations of some metals at the site (e.g. arsenic, lead, zinc) may reflect upgradient, area background conditions. Evaluation Monitoring will include monitoring at new, upgradient monitoring wells, which will define area background concentrations and allow finalization of cleanup levels.

4.3 INSPECTION REQUIREMENTS

Periodic visual inspection of the site, under both existing and future conditions, is required to verify that stormwater infiltration is minimized. In undeveloped areas and under existing conditions, an inspection will be made to confirm that grading of landfill cover does not allow significant areas of ponded water to accumulate on the site. Under potential future developed conditions, an inspection of stormwater management facilities is required to ensure that stormwater is being managed to minimize infiltration and to appropriately convey the water off-

site for discharge. The leachate collection system will also be inspected to verify that it is in good repair and working effectively. These inspections will be coordinated with the site inspections defined in Chapter 5 for the Direct Contact Pathway.

4.4 EVALUATION MONITORING

Evaluation Monitoring will collect data to supplement the current understanding of baseline conditions for the shallow and deep aquifers. This information will define baseline conditions against which Performance Monitoring results will be evaluated in order to assess seasonal and long-term changes in groundwater quality that may result from future site development, remedial actions, or local changes to groundwater recharge or discharge. Evaluation monitoring will also support the selection of appropriate wells, analytes and cleanup levels for long-term Performance and Confirmational Monitoring.

The Evaluation Monitoring period is designed to measure groundwater characteristics that will:

1. Evaluate existing conditions at new wells located upgradient to determine area background concentrations and finalize cleanup levels.
2. Evaluate existing conditions at new wells located at the point of compliance using standardized sampling procedures.
3. Establish a statistically significant database to determine existing contaminant concentrations in each monitoring well.
4. Define groundwater gradients in the deep and shallow flow systems to select the best long-term groundwater monitoring well network.

4.4.1 EVALUATION MONITORING PLAN

Results from previous groundwater sampling events at the site indicate overall groundwater quality conditions. However, the sporadic frequency of previous sampling, inconsistencies of sampling procedures and the low number of sampling events on all existing wells do not support a statistical evaluation of trends or seasonal variations. The Evaluation Monitoring period will provide a baseline understanding of groundwater quality conditions that will be used to evaluate potential leachate impacts to groundwater and surface water, and the potential impact of pile installation on the deep aquifer.

Evaluation Monitoring will consist of improvements to the groundwater monitoring well network, water level monitoring, and quarterly water quality monitoring and reporting. A detailed sampling and analysis plan (SAP) for Evaluation Monitoring will be developed in accordance with the Scope of Work and Schedule, Exhibit D to the Consent Decree.

4.4.1.1 Monitoring Well Network Improvements

The existing groundwater monitoring well network does not adequately monitor the deep aquifer point of compliance. Additionally, several existing wells are redundant, improperly installed, or do not provide useful water quality or water elevation data for groundwater pathway monitoring. Therefore, new wells and wells to be abandoned are included as a component of Evaluation Monitoring.

New Wells

New groundwater monitoring wells will be installed to monitor area background conditions in both the shallow and deep aquifers, and to monitor the deep aquifer point of compliance. Four off-site monitoring wells (two shallow/deep pairs) will be installed west and upgradient of the site to monitor area background water quality. At least four new wells will be installed to monitor compliance in the deep aquifer. Deep aquifer compliance wells will be located downgradient of the landfill, outside the waste boundary, between the landfill and point of discharge into Snohomish River, within 100 feet east of the current location of the easternmost BNSF tracks, and within property able to be restricted by institutional controls under the consent decree. Exact well locations will be determined by access agreements and technical feasibility. Figure 4-1 shows the initial proposed locations for new wells. The wells will be installed and developed according to the requirements for resource protection wells in WAC 173-160-400, Construction and Maintenance of Wells.

Wells for Abandonment

Existing wells identified for immediate abandonment are either redundant or improperly installed. Four monitoring wells (Table 3 and Figure 4-1) will be immediately abandoned in accordance with WAC 173-160 Construction and Maintenance of Wells. Seventeen remaining existing wells, in addition to the eight new wells, will be sampled during Evaluation Monitoring. These 25 monitoring wells form the Evaluation Monitoring well network (see Figure 4-1).

At the completion of Evaluation Monitoring, data from all perimeter groundwater monitoring wells will be evaluated and a Performance Monitoring well network proposed that is consistent with deep aquifer point of compliance criteria described in the BFS. Shallow aquifer monitoring wells that provide water level data for demonstrating compliance will be included. At the end of Evaluation Monitoring, the six existing monitoring wells that lie in the site's interior will no longer be required, and may be abandoned in a second round of abandonment (see Figure 4-1).

Table 3, below, lists existing and preliminary proposed new wells, and describes whether existing wells are scheduled for immediate abandonment (Abandonment), abandonment after Evaluation Monitoring (Interior), or anticipated to be included in the Performance and Confirmational Monitoring well network (Network). Shallow aquifer monitoring wells are italicized.

Table 3
Groundwater Monitoring Well Network

Well Number	Description[1]		Well Number	Description[1]		Well Number	Description[1]
MW-5[2]	*Interior*		*MW-22*	*Network*		MW-32	Interior
MW-7	*Abandonment*		*MW-23*	*Interior*		MW-33	New (BG)
MW-8	Interior		*MW-24*	*Network*		*MW-34*	*New (BG)*
MW-11R	Network		*MW-25*	*Network*		MW-35	New (BG)
MW-12	*Abandonment*		*MW-26*	*Network*		*MW-36*	*New (BG)*
MW-13	Abandonment		*MW-27*	*Network*		MW-37	New (POC)
MW-14	*Interior*		MW-28	Network		MW-38	New (POC)
MW-16	Abandonment		MW-29	Network		MW-39	New (POC)
MW-17	*Interior*		MW-30	Network		MW-40	New (POC)
MW-21	Network		MW-31	Network			

[1] Descriptions: Abandonment = immediate abandonment
Interior = well located in interior of site; will be abandoned after Evaluation Monitoring
Network = existing well anticipated to remain a part of the Performance and Confirmational Monitoring groundwater monitoring well network
New (BG) = new well located for background measurements; only the deep wells are anticipated to remain a part of the Performance and Confirmational Monitoring groundwater monitoring well network
New (POC) = new well located for deep aquifer point of compliance monitoring; anticipated to remain a part of the Performance and Confirmational Monitoring groundwater monitoring well network. Additional deep aquifer POC wells may be installed in accordance with criteria described in the BFS.

[2] *Italics*: Shallow wells

4.4.1.2 Water Level Monitoring

Groundwater elevations will be measured at all wells in the Evaluation Monitoring well network, in the leachate collection trench, the East Ditch, and the Snohomish River during each monitoring event to determine changes in seasonal or long-term water elevations and groundwater flow directions. The hydraulic connections between the shallow aquifer (leachate zone) and deep aquifer, and between the deep aquifer and the Snohomish River, will be assessed to support evaluation of contaminant migration rates and direction along the groundwater pathway.

4.4.1.3 Sampling Methods

Monitoring wells will be purged and sampled using low-flow purging methods (Barcelona, 1994). Prior to sample collection, groundwater levels will be measured to the nearest 0.01-foot using a decontaminated electronic well probe. Following water level measurement, the wells will be purged by pumping a small volume of water in order to ensure sampled water represents aquifer conditions. The volume pumped will be determined in the field based on stabilization of field parameters: specific conductance, dissolved oxygen, and pH. Groundwater samples will be taken after water level measurement and well purging.

4.4.1.3 Sampling Parameters

Groundwater sampling parameters will include volatile and semi-volatile organic compounds, metals, PCBs, herbicides and pesticides, nitrate, nitrite, and chloride. A summary of specific compounds and analytical testing methodology will be included in the sampling and analysis plan, to be developed in accordance with the Scope of Work and Schedule, Exhibit D to the Consent Decree.

4.4.2 EVALUATION MONITORING SCHEDULE

In general, at least ten sampling events will occur during the three-year Evaluation Monitoring period. Samples will be taken from groundwater monitoring wells identified for Evaluation Monitoring (see 4.4.1.1). The Evaluation Monitoring well network will be sampled quarterly for the first two years of Evaluation Monitoring. In the third year of Evaluation Monitoring, the network will be sampled semi-annually during periods of seasonal high and low groundwater levels. If analyte concentrations at a particular well show an increasing trend or seasonal fluctuation during the first two years of quarterly Evaluation Monitoring, sampling at that well will remain at a quarterly frequency during the third monitoring year.

4.4.3 REPORTING REQUIREMENTS

For the first and second years of Evaluation Monitoring, results of groundwater level monitoring, laboratory data reports, and a summary of testing results will be described in quarterly reports submitted to Ecology. Each quarterly report will consist of copies of validated laboratory data, a summary table of the validated data, a table showing water level monitoring data, and a cover letter that describes the evaluation of the data.

For year three, a single Evaluation Monitoring annual report will be prepared and submitted to Ecology. This report will describe the results of semi-annual monitoring completed in year three and include all the data collected during the year. Additionally, the report will summarize the findings of Evaluation Monitoring and establish the rationale for future Performance Monitoring. The Evaluation Monitoring report will include:

- A summary of Evaluation Monitoring results, with a comparison to cleanup levels and discussion of significant findings and conclusions, including a description of area background concentrations and resulting changes to cleanup levels.
- Time versus concentration plots for each well, for each contaminant detected above the cleanup level during at least three sampling events.

- A summary of groundwater and surface water elevation data, including a discussion of any changes in groundwater flow, direction, or discharge rates to surface water.
- Recommendations for modifications to the sampling and analysis plan and a list of wells, sampling frequency, and analytes for Performance Monitoring.
- Recommendation and rationale for selection of appropriate statistical analysis methodology.

4.4.3.1 Contaminants of Concern

If a compound is not detected in any of the deep wells more than once in the ten scheduled Evaluation Monitoring events, it will be considered insignificant and dropped from the list of potential analytes for subsequent Performance Monitoring. Remaining compounds detected in at least two of the ten Evaluation Monitoring sampling events will be evaluated for selection as a contaminant of concern (COC) for Performance Monitoring. COC's are those compounds detected during Evaluation Monitoring at either shallow or deep monitoring wells where:

- The average concentrations at any well during Evaluation Monitoring exceeded the cleanup levels,
- A single detected concentration of the compound exceeded the cleanup levels by a factor of 2, or
- Two or more single detections of compounds at a well exceeded the cleanup levels.

Average concentrations will be determined using statistical methods appropriate for the data set conforming with the requirements of MTCA (WAC 173-340-720), *Statistical Guidance for Ecology Site Managers* (Ecology Pub. 92-54) and *Statistical Methods for Ground Water Monitoring at Municipal Solid Waste Facilities* (WAC 173-351-420).

4.5 PERFORMANCE MONITORING

The objective of Performance Monitoring as defined by MTCA is to confirm that a cleanup action has attained performance and cleanup standards [WAC 173-340-410(1)(b)]. Results from Evaluation Monitoring will establish baseline conditions for groundwater pathway Performance Monitoring. Performance Monitoring will be used to evaluate the effectiveness of site remedial actions, detect deep aquifer migration of site contaminants towards surface water, assess the potential impact of pile installation on the deep aquifer, and establish the site's regulatory compliance with respect to surface water quality protection. Shallow aquifer Performance Monitoring may consist only of water level monitoring of shallow wells and leachate trench water to demonstrate that hydraulic gradients are toward the leachate collection system.

4.5.1 PERFORMANCE MONITORING PLAN

As described in 4.4.1.1, the groundwater monitoring well network will be improved prior to commencement of Performance Monitoring. Results of Evaluation Monitoring will be used to select appropriate Performance Monitoring wells. Deep monitoring wells that are found to be useful for area background and/or compliance point monitoring will be included in the

Performance Monitoring well network. Shallow monitoring wells will not be sampled for chemical content, as long as compliance is based on effective collection of the leachate for treatment. If, however, shallow aquifer compliance based on cleanup levels is desired in order to determine if and when the leachate collection system could be shut down in the future, chemical monitoring of select shallow wells would be proposed in the Performance Monitoring plan.

At the time of this report there are no plans to implement shallow aquifer water quality monitoring. Therefore, only shallow wells located along the leachate collection system and northern site boundary that provide useful hydraulic gradient information will be monitored (e.g. MW-24, 25, 26, 27 and 22). Evaluation Monitoring results may also indicate the necessity for additional monitoring wells in locations not adequately covered by the proposed new and existing wells. The Evaluation Monitoring sampling and analysis plan (SAP) will be modified to reflect all changes that are implemented for Performance Monitoring. Such modifications may include a description of the revised monitoring well network and revisions to the list of COCs.

Performance Monitoring will be reset or reinstated after the first pile installation activity occurs on the site. Additional pile installation activities will reset or reinstate Performance Monitoring only if such pile installation occurs in a zone identified for pile restrictions. If such restricted pile installation occurs, the ten-year minimum Performance Monitoring requirement will be reset following pile installation.

4.5.1.1 Water Elevation Monitoring

Water elevations in all monitoring wells in the Performance Monitoring well network and surface water bodies will continue to be recorded throughout Performance Monitoring.

4.5.1.2 Sampling Methods

Sampling methods for Performance Monitoring will be consistent with those used for Evaluation Monitoring.

4.5.1.3 Sampling Parameters

Analytical methods will include those appropriate to detect identified COCs. Specific compounds will be identified in the Performance Monitoring sampling and analysis plan. Shallow monitoring wells will not be sampled for chemical criteria after Evaluation Monitoring unless, as described above, shallow aquifer compliance based on cleanup levels is desired in order to determine if and when the leachate collection system could be shut down.

4.5.2 PERFORMANCE MONITORING SCHEDULE

Performance monitoring will be conducted semi-annually at all Performance Monitoring network wells for a minimum of ten years under existing conditions. Under potential future conditions created by site development, the duration of Performance Monitoring will depend on the phasing of development. The ten-year minimum Performance Monitoring period will be reset or reinstated after the first significant pile installation activity occurs on the site. Additional pile installation activities will reset or reinstate Performance Monitoring only if such pile installation

occurs in a zone identified for pile restrictions. If such pile installation occurs, the ten-year minimum Performance Monitoring requirement will be reset following pile installation.

All phases of Performance Monitoring will occur semi-annually during periods of seasonal high and low groundwater levels.

4.5.3 REPORTING REQUIREMENTS

A Performance Monitoring report will be prepared annually that describes monitoring results and includes all the data collected during the year. Each Performance Monitoring annual report will consist of copies of the validated laboratory data, a summary table of the validated data, a table showing water level monitoring data, a statistical summary of the data, and a cover letter that describes the evaluation of the data. The annual report will be submitted to Ecology.

4.6 CONFIRMATIONAL MONITORING

The objective of Confirmational Monitoring is to confirm the long-term effectiveness of the cleanup action once cleanup levels have been met [(WAC 173-340-410(1)(c)]. Confirmational Monitoring will consist of semi-annual water quality monitoring, water level monitoring and bi-annual reporting.

4.6.1 CONFIRMATIONAL MONITORING PLAN

Following completion of Performance Monitoring, the groundwater monitoring well network will be re-evaluated to select appropriate Confirmational Monitoring wells for the Confirmational Monitoring period. A Confirmational Monitoring sampling and analysis plan will be prepared that details sampling parameters, monitoring wells and data evaluation.

If the Confirmational Monitoring period is interrupted due to the first significant pile installation during site development activities, Performance Monitoring will be reinstated. Revisions to the Confirmational Monitoring sampling and analysis plan may be necessary to ensure adequate groundwater monitoring downgradient of pile installations. Any further reinstatement of Performance Monitoring will require a review of and update to the sampling and analysis plan.

4.6.2 CONFIRMATIONAL MONITORING SCHEDULE

Confirmational Monitoring will occur semi-annually, during periods of seasonal high and low groundwater levels, for a minimum of 10 years. If the site's first pile installation event occurs during Confirmational Monitoring, Performance Monitoring will be reinstated. Confirmational Monitoring would recommence after a minimum of ten years of Performance Monitoring, or until cleanup standards are met. In such a situation, the ten-year minimum period for Confirmational Monitoring would be reset.

4.6.3 REPORTING REQUIREMENTS

A bi-annual Confirmational Monitoring report will be submitted to Ecology that describes monitoring results and includes all the data collected during the previous two years. Each bi-annual report will consist of copies of validated laboratory data, a summary table of the validated data, a table showing water level monitoring data, a statistical summary of the data, and a cover letter that describes the evaluation of the data. The fifth bi-annual report (after 10 years of Confirmational Monitoring) will make recommendations regarding continued monitoring frequency and locations.

Ecology will be notified within 7 days of any confirmed exceedance that triggers contingency plans.

4.7 DATA EVALUATION

4.7.1 DATA VALIDATION

All chemistry data will be validated according to United States Environmental Protection Agency (USEPA) data validation guidelines (USEPA, 1994a and 1994b). Data validation will include evaluation of holding times, method blank results, surrogate recovery results, field and laboratory duplicate results, completeness, detection limits, laboratory control sample results, and chain-of-custody forms. A detailed description of the data validation procedures is provided in the sampling and analysis plan, to be developed in accordance with the Scope of Work and Schedule, Exhibit D to the Consent Decree. After the data has been validated, it will be entered into the project database with any assigned data qualifiers.

4.7.2 EVALUATION MONITORING DATA MANAGEMENT AND EVALUATION

At least ten scheduled sampling events will be conducted during the three-year Evaluation Monitoring period. All groundwater sampling quality results will be validated for data quality and managed in an electronic database. Each analyte will be tested for frequency of detection and compared to previous results and cleanup levels.

At the end of the Evaluation Monitoring period the data will be evaluated and an appropriate statistical method selected to determine statistical parameters for the data set. The rationale for the proposed statistical methodology will be presented to Ecology for approval. The selected statistical method will conform with the requirements of MTCA (WAC 173-340-720), *Statistical Guidance for Ecology Site Managers* (Ecology Pub. 92-54) and *Statistical Methods for Ground Water Monitoring at Municipal Solid Waste Facilities* (WAC 173-351-420) to determine statistical parameters of ground water results appropriate to the data set.

4.7.3 PERFORMANCE MONITORING DATA MANAGEMENT AND EVALUATION

At least twenty sampling events will be conducted during the minimum ten-year Performance Monitoring period. Additional years of Performance Monitoring sampling events may be

necessary due to pile installation and/or until groundwater cleanup standards are met. All groundwater quality results will be validated for data quality and managed in an electronic database. Each analyte will be tested for frequency of detection and compared to previous results and cleanup levels.

The data will be evaluated using appropriate statistical methodology approved by Ecology and conforming with the requirements of MTCA (WAC 173-340-720), *Statistical Guidance for Ecology Site Managers* (Ecology Pub. 92-54) and *Statistical Methods for Ground Water Monitoring at Municipal Solid Waste Facilities* (WAC 173-351-420) to determine statistical parameters of ground water results appropriate to the data set.

4.7.4 CONFIRMATIONAL MONITORING DATA MANAGEMENT AND EVALUATION

The exact number of Confirmational Monitoring sampling events will be not less than twenty, and will depend upon pile installation and attainment of groundwater cleanup standards. All groundwater quality results will be validated for data quality and managed in an electronic database. Each analyte will be tested for frequency of detection and compared to previous results and cleanup levels.

The data will be evaluated using appropriate statistical methodology approved by Ecology and conforming with the requirements of MTCA (WAC 173-340-720), *Statistical Guidance for Ecology Site Managers* (Ecology Pub. 92-54) and *Statistical Methods for Ground Water Monitoring at Municipal Solid Waste Facilities* (WAC 173-351-420) to determine statistical parameters of ground water results appropriate to the data set.

4.8 CONTINGENCY PLAN TRIGGERS

Contingency measures will be implemented if and when defined triggers are reached. The only contingency plan trigger for the shallow aquifer is failure to demonstrate through hydraulic control that the leachate collection system is collecting leachate. For groundwater in the deep aquifer, contingency plan triggers are either cleanup level exceedances or increasing analyte concentrations found during Performance or Confirmational Monitoring. Each trigger is defined in detail in the following sections.

4.8.1 SHALLOW AQUIFER COMPLIANCE CRITERIA

Compliance criteria for the shallow aquifer is based on hydraulic control of shallow aquifer (leachate) for collection in the leachate trench. Demonstration of hydraulic control is through monitoring of water levels in shallow wells and the leachate trench to show that hydraulic gradients are toward the leachate collection system, which would indicate no shallow aquifer discharge to surface water. Operation of the leachate collection system is anticipated to maintain shallow aquifer compliance. However, if water level monitoring during Evaluation, Performance or Confirmation Monitoring fails to demonstrate that leachate in the shallow aquifer is collected by the leachate collection system, appropriate contingency plan measures will be implemented.

4.8.2 DEEP AQUIFER COMPLIANCE CRITERIA

If a COC concentration exceeds its cleanup level in the deep aquifer, the well will be re-sampled within two weeks of laboratory confirmation and the sample tested for the analyte concentration. If the exceedance does not re-occur, semi-annual monitoring will continue at the well. If an exceedance occurs in the re-sample, quarterly monitoring will begin at the well to evaluate the COC concentration.

If the COC concentration at that well does not exceed the cleanup level for 4 consecutive quarters, or if the average value of the COC concentration does not exceed the cleanup level for 8 consecutive events, the COC concentration will be considered stable and semi-annual sampling for the analyte at that well will resume.

The demonstration of deep aquifer well compliance will be determined after four quarters of data collection. The statistical methodology selected after the Evaluation Monitoring period is completed will be used to develop specific contingency plan triggers for the deep aquifer. If a deep well is out of compliance based on evaluation of the four quarters of monitoring data, the contingency plan shall be implemented.

4.9 CONTINGENCY PLAN

The contingency plan will evaluate the potential source for COC exceedance or increasing trend in analyte concentration. These sources may include a change in the groundwater to surface water pathway, migration of a slug of leachate from the landfill, or accidental modification of the leachate collection system or landfill cover.

The site will be inspected, focusing on potential damage or modification to the leachate collection system or cover. Based on the inspection, the leachate collection system may require repair or upgrade.

The water quality and water elevation data set will be reviewed for changes in the site water balance. Based on this review, a contingency investigation plan to assess potential sources for the exceedances or increasing concentration trend will be prepared and submitted to Ecology for review and approval. The contingency investigation may include additional or more frequent water elevation or sampling at existing wells, or the installation and sampling of new wells. Findings of the contingency investigation may lead to additional investigations to assess contaminant sources and migration.

If shallow aquifer point of compliance criteria cannot be demonstrated, measures to prevent shallow groundwater from flowing into surface water bodies will be implemented. These measures could include increasing the pumping of leachate collection system to lower water levels and ensure hydraulic flow into the leachate trench.

If pile installation results in a contingency trigger as described in 4.8.1 and 4.8.2, contingency measures such as reducing the leachate head by extraction, additional pumping by the leachate collection system, or decreasing water infiltration will be performed.

Table 2

Groundwater Cleanup Levels and Analytical Methods

Analyte	Proposed Cleanup Level ug/L	Proposed Analytical Method	Analytical Method for PQL	Method PQL ug/L	Groundwater Standards for Drinking Water			Surface Water Standards										
								WAC-173-201A				40 CFR Part 131-Water Quality Standards (*National Toxics Rule*)					MTCA (*CLARC*)	
								Freshwater		Saltwater		Freshwater		Saltwater		Human Health	Method B	
					Federal Drinking MCL ug/L	GW MTCA A ug/L	GW MTCA B ug/L	Acute ug/L	Chronic ug/L	Acute ug/L	Chronic ug/L	Max Concentration ug/L	Continuous ug/L	Max Concentration ug/L	Continuous ug/L	Organisms ug/L	Carcinogen ug/L	Non-Carcinogen ug/L
Metals[h]																		
antimony	30	6020/200.8	7041	30	6	NV	6.4	NL	NL	NL	NL	NV	NV	NV	NV	4.30E+03	NL	NL
arsenic	Background[g]	6020/200.8	7061	20	50	5	0.05	3.60E+02	1.90E+02	6.90E+01	3.60E+01	see note c	see note c	6.90E+01	see note c	1.40E-01	9.82E-02	1.77E+01
cadmium	5	6020/200.8	7131	1	5	5	8	see note c	see note c	3.72E+01	8.00E+00	see note c	see note c	see note c	see note c	NV	NV	2.03E+01
chromium (total)	50	6020/200.8	7191	10	100	50	NV											
chromium(III)[a]	16,000	6020/200.8	7191	10	NL	NV	16000	see note c	see note c	NV	NV	see note c	see note c	see note c	see note c	NV	NV	1.62E+05
chromium(VI)[a]	11	6020/200.8	7197	10	NL	NV	80	1.60E+01	1.10E+01	1.10E+03	5.00E+01	see note c	see note c	see note c	see note c	NV	NV	8.10E+02
copper	10	6020/200.8	7211	10	NV	NV	592	see note c	see note c	2.50E+00	NV	see note c	see note c	see note c	see note c	NV	NV	2.66E+03
lead	10	6020/200.8	7421	10	NV	5	NV	see note c	see note c	1.51E+02	5.80E+00	see note c	see note c	see note c	see note c	NV	NV	NV
nickel	10	6020/200.8	7521	10	100	NV	320	see note c	see note c	7.13E+01	7.90E+00	see note c	see note c	see note c	see note c	4.60E+03	NV	1.10E+03
selenium	20	6020/200.8	7740	20	50	NV	80	2.00E+01	5.00E+00	3.00E+02	7.10E+01	2.00E+01	5.00E+00	see note c	see note c	NV	NV	NV
zinc[a]	76.6	6020/200.8	7951	0.5	NV	NV	4,800	see note c	see note c	8.46E+01	7.66E+01	see note c	see note c	see note c	see note c	NV	NV	1.65E+04
iron	Background[g]	6020/200.8			NL	NV	NV	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
manganese	Background[g]	6020/200.8			NV	NV	2240	NV	NV	NV	NV	NL	NL	NL	NL	NL	NV	NV
Pesticides																		
DDD, 4,4-	0.36	8081	608/8150	0.1	NV	NV	0.364											
DDT, 4,4-	0.10	8081	608/8150	0.1	NV	0.1	0.26											
hexachlorocyclohexane;beta- (beta-BHC)	0.06	8081	8081	0.06	NV	NV	0.0486	NL	NL	NL	NL	NV	NV	NV	NV	4.60E-02	2.77E-02	NV
Polychlorinated Biphenyls																		
aroclor 1242 (PCB)	0.65	8082	8081	0.65	NL	NL	NL	NL	NL	NL	NL	NV	1.40E-02	NV	3.00E-02	4.50E-05	NL	NL
aroclor 1254 (PCB)	1.3	8082	8081	1.3	NV	NV	0.32	NL	NL	NL	NL	NV	1.40E-02	NV	3.00E-02	4.50E-05	NV	NV
Total Petroleum Hydrocarbons																		
TPH (sum)[d]	100					100												
Volatile Organics																		
acetone	800	8260	8260[e]	10	NV	NV	800											
benzene	5	8260	8260[e]	5	5	5	1.5	NL	NL	NL	NL	NV	NV	NV	NV	7.10E+01	4.30E+01	NV
butanone,2- (methyl ethyl ketone)	4,800	8260	NL	10	NV	NV	4,800											
chlorobenzene	100	8260	8260	5	100	NV	160	NL	NL	NL	NL	NV	NV	NV	NV	2.10E+04	NV	5.03E+03
chloroform (trichloromethane)	7	8260	8260	5	100	NV	7.17	NL	NL	NL	NL	NV	NV	NV	NV	4.70E+02	2.83E+02	6.91E+03
chloromethane	10	8260	8260	10	NV	NV	3.36	NL	NL	NL	NL	NV	NV	NV	NV	NV	1.33E+02	NV
dichloroethene;cis, 1,2-	70	8260	8260[e]	5	70	NV	80											
dichlorobenzene,1,4-	10	8260	8270	10	75	NV	1.82											
dichloroethane;1,1-	5	8260	8260[e]	5	NV	NV	800											
dichloromethane (methylene chloride)	5	8260	8260	5	5	5	5.83	NL	NL	NL	NL	NV	NV	NV	NV	1.60E+03	9.60E+02	1.73E+05
dichlorobenzene,1,2-	600	8260	8270	10	600	NV	720											
ethylbenzene	30	8260	8260	5	700	30	800	NL	NL	NL	NL	NV	NV	NV	NV	2.90E+04	NV	6.91E+03
isopropylbenzene (cumene)	640	8260	8260	1	NV	NV	640											
naphthalene	320	8260	8270	10	NV	NV	320											
toluene	40	8260	8260	5	1,000	40	1,600	NL	NL	NL	NL	NV	NV	NV	NV	2.00E+05	NV	4.85E+04
trichlorobenzene;1,2,4-	70	8260	8270	10	70	NV	80											
trichlorofluoromethane	2,400	8260	502.2	0.3	NV	NV	2,400											
vinyl chloride	10	8260	8260	10	2	0.2	0.02	NL	NL	NL	NL	NV	NV	NV	NV	5.25E+02	2.92E+00	NV
xylene; O-	20	8260	8260[e]	5	10,000	20	16,000											
xylene; M,P-	20	8260	8260[e]	5	10,000	20	16,000											

Table 2

Groundwater Cleanup Levels and Analytical Methods

Analyte	Proposed Cleanup Level ug/L	Proposed Analytical Method	Analytical Method for PQL	Method PQL ug/L	Groundwater Standards for Drinking Water			Surface Water Standards										
								WAC-173-201A				40 CFR Part 131-Water Quality Standards (*National Toxics Rule*)					MTCA (*CLARC*)	
								Freshwater		Saltwater		Freshwater		Saltwater		Human Health	Method B	
					Federal Drinking MCL ug/L	GW MTCA A ug/L	GW MTCA B ug/L	Acute ug/L	Chronic ug/L	Acute ug/L	Chronic ug/L	Max Concentration ug/L	Continuous ug/L	Max Concentration ug/L	Continuous ug/L	Organisms ug/L	Carcinogen ug/L	Non-Carcinogen ug/L
Semi-Volatile Organics																		
acenaphthene	643	8270	8270	10	NV	NV	960	NL	NL	NL	NL	NV	NV	NV	NV	NV	NV	6.43E+02
anthracene	4,800	8270	8270	10	NV	NV	4,800	NL	NL	NL	NL	NV	NV	NV	NV	1.10E+05	NV	2.59E+04
benzoic acid	64,000	8270	8270	50	NV	NV	64,000											
butyl benzyl phthalate (benzyl butyl phthalate)	1,252	8270	8270	10	NV	NV	3200	NL	NL	NL	NL	NV	NV	NV	NV	NV	NV	1.25E+03
bis(2-ethylhexyl) phthalate	10	8270	8270	10	6	NV	6.25	NL	NL	NL	NL	NV	NV	NV	NV	5.90E+00	3.56E+00	3.99E+02
carbazole	10	8270	8270	10	NV	NV	4.38											
dichlorobenzene;1,2-	600	8270	8270	10	600	NV	720	NL	NL	NL	NL	NV	NV	NV	NV	1.70E+04	NV	4.20E+03
dichlorobenzene;1,4-	10	8270	8270	10	75	NV	1.82	NL	NL	NL	NL	NV	NV	NV	NV	2.60E+03	4.86E+00	NV
diethyl phthalate	12,800	8270	8270	10	NV	NV	12,800	NL	NL	NL	NL	NV	NV	NV	NV	1.20E+05	NV	2.84E+04
dimethylphenol;2,4-	320	8270	8270	10	NV	NV	320	NL	NL	NL	NL	NV	NV	NV	NV	NV	NV	5.53E+02
di-n-butylphthalate	1,600	8270	606	4	NV	NV	1,600											
fluoranthene	90	8270	8270	10	NV	NV	640	NL	NL	NL	NL	NV	NV	NV	NV	3.70E+02	NV	9.02E+01
fluorene	640	8270	8270	10	NV	NV	640	NL	NL	NL	NL	NV	NV	NV	NV	1.40E+04	NV	3.46E+03
naphthalene	320	8270	8270	10	NV	NV	320	NL	NL	NL	NL	NV	NV	NV	NV	NV	NV	9.88E+03
nitrosodiphenylamine;N-[f]	10	8270	8270	10	NV	NV	17.9	NL	NL	NL	NL	NV	NV	NV	NV	1.60E+01	9.73E+00	NV
phenol	9,600	8270	8270	10	NV	NV	9,600	NL	NL	NL	NL	NV	NV	NV	NV	4.60E+06	NV	1.11E+06
pyrene	480	8270	8270	10	NV	NV	480	NL	NL	NL	NL	NV	NV	NV	NV	1.10E+04	NV	2.59E+03
trichlorobenzene;1,2,4-	70	8270	8270	10	70	NV	80	NL	NL	NL	NL	NV	NV	NV	NV	NV	NV	2.27E+02

Notes:

Compounds listed have been detected in groundwater sampling history at the Everett Landfill.

red and underlined text indicates value was selected as the cleanup level.

blue text indicates that the PQL assessment came from a different analytical method than will be used.

'Method PQL was downloaded from Ecology website (http://www.wa.gov/ECOLOGY/tcp/policies/pql_w.xls) or taken from the Ecology Implementation Guidance for the Ground Water Quality Standards, April 1996.

For carcinogenic compounds (i.e. arsenic, vinyl chloride) compliance will be determined using the mean of concentrations from each well as per WAC 173-340-720 (8)(c)(v)(B).

Chloroethane (ethyl chloride) has no value listed under groundwater standards and does not have surface water standards. It is a degredation product of TCA with fate and transport properties similar to vinyl chloride and the dichloroethanes, but it is not a carcinogen. Therefore cleanup decisions appropriate for volatile organics will also address this

Dibenzofuran, acenaphthylene and phenathrene have no values listed under groundwater standards and do not have surface water standards. They are low molecular weight PAH compounds, therefore cleanup decsisions addressing low molecular weight PAHs will also address these compounds.

NL = compound is not listed in the standard.

NV = compound is listed, but no value is given.

a : site specific information on hardness, pH, or temperature is required to calculate some of the standards. Therefore, the actual cleanup level may turn out to be lower for compounds marked with an 'a'.

b : value is calculated using temperature and pH.

c : value is calculated using hardness.

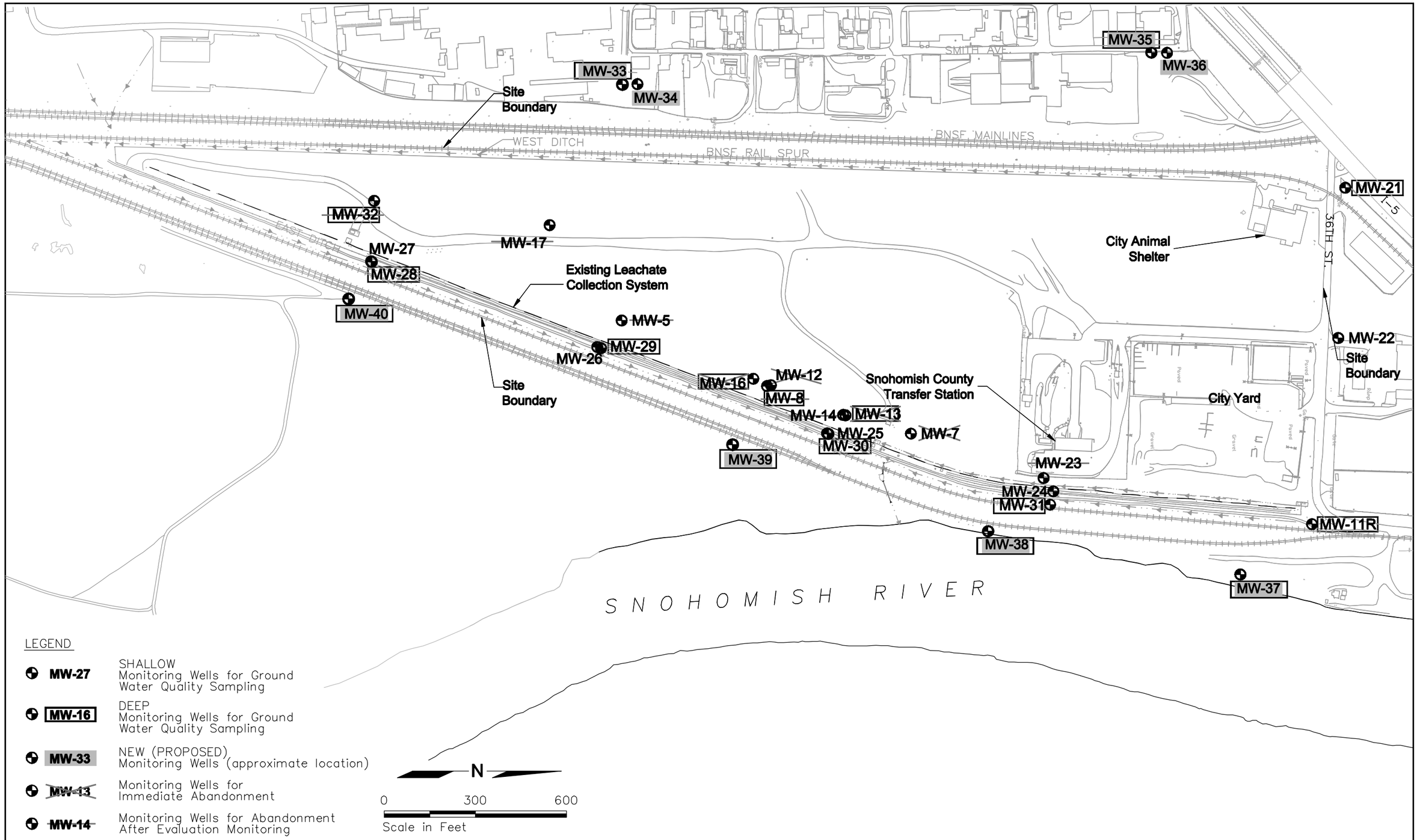
d : TPH compounds include: 4-isopropyltoluene, 2-methylnaphthalene, 4-methylphenol, n-butylbenzene, n-propylbenzene, sec-butylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. All of these compounds are constituents of petroleum hydrocarbon fuels and solvents, and will be summed and evaluated against the TPH MTCA Method A

e : PQLs shown are for Method 8240 which was replaced by Method 8260.

f : N-nitrosodiphenylamine analysis will include 1,2-diphenylhydrazine and diphenylamine because the chromaticrits of these compounds cannot be separated. For this reason, 1,2-diphenylhydrazine and diphenylamine have been removed from this and other tables.

g : Area background concentrations will be determined during the 3-year Evaluation Monitoring period. At the closure of Evaluation Monitoring, revised cleanup levels will be set at area background if higher than PQL or higher than the most stringent of groundwater (drinking water) and surface water standards.

h : Metals are dissolved unless otherwise noted. Federal Drinking MCLs for metals are total.



Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

CITY OF EVERETT
COMPLIANCE MONITORING AND CONTINGENCY PLAN
Everett Landfill / Tire Fire Site

PUBLIC WORKS

FIGURE 4–1
PROPOSED GROUNDWATER MONITORING WELL LOCATIONS

DATE: 03/07/01 4:15pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CMCP\fs4_1sec.dwg

5.0 Direct Contact Pathway

5.1 OBJECTIVES

Site inspections will ensure that performance and remedial action objectives for the direct contact pathway are met throughout the undeveloped site, during phased construction activities, and after development is in place. Special requirements for construction must also be met.

The following performance objectives were originally described in the *Final Feasibility Study and Phase II Remedial Investigation* (ERM Northwest, 1993).

1. Prevent public contact with landfill materials. In this case, the public is defined as any individual not trained in health and safety precautions, *and* not associated with construction or maintenance activities at the site.
2. Control vector and nuisance conditions, such as human pathogen vectors and exposed refuse.

The remedial action objectives for the direct contact exposure pathway are as follows:

- Isolate humans and wildlife from refuse and contaminated material under existing site conditions.
- Prevent penetration of the site cover by site users who are not trained in health and safety requirements for contaminated material.
- Maintain integrity of site cover, prevent exposure of buried materials by erosion.
- Prevent exposure to personnel who are not trained in health and safety requirements for contaminated material during future construction activities.
- Prevent exposure to personnel who are not trained in health and safety requirements for contaminated material during future maintenance of site utilities.
- Prevent casual exposure to humans and wildlife after redevelopment.
- Take precautions when refuse is uncovered, dug up, and disposed of during site development

Existing conditions of a minimum two-foot cover of clean soil, positive drainage, and access controls to undeveloped portions of the site will be maintained until potential future development can implement the preferred alternative for future conditions in a phased manner.

5.2 INSPECTION PLAN

Inspections of the entire Landfill/Tire Fire Site will occur on a quarterly basis. The objective of the inspection is to identify and record areas of the cap/cover and site security that have been compromised and require repair. Also included are site inspections for the groundwater pathway required to verify that stormwater is prevented from infiltrating the site and that the leachate collection system is in good repair (see Section 4.3).

5.2.1 INSPECTION CHECKLIST

An Inspection Form is attached as Figure 5-1 that will be used to record site conditions. Areas of concern for the direct contact pathway include:

- Areas of erosion or holes in the minimum two-foot clean soil cap
- Damaged security fencing surrounding undeveloped portions of the site (including locks and fence materials)
- Penetrations of developed area covers, such as significant cracks or holes in pavement, exposed soil in non-landscape areas due to differential settlement, and tears in exposed hydraulic barriers
- Exposed hydraulic barriers or areas of erosion or holes in landscape area cover
- Areas of differential settlement that may compromise integrity of subsurface membranes, drainage or gas management systems

The following circumstances related to the groundwater pathway will also be inspected:

- Evidence of need for stormwater management system repairs
- Effectiveness of stormwater management facilities to prevent water infiltration into landfilled materials (e.g. below pavement cover or below hydraulic barrier in landscaped areas)
- Effectiveness of stormwater management facilities to appropriately convey stormwater for off-site discharge
- Evidence of need for leachate collection systems repairs

5.2.2 INSPECTION PROCEDURES

In order to complete the Inspection Checklist described in section 5.2.1, the following inspection procedures will be utilized:

- Visual inspection of undeveloped area soil cap, developed area covers, stormwater management facilities, the leachate collection system, and undeveloped area site security measures.
- Interview of site personnel, including, but not limited to, employees of on-site facilities, building managers, and residents.
- Photographing, sketching or making a video record of the site.

5.2.3 REPORTING REQUIREMENTS

Quarterly inspection results will be recorded on the attached Inspection Form (Figure 5-1), which will be submitted to the City of Everett's Site Manager within 10 working days of inspection. Immediate notification of the City is required if the inspection has discovered any areas where landfill cover has been compromised, causing exposure of refuse. Reports of the

site inspection and operational reports of the leachate collection system will be submitted to Ecology on an annual basis. Ecology will be notified within 7 days of any confirmed exceedance that triggers contingency plans.

5.3 COMPLIANCE MONITORING DURING CONSTRUCTION

Construction controls and construction performance monitoring are required to prevent exposure of people or environments outside the construction area to dust or adverse odor impacts, and to manage construction worker risk during construction.

5.3.1 PROTECTION MONITORING

Health and Safety requirements for construction crews are triggered when construction activities occur below the elevation of the clean soil cap. For activities occurring below the landfill cover, construction crews are required to comply with OSHA (29 U.S.C. 653, 655, 657, and 29 CFR 1910) and WISHA (RCW 49.17, and WAC 296-62, WAC 296-155). These requirements include, but are not limited to, worker certification, health and safety plans, personal protective equipment, health and safety equipment, decontamination, engineering controls, and dust and odor controls.

Construction work will be supervised by personnel meeting the safety requirements of OSHA for HAZMAT conditions. The construction oversight personnel will also meet this level of safety training. Additionally, contractors will be required to have a health and safety professional (from an independent provider) prepare and implement a health and safety plan (HASP) during any construction that has a potential for direct exposure. The HASP will include training, monitoring site conditions, as well as worker exposure levels.

5.3.2 PERFORMANCE MONITORING

Periodic inspection during construction activities will be conducted to verify that the following requirements are met:

- Best Management Practices for erosion control, in accordance with City of Everett Stormwater Management Manual and provisions of an applicable NPDES permit.
- Daily cover of all exposed waste.
- Proper construction dewatering procedures for contaminated perched groundwater.
- Relocation on-site of excavated waste in approved areas with proper capping and grading, and/or proper and permitted disposal off-site of excavated waste, as deemed appropriate in construction design, specifications, and permits.
- Compliance with applicable Health and Safety requirements.
- Access controls to prevent unauthorized access to construction zones.

An inspection schedule will be established by the City and developer during construction permit review approval.

5.4 CONTINGENCY PLAN

The contingency plan for the direct contact exposure pathway includes contingency measures for responding to problem areas identified through quarterly site inspections, as well as measures to correct inadequate or inappropriate construction activities.

5.4.1 CONTINGENCY MEASURES FOR PROBLEM AREAS IDENTIFIED THROUGH INSPECTIONS

Immediate notification of problem areas, and the corresponding Inspection Form record, will trigger contingency measures to address the problem area.

Erosion of the cap in undeveloped areas will require importing additional clean fill and/or grading in order to achieve positive drainage, minimum two-foot clean soil cap, and prevent future erosion.

Holes from unauthorized digging that result in exposed refuse in undeveloped areas will require filling as well as measures to prevent future unauthorized access (such as repairing or upgrading access controls).

Holes from unauthorized digging in landscaped areas, which may or may not result in exposure of the low-permeable hydraulic barrier, will require repair and revegetation. Site tenants will be notified of the problem and reminded of the institutional control that prevents digging and disturbance of the landscape without appropriate control measures. Inspection of the hydraulic barrier will be required prior to filling the hole to verify its integrity. Damaged low-permeable barriers will require repair.

Penetrations or significant cracks in the pavement or building subbasement floor will require repair. Surficial pavement cracking will require further monitoring and regularly scheduled maintenance. Compromised fencing and locks will be repaired or replaced.

Stormwater management facilities are to be designed in accordance with requirements set forth in the CAP. Stormwater management systems that are not operating or maintained as required will require repair or replacement. A plan to correct the problem will be developed by the responsible party, with review and approval by the City.

If the leachate collection system is found to be in need of repair, necessary repairs will be made.

Areas of differential settlement identified during this inspection that may compromise remedial actions for other exposure pathways (such as for gas or surface water) require identification and notification of the City's Site Manager. These areas will be monitored and repaired as necessary in accordance with that pathway's compliance monitoring and contingency plan.

5.4.2 CONTINGENCY MEASURES FOR CONSTRUCTION ACTIVITIES

The contractor's HASP will detail measures to prevent exposure and to provide adequate worker safety for all expected construction activities. The contractor's health and safety professional will monitor HASP requirements during construction activities. Onsite construction oversight will be required of all development, which will include a daily inspection of worker health and safety protection. If it is found that construction requirements are not being met, or if unsafe conditions exist, or if deficient work or safety measures are in place, the health and safety professional or inspector will have the authority to immediately stop work. A stop work order will be issued until a remedy approved by the health and safety professional is in place, and acceptable work conditions occur.

Figure 5-1
Inspection Form

Visual Inspection of Site Features related to Environmental Control Objectives

Date of Inspection (D/M/Y): _____

Name of Inspector: _____

Title:_____

Employer: _____

The purpose of periodic site inspections is to ensure that:

- covers of both developed and undeveloped areas are maintained to prevent contact with landfilled materials,
- access controls to undeveloped areas are effective,
- stormwater is not allowed to infiltrate to groundwater, and
- the leachate collection system is in good repair.

---

1. **Interview site personnel**. Inquire about conditions of pavement, landscape cover, undeveloped area soil cap, utility corridors and building subbasements, including location(s) of any penetrations, significant cracks, exposed hydraulic barrier and exposed soil in developed non-landscaped areas. Inquire about condition of security fencing and effectiveness of security measures. Inquire about stormwater management systems and areas of potential infiltration into landfilled materials. Summarize information obtained from site personnel interviews in the space below along with name, job title, and daytime telephone number of the interviewee(s).

_____

_____

_____

_____

_____

_____

_____

2. **Visual survey**. Inspect pavement, landscape cover, undeveloped area soil cap, utility corridors, building subbasements and site security measures. Identify areas which represent potential pathways for direct contact with buried refuse, tire ash, and/or potentially contaminated sediments. Identify stormwater management system components and/or leachate collection system areas in need of repair. Identify areas where unwanted infiltration into landfilled materials is occurring, or potentially could occur (i.e. below pavement or hydraulic barriers). Include exact location, the nature of the problem, and possible corrective actions. Estimate percentage of pavement with surficial cracks (cracks that do not completely penetrate pavement cover) if surficial cracking appears prevalent. If large areas of the site are inaccessible at the time of inspection due to site activities, identify these locations. Identify areas in need of maintenance or repair. Also inspect perimeter fencing and comment on site security measures. Summarize inspection observations in spaces below.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

3. **Immediate notification**. Immediately contact the City of Everett Environmental Site Manager if any penetration is present in the developed area covers that provides direct contact to refuse or soils beneath the clean soil cap. Penetrations through the cap/covers that provide direct contact to landfilled materials require immediate repair. Penetrations that do not expose refuse or extend below clean soil caps are to be repaired on a more routine maintenance schedule but on a schedule that prevents exacerbation and potential direct contact with buried refuse, tire ash or potentially contaminated sediments.

_____

_____

_____

_____

CHECKLIST

Pavement Areas

Open cracks and/or ruts:	None	☐	Repair Needed	☐
Differential Settlement:	None	☐	Repair Needed	☐

Repair Type/Location: _____

_____

_____

Landscaped Areas

Erosion of soil/vegetation:	None	☐	Repair Needed	☐
Exposed Hydraulic Barrier:	None	☐	Repair Needed	☐
Holes / signs of unauthorized digging:	None	☐	Repair Needed	☐
Ponded water:	None	☐	Repair Needed	☐

Repair Type/Location: _____

_____

_____

Undeveloped Areas

Erosion of soil/vegetation:	None	☐	Repair Needed	☐
Holes / signs of unauthorized digging:	None	☐	Repair Needed	☐

Repair Type/Location: _____

_____

_____

Site Security

Signs, fence & gates in place: Yes ☐ Repair Needed ☐

Repair Type/Location: _____

_____

_____

Stormwater Management Facilities

Evidence of system repair needed: None ☐ Repair Needed ☐

Signs of water infiltration below pavements or hydraulic barriers: None ☐ Repair Needed ☐

Evidence of leachate collection system repair: None ☐ Repair Needed ☐

Repair Type/Location: _____

_____

_____

Leachate Collection System

Evidence of system repair needed: None ☐ Repair Needed ☐

Repair Type/Location: _____

_____

_____

4. In the area provided below, make a site sketch indicating areas inspected, locations of problem areas and inaccessible areas. Include additional pages and photographs of problem areas if appropriate.

6.0 Surface Water Pathway

6.1 OBJECTIVES

Surface water sampling will be conducted to demonstrate that surface water runoff from the landfill is compliant with the cleanup standards at the point of discharge from the landfill. Additionally, sampling will be conducted to quantify the effects of contributing background sources.

Appropriate sections of this CMCP will be incorporated into applicable Stormwater Pollution Prevention Plans (SWPPP) as required.

Any future redevelopment activities will meet stormwater management requirements as defined in the CAP. Additional surface water management requirements will be defined through the NPDES permitting process and the related SWPPP. Responsibility for meeting those requirements is not addressed in the CMCP. Instead, monitoring measures will be addressed through the related standard permitting process.

6.2 SAMPLING AND INSPECTION PLAN

The compliance monitoring program will include semi-annual surface water samples collected from perimeter ditches during the summer (dry season) and winter (wet season). Samples will be collected approximately 1 hour after low tide to provide samples more representative of potential landfill runoff contributions. Sample locations will include the locations shown on Figure 6-1. These sample locations include three background samples, five downstream samples, and one compliance point sample. The parameters to be tested will include the metals arsenic, cadmium, copper, lead, nickel, and zinc, as well as field measurement of specific conductance. Samples collected for metals analyses will be field filtered. One field duplicate, surface water sample will be collected during each sampling event.

Background samples will be collected from stormwater drain pipe inlets (SW-2 on Figure 6-1) in the manhole collecting runoff from the upland watershed that discharges into the ponded water that forms the headwaters of the south reach of the East Ditch. Another background sample will be collected at the west-end of the culvert draining the west side of the spur track into the ponded water near the intersection of the BNSF rail lines (SW-1). A sample will also be collected at the discharge of the West Ditch into the ponded area (SW-3).

The five downstream sample locations include one sample at the very southern end of the East Ditch where flow begins from the area of ponded water (SW-4). Another sample will be collected mid-way along the East Ditch's southern reach (SW-5). Another will be collected close to the point where the East Ditch's southern reach enters the confluence with the north reach (SW-6), but upstream of the culvert draining the landfill's east slope. A corresponding sample will be collected from the north reach of the East Ditch upstream from its mixing point with the south reach (SW-8). Finally, a sample will be collected from the small culvert discharging runoff from the landfill's toe-of-slope ditch into the south reach just upstream from the confluence with

the north reach (SW-7). This runoff includes contributions from the Transfer Station operated by Snohomish County.

The sample point to determine compliance is at the confluence of the north and south reaches of the East Ditch. The sample will be collected at the inlet of the culvert draining this confluence (SW-9). At this point, the north and south reaches of the East Ditch are well-mixed and are discharging to the channel that carries the runoff to the Snohomish River. Background concentrations will be subtracted to determine compliance concentrations.

Previous surface water sampling sites will not be used because they do not provide sufficient information to fully assess the results of samples collected. The new proposed sampling locations will provide data results at key points in the background and landfill drainage system, including the compliance point. The source of any non-compliant sample results could be more readily determined with the proposed sampling locations, leading to more responsive and effective contingency plan implementation.

6.3 FREQUENCY OF SAMPLING

Surface water compliance monitoring samples will be collected semi-annually. One sampling event will be between April and September and the other between October and March. Sampling will continue for a minimum of three years. If during that three years no monitored contaminant exceeded the cleanup standard, then sampling will stop. If during that period any monitored contaminant exceeds its cleanup standard at the point of compliance, then surface water monitoring will continue for a minimum of another three years beyond that point in time. This process will continue until there was three consecutive years without any monitored contaminant exceeding its cleanup standard at the point of compliance.

Any future redevelopment activities will meet stormwater management requirements as defined in the CAP. Additional surface water management requirements will be defined through the NPDES permitting process and the related SWPPP. Responsibility for meeting those requirements is not addressed in the CMCP. Instead, monitoring measures will be addressed through the related standard permitting process. Therefore, no additional compliance monitoring sampling is anticipated to be caused by potential site development.

6.4 EVALUATION METHODS

All chemistry data will be validated according to United States Environmental Protection Agency (USEPA) data validation guidelines (USEPA, 1994a and 1994b). Data validation will include evaluation of holding times, method blank results, surrogate recovery results, field and laboratory duplicate results, completeness, detection limits, laboratory control sample results, and chain-of-custody forms. A detailed description of the data validation procedures is provided in the sampling and analysis plan, to be developed in accordance with the Scope of Work and Schedule, Exhibit D to the Consent Decree.. After the data has been validated, it will be entered into the project database with any assigned data qualifiers.

6.4.1 SURFACE WATER

The average of the contaminant concentrations as measured at the two surface water background locations will be subtracted from the contaminant concentrations measured at the point of compliance sample. Any contaminants that are non-detects will be assumed to be present at one-half the detection limit. Exceedance of the cleanup standard will occur if the concentration at the compliance point exceeds cleanup standard after subtracting the average background concentration from the compliance point concentration.

6.4.2 SWPPP

The SWPPP will be prepared incorporating the applicable requirements of the Cleanup Action Plan and Consent Decree. Additionally, it will be prepared in accordance with the City of Everett's Stormwater Management Manual. This manual is technically equivalent to Ecology's Stormwater Management Manual. The City's Manual does not repeat all the information in Ecology's Manual, but refers to Ecology's Manual where appropriate.

The SWPPP will include requirements for inspection and note standards of acceptance for best management practices. Inspections will be conducted, evaluated and documented in accordance with the SWPPP.

6.5 REPORTING REQUIREMENTS

The results of each semi-annual sampling event will be presented in an annual monitoring report to Ecology. The annual monitoring report will include a summary of the data, a determination of compliance or non-compliance in accordance with the evaluation methods described in Section 6.4, and a copy of the laboratory data results and quality assurance analyses.

Ecology will be notified within 7 days of any confirmed exceedance that triggers contingency plans.

A copy of the SWPPP will be made available to Ecology upon its completion. The SWPPP will be completed within 180 days after final adoption of the Cleanup Action Plan and Consent Decree. Inspections and documentation required by the SWPPP will be reported and filed as described in the SWPPP.

6.6 CONTINGENCY PLAN TRIGGERS

6.6.1 SURFACE WATER

An exceedance of the cleanup standard at the point of compliance, as determined by the evaluation methods described in Sections 6.4.2 will initiate the applicable contingency plan.

6.6.2 SWPPP

If any inspection conducted in accordance with the SWPPP finds a condition that could lead to surface water or sediment contamination, contingency plans provided for in the SWPPP will be initiated.

6.7 CONTINGENCY PLAN

6.7.1 SURFACE WATER SAMPLING

An exceedance of the cleanup standard at the compliance point initiates this contingency plan. Data from the other five downstream samples will be evaluated to determine if a likely source area could be identified. If the compliance point exceeds the cleanup standard, it is likely that at least one other downstream sample point has an elevated concentration of the contaminant that caused the exceedance. Inspection efforts will be concentrated in the area upstream of an affected sample point. Inspections will look for leachate seeps, exposed refuse, or other evidence of sources of contamination to surface water. Deficiencies will be corrected as appropriate.

If no obvious source of contamination were observed, another surface water sampling event will be conducted to determine if the contamination still exists. Additional upgradient sampling points may be added to assist the investigation. This process will continue until the cleanup standard is no longer exceeded, or until an upgradient, off-site source of the contaminant is identified. Appropriate notifications will be made if the contaminant is found to be from an off-site source.

6.7.2 SWPPP

The SWPPP will include requirements for periodic inspections of applicable features included in the SWPPP. Any inspection that noted a deficiency would initiate the corrective actions and contingencies included within the SWPPP. Such contingencies typically include emergency spill cleanup, maintenance, repair, and documentation. If it is determined that basic maintenance and repair would not be adequate to correct the observed deficiency, then appropriate design by a registered engineer in the State of Washington would be initiated. Upon completion of the design and approval of the applicable regulatory agencies, the improvement would be constructed.

Upland Storm Drain System

SMITH AVE.

WEST DITCH

BNSF MAINLINES

BNSF RAIL SPUR

ENLARGEMENT #1

EAST DITCH

36TH ST.

Proposed Future Sampling Location, All Others Shown on Enlargements

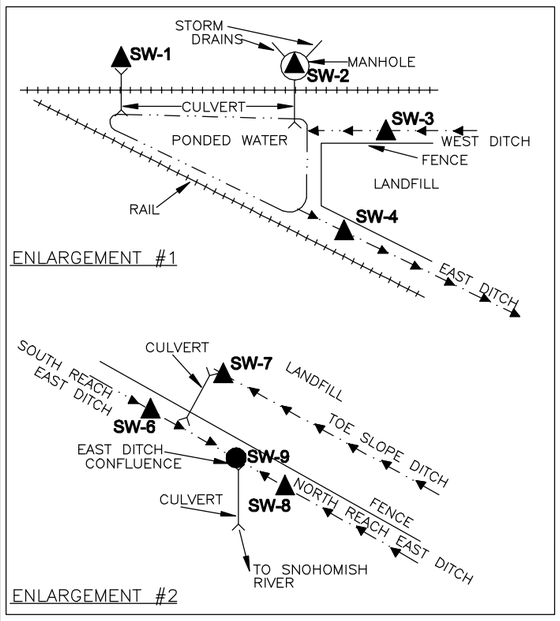
SW-5

MID-EAST DITCH

Outlet

ENLARGEMENT #2

S N O H O M I S H R I V E R



LEGEND

▲ **SW-1** Proposed Future Surface Water Sampling Locations

● **SW-9** Proposed Future Compliance Monitoring Location for Surface Water

N

0 300 600

Scale in Feet

Floyd & Snider Inc.
Landmarc Technologies, Inc.
HWA GeoSciences, Inc.
Kleppe Consulting
MFG, Inc.

CITY OF EVERETT
COMPLIANCE MONITORING AND CONTINGENCY PLAN
Everett Landfill / Tire Fire Site

PUBLIC WORKS

FIGURE 6-1
PROPOSED SURFACE
WATER SAMPLING LOCATIONS

DATE: 03/07/01 4:17pm
DWG NAME: G:\project\Clients\Floyd and Snider\evrt2000\CMCP\FIG6-1.dwg

7.0 References

Barcelone, Michael J., Wehrmann, H. Allen, and Varljen, Mark D., January – February 1994, *Reproducible Well Purging Procedures and VOC Stabilization Criteria for Ground Water Sampling*, Ground Water, Vol. 32, No. 1, pp. 12-22

Black & Veatch. 1995. *Final Interim Action Report, Everett Landfill and Tire Fire Site*. Prepared for City of Everett. December.

City of Everett. 1997. *Everett Comprehensive Land Use Plan*. July. Everett, Washington.

Floyd & Snider Inc. 2000. *Brownfield Feasibility Study, Everett Landfill/Tire Fire Site*. Prepared for City of Everett. Seattle, Washington.

EXHIBIT D

SCOPE OF WORK
AND
SCHEDULE

EVERETT LANDFILL/TIRE FIRE SITE

FINAL

Exhibit D
Scope of Work and Schedule

The following scope of work describes work to be performed under existing conditions and for any future development at the Everett Landfill/Tire Fire Site (Site), pursuant to Consent Decree No. _____. Anticipated completion dates are included for work described for existing conditions, and schedule requirements are included for future work. A process for coordination between the City of Everett (City) and the Department of Ecology (Ecology) is also outlined, and a checklist to facilitate this future coordination is included.

Scope of Work for Existing Conditions

Gas Exposure Pathway

E-1. The City shall conduct a field investigation to determine the waste boundary. An investigation work plan shall be approved by Ecology. A field investigation report shall be submitted to Ecology that summarizes the findings and specifies locations outside the waste boundary for proposed perimeter probes.

E-2. The City shall install a new perimeter compliance landfill gas monitoring probe network consistent with the Cleanup Action Plan.

E-3. The City shall monitor the landfill gas monitoring probe network in accordance with the Compliance Monitoring and Contingency Plan (CMCP), and shall implement contingency measures as may be necessary in accordance with the CMCP (attachment to Exhibit C).

E-4. The City shall prepare an engineering design report to define alternatives for contingent perimeter landfill gas migration controls. The City shall conduct easement negotiations as necessary for potential installation of contingency controls.

E-5. The City shall continue monitoring of the Animal Shelter, Transfer Station, and off-site buildings in accordance with the CMCP (attachment to Exhibit C).

E-6. The City shall implement institutional controls for the existing on-site Animal Shelter, including signage, confined space entry procedures, and landfill gas health and safety training for employees, in accordance with the CMCP (attachment to Exhibit C).

Groundwater Exposure Pathway

E-7. The City shall continue operation and maintenance of the leachate collection system until such time that the shallow aquifer may be proven in compliance with chemical cleanup criteria.

E-8. The City shall install new compliance monitoring and upgradient monitoring wells, and properly abandon wells not utilized for compliance monitoring, in accordance with the CMCP (attachment to Exhibit C).

E-9. The City shall perform compliance monitoring in accordance with the CMCP, including deep aquifer groundwater quality monitoring as well as monitoring of water levels in leachate collection system and shallow aquifer east of leachate collection trench), and shall implement contingency measures as may be necessary in accordance with the CMCP (attachment to Exhibit C).

E-10. The City shall maintain positive drainage on the surface of the site, to prevent ponded water.

Direct Contact Exposure Pathway

E-11. The City shall maintain landfill cover, and implement and maintain erosion control measures.

E-12. The City shall maintain site access controls (fencing, locked gates, signage) to prevent uncontrolled public access to undeveloped portions of the site.

E-13. The City shall conduct site inspections of landfill cover in accordance with the CMCP (attachment to Exhibit C).

Surface Water Exposure Pathway

E-14. The City shall perform compliance monitoring of surface water at perimeter ditches in accordance with the CMCP (attachment to Exhibit C).

E-15. The City shall prepare and implement a SWPPP for the existing Site.

E-16. The City shall perform site inspections for and take appropriate responses to leachate seeps, on-site ponding and stormwater disruptions.

Other Requirements

E-17. The City shall develop Sampling and Analysis Plans (SAPs) for landfill gas, groundwater and surface water consistent with the CMCP. Draft SAPs shall be submitted to Ecology for review and approval prior to initiation of compliance monitoring.

E-18. The City shall report compliance monitoring results to Ecology in accordance with CMCP requirements.

E-19. The City shall designate a City Site Manager who will ensure compliance of environmental requirements and coordinate communications with Ecology.

E-20. The City shall comply with public notification requirements described in the Public Participation Plan (Exhibit E).

Scope of Work for Potential Future Developed Conditions

The following scope of work is in addition to the scope of work for existing conditions and will be implemented in conjunction with future site development.

Gas Exposure Pathway

F-1. All future Site development will include design, design review, construction, operation and maintenance of phased active landfill gas control systems for buildings, pavement and open space per the CAP as development occurs. This includes sealing, booting and finishing requirements for light fixtures, fence posts, pilings and similar features.

F-2. All future Site development that includes pavement areas will prepare and comply with a construction quality assurance plan which details pavement permeability testing. This plan will be submitted to an approved by Ecology.

F-3. All future Site development will include installation of continuous monitors and controllers in all ground floor rooms of any new building or temporary enclosure. Monitors will be operated in accordance with the CMCP. Their calibration and maintenance shall be in accordance with manufacturer's recommendations.

F-4. All future Site development will perform Confirmational Monitoring of the landfill gas discharge location(s) in accordance with the CMCP (attachment to Exhibit C).

F-5. Inspections and monitoring of all future Site development areas will be conducted in accordance with the CMCP (attachment to Exhibit C).

F-6. All future Site development will permit and comply with permit requirements for regulated landfill gas discharges.

Groundwater Exposure Pathway

F-7. The City shall initiate groundwater compliance monitoring in accordance with the CMCP prior to any new installation of pile foundations.

F-8. The City shall perform a shallow aquifer quality characterization sampling round and associated evaluation to establish potential zones for pile-type restrictions.

F-9. The City shall incorporate any pile-type restrictions into deed restrictions if necessary.

F-10. All future Site development requires design, design review, construction, operation and maintenance of landfill developed area covers per the CAP (hydraulic barrier beneath landscaping, pavements, building slabs).

F-11. All future Site development will require offsite discharge and restricted infiltration of collected stormwater as described in the CAP, including requiring leak-tight joints for conveyance piping.

Direct Contact Exposure Pathway

F-12. All future Site development requires maintenance of landfill developed area covers (hydraulic barrier beneath landscaping, pavements, building slabs) and undeveloped area soil cap.

F-13. All future Site development requires backfill meeting WSDOT/APWA Specification 9-03.12(3) or equivalent in utility corridors with geotextile separation, to allow utility maintenance to be conducted without additional health and safety requirements for contaminated material.

F-14. The City shall maintain access controls (fencing, locked gates, signage) to prohibit uncontrolled public access to undeveloped areas of the site.

F-15. All future Site development requires certification of construction signed by a professional engineer to ensure requirements for construction described in the Cleanup Action Plan are met.

F-16. All future Site development requires compliance monitoring in the form of site inspections and reporting.

Surface Water Exposure Pathway

F-17. The City shall perform compliance monitoring in accordance with the CMCP, including semi-annual sampling of surface water within the site boundary to determine compliance with cleanup standards at the point of compliance.

F-18. A SWPPP for developed site conditions shall be prepared and implemented prior to site development activities.

Schedule of Work

Work to be performed under existing conditions will occur on the following schedule.

Field investigation to determine the limits of buried waste: It is the City's intent to initiate this field investigation prior to the effective date of this Decree, pending BNSF access approvals. The draft investigation work plan will be submitted to Ecology and BNSF for review and approval before 12/15/00. The field investigation work will commence within 30 days of Ecology's approval of the work plan, contingent on obtaining access to the investigation area. A Field Investigation Report will be prepared and submitted to Ecology and BNSF within 90 days of completing the field investigation work.

Installation of new perimeter gas monitoring network: New perimeter gas monitoring wells will be installed within 120 days after the completed Field Investigation Report receives approval from Ecology and BNSF, contingent on obtaining access to the area.

Engineering design report (EDR) for perimeter gas migration control options: A draft EDR will be submitted to Ecology and BNSF for review and approval within 90 days following completion of the Field Investigation Report.

Site SWPPP: A draft SWPPP for the existing Site will be prepared and submitted to Ecology within 90 days of the effective date of this Decree.

Sampling and Analysis Plans: Draft Sampling and Analysis Plans (SAPs) for landfill gas, groundwater and surface water will be submitted to Ecology for review and approval within 60 days of the effective date of this Decree.

New groundwater compliance monitoring and upgradient monitoring wells: New groundwater monitoring wells will be installed, and existing wells abandoned as described in the CMCP (attachment to Exhibit C) within 90 days of the effective date of this Decree, contingent on obtaining access to the area.

Compliance monitoring: Compliance monitoring and associated reporting shall occur in accordance with the approved CMCP (attachment to Exhibit C).

City Site Manager: A City Site Manager will be designated within 30 days of the effective date of this Decree.

Within 12 months of the effective date of this Decree, the following work shall be completed, contingent upon obtaining access to the area: installation and monitoring of new groundwater compliance monitoring and upgradient monitoring wells, field investigation to determine the limits of buried waste, and installation and monitoring of new perimeter gas monitoring network.

Perimeter landfill gas migration controls will be installed as soon as possible following a confirmed perimeter gas exceedance in accordance with the CMCP (attachment to Exhibit C).

Work to be performed under potential future developed conditions will be completed in conjunction with future development, triggered by development proposals. Management of work to be performed under potential future developed conditions will occur consistent with the review coordination process described below.

Review Coordination Process

The City shall review and have approval responsibility for development construction plans to ensure compliance with Cleanup Action Plan requirements. The City shall provide opportunities for Ecology's review and approval as described in the Cleanup Action Plan for at least the following development submittals:

- Master development plans, SEPA and/or shoreline permitting documents
- Construction documents associated with specific action permits (building, grading permits, etc.)

Both the City and Ecology will endeavor to provide adequate notice and review period to meet the needs of both parties. For potential future development, both parties recognize the sensitivity of construction schedules.

At the time that the City is made aware of scheduled development submittals, the City shall have a pre-application meeting with Ecology. At this meeting the City and Ecology will agree to the submittal and review schedule. .

The City shall review all development submittals to ensure compliance with Cleanup Action Plan requirements. For submittal review, the City shall complete the attached checklist to record comments regarding Cleanup Action Plan compliance and flag relevant sections of development documents. Following City review, the City shall deliver both the development submittal and attached checklist to Ecology for Ecology review.

During site construction, in accordance with construction requirements detailed in the CAP, the City shall review the progress and completeness of construction via checklists, site visits and periodic updates. The City will inform Ecology of construction schedules, and allow the opportunity for Ecology to observe construction activities as desired.

The City shall require developers to submit as-built documentation of environmental construction elements to the City, which can additionally be provided to Ecology upon request.

The City shall provide occupancy permits for development only after confirmation has been made that environmental requirements are fully met. Notification of compliance and occupancy shall be provided to Ecology.

City / Ecology Development Review Checklist

All documents submitted to the City associated with proposed development at the Landfill/Tire Fire Site must be reviewed for compliance with environmental requirements of the Cleanup Action Plan. The following checklist summarizes environmental requirements for each type of development component and provides a means of highlighting pertinent documentation and tracking City and Ecology reviews. Attach additional pages as necessary.

Name of Document(s) Under Review: _____

_____

Name of City Reviewer: _____

Date received for City Review: _____

Date Documents and Checklist Transmitted to Ecology: _____ **Requested Reply Date:** _____

Name of Ecology Reviewer: _____

Date Ecology Comments Transmitted back to City: _____

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
General Layout			
Phased development areas.	The Site may be developed in several separate projects or phases, depending on Site ownership and project plans. In that event, the phases shall be adjacent to Site boundaries and to prior phases, allowing CAP requirements to be fully operational and effective for each phase and in total. Special consideration shall be given to landfill gas system boundary conditions. Access will be controlled during development to maintain separation between developed and undeveloped areas of the landfill, and to prevent damage to environmental systems from subsequent construction.	☐ Approved as submitted ☐ Resubmit as noted	

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
Construction Disruption			
Site re-grading including cut and fill magnitudes typical for an urban redevelopment site. Assume regrading could encounter refuse, and perched groundwater. Subsurface excavation for utilities and structures. Import and export of soils, potential localized refuse removal, and stockpiling.	Dust and odor controls during construction – During Site construction activities, dust and odor controls would be required to prevent migration of materials outside the construction zone at levels of concern. These measures will include daily cover of any exposed waste, and could include localized wetting, application of suppressant foams, or use of temporary cover materials. Stormwater management – Erosion controls using best management practices, as necessary, in accordance with the City of Everett's Stormwater Management Manual and provisions of a NPDES permit for construction sites greater than five acres, as applicable. Run-on controls to prevent run-on of surface water onto exposed landfilled materials. Direct contact controls – Health and safety requirements for construction crews, to be triggered if construction occurs below the elevation of the clean soil cap. Construction dewatering procedures – Excavation construction for future potential development will likely encounter perched groundwater in portions of the waste. This water must be assumed contaminated and handled accordingly. Pumped dewatering water could be discharged into the leachate collection system provided it is approved by City Industrial Pretreatment Program. Or, the water could be stored in mobile tanks, tested for contaminants and disposed of accordingly. Construction performance monitoring and inspection – During Site construction activities, inspections for adequate perimeter dust controls, erosion controls, and dewatering and odor controls are required. On-site construction oversight by a health and safety professional or inspector is required of all applicable development activities as described in the CMCP. Controlled on-site relocation and re-capping of excavated refuse during construction activities is allowed. Location and quantities will be approved prior to excavation. As necessary, excavated refuse could also be disposed off-site in an active municipal landfill. *CONTINUED*	☐ Approved as submitted ☐ Resubmit as noted	

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
	Following construction, all developed areas of the landfill must be covered with pavement, buildings, or clean soil underlain by hydraulic barrier.		
Site Infrastructure			
Water lines.	Utility trenches or corridors below developed area cover elevation will be lined with a geotextile and backfilled with clean soil, to allow maintenance without additional health and safety requirements for contaminated materials. Construction methods and materials to accommodate expected settlements are required. Seal entry into buildings or enclosed structures including utility manholes/vaults to prevent landfill gas leaks. Backfill trench with low permeability soil where utility line leaves property.	☐ Approved as submitted ☐ Resubmit as noted	
Sanitary sewer lines.	For sanitary sewer and storm drainage systems, watertight manholes using gasketed riser sections and rubber boot connections are recommended. HDPE piping is recommended. Additional measures to mitigate settlement include flexible telescoping sleeves and flexible connections at vaults and interfaces with buildings, and pipe hangers beneath pile supported structures. Seal entry into buildings or manholes to prevent landfill gas leaks. Backfill trench with low permeability soil where utility line leaves property.	☐ Approved as submitted ☐ Resubmit as noted	
Storm sewer lines.	Stormwater will not be allowed to infiltrate into the landfill. Measures described above for sanitary sewer and storm drainage systems will be taken. All stormwater will be collected for off-site discharge. Seal entry into catch basins and manholes to prevent landfill gas leaks. Backfill trench with low permeability soil where utility line leaves property.	☐ Approved as submitted ☐ Resubmit as noted	
Manholes and maintenance access.	Vaults will be designed with water and gas tight joints and will be clearly labeled for necessary confined space entry procedures per gas pathway requirements.	☐ Approved as submitted ☐ Resubmit as noted	

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
Electrical, telephone and gas lines.	For electric, telephone, and natural gas systems, settlement can be accommodated by the use of additional wire lengths or flexible piping. Light fixtures and similar features shall either be finished above the underlying gas barrier or, if penetrating the gas barrier, be internally sealed and booted to the barrier layer to preclude intrusion of landfill gas. Seal conduit at building entry to prevent landfill gas leaks. Ensure interior of conduit is sealed as well.	☐ Approved as submitted ☐ Resubmit as noted	
Pavements (concrete and/or asphalt) for roadways, parking lots and sidewalks.	Subgrade reinforcement (such as a geotextile or geogrid material) may be used to minimize areas of localized, uneven settlement. Pavements should be designed to accommodate settlement at boundary conditions to pile-supported buildings. Penetrations below landfill cover sections in paved areas will not be allowed without appropriate procedures to address health and safety and repair. A construction quality assurance plan shall detail pavement permeability testing procedures. Install phased active landfill gas controls including perforated pipes in gravel filled trenches connected to header pipes and a vacuum source. The perforated pipes and gravel bed would be located beneath the pavement. The phased active landfill gas controls will be installed continuously throughout developed areas, below pavement, open space and buildings. Quarterly monitoring with a hand held sensor would trigger repair of pavement cracks if methane concentrations above 500ppm were detected. Routine inspection of paved areas is required to identify and repair areas of pavement cracking or locations where required landfill cover may be compromised.	☐ Approved as submitted ☐ Resubmit as noted	
Buildings			
Potential light structures with shallow foundations.	If design of structures can address seismic stability concerns, light structures with shallow foundations would be allowed.	☐ Approved as submitted ☐ Resubmit as noted	

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
Heavy structures with pile supported foundations	Pile supported structures are anticipated at the Site. Either driven or drilled pile types may be installed, following implementation of the groundwater compliance monitoring program and completion of evaluation re: potential zones of pile-type restrictions. Piles to support structures would be installed through refuse, through the underlying clay and peat layers into bearing sands. Piling or foundations that penetrate the gas barrier layer shall be booted or sealed to the barrier layer. Some areas of the Site may be restricted to augercast type pile construction. This determination will be made following additional shallow aquifer sampling and evaluation.	☐ Approved as submitted ☐ Resubmit as noted	
Potential basement or below grade parking areas. Gas controls beneath buildings	Excavation requirements are listed under "Construction Disruption" requirements above. Particular care should be given to design of utility and pavement connections at the interface of pile supported buildings and surrounding Site areas, where significant differential settlement is expected. Buildings will be protected by a geomembrane beneath the foundation slab that is booted and sealed around piles and utility penetrations. Phased active gas controls will be installed continuously below developed areas, including perforated extraction piping in gravel trenches, spaced a maximum of 100' on center. Below buildings, extraction piping would be installed in development fill or slab subgrade – above refuse. The extraction piping will be connected to header pipes, a vacuum source and a discharge location. A full-time continuous ground floor methane monitoring system will be installed in all buildings. Methane concentrations exceeding 1,000 ppm will automatically activate the building's HVAC system and notify operations personnel. Methane concentrations exceeding 10,000 ppm will activate audible alarms and trigger building evacuation. Monitoring with a hand held sensor would be used to identify any locations with methane exceeding 100ppm for repair. Temporary enclosures erected over pavement or open space areas will contain continuous methane monitors that would activate an alarm if triggered.	☐ Approved as submitted ☐ Resubmit as noted	

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
Open Space / Landscaping			
Landscaped areas around buildings and parking areas. Recreational use/park areas and trails.	Landscaped or open space areas will be constructed with a low permeable hydraulic barrier underlying clean soil established with vegetation to prevent erosion. Hydraulic barriers should obtain permeability similar to that of asphalt pavement. Institutional controls and property management procedures are required to prevent unauthorized digging and potential disturbance of hydraulic barrier. Subdrainage is required above the hydraulic barrier, to collect drainage above the barrier for off-site discharge. In landscaped areas where it is impracticable to connect with the storm water system for discharge, a drain may be placed in the hydraulic barrier to allow infiltration into the landfill, as long as it does not compromise gas collection system effectiveness. Phased active gas controls will be installed continuously below developed areas, including perforated extraction piping in gravel trenches, spaced a maximum of 100' on center. Below landscaped areas, extraction piping would be installed in development fill below the hydraulic barrier – above refuse. The extraction piping will be connected to header pipes, a vacuum source and a discharge location. Quarterly surface monitoring with a hand held sensor would be used to identify any locations with methane exceeding 500 ppm for repair. Fence posts shall either be finished above the underlying gas barrier or, if penetrating the gas barrier, be internally sealed and booted to the barrier layer to preclude intrusion of landfill gas. A Stormwater Pollution Prevention Plan and routine inspection of open space areas will be required to ensure cap integrity is not compromised by erosion.	☐ Approved as submitted ☐ Resubmit as noted	

Development Components	Environmental Requirements	City Review Comments and submittal reference (ie page, sheet #)	Ecology Review Comments
Public Access			
Unlimited public access in developed areas.	Public will be allowed access to all developed areas of the Site, except controlled entry to confined spaces and maintenance corridors. Warning signage may be placed as appropriate. Landfill gas controls must be installed and operational in developed areas for public access.	☐ Approved as submitted ☐ Resubmit as noted	
Access restrictions to undeveloped areas.	Perimeter fencing with secured entries will restrict access to undeveloped portions of the Site.	☐ Approved as submitted ☐ Resubmit as noted	

EXHIBIT E

EVERETT LANDFILL / TIRE FIRE SITE

PUBLIC PARTICIPATION PLAN
FOR
CONSENT DECREE AND CLEANUP ACTION PLAN

March 2001

TABLE OF CONTENTS

1. INTRODUCTION AND OVERVIEW OF THE PUBLIC PARTICIPATION PLAN

1.1 Public Participation at Hazardous Waste Sites

Public participation is an integral element of the Model Toxics Control Act (MTCA), Chapter 70.105D Revised Code of Washington (RCW). The citizen-mandated hazardous waste cleanup law went into effect in March 1989. The implementing regulation, found in Chapter 173-340 of the Washington Administrative Code (WAC), prescribes the process and standards to identify, investigate, and clean up facilities where hazardous substances may be located. The law and associated regulations for implementation include requirements and guidelines for involving the public in the investigation and cleanup of hazardous waste sites.

Under Part VI WAC 173-340-600 of the regulations, a Public Participation Plan (PPP) is required for sites undergoing investigation and cleanup of hazardous substances that are conducted under the Washington Department of Ecology (Ecology) or its oversight. The plan must be updated for each new phase of work at the site.

The PPP is a document designed to provide a process for meaningful public participation during the technical studies and cleanup of a site. While certain aspects of the plan are prescribed by regulation, PPPs are developed to meet the needs of a specific community and to encourage participation by members of the community.

This PPP addresses public participation in the cleanup of the Everett Landfill/Tire Fire Site as it is today under existing conditions. This PPP also addresses public participation in cleanup activities that would be implemented under potential future developed conditions, where public access and site conditions may be different from their existing conditions.

The landfill is located southeast of the downtown Everett business district. The landfill is bounded by 36th Street to the north, Burlington Northern Santa Fe (BNSF) railroad tracks to the west and BNSF tracks to the east. Wetlands and the Snohomish River are east of both the landfill and the BNSF tracks. The old Simpson mill site is located south and southeast of the landfill. The size of the landfill is approximately 70 acres, of which approximately 66 acres have been used as a landfill.

1.2 Goal of this Public Participation Plan

The goal of this plan is to promote public understanding of the cleanup regulations and process and to encourage the public's meaningful participation in achieving a cleanup that is protective of human health and the environment. The actions in this plan will provide a channel for the public to be notified of, comment on, and assist in the cleanup process for the Everett Landfill/Tire Fire Site.

The main objectives of this plan are to:

a) Promote public understanding of the cleanup and meaningful participation in the cleanup process.
b) Ensure that people will be appropriately informed of the status of cleanup activities for the existing site conditions and of cleanup activities that would be a component of potential future development on the site.
c) Solicit and respond to community concerns, questions, and comments during cleanup that will take place now and that which may take place in the future during development.

1.3 Public Participation for the Selection of Cleanup Actions

This Public Participation Plan has been prepared by Ecology and the owner of the landfill property, the City of Everett (City), with input from citizens in the nearby community. The PPP is an exhibit to a Consent Decree that sets forth the legal agreements that Ecology and the City will follow during the cleanup of the site. The Consent Decree contains several exhibits and accompanies two other related documents that are being issued for public comment.

These cleanup documents must be available for public comment for at least 30 days. *(See Section 4 of this Public Participation Plan for the methods for obtaining public comment on these documents.)*

Documents that are presented for public comment are listed below and defined in detail in the paragraphs that follow.

- Consent Decree
- Cleanup Action Plan (Exhibit C to the Consent Decree)
- Scope of Work and Schedule (Exhibit D to the Consent Decree)
- Public Participation Plan (Exhibit E to the Consent Decree)
- Restrictive Covenant (Exhibit F to the Consent Decree)
- Compliance Monitoring and Contingency Plan (attachment to the Cleanup Action Plan)
- Brownfield Feasibility Study (November 2000)
- State Environmental Policy Act (SEPA) Determination of Nonsignificance and associated SEPA checklist.

Consent Decrees are legal contracts signed by Ecology and the Potentially Liable Party (PLP) that contain the agreements to perform the cleanup actions.

Cleanup Action Plans are documents prepared under WAC 173-340-360 that select the cleanup actions and specify cleanup standards and other requirements for the cleanup actions. This cleanup action plan is a decision and summary document based on a technical report prepared under direction from Ecology, the Brownfield Feasibility Study (November 2000). The Cleanup Action Plan for the Everett Landfill/Tire Fire Site defines cleanup actions that must be accomplished at the site as it is in its present condition and cleanup actions that must take place under certain conditions if and when development takes place in the future.

Cleanup actions for both existing and future developed conditions address landfill gas, groundwater, direct contact exposure to humans, surface water, and administrative reporting and monitoring requirements. *(For requirements for existing conditions, see Sections 4.0 and 5.0 of the Cleanup Action Plan, Exhibit C, or the summary on page 4-5 of the Cleanup Action Plan. For requirements for future developed conditions, see Section 6.0 and 7.0 of the Cleanup Action Plan or the summary on pages 6-8 through 6-10 of the Cleanup Action Plan.)*

The **Scope of Work and Schedule** describes the specific activities required by the Cleanup Action Plan that will be completed and their schedules for completion. The Scope of Work and Schedule for the Everett Landfill/Tire Fire Site includes cleanup activities for existing site conditions and the process for coordinating City and Ecology reviews and approvals associated with cleanup action components of potential future development on the site.

Public Participation Plans are mandated by law and are prepared to encourage coordinated, effective, and meaningful public involvement. They are customized to meet the needs of the "potentially affected vicinity" or the people who are impacted by the contamination at a site and the cleanup of that contamination. Public Participation Plans contain the history and concerns of the people who live near a cleanup site. They describe the activities that Ecology and/or the PLP will conduct to make sure that the concerns of citizens are addressed and that citizens are able to be informed and to meaningfully participate in the cleanup activities. In these customized plans, public involvement activities are chosen to effectively address the concerns of the citizens.

The **Restrictive Covenant** is required by WAC 173-340-440 to assure the continued implementation of the remedial actions, as described in the Cleanup Action Plan. A Restrictive Covenant is recorded against the property title and will bind the property to the cleanup actions for the future.

The **Compliance Monitoring and Contingency Plan** describes monitoring requirements and contingency plans if monitoring shows an exceedance of cleanup standards. Monitoring and/or inspections are required for landfill gas, groundwater, surface water and direct contact prevention measures.

The **Brownfield Feasibility Study** presents information on the nature and extent of contamination and outlines the feasible alternatives for cleaning up the landfill for the current existing conditions as well as alternatives for cleanup actions associated with potential future redevelopment of the landfill property. The rationale for the choice of cleanup actions outlined in the cleanup action plan is contained in this document.

The City received a *Brownfields Assessment Demonstration Pilot Grant* from the EPA to evaluate reuse opportunities and constraints for the site. Brownfields are properties that are abandoned or underused because of environmental contamination from past industrial or commercial practices. The EPA grant program was established to assess brownfields sites and to test cleanup and redevelopment models. Under this grant, the City prepared a report called the *Landfill Site Development Considerations Report*. When the City approached Ecology regarding possibilities of developing the landfill property after cleanup, Ecology requested that a Brownfield Feasibility Study be prepared to address specific regulatory requirements under Washington State's cleanup regulation, the Model Toxics Control Act (MTCA).

A **Preliminary SEPA Determination of Nonsignificance** has been issued based on a SEPA checklist prepared for the Cleanup Action Plan. SEPA Determinations are required on all proposed cleanup actions. The City of Everett Planning Department is the lead SEPA agency for these proposed cleanup actions and has evaluated potential adverse impacts to the environment from these actions. The determination at this time is that there are no significant potential adverse impacts to the environment due to the proposed cleanup actions.

At this time, it is not known what future site development actions may be undertaken at the site. As a result, potential future site development actions, including the project specific cleanup action components (as required by the CAP) of potential future site development, are not evaluated in this SEPA environmental checklist. Independent SEPA evaluation would be required for any potential future site development and the project specific cleanup action components of any potential future development actions.

1.4 How the Cleanup Process Coordinates With Potential Development Processes

The Cleanup Action Plan describes cleanup actions that must occur under the landfill's existing land use and limited access conditions. Additionally, the Cleanup Action Plan describes cleanup actions that must occur if and when land use and/or public access conditions at the landfill site were to change in the future. For this reason, any potential development on the landfill site must be designed to meet cleanup requirements, and the City and Ecology must ensure that cleanup requirements are met.

This Cleanup Action Plan does not pre-approve nor require any development of the landfill site. Any potential future development proposal for the landfill site must obtain all necessary permits and approvals, just as any development proposal for a different, non-landfill site. **In addition to the regular permits and approvals**, the City and Ecology must conduct coordinated reviews and provide additional approval of the cleanup components of any proposed development on the landfill.

The following Figure 1 was originally developed for use at the May 5, 2000 public workshop. It is intended to graphically depict the various reviews, permits and approvals that may be applicable to any potential future development action on the landfill site and the former Simpson mill property (the Riverfront Sites). Please note that the Cleanup Action Plan, Consent Decree and Brownfield Feasibility Study are relative only to the Landfill/Tire Fire Site, and not the former Simpson mill property. Figure 1 depicts the additional review and approval processes that any potential future development on the landfill would require, as well as the normal review and approval processes for development not specific to the landfill. Names and organizations appearing in italics below boxes describe the regulatory authorities and responsibilities associated with the activities inside the box.

The "**Land Use Planning and Brownfield Process**" refers to City and citizen activities regarding Everett's Comprehensive Plan and Shoreline Master Plan. The EPA *Brownfields Assessment Demonstration Pilot Grant* awarded to the City for the evaluation of reuse opportunities at the Riverfront Sites is also depicted in this planning process portion of the diagram.

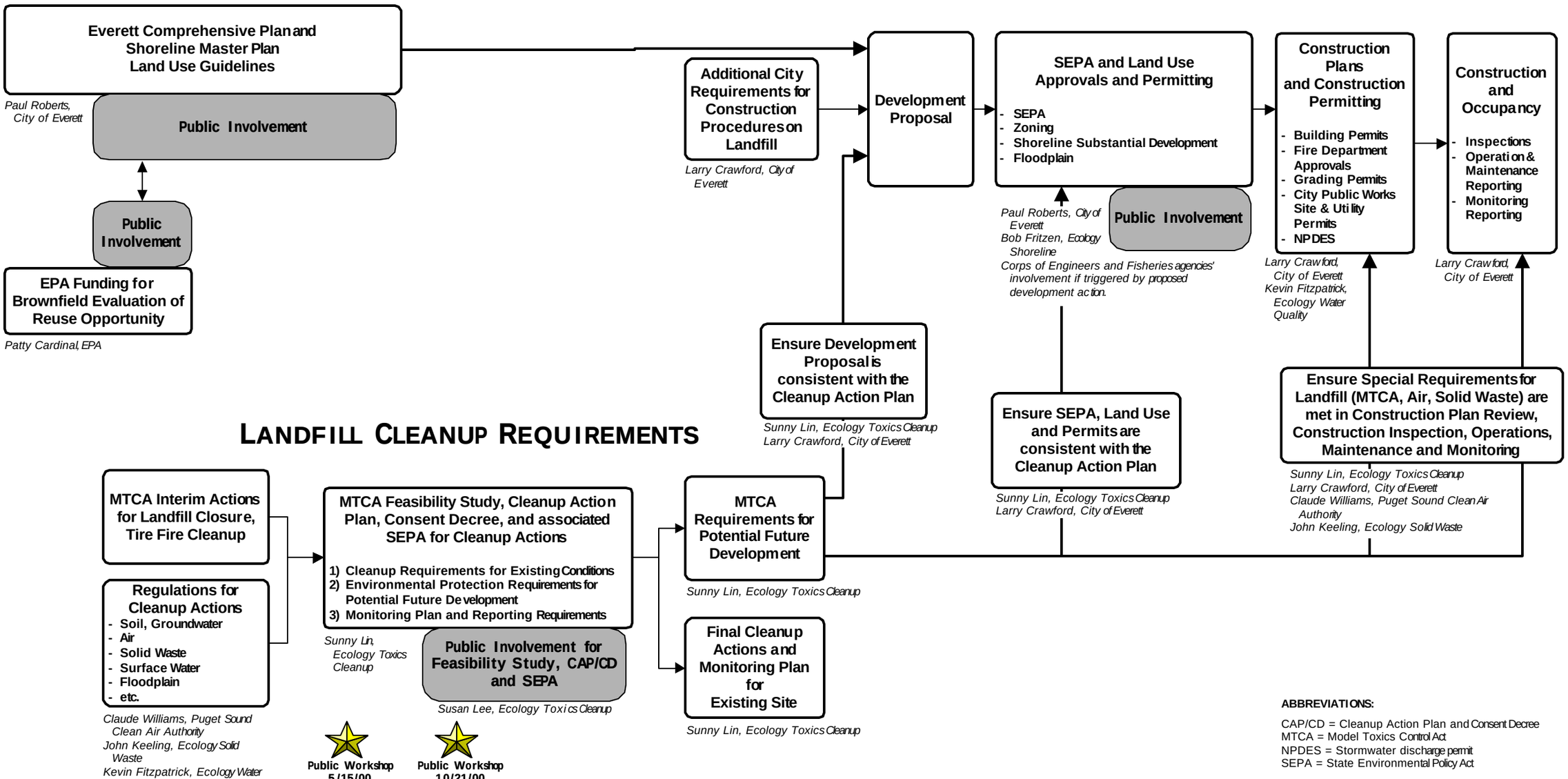
In the "**Riverfront Sites – Future Development Proposals**" area of the diagram, normal City, State and federal reviews, permitting and approval processes are shown, from left to right, beginning with the *Development Proposal* box. Any proposed development on either the landfill or the Simpson mill site would be required to go through this process. Potential development on the landfill may be subject to additional City requirements for construction procedures, to be determined by the City.

The "**Landfill Cleanup Requirements**" portion of the diagram refers to work completed for the landfill property under the Model Toxics Control Act (MTCA). This includes cleanup measures completed as Interim Actions as well as the Brownfield Feasibility Study, Cleanup Action Plan and Consent Decree work efforts. Cleanup requirements described in the final Cleanup Action Plan for existing conditions will be implemented at the site in accordance with the Scope of Work and Schedule (See Exhibit D). Final cleanup requirements for potential future development are also included in the final Cleanup Action Plan and will be implemented as a component of all future development on the site. The additional review and approval processes for development on the landfill, which will ensure that cleanup requirements are met, are depicted by the arrows connecting *MTCA Requirements for Potential Future Development* to each of the four boxes of normal City, State and federal reviews, permits and approvals.

Formal **Public Involvement** requirements are shown associated with specific actions, documents or milestones. Please note that the current public comment period is the only opportunity citizens have to comment on the cleanup requirements described in the Cleanup Action Plan for both existing and future conditions. Further public participation will occur through standard permit and approval processes, as well as through the provisions contained in this Public Participation Plan.

LAND USE PLANNING AND BROWNFIELD PROCESS

RIVERFRONT SITES - FUTURE DEVELOPMENT PROPOSALS



LANDFILL CLEANUP REQUIREMENTS

ABBREVIATIONS:

CAP/CD = Cleanup Action Plan and Consent Decree
MTCA = Model Toxics Control Act
NPDES = Stormwater discharge permit
SEPA = State Environmental Policy Act

EVERETT LANDFILL/TIRE FIRE SITE AND SIMPSON PROPERTY (RIVERFRONT SITES) CLEANUP AND REDEVELOPMENT PROCESS

November 10, 2000

Figure 1

2. SITE BACKGROUND

From 1917 to 1974, the landfill site was used as a burn dump, a scrap metal recycling and burial yard, and a municipal landfill. In 1975, the site was graded, covered with 12 inches of soil and seeded, which closed the landfill under then current Regulations Relating to Minimum Functional Standards for Solid Waste Handling (WAC 173-301). Beginning in 1977, a commercial recycling operation stored old rubber tires at the site. In 1983 and again in 1984, fires occurred in the piles of used rubber tires on the landfill. The fires, involving approximately one million tires, were allowed to burn themselves out, leaving several acres of ash. The residue and ash from these fires caused Ecology to request that the City perform an environmental characterization of the tire fire ash. The City conducted a preliminary assessment in 1985 and a Remedial Investigation and Feasibility Study (RI/FS) in 1986.

In 1989 under the new Model Toxics Control Act, the site was listed and ranked on Ecology's Hazardous Sites List. This listing was based on the presence of tire fire ash, not because the site is a closed municipal landfill. In 1990, Ecology and the City of Everett signed a Consent Order that required the City to conduct ash sampling and investigation of tire fire site. As investigations progressed, it became apparent that the landfill itself, as well as the tire fire ash, was a source of contamination on the site. These investigations were completed in 1993.

In 1994, Ecology required the City to supplement their investigations in order for Ecology to complete a cleanup action plan. The supplemental investigations included investigating landfill gas, gathering information to determine an appropriate landfill cover, and evaluating a proposal to treat the tire fire ash. Ecology also required the City to install a leachate collection system and surface water controls as Interim Actions.

The first Interim Action, in 1995, improved site grading and the control of surface water. The entire site (except for the two tire fire areas) was graded to allow the collection and control of surface water and to reduce leachate generation, and an additional two feet of soil cover was placed over the waste areas. In 1997-1998, as a second Interim Action, the leachate collection system and site fencing were installed, and the tire fire ash area was covered with two feet of clean soil. This was deemed appropriate by Ecology because the tire fire ash was no longer classified as dangerous waste under the new Dangerous Waste Regulations (Chapter 173-303 WAC, amended November 1996).

Ecology prepared a draft Cleanup Action Plan in the spring of 1999. This Draft Cleanup Action Plan did not anticipate future site redevelopment.

In 1998, the City received a U.S. Environmental Protection Agency *Brownfields Assessment Demonstration Pilot Grant* to evaluate redevelopment requirements for the former landfill and adjacent Simpson properties. Under this grant, the City produced a summary of existing conditions, performed a geotechnical investigation of the site, and produced a preliminary

evaluation of requirements that would be necessary to allow potential future redevelopment consistent with the Comprehensive Plan, while ensuring the environmental integrity of the site. The report was called the *Landfill Site Development Considerations Report*. This preliminary evaluation of environmental requirements for site redevelopment was reviewed with Ecology. Ecology then requested that a Brownfield Feasibility Study be prepared to address specific regulatory requirements under Washington State's cleanup regulation, the Model Toxics Control Act (MTCA). The Brownfield Feasibility Study supports definition of environmental cleanup requirements in the Cleanup Action Plan that could anticipate future site redevelopment.

The completed draft Cleanup Action Plan and related documents, including this Public Participation Plan, are being issued for public comment.

3. COMMUNITY BACKGROUND

3.1 Community Profile

Because of their location relative to the landfill, the Lowell neighborhood has had the most interest and been the most active community during Everett Landfill/Tire Fire Site activities and during the environmental investigations and plans for cleanup. The landfill is located along the lowlands adjacent to the Snohomish River, and this small neighborhood is located directly across a railroad track that forms a boundary for the landfill. It is a community with definite boundaries and is almost isolated from other neighborhoods. The landfill and river form the east boundary of the neighborhood and the eight-lane Interstate-5 freeway forms the west boundary. At this time, only one road exits the neighborhood to the south into rural lands. Limited roads also exit north by the landfill under the freeway to the rest of the City of Everett. The houses of the neighborhood are above the river lowlands on a rising hill. The neighborhood is not only adjacent to, but also elevated from the river so that the visual sight of the landfill and other riverfront properties is part of the everyday lives of the people who live in the Lowell Neighborhood.

The Port Gardner Neighborhood on the other side of the freeway and further uphill has also had an interest in the landfill, although not as intensive. Additionally, citizens from other parts of Everett have participated in landfill site related activities based on their interests in environmental health and shoreline properties of the city at large.

The people of the local neighborhoods have been involved in riverfront activities, of which the landfill/tire fire area is an integral part, for many years. Since 1979, their involvement has included participation in multiple actions related to the site and vicinity, including: growth management planning; site use determinations; comprehensive plan designation; utility construction; environmental interim actions; transfer station relocation planning; and shoreline master planning.

Ecology has held two public meetings during the last year related to the site cleanup process. In May 2000, Ecology held a well-attended public workshop to clarify the roles and responsibilities of the various agencies involved in the cleanup and redevelopment of the landfill and the riverfront properties and to inform citizens how they can participate in these processes. In October 2000, a workshop was held to receive input on the public participation plan.

3.2 Community Concerns

Information has been compiled since 1993, regarding the concerns of the people who live near the landfill or whose homes look out on the landfill or who pass the landfill daily. The information has been gathered by: surveys, both by telephone and in person; public meetings; mailed fact sheets; public comment periods; neighborhood meetings; personal conversations by

telephone, email, and in person; and workshops. The most recent workshop took place on Saturday, October 21, 2000, for the purpose of gathering information for this Public Participation Plan.

Citizens from both the local and city-wide communities have participated in these information gathering processes, and have communicated a wide range of issues and concerns, suggestions, and support.

Many of the concerns raised by the local community have been focused on land use and natural resource concerns related to potential riverfront property redevelopment. It has been acknowledged that the cleanup of the landfill is related to existing conditions and potential future development of the landfill property only and not to the development of the riverfront properties. The landfill cleanup documents do not require development of the landfill site in order to meet cleanup standards. Separate opportunities for public involvement on potential riverfront site development are described in Section 1.4 and Figure 1 of this document.

Specific issues related to landfill cleanup that have been raised by selected community members, and documented by Ecology, include:

- Concern that the City has prevented them from having meaningful participation in the environmental activities along the riverfront properties.
- Concern that City has withheld information, and concern regarding the credibility of information received from the City.
- Concern that Ecology has sanctioned the City's actions and discouraged public participation.
- Concern regarding length of time for tire fire ash and landfill cleanup.
- Support for cleanup actions, and encouragement for continued cleanup actions to move forward expeditiously.
- Concern regarding leachate from landfill and tire fire ash going into the river.
- Request for a strong public participation plan that allows citizens to obtain information on actions at the landfill BEFORE the actions are taken.
- Request to give citizens time to read documents with care and respond with assurances that their comments have actually been thoughtfully considered.
- Request that Ecology do the essential oversight of cleanup to make sure the City does what it agrees to.
- Concern that the City constructed the animal shelter and a super compactor on the site before cleanup.
- Concern regarding human health and quality of life.
- Concern regarding aesthetics of their neighborhood.
- Concern regarding methane gas leaving the site.
- Concern regarding health issues with other gases like hydrogen sulfide.

4. PUBLIC PARTICIPATION ACTIVITIES

4.1 Introduction

The following activities are planned to provide people the opportunity to access information during the cleanup of the site and have meaningful participation, both for cleanup activities related to existing conditions, and for cleanup actions conducted during potential future site development. The activities listed here are either required by law, offered by the City, or requested by the citizens.

4.2 Public Contacts

Department of Ecology

- Sunny Lin, Site Manager
  3190 160th Avenue SE
  Bellevue, WA 98008-5452
  425-649-7187
  hlin461@ecy.wa.gov

- Susan Lee, Public Involvement
  3190 160th Avenue SE
  Bellevue, WA 98008
  425-649-7213
  slee461@ecy.wa.gov

City of Everett

- Larry Crawford, Project Manager
  3200 Cedar Street
  Everett, WA 98201
  425-257-8800
  lcrawford@ci.everett.wa.us

4.3 Ecology Activities and Responsibilities

4.3.1 A public comment period of 60 days will take place from December 4, 2000 to February 1, 2001. Comment will be taken on the following documents:

- Consent Decree
- Cleanup Action Plan (Exhibit C to the Consent Decree)
- Scope of Work and Schedule (Exhibit D to the Consent Decree)
- Public Participation Plan (Exhibit E to the Consent Decree)
- Restrictive Covenant (Exhibit F to the Consent Decree)
- Compliance Monitoring and Contingency Plan (attachment to the Cleanup Action Plan)
- Brownfield Feasibility Study
- State Environmental Policy Act (SEPA) Determination of Nonsignificance and associated SEPA checklist

4.3.2 Public notice of the comment periods will be given, using the following methods:

- A **fact sheet** describing the activity and how the public may comment. The fact sheet will be mailed to all addressees on the Ecology mailing list. The list contains residents and property owners of the area and other interested community members.
- A **display ad** will be placed in the *Everett Herald* and the *Everett Tribune*.
- A **notice** will be published in Ecology's *Site Register*.
- A **notice** will be published in Ecology's *SEPA Register*.

4.3.3 Information repositories will assure that the community has access to relevant documents at the following locations:

- **Everett Public Library**
  2702 Hoyt Street
  Everett WA 98201
  425-259-8000
  - ❖ All major documents
  - ❖ Hours:
    Monday & Tuesday, 9 a.m. to 9 p.m.
    Wednesday, noon to 9 p.m.
    Thursday through Saturday, 10 a.m. to 6 p.m.
    Sunday, 1 p.m. to 5 p.m.

- **Department of Ecology**
  3190 160th Avenue SE
  Bellevue WA 98008
  425-649-7190
  - ❖ All major documents and complete project records
  - ❖ Weekdays 8 a.m. to 5 p.m.

4.3.4 A public hearing will be held during the public comment period to describe the documents and answer questions from the community on the documents. The hearing will be held Thursday, January 11, 2001 at the Everett Senior Center (3025 Lombard) from 6:30 – 8:30 p.m. A reminder will be published in the Herald and Tribune newspapers.

4.3.5 A responsiveness summary will be prepared following the public comment period that addresses the comments. The responsiveness summary will be available at the information repositories listed above.

4.4 City Activities and Responsibilities

4.4.1 Web Site

The City of Everett has an existing web site. That web site will include a section on the cleanup activities and the following information:

- The Cleanup Action Plan, Scope of Work and Schedule, Compliance Monitoring Plan and Public Participation Plan.
- All reports submitted to Ecology under the agreements in the Consent Decree and Cleanup Action Plan, including reporting required under the Compliance Monitoring Plan.
- All reports submitted to Ecology regarding the status of development.

The reports listed above, that will be posted on the web site, include data and mapping for both existing and future conditions regarding: perimeter gas conditions and monitoring results, groundwater monitoring results, surface water monitoring results, building and developed site gas monitoring results and reports of gas alarms if applicable.

4.4.2 Notification to Neighborhood Organizations

There are a number of conditions that may happen regarding which the City is required to notify Ecology. For these conditional reporting requirements, the City will also notify the Lowell and the Port Gardner Neighborhood Organizations by telephone or by email within one week of occurrence or confirmation. These conditions are:

- Confirmed "out-of-compliance" conditions for perimeter gas migration, groundwater or surface water, consistent with the Compliance Monitoring Plan.
- Accidental release of contaminants to groundwater or surface water due to events such as earthquake, flood, construction, etc.
- Notification of permit application for specific gas discharge points, if applicable
- Results of shallow aquifer characterization for potential restrictions on pile foundations
- Notification of the intent to transfer properties prior to a transfer.
- Notification of SEPA/permitting public comment periods for development actions that will trigger the cleanup actions prior to the comment period and provide the documents at the library information repository.
- Notification and stop work for any activities performed on the site that are not allowable under the restrictive covenant for the site.

4.4.3 Library Information Repository

The City will place all major documents in the Everett Public Library in the official information repository for this site. These documents include all reports submitted to Ecology under the agreements in the Consent Decree and Cleanup Action Plan and all reports submitted to Ecology regarding the status of cleanup actions, monitoring and development.

4.4.4 Neighborhood Meetings

The designated City contact will be available to attend neighborhood meetings upon request and will give updates on the status of cleanup activities.

4.4.5 Citizen's Public Involvement Committee

At the discretion of community members, the community may establish a committee of neighborhood representatives focused on monitoring cleanup activities. If such a committee were formed, the designated City contact would be available to attend committee meetings upon request and give updates on the status of cleanup activities.

4.5 Public Participation Grant Activities

Citizens of the Lowell and Port Gardner Neighborhoods are applying for a Public Participation Grant from Ecology. Additional public participation activities may be defined under the scope of such a grant. Those additional activities would not reduce the scope of required public involvement activities defined by this plan. Activities conducted under this plan would be conducted to coordinate with potential additional activities defined under the grant.

EXHIBIT F

RESTRICTIVE COVENANT

EVERETT LANDFILL/TIRE FIRE SITE

FINAL

EXHIBIT F

Restrictive Covenant
Everett Landfill

This Declaration of Restrictive Covenant is made this _____ day of _____, 2000, by the City of Everett ("Everett"), the fee title owner of the real property described herein, in favor of the Washington State Department of Ecology ("Ecology").

The property that is the subject of this Restrictive Covenant (hereinafter referred to as the "Property") has been the subject of remedial action under the Washington State Model Toxics Control Act ("MTCA"), Chapter 70.105D RCW. This Restrictive Covenant is required by WAC 173-340-440 to assure the continued implementation of this remedial action. The remedial action undertaken to clean up the Property (hereinafter the "Cleanup Action ") is described in the Cleanup Action Plan ("CAP") for the Everett Landfill/Tire Fire Site. The CAP and Restrictive Covenant are attachments C and F respectively to the Consent Decree entered into by Ecology and Everett on _____ relating to this Property.

The Property is the former Everett Landfill and is located at 2902-36th Street East in Everett, Washington. The Property is further described in Exhibit A and B to the Consent Decree.

The purpose of this Restrictive Covenant is to provide Ecology the right to ensure that the Property will not be used in a manner inconsistent with the restrictions stated herein or in a manner that would pose a threat to human health or the environment. It is the further purpose of this Restrictive Covenant to provide Ecology the right to determine whether and to what extent the deed restrictions set forth below may be removed from all or any portion of the Property, consistent with the Cleanup Action Plan.

Everett makes the following declarations as to limitations, restrictions, and uses to which the Property may be put, and specifies that such declarations shall constitute covenants to run with the land, as provided by law, and shall be binding on Everett and its successors or assigns:

Section 1: The owner of the Property shall adhere to the requirements of the Consent Decree and Cleanup Action Plan. Any activity on the Property that may interfere with the Cleanup Action or that may result in an endangerment to human health or the environment resulting from hazardous substances contained on the Property or from gas generated from the Property is prohibited. This restriction recognizes that maintenance or construction activities at the Property conducted in accordance with CAP requirements, requiring replacement of portions of the landfill cover or other systems, including constructing foundations or other structures, or installing or maintaining utilities, shall not constitute activities that interfere with the Cleanup Action.

Section 2: Pursuant to the Cleanup Action Plan, the owner of the Property must maintain landfill cover, site access controls and leachate collection systems, and must install, operate, and maintain the surface water drainage systems and the gas management systems, until such time as Ecology determines, pursuant to the Consent Decree and Section 9 of this Restrictive Covenant, that cleanup standards have been achieved or that the Cleanup Action is no longer necessary or appropriate.

Section 3: Future use of the Property shall be limited to commercial, industrial, office, mixed use, recreational, multi-family residential (upper levels only) or public access uses as those uses are defined in MTCA and the City of Everett Zoning Code and Comprehensive Plan. Overnight camping shall not be permitted. The owner must notify and obtain approval from Ecology, or from a successor agency, prior to any use of the Property that is inconsistent with this Section. Ecology, or its successor agency, may approve such a use only after public notice and comment.

Section 4: The owner shall not consummate any conveyance of title, easement, lease or other interest in the Property without adequate and complete provision for the continued operation, maintenance and monitoring of the Cleanup Action undertaken pursuant to the Consent Decree. The owner shall restrict leases to uses and activities consistent with the Consent Decree and notify all lessees of the restrictions on the use of the property.

Section 5: During the Effective Period of the Consent Decree, the owner shall notify Ecology of its intent to convey any interest in the Property.

Section 6: Ecology or any Ecology authorized representatives shall have the authority to enter and freely move about the Property at all reasonable times for the purposes of overseeing and verifying remedial actions being performed, including, inter alia: inspecting records, operation logs, and contracts related to the work being performed pursuant to the Consent Decree; reviewing the owner's progress in carrying out the terms of the Consent Decree; 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 the Consent Decree; and verifying the data submitted to Ecology by the owner.

Section 7: No groundwater may be withdrawn from the Property for any purpose except groundwater monitoring or leachate collection.

Section 8: Workers temporarily penetrating landfill cover materials on the Property must comply with OSHA and WSHA health and safety regulations. Uncontrolled penetration of landfill cover materials without notification of CAP requirements is prohibited.

Section 9. The owner of the Property reserves the right under WAC 173-340-440 (1996 ed.), to record an instrument which provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only with the consent of Ecology, or a successor agency. Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment.

Section 10: Everett reserves unto itself, its successors or assigns, all rights and privileges in and to the use of the Property that are not incompatible with the restrictions and rights granted herein.

_____

Signature

_____

Printed Name