B&L Woodwaste

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MAITER OF THE B & L WOODWASTE SITE MILION, WASHINGTON	)))	ENFORCEMENT ORDER No. 92TC-S214

To: ASARCO Incorporated
Mr. Thomas L. Aldrich, Site Manager
P O. Box 1677
Tacoma, WA 98401-1677

Murray Pacific Corporation
Mr. Lowell T. Murray
3502 Lincoln Avenue East
Tacoma, WA 98421-4399

Executive Bark, Incorporated
c/o Mrs. Camille Fjetland
1621 Marine View Drive
Tacoma, WA 98422-4198

EXHIBITS:

A. Final Cleanup Action Plan (CAP) of October 1991.

B. Ecology Order No. DE 91IC-S267.

C Legal Description

I.

Jurisdiction

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

II.

Statement of Facts

1. The B & L Woodwaste Site ("the Site") is located near Milton, Washington. The location and boundaries of the Site are depicted in Exhibits

A and C to this Order Exhibit A (Final Cleanup Action Plan, B & L Woodwaste Site, Milton, Washington, October 1991), and Exhibit C, the Site legal description as asserted by ASARCO Incorporated, are hereby incorporated into this Order and are an integral and enforceable part of this Order.

2. The Site is owned by Executive Bark, Inc. The Site has been used as a fill site for log sort yard woodwaste containing copper smelter slag ("slag") from the ASARCO, Incorporated ("ASARCO") Tacoma smelter. The Site is bordered by 77th Avenue East and the Puget Power right of way in Milton, Washington.

3. The Site, which is 18.5 acres in size, is located in the Puyallup River/Hylebos Creek Floodplain in a mixed residential and agricultural area. The Site is bounded to the north by the Puget Power access road, to the northeast by property owned by Earl Hazen, to the east by Fife Way, to the south by an apartment complex and agricultural fields, and to the west by agricultural fields. The legal description, as asserted by ASARCO Incorporated, is set forth in Exhibit C. A system of ditches along the Site boundary collects leachate and runoff from the fill and discharges it to Surprise Lake Ditch, which drains to Hylebos Creek. Two City of Milton municipal water wells, with approximately 500 gallons/minute pumping capacities each (#3 and #4), are located approximately 750 feet and 900 feet northeast of the Site.

4. Most of the waste at the Site came from log sort yards which used slag as ballast to support the weight of heavy log sorting machinery. In addition to the log sort yard deck debris, the landfill also received shredded car debris from General Metals of Tacoma. Volumetric calculations based on trucking invoices during the period of 1975 to 1984 suggest approximately 97

to 98 percent of the material at the B & L Landfill is deck debris, and 2 to 3 percent is shredded car debris. An undetermined quantity of soil/fill was also disposed on-site during the fall of 1989 and the winter of 1990. The Washington State Department of Ecology ("Ecology") has no evidence thus far to indicate the shredded car debris or recent fill are sources of contamination. Volumetric calculations suggest at present the landfill currently contains approximately 350,000 cubic yards of deck debris, soil, and other wastes.

5. It is known that the slag contains several metals. One sample of the slag contained approximately 9,000 mg/kg of arsenic, 5,000 mg/kg each of lead and copper, and 18,000 mg/kg of zinc.

6. Two of four soil/fill samples taken by Ecology inspectors in 1985 showed EP toxicity results for arsenic which exceeded the five parts-per-million dangerous waste threshold per WAC 173-303-090(8)(c).

7. In 1982, the Commencement Bay Nearshore/Tideflats was added to the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The NPL Site includes the Hylebos Waterway and sites, including B & L Landfill, which are believed to contribute contamination to the Waterway. The Record of Decision for the Commencement Bay Nearshore/Tideflats Superfund Site lists the B & L Woodwaste Site as a source of arsenic, copper, and lead to the Head of Hylebos Waterway problem sediment area.

8. Ecology issued a report on January 25, 1985, characterizing Hylebos Creek metals concentration in water, sediment, and fish tissue samples. The January 25, 1985, report states that arsenic concentration of

B & L leachate was 26.9 mg/l. Leachate from the Site caused a 43 percent mortality rate with juvenile coho salmon exposed to water composed of 50 percent leachate.

9. The United States Environmental Protection Agency (US EPA) Field Investigations Team conducted a study of the Site in 1987 and found arsenic concentrations in soil up to 795 mg/kg, filtered ground water concentrations up to 17.6 mg/l, and unfiltered ground water samples up to 38.0 mg/l.

10. On April 27, 1987, Ecology issued an Enforcement Order to Mr. William Fjetland, former Site owner and fill hauler (now deceased), requiring him to remediate the Site. After reviewing Mr. Fjetland's records, it was discovered that a number of other potentially liable persons (PLPs) existed regarding the Site. Mr. Fjetland appealed the Order before the Pollution Control Hearings Board.

11. Due to the discovery of the additional PLPs, on January 27, 1988, the Fjetland Order Number DE 87-16A was canceled by Ecology.

12. On February 16, 1988, Golder Associates, working by contract for Ecology, prepared a document entitled "Work Plan for Expedited Response Action - B & L Landfill, Milton, Washington."

13. On March 1, 1989, Ecology and Murray Pacific Corporation entered into Consent Decree No. 89-2-00319-3, pursuant to Chapters 70.105B and 90.48 RCW. The Consent Decree required Murray Pacific Corporation to complete a Remedial Investigation (RI) and Feasibility Study (FS) for the Site.

14. The Site RI has demonstrated the following hazardous substances are being released from the Site:

arsenic	nickel
copper	phenol
lead	antimony
chromium	zinc
benzoic acid	

15. The RI also revealed the following information:

a. Arsenic concentrations greater than the 5 mg/l dangerous waste limit per WAC 173-303-090(8)(c) were measured in site leachate, and in a gelatinous material floating in the ditches.

b. Arsenic concentrations up to 20,000 ppm total arsenic were measured in ditch sediments downstream of the Site. This material would also designate as a dangerous waste per WAC 173-303-090(8)(c).

c. Samples of the fill material from the Site and slag have been tested using the Extraction Procedure (EP) Toxicity and Toxicity Characteristic Leaching Procedure (TCLP) tests. Two of four fill samples leached arsenic at greater than 5.0 mg/l concentrations in an EP Toxicity Test, and thus designate as a dangerous waste, four of eleven slag samples leached either arsenic or lead concentrations at or above 5.0 mg/l, the EP Toxicity and/or TCLP limit for dangerous waste designation of arsenic or lead per WAC 173-303-090(8)(c) Depending on the individual sample, these materials can designate as both federal hazardous waste and state dangerous waste, based on toxicity characteristics

16. Ecology has notified the following persons of their proposed status as Potentially Liable Persons (PLPs) in letters dated July 26, 1990:

ASARCO Incorporated
Mr. William Fjetland
Murray Pacific Corporation
Louisiana Pacific Corporation
Cascade Timber, Incorporated
Wasser Winters, Incorporated

17. Ecology has informed the above six PLPs (except Camille Fjetland, rather than William Fjetland, has been notified) of their status as having been determined to be a PLP in letters dated December 5, 1991.

18. In a letter dated December 6, 1991, Mrs. Camille Fjetland's PLP status was transferred to Executive Bark, Inc., the current site owner.

19. On December 6, 1991, Ecology issued Enforcement Order No. DE 91TC-S267 (Exhibit B) to ASARCO Incorporated; Murray Pacific Corporation and Executive Bark, Incorporated. This Order required the following work to be performed:

1. Preliminary capping system design.
2. Natural background soil contaminant concentration determination plan (optional).
3. Engineering Design Report, including final plans and specifications.

Item 2., above, was never submitted. Items 1. and 3., above, were submitted to, and accepted by, Ecology by May 28, 1992. Exhibit B is hereby incorporated into this Order and is an integral and enforceable part of this Order.

20. The following PLPs have, in a separate civil court decision in U.S District Court [Louisiana Pacific Corporation v. ASARCO, No. C88-217TB

(U.S. District Court, W.D. Wash.)], been assigned among them 100 percent of the liability for cleanup actions at the Site (the court decision is currently on appeal):

ASARCO Incorporated
Murray Pacific Corporation
Mr. William Fjetland
Eagle Trucking Company

Mr. Fjetland is deceased. Eagle Trucking Company no longer exists as that corporation was dissolved in September 1990.

Ecology is not a party to this federal action. On appeal, the U.S. District Court's allocation of liability among parties to the case may be modified in some way. Any such result will in no way affect any of the Respondents' obligations under this Order.

21. The following parties are hereafter referred to as "the Respondents:"

ASARCO Incorporated
Murray Pacific Corporation
Executive Bark, Inc.

III.

Ecology Determinations

1. Executive Bark, Inc., is an "owner or operator," and ASARCO Incorporated, Murray Pacific Corp., Louisiana Pacific Corp., Cascade Timber, Inc., and Wasser Winters, Inc. are each a transporter/generator/manufacturer as defined at RCW 70.105D.020(6) of a "facility" as defined in RCW 70.105D.020(3).

2. The facility is known as B & L Woodwaste Site and is located between Fife Way and the Puget Power access road, approximately 400 yards south of their intersection in Milton, Washington.

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

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

5. By letters dated July 26, 1990, Ecology notified the PLPs listed in Statement of Facts, Item 16 above, of their proposed status as "potentially liable persons" under RCW 70.105D.040, which provided notice and opportunity for comment.

6. 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.

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

8. Cleanup of the B & L Woodwaste Site, as described herein, does not relieve the PLPs of liability with respect to the cleanup of the Hylebos Waterway Superfund sediment cleanup, or with respect to any natural resource damages.

IV.

Work to be Performed

Based on the foregoing facts and determinations, it is hereby Ordered that the Respondents take the following remedial actions:

The Respondents shall carry out the provisions of the Workplan in a manner and time frame as described herein. The term "Workplan" is defined to consist of:

a. This Section (Work to be Performed),

b. The Cleanup Action Plan (Exhibit A, enclosed), and

c. Order No. DE 91TC-S267 (Exhibit B, enclosed).

The Respondents shall implement the tasks detailed in the Workplan in accordance therewith and within the due dates specified, including, but not limited to, the following deliverables:

Phase 1 - Selection of Contractor	Deliverable Due Date
	General contractor shall be selected within two (2) weeks of Order issuance date.

Respondents shall select a general contractor for performance of all ensuing phases of this Order and shall notify Ecology of its selection.

Work Plan Deliverables:

Phase 2 - Construction of Remedial Action System.	Deliverable Due Date:
A. Containment and Consolidation of Materials.	Begin work by July 13, 1992, or immediately upon receipt of necessary permits, whichever is later. Target completion date: November 1, 1992.

B.	Installation of Cover System and all Other Remaining Construction	Begin construction as early as possible as weather conditions permi i.e., in Fall 199? Spring 1993. Tar completion date: Nov r 1, 1992.

If, following completion of Phase 2A (Containment and Consolidation of Materials), Ecology determines construction cannot be completed in 1992, then Ecology may defer the completion date for Phase 2B (Installation of Cover System and All Remaining Construction) until the 1993 construction season. A six-inch layer of pitrun gravel will be installed to cover the consolidated materials if Ecology defers the construction of Phase 2B. In the event construction is deferred by Ecology, then Phase 2B will begin as soon as weather permits in 1993, and the target completion date will be no later than July 1, 1993.

All Phase 2 construction shall be performed in conformance with, and shall execute all applicable requirements of, the Ecology-approved Engineering Design Report (a deliverable of Order No. DE 91TC-S267, Exhibit B), including all Ecology accepted deliverables pursuant to Exhibit B.

All aspects of construction shall be performed under the supervision of a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington. During construction, detailed records shall be kept of all aspects of the work performed, including construction techniques and materials used, items installed, and tests and measurements performed.

Photographic documentation of all major and critical construction phases shall be performed by the Respondents. An extra copy of the photos shall be submitted to Ecology along with the project record drawings.

During construction of the landfill cap segment of the remedial action, Hydrometrics will orally make semi-weekly reports to the Ecology project manager or his/her on-site supervisor regarding progress. Any significant problems, deviation from plans or emergency conditions will be reported to Ecology immediately.

The Respondents shall propose and execute an Ecology-approved plan to ensure a safe drinking water supply to the Hazen residence adjacent to the Site.

Phase 3 - Operation and Maintenance of Remedial Action System.

Deliverable Due Date: Upon completion of cleanup action construction.

Operation and maintenance of remedial action system shall be in conformance with, and shall execute the applicable requirements of, the Ecology-approved Engineering Design Report

Phase 4 - Confirmational Monitoring.

Deliverable Due Date: Upon completion of cleanup action construction.

This task is to be performed in conformance with the Compliance Monitoring Plan (a part of the Ecology-approved Engineering Design Report) and shall include regular progress reports.

Phase 5 - Project Record Drawings Deliverable

Due Date:
Two months after completion of construction.

At the completion of construction, the engineer responsible for the supervision of construction shall prepare project record drawings and a report documenting all aspects of facility construction.

The report shall also contain an opinion from the project manager and the engineer, based on testing results and inspections, as to whether the cleanup action has been constructed in substantial compliance with the plans and specifications and related documents.

Phase 6 - Contingency Plan.

Deliverable Due Date:
Two months after Order issuance.

Submit to Ecology a proposed methodology for determining if or when additions or modifications to the cleanup action are needed, based on visual observations and compliance monitoring results.

Phase 7 - Restrictive Covenant

Deliverable Due Date:
The "Restrictive Covenant" shall be recorded in the Site property deed within two months of the effective date of this order.

The "Restrictive Covenant" shall be as follows:

DECLARATION OF RESTRICTIVE COVENANT

The property that is the subject of this Restrictive Covenant is the subject of remedial action under Chapter 70.105D RCW. The work done to clean up the property (hereafter the "Cleanup Action") is described In the Matter of B & L Woodwaste Site, Washington State Department of Ecology Order No. 92TC-

S214, and in attachments to the Order and in documents referenced in the Order. This Restrictive Covenant is required by WAC 173-340-440 (1991 ed.) because the Cleanup Action on the Site will result in residual concentrations of arsenic and lead which exceed Ecology's Method A and B cleanup levels for soil established under WAC 173-340-740.

Ms. Camille Fjetland is the fee owner of real property known as the B & L Woodwaste Site in the county of Pierce, state of Washington (legal description attached in Exhibit A), hereafter referred to as the "Site."

As a result of the Cleanup Action, the Site will include a pile of woodwaste, soil, slag and other materials which will be covered by a multi-layer impermeable cap system. The Site will also include a perimeter fence with locked gate for restriction of public access, a series of drainage ditches surrounding the cap, a stormwater retention basin, a system of monitoring wells, and a methane gas handling system.

Ms. Camille Fjetland makes the following declaration as to limitations, restrictions, and uses to which the Site 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 all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Site.

Section 1. Any activity on the Site that may interfere with or reduce the effectiveness of the Cleanup Action or any operation, maintenance, monitoring, or other activity required by the Order (or any Ecology-approved modification or amendment to the Order) is prohibited. Any activity on the Site that may result in the release of a hazardous substance that was contained as a part of the Cleanup Action is prohibited. Some examples of

prohibited activities include, for the fenced portion of the Site: drilling; digging; movement or placement of any objects which deform or stress the ground surface; piercing the surface with a rod, spike, etc.; damaging or plugging a well or gas vent; bulldozing; earthwork; deposition of waste or other materials. The Ecology project coordinator must be informed in writing two weeks prior to any Site activity not performed pursuant to Order No. DE 92TC-S214.

Section 2. The owner of the Site must give written notice to the Department of Ecology, or to a successor agency, of the owner's intent to convey any interest in the Site. No conveyance of title, easement, lease or other interest in the Site shall be consummated by the owner without adequate and complete provision for the continued operation, maintenance and monitoring of the Cleanup Action.

Section 3. The owner must notify and obtain approval from the Department of Ecology, or from a successor agency, prior to any use of the Site that may be inconsistent with the terms of this Restrictive Covenant. The Department of Ecology, or its successor agency, may approve such a use only after public notice and comments.

Section 4. The owner shall allow authorized representatives of the Department of Ecology, or of a successor agency, the right to enter the Site at reasonable times for the purpose of evaluating compliance with the Cleanup Action Plan and the Order, to take samples, to inspect Cleanup Actions conducted at the Site, and to inspect records that are related to the Cleanup Action.

Section 5. The owner of the Site and owner's assigns and successors in interest reserve the right under WAC 173-340-730 and WAC 173-340-440 (1991

ed.) to record an instrument which provides that this Restrictive Covenant shall no longer limit the use of the Site or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology or of a successor agency. The Department of Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment.

V.

Terms and Conditions of Order

1. Definitions

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

2. 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.

3. Remedial Action Costs

The Respondents shall pay to Ecology the amount of $69,116.10 for oversight performed through April 30, 1992. This amount shall be due to Ecology within 90 days of receipt of this Order. The Respondents shall also pay to Ecology the costs incurred by Ecology pursuant to this Order. These costs shall include work performed by Ecology or its contractors for

investigations, remedial actions, order preparation, oversight and administration. Ecology costs shall include costs of direct activities; e.g., employee salary, laboratory costs, travel costs, contractor fees, and employee benefit packages; and agency indirect costs of direct activities. The Respondents shall pay the required amount within 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 90 days of receipt of the itemized statement of costs will result in interest charges.

Nothing in this section shall preclude Ecology or other federal, state or local governmental entities from seeking to recover other costs incurred by such entities for which Respondents are liable.

4. Designated Project Coordinators

The project coordinator for Ecology is:

Dom Reale
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

The project coordinator for the Respondents is:

Mr. Thomas L. Aldrich
Site Manager
ASARCO Incorporated
P.O. Box 1677
Tacoma, WA 98401-1677

The project coordinator(s) shall be responsible for overseeing the implementation of this Order. To the maximum extent possible, communications

between Ecology and the Respondents, 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). The Respondents' project coordinator shall be responsible for advising Murray Pacific's representative, Chuck Schenk, and Camille Fjetland, or other representative of Executive Bark, Inc., of any major planning or construction activities and any decision points regarding implementation of this Order. Should Ecology or the Respondents change project coordinator(s), written notification shall be provided to Ecology or the Respondents at least ten (10) calendar days prior to the change.

5. 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 Respondents 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.

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

WAC 173-340-400(7)(b)(i) requires that "construction" performed on the Site must be under the supervision of a professional engineer registered in Washington.

6. 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 Respondents. When entering the site under Chapter 70.105 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 Respondents during an inspection unless doing so would interfere with Ecology's sampling. The Respondents shall allow split or replicate samples to be taken by Ecology and shall provide Ecology seven (7) days notice before any sampling activity or reasonable notice before any unscheduled sampling.

7 Public Participation

The Respondents shall prepare and/or update a public participation plan for the Site. Ecology shall maintain the responsibility for public participation at the Site. The Respondents shall help coordinate and implement public participation for the Site.

8. Retention of Records

The Respondents 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 Respondents, a record retention requirement meeting the terms of this paragraph shall be required of such contractors and/or agents.

9 Progress Reports

The Respondents shall submit to Ecology written monthly progress reports which describe the actions they have taken during the previous month to implement the requirements of this Order during Phases 1 and 2. Thereafter, reports shall be quarterly. Progress reports shall also describe the activities scheduled to be taken during the next reporting period. All progress reports shall be submitted by the tenth day of the month after the period for which the report is written. The progress reports shall include a detailed statement of the manner and extent to which the requirements and time schedules set out in the Order are being met. Unless otherwise specified, progress reports and any other documents submitted pursuant to this Order shall be sent by certified mail, return receipt requested, to Ecology's project coordinator.

10. Dispute Resolution

The Respondents 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 the successor of this Order. Ecology resolution of the dispute shall be binding and final. The Respondents 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.

11. 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 to, at any time, direct additional orders to persons not named as Respondents in this Order, or to take any action authorized by law directed at persons not named as Respondents in this Order.

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 Site.

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 Respondents to stop further implementation of this Order for such period of time as needed to abate the danger.

Nothing in this Order precludes Ecology from taking action against any of the Respondents based upon authorities other than Chapter 70.105D RCW.

Furthermore, this Order also does not preclude other governmental entities, including, but not limited to, federal, state and local authorities, from taking any additional actions as authorized by law.

12. 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 Respondent(s) 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 Respondent(s) may have in the Site or any portions thereof, such Respondent(s) 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, such Respondent(s) shall notify Ecology of the contemplated transfer.

13. Compliance With Other Applicable Laws

All actions carried out by the Respondents pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements.

14. Monthly Design Meetings

Beginning upon issuance of this Order and extending through Phase 2, the project coordinators or their designees shall meet monthly to discuss progress being made by the Respondents with respect to the this Order. Camille Fjetland and Chuck Schenk shall also be invited by the Respondents' project

coordinator to attend these meetings. The date, place, and time for each meeting shall be set prior to the 25th day of the previous month by the project coordinators or their designees. The goal of these meetings is to ensure the Phase 2 deliverables of this Order are executed by the Respondents in a way which complies with this Order and is acceptable to Ecology. These meetings shall be discontinued after Ecology approval of the completion of Phase 2 construction. The Ecology project coordinator may cancel a monthly meeting if the meeting is felt to be unnecessary.

VI.

Satisfaction of this Order

The provisions of this Order shall be deemed satisfied upon the Respondents' receipt of written notification from Ecology that the Respondents 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

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

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

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

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

(1) up to three times the amount of any costs incurred by the state of Washington as a result of their refusal to comply; and

(2) civil penalties of up to $25,000 per day for each day they refuse to comply.

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

Effective date of this Order: _____

_____
Megan White, P.E.
Southwest Region Supervisor
Toxics Cleanup Program

Exhibit A

FINAL

CLEANUP ACTION PLAN

B & L WOODWASTE SITE

MILTON, WASHINGTON

OCTOBER 1991

CONTENTS

PURPOSE

This decision document presents the final cleanup action for the B & L Woodwaste Site. This document is based on remedial investigation and feasibility studies prepared by Kennedy/Jenks/Chilton (KJC) and Applied Geotechnology Incorporated (AGI) for Murray Pacific Corporation (MP). MP is one of 6 potentially liable persons (PLP) for the Site.

BACKGROUND

The B & L Woodwaste Site "the Site" is located between Fife Way and the Puget Power access road approximately 400 yards south of their intersection in Milton, Washington. The Site was operated from the mid 1970's to 1984, receiving deck debris from log sort yards in Tacoma, Washington plus a small amount of other nonputrescible wastes. The Site has been associated with the release of heavy metals, specifically arsenic, into Hylebos Creek via a ditch system that leads from the Site to the creek. A Site plan is included in Figure 2.

The Site is located in the Puyallup River/Hylebos Creek floodplain in an area which is mixed residential, agricultural and wetland (across the Puget Power access road) in north Pierce county. It is 18.5 acres in size.

In 1982, the Commencement Bay Nearshore/Tideflats was added to the National Priorities List (NPL) under the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA). The NPL Site includes Hylebos Waterway and sites, including B & L Landfill, which are believed to contribute contamination to the Waterway. The Record of Decision for the Commencement Bay Nearshore/Tideflats Superfund Site lists the B & L Woodwaste Site as a source of arsenic, copper and lead to the Head of Hylebos Waterway problem sediment area.

The Site received the following deck debris materials from log sort yards:

- woodwaste, which was primarily bark, but also included branches and chunks of wood;
- yard soils, which were often sandy/silty hydraulic fill from the dredging of the waterways; and
- gravel-sized rock, including ASARCO copper smelting slag ("slag"), which was used as ballast at the sortyards.

Most of the waste at the Site came from yards which used ASARCO slag as ballast to support the weight of heavy log sorting machinery. In addition to the log sort yard deck debris, the landfill also received shredded car debris from General Metals of Tacoma. Volumetric calculations based on trucking invoices during the period of 1975 to 1984 suggest approximately 97 to 98 percent of the material at the B & L Landfill is deck debris, and two to three percent is shredded car debris from General Metals. An undetermined quantity of soil/fill was also disposed on-site during the fall of 1989 and the winter of 1990. Ecology has no evidence thus far to indicate the shredded car debris or recent fill are sources of contamination. Volumetric calculations suggest at present the landfill currently contains approximately 330,000 cubic yards of deck debris, soil, and other wastes.

Two of four soil/fill samples taken by Ecology inspectors in 1985 showed EP toxicity results for arsenic which exceeded the five parts-per-million Dangerous Waste threshold per WAC 173-303-090(8)(c).

Ecology issued a report on January 25 1985, characterizing Hylebos Creek metals concentrations in water sediment, and fish tissue samples This report states that arsenic concentration of B & L leachate was 26 9 mg/l. Leachate from the Site caused a 43 percent mortality rate with juvenile coho salmon exposed to water composed of 50 percent leachate.

The Environmental Protection Agency (EPA) Field Investigations Team conducted a study of the Site in 1987 and found arsenic concentrations in soil up to 795 mg/kg, filtered ground water concentrations up to 17 6 mg/l and unfiltered ground water samples up to 38.0 mg/l.

On April 27, 1987, Ecology issued an enforcement order to Mr. William Fjetland, Site owner and fill hauler, requiring him to remediate the Site. After reviewing Mr. Fjetland's records, it was discovered that a number of other potentially liable persons (PLPs) existed regarding the Site. Mr. Fjetland appealed the order before the Pollution Control Hearings Board.

Due to the discovery of the additional PLP's on January 27, 1988, the Fjetland Order, Number DE 87-S16A was canceled by Ecology

On February 16, 1988, Golder Associates, working by contract for Ecology, prepared a document entitled "Work Plan for Expedited Response Action - B & L Landfill, Milton, Washington."

In an Ecology letter of January 28, 1988, the following entities were informed of their PLP status per the site cleanup law in effect at that time, Chapter 70.105B WAC regarding the B & L Site:

Mr. William Fjetland
ASARCO Inc.
L-Bar Products Inc.
Murray Pacific Corporation
Louisiana Pacific Corporation
Portac, Inc.
Weyerhaeuser Corporation

Ecology held a meeting with these PLP's on February 17. 1988, requesting they enter into a consent decree to implement the Golder Associates' expedited response plan. Of these PLP's only Murray Pacific Corporation (MP) was willing to negotiate. MP requested they be allowed to develop their own work plan. At this time, the following additional entities were informed of their PLP status:

General Metals Inc.
USG Corporation
Wasser Winters Inc.
Cascade Timber Inc.

On March 1, 1989 Ecology and Murray Pacific Corporation entered into a Consent Decree No 89-2-00319-3 pursuant to Chapters 70.105B and 90.48 RCW The Consent Decree required MP to complete a Remedial Investigation (RI), Feasibility Study (FS), and Preliminary Design for cleanup of the Site. Additionally, the decree included a contingency that MP would complete Remedial Design (RD) and Remedial Action (RA) at the Site if Ecology could provide 30 percent mixed funding for the RI/FS/RD/RA. On August 16 1990, Murray Pacific requested by letter $4,642,500 in mixed funding from Ecology. $4,642,500 is 30% of the projected cleanup cost at that time of $14,875,000. Ecology has not agreed to supply this monetary amount. At the time of issuance of this Cleanup Action Plan, the RI and FS have been completed by MP.

As a result of further research by the attorney generals office, the following entities have recently been informed that Ecology does not currently have sufficient information to determine they are PLP's:

Weyerhaeuser Corporation
USG Corporation
L-Bar Products Inc.
Portac, Inc
General Metals Inc

DRINKING WELL INVENTORY

In 1987 the EPA Field Investigations Team (FIT) located all registered drinking water wells within a 1 mile radius of the Site (see Figure 2 below). These wells were tested for 19 metals and various organic compounds. A total of 26 private wells were located and sampled Municipal drinking wells for the towns of Fife and Milton were also tested

Of the 26 private wells sampled four showed levels of arsenic approaching the .050 mg/l arsenic limit and one of those also approached the .050 mg/l lead limit. All four were resampled by the FIT Team in 1988. The results of the two tests are presented below:

Well Owner		Concentrations in mg/l 1987	1988
Radford/Black	Arsenic	.024	.013
Fugita(irrigation)	Arsenic	---	.025
Tyson	Arsenic	.014	.010
Hazen	Arsenic	.045	.006
	Lead	.026	---

The Hazens, who live adjacent to the Site have been drinking bottled water since prior to 1987.

Benzoic acid and phenols have been detected in landfill leachate and in Site ground water. These compounds are indicative of the degradation of woodwastes. They have not yet contaminated the underlying sand aquifer, possibly because they can adsorb onto silt within the aquifer and are readily degraded in the environment. Low levels of toluene, acetone, and naphthalene were also detected in isolated landfill soil/fill samples.

Samples of the fill material from the Site and ASARCO slag have been tested using the Extraction Procedure (EP) Tox and TCLP tests. Two of four fill samples leached arsenic at greater than 5.0 mg/l concentrations in an EP Tox Test, and thus designate as a dangerous waste; four of eleven slag samples leached either arsenic or lead concentrations at or above 5.0 mg/l, the EP Toxicity limit for dangerous waste designation of arsenic or lead per WAC 173-303-090(8)(c). Depending on the individual sample, these materials can designate as both federal hazardous waste and state dangerous waste based on toxicity characteristic. The sediments in the ditches adjacent to and downstream from the Site, have high total arsenic concentration as reported in Table 2 below, but all have below 5.0 mg/l arsenic when tested for EP Toxicity. Further sediment tests including TCLP will be conducted prior to implementation of the selected remedial alternative. Under environmental conditions, the fill generates a leachate which contains up to 140 mg/l of arsenic; this leachate would qualify as a dangerous waste per Chapter 173-303 WAC.

TABLE 2

SITE ARSENIC CONCENTRATION (PRE REMEDIAL)

Site Arsenic Concentrations (mg/l) liquids (mg/kg) solids		
Fill concentration range	220-1150	
Regional background range	1.2-20.1	
Arsenic in subsurface sands (range)		
Directly under the fill, upper sand	0.8-64	
Directly under the fill, lower sand	<0.5-1.4	
Off-Site downgradient sand	0.6-2.2	
Background	0.5-0.8	
Ground water (Fill)	0.42-140	
(Upper Sand Aquifer)	<0.005-13.0	
(Lower Sand Aquifer)	<0.005-0.04	
Surface water loadings at SW-2		
October 26, 1989	1.0 lb/day	
November 28, 1989	22.0 lb/day	
January 8, 1990	10.1 lb/day	
Selected sediment samples		Depth (in.)
SS-3, May 1, 1989	2300	0-2
SS-3 September [illegible], 1989	310	30-36
SS-4 May 1, 1989	2900	0-2
SS-5a May 1, 1989	7000	0-2
SS-5a September [illegible], 1989	1.[illegible]	18-24
SS-7 May 1, 1989	10,000	0-2
SS-7 September [illegible], 1989	93	18
Surprise Lake Drain:		
- Above Landfill, February 1984	10-13	
- Below Landfill, February 1984	100-150	
EP Toxicity testing of selected sediment samples		
SS-5 EP Tox 2.2,	Total 6200	
SS-6 EP Tox 2.4	Total 9100	
SS-7 EP Tox 0.8,	Total 1900	

Based on the hydrologic and chemical information gathered during the course of the RI contamination leaves the Site along the following three pathways:

- Surface water runoff leaches metals and suspends fine particles during storm events and carries this material into the surrounding ditch system. During major storm events runoff into the marshy area directly east of surface water collection point SW-1[2] and south of the Puget Power access road also occurs.

- Leachate (fill aquifer water) can flow into the Sand Aquifer in areas where the Upper Silt Aquitard is thin or absent. Upward hydraulic gradients in the Sand Aquifer results in discharge into the ditch system or flow beneath it. During the winter, water levels in the landfill are sufficiently high that direct seepage occurs into the ditch system along the western and southwestern boundaries. There are visible seeps during part of the year near well I-4[2].

- Ground water in the Sand Aquifer upper zone at well D-5[2] directly downgradient from the landfill, has levels of arsenic at .022 mg/l. Arsenic was not detected in ground water from the Sand Aquifer lower zone at well D-5[2].

All three pathways result in surface water and sediment contamination of the ditch and transport of the contamination down the ditch system. Contaminated sediments were detected as far downstream as the confluence of the B & L ditch with the Surprise Lake Drain. Sediment contamination may continue into the Surprise Lake Drain but has not yet been confirmed with sampling.

Remediation of the Site will require the elimination of surface water and leachate pathways to the extent feasible since these pathways are significant.

ASARCO has prepared a report entitled "Groundwater Aspects of Site Remediation of the B & L Landfill, Milton Washington." dated August 27, 1991. This report provides a proposed demonstration that if the Site is remediated per this CAP that only limited ground water contamination would remain directly below the Site. The report further asserts that very little lower aquifer contamination has occurred thus far while the Site is uncontrolled, and after site capping and ditch work, the chance of ground water figuring as a contaminant pathway would be reduced from its already minor degree of significance. Ecology is in the process of evaluating ASARCO's report/proposal. If the proposal is approved a monitoring system would be needed which verifies the proposal's assertions and detects any spread of ground water contamination from the Site.

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[2]Refer to the Site Plan (Figure 2)

FEASIBILITY STUDY (FS) EVALUATED ALTERNATIVES

The following remedial alternatives were evaluated during the FS process. Estimated costs are provided for feasible alternative cleanup actions.[3]

TABLE 3

ALTERNATIVE CLEANUP ACTIONS

		FEASIBILITY	COST (millions of dollars)
A.	No Action	No	--
B.	Institutional Controls	No	--
C.	Ditch remediation, sedimentation basin, surface water controls, and institutional controls	No	--
D.	Interceptor trench, surface water controls, water treatment, ditch remediation, and institutional controls	No	--
E	Separation, off-site disposal, subsurface drains, water treatment, surface water controls, ditch remediation, and institutional controls.	Yes	105.7
F	Landfill cap, subsurface drains, water treatment, ditch remediation, surface water controls, landfill gas controls, and institutional controls.	Yes	10 to 16.7
G.	New landfill base, landfill consolidation, landfill cap, ditch remediation, landfill gas controls, institutional controls, and surface water controls.	Yes	13.2 to 20.0
H.	Bioremediation, off-site disposal, ditch remediation, subsurface drains, surface water controls, and institutional controls.	No	--
I.	Solidification, on-site disposal, ditch remediation, surface water controls, and institutional controls.	No	--
J	Landfill consolidation, landfill cap, detention basin, ground water treatment, ditch remediation, landfill gas controls, surface water controls, and institutional controls.	Yes	3.0 to 16.4

[3]Feasibility is discussed in the section below entitled, "Elimination of Other Alternatives." The Feasibility Study may be found in the Ecology Southwest Regional Office in a document entitled, "Focused Feasibility Study, B & L Landfill, Milton, WA" of September 1990.

TABLE 4

B & L WOODWASTE SITE CLEANUP LEVELS (g)

Parameter	Soil/Fill (b) (mg/kg)	Ground water (d)(mg/l)	Surface Water (c)(mg/l)	Sediments (j)(mg/kg)
Arsenic (total)	20(a)	005(a) .01 (i)	005(h) .01(i)	20(a)
Copper			012	390(e)
Lead	250(a)	005(a) 01 (i)	.003 .01(i)	250(a)
Nickel		.32(f)		
Phenol		9 60(f)	2.56	

Key: (a) MTCA Method A residential cleanup levels. Soil values do not apply to fill materials if the fill is closed as a landfill, but will apply to areas where soil is removed. The Site does not qualify as an Industrial Site, therefore, Residential Site requirements apply

(b) More restrictive soil cleanup levels may be required to maintain compliance with ground water and surface water cleanup levels. Points of compliance will be a grid of confirmational samples designed to insure soil cleanup levels are achieved in the upland removal area and residential and agricultural soils adjacent to the Site. This grid and other sampling details will be required in the forthcoming compliance monitoring plan. Depth of soil cleanup will be the depth below which Table 4 cleanup levels are complied with to a maximum depth of 15 feet below the original land surface elevation. per WAC 173-340-740(6)

(c) These values represent EPA ambient fresh water quality chronic criteria (assuming hardness = 100 ppm as $CaCO_3$). Actual site surface water hardness will be used to calculate cleanup levels for arsenic, copper and lead, per WAC 173-201-047. Surface water point of compliance is the B & L ditch just downstream of the landfill. If the remedial design results in a point source discharge, then end-of-pipe effluent limits will be set via the NPDES permitting process. The ditch system and Hylebos Creek below the ditches are not used as drinking water.

(d) Points of compliance are the upper sand aquifer and the lower sand aquifer at the Site boundary, and possibly throughout the fill aquifer.

(e) WAC 173-204-520 Sediment Management Standards Minimum Cleanup Levels - Chemical Criteria and Commencement Bay Record of Decision Sediment Cleanup Objectives. Since these sediments discharge to the salt water (Hylebos Waterway) marine cleanup levels should serve as a maximum cleanup level.

(f) MTCA Method B Cleanup levels.

(g) Natural background may be demonstrated to Ecology, per WAC 173-340-708(11), to be higher than the cleanup level. In that case the natural background concentration may be substituted by Ecology as the cleanup level.

(h) Ambient Water Quality Criteria - Level protective of human health based on fish ingestion alone at a risk of 10^{-5}

(i) Practical Quantification Limit (PQL). These values serve as the cleanup level where listed. If lower PQLs become technically achievable during the cleanup, an evaluation will be made by Ecology to determine whether cleanup levels should be correspondingly lowered via Consent Decree amendment.

(j) Since these fresh water sediments flow to salt water cleanup levels have been chosen as the more stringent level between the MTCA residential soil cleanup level, the Commencement Bay Record of Decision sediment cleanup objectives and the Ecology salt water sediment cleanup level for each chemical listed. Point of compliance is all ditch system soils and sediments down to a depth below which Table 4 sediment cleanup levels are complied with to a maximum depth of 15 feet per WAC 173-340-740(6)

SELECTED ALTERNATIVE[4]

The selected alternative is alternative J which consists of:

1. Landfill consolidation (See Figures 2 and 3 for proposed removal location) - Hydrogeologic conditions and cost control suggest the landfill be consolidated. The RI reports that the hydraulic head in the eastern portion of the landfill is great enough to force water up from the underlying sand aquifer into the existing fill material. Consolidating the landfill materials onto the western section of the landfill will reduce the potential for upland ground water infusion and also will reduce the number of wells needed to achieve hydraulic control of the ground water in the sand aquifer. Consolidation also will reduce the required quantity of cap materials and allow wetlands now covered by landfill waste to be returned to their predevelopment state. The currently 18.5 acre site will be consolidated onto approximately 13 acres. Since[5] any contaminated materials moved will remain within the area of contamination (including the ditch system) movement of any wastes which designate per Chapter 173-303 WAC will not trigger the need to close the Site as a hazardous waste management (TSD) facility.

2. Multimedia (RCRA) cap or equivalent - A 3 layer system consisting of a 2 foot low permeability soil overlain by a 1 foot drainage layer and topped with a 2 foot vegetative cover. A membrane liner is placed between the sand and soil liner.

   The cap shall be functionally equivalent to a Resource Conservation and Recovery Act (RCRA) cap as described in the EPA Technical Guidance Document No. EPA/530-SW-89-047 as amended, entitled "Final Covers on Hazardous Waste Landfills and Surface Impoundments."

3. Detention Basin - The usual design requirement for stormwater detention basins in Pierce County is detention for a 25-year storm event with subsequent release at the predevelopment rate. However, Pierce County Public Works has the authority to establish more restrictive storage capacity and release rates for the Site because the landfill is in an area prone to flooding. Pierce County has indicated that the stormwater detention basin for this project may have to be sized to collect

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[4]Off-site disposal of Site waste materials to an approved landfill (alternative E) is the only alternative which permanently eliminates the possibility of contaminant transport from the site without perpetual monitoring and maintenance (although permanent maintenance would be required at the disposal location). Thus far, the only disposal option is to transport the landfill material to a permitted hazardous waste disposal facility such as Arlington, Oregon, an option estimated to cost more than 100 million dollars. If a lower cost disposal option becomes available in the future it should be considered.

[5] Per Ecology Interprogram Policy of August 20, 1991, entitled "Area of Contamination."

stormwater from a 100-year storm. The effluent from the stormwater detention basin must be discharged at one-half the 1-year 24-hour storm rate. See Figure 2 for proposed detention basin location.

A 100,800 cubic foot detention basin will be constructed in the northwest section of the landfill. The basin will be seeded to help control erosion, and a restricted orifice will be used at the outfall to control the stormwater discharge into the ditch system adjacent to the Site.

4. Ground water pumping/treatment as needed - MP performed treatability studies which indicate the following treatment system would be effective in treating ground water at the Site:

- Ferric chloride addition
- pH adjustment to 8 with hydrated lime
- Anionic polymer addition
- Clarify to remove solids
- Treat water in a multi-media filter
- Polish with activated alumina
- Use sludge filter press

System byproducts include a treated effluent and sludge. The sludge component is assumed to require disposal in a permitted hazardous waste landfill.

ASARCO's proposal (that after capping, ground water will not be a contaminant pathway of concern) is under consideration by Ecology and is described on page 7 of this CAP

5. Ditch remediation - Ditch remediation involves excavating contaminated sediments from the Site ditch system and backfilling with clean fill. The sediments will be disposed of as a Dangerous Waste or are placed with the bulk of the landfill materials for treatment (solidification and bioremediation or capping).

6. Landfill gas controls - An active gas collection system uses centrifugal blowers to create a vacuum through collection headers and wells that surround the landfill. Subsurface gases flow in the direction of the lower pressure and then burned in a flare. A passive gas collection system uses a high permeability landfill layer (relative to the landfill materials) to channel gases to surface vents. The selection of either an active or passive gas system depends on the type and quantity of gas produced; existing information regarding gas production of the Site is inadequate for choosing one system over the other. Final selection of the type of gas venting system will be made during the remedial design phase.

2. Surface water controls - Surface water controls include the construction of three stormwater channels one along the western edge of the landfill a second across the agricultural fields south of the landfill and the third channel will cut across the upland (SW) side of the fill connecting with the other two channels so that the Site will be surrounded by channels The surface water channels are intended to diminish the amount of surface water available to infiltrate the landfill

3. Institutional controls - Institutional controls include a barrier around the landfill perimeter ground water and surface water monitoring, and land and water use restrictions The landfill barrier is a six-foot chain link fence with a three stand barbed wire top Land and water use restrictions are notices placed in the deed alerting future landowners of Site conditions and prohibiting the use of Site ground water and landfill materials per WAC 173-340-440

Milton wells =3 6, 7, and 10 along with Fife wells =5 and 6 shall be regularly monitored to look for any upward arsenic concentration trends and to insure compliance with drinking water standards

JUSTIFICATION/DETERMINATIONS

This section summarizes the evaluation of the proposed cleanup action as well as the rationale for having eliminated the other alternative cleanup actions.

The MTCA requires that any alternative selected for site remediation must, as a minimum, meet four threshold requirements as follows:

- Protect human health and the environment;
- Comply with cleanup objectives;
- Comply with applicable laws; and
- Provide compliance monitoring.

These four requirement criteria as well as justifications for cleanup action selection are listed below:

1. **Protection of Human Health and the Environment**

The risks associated with the Site are: 1) human health impacts from ingestion of Site wastes 2) Water quality impacts to the surrounding ditch system Hylebos Creek and Hylebos Waterway Sediment impacts to those water bodies and ground water contaminant ingestion

The selected alternative should eliminate all risks associated with the Site as follows:

- Capping and perimeter fencing will eliminate accidental soil/waste ingestion

- Excavation and capping of contaminated ditch sediments will eliminate sediment impacts and associated surface water contamination by those sediments

- Capping and surface water controls will eliminate water transmission through the waste, thereby eliminating transmission of contaminants to surface water sediments and ground water.

- Ground water pumping and treatment will be utilized as needed to mitigate residual ground water impacts.

- Monitoring of surrounding private and municipal wells will insure the public is not exposed to contaminated ground waters.

2 **Compliance With Cleanup Objectives**

The selected cleanup action will comply with the Cleanup Levels listed in Table 4 of this document. These Cleanup Levels are in conformance with MTCA Part VII.

3 **Compliance with ARARs (Applicable, Relevant and Appropriate Requirements)**

The following ARARs apply for the Site:

a. NPDES Permit Program (WAC 173-220).
b. Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201).
c Submission of Plans and Reports for Construction of Wastewater Facilities (WAC 173-240)
d. Minimum Functional Standards for Solid Waste Handling (WAC 173-304)
e. Model Toxics Control Act - Cleanup (WAC 173-340)
f. Dangerous Waste Regulations (WAC 173-303)
g General Regulations for Air Pollution Sources (WAC 173-400)

<u>Federal Laws and Regulations</u>

h. CERCLA, Section 121.
i. RCRA, 40 CFR Part 264
j Occupational Safety and Health Act (OSHA) 29 CFR Subpart 1910.120.
k. Federal Water Pollution Control Act of 1972 (Clean Water Act).
l. Water Quality Act of 1987:
  a. Section 308 Establishes water quality criteria for toxic pollutants.
  b Section 402. Establishes the NPDES permit process for discharges to surface water bodies
m Safe Drinking Water Act of 1974.

The selected cleanup action is designed to comply with all ARARs. Capping and surface water controls will comply with MFS requirements and be functionally equivalent to RCRA requirements. If ground water pumping and treatment are required an NPDES Permit will be obtained. During construction, OSHA and Air Pollution Source requirements will be met. MTCA and WAC 173-201 form the basis for system design and cleanup levels.

4 **Compliance Monitoring**

The following compliance monitoring will be provided as part of the selected cleanup action:

a. Protection monitoring, per WAC 173-340-410(a) will be provided to insure protection of human health and the environment during cleanup action construction.

b. Performance monitoring, per WAC 173-340-410(b) will be provided during ditch excavation and landfill consolidation to insure the appropriate cleanup levels have been achieved in residual soil and ditch materials.

c. Confirmational monitoring per WAC 173-340-410(c) will be provided to insure the long term effectiveness of the cleanup with respect to surface water, ground water and ditch sediments.

5 **Short Term Effectiveness**

As stated above the selected cleanup action will remove, to the extent feasible, all human health and environmental risk/exposure pathways. Short Term negative impacts during construction include worker and community exposure to soil, water and airborne dust. These impacts will be eliminated through implementation of a health and safety plan (including water spraying to reduce dust). Short term negative environmental impacts relate to airborne dust, surface water contamination/turbidity during dredging and earth moving operations. These impacts will be minimized to the extent possible in the forthcoming remedial design. Dredging turbidity may be reduced through the use of sediment barriers.

6 **Long Term Effectiveness**

The selected remedial design will remain effective in the long term provided continuous monitoring and maintenance occur. These factors will be addressed in various plans which will be required in the forthcoming remedial design phase. Institutional controls, including deed restrictions will prevent use of the Site in ways which will compromise the cleanup action.

7 **Reduction of Toxicity, Mobility and Volume**

No treatment technology has been discovered which significantly reduces the toxicity of arsenic or lead from that of forms present at the Site. Similarly no volume reduction process has been proven effective for the soil/woodwaste matrix except for incineration. which in addition to creating air emission problems and being disproportionately expensive with respect to landfilling, also only reduces waste volume by approximately 50% due to the high ash content of the waste

Ihus reduction of mobility is the only viable means for cleanup Capping, surface water controls and ground water treatment as needed will eliminate the pathways of transmission of contaminants from the Site. Waste solidification/stabilization technologies were also evaluated during the FS. No technology was able to immobilize all chemicals of concern in this waste matrix.

8 **Implementability**

The selected cleanup action consists of all proven technologies which are easily implemented. including: earthmoving, ditch dredging and cap and well construction

9 **Cost**

Cost estimates are presented in Table 3 for feasible alternatives.

10 **Elimination of Other Alternatives**

Please refer to Table 3

Alternatives A, B, C and D are considered infeasible since these options do not provide sufficient treatment or containment to control the release of contaminants from the Site Alternatives H and I are considered infeasible since literature search and bench scale studies have not demonstrated any treatment process (chemical or biological treatment or solidification/stabilization) which can effectively control the release of contaminants from the Site.

Regarding the alternatives considered to be feasible (e.g., alternatives E, F, G and J):

Alternative E (including off-site waste disposal at a RCRA landfill) is priced substantially and disproportionately higher[3] than other feasible options. Alternative F does not include landfill consolidation and thus does not remove upland sources of ground water and surface water recharge to the Site. This alternative was dropped from consideration because it is felt to be marginally feasible.

Alternative G (including a raised landfill base) is felt to be equivalent to the selected alternative (J) but is more expensive and would require far more earth moving and truck traffic and thus would have excessive short term negative impacts on human health and the environment.

11. **Containment Considerations**

WAC 173-340-360(10)(ix) requires the "specification of types, levels, and amounts of hazardous substances remaining on-site and the measures that will be utilized to prevent migration and contacts with those substances" for cleanup action involving on-site containment. Response to these requirements is found below:

a. Approximate volume of contained waste: 560,000 cubic feet.

b Types and levels of hazardous substances contained:

hazardous substances	concentration range (mg/kg)
arsenic	220 - 8000
cadmium	non-detect - 34
chromium	30 - 98
copper	320 - 2020
lead	200 - 860
nickel	18 - 29
zinc	580 - 2400
4-methylphenol	3.7 - 290
phenol	non-detect - 22

Of these substances, only arsenic, copper, lead, nickel, and phenol caused exceedences of Chapter 173-340 WAC cleanup standards as reflected in the site cleanup levels set on Table 4.

c Measures that will be utilized to prevent migration and contact with those substances are provided above in the section entitled "Proposed Alternative."

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[3]If a cost effective waste removal option becomes available in the future it should be carefully considered for implementation

DECLARATION

The cleanup action as selected is designed per Chapter 173-340 WAC (Washington State Model Toxics Control Act) to accomplish the following requirements:

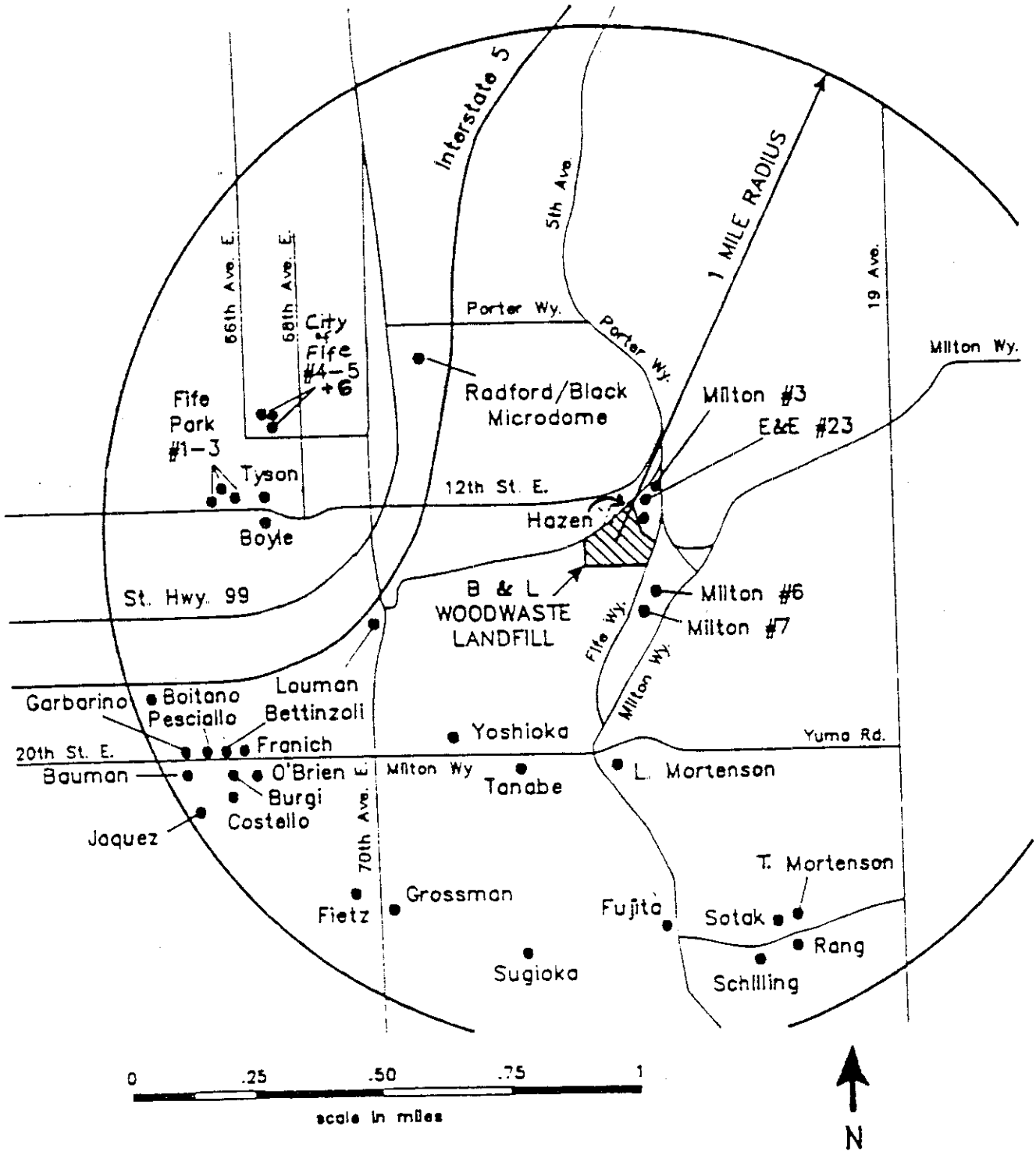
1. Protect human health and the environment.
2. Comply with cleanup standards per WAC 173-340-700.
3. Comply with applicable state and federal laws per WAC 173-340-710.
4. Provide compliance monitoring per WAC 173-340-410
5. Use permanent solutions to the maximum extent practicable per WAC 173-340-360(4), (5), (7) and (8).
6. Provide a reasonable restoration time frame per WAC 173-340-360(6)
7. Has considered public concerns raised during the public comment period on the draft cleanup action plan per WAC 1273-340-360 (10) through (13)

A full list of applicable, relevant and appropriate requirements can be found in the feasibility study for the B & L Woodwaste Site, located in Ecology Southwest Regional Office files. The feasibility study also describes how the selected alternative meets the above MTCA requirements.

CLEANUP TIMEFRAME

This finalized CAP will be incorporated into an Ecology enforcement action, either a Consent Decree or Enforcement Order. Cleanup should be completed as soon as possible, but is targeted to be completed no later than September 1992

DR:ls(1/tcp1)

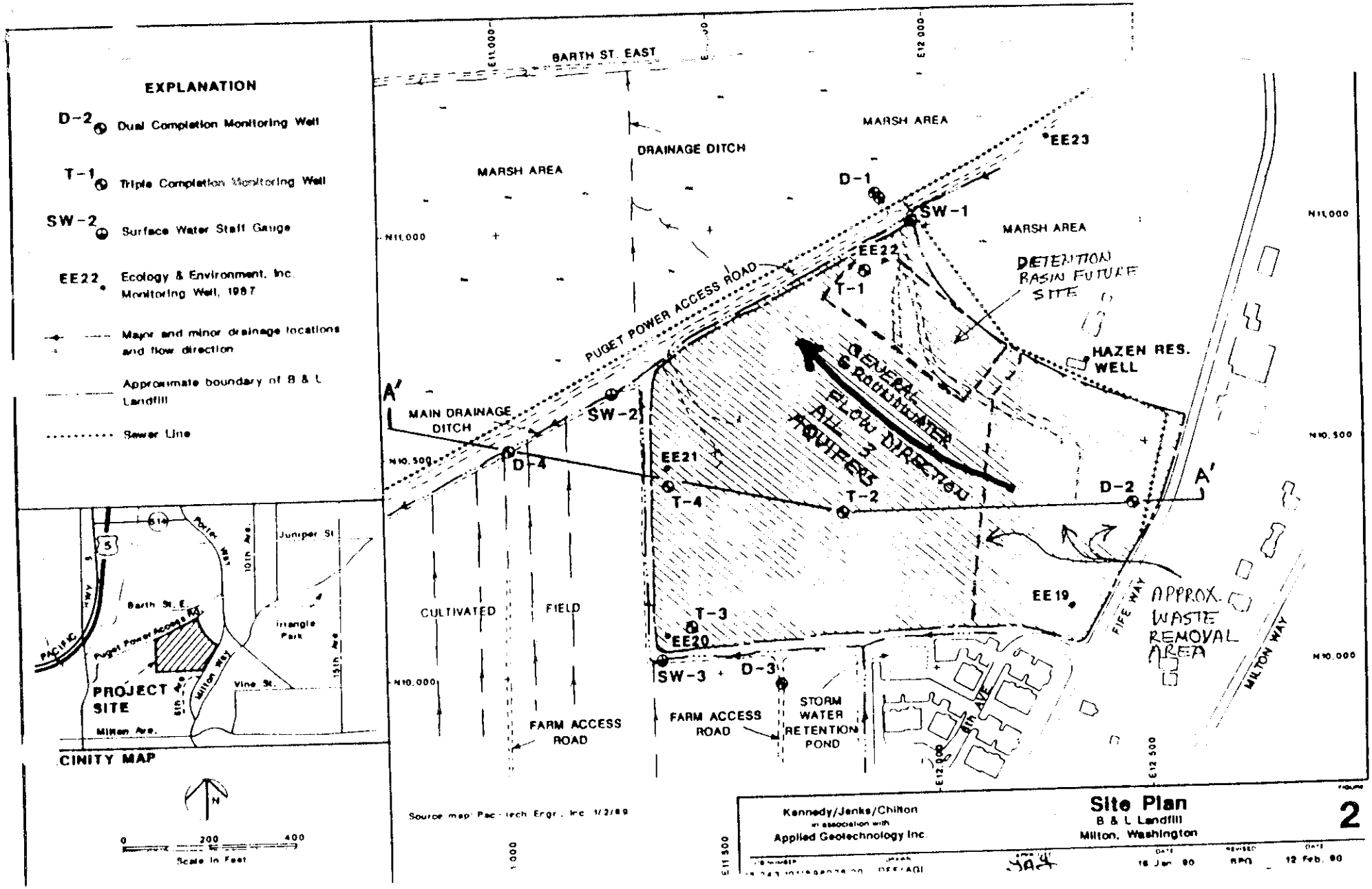


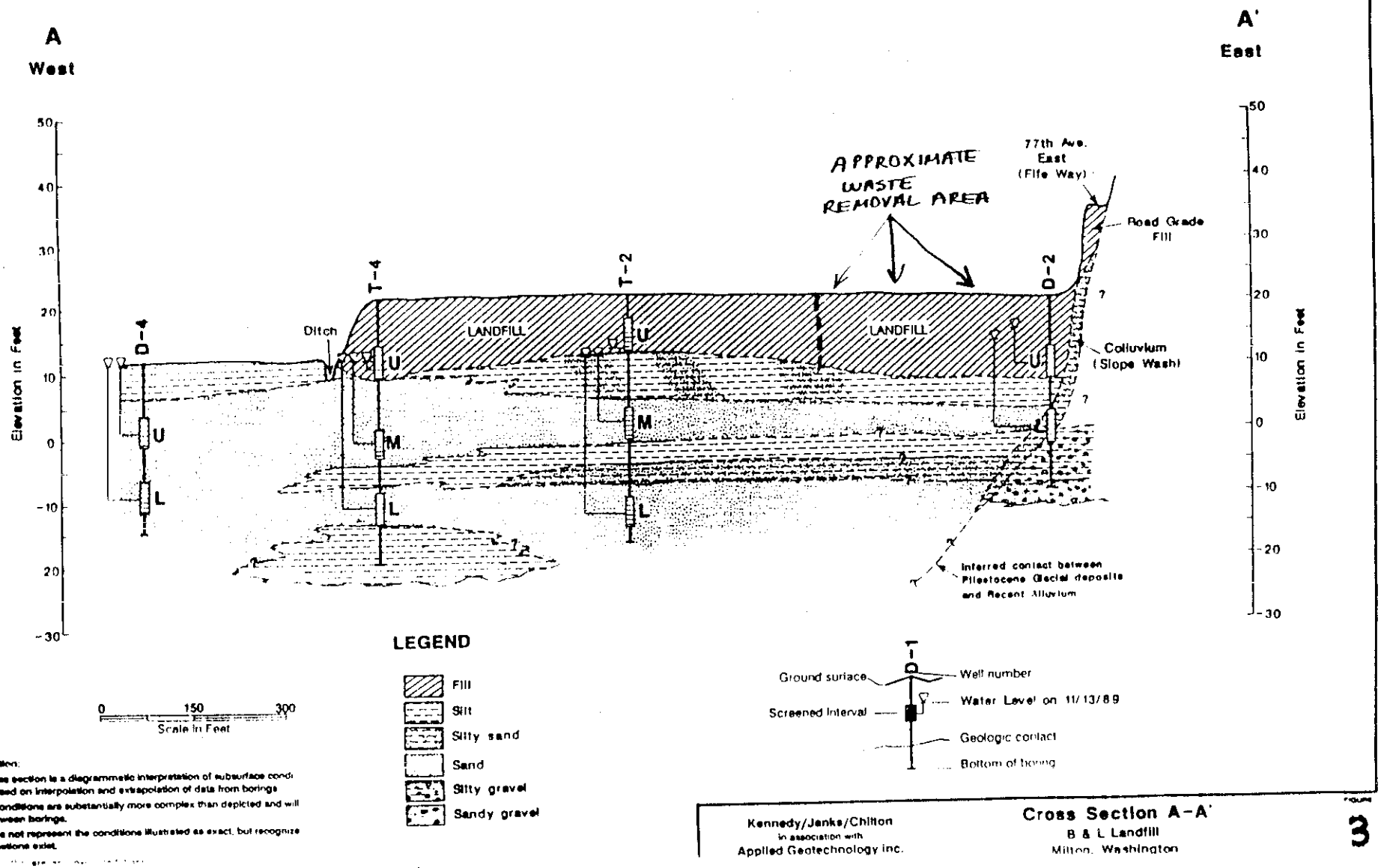
LEGEND

● Rang Monitoring well and owner's name

ecology & environment, inc.	
Job: F10-8612-12	Waste Site: WA 0044
Drawn by: D. P.	Date: Oct. 7, 1987

FIGURE 1
DOMESTIC WELL SAMPLE LOCATIONS
TACOMA NEARSHORE/TIDEFLATS SITES
Tacoma, WA


EXPLANATION
D-2 Dual Completion Monitoring Well
T-1 Triple Completion Monitoring Well
SW-2 Surface Water Staff Gauge
EE22 Ecology & Environment, Inc. Monitoring Well, 1987
Major and minor drainage locations and flow direction
Approximate boundary of B & L Landfill
Sewer Line
BARTH ST. EAST
MARSH AREA
DRAINAGE DITCH
PUGET POWER ACCESS ROAD
MAIN DRAINAGE DITCH
CULTIVATED FIELD
FARM ACCESS ROAD
STORM WATER RETENTION POND
HAZEN RES. WELL
DETENTION BASIN FUTURE SITE
GENERAL GROUNDWATER FLOW DIRECTION ALL 3 AQUIFERS
APPROX. WASTE REMOVAL AREA
FIFE WAY
MILTON WAY
D-1
D-2
D-3
D-4
T-1
T-2
T-3
T-4
SW-1
SW-2
SW-3
EE19
EE20
EE21
EE22
EE23
A'
N11,000
N10,500
N10,000
E11,000
E12,000
E12,500
VICINITY MAP
PROJECT SITE
Milton Ave.
Vine St.
Juniper St
Porter Way
10th Ave
13th Ave
Triangle Park
Barth St E
Puget Power Access Rd
Milton Way
5th Ave
PACIFIC
0 200 400
Scale in Feet
Source map: Pac-tech Engr., Inc. 1/2/89
Kennedy/Jenks/Chilton
in association with
Applied Geotechnology Inc.
Site Plan
B & L Landfill
Milton, Washington
2
16 Jan 90
12 Feb. 90



Explanation:

This cross section is a diagrammatic interpretation of subsurface conditions based on interpolation and extrapolation of data from borings.

Actual conditions are substantially more complex than depicted and will vary between borings.

AGI does not represent the conditions illustrated as exact, but recognize that variations exist.

Kennedy/Jenks/Chilton
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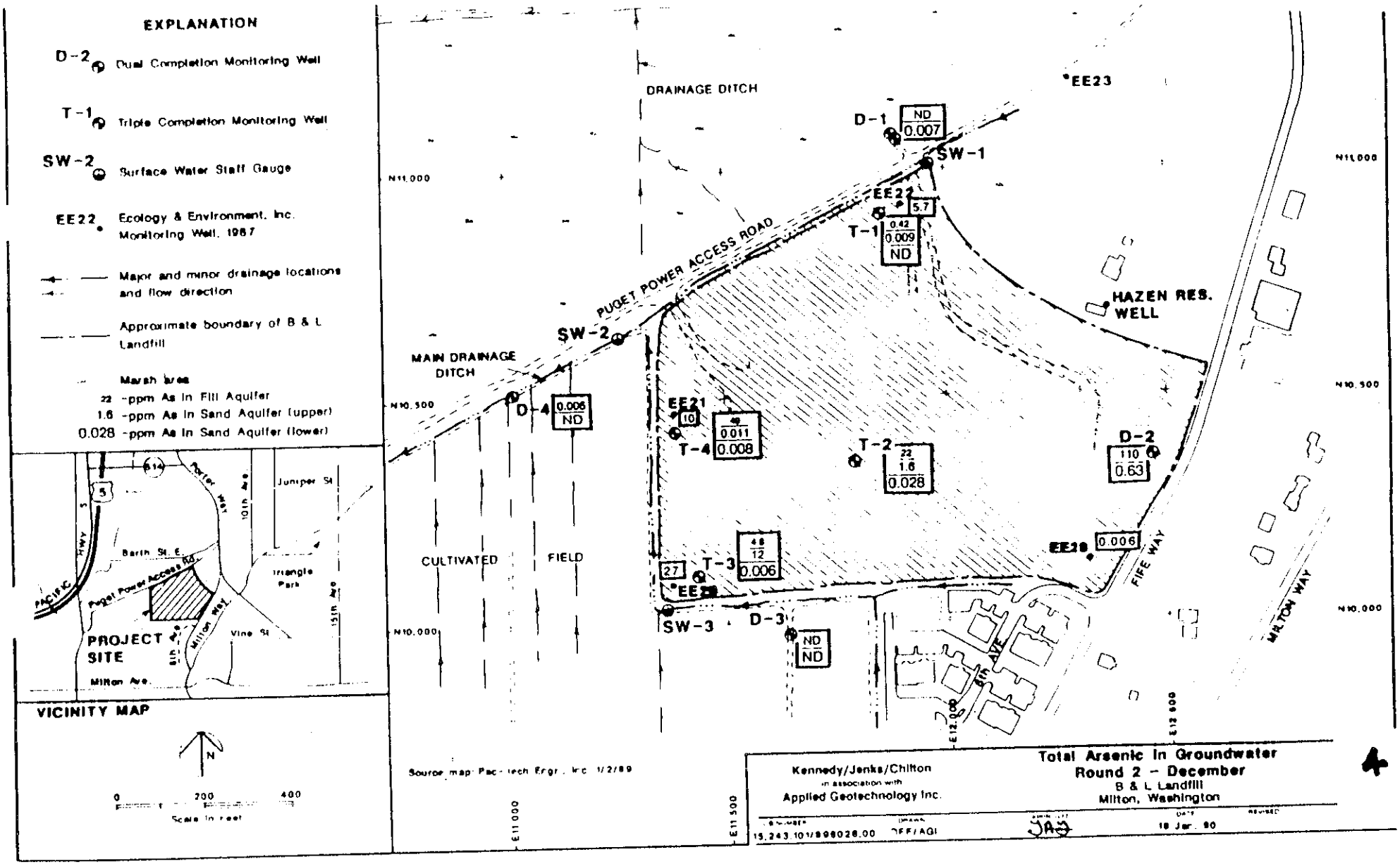
Cross Section A-A'
B & L Landfill
Milton, Washington

FIGURE
3


EXPLANATION
D-2 Dual Completion Monitoring Well
T-1 Triple Completion Monitoring Well
SW-2 Surface Water Staff Gauge
EE22 Ecology & Environment, Inc. Monitoring Well, 1987
Major and minor drainage locations and flow direction
Approximate boundary of B & L Landfill
Marsh area
22 -ppm As In Fill Aquifer
1.6 -ppm As In Sand Aquifer (upper)
0.028 -ppm As In Sand Aquifer (lower)
DRAINAGE DITCH
EE23
D-1 ND 0.007
SW-1
EE22 5.7
T-1 0.42 0.009 ND
PUGET POWER ACCESS ROAD
HAZEN RES. WELL
SW-2
MAIN DRAINAGE DITCH
D-4 0.006 ND
EE21 10
T-4 49 0.011 0.008
T-2 22 1.6 0.028
D-2 110 0.63
EE20 0.006
CULTIVATED FIELD
27
T-3 48 12 0.006
EE24
SW-3
D-3 ND ND
FIFE WAY
MILTON WAY
8th AVE
N11,000
N10,500
N10,000
E11,000
E11,500
E12,000
E12,500
Source map: Pac-Tech Engr., Inc. 1/2/89
VICINITY MAP
PROJECT SITE
Milton Ave.
Vine St
Juniper St
Triangle Park
Porter Way
10th Ave
15th Ave
Milton Way
Bard St E
Puget Power Access Rd.
PACIFIC HWY
N
0 200 400
Scale in feet
Kennedy/Jenks/Chilton
in association with
Applied Geotechnology Inc.
Total Arsenic In Groundwater
Round 2 - December
B & L Landfill
Milton, Washington
15,243.101/990028.00
JEF/AGI
JAS
18 Jan. 90
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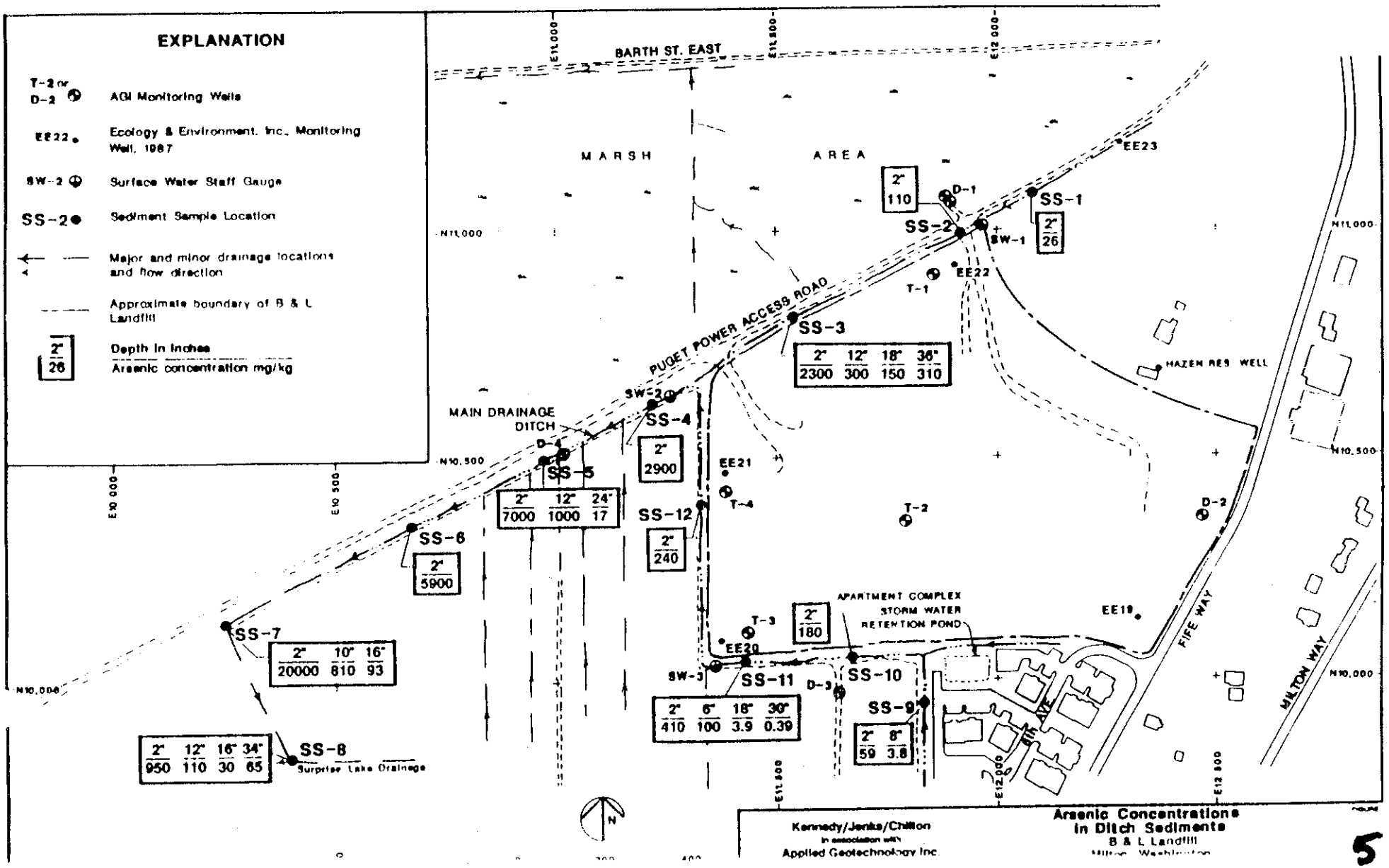
EXPLANATION
T-2 or D-2 AGI Monitoring Wells
EE22 Ecology & Environment, Inc., Monitoring Well, 1987
SW-2 Surface Water Staff Gauge
SS-2 Sediment Sample Location
Major and minor drainage locations and flow direction
Approximate boundary of B & L Landfill
Depth in inches / Arsenic concentration mg/kg
BARTH ST. EAST
MARSH AREA
PUGET POWER ACCESS ROAD
MAIN DRAINAGE DITCH
HAZEN RES WELL
APARTMENT COMPLEX STORM WATER RETENTION POND
FIFE WAY
MILTON WAY
8TH AVE
SS-1 2" 26
SS-2 2" 110
SS-3 2" 2300 12" 300 18" 150 36" 310
SS-4 2" 2900
SS-5 2" 7000 12" 1000 24" 17
SS-6 2" 5900
SS-7 2" 20000 10" 810 16" 93
SS-8 2" 950 12" 110 16" 30 34" 65
SS-9 2" 59 8" 3.8
SS-10 2" 180
SS-11 2" 410 6" 100 18" 3.9 30" 0.39
SS-12 2" 240
SW-1
SW-2
SW-3
D-1
D-2
D-3
D-4
T-1
T-2
T-3
T-4
EE18
EE19
EE20
EE21
EE22
EE23
N11,000
N10,500
N10,000
E10,000
E10,500
E11,000
E11,500
E12,000
E12,500
N
Kennedy/Jenks/Chilton
in association with
Applied Geotechnology Inc.
Arsenic Concentrations in Ditch Sediments
B & L Landfill
Milton, Washington
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