

Great Western
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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:)
)
GREAT WESTERN CHEMICAL)
6900 Fox Avenue South)
Seattle, Washington,)
)
Potentially Liable Person)

AGREED ORDER
No. DE TC91-N203

TO: GREAT WESTERN CHEMICAL
6900 Fox Avenue South
Seattle, Washington

I. JURISDICTION

This Order is issued by the Washington State Department of Ecology (Ecology) pursuant to RCW 70.105D.050(1).

II. FINDINGS OF FACT

The mutual objectives of the parties in entering into this Order are to prevent the release of hazardous substances from the Site, to prevent contamination of the waters of the state, and to protect the public health, welfare and the environment. To accomplish these objectives and to resolve the matter constructively and without litigation, Great Western Chemical Company ("GWC") agrees to perform the actions required by the Order. Based upon the information available

AGREED ORDER

1 to it and without adjudication of any facts or legal issues,
2 and without admission of any facts by GWC, the Washington
3 State Department of Ecology (Ecology) finds that the following
4 facts exist for the purpose of issuance of this Order:

5 A. GWC has operated a chemical and petroleum
6 repackaging and distribution facility at 6900 Fox Avenue
7 South, in an industrial district near the Duwamish waterway in
8 south Seattle, for over 30 years. The Site occupies an area
9 of about two-and-one-half acres, and is bounded to the north
10 by South Willow Street, to the west by Fox Avenue South, to
11 the south by an existing railroad spur, and to the east by
12 property that Marian Enterprises currently owns and leases to
13 the Nelson Trucking Company for the storage of truck trailers.

14 B. The GWC facility has been in use for commercial
15 repackaging and distribution of chemical and petroleum (lube
16 oil) products since the mid-1950s. Various products
17 manufactured elsewhere are delivered to the Site by truck and
18 rail, stored, repackaged, and then sold for use off-site by
19 others. On-site activities have included the repackaging of
20 bulk chemical and petroleum products, usually from large-size
21 drums and storage tanks into 55 gallon drums or commercial
22 delivery trucks, and the redistribution of already packaged
23 products. The bulk product handling has involved pumping
24 through buried pipes as well as hoses on the surface.

1 C. The facility has contained a number of underground
2 storage tanks (USTs). All of the tanks have been taken out of
3 operation and removed or placed in interim closure status in
4 connection with the major remodeling of the GWC facility.
5 Sixteen of the USTs are arranged in two clusters. One cluster
6 consisted of 10 double-compartment 12,000 gallon product tanks
7 (6000 gallons per compartment) which were located in the
8 central east-half of the facility prior to their removal in
9 1990. Four of these tanks were leased to the SIKA Corporation
10 of Lyndhurst, New Jersey between 1985 and 1989 for the storage
11 of calcium chloride or sodium hydroxide-based concrete
12 additives. A fifth tank was used to hold water generated from
13 the washout of the four SIKA tanks. The other six USTs are
14 single-compartment 10,000 gallon product tanks and are still
15 located under the drumming shed beneath a concrete slab in the
16 southeast corner of the Site.

17 D. Products previously stored in the USTs by GWC
18 included:

- 19 • acetone
- 20 • advance antifreeze (ethylene glycol)
- 21 • diethylene glycol (butyl cullosolb)
(2-butoxyethanol)
- 22 • cullosolb solvent (2-ethoxyethanol)
- 23 • ethylene glycol
- 24 • isopropyl acetate
- 25 • isopropanol
- 26 • methanol
- tetrachloroethene

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- methyl isobutyl ketone
- methyl ethyl ketone
- propylene glycol
- solvent GW 350 B (95% petroleum distillate, 2% alkyl-benzene)
- solvent GW 336 (100% stoddard solvent)
- solvent GW 450 (2% xylene, remainder paraffin hydrocarbons)
- toluene
- xylene
- diesel no. 1

E. An additional UST is located under the driveway of the main warehouse loading dock near the building footings. The tank, which was used to store diesel fuel, has been emptied and is currently in interim closure status. All USTs are believed or were confirmed upon removal to be single-shell, steel construction.

F. In addition to the 16 product USTs, GWC has used nine large, above-ground storage tanks (ASTs), (some with double compartments), ranging up to a maximum capacity of about 13,000 gallons, as well as a half dozen or so small ASTs with nominal capacity of 1000 gallons or less. These tanks have stored various chemical and petroleum products, including acids and lube oils.

G. As part of an overall remodeling of its facilities, GWC retained the engineering firm Hart-Crowser to provide engineering assistance in the removal of its USTs, AST reconditioning and other facility improvements. Hart-Crowser

1 performed a geotechnical engineering evaluation and presented
2 its observations and recommendations regarding GWC's proposed
3 facility improvements in a report to GWC dated June 29, 1990.
4 In regard to UST removal, Hart-Crowser notified Ecology and
5 the U.S. Environmental Protection Agency (USEPA) of its
6 investigative findings and also provided notice of GWC's
7 intent to remove underground tanks at the facility. In the
8 course of its study, Hart-Crowser engaged in some subsurface
9 and groundwater investigation at the GWC Site. To date, GWC
10 has installed 27 soil borings, 11 of which have been completed
11 as groundwater monitoring wells. For more detail, see the
12 Hart-Crowser two volume report included as Exhibit B. Based
13 on analysis completed to date, Hart-Crowser determined that
14 the following hazardous substances are present at the Site:

15 Volatile Compounds Identified In Soil:

- 16 • 1,1-Dichloroethane
- 17 • 1,1-Dichloroethene
- 18 • 1,1,1-Trichloroethane
- 19 • 1,1,1-Trichloroethene
- 20 • Trichloroethene
- 21 • 1,2-Dichloroethane
- 22 • 1,2-Dichloropropane
- 23 • 2-Butanone
- 24 • 4-Methyl-2-Pentanone
- 25 • Acetone
- 26 • Benzene
- Chloroform
- cis-1,2-dichloroethene
- Diethylene Glycol

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- Ethanol
- Ethylbenzene
- Ethylene
- Ethylene glycol
- iso-Propanol
- Light Hydrocarbons
- Methanol
- Methylene Chloride
- Mineral Spirits
- n-Propanol
- Propylene Glycol
- Stoddard Solvent
- Tetrachloroethylene (Perchloroethylene)
- Toluene
- Xylenes

Semivolatile Organic Compounds In Soil:

- Naphthalene
- 2-Methylnaphthalene
- Pentachlorophenol
- 4-Methylphenol
- Bis(2-ethylhexyl)phthalate
- Di-n-butyl phthalate
- Butylbenzylphthalate
- Di-n-octyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Acenaphthene
- Fluorene
- Phenanthrene
- Anthracene
- Fluoranthene
- Pyrene
- Dibenzofuran

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Metal Compounds In Soil:

- Arsenic
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Zinc

Compounds Identified In Groundwater:

- 1,1-Dichlorethane
- 1,1,1-Trichloroethane
- 1,2-Dichloroethene
- cis-1,2-Dichloroethene
- 1,2-Dichloropropane
- 2-Butanone
- Acetone
- Benzene
- Chloroform
- Ethylbenzene
- Light Hydrocarbons
- Methylene Chloride
- Tetrachloroethene (Perchloroethylene)
- Toluene
- Trichloroethene
- Trichlorofluoromethane
- Vinyl Chloride
- Xylenes

H. In regard to soils, toluene and tetrachloroethane (PCE) were the compounds most commonly detected. Toluene was also the most frequently detected substance in the groundwater.

1 I. Several interim remedial measures have occurred at
2 the Site to date. Ten double-compartment USTs and associated
3 underground product and vent piping systems have been removed
4 from the facility. Three bermed soil stockpiles were
5 generated from the UST and piping removal operations. Two
6 have been transported off-site for disposal at Arlington,
7 Oregon. Concrete removed with the tanks has been disposed
8 off-site. Further, a series of soil vapor extraction pipes
9 was installed in the base of the tank excavation as the first
10 part of a soil vapor extraction system that may be implemented
11 in the future.

12 J. GWC is unaware of the exact sources or causes of the
13 contamination that has been discovered at the Site to date.
14 No inventory problems have been noted. The RI/FS will attempt
15 to identify the exact sources of contamination.

16 III. DETERMINATIONS

17 Based on the foregoing findings of fact, supporting
18 information, and applicable statutes and regulations, Ecology
19 makes the following determinations:

20 1. The GWC Site is a "facility" as defined in RCW
21 70.105D.020(3).

22 2. GWC is a "owner or operator" of the Site as defined
23 in RCW 70.105D.020(6).

1 3. The substances described in Section II, paragraph G
2 in the foregoing section, are "hazardous substances" as
3 defined in RCW 70.105D.020(5).

4 4. The presence of these substances at the GWC Site
5 constitutes a "release" as defined in RCW 70.105D.020(10).

6 5. By letter dated December 11, 1990 to Ecology, GWC
7 waived the procedural requirements of WAC 173-340-500 and
8 accepted, for the limited purpose of negotiating and
9 implementing this Agreed Order, its status as a potentially
10 liable person, as defined under RCW 70.105D.020(8) and RCW
11 70.105D.040(1).

12 6. Pursuant to RCW 70.105D.030(1) and 70.105D.050,
13 Ecology may require potentially liable parties to investigate
14 or conduct remedial actions with respect to the release or
15 threatened release of hazardous substances.

16 7. Based on the foregoing facts and in the best
17 interests of the public, Ecology has determined that GWC must
18 take the remedial actions set forth below.

19 IV. WORK TO BE PERFORMED

20 Based on the foregoing facts and determinations, it is
21 hereby ordered and agreed that GWC perform the remedial action
22 set forth below. The required remedial action is more fully
23 described in the work plan outline and schedule attached to
24 this Order as Exhibit A. Exhibit A is incorporated by this
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1 reference and is an integral and enforceable part of this
2 Agreed Order.

3 Based on the results of the subsurface investigations to
4 date, further work is required to characterize the extent and
5 nature of contaminants in soil and groundwater at the Site.
6 Such investigations may reveal that further interim remedial
7 action is needed at the Site. Any further interim remedial
8 action chosen for the Site will be subject to public notice
9 and will not constitute a substantial majority of the final
10 cleanup action likely to be selected. GWC will also need to
11 perform an environmental and health risk assessment and
12 feasibility study of alternative remediation options at the
13 Site. Pilot or treatability studies may be required in order
14 to evaluate various remediation options.

15 V. TERMS AND CONDITIONS OF ORDER

16 1. Definitions. Unless otherwise specified, the
17 definitions set forth in ch. 70.105D RCW and ch. 173-340 WAC
18 shall control the meanings of the terms used in this Order.

19 2. Public Notices. RCW 70.105D.030(2)(a) requires that
20 this Order be subject to public notice. Ecology shall
21 maintain the responsibility for public notice and
22 participation at the Site. Ecology shall provide such public
23 notice in accordance with the public participation plan
24 developed for this Site. GWC shall be entitled to review and
25

26 AGREED ORDER

1 comment on the public participation plan before it is adopted
2 by Ecology.

3 3. Modification of Order. Ecology reserves the right
4 to modify or withdraw any provision of this Order should
5 public comment disclose facts or considerations which indicate
6 to Ecology that the Order is inadequate or improper in any
7 respect. GWC reserves its right to withdraw its consent to
8 this Order if Ecology revises this Order in any way based on
9 public comment received.

10 According to WAC 173-340-600(10), the public comment.
11 period shall be thirty (30) days in duration. The public
12 comment period must be completed before this Agreed Order
13 becomes effective.

14 4. Community Relations. Ecology shall be responsible
15 for community relations at the Site. GWC shall help
16 coordinate and implement community relations for the Site.
17 Ecology shall allow GWC to review fact sheets, press releases,
18 and public notices prior to the release of such information,
19 and shall, where possible, accommodate GWC's concerns. These
20 documents will be submitted to GWC for review one week prior
21 to their release. In the event of disagreement over the
22 contents of any document prepared by Ecology for the purposes
23 of community relations, Ecology shall make the final decision
24 about its content.

1 5. Remedial Action Costs. GWC agrees to pay Ecology
2 costs incurred by Ecology pursuant to this Agreed Order.
3 These costs shall include work performed by Ecology or its
4 contractors for investigations, remedial actions, and order
5 preparation, negotiations, oversight and administration.
6 Ecology costs shall include costs of direct activities; e.g.,
7 employee salary, laboratory costs, contractor fees, and
8 employee benefit packages; and agency indirect costs of direct
9 activities. GWC agrees to pay the required amount within
10 ninety (90) days of receiving from Ecology an itemized
11 statement of costs that includes a summary of costs incurred,
12 a general description of work performed, an identification of
13 involved staff, and the amount of time spent by involved staff
14 members on the project. Failure to pay Ecology's costs within
15 ninety (90) days of receipt of the itemized statement of costs
16 may result in interest charges. Payment shall be made payable
17 to the State of Washington Toxic Control Account and sent to:

18 Washington Department of Ecology
19 P.O. Box 5128
20 Olympia, Washington 98503-5128

21 6. Designated Project Coordinators. GWC's project
22 coordinator is:

23 Lee R. Zimmerli
24 808 S.W. 15th Avenue
25 Portland, Oregon 97205 (503) 228-2600

1 The Ecology project coordinator is:

2 Ching-Pi Wang
3 Department of Ecology
3190 160th Ave SE
4 Bellevue, Washington 98008 (206) 649-7134

5 The project coordinators shall be responsible for overseeing
6 the implementation of this Order. To the maximum extent
7 possible, communications between Ecology and GWC, and all
8 documents, including reports, approvals, and other
9 correspondence concerning the activities performed pursuant to
10 the terms and conditions of this Order, shall be directed
11 through the project coordinator(s). Should Ecology or GWC
12 change project coordinator(s), written notification shall be
13 provided to Ecology or GWC at least ten (10) calendar days
14 prior to the change. The project coordinators may make minor
15 modifications to the work plan, provided there is mutual
16 agreement of the parties evidenced by written documentation.

17 7. Performance. All work performed pursuant to this
18 Order shall be under the direction and supervision, as
19 necessary, of a professional engineer or hydrogeologist or
20 similar expert, with appropriate training, experience and
21 expertise in hazardous waste site investigation and cleanup.
22 GWC shall notify Ecology as to the identity of such
23 engineer(s) or hydrogeologist(s) or similar expert(s).

24 8. Access. Ecology or its authorized representative
25 shall have the authority to enter and freely move about the

1 Site at all reasonable times for the purposes of, inter alia:
2 inspecting records, operation logs, and contracts related to
3 the work being performed pursuant to this Order; reviewing the
4 progress in carrying out the terms of this Order; conducting
5 such tests or collecting samples as Ecology or the project
6 coordinator may deem necessary; using a camera, sound
7 recording, or other documentary type equipment to record work
8 done pursuant to this Order; and verifying the data submitted
9 to Ecology by GWC. Ecology and its authorized representative
10 agree to comply with applicable health and safety standards
11 when entering the Site. By signing this Agreed Order, GWC
12 agrees that this Order constitutes reasonable notice of
13 access, and agrees to allow access to the Site during regular
14 business hours, 8:00 a.m. to 5:00 p.m. Monday through Friday,
15 and any other time at which remedial actions pursuant to this
16 Order are underway. Emergency access shall be governed by WAC
17 173-340-800(6). Ecology shall allow split or replicate
18 samples to be taken by GWC during an inspection, provided GWC
19 has personnel readily available on-site to perform such
20 sampling. GWC shall allow split or replicate samples to be
21 taken by Ecology. Both Ecology and GWC shall provide
22 reasonable notice to each other before any sampling activity.

23 9. Retention of Records. GWC shall preserve in a
24 readily retrievable fashion, during the pendency of this Order
25 and for ten (10) years from the date of completion of

1 compliance monitoring, all records, reports, documents, and
2 underlying data in its possession relevant to this Order.
3 Should any portion of the work performed hereunder be
4 undertaken through contractors or agents of GWC, then GWC
5 agrees to include in their contract with such contractors or
6 agents a provision requiring submittal of applicable records,
7 reports, documents and underlying data to GWC for record
8 retention.

9 10. Dispute Resolution. GWC may request Ecology to
10 resolve disputes which may arise during the implementation of
11 this Order. Such request shall be in writing. Ecology
12 resolution of the dispute shall be binding and final. Unless
13 Ecology agrees to an extension in writing, GWC remains
14 responsible for timely compliance with this Order during the
15 duration of the dispute.

16 11. Reservation of Rights/No Settlement. This Agreed
17 Order is not a settlement under ch. 70.105D RCW. Ecology's
18 signature on this Order in no way constitutes a covenant not
19 to sue or a compromise of any Ecology rights or authority.
20 Ecology will not, however, bring an action against GWC to
21 recover remedial action costs paid to and received by Ecology
22 under this Agreed Order. In addition, Ecology will not take
23 additional enforcement actions against GWC to require those
24 remedial actions required by this Agreed Order, provided GWC
25 complies with this Agreed Order. Ecology reserves the right,

1 however, to require additional remedial actions at the Site
2 should it deem such actions necessary.

3 In the event Ecology determines that conditions at the
4 Site are creating or have the potential to create a danger to
5 the health or welfare of the people on the Site or in the
6 surrounding area or to the condition of the environment,
7 Ecology may order GWC to stop further implementation of this
8 Order for such period of time as needed to abate the danger.

9 12. Transference of Property. No voluntary or
10 involuntary conveyance or relinquishment of title, easement,
11 leasehold, or other interest in any portion of the Site shall
12 be consummated by GWC without provision for continued
13 implementation of all requirements of this Order and
14 implementation of any remedial actions found to be necessary
15 as a result of this Order.

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

23 13. Compliance with Other Applicable Laws. All actions
24 carried out by GWC pursuant to this Order shall be done in
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1 accordance with all applicable federal, state, and local
2 requirements.

3 14. Modification. Ecology and GWC may modify this Order
4 by mutual written agreement. Public notice and opportunity
5 for comment on substantial modifications will be governed by
6 the public participation plan.

7 VI. SATISFACTION OF THIS ORDER

8 The provisions of this Order shall be deemed satisfied
9 upon GWC's receipt of written notice from Ecology that GWC has
10 completed the remedial activity required by this Order, as
11 amended by any modifications, and that all other provisions of
12 this Agreed Order have been complied with.

13 VII. ENFORCEMENT

14 In the event GWC refuses, without sufficient cause, to
15 comply with any term of this Order, this Order may be enforced
16 as follows:

17 1. The Attorney General may bring an action to enforce
18 this Order in state court.

19 2. In any such action, GWC may be liable for up to
20 three times the amount of any costs incurred by the State of
21 Washington as a result of the refusal to comply.

22 3. Additionally, in any such action, GWC may be liable
23 for civil penalties of up to \$25,000 per day for each day they
24 refuse to comply.

1 4. Should Ecology conduct or provide for conducting the
2 remedial action, the Attorney General will bring an action to
3 recover all costs incurred by the state for such action.

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

7 VIII. EFFECTIVE DATE

8 This Agreed Order shall become effective upon completion
9 of the public comment period and upon subsequent execution by
10 both parties.

11 Effective date of this Order: September 30, 1991

12 GREAT WESTERN CHEMICAL

WASHINGTON STATE
DEPARTMENT OF ECOLOGY

13
14 Lee R. Zimmerli 9/11/91
15 LEE ZIMMERLI

16 Mike Gallagher
17 MIKE GALLAGHER
18 Section Supervisor
19 Toxics Cleanup Program
20 Northwest Regional Office

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EXHIBIT A

GREAT WESTERN CHEMICAL COMPANY RI/FS WORK PLAN OUTLINE

I INTRODUCTION

This section presents a brief discussion of the site and provides a list of existing technical reports and information on site characterization and conditions. It also describes the format of this RI/FS work plan and the overall goal of the project. The RI/FS work plan will be submitted to Ecology for approval.

II TECHNICAL APPROACH

This section presents our overall technical approach to the RI/FS. The conceptual model presents our general understanding of potential waste sources, pathways, and receptors at the site. This information is used to develop our conceptual understanding of potential risks the site may pose to human health and the environment. The conceptual model aided in identifying our sampling locations for the RI as well as identification of potential remedial technologies for the site.

III REMEDIAL INVESTIGATION (RI)

This section presents a detailed discussion of the RI for the GWC site.

TASK 1. Well Installation and Soil Sampling

Task 1 presents a detailed discussion of our plans to advance soil borings and install additional groundwater monitoring wells on and off the site during the RI. The purpose is to increase our understanding of the geology, hydrogeology, soil and groundwater quality, contaminant migration routes, and routes of exposure. Our work under this task will include investigation for the presence of Dense Non-Aqueous Phase Liquids (DNAPLs). The discussion presents our rationale for selection of soil sampling and well locations, in addition to well screen locations.

TASK 2. Groundwater Flow and Quality Assessment

The groundwater assessment details our procedures and rationale for additional assessment of groundwater. This assessment includes measuring fluid levels in monitoring wells, conducting a tidal study, and collecting and analyzing groundwater samples from new and existing monitoring wells located on and off the site.

TASK 3. Groundwater Dispersion Study

A groundwater dispersion study will be performed to assess the amount of water from the waterway being dispersed into the groundwater due to tidal fluctuations. The intent is to provide information on dispersion that may be occurring at the point of discharge into the Duwamish waterway.

TASK 4. Soil Vapor Assessments

Task 4 has two objectives: 1) assess the lateral extent of volatile organics in the vadose zone; 2) evaluate the flux of soil vapors that volatilize from the ground surface under static conditions. The soil vapor test will include investigations under buildings. Information will be used in developing cleanup alternatives and in assessing potential risks to human health associated with volatilization of organics from soils on and off the site.

TASK 5. Soil Vapor Extraction and Groundwater Pumping Tests

A soil vapor extraction test and/or groundwater pumping test may be performed, as necessary, depending on the results of Tasks 1 through 4 of the RI. The test results would be used to further assess hydraulic properties in the vapor zone and aquifer(s). If performed, the tests will also aid in assessing routes of exposure and will provide information for evaluation of cleanup alternatives.

TASK 6. Risk Assessment (RA)

Task 6 will assess the likely risks to human health and the environment due to releases from the GWC site. This involves an evaluation of exposure, toxicity, and risk to the most sensitive receptors and includes an evaluation of the uncertainties associated with the assessment.

IV. FEASIBILITY STUDY (FS)

This section presents a generalized FS work plan to provide the flexibility necessary to address the results of Tasks 1 through 6 above. The FS work plan discusses the types of evaluations and processes that are likely to occur during this phase of the project. A site-specific FS work plan cannot be developed until after more information is obtained during the RI and RA. The FS will be revised for Ecology review, as necessary, when additional information is available.

TASK 1. Develop Cleanup Standards

TASK 2. Screen Cleanup Alternatives

TASK 3. Detailed Evaluation of Cleanup Alternatives

TASK 4. Conduct Treatability Studies (If Necessary)

V. IMPLEMENTATION SCHEDULE

A schedule for implementing this work plan is presented in this section. It consists of a bar chart detailing the time required to conduct each phase of the work plan, dates for deliverables, and review and comment time frames. This schedule includes all activities up through the completion of the final RI/FS report.

VI. REFERENCES

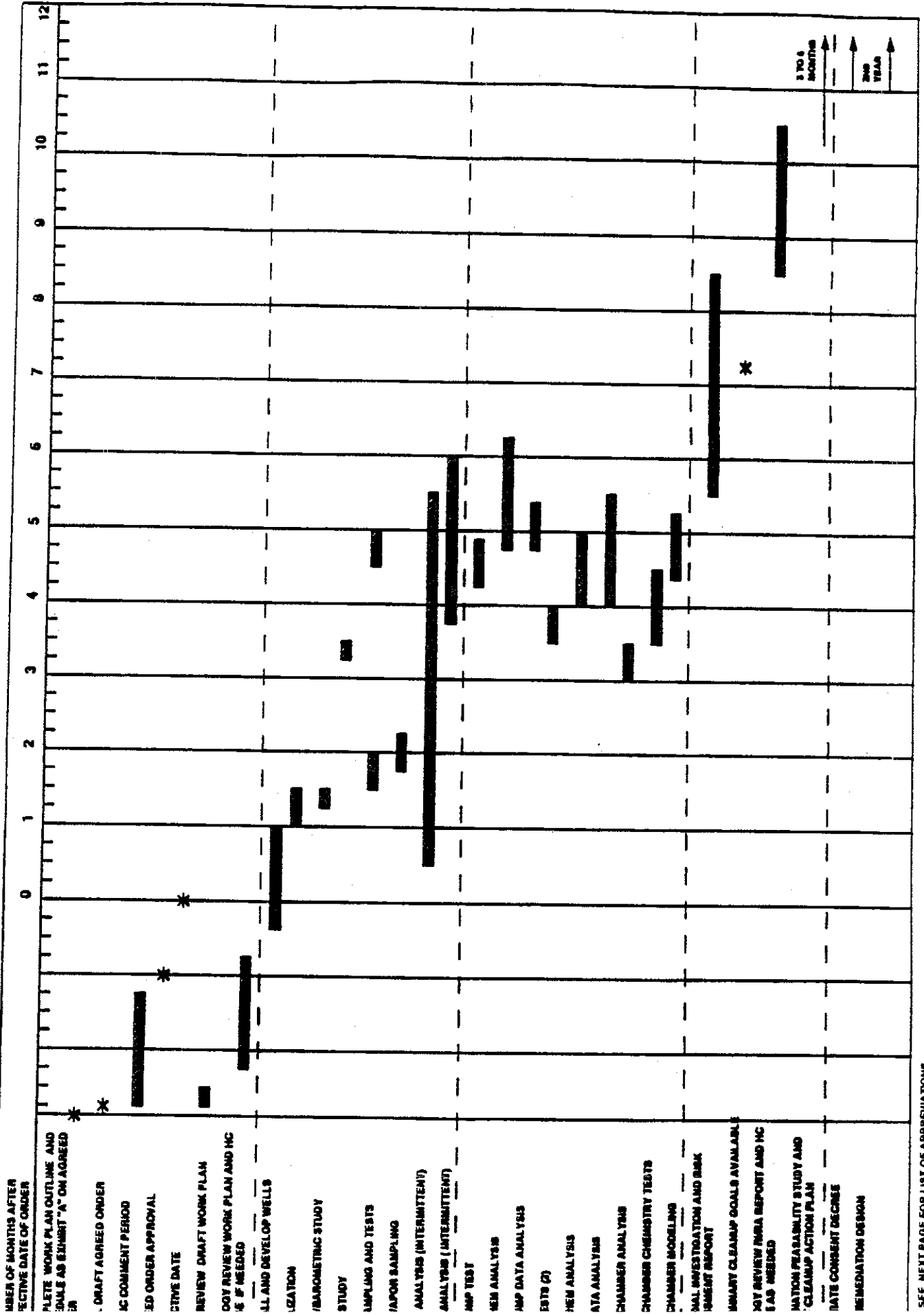
Citations for references used in the text are presented in this section of the work plan.

APPENDICES

The appendices present details on the standard procedures that will be used to carry out the RI/FS.

- A. Well Installation and Soil Sampling Procedures**
- B. Groundwater Sampling Procedures**
- C. Soil Vapor Test Procedures**
- D. Soil Vapor Extraction Test Procedures**
- E. Groundwater Extraction Test Procedures**
- F. Quality Assurance Project Plan (QAPP)**
- G. Health and Safety Plan**

Remediation Schedule



SEE NEXT PAGE FOR LIST OF ABBREVIATIONS

LIST OF ABBREVIATIONS

RI/FS -	Remedial Investigation/Feasibility Study
GWC -	Great Western Chemical Company
HC -	Hart Crowser, Inc.
GW -	Groundwater
VES -	Vapor Extraction System
RI/RA -	Remedial Investigation/Risk Assessment