Pasco Sanitary Landfill

COPY

FSN 575

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action at:	)	Enforcement Order
	)	No. DE 94TC-E103
Pasco Sanitary Landfill Pasco, Washington	)	

TO:

Advance Electroplating
Basin Disposal Company
Boeing Company
Burlington Environmental Inc.
Chemical Processors, Inc.
Resource Recovery,Inc.
Burlington Northern, Inc.
Carr Aviation
Collier Carbon and Chemical
Chempro of Oregon
Crown Cork and Seal Company, Inc.
E.I. du Pont de Nemours and Co., Inc.
Freightliner Corporation, a Subsidiary of Daimler-Benz of North America Holding Company
Glidden Corporation, a Subsidiary of ICI Americas, Inc.
ICI Canada, Inc.
Intalco Aluminum Corporation
John and Marjorie Dietrich
James River II Corporation
Kalama Chemical Company
Leonard and Glenda Dietrich
Minnesota Mining and Manufacturing Company
Morton Chemical Company
Pasco Sanitary Landfill, Inc.
Franklin Land Recovery, Inc.
Puget Sound Naval Shipyards
The O'Brien Corporation
Oregon Cutting Systems Division of Blount, Inc.
PACCAR, Inc.
Precision Castparts Corporation
Piute Energy and Transportation Company
PPG Industries
Rhone-Poulenc Company
Sandvik Special Metals
Simpson Timber Company
UARCO Incorporated
United States Air Force
United States Department of Agriculture, Forest Service
United States Department of Interior, Bureau of Reclamation
Weyerhaeuser Corporation
Wood Treatment Chemical Company

Collectively referred to herein as the Potentially Liable Persons (PLPs):

I.

Jurisdiction

This Order is issued pursuant to the authority of RCW 70.105D.050(1).

II.

Statement of Facts

Ecology makes the following Findings of Fact, without admission of such facts by the PLPs.

A. Site Location

The Pasco Sanitary Landfill is located approximately 1.5 miles northeast of the City of Pasco, Washington, in the southwest quarter of Section 15, and the northwest quarter of Section 22, Township 9 North, Range 30 East, Willamette Meridian, in Franklin County, Washington. The site is near the intersection of Kahlotus Road with United States Routes 12 and 395, at latitude 46 degrees, 15' 07" North and longitude 119 degrees, 03' 13" West. The approximate location and boundaries of the Site are depicted by the diagram that is Exhibit A to this Order, which is hereby incorporated by reference and is an integral part of this Order. The Site consists of the area illustrated, and extends laterally and vertically as far as the plume of contamination in ground water resulting from on site contamination.

B. Site History and Operations

1. In 1958, the Franklin County Planning Commission authorized John Dietrich, d/b/a Pasco Garbage Service, to establish and operate a garbage disposal facility at this site. The facility operated as a burning dump until 1971, when it converted to a sanitary landfill.

2. Chemical Processors, Inc., (Chempro) and John and Marjorie Dietrich, d/b/a Basin Disposal Co., Inc., (Basin) agreed in 1972 to form a third company, Resource Recovery Corporation, (CR2) to operate the landfill. CR2 was incorporated in Washington on August 8, 1972. The Resource Recovery Corporation Operational Plan, dated August 28, 1972, envisioned the development of a landfill for both drummed and liquid wastes. Drummed wastes were to be buried, and bulk liquids were to be discharged to lagoons and evaporated.

3. Ecology issued an industrial waste discharge permit, No. 5301, to CR2 on March 21, 1973, to govern the operation of the disposal facility according to the operational plan. CR2 operated the industrial waste lagoons and drum disposal sites until 1974.

4. Following expiration of the permit, CR2 continued to operate the sanitary landfill portion of the facility, accepting local solid and industrial waste under permit from the Benton-Franklin District Health Department. In 1981, Pasco Sanitary Landfill, Inc., (PSL) was formed to operate the landfill. PSL currently owns the site.

C. Previous Site Investigation Results

1. Monitoring results to date indicate a release of hazardous substances to the environment, within the meaning of RCW 70.105D.020, has occurred at the site. For example, Volatile Organic Compounds discovered in ground water, and their maximum concentrations to date, include:

   - 1,1 Dichloroethylene, at a maximum concentration of 250 micrograms per liter (35 times the federal maximum contaminant level);

   - 1,1 Dichloroethane, at a maximum concentration of 739 micrograms per liter;

   - Trans-2 Dichloroethylene, at a maximum concentration of 190 micrograms per liter;

   - Vinyl Chloride, a human carcinogen, at a maximum concentration of 7082 micrograms per liter (3541 times the federal maximum contaminant level);

   - Chloroform, at a maximum concentration of 703 micrograms per liter;

   - 1,1,1 Trichloroethane, at a maximum concentration of 2680 micrograms per liter (13 times the federal maximum contaminant level);

   - Trichloroethane, at a maximum concentration of 1880 micrograms per liter (376 times the federal maximum contaminant level);

   - Tetrachloroethylene at a maximum concentration of 112 micrograms per liter (22 times the federal maximum contaminant level);

   - Toluene, at a maximum concentration of 4470 micrograms per liter (4 times the federal maximum contaminant level); and

   - Total Xylenes at a maximum concentration of 2850 micrograms per liter.

2. In February, 1990, the Pasco Sanitary Landfill was listed as a National Priority List (NPL) site by the United States Environmental Protection Agency (EPA). The Department of Ecology (Ecology) has been established as the lead agency for the cleanup investigations and remedial actions taken at the site.

3. In 1992, a Phase I Remedial Investigation was begun by a group of PLPs. That group, including past and present owners/operators and generators, were signatories to Order DE 92TC-E105. The purpose of the Phase I Remedial Investigation was to gain additional information on the nature and extent of contamination in the air, soil, and ground water near potential contaminant sources at the site. The Phase I Remedial Investigation Report was accepted by Ecology as final in March 1994, following public notice and opportunity to comment.

4. Studies germane to the site investigations include, but are not limited to:

Washington Department of Ecology, 1973: Resource Recovery Corporation Industrial Disposal Site Evaluation

Ecology and Environment, Inc., 1985: Preliminary Site Inspection Report of Resource Recovery Corporation, Pasco, Washington; Prepared under U.S. Environmental Protection Agency Contract No. 68-01-6692, Technical Directive Document No. R10-8408-22

Ecology and Environment, Inc., 1986: Final Report for Resource Recovery Corporation, Pasco, Washington; Prepared under U.S. Environmental Protection Agency Contract No. 68-01-6692, Technical Directive Document No. R10-8410-14

Ecology and Environment, Inc., 1987: Field Investigation Report for Pasco Sanitary Landfill/Resource Recovery Corporation, Pasco, Washington; Technical Directive Document No. F10-8701-04

JUB Engineers, 1981: Evaluation of the Pasco Sanitary Landfill Waste Disposal Practices

JUB Engineers, 1983: Summary Report, Ground Water Quality in the Vicinity of the Pasco Landfill

United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, 1990: Preliminary Health Assessment for the Pasco Sanitary Landfill, Pasco, Franklin County, Washington, CERCLIS No. WAD991281874

United States Environmental Protection Agency, 1987: Letter from Marcia Knadle, EPA Hydrogeologist Region X to Flora J. Goldstein, Regional Hydrogeologist, Washington Department of Ecology

Technico and Environmental Services, Inc., 1991: Pasco Sanitary Landfill Permit Application

Burlington Environmental Inc., 1994: Phase I Remedial Investigation Report, Pasco Landfill, Pasco, Washington, Volumes I through IV.

Burlington Environmental Inc., September, 1994: Pasco Landfill Phase II Remedial Investigation and Feasibility Study Work Scope

D. Conclusions

Based upon the information and data generated to date, the public may be at risk because of the potential for hazardous substances to migrate via the ground water to wells used as sources of potable water, for irrigation, or for other beneficial uses. The extent of ground water, air, and soil contamination has not been fully identified.

Based upon the facts set forth herein, Ecology has determined that the release and potential release of hazardous substances from the facility require remedial action to protect the public health, welfare, and the environment. This Order sets forth the remedial measures necessary to protect public health, welfare, and the environment.

III.

Ecology Determinations

A. Each PLP is potentially liable pursuant to RCW 70.105D.040 for the Pasco Sanitary Landfill, a "facility" as defined in RCW 70.105D.020(3). By letters issued pursuant to WAC 173-340-500(4), Ecology notified each of the PLPs of its status as a PLP under RCW 70.105D.040 after notice and opportunity for comment. The basis for each PLPs potential liability is set forth in those letters.

B. The facility is known as the Pasco Sanitary Landfill, and is located approximately 1.5 miles northeast of the City of Pasco, Washington, in the southwest quarter of Section 15, and the northwest quarter of Section 22, Township 9 North, Range 30 East, Willamette Meridian, in Franklin County, Washington. The site is near the intersection of Kahlotus Road with United States Routes 12 and 395, at latitude 46 degrees, 15' 07" North and longitude 119 degrees, 03' 13" West. The approximate location and boundaries of the Site are depicted by the diagram that is Exhibit A to this Order, which is hereby incorporated by reference and is an integral part of this Order. The Site consists of the area illustrated, and extends laterally and vertically as far as the plume of contamination in ground water resulting from on site contamination.

C. The substances found at the facility as described above are "hazardous substances" as defined at RCW 70.105D.020(5).

D. Based on the presence of these hazardous substances at the facility and all factors known to Ecology, there is a release or threatened release of hazardous substances from the facility, as defined at RCW 70.105D.020(10).

E. Pursuant to RCW 70.105D.030(1) and 70.105D.050, Ecology may require potentially liable persons to investigate or conduct other remedial actions with respect to the release or threatened release of hazardous substances, whenever it believes such action to be in the public interest.

F. Based on the foregoing facts, Ecology believes the remedial action required by this Order is in the public interest.

IV.

Work to be Performed

Based on the foregoing Facts and Determinations, it is hereby ordered that the PLPs take the following remedial actions and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein.

A. The work to be performed includes a Phase II Remedial Investigation and Feasibility Study. The purpose of the Phase II Remedial Investigation is to define and characterize the source(s), nature, degree, and extent of contamination from the site. The Feasibility Study shall develop and evaluate remedial measures which will reduce risks to human health and the environment and meet federal, state, and local standards.

B. Attached hereto is the Scope of Work for a Remedial Investigation and Feasibility Study as Exhibit B, and Schedule of Submittals as Exhibit C, which are hereby incorporated by reference and are integral and enforceable parts of this Order.

C. The PLPs shall submit a Work Plan to implement the Scope of Work, included as Exhibit B of this document, by January 13, 1995. The Work Plan schedule shall be consistent with the Schedule of Submittals, Exhibit C. The Work Plan shall consist of a detailed breakdown of the Scope of Work, personnel requirements, project costs, and schedules for the Phase II Remedial Investigation (RI) and Feasibility Study (FS), including the following elements thereof:

1. Draft Remedial Investigation/Feasibility Study Work Plan that includes:

   a. Health and Safety Plan

   b. Data Management Plan

   c. Sampling and Analysis Plan, including a Field Sampling Plan, Quality Assurrance Project Plan, and Investigative Waste Management Plan.

   d. Public Participation Plan

   e. Waste Characterization and Treatability Studies

2. Draft Pre-Remedial Investigation Evaluation of Cleanup Action Alternatives

3. Final Remedial Investigation/Feasibility Study Work Plan

4. Final Pre-Remedial Investigation Evaluation of Cleanup Action Alternatives

5. Draft Soil Vapor Extraction Treatability Test Technical Memo

6. Final Soil Vapor Extraction Treatability Test Technical Memo

7. Draft Municipal Solid Waste Landfill Closure Plan

8. Final Municipal Solid Waste Landfill Closure Plan

9. Draft Remedial Investigation and Risk Assessment Report

10. Final Remedial Investigation and Risk Assessment Report

11. Draft Feasibility Study

12. Final Feasibility Study

The Work Plan and each element thereof shall be designed, implemented and completed in accordance with the National Contingency Plan (NCP), in effect on the effective date of this Order, and as amended, and in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), the Model Toxics Control Act (MTCA, Chapter 70.105D RCW) and regulations (Chapter 173-340 WAC) as may be amended, all applicable federal and state laws and regulations and all applicable EPA guidance documents, including but not limited to EPA 540/G-89/004 Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA; and, EPA 540/P-91/001 Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites.

D. Ecology shall notify the PLPs, in writing, of Ecology's approval or disapproval of the Work Plan. In the event of any disapproval, Ecology shall specify, in writing, both the deficiencies and any Ecology required modifications regarding the Work Plan.

E. Within thirty (30) days of receipt of Ecology's notification of the Remedial Investigation/Feasibility Study Work Plan disapproval or required modification, the PLPs shall amend and submit to Ecology a revised Work Plan incorporating Ecology's required modifications.

F. Within fifteen (15) days of Ecology's approval of the Remedial Investigation/Feasibility Study Work Plan, the PLPs shall commence work and thereafter complete all tasks by the dates indicated in the Schedule of Submittals, attached hereto as Exhibit C. The approved Work Plan and schedule shall be attached to and incorporated into this Order, and shall thereafter be an integral and enforceable part of this order.

G. Progress reports shall be completed on a monthly basis. The reports shall contain:

1. A list of on-site activities that have taken place during the period;

2. A detailed description of any deviations from required tasks not otherwise documented in project plans;

3. Descriptions of all deviations from the schedule of submittals (Exhibit C) or the schedule approved in the Remedial Investigation/Feasibility Study Work Plan, and planned deviations in the upcoming month;

4. Work in progress;

5. A list of deliverables for the upcoming month;

6. All relevant data, including laboratory analysis summaries received by the PLPs during the past month and an identification of the source of the samples.

H. In accordance with WAC 173-340-840(5), all sampling data shall be submitted according to Cleanup Information Memorandum 91-1: Ground Water, Soil, Sludge, and Sediment Data Submittal Requirements dated January 27, 1993.

V.

Terms and Conditions of Order

A. Definitions

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

B. Public Notice

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

C. Remedial Action Costs.

The PLPs shall pay to Ecology costs incurred by Ecology pursuant to this Order. These costs shall include work performed by Ecology or its contractors for investigations, remedial actions, and Order preparation, 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), and interest charges for delayed payments, as defined in WAC 173-340-550(4).

Ecology reserves its rights under RCW 70.105D.040(2) to pursue unpaid costs incurred prior to the effective date of this order. Costs incurred prior to this Order include the amount of $38,471.44 for work performed by Ecology from June 1, 1991 through June 30, 1992.

The PLPs shall 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 description 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 of costs will result in interest charges.

D. Designated Project Coordinators.

The Project Coordinator for Ecology is:

Guy J. Gregory
Senior Hydrogeologist
Toxics Cleanup Program
Washington Department of Ecology
4601 N. Monroe, Suite 202
Spokane, WA 99205-1295

The PLPs shall designate one individual to act as a Project Coordinator for the PLPs, and shall inform Ecology of this individual's identity, telephone number and mailing address within fifteen (15) calendar days of receipt of this Order.

The Project Coordinator(s) shall be responsible for overseeing the implementation of this Order. To the maximum extent possible, communications between Ecology and the PLPs, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the Project Coordinator(s). Should Ecology or the PLPs change project coordinator(s), written notification shall be provided to Ecology and the PLPs at least ten (10) calendar days prior to the change.

E. Performance

All work performed pursuant to this Order shall be under the direction and supervision, as necessary, of a professional engineer or hydrogeologist, or similar expert, with appropriate training, experience and expertise in hazardous waste site investigation and cleanup. The PLPs shall notify Ecology as to the identity of such engineer(s) or hydrogeologist(s), and of any contractors and subcontractors to be used in carrying out the terms of this Order, in advance of their involvement at the Site. The PLPs shall provide a copy of this Order to all agents, contractors and subcontractors retained to perform work required by this Order and shall ensure that all work undertaken by such agents, contractors and subcontractors will be in compliance with this Order.

Except when necessary to abate an emergency situation, the PLPs shall not perform any remedial actions at Pasco Sanitary Landfill outside that required by this Order unless Ecology concurs, in writing, with such additional remedial actions.

F. Access

Ecology or any Ecology authorized representative shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, inter alia: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing the progress in carrying out the terms of this Order; conducting such tests or collecting samples as Ecology or the Project Coordinator may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by the PLPs. When entering the Site under Chapter 70.105D RCW, Ecology shall provide reasonable notice prior to entering the Site unless an emergency prevents notice. Ecology shall allow split or replicate samples to be taken by the PLPs during an inspection unless doing so would interfere with Ecology's sampling. The PLPs shall allow split or replicate samples to be taken by Ecology and shall provide Ecology seven (7) days notice before any sampling activity.

G. Public Participation

The PLPs shall prepare a public participation plan for the Site. Ecology shall maintain the responsibility for public participation at the Site. The PLPs shall help coordinate and implement public participation for the Site.

H. Retention of Records

The PLPs shall preserve in a readily retrievable fashion, during the pendency of this Order and for ten (10) years from the date of completion of the work performed pursuant to this Order, all records, reports, documents, and underlying data in its possession relevant to this Order. Should any portion of the work performed hereunder be undertaken through contractors or agents of the PLPs, a record retention requirement meeting the terms of this paragraph shall be required of such contractors and/or agents.

I. Dispute Resolution

The PLPs may request Ecology to resolve factual or technical disputes which may arise during the implementation of this Order. Such request shall be in writing and directed to the signatory, or his/her successor(s), of this Order. Ecology resolution of the dispute shall be binding and final. The PLPs are not relieved of any requirement of this Order during the pendency of the dispute and remains responsible for timely compliance with the terms of the Order unless otherwise provided by Ecology in writing.

J. Reservation of Rights

Ecology reserves all rights to issue additional orders or take any action authorized by law in the event or upon the discovery of a release or threatened release of hazardous substances not addressed by this Order, upon discovery of any factors not known at the time of issuance of this Order, in order to abate an emergency, or under any other circumstances deemed appropriate by Ecology.

Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances from the Pasco Sanitary Landfill.

In the event Ecology determines that conditions at the Site 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 PLPs to stop further implementation of this Order for such period of time as needed to abate the danger.

K. Transference of Property

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

Prior to transfer of any legal or equitable interest any PLP may have in the Site or any portions thereof, the PLP shall serve a copy of this Order upon any prospective purchaser, lessee, transferee, assignee, or other successor in such interest. At least thirty (30) days prior to finalization of any transfer, any PLP shall notify Ecology of the contemplated transfer.

L. Compliance With Other Applicable Laws

All actions carried out by the PLPs pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as specified in Subsection 1.

1. In the event that the PLPs would otherwise be required to obtain permits or approvals from local governments for any remedial actions to be conducted at the site, the PLPs shall be exempt from compliance with the procedural requirements of those permitting laws and shall likewise be exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW.

   The PLPs shall consult with state and local government agencies and shall obtain a written determination of the applicable substantive requirements of Chapters 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW and the substantive provisions of any laws requiring or authorizing local government permits or approvals for remedial actions. Ecology shall make the final determination on which substantive requirements must be met by the PLPs and how the PLPs will meet those requirements. The applicable substantive requirements, once established, shall be incorporated into an amendment to this Order and shall become enforceable requirements under this Order and the PLPs shall meet those requirements while conducting any remedial actions at the site.

   The public participation plan shall include an opportunity for public comment on the identified substantive requirements.

2. Pursuant to RCW 70.105D.090(2), in the event that Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in Subsection (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 PLPs shall be required to comply with both the procedural and substantive requirements of the laws referenced in subsection 1.

VI.

Satisfaction of this Order

The provisions of this Order shall be deemed satisfied upon the PLPs receipt of written notification from Ecology that the PLPs have completed the remedial activity required by this Order, as amended by any modifications, and that all other provisions of this Order have been complied with.

VII.

Enforcement

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

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

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

3. In the event the PLPs refuse, without sufficient cause, to comply with any term of this Order, each PLP will be liable for:

   a. up to three times the amount of any costs incurred by the state of Washington as a result of its refusal to comply; and

   b. civil penalties of up to $25,000 per day for each day it refuses to comply.

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

5. Each PLP named in this Order is individually responsible for compliance with the terms and conditions of this Order. Compliance with this Order by any PLP is not conditioned on the performance of any other PLP or group of PLPs. Similarly, the right of Ecology to enforce this Order against any PLP is not conditioned on the performance or enforcement against any PLP or group of PLPs.

Dated at Spokane, Washington, this 21st day of October, 1994.

Flora J. Goldstein
Section Manager
Toxics Cleanup Program
Eastern Regional Office

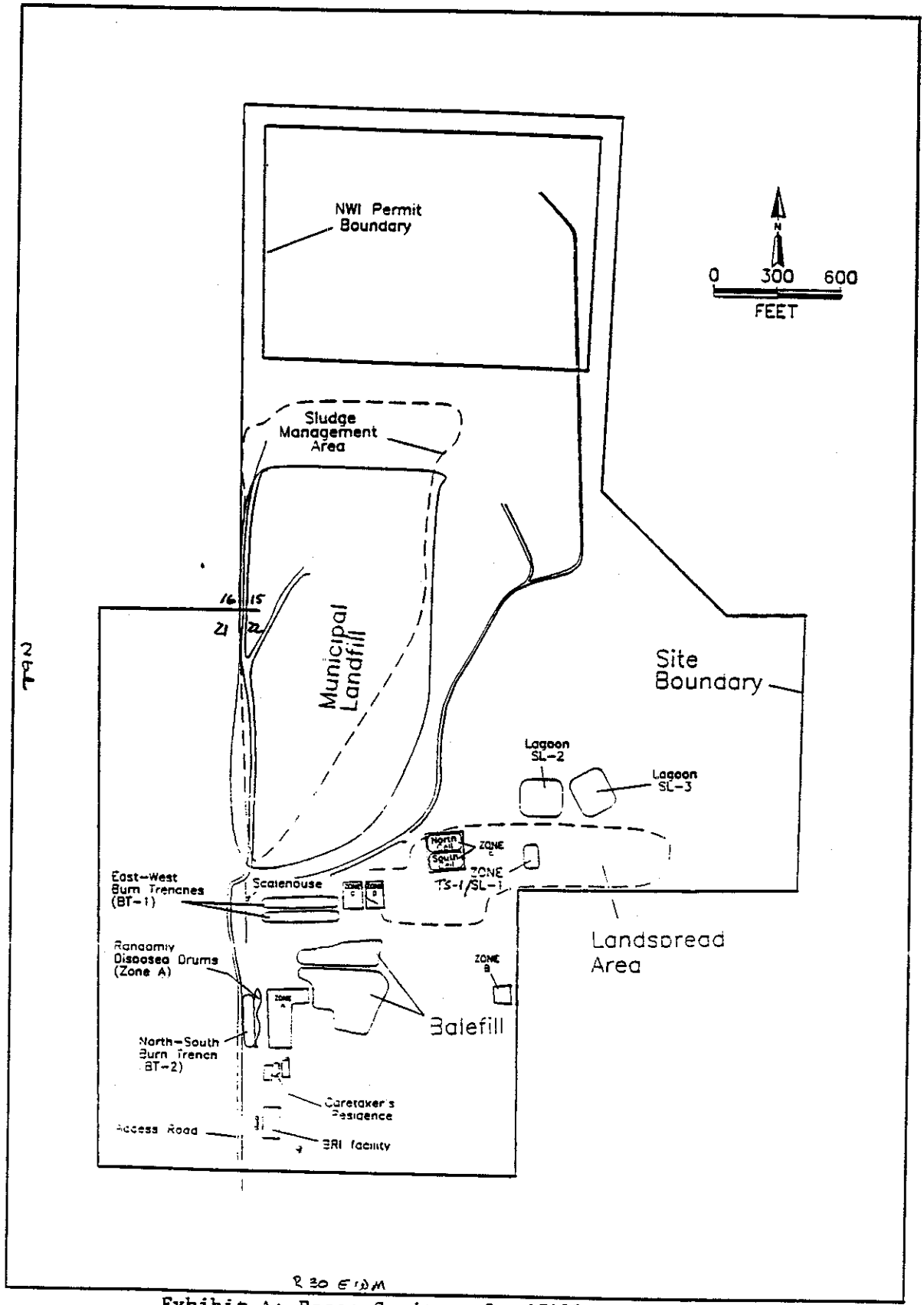

Exhibit A: Pasco Sanitary Landfill Site Diagram

Exhibit B

SCOPE OF WORK
PHASE II REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
PASCO SANITARY LANDFILL

This Scope of Work (SOW) is to be used by Potentially Liable Persons (PLPs) or their consultant(s) to develop Work Plans for Phase II of the Pasco Sanitary Landfill Remedial Investigation and Feasibility Study (RI/FS). The purposes of the Phase II RI/FS are: To supplement existing data to determine the nature and extent of contamination by hazardous substances [as defined by RCW 70.105D .010(20)] at the Pasco Sanitary Landfill Site; and, to evaluate alternatives and prepare for implementation of cleanup actions at the Pasco Sanitary Landfill Site. The PLPs shall furnish all personnel, materials, and services necessary for, or incidental to, performance of this work. This work shall be performed in compliance with the Schedule of Submittals, Exhibit C.

Task I: **Project Planning Documents**

A. Detailed Phase II RI Work Plan

The Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340-350, lists a comprehensive description of the contents of the required Work Plan. This Phase II RI/FS Work Plan must conform with the MTCA regulations, modified as appropriate to the site. The Phase II RI/FS Work Plan shall include the following:

1. Introduction

   A general explanation of the reasons for, goals, and expected results of the investigation.

2. Site Background and Physical Setting

   The current understanding of the physical setting of the site, the site history, and the existing information on the environmental condition of the site shall be described.

3. Initial Evaluation

   The conceptual site model, developed during the Phase I RI shall be presented, describing the potential migration and exposure pathways and the preliminary assessment of human health and environmental impacts from the site.

4. Work Plan Rationale

   Data requirements for both the risk assessment and the cleanup alternatives evaluation identified during the formulation of data quality objectives shall be documented, and the Work Plan approach shall be presented to illustrate how the activities will satisfy data needs.

5. Remedial Investigation/Feasibility Study Tasks

The tasks to be performed during the RI/FS shall be presented. The presentation shall incorporate RI Site characterization tasks, treatability study tasks, risk assessment tasks, long term ground water monitoring and water elevation measurements, and the FS. At a minimum, the tasks shall include the following field investigations:

a. Geophysical Studies

(1) Zone TS-1/SL-1, indicated on Exhibit A to the Order, shall be investigated for magnetic and/or electromagnetic response indicative of wastes remaining at these locations.

(2) The western margin of Zone A, indicated on Exhibit A to the Order, shall be investigated for magnetic and/or electromagnetic response indicative of wastes remaining at these locations beyond the margin of the study performed in the Phase I Remedial Investigation.

(3) An orientation survey using EM-34 or equivalent shall be conducted over Zones A,C, and D. The objective will be to determine the electromagnetic response of soils at depth indicative of a release. Should the orientation surveys indicate anomalous response, the survey shall be expanded to define the limits of those anomalies.

(4) Additional magnetic and/or electromagnetic surveys shall be conducted at proposed well and boring locations to ensure subsurface investigations avoid penetration of buried metallic objects.

b. Soil Investigation

(1) Zone B investigation

Sufficient soil borings will be constructed to evaluate the nature and extent of dioxin contamination found in samples from Phase I RI borings B-5 and B-6. The evaluation shall be conducted in accordance with Sections 2.3.8 and 2.3.9 of the Pasco Landfill Phase II Remedial Investigation and Feasibility Study Work Scope, September 1994, Burlington Environmental. Such evaluation will include determination of background for herbicides and dioxins/dibenzofurans and proposal of potential indicator parameters. Soil investigations and chemical analysis shall demonstrate volume and concentration of hazardous substances, and correlation of indicator and target compounds.

(2) Sufficient soil borings shall be completed to determine the nature and reasons for anomalous response in the surveys undertaken in Tasks I.A.5.a.(2) and II.A.5.a.(3) of this Scope of Work.

(3) All wells installed in Task I.A.5.c.(1) of this Scope of Work shall be sampled in accordance with the plan outlined in Section 2.3.11 of the Pasco Landfill Phase II Remedial Investigation and Feasibility Study Work Scope, September 1994, Burlington Environmental. This includes:

(a) Wells installed in Task I.A.5.c.(1)(a) and (b): Volatile Organic Compounds and Priority Pollutant Metals

(b) Wells installed in Task I.A.5.c.(1)(c) and (d): Herbicides

(c) Wells installed in Task I.A.5.c.(1)(e) and (f): Herbicides and Priority Pollutant Metals

(4) Sufficient samples shall be taken during boring or well installation to permit vadose zone transport modeling and geotechnical evaluations. These samples shall include grain size analysis, cation exchange capacity, moisture content, Atterburg Limits, total organic carbon, Modified Proctor, and Permeability.

c. Ground Water Investigation

(1) Ground Water Well Construction

At a minimum, the following wells shall be installed, in compliance with Ch. 173-160 WAC:

(a) One well, constructed to monitor the shallow ground water zone downgradient from MW-16S, near the western edge of the property, herein designated MW-23S;

(b) One well, constructed to monitor the shallow ground water zone downgradient from MW-5, herein designated MW-24S;

(c) One well, constructed to monitor the shallow ground water zone upgradient from Zone B, herein designated MW-25S;

(d) One well, constructed to monitor the shallow ground water zone downgradient from Zone B between EE-4 and EE-5, herein designated MW-26S;

(e) One well, constructed to monitor the shallow ground water zone downgradient from Zone E, herein designated MW-27S;

(f) One well, constructed to provide information regarding the quality of the shallow ground water zone upgradient from the facility; and

(g) Sufficient wells, constructed to provide information regarding the quality of the shallow and intermediate ground water zones downgradient from MW-10S. The number and location of wells may be determined by cone penetrometer or other screening analyses, and shall be adequate to define the downgradient extent of hazardous substances released from the facility and identify the physical boundaries of that release.

(2) Ground Water Chemical Investigations

(a) Ground water quality sampling shall begin upon completion of well construction. Ground water quality shall be determined at the locations and for the parameters specified in Task I.A.5.c.(2) of this Scope of Work every three (3) months thereafter.

(b) Ground Water Quality Sampling

Wells 4, 6, 8, 9, MW-15S, MW-16S, MW-17S, MW-22S, MW-23S, MW-24S, NW-5 shall be sampled and analyzed for the following:

i. WAC 173-351-990, Appendix I and II
ii. Nitrite
iii. Chemical Oxygen Demand
iv. Turbidity

(c) Wells 1, 2, 3, 5, EE-2, EE-3, EE-4, EE-5, EE-6, EE-7, EE-8, MW-10S, MW-11S, MW-12S, MW-13S, MW-14S, MW-18S, MW-19S, MW-20S, MW-25S, MW-26S, MW-27S, MW-28S, MW-12I, Wells installed per Task I.A.5.c.(1) above, and upgradient well shall be sampled and analyzed for the following:

i. WAC 173-351-990, Appendix I and II
ii. Nitrite
iii. Chemical Oxygen Demand
iv. Turbidity
v. Herbicides (USEPA Method 8150)
vi. Semivolatile Organic Compounds (USEPA Method 8270)

(d) Wells MW-17I, MW-17D, MW-21I, MW-21D shall be sampled and analyzed for the following:

i. WAC 173-351-990, Appendix II
ii. Chemical Oxygen Demand
iii. Nitrate
iv. Nitrite
v. Turbidity

(3) Duration

Sampling in Task I.A.5.c.(2) shall be performed every three months. Following the fourth quarter of sampling, the PLPs may request reductions in the wells and/or analytes for purposes of establishing ongoing quarterly monitoring of the facility. Ecology will evaluate the request based upon site needs. Quarterly monitoring shall continue until the implementation of a cleanup action.

(4) All metals analyses in Task I.A.5.c.(2) shall be performed on unfiltered samples, unless the conditions of WAC 173-340-720(8) can be demonstrated.

(5) Ground Water Physical Investigations

(a) Temporal variations in ground water flow patterns and velocity shall be determined through installation of electronic water level recording device(s) in at least three shallow monitoring wells. The water level data shall be recorded at a frequency of no less than one measurement per 4 hours for a period of one year.

(6) Landfill Gas Sampling and Analysis

Landfill Gas Sampling and analysis shall be conducted in the manner outlined in Section 2.3.5 of Pasco Landfill Phase II Remedial Investigation and Feasibility Study Work Scope, September 1994, Burlington Environmental.

(7) Surveying

All new wells, borings, manometers, and sample locations will be surveyed and incorporated into the existing project database.

B. Sampling and Analysis Plan

The PLPs shall prepare a Sampling and Analysis Plan (SAP) for use during all Facility characterization studies. The Sampling and Analysis Plan shall be prepared in accordance with the Model Toxics Control Act (MTCA) Ch.70.105D RCW, the MTCA Cleanup Regulation, Ch. 173-340 WAC, and appropriate federal guidance.

The SAP consists of three parts:

1. A Quality Assurance Project Plan, describing the policy, organization, functional activities and quality assurance and quality control protocols necessary for the intended use of the data;

2. A Field Sampling Plan, providing guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on the project; and,

3. An Investigative Waste Management Plan, addressing handling, storage, and disposal of waste materials generated as a result of investigation activities.

C. Health and Safety plan:

A Health and Safety Plan shall be prepared to address the Phase II RI/FS activities. The plan shall meet or exceed the hazardous waste operations and emergency response requirements of Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.) as well as requirements of the Washington Industrial Safety and Health Act (Chapter 49.17 RCW) and the regulations promulgated thereto.

D. Data Management Plan

A Data Management Plan shall be prepared to ensure quality assured data is available for review, tabulation, and analysis. The plan will ensure data submitted is consistent with the requirements of the Order and of adequate technical quality to support the Risk Assessment and development and evaluation of the cleanup measure alternative(s) during the Feasibility Study.

E. Identification of Substantive Requirements

The PLPs shall consult with state and local government agencies and shall obtain a written determination of the applicable substantive requirements of chapters 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW and the substantive provisions of any laws requiring or authorizing local government permits or approvals for remedial actions.

F. Public Participation Plan

A Public Participation Plan shall be prepared to address Phase II activities. It will be consistent with the requirements of WAC 173-340-600, and include:

1. Applicable public notice requirements;

2. Location of information repositories;

3. Methods of identifying public concerns;

4. Methods of addressing public concerns;

5. Coordination of public participation requirements of the applicable statutes;

6. Opportunity to comment on identified substantive requirements of applicable statutes.

Task II. **Pre-Investigation Evaluation of Cleanup Action Alternatives**

Prior to starting the Facility Remedial Investigation, the PLPs shall submit to Ecology a report that identifies potential cleanup action technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the Remedial Investigation to facilitate the evaluation and selection of the final Cleanup measure or measures. The report shall be submitted in compliance with the Schedule of Submittals, Exhibit C.

Task III. **Field Investigation**

Conduct investigations necessary to characterize the Site, define the source(s), define the degree and extent of contamination, and identify actual or potential receptors. The investigations shall result in data consistent with the Quality Assurance Project Plan and of adequate technical quality to support the Risk Assessment and development and evaluation of the cleanup measure alternative(s) during the Feasibility Study.

The Field Investigation activities shall follow the Work Plan developed in Task I. All sampling and analysis shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations and procedures shall be documented in a log and identified on a detailed Site Map.

Task IV. **Waste Characterization and Treatability Studies**

A. Soil Vapor Extraction Treatability Study

An evaluation of the ability of soil vapor extraction to substantially reduce threats to human health and the environment shall be performed, in accordance with Section 2.3.2 of Pasco Landfill Phase II Remedial Investigation and Feasibility Study Work Scope, September 1994, Burlington Environmental. The PLPs shall report on the results of this study in compliance with Exhibit C, the Schedule of Submittals, in a Draft Soil Vapor Extraction Treatability Test Technical Memo. The Draft and Final Technical Memo will include analysis and recommendations for implementation of Soil Vapor Extraction as an interim remedial action.

B. Bulk Waste Characterization Studies

Samples of waste contained in Zones C, D, and E shall be collected, and submitted for waste profiling analysis to determine applicable or relevant and appropriate requirements. Existing cover systems will be described, evaluated, and repaired following sample extraction. Data will be incorporated into the remedial investigation report.

C. Drummed Waste Characterization Studies

The objectives of the Drummed Waste Characterization Study shall be to determine:

- the nature, integrity, and composition of the cover;
- vapor phase chemical composition;
- physical condition of containers through direct observation;
- chemical composition and physical state of containerized wastes, where feasible.

Data gathered will be incorporated into the remedial investigation report.

1. Test pits shall be excavated in the existing cover system over containerized wastes in Zones A and B. At least 4 pits will be placed in Zone A; at least 2 pits will be placed in Zone B. Each pit shall expose an minimum area of 100 square feet. At a minimum, the following observations will be made:

   a. Cover system

      (1) Thickness
      (2) Composition
      (3) Integrity

   b. Wastes

      (1) Each exposed drumhead will be physically examined for condition, labels, and other relevant information.

      (2) Each drumhead will be photographed.

      (3) Galvanic activity will be measured.

      (4) Each drum which can be safely sampled will be hazard characterized using field screening techniques.

   c. Chemical Characterization

      Soils and vapors will be characterized using appropriate instrumentation for chemical groups. Selected samples of soils beneath the cover and vapors among the drums will be submitted for volatile organic analysis.

2. Test pits will be backfilled and the cover repaired following investigation.

D. Solid Waste Landfill Closure Plan

A closure plan, consistent with applicable regulation WAC 173-351, will be prepared for the municipal solid waste landfill. The objectives of the cover system will be consistent with the presumptive remedy (USEPA OSWER 9203.1-021) for municipal landfill sites as follows:

1. Preventing direct contact with landfill contents;

2. Minimizing infiltration and resulting contaminant leaching to ground water;

3. Minimizing erosion;

4. Controlling runoff;

5. Controlling and treating landfill gas.

The Plan shall be submitted in compliance with Exhibit C, the Schedule of Submittals. Copies of Draft and Final Plans will be provided to the Benton-Franklin Health District.

E. Laboratory and Bench Scale Studies

The PLP shall conduct laboratory and/or bench scale studies to determine the applicability of a Cleanup Action technology or technologies to the Facility conditions as appropriate. This shall include: development of a testing plan identifying the type(s) and goal(s) of the study(ies), the procedures to be used for data management and interpretation, evaluation of the test results with respect to site specific conditions, and preparation of a report summarizing the testing program and its results. Such testing plans shall be submitted for Ecology approval as appropriate.

Task V: **Remedial Investigation Reports**

Following and incorporating the fourth quarter ground water quality sampling round, the PLPs shall prepare a Remedial Investigation Report that presents an analysis and summary of all Task II facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality and quantity to describe the nature and extent of contamination, threats and potential threats to human health and the environment and to support a Feasibility Study. The report shall be submitted in compliance with the Schedule of Submittals, Exhibit C.

A. Data Analysis

1. The PLP shall analyze all facility investigation data outlined in Task II and prepare a report on the type and extent of contamination at the facility including sources and migration pathways.

2. Identify data gaps to completely define contamination in all media.

B. Appendices to the report containing full documentation of investigative activities and analytical results. These appendices shall include:

1. General field observations, including:

   (a) Ground water characterization, including flow (maps);
   (b) Location of nearby wells and well log information;
   (c) Soil conditions;
   (d) Surface water characterization; and
   (e) Well driller logs and observations.

2. Changes in sample collections from sample plan, including:

   (a) Opportunity samples; and
   (b) Other changes.

3. Sample location map, including:

   (a) Approximate distances;
   (b) Sample media; and
   (c) Sample numbers.

4. Table of results;

5. Maps identifying:

   (a) geophysical results;
   (b) contaminant concentrations, including field sampling results;

6. Discussion of results, including:

   (a) Nature of the contamination;

   (b) Extent of the contamination, including volume of material needing remediation;

   (c) The pathways by which contamination reached or can reach the media; and

   (d) Known or potential hazards and risks to the public health, welfare, and the environment, including physical hazards.

7. Quality assurance, data validation, which includes detailed evaluation of data according to approved QA/QC plan;

8. Full data package as appendix including QA/QC information and field logs with date, time and activity information;

9. Analysis of data in relation to possible cleanup action alternatives and recommendations of cleanup action alternatives to be investigated; and

10. Recommendations for further study, if necessary.

Task VI. **Risk Assessment/Cleanup Levels Analysis**

The PLPs shall prepare a Risk Assessment Report for known or potential hazards and risks to public health and the environment, including physical hazards. The Risk Assessment shall include:
The report shall be submitted in compliance with the Schedule of Submittals, Exhibit C.

A. Hazardous substance identification;

B. Exposure assessment;

C. Toxicity assessment; and

D. Risk characterization, to include discussion of applicable state, federal, and local standards.

E. Identification of Cleanup Levels for all hazardous substances in all media per the Model Toxics Control Act Cleanup Regulation.

Task VII. **Feasibility Study**

The PLPs will conduct a Feasibility Study and will prepare a Feasibility Study Report. The PLPs sahll furnish all personnel, materials, and services necessary for, or incidental to, performing the Feasibility Study for the facility. The report shall be submitted in compliance with the Schedule of Submittals, Exhibit C.

The Feasibility Study will serve to evaluate the feasibility and effectiveness of implementing alternative cleanup actions (as required by WAC 173-340-360). It shall include:

A. Detailed identification of contamination to be remediated and physical hazards to be removed;

B. Identification of remedial alternatives that will:

1. Protect public health, welfare, safety and the environment;

2. Reduce the toxicity, mobility, and volume through treatment;

3. Eliminate or remove all physical hazards;

4. Meet all federal and state laws and rules designated to be applicable or relevant and appropriate by Ecology; and

5. Provide a permanent remedial action for the site.

C. Identification of additional sampling and/or laboratory testing necessary to evaluate remedial alternatives;

D. An evaluation of alternatives based on cost, technical feasibility, environmental effects, and effectiveness in accomplishing the five requirements specified in Task VII.B.1. through 5., above;

FILE COPY

Exhibit C
Schedule of Submittals

Draft Remedial Investigation and Feasibility Study Work Plan and Draft Pre-Investigation Evaluation of Cleanup Action Alternatives Documents:

January 13, 1995

Final Remedial Investigation and Feasibility Work Plan and Final Pre-investigation Evaluation of Cleanup Action Alternatives Documents:

Thirty (30) days following receipt of Ecology comments on Draft.

Draft Soil Vapor Extraction Treatability Test Technical Memo:

Ninety (90) days following Final Work Plan acceptance.

Final Soil Vapor Extraction Treatability Test Technical Memo:

Thirty (30) days following receipt of Ecology comments on Draft.

Draft Municipal Landfill Closure Plan:

Six (6) months following Final Work Plan acceptance.

Final Municipal Landfill Closure Plan:

Forty-five (45) days following receipt of Ecology and Benton-Franklin Health District comments on Draft.

Draft Remedial Investigation Report and Risk Assessment:

Twenty (20) months following Final Work Plan acceptance.

Final Remedial Investigation Report and Risk Assessment:

Thirty (30) days following receipt of Ecology comments on Draft RI.

Draft Feasibility Study:

Sixty (60) days following RI final acceptance.

Final Feasibility Study:

Thirty (30) days following receipt of Ecology comments on Draft Feasibility Study.

Post-Remedial Investigation Quarterly Ground Water Monitoring Reports:

Beginning 180 days following commencement of 4th quarter sampling, every ninety (90) days thereafter.

Progress Reports:

Commencing February 10, 1995, and continuing monthly thereafter.

PAS SIT 8.4

1st Pasco LF
Amendment
FSN 575

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action at:	)	Enforcement Order
	)	
	)	
Pasco Sanitary Landfill	)	No DE 94TC-E103
Pasco, Washington	)	First Amendment

To:
Advance Electroplating
Basin Disposal Company
Boeing Company
Philip Environmental Inc.
Burlington Environmental, Inc.
Chemical Processors, Inc.
Resource Recovery, Inc
Burlington Northern, Inc.
Carr Aviation
Collier Carbon and Chemical
Chempro of Oregon
Crown Cork and Seal Company, Inc.
E.I. du Pont de Nemours and Co , Inc.
Freightliner Corporation, a Subsidiary of
Daimler-Benz of North America
Holding Company
Glidden Corporation,
a Subsidiary of ICI Americas, Inc
ICI Canada, Inc.
Intalco Aluminum Corporation
John and Marjorie Dietrich
James River Paper Company, Inc.
Kalama Chemical Company
Leonard and Glenda Dietrich
Minnesota Mining and Manufacturing
Company
Morton Chemical Company
Pasco Sanitary Landfill, Inc.
Franklin Land Recovery, Inc
Puget Sound Naval Shipyards
The O'Brien Corporation
Oregon Cutting Systems Division of Blount,
Inc.
PACCAR, Inc.
Precision Castparts Corporation
Piute Energy and Transportation Company
PPG Industries
Rhone-Poulenc Company
Sandvik Special Metals
Simpson Timber Company
UARCO Incorporated
United States Air Force
United States Department of Agriculture,
Forest Service
United States Department of Interior,
Bureau of Reclamation
Weyerhaeuser Corporation
Wood Treatment Chemical Company

Collectively referred to herein as the Potentially Liable Persons ("PLPs"):

I
Jurisdiction

This Order is issued pursuant to the authority of RCW 70 105D 050(1)

Section II., Statement of Facts, Paragraph C., is revised to include:

5. During the course of the Phase II Remedial Investigation Work, it was determined that released hazardous substances had migrated off of the Pasco Sanitary Landfill property in ground water. Subsequent monitoring well installation and sampling indicated privately owned water supply wells downgradient from the landfill were at risk from contamination by Volatile Organic Compounds (VOCs). Ecology sampling of privately owned water supply wells confirmed impacts of VOCs to these wells. One well contained concentrations of Trichloroethane slightly in excess of the federal maximum contaminant level.

6. Upon receipt of this information and with Ecology approval, a Group of PLPs implemented a remedial measure and provided alternative drinking water for those homes whose water was sampled. Establishment of a permanent supply of drinking water to affected homes is desirable.

7 The PLPs are working with Ecology in identifying and implementing appropriate interim measures for the site.

8 Because of the need to evaluate the full extent of ground water contamination, and time necessary to evaluate temporal variation in location and concentration of that contamination , the Risk Assessment must be delayed, and a Supplemental Remedial Investigation is necessary to fully characterize the site

Section IV, Work to Be Performed, is revised to include:

Paragraph G. 7 All relevant data regarding performance of Interim Remedial Measures.

I Within 15 days of the effective date of this Amendment, the PLPs shall submit a Final Design for Interim Remedial Measures to be taken to abate the release of hazardous substances to ground water at the site. The Interim Remedial Measures to be taken shall consist of those proposed in the Interim Remedial Measures Preliminary Design, dated December 3, 1996, and those described in Appendix A-2, the Addendum to the Interim Remedial Measures Preliminary Design, which are both attached to this First Amendment to Enforcement Order No. DE94TC-E103 as Attachment A of this Amendment. The Interim Remedial Measures Preliminary Design, Attachment A, is by this reference incorporated into this First Amendment, and shall thereafter become an integral and enforceable part of this Order.

Exhibit B, Task V, is revised to include:

C. A Draft Remedial Investigation Report Supplement shall be prepared to include all data gathered subsequent to that in the Remedial Investigation Report. It shall include a complete analysis of ground water data, and include all design, construction, and performance data relevant to Interim Remedial Measures.

Exhibit C, Schedule of Submittals, is revised to read:

The Risk Assessment is removed from association with the Draft Remedial Investigation Report, and will now be associated with the Draft Remedial Investigation Supplement

Draft Remedial Investigation Supplement and Risk Assessment, including Interim Remedial Measures Installation and Startup Completion Report: July 8, 1997

Draft Feasibility Study: 90 days following final acceptance of the Draft Remedial Investigation Supplement and Risk Assessment.

No other condition or requirement of this Order is affected by this First Amendment

Dated this 13th day of December, 1996, at Spokane, Washington

Flora J. Goldstein

Flora J Goldstein
Section Supervisor
Toxics Cleanup Program
Eastern Regional Office
Washington Department of Ecology