

Tacoma Coal Gasification
8491
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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

RECEIVED

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In the Matter of Remedial Action By)
City of Tacoma, Washington State)
Department of Transportation,)
Washington Natural Gas, Pacificorp,)
Advance Ross Corporation, Waterway)
Properties, Inc.)
Sub Company AB

AGREED ORDER (DEPARTMENT OF
S W REGIONAL
No. DE 93TC-S166

To: City of Tacoma, Washington State Department of Transportation,
Washington Natural Gas, Pacificorp, Advance Ross Corporation, and Waterway
Properties, Inc.)
Sub Company AB

I

JURISDICTION

This Agreed Order ("Order") is issued pursuant to the authority of
RCW70.105D.050(1).

II

ECOLOGY FINDINGS OF FACT

Ecology makes the following Findings of Fact. The City of Tacoma,
Washington State Department of Transportation, Washington Natural Gas,
Pacificorp, Advance Ross Corporation, and Waterway Properties, Inc.)
Sub Company AB
(hereinafter collectively referred to as "the PLPs") do not admit the Findings
of Fact Section II or the Ecology Determinations Section III, or any legal
conclusions therein.

1. A coal gasification plant was operated on portions of property now
known as the Tacoma Coal Gasification Site ("Site"), bounded by South 21st and
South 24th Streets, and A Street and Thea Foss (formerly City) Waterway,
Tacoma, Washington. (The legal description of the Site is: Blocks 57, 2200,
2300, 2101, 2201, and 2301 of Tacoma Land Company's Second Addition to Tacoma,
W.T. A map of the Site location is attached as Exhibit A.) The plant was in
active operation from 1884 to 1924. Coal gasification plants commonly produce

waste products, some of which have been found to be hazardous to human health or the environment, particularly coal tar wastes, which contain Polynuclear Aromatic Hydrocarbons (PAHs) and other hazardous chemicals. Other contaminants such as Pentachlorophenol and gasoline constituents, possibly contributed by other operators, have been identified on the site.

2. The City of Tacoma ("City") owns portions of the Site. Included in these are parcels described as "21st Street Corridor" and "Parcel 4", as well as a previously developed park and pier near the head of the waterway¹. (Endnotes are found at Exhibit C, attached hereto.)

3. The Washington State Department of Transportation ("WSDOT") owns portions of the Site, consisting of the right-of-way ("ROW") for the SR 705 Spur and certain drainage structures that convey stormwater from the ROW to Thea Foss Waterway via City storm drain lines.

4. Washington Natural Gas ("WNG") was an owner and an operator of a portion of the site, as a successor corporation to Washington Gas and Electric Company (WG&E). By virtue of a Warranty Deed dated December 31, 1927, Mountain States Power Company transferred ownership of a portion of the site to WG&E. WG&E/WNG conducted operations on the Site, consisting of the use of one gas holder to temporarily store gas piped over from the new gasification plant located on the Tacoma Tideflats.

5. Pacificorp was an owner and an operator of the site as a successor corporation to Mountain States Power. Mountain States Power became owner of a portion of the site by virtue of an Indenture Deed dated April 30, 1923. Mountain States Power operated the coal gasification plant on the site for approximately one year, before shutting down the operation.

6. Advance Ross Corporation was an operator as a successor

Sub Company AB

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DEPARTMENT OF ECOLOGY

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6. Advance Ross Corporation was an operator as a successor

corporation to H.M. Byllesby & Co., a company that operated the gasification plant through its subsidiaries from 1909 until at least 1919.

7. Waterway Properties, Inc. is an owner of portions of the site. Included in these are parcels described as portions of "Lots 7 to 12, inclusive, Block 57, Map of Tacoma Tidelands, The Tacoma Land Company's Second Addition to Tacoma, W.T."

8. During the construction of the SR 705 Spur highway, extensive deposits of waste material generally known as coal tar, as well as contaminated soils, and contaminated groundwater were discovered on the Site. Portions of the coal tar and contaminated soils, encountered during excavating activities, were removed from parts of the Site that lay within the spur ROW. Additional coal tar and contaminated soils and groundwater, not in the ROW, were identified and partially documented in an investigation report by Hart Crowser and Assoc. in 1984². Contaminants of particular concern included Polynuclear Aromatic Hydrocarbons (PAH), as well as several other chemicals common to coal tar wastes.

9. The latest available groundwater data from monitoring wells installed in the area of the spur ROW (ca 1989), indicate that several chemical components of coal tar continued to be present in groundwater beneath the Site. Groundwater samples from well MW-3 exhibited levels of 250 ug/l carcinogenic PAH; 2,800 ug/l benzene; 810 ug/l ethylbenzene; 1,100 ug/l toluene; and 1,500 ug/l xylenes. (Site cleanup levels to be attained have not yet been determined.)

10. During the Spring and Summer of 1992, Ecology sampling confirmed that coal tar contaminants have been entering storm drain structures in the Spur ROW and making their way via the storm runoff system to the Thea Foss

Waterway. The drain system was smoke tested, confirming that it drained to the waterway via the "Twin 96er" west outfall. A sample taken in April 1992 from a stormwater catch basin in the DA-1 Line consisted of sludges containing 1,366,000 ug/kg total PAH (LPAH = 1,137,000 ug/kg; HPAH = 229,600 ug/kg). In the winter of 1992 the City of Tacoma cleaned out affected drainage structures, inserted plugs in affected drain lines, and continues to monitor the system. A sediment sample taken from the intertidal zone of the Site contained 33,800 ug/kg PAH (LPAH = 3,200 ug/kg; HPAH = 30,600 ug/kg). The Commencement Bay Sediment Quality Objective for LPAH is 5,200 ug/kg; HPAH is 17,000 ug/kg³.

11. During Ecology investigation, free coal tar was observed entering the waterway from a seep along the shoreline of the Site. A water sample from the waterway contained 4,741 ug/l total PAH in the aqueous phase; 125,980,000 ug/l total PAH in the organic phase. The Marine Acute Water Quality Criterion for total PAH in surface waters is 300 ug/l (WAC 173-201A-040).

12. Coal gasification process wastes at this Site contain a number of chemical constituents that are considered hazardous substances according to RCW 70.105D.020(5). Chemicals found in soils, groundwater, surface water, and stormwater at the Site during various sampling events have included PAHs (including carcinogenic PAHs), methylphenols, benzene, ethylbenzene, toluene, xylenes, phenolic compounds, and cyanide. In addition, pentachlorophenol and dibenzofuran have been present in some samples from the Site. These chemicals are considered a threat to human health and the environment.

13. The Commencement Bay Nearshore/Tideflats Remedial Investigation identified a variety of chemicals, including PAHs and methylphenols as problem chemicals in the Head of Thea Foss Waterway⁴.

14. The Site is located within the boundaries of the Commencement Bay Nearshore/Tideflats Superfund site. This Site drains to Thea Foss Waterway, and is a source of elevated contaminants detected in sediments of the waterway⁵.

15. The PLPs named above have agreed to join together to perform interim remedial actions which shall involve portions of the Site to determine the source(s) of potential ongoing contamination to Thea Foss Waterway from the Site, and develop and implement interim remedial options for mitigation of that ongoing contamination. The City has agreed to act as lead party in performing the interim remedial actions.

III

ECOLOGY DETERMINATIONS

1. The PLPs are past or present "owners or operators" 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 the Tacoma Coal Gasification Site ("Site") and is located between South 21st and South 24th Streets, and A Street and Thea Foss Waterway, Tacoma, Washington.

3. The 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 is a release or threatened release of hazardous substances from the facility, as defined at RCW 70.105D.020(10).

5. By letters dated March 3rd, 4th, and 29th, 1993, Ecology notified the PLPs of their status as "potentially liable persons" under RCW 70.105D.040 after notice and opportunity for comment.

6. Pursuant to RCW 70.105D.030(1) and 70.105D.050, the Department 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. This Agreed Order addresses the implementation of necessary interim remedial actions on selected portions of the Site, as described below, which may present an immediate threat of release of hazardous substances to Thea Foss Waterway. This Order does not address all contamination on the Site and does not constitute final Site cleanup.

8. Based on the foregoing facts, Ecology believes the interim remedial actions required by this Order are 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 interim remedial actions and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein. These actions are to address the contamination and contaminant migration in the areas adjacent to the waterway, i.e., Blocks 2200 and 57 ("nearshore area") of the Site and the ongoing migration of contaminants into the stormwater system in the SR 705 ROW as outlined on Exhibit A. The specific tasks for this order are described below in summary fashion and in more detail in Exhibit B.

1. Prepare draft interim remedial action work plan to be submitted to Ecology for review, comment, and finally, for approval, in accordance with WAC 173-340-350. The work plan must include, but is not limited to:

A. Sampling and Analysis Plan, including QA/QC Project Plan.

- B. Interim Remedial Action Evaluation.
 - C. Safety and Health Plan.
 - D. Public Participation Plan.
 - E. List of any local permits that may have to be obtained prior to commencing field activities.
 - F. Engineering Report/Plans and Specifications.
 - G. Schedule of activities and milestones associated with the focused nature of the work.
2. Submit final interim remedial action work plan to Ecology.
 3. Implement and complete the tasks, as designated in the final, approved work plan.
 4. Submit to Ecology for review, comment, and finally, for approval draft focused site characterization and interim remedial action evaluation report.
 5. Submit to Ecology a final focused site characterization and interim remedial action evaluation report.
 6. Submit to Ecology for review, comment, and approval a PLP approved engineering report, if any, including design for interim remedial action within thirty (30) days of the submissions required under paragraph 5 herein. If the PLPs are not able to reach agreement and submit an approved engineering report within the requisite time, this Agreed Order shall terminate and Ecology may take such actions as are consistent with state law. The PLPs shall not be subject to penalty for failing to reach agreement between and amongst themselves regarding design for interim remedial action.
 7. If the PLPs submit and Ecology approves an interim remedial action plan submitted pursuant to paragraph 6 herein, then the PLPs shall implement

such action.

All exhibits are hereby incorporated into this Order by reference and are integral and enforceable parts of this Order.

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 Notices.

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. Ecology reserves the right to propose modifications to this Order should public comment disclose facts or considerations which indicate to Ecology that the Order is inadequate or improper in any respect. If the PLPs do not agree to any modifications proposed by Ecology, Ecology reserves the right to withdraw from this Agreed Order.

3. 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 at the Site under Ch. 70.105D RCW both prior to and subsequent to the issuance of this Order for investigations, remedial actions, and 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 indirect costs of direct activities.

The PLPs 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 an itemized statement of costs will result in interest charges.

Ecology entered into an agreement with the City of Tacoma, dated June 14, 1993 to receive pre-payment of remedial action costs. If the City pays remedial action costs pursuant to that pre-payment agreement with Ecology, it shall not be required to pay those costs again under this Agreed Order. The City is not released from liability for payment of remedial action costs to Ecology should the City of Tacoma fail to comply with the conditions of the pre-payment agreement, or the pre-payment agreement be found to be invalid for any reason.

4. Designated Project Coordinators.

The project coordinator for Ecology is:

Marv Coleman, Inspector/Site Manager

Ecology Southwest Regional Office

7272 Cleanwater Lane

Olympia, WA 98504-7775

(206) 586-4689

The project coordinator for the PLPs is:

Karen Larkin

Division Manager

Public Works Department

City of Tacoma

Tacoma, WA 98402

(206) 591-5588

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 or the PLPs 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 PLPs shall notify Ecology as to the identity of such engineer(s) or hydrogeologists, 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.

All work performed and costs incurred pursuant to this Order shall be deemed to be remedial action as defined by RCW 70.105D.020. Any action taken

pursuant to this Order and costs incurred hereunder constitute an Ecology supervised remedial action.

Except where necessary to abate an emergency situation, the PLPs 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.

6. Access.

Ecology or any Ecology authorized representative shall have the authority to enter and freely move about 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; 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. By signing this Agreed Order, the PLPs agree that this Order constitutes reasonable notice of access, and agree to allow access to the Site at all reasonable times for purposes of overseeing work performed under this Order. Ecology shall allow split or replicate samples to be taken by the PLPs during an inspection unless doing so interferes with Ecology's sampling. The PLPs shall allow split or replicate samples to be taken by Ecology. Prior to performing any sampling activities onsite, the PLPs shall provide seven (7) days notice to Ecology before any sampling activity, except in the event of an emergency, in which case notice will be given as soon as possible.

7. Public Participation.

The PLPs shall prepare and/or update 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.

8. Retention of Records.

The PLPs shall preserve in a readily retrievable fashion, during the pendency of the Order and 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, then the PLPs agree to include in their contract with such contractors or agents a record retention requirement meeting the terms of this paragraph. Absent appropriate record retention requirements in pre-existing contracts that the City may have with its contractors or agents, the City shall obtain from said contractors or agents any and all records pertaining to the work being performed pursuant to this Order, and retain those records according to the requirements of WAC 173-340-850.

9. Dispute Resolution.

If disputes arise regarding the implementation of this Order, the project coordinators will use their best efforts to resolve the dispute. If the project coordinators do not resolve the dispute, the PLPs may request the Ecology signatory to this Order, or his/her successor(s), to resolve the dispute. Such request shall be in writing and directed to the Ecology signatory. The signatory's resolution of the dispute shall be binding and final. If the PLPs do not request resolution of the dispute by the Ecology signatory, the Ecology project coordinator's decision regarding 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 remain responsible for timely compliance with the terms of the Order unless otherwise provided for by Ecology in writing.

10. Reservation of Rights/No Settlement.

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

Ecology reserves the right, however, to require additional remedial actions at the Site should it deem such actions necessary.

Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the releases or threatened releases of hazardous substances from the Site. The PLPs reserve the right to object to and raise defenses against any natural resource damage claims brought by Ecology, including those claims involving natural resource damages that occurred as a result of implementation of this Agreed Order.

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.

11. 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 the PLPs 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 the PLPs may have in the Site or any portions thereof, the PLPs shall serve a copy of this Order upon any prospective purchaser, lessee, transferee, assignee, or other successor in such interest. Except for transfers of property interests for security purposes, at least thirty (30) days prior to finalization of any transfer, the PLPs shall notify Ecology of the contemplated transfer. The PLPs shall notify Ecology of any contemplated transfer of interest for security purposes as soon as possible. In no event shall notice of such transfer be given later than seven (7) days after the date the transfer was finalized.

12. 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.

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 Agreed Order have been complied with. Ecology shall make a good faith effort to respond to any written request seeking confirmation that the Order has been satisfied within thirty (30) days

of receipt of the request. However, failure to respond within that time shall in no way affect the enforceability of this Order or relieve the PLPs of any obligations under this Order or create any liability for Ecology.

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 that any of the PLPs refuse, without sufficient cause, to comply with any term of this Order, the PLPs will be liable for:
 - (1) up to three times the amount of any costs incurred by the state of Washington as a result of one or more PLP's refusal to comply; and
 - (2) civil penalties of up to \$25,000 per day for each day one or more PLP's 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.
2. Each PLP named in this Agreed Order is individually responsible for compliance with the terms and conditions of this Order. Compliance with this Agreed 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

Agreed Order No. DE 931C-S166

Page 16

Order against any PLP is not conditioned on the performance of or enforcement against any PLP or group of PLPs.

WATERWAY PROPERTIES, INC.

RECEIVED

By: KATE
Its: VICE - PRESIDENT

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DEPARTMENT OF
S W REGIONAL OFF

AGREED ORDER No. DE 93TC-S166

Effective Date of this Order: October 28, 1993

WATERWAY PROPERTIES, INC.

By: _____

Title: _____

STATE OF WASHINGTON, DEPARTMENT OF
ECOLOGY

By: Megan White

Title: District Manager

Dept of Ecology

AGREED ORDER No. DE 93TC-S166

Effective date of this Order: October 28, 1993

STATE OF WASHINGTON, DEPARTMENT
OF TRANSPORTATION

By:

Title:

[Signature]
District Administrator

STATE OF WASHINGTON, DEPARTMENT OF
ECOLOGY

By:

Title:

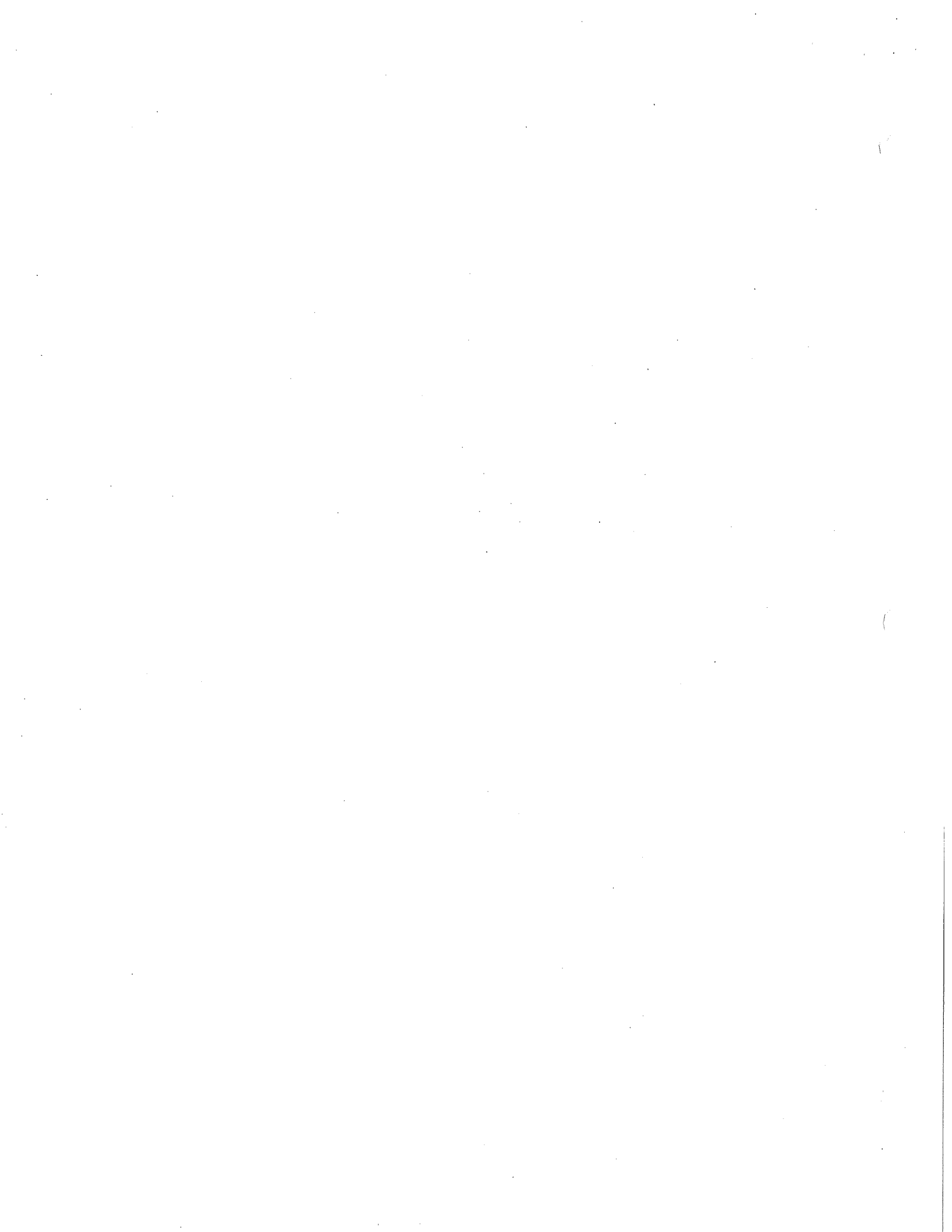
[Signature]
Section Manager
Dept of Ecology

Approved as to form:

[Signature]

Deborah L. Cade

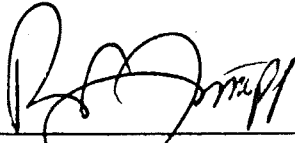
Assistant Attorney General




AGREED ORDER NO. DE 93TC-S166

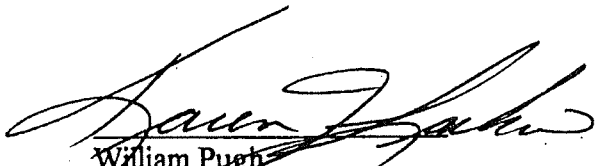
CITY OF TACOMA

Countersigned:

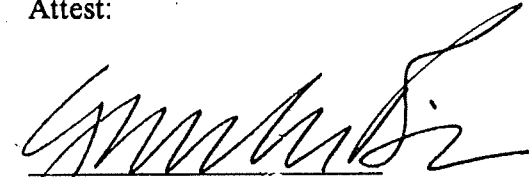

Peter Luttrupp
Director of Finance

10/25/93

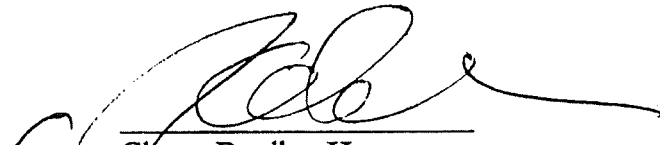
By: 
RAY E. CORPUZ, JR.
City Manager


William Pugh
Director of Public Works

Attest:


City Clerk

Approved as to form:


Glenna Bradley-House
Senior Assistant City Attorney

AGREED ORDER No. DE 93TC-S166

Effective date of this Order: October 28, 1993

CITY OF TACOMA

STATE OF WASHINGTON, DEPARTMENT OF

ECOLOGY

By: _____

By: Megawulubite

Karen L.R. Vialle, Mayor

Title: Action Manager

Attest:

Dept. of Ecology

City Clerk

Approved as to Form:

Assistant City Attorney

AGREED ORDER No. DE 93TC-S166

Effective date of this Order: October 28, 1993

~~ADVANCE ROSS CORPORATION~~
SUB COMPANY

By: James Bussler
Title: Attorney

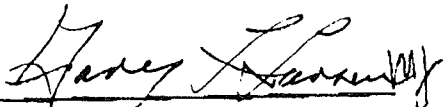
STATE OF WASHINGTON, DEPARTMENT OF

ECOLOGY

By: Megan White
Title: Section Manager
Dept of Ecology

AGREED ORDER NO. DE 93TC-S166¹

PacifiCorp

By 

Title Director, Environmental Services

Date September 28, 1993

¹ This signature page is intended to be attached to Agreed Order No. DE 93TC-S166 issued by the Washington Department of Ecology.

AGREED ORDER No. DE 93TC-S166

Effective date of this Order: October 28, 1993

PACIFICORP

By: _____

Title: _____

STATE OF WASHINGTON, DEPARTMENT OF
ECOLOGY

By: Megan White

Title: Section Manager
Dept of Ecology

AGREED ORDER No. DE 93TC-S166

Effective date of this Order: October 28, 1993

WASHINGTON NATURAL GAS **

STATE OF WASHINGTON, DEPARTMENT OF
ECOLOGY

By: [Signature] dated: 9/21/93
Title: SR. VICE PRESIDENT LEGAL ADMIN.

By: [Signature]
Title: Section Manager
Dept of Ecology

** Execution of this Agreed Order is contingent upon both ~~a) the execution of the same Agreed Order by all other "PLPs" (as defined in this Agreed Order) and b) the execution of the PLP Agreement by all parties (defined as "PLPs" in that agreement) which Agreement also defines the manner in which costs are shared to fulfill the terms of the Agreed Order and PLP Agreements.~~

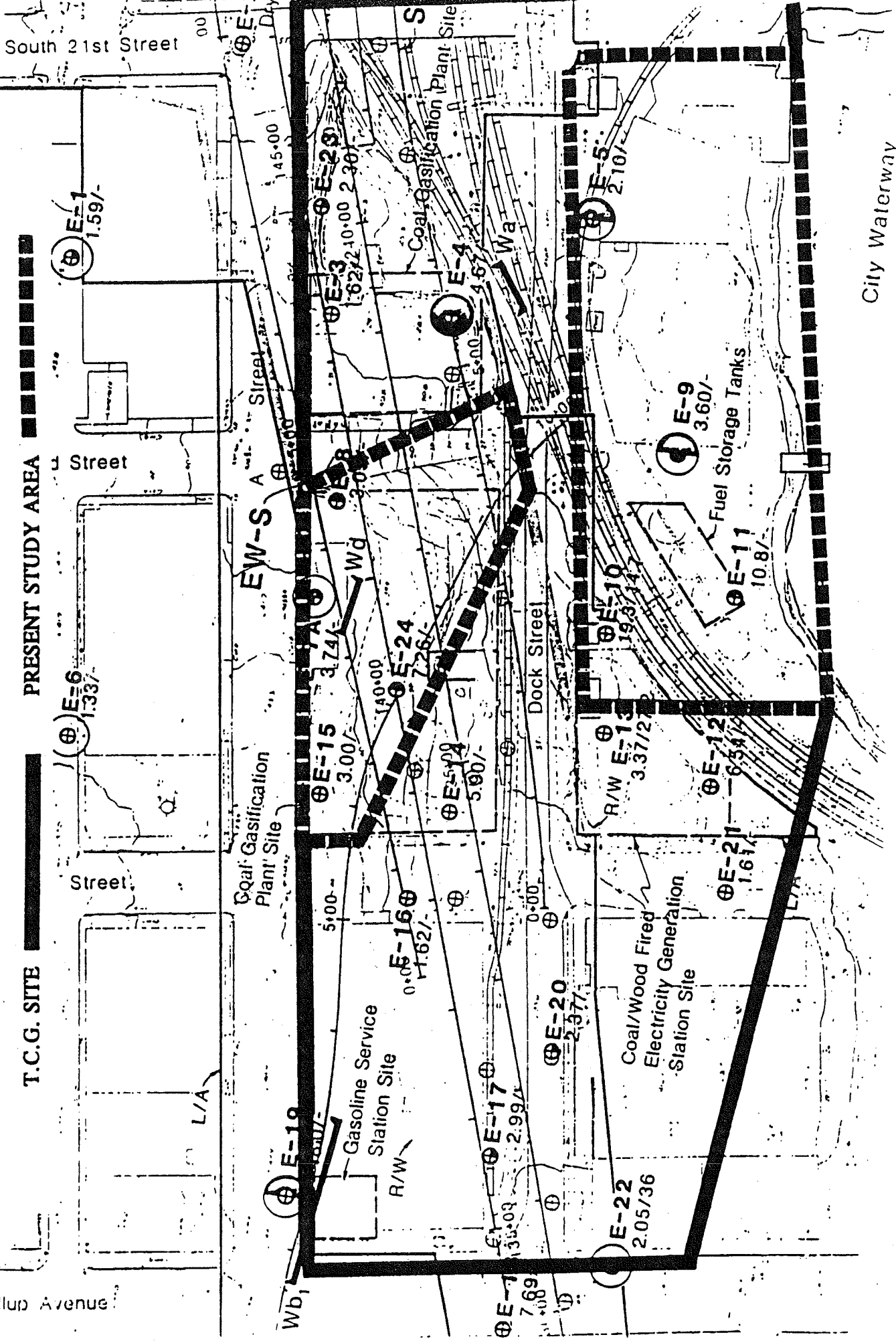
SB
10/6/93

EXHIBIT A

AREAS OF INVESTIGATION

T.C.G. SITE

PRESENT STUDY AREA



Puyallup Avenue

EXHIBIT B

TACOMA COAL GASIFICATION SITE

SCOPE OF WORK AND SCHEDULE FOR

INTERIM REMEDIAL ACTION

AGREED ORDER NO. DE 93TC-S166

All work performed at and around the Site pursuant to this Agreed Order shall be accomplished in accordance with Chapter 173-340 WAC. All submittals shall be in accordance with the requirements in WAC 173-340-840.

TASK 1 - DRAFT FOCUSED SITE CHARACTERIZATION AND INTERIM REMEDIAL ACTION

EVALUATION WORK PLAN: Prepare a focused site characterization work plan consistent with the requirements of WAC 173-340-350 and in full compliance with WAC 173-340-430. Incorporate the sub-tasks listed below as elements of the work plan. Include a detailed scope and schedule of tasks, up to and including submittal of the Ecology approved engineering report/plans and specifications. Submit the draft work plan to Ecology for review and comment.

Schedule: The draft focused site characterization and interim remedial action evaluation work plan shall be submitted to Ecology within 30 calendar days after the effective date of the Agreed Order.

SUB-TASK 1.1 - DRAFT SAMPLING AND ANALYSIS PLAN: In accordance with a focused site characterization, prepare a draft sampling and analysis plan to:

A. Identify the vertical and horizontal extent of the contaminants in the areas adjacent to the waterway, i.e., Blocks 2200 and 57 ("nearshore area"). This identification of contaminants is to include the soils, groundwater, and bank soils/sediments within this area.

B. Determine the shallow aquifer hydrogeological characteristics of the nearshore area, including groundwater elevations and gradient,

direction of flow, hydraulic conductivity, location of impervious strata, and bank seep data (as practical), and their effect on contaminant migration toward the waterway.

C. Include in sub-tasks A & B above an investigation of the area where three storage tanks were previously located in Block 2200 and determine what impact, if any, that the use of these structures has had on the area's contamination problems in accordance with the scope of the focused site characterization.

D. Identify the source and extent of contaminants entering the storm water drainage system in the DA-1 Line. This shall include study of the sub-drain system, groundwater transport, and/or stratigraphic mechanisms of contaminant migration into the storm water system.

The sampling and analysis plan shall be prepared in accordance with the requirements of WAC 173-340-820. Proposed analytical procedures shall be in accordance with WAC 173-340-830.

SUB-TASK 1.2 - INTERIM REMEDIAL ACTION EVALUATION: In accordance with WAC 173-340-350(6)(e) and WAC 173-340-430(6), plan an evaluation of interim remedial actions, to be included in the draft and final reports.

SUB-TASK 1.3 - DRAFT SAFETY AND HEALTH PLAN: All work performed at the Site shall be in accordance with the provisions specified in WAC 173-340-810(1) and the plan shall be prepared per WAC 173-340-810(2). Although the health and safety plan must be submitted to Ecology for review and comment, Ecology does not have the authority to approve the plan.

SUB-TASK 1.4 - DRAFT PUBLIC PARTICIPATION PLAN: A public participation plan shall be prepared per WAC 173-340-600(8).

SUB-TASK 1.5 - LOCAL PERMITS: Provide a list of any city or county permits that must be obtained prior to commencing field activities, so that Ecology can determine what, if any, impacts from permit processing may affect the project schedule.

SUB-TASK 1.6 - ENGINEERING REPORT/PLANS AND SPECIFICATIONS: In accordance with WAC 173-340-430, in particular subsections (6)(c), (d), (e), (f), and (7), plan a report to present design and construction specifications for preferred interim remedial action(s).

SUB-TASK 1.7 - SCHEDULE: Prepare a schedule of activities and milestones.

TASK 2 - SUBMIT A FINAL FOCUSED SITE CHARACTERIZATION AND INTERIM REMEDIAL

ACTION EVALUATION WORK PLAN: Submit a final work plan to Ecology for review and approval. The final work plan shall address Ecology's comments on the draft work plan.

Schedule: Submit the final focused site characterization and interim remedial action evaluation work plan within 21 calendar days after receipt of Ecology's comments on the draft work plan.

TASK 3 - IMPLEMENT AND COMPLETE THE FOCUSED SITE CHARACTERIZATION AND INTERIM

REMEDIAL ACTION EVALUATION TASKS: Carry out the specific tasks of the investigation and evaluation of interim actions as designated in the approved final work plan.

Schedule: The specific tasks of the investigation shall be completed in accordance with the schedule in the approved final work plan.

TASK 4 - DRAFT FOCUSED SITE CHARACTERIZATION AND INTERIM REMEDIAL ACTION

EVALUATION REPORTS: Compile and interpret data from pertinent investigations and sampling at the Site. Evaluate potential interim remedial actions to mitigate ongoing contamination of the waterway and propose a schedule for

implementation. Submit a draft report to Ecology for review and comment.

Schedule: The draft focused site characterization and interim remedial action evaluation report shall be completed in accordance with the schedule in the approved final work plan.

TASK 5 - FINAL FOCUSED SITE CHARACTERIZATION AND INTERIM REMEDIAL ACTION

EVALUATION REPORT: Submit a final focused site characterization and interim remedial action evaluation report which addresses Ecology's comments on the draft report. This report shall include a preferred option for interim remedial action.

Schedule: Submit the final report within 21 calendar days after receipt of Ecology's comments on the draft report. Ecology will solicit public review and comment on this report and the selected interim action(s).

TASK 6 - ENGINEERING REPORT/PLANS AND SPECIFICATIONS: Prepare and submit a plp approved (subject to Section IV(6)) engineering report with plans, specifications, and proposed schedule for the interim remedial activities to be implemented for approval by Ecology.

Schedule: Submit this report within 30 calendar days of submission of the report in Task 5.

TASK 7 - IMPLEMENTATION OF INTERIM REMEDIAL ACTIONS: Implement the Ecology approved interim remedial action(s) designed to mitigate ongoing contamination to the Waterway, if any.

Schedule: Implementation of the interim remedial action(s) shall be in accordance with an Ecology approved yet to be determined schedule, based on recommendations included in the Task 6 deliverables.

EXHIBIT C

REFERENCES

1. MAKERS Architecture and Urban Design, Draft Thea Foss Waterway Design and Development Plan, prepared for City of Tacoma Planning & Development Department, 1992.
2. Hart Crowser & Associates, Soil and Ground Water Quality Evaluation SR-705 Tacoma Spur, Tacoma, Washington, Report No. J-1210-09, prepared for Washington State Department of Transportation, 1984.
3. LPAH refers to Low Molecular Weight Polynuclear Aromatic Hydrocarbons; HPAH refers to High Molecular Weight Polynuclear Aromatic Hydrocarbons. U.S. Environmental Protection Agency, Region 10, Commencement Bay Nearshore/Tideflats, Record of Decision, 1989.
4. Tetra Tech, Commencement Bay Nearshore/Tideflats Remedial Investigation, Final Report No. EPA-910/9-85-134b, prepared for Ecology and US EPA, 1985.
5. U.S. Environmental Protection Agency, Region 10, Commencement Bay Nearshore/Tideflats, Record of Decision, 1989.

ISSUES TO BE INCLUDED IN FOCUSED SITE CHARACTERIZATION
AND INTERIM REMEDIAL ACTION EVALUATION REPORTS

[NOT A PART OF AGREED ORDER; TO BE USED AS GUIDANCE
IN FORMULATING INTERIM ACTION WORK PLANS]

INTRODUCTION

- Purpose and Scope
- Study Area Description and History
- Results of Previous Investigations
- Description of How the Current Investigation Expands on
Earlier Investigations of the Site

METHODOLOGY

- Soil Investigation
- Groundwater Investigation
- Bank Soils/Seeps Investigation
- Borehole and Well Drilling and Development
- Summary of Analytical Methods, Including Quality Assurance/Quality
Control

SOILS

- Stratigraphy, As It Affects Contaminant Migration
- Areal and Vertical Extent of Contamination Threatening the Waterway
- Phase Distribution of Contamination: Liquid/Solid/Tarry Soils

GROUNDWATER

- Hydrostratigraphic Units and Aquifer Hydraulic Characteristics,
Including Identification of First Continuous Subsurface Impervious
Layer, Potentially Affecting the Waterway
- Areal and Vertical Extent of Contamination Entering or Potentially
Entering the Waterway
- Phase Distribution of Contamination: Soluble/Insoluble

- Groundwater Movement: Recharge/Discharge/Depth/Gradient Relative to Contaminant Threat to the Waterway

BANK SOILS / SEEPS

- Evidence of Free Coal Tar or Other Contaminants Discharging to Surface Water from Intertidal Zone Banks or Seeps

STORAGE TANKS PREVIOUSLY IN BLOCK 2200

- Evidence of Tank Leakage Prior To or During Removal
- If Present, Identify Tank Leak Contaminants and Extent of Migration Toward the Waterway

STORMWATER DRAINAGE SYSTEM

- Locate and Determine Routing of the SR 705 Spur/DA-1 Line Subdrain System
- Location and Extent of Contamination Infiltrating System
- Mechanism for Contaminant Infiltration

CONTAMINANT FATE AND TRANSPORT TOWARD THE WATERWAY

- Potential Routes of Contaminant Migration to Waterway
- Quantitative Chemistry of Contaminants
- Migration Routes of DNAPL and LNAPL Compounds
- Migration Routes of Aqueous Phase Contaminants
- Estimates of Contaminant Loading to Waterway
- Other Potential Contaminant Fates, e.g., Stratigraphic Pooling
- Impacts to Site Soils, Groundwater, Surface Water, and Sediments
- Comparisons to Cleanup Standards of the Model Toxics Control Act

INTERIM REMEDIAL ACTION EVALUATION STUDY

- Preliminary Interim Remedial Action Evaluation Study
- Initial Screening of Alternative Interim Remedial Actions
(Some Could be Considered Concurrently With the Focused Site
Characterization, Depending Upon Data Generation)
- Efficacy Analysis of Interim Remedial Action Alternatives
- Cost Analysis of Interim Remedial Action Alternatives
- Comparative Analysis of Interim Remedial Action Alternatives
- Conclusions and Recommended Interim Remedial Action(s)
- Discussion of Chosen Alternative's Compliance With WAC 173-340-710

