APPENDIX 2A

HISTORICAL AERIAL PHOTOGRAPHS AND TOPOGRAPHIC MAPS

KING COUNTY, WASH.

22°23′ ALKI PT. 3.1 MI. 887 22′ 888 21′ 889 QUEEN ANNE 3.6 MI. 890 20′ QUEEN ANNE 3.4 MI. 891 CAPITOL HILL 2.9 MI. 19′ 892 2.7 MI. CAPITOL HILL 2.7 MI. 893 18′ 894 122°17′ 895

2862

47°35′

2861

2860

34′

2859

BRIGHTON BEACH 2.3 MI.

2858

33′

2857

DUNLAP 1.8 MI.

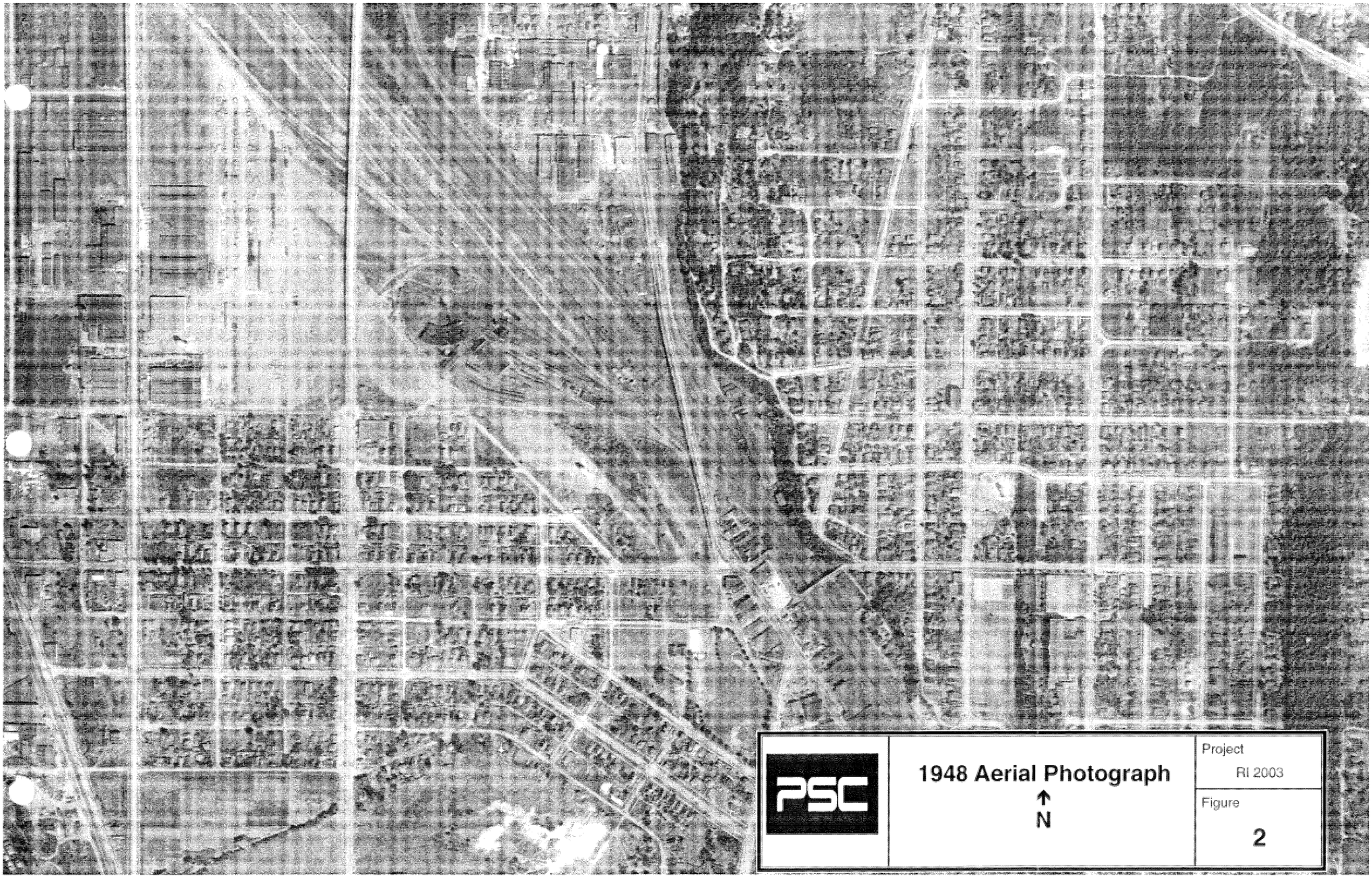
PSC

1944 Aerial Photograph

↑ N

Project RI 2003

Figure 1



PSC

1948 Aerial Photograph

↑
N

Project
RI 2003

Figure
2

PSC

1961 Aerial Photograph

↑
N

Project
RI 2003

Figure
3

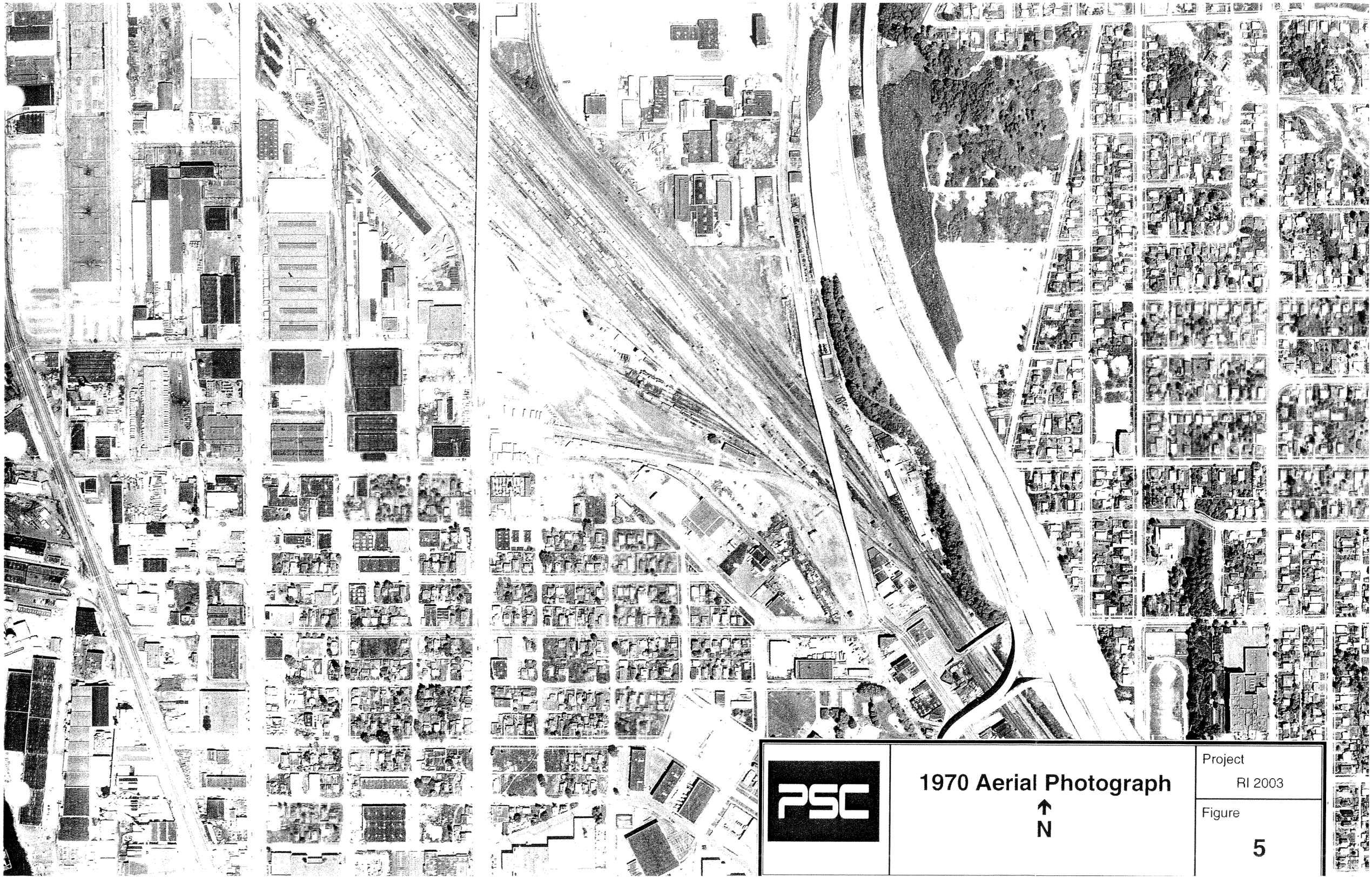
PSC

1965 Aerial Photograph

↑
N

Project
RI 2003

Figure
4



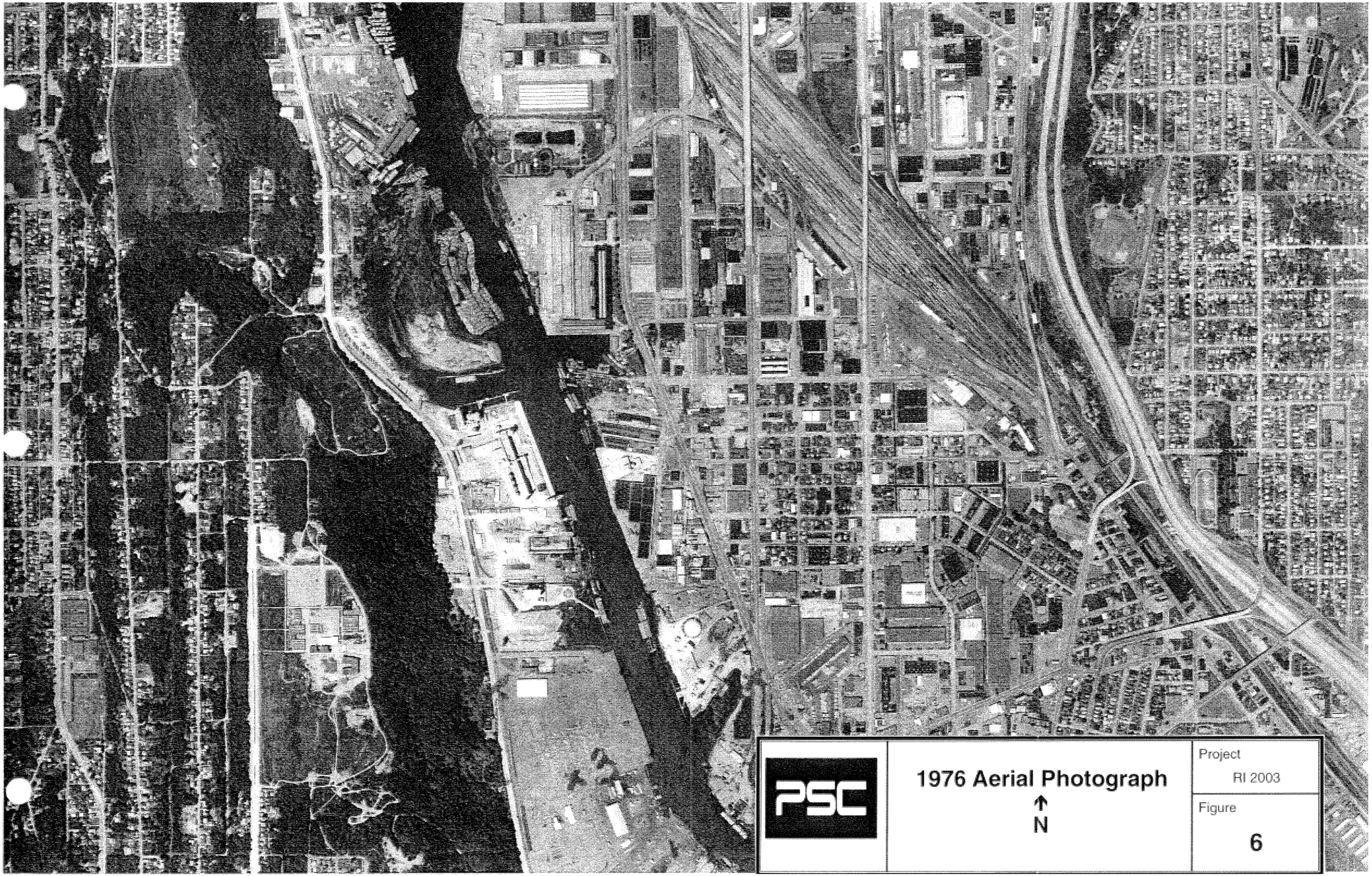
PSC

1970 Aerial Photograph

↑
N

Project
RI 2003

Figure
5



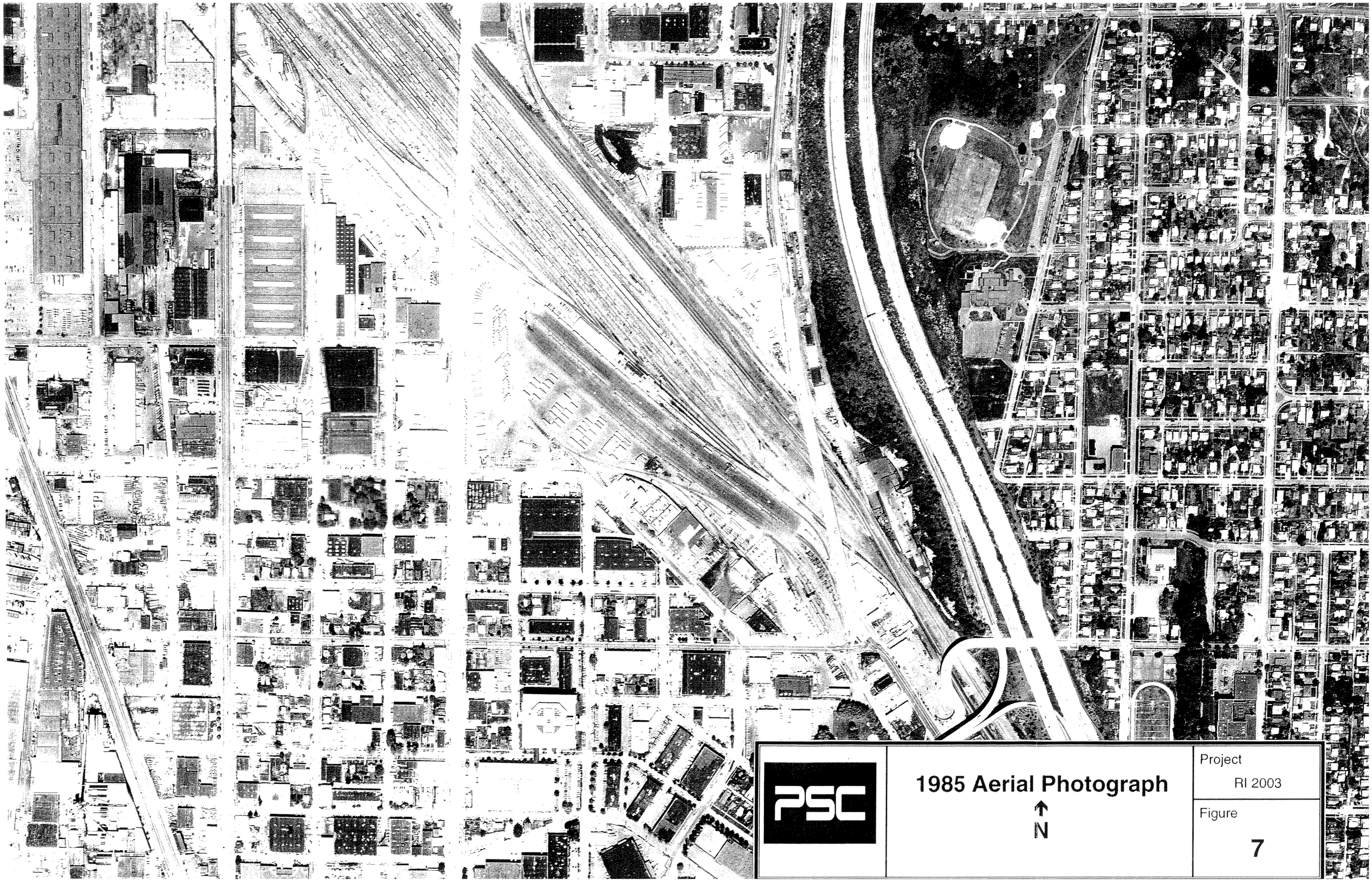
PSC

1976 Aerial Photograph

↑
N

Project
RI 2003

Figure
6



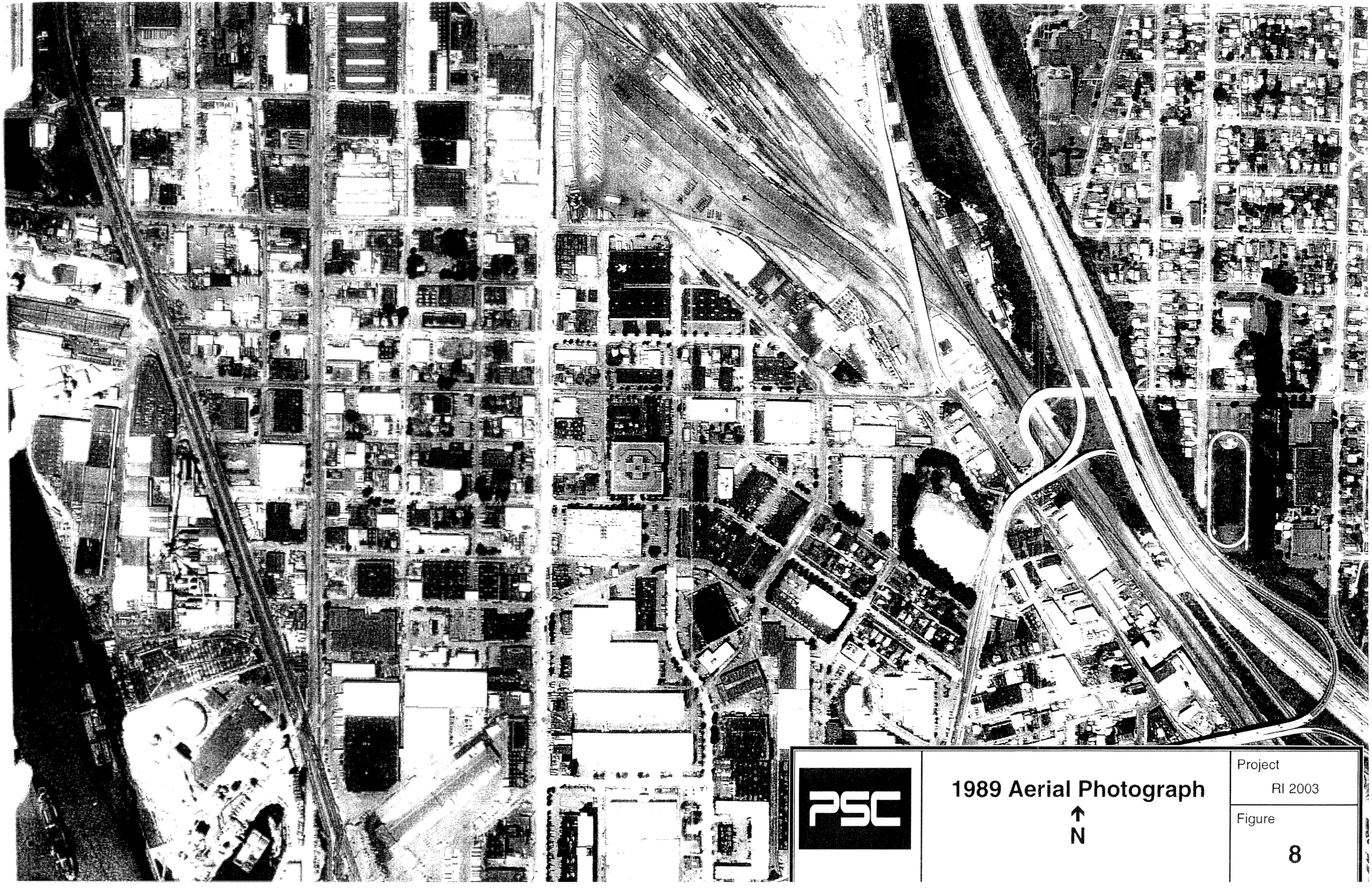
PSC

1985 Aerial Photograph

↑
N

Project
RI 2003

Figure
7



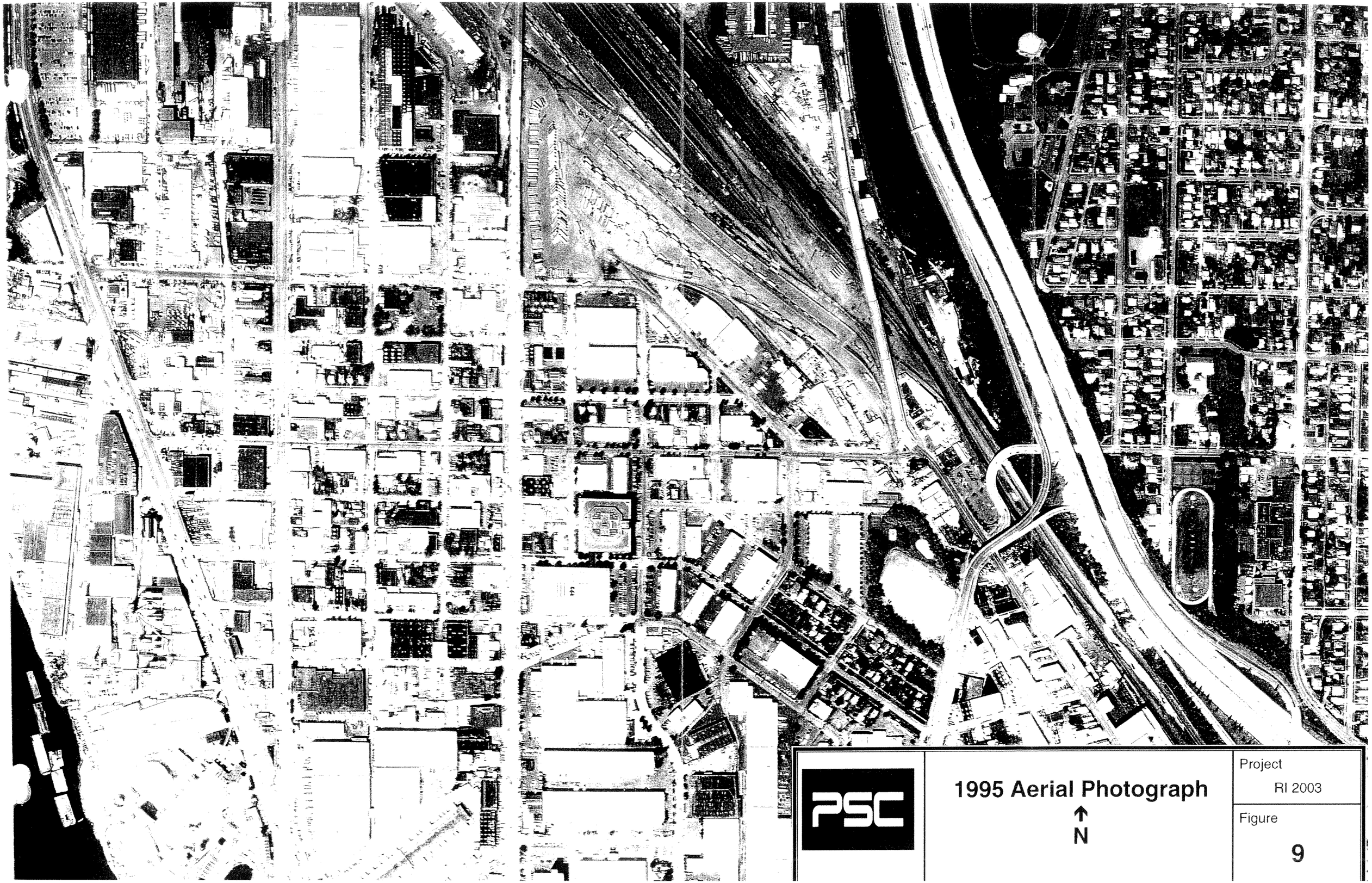
PSC

1989 Aerial Photograph

↑
N

Project
RI 2003

Figure
8



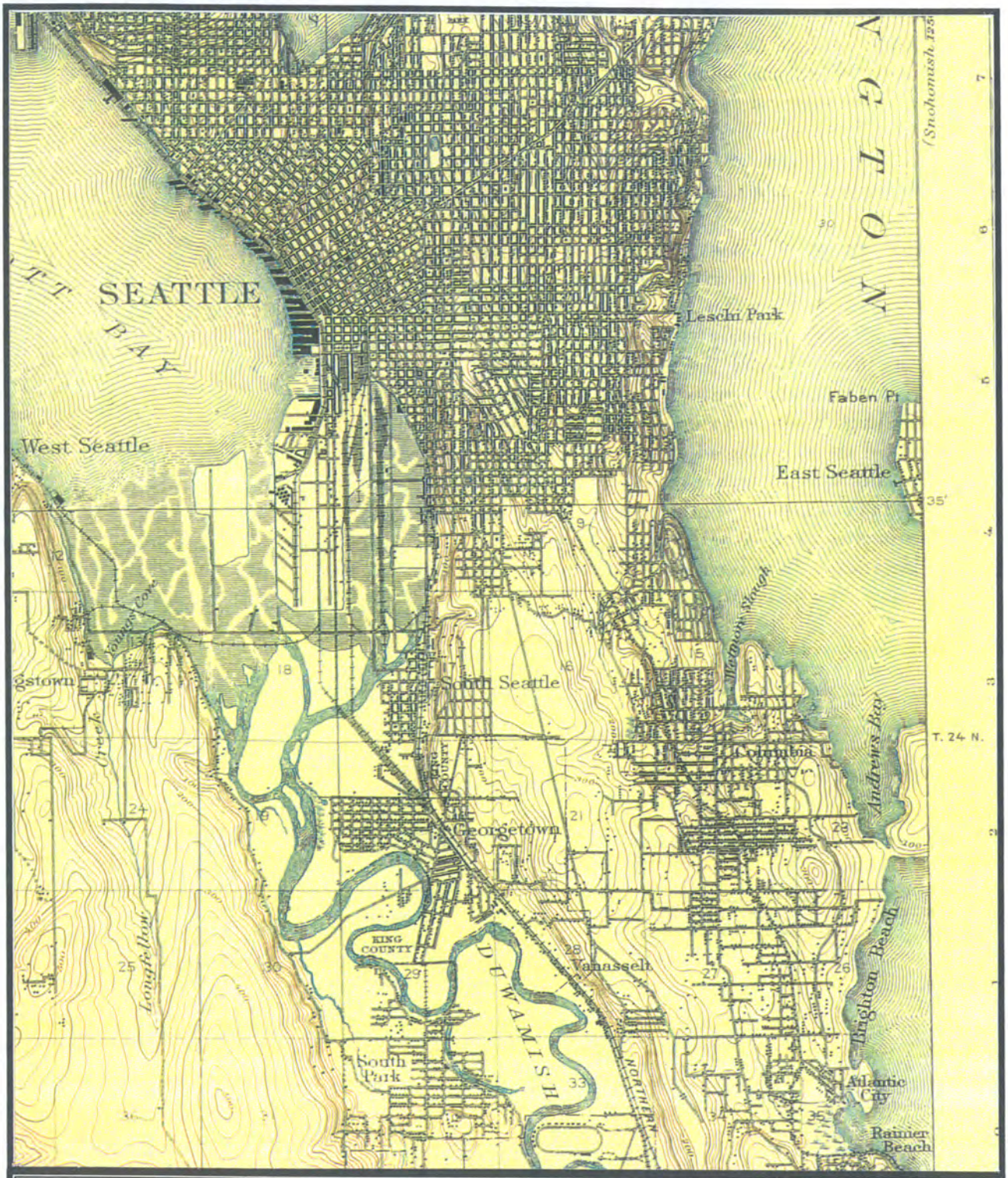
PSC

1995 Aerial Photograph

↑
N

Project
RI 2003

Figure
9



PSC

1909 USGS Topographical Map of Duwamish River Valley

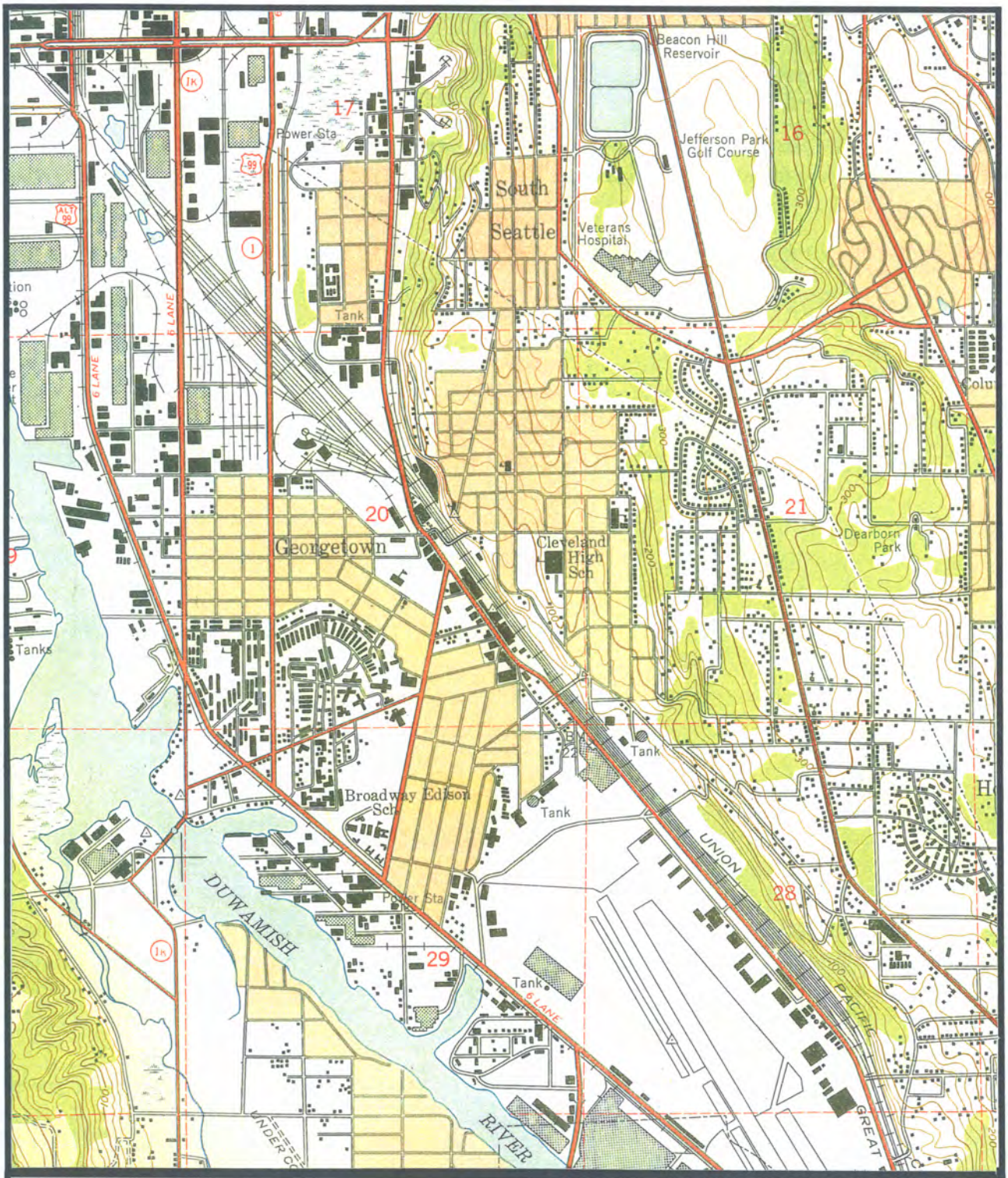
Scale: 1" = 62,500 ft

Project

RI 2003

Figure

10



PSC

1949 USGS Topographical Map of Duwamish River Valley

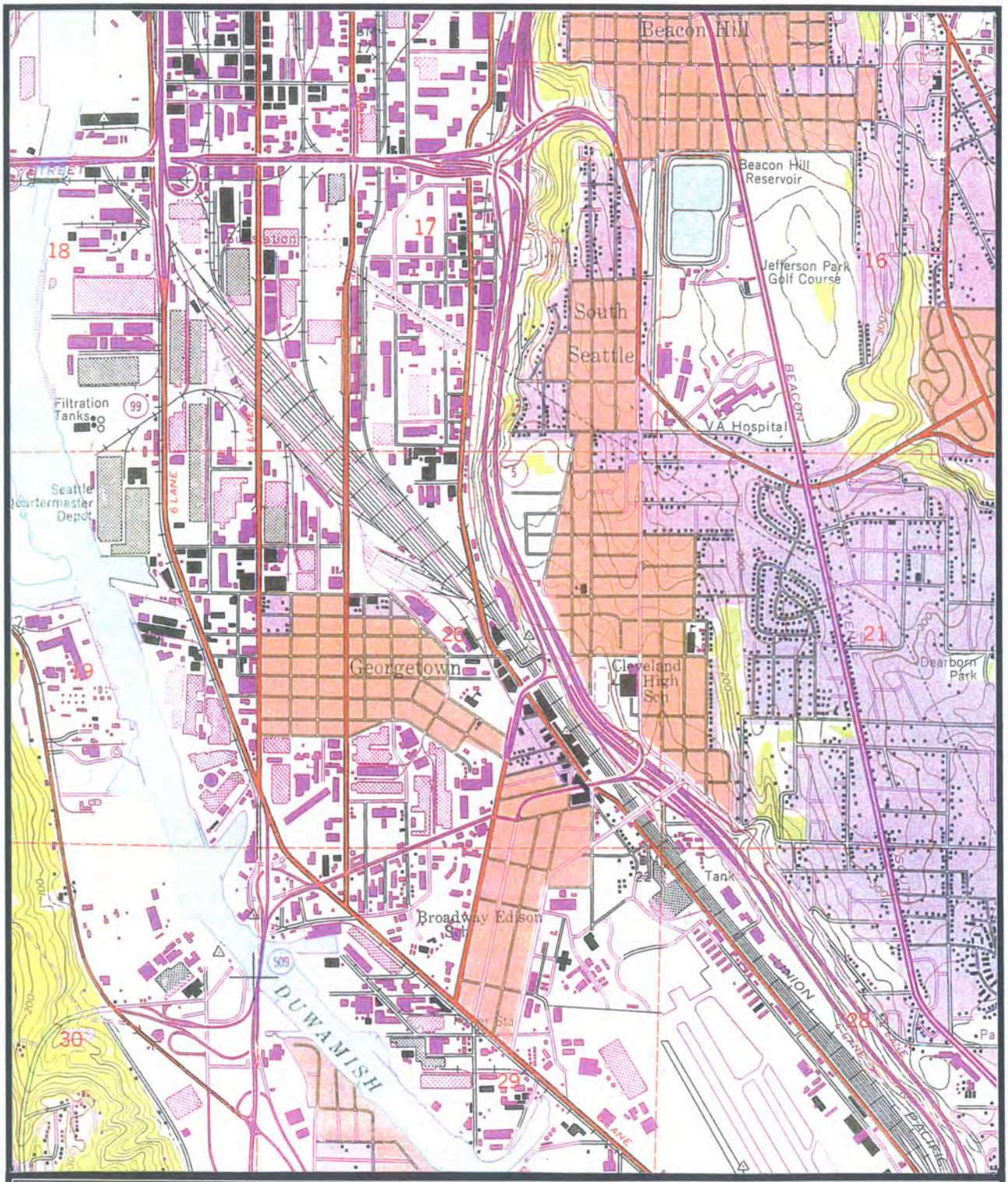
Scale: 1" = 62,500 ft

Project

RI 2003

Figure

11



PSC

1968 USGS Topographical Map of Duwamish River Valley

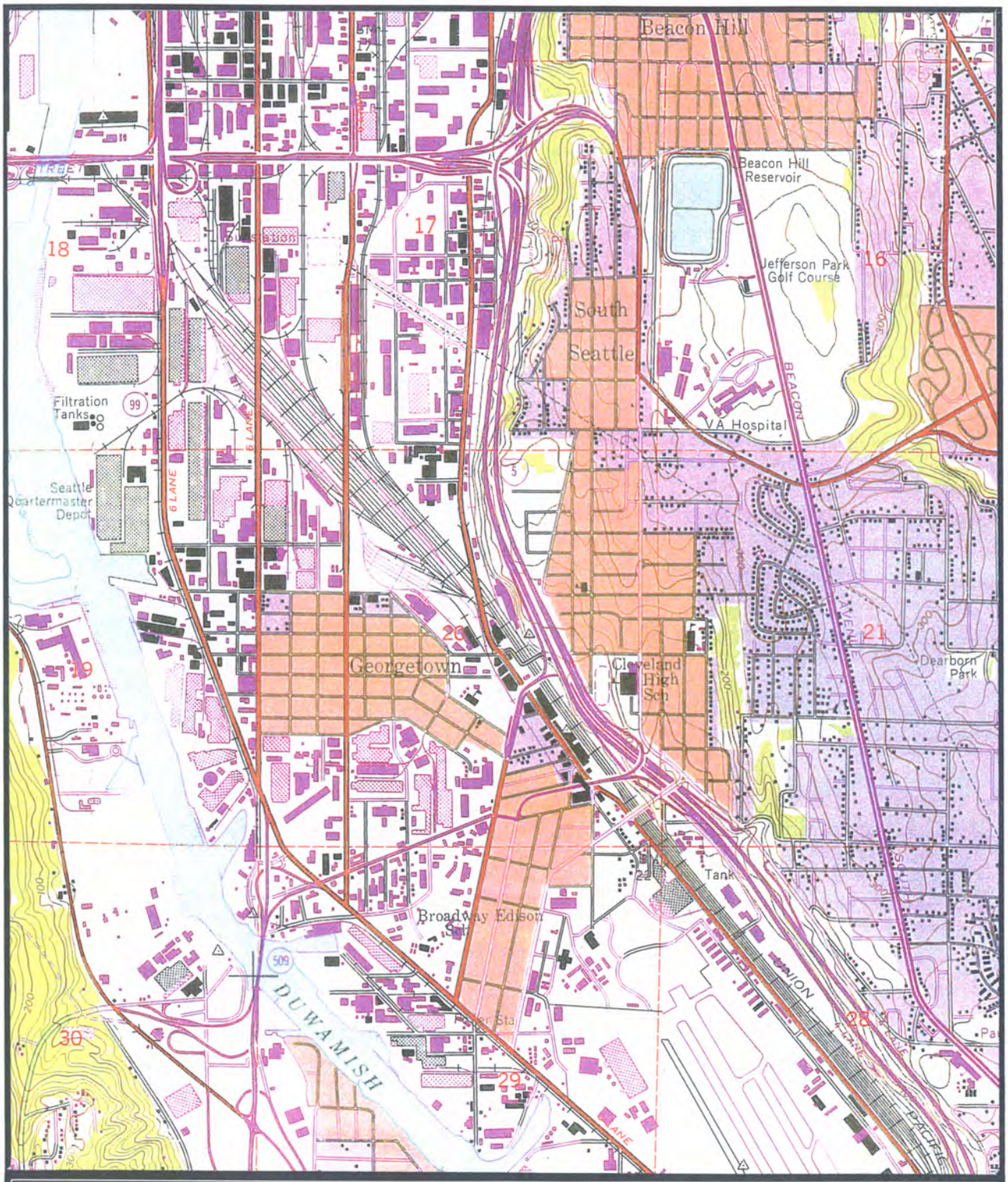
Scale: 1" = 62,500 ft

Project

RI 2003

Figure

12



PSC

1973 USGS Topographical Map of Duwamish River Valley

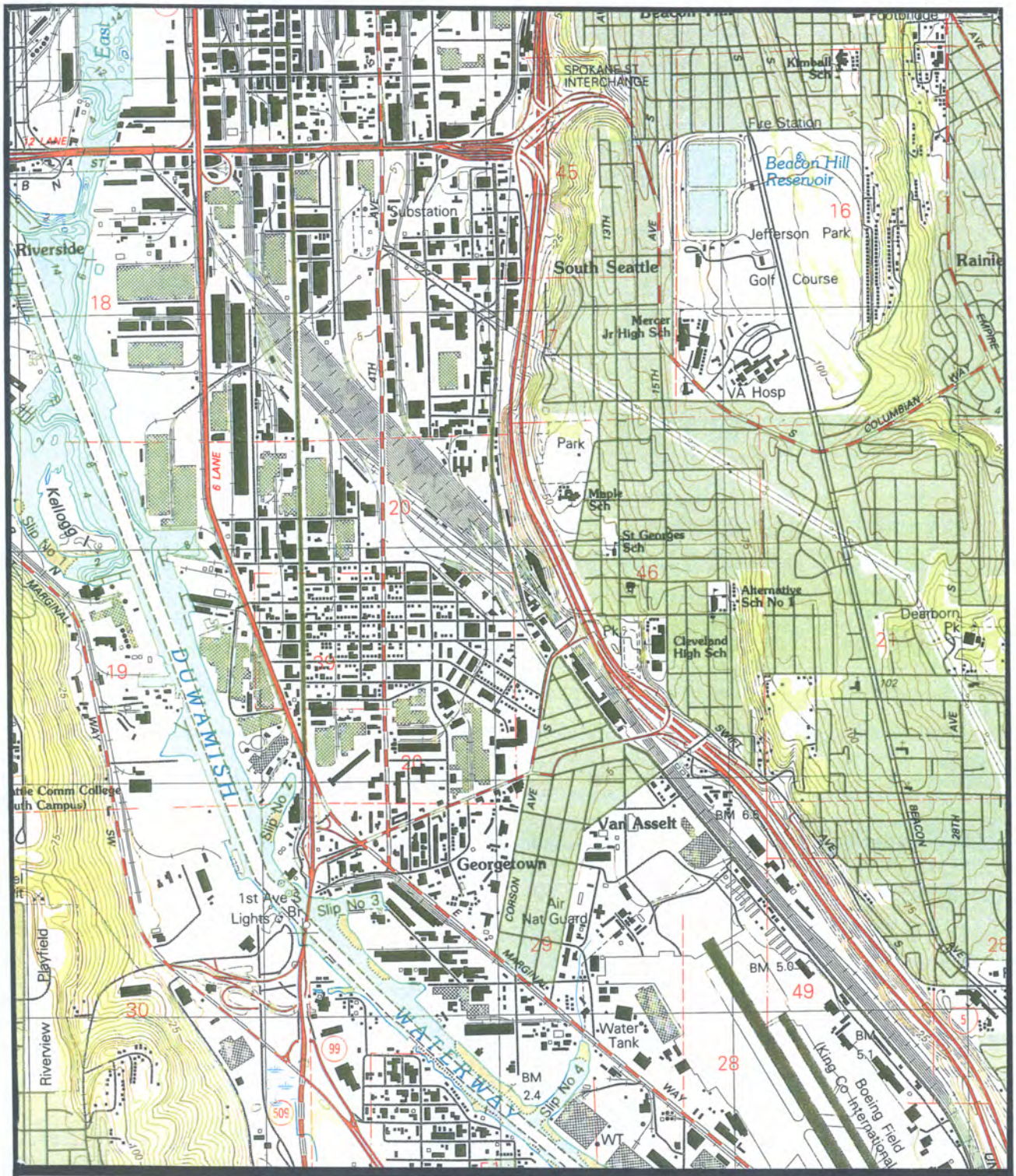
Scale: 1" = 62,500 ft

Project

RI 2003

Figure

13



PSC

1983 USGS Topographical Map of Duwamish River Valley

Scale: 1" = 62,500 ft

Project

RI 2003

Figure

14

APPENDIX 2B

UST REMOVAL INFORMATION

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108
PHONE: (206) 767-0350

May 5, 1987

Chief B.L. Hansen
Fire Marshal
Seattle Fire Department
301 Second Avenue
Seattle, Washington 98104

SUBJECT: Abandonment of Underground Tanks
734 S. Lucile Street - Chempro

Dear Chief Hansen:

With the intent of discontinuing the storage of flammable liquids in underground tanks, Chempro removed all material from its underground storage tanks in May of 1986 at its Georgetown facility. This was done in conjunction with the installation of new above ground tanks for alternate storage.

Section 79.221 of the Seattle Fire Code calls for the removal of any underground tanks which have been abandoned for a period of one year unless circumstances warrant other measures. It is because of such circumstances that I am writing this letter.

It is Chempro's desire to remove the tanks and backfill the holes as called for in the regulations but I feel now is not the appropriate time.

As you are aware, Chempro's primary business at the Georgetown facility is the recycling, treatment and management of hazardous waste, a good portion of which is containerized and flammable. Environmental regulations, both current and future, continue to increase the amount of material classified as hazardous. At the same time those same regulations are restricting the amount of material that can be directly landfilled. Thus the services of Chempro are required by a greater number of generators.

The main storage area for the flammable material is in our north field, which is also the location for the underground tanks. The removal of the tanks at this time would render the north field unavailable for above ground drum storage and would materially reduce our drum storage capacity. This curtailment of storage space would seriously hinder our ability to service the needs of the industrial community. In turn, this would cause generators to store greater quantities of flammable material on their properties throughout the city than would be desirable from a safety standpoint.

I assume one of the reasons the requirements for the removal of abandoned, underground tanks exists is to prevent future hazards. Certainly there are cases where tanks have been forgotten about, only to be discovered in subsequent years as the result of construction, etc. In many cases the contents of the tanks may be unknown. Because of the fact that Chempro is heavily regulated by several agencies with respect to its current and future business, the tanks cannot be "forgotten". Certainly our Part B process, due in 1988, will need to address the underground tanks. As long as they are in place, our closure plan must address the tanks as well.

With these facts in mind, I would request that Chempro be allowed to remove the tanks in question as space is made available for drum storage. It would be our intent to begin tank removal by August 1 and proceed at a rate that would not seriously hinder our operational and storage capacities. While this will extend our removal time beyond the one year period, I strongly feel this is the more appropriate and prudent action at this time. I am available to discuss this with you in more detail at your convenience.

Sincerely,

Michael P. Keller
Vice President, Operations

MPK:lat

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108

PHONE: (206) 767-0350

June 19, 1987

Captain W. T. Donohoe
Seattle Fire Department
301 Second Avenue
Seattle, Washington 98104

SUBJECT: Underground Tank Removal
734 S. Lucile St. - Chempro

Dear Captain Donohoe:

As per our telephone conversation of June 15, 1987, I would like to offer the following proposal for the removal of underground tanks at our Georgetown facility. Please use the enclosed diagram of our plant as a reference.

Sept. 7	Excavate and remove the 8,000 gallon tank in front of the main warehouse (point 1) and remove the 4,000 gallon tank that is currently encased in concrete on the old loading dock of the warehouse (point 2).
Sept. 21	Excavate and remove the eight northern most underground tanks in our north field storage area (point 3) tanks H through O.
Oct. 12	Excavate and remove the next seven underground tanks in the north field, tanks A through G (point 4).
Nov. 2	Excavate and remove the next five underground tanks in the north field, tanks 3 through 7 (point 5).

Nov. 23 Excavate and remove the final two underground tanks in the north field, tanks 1 and 2 (point 6).

All tank removal segments will consist of breaking up the existing concrete, tank removal, backfilling and concrete replacement. When we have chosen the contractor, the appropriate permits will be filed. With your permission, we would like to hire a certified marine chemist to be on hand to gas-free the tanks prior to removal. The tanks will be transported to our Tacoma facility for decontamination and scrapping.

As I have mentioned, I am concerned about the loss of drum-storage space. This schedule is designed to keep the loss of available space at a minimum. This is being accomplished by removing a section of tanks at a time and then concreting that area so it can be used for storage before moving on to the next set of tanks. I feel this program will not require any alterations in our current drum storage pattern. If I find that when the tanks are actually removed that it is more disruptive than anticipated, I would call you and request a temporary change in our stacking pattern.

As I mentioned in our telephone conversation, our Tacoma drum storage pad is currently unavailable for use. Should that condition change, I would speed up our tank removal schedule.

I hope this program will satisfy the requirements of the Seattle Fire Department and please call me if additional information is needed.

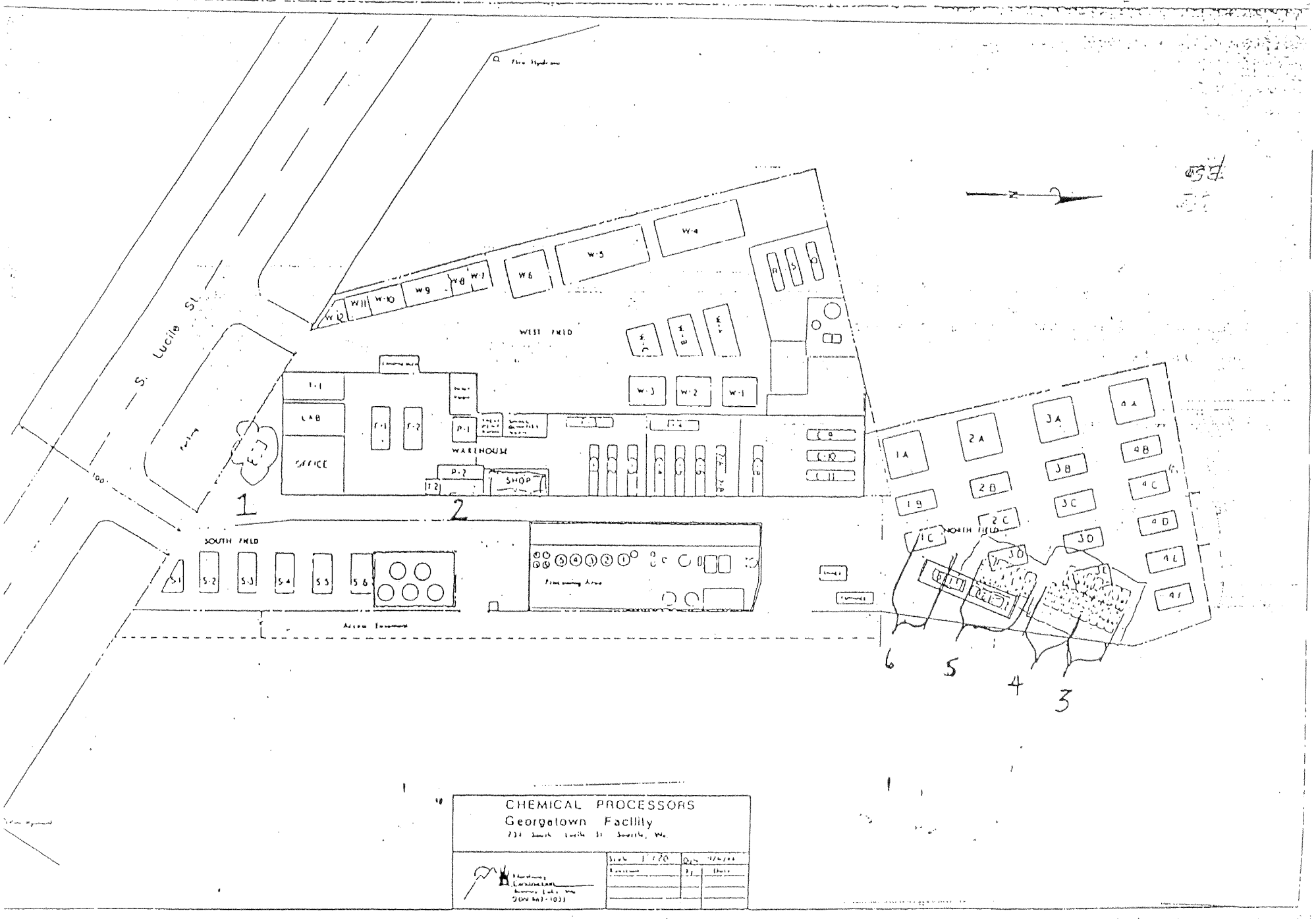
Sincerely,

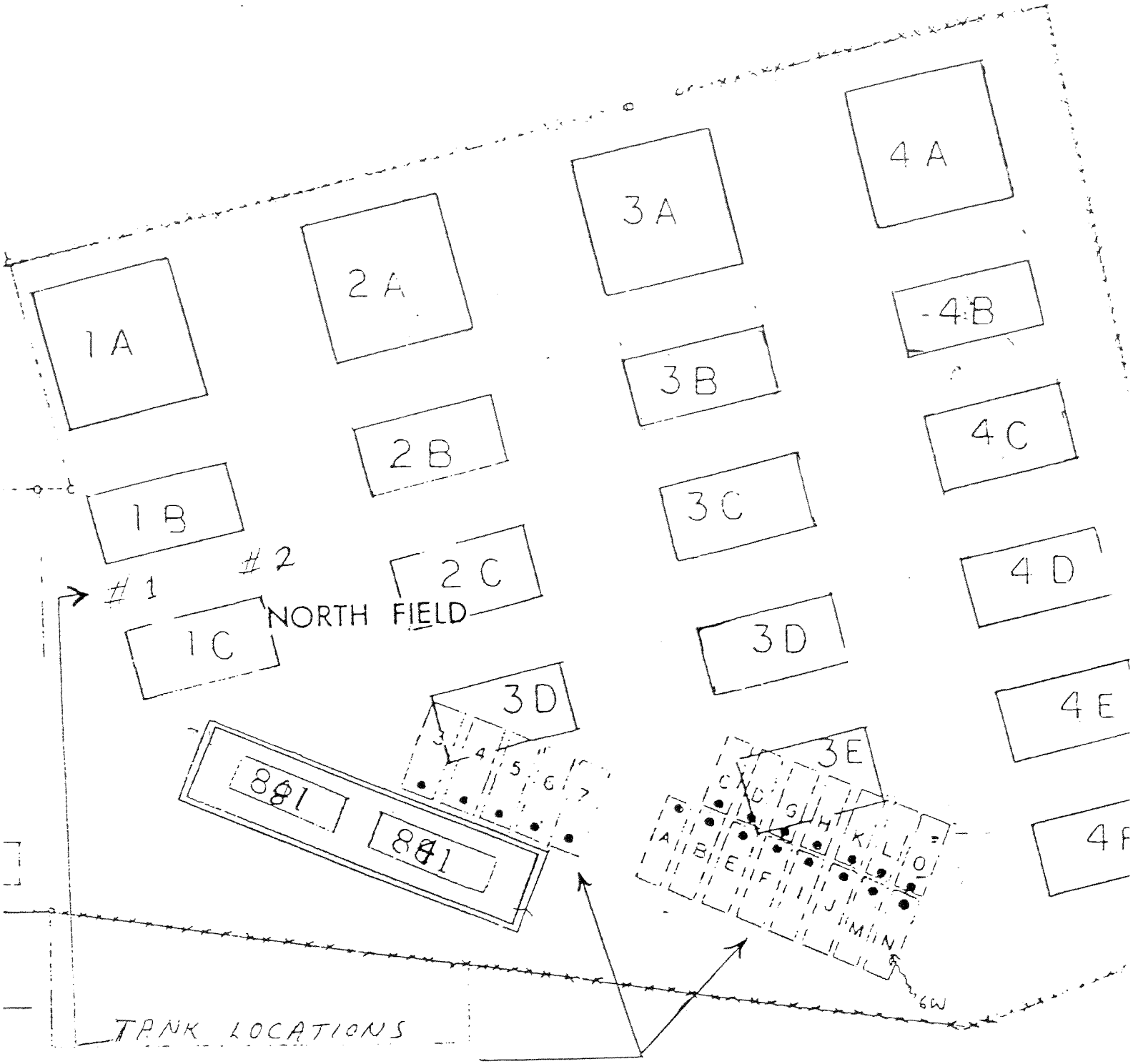
Michael P. Keller
Vice President, Operations

MPK:lat

Enclosure

cc: R. Atwood
W. E. Fisher
R. C. Morton


S. Lucile St.
WELL FIELD
W-1
W-2
W-3
W-4
W-5
W-6
W-7
W-8
W-9
W-10
W-11
W-12
LAB
OFFICE
WAREHOUSE
SHOP
SOUTH FIELD
S-1
S-2
S-3
S-4
S-5
S-6
1
2
3
4
5
6
1A
2A
3A
4A
1B
2B
3B
4B
1C
2C
3C
4C
1D
2D
3D
4D
1E
2E
3E
4E
1F
2F
3F
4F
CHEMICAL PROCESSORS
Georgetown Facility


1A
2A
3A
4A
1B
2B
3B
4B
1C
2C
3C
4C
1D
2D
3D
4D
4E
4F
#1
#2
NORTH FIELD
881
881
3D
3E
TANK LOCATIONS

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108
PHONE: (206) 767-0350

August 28, 1987

Laurence Ashley
Washington Department of Ecology
Northwest Region Office
4350 - 150th Avenue NE
Redmond, WA 98057

Dear Mr. Ashley:

On September 7, 1987, Chemical Processors, Inc., will start the removal of the underground storage tanks at the Georgetown (WAD000812909) facility located at 734 South Lucile Street, Seattle, Washington.

We have advised Captain W. T. Donohoe of the Seattle Fire Department of our intentions and will file the appropriate permits with that department. If I can provide any information your office needs regarding this matter, please contact me.

Sincerely,

Peter K. Ressler
Compliance Officer

PKR:tks

cc: M. P. Keller
D. F. Stefani
R. C. Morton
R. L. Atwood

file

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108
PHONE: (206) 767-0350

October 19, 1987

Mr. Laurence Ashley
Washington Department of Ecology
Northwest Regional Office
4350 - 150th Avenue N.E.
Redmond, WA 98052

Dear Mr. Ashley:

As I discussed with you on October 13, Chempro has removed two of the emptied underground tanks from the north field of our Georgetown facility. We will be removing the remainder of the tanks in that area over the next several days. When the first two tanks in the north field were removed, soil and water samples were taken and analyzed for volatile organics. The results showed ethyl benzene, toluene and xylene levels of approximately 1500 to 3500 ppm in the soil and 50 to 130 ppm in the water that was present. Chlorinated volatiles were approximately 95 ppm in the soil and 15 to 30 ppm in the water.

Clearly the data shows that there is contamination present. However, the extent and source of the contamination is not known at this time. Chempro is planning to award a contract to a hydrogeology firm in 1988 to identify and characterize the hydrogeology and soil contamination under the entire facility as part of a past practices evaluation for our Part B application. This should identify the nature and extent of any problems and provide enough background information to determine feasible corrective actions.

Rather than trying to take partial measures to correct an ill defined problem now, we intend to aerate the soil in a limited fashion and place it back in the hole so that it can be covered to prevent rain water from entering. Once proper corrective measures are determined from the upcoming study, we will take appropriate actions to mitigate the problem.

As I indicated on the phone, the Seattle Fire Department has required that the tanks be removed this month. Therefore we are proceeding with the removal rather than waiting for the completion of the characterization study. We recognize, however, that there is some level of contamination and as previously indicated, we will be defining it and developing appropriate corrective measures as part of the facility wide study.

If you have any questions, please contact me at 223-0500.

Sincerely,

Dennis Stefani

Dennis Stefani
Manager, Regulatory Affairs

DFS:tks

cc: W. E. Fisher
M. P. Keller

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108
PHONE: (206) 767-0350

October 30, 1987

Steve Burke
Senior Environmental Health Specialist
King County Health Department
172 - 20th Avenue
Seattle, WA 98122

Dear Mr. Burke:

As a follow-up to our telephone conversation on September 29, 1987, we are requesting authorization to dispose of approximately 130 cubic yards of broken concrete at the Coal Creek Demolition Debris Landfill. This material was originally the concrete pad covering fifteen underground storage tanks in the north field of our Georgetown facility.

The material is not considered a dangerous waste, as it passed both the E.P. Toxicity and the 96-hour Fish Bioassay tests as performed by Biomed Research Laboratories. The E.P. Toxicity data follows:

	Concentration (mg/l)
Arsenic	<0.01
Barium	6.5
Cadmium	<0.01
Chromium	0.06
Lead	<0.1
Mercury	<0.01
Selenium	<0.01
Silver	<0.01
Copper	0.02
Nickel	0.01
Zinc	0.08

The material passed the Fish Bioassay test at 1000 ppm with no mortalities (data attached).

Thank you for your cooperation in this matter, and if you have any questions, please feel free to call.

Sincerely,

Keith A. Lund

Keith A. Lund
Compliance Specialist

KAL:tks

Enclosures

cc: R. L. Atwood
D. F. Stefani
M. P. Keller
Guy Bruno, WDOE, NW Region

CHEMICAL PROCESSORS, INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON 98108

General Laboratory Report

Lab Number : 15008

Plant/Generator Name : GEORGETOWN
Sample Type : CEMENT - UST PROJECT
Date of Receipt : 10/15/87 Analyst: KK
Parameters for Analysis: EP TOX (+Cu,Ni,Zn), AND FISH BIOASSAY (@ 1000 ppm)
Outside Lab : BIOMED Outside Lab Report No:

Data:

METAL	CONCENTRATION (mg/L) (EP_TOXICITY)	MAXIMUM CONCENTRATION LIMITS (mg/L (EP_TOXICITY)
Arsenic	<0.01	5.0
Barium	6.5	100.0
Cadmium	<0.01	1.0
Chromium	0.06	5.0
Lead	<0.1	5.0
Mercury	<0.01	0.2
Selenium	<0.01	1.0
Silver	<0.01	5.0
Copper	0.02	(2.0)
Nickel	0.01	(20.)
Zinc	0.08	(10.)

( ) = DOE suggested EP Toxicity limits for a specific waste stream.

Passed Fish Bioassay at 1000 ppm with a total of no mortalities. Biomed report is attached.

Comments and Conclusions:

Passed EP Toxicity.
Passed Fish Bioassay.

BIOMED
RESEARCH LABORATORIES, INC.

1720-130th Ave. N.E., Bellevue, WA 98005-2203
(206) 882-0448, Telex: 283803 BIOM

LABORATORY REPORT

CUSTOMER:

LABORATORY USE ONLY

LAB #: 8282

REPORT DATE 10/23/87
CUSTOMER P.O. # Georgetown
APPROVED

Chemical Processors
2203 Airport Way S., Suite 400
Seattle, WA 98134

ATTN: Kathy Kreps

EP EXTRACTION RESULTS OF SAMPLE REF: CONCRETE WASTE
NO. 15008, BIOMED NO. 8282

CHEMPRO I.D. NO.	15008
BIOMED NO.	8282
As, ppm	<0.01
Ba, ppm	6.5
Cd, ppm	<0.01
Cr, ppm	0.06
Pb, ppm	<0.1
Hg, ppm	<0.01
Se, ppm	<0.01
Ag, ppm	<0.01
Zn, ppm	0.06
Cu, ppm	0.02
Ni, ppm	0.01

Respectfully submitted,

Craig E. Delphey, Ph.D.
Director of Chemistry

BIOMED

RESEARCH LABORATORIES, INC.

October 26, 1987

Chemical Processors, Inc.
2203 Airport Way South
Seattle, WA 98134

ATTN: Kathy Kreps

SUBJECT. 96 hour fish toxicity test using Chempro Sample #15008-
BioMed No. 8282

METHODS, RESULTS AND CONCLUSIONS:

The sample was tested for its toxicity to juvenile coho salmon (Oncorhynchus kisutch). The testing was carried in accordance with the guidelines set forth in the State of Washingtons Biological Testing Methods DOE 80-12, revised July 1981. The sample was tested in fish at 1000ppm.

There were no mortalities during the test period. Due to its lack of toxicity, BioMed Sample No. 8282 is not considered to be a dangerous waste in fish.

If you have any further questions or comments, please do not hesitate to contact us.

Respectfully submitted;

Steve Lock
Fisheries Biologist

1720-130th Ave. N.E., Bellevue, WA 98005-2203, (206) 882-0448, Telex. 283803 BIOM

State of Washington Department of Ecology

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Industry/Toxicant: Chempro
Address: 5501 Airport Way S. Seattle, WA 98108
Collector:
Date Sample Collected:

Laboratory: BioMed
Analyst: Steve Lack
Beginning: Date 10/16/87 Time 9:00am
Ending: Date 10/20/87 Time 9:00am
Test Organism: Coho Salmon Oncorhynchus kisutch
Required Test Temperature Range: 11.5°C – 12.5°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25 C					Temperature (C)					Total Hardness (mg/l as $CaCO_3$)		Total Alkalinity (mg/l as $CaCO_3$)		Conductivity umHOS/cm	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
	1	—	0	0	0	0	1	11	—	—	—	9	7.1	—	—	—	7.0	12°	12°	11.5°	11.5°	12	171	163	23	25	46	56
	2	—	0	0	0	0	0	11	—	—	—	9	7.0	—	—	—	7.0	12°	12°	11.5°	11.5°	12	148	151	22	18	45	55
	3	—	0	0	0	0	0	11	—	—	—	9	7.1	—	—	—	7.0	12°	12°	11.5	11.5°	12	146	163	24	20	47	58
#8282	4	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.8	—	—	—	6.7	12°	12°	11.5	11.5	12	151	23	21	32	45	72
#8282	5	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.9	—	—	—	6.8	12°	12°	11.5°	11.5°	12	149	22	32	34	45	73
#8282	6	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.8	—	—	—	6.7	12°	12°	11.5°	11.5	12	141	20	26	26	44	67

Sample Description: #15008 Georgetown Plant Concrete Chips
Average Weight: 4g Mean Length: 7.4cm Longest: 8.5cm Shortest: 6.2cm Ratio (long/short): 1.4
Number of organisms per chamber: 10 Ratio of flesh to water: 1.2g/l Comments: BioMed # 8282, sample passes not a DW in fish, no mortalities

* Method on file with the Department of Ecology:
GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

DATA VERIFIED BY [signature] DATE 10/20/87

EHW > 10/30

State of Washington Department of Ecology

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Industry/Toxicant Chempro
Address 5501 Airport Way S. Seattle, WA 98108
Collector
Date Sample Collected

Laboratory BioMed
Analyst Steve Lock
Beginning: Date 10/16/87 Time 9:00am
Ending: Date 10/20/87 Time 9:00am
Test Organism Coho Salmon Oncorhynchus kisutch
Required Test Temperature Range 11.5°C – 12.5°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25 C					Temperature (C)					Total Hardness (mg/l as $CaCO_3$)		Total Alkalinity (mg/l as $CaCO_3$)		Conductivity umHOS/cm	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
	1	—	0	0	0	0	1	11	—	—	—	9	7.1	—	—	—	7.0	12°	12°	11.5°	11.5°	12	17.1	16.3	23	25	46	56
	2	—	0	0	0	0	0	11	—	—	—	9	7.0	—	—	—	7.0	12°	12°	11.5°	11.5°	12	14.8	15.1	22	18	45	55
	3	—	0	0	0	0	0	11	—	—	—	9	7.1	—	—	—	7.0	12°	12°	11.5	11.5	12	14.6	16.3	24	20	47	58
#8282	4	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.8	—	—	—	6.7	12°	12°	11.5	11.5°	12	15.1	23	21	32	45	72
#8282	5	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.9	—	—	—	6.8	12°	12°	11.5°	11.5°	12	14.9	22	32	34	45	73
#8282	6	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.8	—	—	—	6.7	12°	12°	11.5°	11.5°	12	14.1	20	26	26	44	67

Sample Description #15008 Georgetown Plant Concrete Chips
Average Weight 4g Mean Length 7.4cm Longest 8.5cm Shortest 6.2cm Ratio (long/short) 1.4
Number of organisms per chamber 10 Ratio of flesh to water 1.2g/l Comments BioMed #8282, sample passes not a DW in fish, no mortalities

* Method on file with the Department of Ecology:
GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

DATA VERIFIED BY [signature] DATE 10/20/87
EHW > 10/30

State of Washington Department of Ecology

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Laboratory: Bio Med
Analyst: Steve Lack

Industry/Toxicant: Chempro
Address: 5501 Airport Way S. Seattle, WA 98108
Collector:
Date Sample Collected:

Beginning: Date 10/16/87 Time 9:00am
Ending: Date 10/20/87 Time 9:00am
Test Organism: Coho Salmon Oncorhynchus kisutch
Required Test Temperature Range: 11.5°C - 12.5°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths 0	24	48	72	96	Dissolved Oxygen (mg/l) 0	24	48	72	96	pH 25 C 0	24	48	72	96	Temperature (C) 0	24	48	72	96	Total Hardness (mg/l CaCO3) 0	96	Total Alkalinity (mg/l CaCO3) 0	96	Conductivity (uMHOS/cm) 0	96
	1	—	0	0	0	0	1	11	—	—	—	9	7.1	—	—	—	7.0	12°	12°	11.5°	11.5°	12	17.1	16.3	23	25	46	56
	2	—	0	0	0	0	0	11	—	—	—	9	7.0	—	—	—	7.0	12°	12°	11.5°	11.5°	12	14.8	15.1	22	18	45	55
	3	—	0	0	0	0	0	11	—	—	—	9	7.1	—	—	—	7.0	12°	12°	11.5°	11.5°	12	14.6	16.3	24	20	47	58
#8282	4	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.8	—	—	—	6.7	12°	12°	11.5°	11.5°	12	15.1	23	21	32	45	72
#8282	5	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.9	—	—	—	6.8	12°	12°	11.5°	11.5°	12	14.9	22	32	34	45	73
#8282	6	1000 ppm	0	0	0	0	0	11	—	—	—	9	6.8	—	—	—	6.7	12°	12°	11.5°	11.5°	12	14.1	20	26	26	44	67

Sample Description: #15008 Georgetown Plant Concrete Chips
Average Weight: 4g Mean Length: 7.4cm Longest: 8.5cm Shortest: 6.2cm Ratio (long/short): 1.4
Number of organisms per chamber: 10 Ratio of flesh to water: 1.3g/l Comments: BioMed #8282, sample passes
not a kill in fish, & no mortalities

* Method on file with the Department of Ecology:
GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

DATA VERIFIED BY: [signature] DATE: 10/20/87
EHW > 10/30

SOUND TESTING, INC.
P.O. BOX #16204
SEATTLE, WASHINGTON 98116

August 8, 1981

Chemical Processors
5501 Airport Way South
Seattle, WA 98108

Attn: Mr. Michael Keller, Chemical Engineer

Dear Mr. Keller:

This is a report of the procedures, and results involved in testing for tightness the underground tanks at your Georgetown facility.

A total of eighteen tanks were tested during the period May 12 - August 5, 1981. These were tanks E, F, G, H, I, J, K, L, M, N, O and tanks 1, 2, 3, 4, 5, 6, and 7.

The tightness tests were performed in accordance with NFPA standard No. 329, (Underground Leakage, Flammable Liquid Tanks), Chapter 3 (Tests and Procedures for Determining the Existence of Leaks in Underground Tanks and Piping). Where compatible with the chemical nature of the tank contents, the Kent-Moore method was employed. On the remaining tanks the routine hydrostatic test was conducted. This consisted of subjecting the tanks to a hydrostatic head of at least 48 inches over a period of time long enough to compensate for temperature changes, and observing any loss in liquid volume by the system.

A summary of the tanks tested and the results obtained is on the page following.

Respectfully submitted,

SOUND TESTING, INC.

DPSly

By: Don Sly
Marine Chemist

TANK IDENTIFICATION	CAPACITY	DATE TESTED	CAPACITY
A	4000 Gal	March 3, 1981	Tight
B		"	Not Tight
C		"	Tight
D		"	"
E		May 17, 1981	"
F		June 24, 1981	"
G		June 23, 1981	"
H		June 25, 1981	"
I		June 23, 1981	"
J		August 5, 1981	"
K		July 23, 1981	"
L		August 5, 1981	"
M		July 30, 1981	"
N		August 4, 1981	Not tight
O		July 31, 1981	Tight
1		August 4, 1981	"
2		July 24, 1981	"
3		July 8, 1981	"
4		July 14, 1981	"
5		July 21, 1981	"
6		July 17, 1981	"
7		July 20, 1981	"

A SUMMARY OF THE TANKS TESTED AND THE RESULTS

Tank Identification	Tank Size	Contents	Date(s) Tested	Volume Lost	Time Elapsed	Rate of Loss	Results
E	4000 gal	Acetone	May 17 - 18	.003 gal.	45 min.	.004 gal/hr	tight
F	4000 gal	Acetone	June 24 - 26	.38 gal.	9 hours	.042 gal/hr	tight
G	4000 gal	Lacquer thinner	June 23	.00 gal.	1 hour	.00 gal/hr	tight
H	4000 gal	Lacquer thinner	June 25	.08 gal.	14 hours	.006 gal/hr	tight
I	4000 gal	Lacquer thinner	June 23 - 24	.10 gal.	17 hours	.006 gal/hr	tight
J	4000 gal	CN^- waste	August 5	.02 gal.	5 hours	.004 gal/hr	tight
K	4000 gal	CN^- waste	July 23	-	18 hours	-	tight
L	4000 gal	CN^- waste	August 5	.01 gal.	16 hours	-	tight
M	4000 gal	CN^- waste	July 30	-	5 hours	-	tight
N	4000 gal	CN^- waste	August 4	4.4 gal.	4.0 hours	1.1 gal/hr	leaks
O	4000 gal	CN^- waste	July 31	-	20 hours	-	tight
1	4000 gal	Lacquer thinner	August 4 - 5	.7 gal.	16 hours	0.44 gal/hr	tight
2	4000 gal	Acetone	July 24 - 27	-	5 hours	-	tight
3	4000 gal	Lacquer thinner	July 8 - 13	.32 gal	76 hours	.004 gal/hr	tight
4	4000 gal	Lacquer thinner	July 14	.09 gal	4 hours	.02 gal/hr	tight
5	4000 gal	Wet lacquer thinner	July 21	-	8 hours	-	tight
6	4000 gal	Wet acetone	July 17 - 20	.07 gal	2 1/3 hrs	.03 gal/hr	tight
7	4000 gal	Wet acetone	July 20 - 27	.005 gal	12 hours	-	tight

18 TANK A (Identify by # or Position) PRODUCT SOLVENT (Brand and Grade) CAPACITY 4,000 (Gallons) LAST DELIVERY MARCH 9, 1981 (Date)

19 PRODUCT QUANTITY

		GALLONS
STICK READINGS BEFORE FILL-UP	Water Bottom 1" to 1/8 in. 16 gallons Product Inventory " to 1/8 in.	3954
FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off)		
ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump)		10
TOTAL QUANTITY IN SYSTEM		3964

20 TEMPERATURE

INVENTORY	56 °F
ON TRUCK	°F
IN FULL TANK	°F
CHANGE TO EXPECT DURING TEST	1 °F (+ or −)

CHEMICAL PRECESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION F (Letter) 664 (Units) 66 °F (Nearest)

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE ..... (Units)

25 CALCULATIONS: 3954 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date 3/3/81 Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 VOLUME MEASUREMENTS: 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added + Drained − (v)	34 TEMPERATURE CHANGES: 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 NET VOLUME CHANGES: 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
10:30	FILLED TO 48"	BASE	/	48"		646				
10:45	" " "	1	44"	48"	-.20	647	+1	.05	-.25	
11:00	" " "	2	46"	48"	-.10	648	+1	.05	-.15	
11:15	" " "	3	48"	48"	0	649	+1	.05	-.05	
11:30	STABLE	4	48"	48"	0	649	0	0	0	
11:45	LOWERED TO 48"	5	49"	49"	+.05	650	-1	.05	+.05	
12:00		6	49"	/	+.05	651	-1	.05	+.05	
	STOPPED TEST PASSED									

THE TANK AND LINES IN THIS SYSTEM ARE CERTIFIED TIGHT.

James Hafford

JAMES HAFFORD, TESTER
DON GOLDEN COMPANY INC.

18 TANK B (Identify by # or Position) PRODUCT SOLVENT (Brand and Grade) CAPACITY 4000 (Gallons) LAST DELIVERY MARCH 3, 1981 (Date)

19 PRODUCT QUANTITY

			GALLONS
STICK READINGS BEFORE FILL-UP	Water Bottom 0 " to 1/8 in.	Product Inventory " to 1/8 in.	3954
FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off)			10
ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump)			
TOTAL QUANTITY IN SYSTEM			3964

20 TEMPERATURE

INVENTORY	56 °F
ON TRUCK	°F
IN FULL TANK	°F
CHANGE TO EXPECT DURING TEST	1 °F (+ or −)

CHEMICAL PROCESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION — F (Letter) 539 (Units) 66 °F (Nearest)

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE ..... (Units)

CALCULATIONS

25 3964 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date 3/3/81 Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 VOLUME MEASUREMENTS 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added − Drained + (v)	34 TEMPERATURE CHANGES 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 NET VOLUME CHANGES 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
11:15	FILLED TO 48"	BASE	/	48"		539				
11:30	" " "	1	36"	48"	-.60	540	+1	.05	-.65	
11:45	" " "	2	38"	48"	-.50	541	+1	.05	-.55	
12:00	" " "	3	39"	48"	-.45	542	+1	.05	-.50	
12:15	" " "	4	39"	48"	-.45	542	0	0	-.45	
12:30	" " "	5	40"	48"	-.40	543	+1	.05	-.45	
12:45	" " "	6	41"	48"	-.35	544	+1	.05	-.40	
13:00	" " "	7	42"	48"	-.30	545	+1	.05	-.35	
13:15	" " "	8	42"	48"	-.30	545	0	0	-.30	
13:30	" " "	9	42"	48"	-.30	545	0	0	-.30	
13:45	" " "	10	42"	48"	-.30	545	0	0	-.30	
14:00	" " "	11	42"	48"	-.30	545	0	0	-.30	
14:15	" " "	12	42"	48"	-.30	545	0	0	-.30	
14:30	" " "	13	42"	48"	-.30	545	0	0	-.30	
14:45	" " "	14	42"	48"	-.30	545	0	0	-.30	
15:00	" " "	15	42"	48"	-.30	545	0	0	-.30	
15:15	" " "	16	42"	48"	-.30	545	0	0	-.30	
15:30	" " "	17	42"	48"	-.30	545	0	0	-.30	
15:45	" " "	18	42"	48"	-.30	545	0	0	-.30	
16:00	" " "	19	42"	/	-.30	545	0	0	-.30	
	STOPPED TEST FAILED									

THE TANK AND LINES IN THIS SYSTEM ARE NOT CERTIFIED TIGHT.

James Hafford
JAMES HAFFORD
OPERATOR

18 TANK C (Identify by # or Position) PRODUCT SOLVENT (Brand and Grade) CAPACITY 4,000 (Gallons) LAST DELIVERY MARCH 3, 1981 (Date)

19 PRODUCT QUANTITY

		GALLONS
STICK READINGS BEFORE FILL-UP	Water Bottom 0" to 1/8 in. ____ gallons Product Inventory ____" to 1/8 in.	3954
FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off)		
ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump)		10
TOTAL QUANTITY IN SYSTEM		3964

20 TEMPERATURE

INVENTORY	56 °F
ON TRUCK	°F
IN FULL TANK	°F
CHANGE TO EXPECT DURING TEST	1 °F (+ or −)

DON GOLDEN COMPANY
4704 So. Washington Tacoma, Wash. 98409
SALES SERVICE REPAIRS
24 Hour — 7 Days a Week — Radio Dispatched
Floodlight, Air Compressors, Hydraulic Jacks, Tire Changers
Hoists, Lubrication Equipment, Meters, Tank Trucks Calibrated, Gasoline Pumps
TACOMA — GR 4-0148 SEATTLE CH 3-3899

CHEMICAL PROCESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION F (Letter) 560 (Units) 66 °F (Nearest)

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE ..... ____ (Units)

CALCULATIONS

25 3964 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date / Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 VOLUME MEASUREMENTS 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added + Drained − (v)	34 TEMPERATURE CHANGES 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 NET VOLUME CHANGES 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
3/3/81										
09:15	FILLED TO 48"	BASE	/	48"		560				
09:30	" " "	1	46"	48"	-.10	561	+1	.05	-.15	
09:45	" " "	2	47"	48"	-.05	562	+1	.05	-.10	
10:00	STABLE	3	48"	48"	0	563	+1	.05	-.05	
10:15	"	4	48"	48"	0	563	0	0	0	
10:30	"	5	48"	48"	0	563	0	0	0	
10:45	"	6	48"	48"	0	563	0	0	0	
	STOPPED TEST PASSED									

THE TANK AND LINES IN THIS SYSTEM ARE CERTIFIED TIGHT.

James Hafford
JAMES HAFFORD, TESTER
DON GOLDEN COMPANY INC.

18 TANK D (Identify by # or Position) PRODUCT SOLVENT (Brand and Grade) CAPACITY 4,000 (Gallons) LAST DELIVERY MARCH 3, 1981 (Date)

19 PRODUCT QUANTITY

		GALLONS
STICK READINGS BEFORE FILL-UP	Water Bottom 0" to 1/8 in. ____ gallons Product Inventory ____" to 1/8 in.	3954
FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off)		
ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump)		10
TOTAL QUANTITY IN SYSTEM		3964

20 TEMPERATURE

INVENTORY	56 °F
ON TRUCK	°F
IN FULL TANK	°F
CHANGE TO EXPECT DURING TEST	1 °F (+ or −)

DON GOLDEN COMPANY
4704 So. Washington Tacoma, Wash. 98409
SALES SERVICE REPAIRS
24 Hour — 7 Days a Week — Radio Dispatched
Floodlight, Air Compressors, Hydraulic Jacks, Tire Changers, Hoists, Lubrication Equipment, Meters, Tank Trucks Calibrated, Gasoline Pumps
TACOMA — GR 4-0148 SEATTLE CH 3-3899

CHEMICAL PROCESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION F (Letter) 642 (Units) 66 °F (Nearest)

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE ..... ____ (Units)

CALCULATIONS

25 3964 (Total Quantity (19)) X .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This Is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date 3/3/81 Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 VOLUME MEASUREMENTS 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added − Drained − (v)	34 TEMPERATURE CHANGES 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 NET VOLUME CHANGES 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
12:30	FILLED TO 48"	BASE	/	48"		642				
12:45	" " "	1	47"	48"	-.05	643	+1	.05	-.10	
13:00	STABLE	2	48"	48"	0	644	+1	.05	-.05	
13:15	"	3	48"	48"	0	644	0	0	0	
13:30	"	4	48"	48"	0	644	0	0	0	
13:45	"	5	48"	48"	0	644	0	0	0	
	stopped test passed									

THE TANK AND LINES IN THIS SYSTEM ARE CERTIFIED TIGHT.

James Hafford
JAMES HAFFORD, TESTER
DON GOLDEN COMPANY INC.

Identify by # or Position | Brand and Grade | Quantity

PRODUCT QUANTITY		GALLONS
STICK READINGS BEFORE FILL-UP	Water Bottom 0" to 1/8 in. ____ gallons Product Inventory ____" to 1/8 in.	3954
FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off)		
ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump)		10
TOTAL QUANTITY IN SYSTEM		3964

20 TEMPERATURE	
INVENTORY	56 °F
ON TRUCK	°F
IN FULL TANK	°F
CHANGE TO EXPECT DURING TEST	1 °F + or −

DON GOLDEN COMPANY
4704 So. Washington Tacoma, Wash. 98409
SALES SERVICE REPAIRS
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Floodlight
Air Compressors
Hydraulic Jacks
Tire Changers
Hoists
Lubrication Equipment
Meters
Tank Trucks Calibrated
Gasoline Pumps

TACOMA — GR 4-0148 SEATTLE CH 2-3999

CHEMICAL PROCESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION: F (Letter) 539 (Units) 66 °F (Nearest)

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE ..... ____ Units

CALCULATIONS

25 3964 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This Is Test Factor (a)

27 LOG OF TEST PROCEDURES			31 VOLUME MEASUREMENTS			34 TEMPERATURE CHANGES			38 NET VOLUME CHANGES	
28 Date 3/3/81 Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added − Drained + (v)	35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
11:15	FILLED TO 48"	BASE	/	48"		539				
11:30	" " "	1	36"	48"	-.60	540	+1	.05	-.65	
11:45	" " "	2	38"	48"	-.50	541	+1	.05	-.55	
12:00	" " "	3	39"	48"	-.45	542	+1	.05	-.50	
12:15	" " "	4	39"	48"	-.45	542	0	0	-.45	
12:30	" " "	5	40"	48"	-.40	543	+1	.05	-.45	
12:45	" " "	6	41"	48"	-.35	544	+1	.05	-.40	
13:00	" " "	7	42"	48"	-.30	545	+1	.05	-.35	
13:15	" " "	8	42"	48"	-.30	545	0	0	-.30	
13:30	" " "	9	42"	48"	-.30	545	0	0	-.30	
13:45	" " "	10	42"	48"	-.30	545	0	0	-.30	
14:00	" " "	11	42"	48"	-.30	545	0	0	-.30	
14:15	" " "	12	42"	48"	-.30	545	0	0	-.30	
14:30	" " "	13	42"	48"	-.30	545	0	0	-.30	
14:45	" " "	14	42"	48"	-.30	545	0	0	-.30	
15:00	" " "	15	42"	48"	-.30	545	0	0	-.30	
15:15	" " "	16	42"	48"	-.30	545	0	0	-.30	
15:30	" " "	17	42"	48"	-.30	545	0	0	-.30	
15:45	" " "	18	42"	48"	-.30	545	0	0	-.30	
16:00	" " "	19	42"	/	-.30	545	0	0	-.30	
	STOPPED TEST FAILED									

THE TANK AND LINES IN THIS SYSTEM ARE NOT CERTIFIED TIGHT.

James Hafford
JAMES HAFFORD
TESTER.

Tank No. | Identify by # or Position | Product | Brand and Grade | Gallons | Last Delivery | Date

19 PRODUCT QUANTITY

STICK READINGS BEFORE FILL-UP — Water Bottom 1" to 1/8 in. 16 gallons — Product Inventory " to 1/8 in. — GALLONS 3954

FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off) ..... —

ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump) 10

TOTAL QUANTITY IN SYSTEM 3964

20 TEMPERATURE

INVENTORY 56 °F

ON TRUCK °F

IN FULL TANK °F

CHANGE TO EXPECT DURING TEST 1 °F (+ or −)

DON GOLDEN COMPANY
4704 So. Washington Tacoma, Wash. 98409
SALES SERVICE REPAIRS
24 Hour — 7 Days a Week — Radio Dispatched
Floodlight, Air Compressors, Hydraulic Jacks, Tire Changers
Hoists, Lubrication Equipment, Meters, Tank Trucks Calibrated, Gasoline Pumps
TACOMA — GR 4-0148 SEATTLE CH 3-3899

CHEMICAL PRECESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION — Letter: F — Units: 664 — Nearest: 66 °F

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE ..... Units

CALCULATIONS

25 3954 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date 3/3/81 Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 Volume Measurements: 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added + Drained − (v)	34 Temperature Changes: 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 Net Volume Changes: 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
10:30	FILLED TO 48"	BASE	/	48"		646				
10:45	" " "	1	44"	48"	-.20	647	+1	.05	-.25	
11:00	" " "	2	46"	48"	-.10	648	+1	.05	-.15	
11:15	" " "	3	48"	48"	0	649	+1	.05	-.05	
11:30	STABLE	4	48"	48"	0	649	0	0	0	
11:45	LOWERED TO 48"	5	49"	49"	+.05	650	-1	.05	+.05	
12:00		6	49"	/	+.05	651	-1	.05	+.05	
	STOPPED TEST PASSED									

THE TANK AND LINES IN THIS SYSTEM ARE CERTIFIED TIGHT.

James Hafford

JAMES HAFFORD, TESTER
DON GOLDEN COMPANY INC.

Identify by # or Position	Brand and Grade	Gallons	Date

PRODUCT QUANTITY

			GALLONS
STICK READINGS BEFORE FILL-UP	Water Bottom 0" to 1/8 in.	Product Inventory " to 1/8 in.	3954
FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off)			10
ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump)			
TOTAL QUANTITY IN SYSTEM			3964

TEMPERATURE

INVENTORY	56 °F
ON TRUCK	°F
IN FULL TANK	°F
CHANGE TO EXPECT DURING TEST	1 °F (+ or −)

DON GOLDEN COMPANY
4704 So. Washington Tacoma, Wash. 98409
SALES SERVICE REPAIRS
24 Hour — 7 Days a Week — Radio Dispatched
Floodlight, Air Compressors, Hydraulic Jacks, Tire Changers
Hoists, Lubrication Equipment, Meters, Tank Trucks Calibrated, Gasoline Pumps
TACOMA — GR 4-0148 SEATTLE CH 3-3899

CHEMICAL PROCESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

13 THERMAL-SENSOR READING AFTER CIRCULATION: F (Letter) . 560 (Units) 66 °F (Nearest)

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE . . . . . (Units)

25 CALCULATIONS: 3964 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date / Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 Volume Measurements: 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added − Drained + (v)	34 Temperature Changes: 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 Net Volume Changes: 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
3/3/81										
09:15	FILLED TO 48"	BASE	/	48"		560				
09:30	" " "	1	46"	48"	-.10	561	+1	.05	-.15	
09:45	" " "	2	47"	48"	-.05	562	+1	.05	-.10	
10:00	STABLE	3	48"	48"	0	563	+1	.05	-.05	
10:15	"	4	48"	48"	0	563	0	0	0	
10:30	"	5	48"	48"	0	563	0	0	0	
10:45	"	6	48"	48"	0	563	0	0	0	
	STOPPED TEST PASSED									

THE TANK AND LINES IN THIS SYSTEM ARE CERTIFIED TIGHT.

James Hafford
JAMES HAFFORD, TESTER
DON GOLDEN COMPANY INC.

Identify by # or Position | Brand and Grade | Gallons | Date

PRODUCT QUANTITY

STICK READINGS BEFORE FILL-UP — Water Bottom 0 " to 1/8 in. ____ gallons — Product Inventory ____ to 1/8 in.

FILL-UP DELIVERY (Take Temperature on Truck) (Meter Off) . . . . . GALLONS 3954

ADDED TO FILL TESTER TO 12" (Fill Hoses - Prime Pump) 10

TOTAL QUANTITY IN SYSTEM 3964

20 TEMPERATURE

INVENTORY 56 °F

ON TRUCK ____ °F

IN FULL TANK ____ °F

CHANGE TO EXPECT DURING TEST 1 °F (+ or −)

DON GOLDEN COMPANY
4704 So. Washington Tacoma, Wash. 98409
SALES SERVICE REPAIRS
24 Hour — 7 Days a Week — Radio Dispatched
Floodlight Compressors Hydraulic Jacks Tire Changers
Hoists Lubrication Equipment Meters Tank Trucks Calibrated Gasoline Pumps
COMA — GR 4-0148 SEATTLE CH 3-3899

CHEMICAL PROCESSORS INC.
5501 AIRPORT WAY SO.
SEATTLE, WASHINGTON

22 TEMPERATURE / VOLUME FACTOR (a) TO TEST THIS TANK

23 THERMAL-SENSOR READING AFTER CIRCULATION — Letter: F — Units: 642 — Nearest: 66 °F

24 UNITS PER °F IN RANGE OF EXPECTED CHANGE . . . . . ____ Units

CALCULATIONS

25 3964 (Total Quantity (19)) × .00085 (Coefficient of Expansion for Involved Product) = 3.36 Gallons (Volume Change in this System per °F)

26 3.36 (Volume Change per °F (25)) ÷ 66 (Units per °F in Test Range (24)) = .05 Gallons (Volume Change per Unit Compute to 3 Dec. Places) — This is Test Factor (a)

27 LOG OF TEST PROCEDURES

28 Date / Time	29 Record Each Step of Setting Up and Running Test	30 Reading No.	31 VOLUME MEASUREMENTS: 32 Stand Pipe Level Before	32 Stand Pipe Level After	33 Product Added − Drained + (v)	34 TEMPERATURE CHANGES: 35 Thermal-Sensor Reading	36 Change Higher + Lower − (c)	37 Expansion or Contraction This Reading (c)x(a)=(t)	38 NET VOLUME CHANGES: 39 This Reading Volume (v) Adjusted for (t) (v) ± (t)	40 Accumulated
3/3/81										
12:30	FILLED TO 48"	BASE	/	48"	-	642				
12:45	" " "	1	47"	48"	-.05	643	+1	.05	-.10	
13:00	STABLE	2	48"	48"	0	644	+1	.05	-.05	
13:15	"	3	48"	48"	0	644	0	0	0	
13:30	"	4	48"	48"	0	644	0	0	0	
13:45	"	5	48"	48"	0	644	0	0	0	
	stopped test passed									

THE TANK AND LINES IN THIS SYSTEM ARE CERTIFIED TIGHT.

James Hafford
JAMES HAFFORD, TESTER
DON GOLDEN COMPANY INC.

North Field UST removal

UST contents inerted with CO_2 and transported to the PSC Tacoma Facility

Tank O damaged during excavation. Tank was resealed for transport.

UST excavation

North Field UST ports

North Field UST excavation

North Field UST removal

North Field UST removal

12 October 1987

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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

Mel Miller
Chemical Processors, Inc.
2203 Airport Way South - Suite 400
Seattle, WA 98134

RE: GT-North Field samples for Volatile Analysis as ARI Job. #01134.

Dear Mel,

Please find enclosed data for the above referenced samples. Samples were analyzed on 'FINN I" which met all Bromofluorobenzene Mass Tuning and Continuing Calibration Standard requirements for EPA Method 624 protocols.

Samples #N3 and #N4 required reanalysis at dilution to bring analytes into the calibrated range of the instrument. Both sets of data have been submitted for your review. Please make note the following when using this data.

> Work performed at ARI has shown the cis- and trans-1,2-Dichloroethene isomers are separated by only 5 seconds on packed column, and that a mixture of cis- and trans-isomers will appear as one peak. EPA has also instituted this format change under new protocols for volatile analysis. When reported these values should read 'Total 1,2-Dichloroethene (CAS #540-59-0)'. This format will be changed on report sheets when we begin operations under the new EPA-CLP protocols.
>
> There has also been a change in the identification of the dichloropropene isomers. Until we begin operations under new CLP protocols, we will continue to report the trans-isomer eluting before the cis-isomer, and will alert all data users to the identification change if compounds are found in a sample.

Also found in these samples was 1,1,2-Trichloro-1,2,2-trifluoroethane at the following levels:

#N1	1300 ppb	#N3	36,000 ppb
#N2	770 ppb	#N4	24,000 ppb

If you have any questions, please feel free to call at any time.

Respectfully submitted,

ANALYTICAL RESOURCES, INC.

Brian N. Bebee
Project Manager

BNB/sdr

Enclosures

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #N1

Lab Sample ID: 1134A
Sample Matrix: Waters

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Data Release Authorized: Brian N. Bohen

Amount Analyzed: 20 ul
Conc/Dilution: 1 to 250

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/L
74-87-3	Chloromethane	800 U
74-83-9	Bromomethane	1100 U
75-01-4	Vinyl Chloride	930 U
75-00-3	Chloroethane	1100 U
75-09-2	Methylene Chloride	2500 B
67-64-1	Acetone	2900 U
75-15-0	Carbon Disulfide	500 U
75-35-4	1,1-Dichloroethene	1100 U
75-34-3	1,1-Dichloroethane	1100
156-60-5	Trans-1,2-Dichloroethene	10000
67-66-3	Chloroform	630 U
107-06-2	1,2-Dichloroethane	12000
78-93-3	2-Butanone	1600 U
71-55-6	1,1,1-Trichloroethane	4500
56-23-5	Carbon Tetrachloride	430 U
108-05-4	Vinyl Acetate	1500 U
75-27-4	Bromodichloromethane	330 U

CAS Number		µg/L
78-87-5	1,2-Dichloropropane	400 U
10061-02-6	Trans-1,3-Dichloropropene	430 U
79-01-6	Trichloroethene	3500
124-48-1	Dibromochloromethane	400 U
79-00-5	1,1,2-Trichloroethane	400 U
71-43-2	Benzene	430 U
10061-01-5	cis-1,3-Dichloropropene	430 U
110-75-8	2-Chloroethylvinylether	650 U
75-25-2	Bromoform	480 U
108-10-1	4-Methyl-2-Pentanone	4600
591-78-6	2-Hexanone	480 U
127-18-4	Tetrachloroethene	340
79-34-5	1,1,2,2-Tetrachloroethane	530 U
108-88-3	Toluene	84000 K
108-90-7	Chlorobenzene	330 U
100-41-4	Ethylbenzene	9200
100-42-5	Styrene	8200
	Total Xylenes	36000

***Volatile Organic Surrogate Recoveries**

d8-Toluene	119%
Bromofluorobenzene	117%
d4-1,2-Dichloroethane	100%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #N2

Lab Sample ID: 1134B
Sample Matrix: Waters

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Data Release Authorized: _____

Amount Analyzed: 20 ul
Conc/Dilution: 1 to 250

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/L
74-87-3	Chloromethane	800 U
74-83-9	Bromomethane	1100 U
75-01-4	Vinyl Chloride	930 U
75-00-3	Chloroethane	1100 U
75-09-2	**Methylene Chloride**	**770 JB**
67-64-1	Acetone	2900 U
75-15-0	Carbon Disulfide	500 U
75-35-4	1,1-Dichloroethene	1100 U
75-34-3	**1,1-Dichloroethane**	**750**
156-60-5	**Trans-1,2-Dichloroethene**	**12000**
-66-3	Chloroform	630 U
07-06-2	**1,2-Dichloroethane**	**2200**
78-93-3	2-Butanone	1600 U
71-55-6	**1,1,1-Trichloroethane**	**2200**
56-23-5	Carbon Tetrachloride	430 U
108-05-4	Vinyl Acetate	1500 U
75-27-4	Bromodichloromethane	330 U

CAS Number		µg/L
78-87-5	1,2-Dichloropropane	400 U
10061-02-6	Trans-1,3-Dichloropropene	430 U
79-01-6	**Trichloroethene**	**840**
124-48-1	Dibromochloromethane	400 U
79-00-5	1,1,2-Trichloroethane	400 U
71-43-2	Benzene	430 U
10061-01-5	cis-1,3-Dichloropropene	430 U
110-75-8	2-Chloroethylvinylether	650 U
75-25-2	Bromoform	480 U
108-10-1	4-Methyl-2-Pentanone	900 U
591-78-6	2-Hexanone	480 U
127-18-4	**Tetrachloroethene**	**110 J**
79-34-5	1,1,2,2-Tetrachloroethane	530 U
108-88-3	**Toluene**	**33000**
108-90-7	Chlorobenzene	330 U
100-41-4	**Ethylbenzene**	**3000**
100-42-5	**Styrene**	**1200**
	Total Xylenes	**13000**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	103%
Bromofluorobenzene	101%
d4-1,2-Dichloroethane	96.7%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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RGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #N3 - Rerun

ab Sample ID: 1134CR
ample Matrix Soils/Sediments

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

ata Release Authorized: Brian N. Beka

Amount Analyzed: .00076 gm (Dry Weight Equiv.)
Percent Moisture: 23.6%
pH: NA

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/Kg
'4-87-3	Chloromethane	21000 U
'4-83-9	Bromomethane	27000 U
'5-01-4	Vinyl Chloride	24000 U
'5-00-3	Chloroethane	29000 U
'5-09-2	Methylene Chloride	3200 JB
;7-64-1	Acetone	76000 U
'5-15-0	Carbon Disulfide	13000 U
'5-35-4	1,1-Dichloroethene	29000 U
'5-34-3	1,1-Dichloroethane	29000 U
156-60-5	Trans-1,2-Dichloroethene	9600 J
;7-66-3	Chloroform	16000 U
07-06-2	1,2-Dichloroethane	15000 U
'8-93-3	2-Butanone	41000 U
71-55-6	1,1,1-Trichloroethane	40000
;6-23-5	Carbon Tetrachloride	11000 U
08-05-4	Vinyl Acetate	38000 U
'5-27-4	Bromodichloromethane	8500 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	10000 U
10061-02-6	Trans-1,3-Dichloropropene	11000 U
79-01-6	Trichloroethene	15000
124-48-1	Dibromochloromethane	10000 U
79-00-5	1,1,2-Trichloroethane	10000 U
71-43-2	Benzene	11000 U
10061-01-5	cis-1,3-Dichloropropene	11000 U
110-75-8	2-Chloroethylvinylether	17000 U
75-25-2	Bromoform	12000 U
108-10-1	4-Methyl-2-Pentanone	24000 U
591-78-6	2-Hexanone	12000 U
127-18-4	Tetrachloroethene	9700 J
79-34-5	1,1,2,2-Tetrachloroethane	14000 U
108-88-3	Toluene	630000
108-90-7	Chlorobenzene	8500 U
100-41-4	Ethylbenzene	180000
100-42-5	Styrene	61000
	Total Xylenes	720000

***Volatile Organic Surrogate Recoveries**

d8-Toluene	104%
Bromofluorobenzene	104%
d4-1,2-Dichloroethane	117%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NA	Not analyzed
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #N3

Lab Sample ID: 1134C
Sample Matrix: Soils/Sediments

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Data Release Authorized: Brian N. Bebee

Amount Analyzed: .0076 gm (Dry Weight Equiv.)
Percent Moisture: 23.6%
pH: NA

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/Kg
74-87-3	Chloromethane	2100 U
74-83-9	Bromomethane	2700 U
75-01-4	Vinyl Chloride	2400 U
75-00-3	Chloroethane	2900 U
75-09-2	Methylene Chloride	1500 JB
67-64-1	Acetone	7600 U
75-15-0	Carbon Disulfide	1300 U
75-35-4	1,1-Dichloroethene	2900 U
75-34-3	1,1-Dichloroethane	1900
156-60-5	Trans-1,2-Dichloroethene	14000
[illegible]-66-3	Chloroform	1600 U
[illegible]07-06-2	1,2-Dichloroethane	9400
78-93-3	2-Butanone	4100 U
71-55-6	1,1,1-Trichloroethane	38000
56-23-5	Carbon Tetrachloride	1100 U
108-05-4	Vinyl Acetate	3800 U
75-27-4	Bromodichloromethane	850 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	1000 U
10061-02-6	Trans-1,3-Dichloropropene	1100 U
79-01-6	Trichloroethene	18000
124-48-1	Dibromochloromethane	1000 U
79-00-5	1,1,2-Trichloroethane	1000 U
71-43-2	Benzene	460 J
10061-01-5	cis-1,3-Dichloropropene	1100 U
110-75-8	2-Chloroethylvinylether	1700 U
75-25-2	Bromoform	1200 U
108-10-1	4-Methyl-2-Pentanone	2400 U
591-78-6	2-Hexanone	1200 U
127-18-4	Tetrachloroethene	14000
79-34-5	1,1,2,2-Tetrachloroethane	1400 U
108-88-3	Toluene	450000 K
108-90-7	Chlorobenzene	850 U
100-41-4	Ethylbenzene	230000 K
100-42-5	Styrene	79000
	Total Xylenes	890000 K

***Volatile Organic Surrogate Recoveries**

d8-Toluene	104%
Bromofluorobenzene	120%
d4-1,2-Dichloroethane	97.6%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NA	Not analyzed
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #N4

Lab Sample ID: 1134D
Sample Matrix: Soils/Sediments

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Data Release Authorized: Brian N. Bekkedahl

Amount Analyzed: .0039 gm (Dry Weight Equiv.)
Percent Moisture: 21.4%
pH: NA

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/Kg
74-87-3	Chloromethane	4100 U
74-83-9	Bromomethane	5300 U
75-01-4	Vinyl Chloride	4700 U
75-00-3	Chloroethane	5600 U
75-09-2	**Methylene Chloride**	**890 MB**
67-64-1	Acetone	15000 U
75-15-0	Carbon Disulfide	2500 U
75-35-4	1,1-Dichloroethene	5700 U
75-34-3	**1,1-Dichloroethane**	**620 M**
156-60-5	**Trans-1,2-Dichloroethene**	**9200**
67-66-3	Chloroform	3200 U
107-06-2	1,2-Dichloroethane	2900 U
78-93-3	2-Butanone	8000 U
71-55-6	**1,1,1-Trichloroethane**	**41000**
56-23-5	Carbon Tetrachloride	2200 U
108-05-4	Vinyl Acetate	7400 U
75-27-4	Bromodichloromethane	1700 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	2000 U
10061-02-6	Trans-1,3-Dichloropropene	2200 U
79-01-6	**Trichloroethene**	**35000**
124-48-1	Dibromochloromethane	2000 U
79-00-5	1,1,2-Trichloroethane	2000 U
71-43-2	Benzene	2200 U
10061-01-5	cis-1,3-Dichloropropene	2200 U
110-75-8	2-Chloroethylvinylether	3300 U
75-25-2	Bromoform	2400 U
108-10-1	4-Methyl-2-Pentanone	4600 U
591-78-6	2-Hexanone	2400 U
127-18-4	**Tetrachloroethene**	**19000**
79-34-5	1,1,2,2-Tetrachloroethane	2700 U
108-88-3	**Toluene**	**650000 K**
108-90-7	Chlorobenzene	1700 U
100-41-4	**Ethylbenzene**	**240000**
100-42-5	**Styrene**	**150000**
	Total Xylenes	**1190000 K**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	104%
Bromofluorobenzene	120%
d4-1,2-Dichloroethane	97.6%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NA	Not analyzed
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #N4 - Rerun

Lab Sample ID: 1134DR
Sample Matrix: Soils/Sediments

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Data Release Authorized: Ann N. Roberts

Amount Analyzed: .00079 gm (Dry Weight Equiv.)
Percent Moisture: 21.4%
pH: NA

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/Kg
74-87-3	Chloromethane	20000 U
74-83-9	Bromomethane	27000 U
75-01-4	Vinyl Chloride	24000 U
75-00-3	Chloroethane	28000 U
75-09-2	Methylene Chloride	21000 U
67-64-1	Acetone	74000 U
75-15-0	Carbon Disulfide	13000 U
75-35-4	1,1-Dichloroethene	29000 U
75-34-3	1,1-Dichloroethane	29000 U
156-60-5	Trans-1,2-Dichloroethene	8000 J
-66-3	Chloroform	16000 U
/-06-2	1,2-Dichloroethane	15000 U
78-93-3	2-Butanone	40000 U
71-55-6	1,1,1-Trichloroethane	38000
56-23-5	Carbon Tetrachloride	11000 U
108-05-4	Vinyl Acetate	37000 U
75-27-4	Bromodichloromethane	8300 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	10000 U
10061-02-6	Trans-1,3-Dichloropropene	11000 U
79-01-6	Trichloroethene	33000
124-48-1	Dibromochloromethane	10000 U
79-00-5	1,1,2-Trichloroethane	10000 U
71-43-2	Benzene	11000 U
10061-01-5	cis-1,3-Dichloropropene	11000 U
110-75-8	2-Chloroethylvinylether	17000 U
75-25-2	Bromoform	12000 U
108-10-1	4-Methyl-2-Pentanone	23000 U
591-78-6	2-Hexanone	12000 U
127-18-4	Tetrachloroethene	17000
79-34-5	1,1,2,2-Tetrachloroethane	13000 U
108-88-3	Toluene	890000
108-90-7	Chlorobenzene	8300 U
100-41-4	Ethylbenzene	220000
100-42-5	Styrene	130000
	Total Xylenes	1100000

*Volatile Organic
Surrogate Recoveries

d8-Toluene	102%
Bromofluorobenzene	106%
d4-1,2-Dichloroethane	118%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NA	Not analyzed
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: Method Blank

Lab Sample ID: 1008MBM
Sample Matrix: Soils/Sediments

Data Release Authorized: Brian N. Rebe

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Amount Analyzed: .050 gm (Dry Weight Equiv.)
Percent Moisture: NA
pH: NA

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/Kg
74-87-3	Chloromethane	320 U
74-83-9	Bromomethane	420 U
75-01-4	Vinyl Chloride	370 U
75-00-3	Chloroethane	440 U
75-09-2	**Methylene Chloride**	490
67-64-1	Acetone	1200 U
75-15-0	Carbon Disulfide	200 U
75-35-4	1,1-Dichloroethene	450 U
75-34-3	1,1-Dichloroethane	200 U
156-60-5	Trans-1,2-Dichloroethene	270 U
67-66-3	Chloroform	250 U
107-06-2	1,2-Dichloroethane	230 U
78-93-3	2-Butanone	630 U
71-55-6	1,1,1-Trichloroethane	160 U
56-23-5	Carbon Tetrachloride	170 U
108-05-4	Vinyl Acetate	580 U
75-27-4	Bromodichloromethane	130 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	160 U
10061-02-6	Trans-1,3-Dichloropropene	170 U
79-01-6	Trichloroethene	140 U
124-48-1	Dibromochloromethane	160 U
79-00-5	1,1,2-Trichloroethane	160 U
71-43-2	Benzene	170 U
10061-01-5	cis-1,3-Dichloropropene	170 U
110-75-8	2-Chloroethylvinylether	260 U
75-25-2	Bromoform	190 U
108-10-1	4-Methyl-2-Pentanone	360 U
591-78-6	2-Hexanone	190 U
127-18-4	Tetrachloroethene	120 U
79-34-5	1,1,2,2-Tetrachloroethane	210 U
108-88-3	Toluene	150 U
108-90-7	Chlorobenzene	130 U
100-41-4	Ethylbenzene	210 U
100-42-5	Styrene	270 U
	Total Xylenes	320

***Volatile Organic Surrogate Recoveries**

d8-Toluene	97.4%
Bromofluorobenzene	101%
d4-1,2-Dichloroethane	98.8%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: Method Blank

Lab Sample ID: 1008MB
Sample Matrix: Waters

QC Report No: 1134-Chempro
Project No: GT-North Field
Date Received: 7 October 1987

Data Release Authorized: Ryan P. Baker

Amount Analyzed: 5 mls
Conc/Dilution: 1 to 1

Date Prepared: 10/08/87
Date Analyzed: 10/08/87

CAS Number		µg/L
74-87-3	Chloromethane	3.2 U
74-83-9	Bromomethane	4.2 U
75-01-4	Vinyl Chloride	3.7 U
75-00-3	Chloroethane	4.4 U
75-09-2	Methylene Chloride	4.9
67-64-1	Acetone	12 U
75-15-0	Carbon Disulfide	2.0 U
75-35-4	1,1-Dichloroethene	4.5 U
75-34-3	1,1-Dichloroethane	2.0 U
156-60-5	Trans-1,2-Dichloroethene	2.7 U
66-3	Chloroform	2.5 U
07-06-2	1,2-Dichloroethane	2.3 U
78-93-3	2-Butanone	6.3 U
71-55-6	1,1,1-Trichloroethane	1.6 U
56-23-5	Carbon Tetrachloride	1.7 U
108-05-4	Vinyl Acetate	5.8 U
75-27-4	Bromodichloromethane	1.3 U

CAS Number		µg/L
78-87-5	1,2-Dichloropropane	1.6 U
10061-02-6	Trans-1,3-Dichloropropene	1.7 U
79-01-6	Trichloroethene	1.4 U
124-48-1	Dibromochloromethane	1.6 U
79-00-5	1,1,2-Trichloroethane	1.6 U
71-43-2	Benzene	1.7 U
10061-01-5	cis-1,3-Dichloropropene	1.7 U
110-75-8	2-Chloroethylvinylether	2.6 U
75-25-2	Bromoform	1.9 U
108-10-1	4-Methyl-2-Pentanone	3.6 U
591-78-6	2-Hexanone	1.9 U
127-18-4	Tetrachloroethene	1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	2.1 U
108-88-3	Toluene	1.5 U
108-90-7	Chlorobenzene	1.3 U
100-41-4	Ethylbenzene	2.1 U
100-42-5	Styrene	2.7 U
	Total Xylenes	3.2

***Volatile Organic Surrogate Recoveries**

d8-Toluene	97.4%
Bromofluorobenzene	101%
d4-1,2-Dichloroethane	98.8%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less then specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

ATTACHMENT B

EPA Enclosure A:

Information Regarding Potential Releases
From Solid Waste Management Units

ENCLOSURE A

INFORMATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS

FACILITY NAME: Chemical Processors, Inc. Georgetown Facility

EPA I. D. NUMBER: WAD000812909

LOCATION City: Seattle

State: Washington

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTE UNITS CURRENTLY SHOWN IN YOUR PART A OR B APPLICATION

	Yes	No
° Landfill	___	x
° Surface Impoundment	___	x
° Land Farm	___	x
° Incinerator	___	x
° Storage Tank (Above Ground)	x	___
° Storage Tank (Underground)	x	___
° Container Storage Area	x	___
° Injection Wells	___	x
° Wastewater Treatment Units	x	___
° Transfer Stations	___	x
° Waste Recycling Operations	x	___
° Other Waste Handling Areas Not Covered Above	___	x

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous waste or hazardous constituents under RCRA. Also, include any available data on quantities or volumes of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if available.

See Section 3.0, Figure 1, and Tables 1 and 2 in the attached Solid Waste Management Unit (SWMU) Report.

NOTE: Hazardous wastes are those identified in 40 CFR Part 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.

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12 November 1987

Mel Miller
Chemical Processor, Inc.
2203 Airport Way South
Seattle, WA 98134

RE: Soil Samples submitted for Volatile Analysis as ARI Job #01193.

Dear Mel:

Please find the enclosed data for the above referenced samples.

The Dichlorpropene isomers are listed on Form I (Page 1) with the trans- isomer first, although it has been shown that this identification is incorrect. Until we are assured we may institute Form changes under our present EPA contract, we will continue to report the isomers in this order. Also, when reported the values for trans1,2-Dichloroethene should read 'Total 1,2-Dichloroethene (CAS#540-59-0)' as the isomers of this compound cannot be separated on packed column.

If you have any questions, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Dave

Dave R. Mitchell
Project Manager

DRM/jv

Enclosures

cc: file#01193

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: Method Blank

Lab Sample ID: 1109MB
Sample Matrix: Soils/Sediments

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

Data Release Authorized: Brian W. Beha

Amount Analyzed: 5.0 gm (Dry Weight Equiv.)
Percent Moisture: NA
pH: NA

Instrument: FINN I
Date Analyzed: 11/09/87

CAS Number		µg/Kg
74-87-3	Chloromethane	3.2 U
74-83-9	Bromomethane	4.2 U
75-01-4	Vinyl Chloride	3.7 U
75-00-3	Chloroethane	4.4 U
75-09-2	Methylene Chloride	3.0 J
67-64-1	Acetone	12 U
75-15-0	Carbon Disulfide	2.0 U
75-35-4	1,1-Dichloroethene	4.5 U
75-34-3	1,1-Dichloroethane	2.0 U
60-5	Trans-1,2-Dichloroethene	2.7 U
67-66-3	Chloroform	2.5 U
107-06-2	1,2-Dichloroethane	2.3 U
78-93-3	2-Butanone	6.3 U
71-55-6	1,1,1-Trichloroethane	1.6 U
56-23-5	Carbon Tetrachloride	1.7 U
108-05-4	Vinyl Acetate	5.8 U
75-27-4	Bromodichloromethane	1.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	1.6 U
10061-02-6	Trans-1,3-Dichloropropene	1.7 U
79-01-6	Trichloroethene	1.4 U
124-48-1	Dibromochloromethane	1.6 U
79-00-5	1,1,2-Trichloroethane	1.6 U
71-43-2	Benzene	1.7 U
10061-01-5	cis-1,3-Dichloropropene	1.7 U
110-75-8	2-Chloroethylvinylether	2.6 U
75-25-2	Bromoform	1.9 U
108-10-1	4-Methyl-2-Pentanone	3.6 U
591-78-6	2-Hexanone	1.9 U
127-18-4	Tetrachloroethene	1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	2.1 U
108-88-3	Toluene	1.5 U
108-90-7	Chlorobenzene	1.3 U
100-41-4	Ethylbenzene	2.1 U
100-42-5	Styrene	2.7 U
	Total Xylenes	2.4 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	99.6%
Bromofluorobenzene	99.0%
d4-1,2-Dichloroethane	96.3%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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IRGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: Method Blank

ab Sample ID: 1109MBM
ample Matrix: Soils/Sediments

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

ata Release Authorized: Brian W. Beh

Instrument: FINN I
Date Analyzed: 11/09/87

Amount Analyzed: 0.025 gm (Dry Weight Equiv.)
Percent Moisture: NA
pH: NA

CAS Number		µg/Kg
74-87-3	Chloromethane	640 U
74-83-9	Bromomethane	840 U
75-01-4	Vinyl Chloride	740 U
75-00-3	Chloroethane	880 U
75-09-2	**Methylene Chloride**	**1300**
67-64-1	Acetone	2300 U
75-15-0	Carbon Disulfide	400 U
75-35-4	1,1-Dichloroethene	900 U
75-34-3	1,1-Dichloroethane	400 U
156-60-5	Trans-1,2-Dichloroethene	540 U
67-66-3	Chloroform	500 U
107-06-2	1,2-Dichloroethane	460 U
78-93-3	2-Butanone	1300 U
71-55-6	1,1,1-Trichloroethane	320 U
56-23-5	Carbon Tetrachloride	340 U
108-05-4	Vinyl Acetate	1200 U
75-27-4	Bromodichloromethane	260 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	320 U
10061-02-6	Trans-1,3-Dichloropropene	340 U
79-01-6	Trichloroethene	280 U
124-48-1	Dibromochloromethane	320 U
79-00-5	1,1,2-Trichloroethane	320 U
71-43-2	Benzene	340 U
10061-01-5	cis-1,3-Dichloropropene	340 U
110-75-8	2-Chloroethylvinylether	520 U
75-25-2	Bromoform	380 U
108-10-1	4-Methyl-2-Pentanone	720 U
591-78-6	2-Hexanone	380 U
127-18-4	Tetrachloroethene	240 U
79-34-5	1,1,2,2-Tetrachloroethane	420 U
108-88-3	**Toluene**	**230 J**
108-90-7	Chlorobenzene	260 U
100-41-4	**Ethylbenzene**	**170 J**
100-42-5	Styrene	540 U
	Total Xylenes	**480**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	100%
Bromofluorobenzene	99.4%
d4-1,2-Dichloroethane	108%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #15201 S-1

Lab Sample ID: 1193A
Sample Matrix: Soils/Sediments

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

Data Release Authorized: [signature]

Instrument: FINN I
Date Analyzed: 11/09/87

Amount Analyzed: 0.012 gm (Dry Weight Equiv.)
Percent Moisture: 5.5%
pH: NA

CAS Number		µg/Kg
74-87-3	Chloromethane	1400 U
74-83-9	Bromomethane	1800 U
75-01-4	Vinyl Chloride	1600 U
75-00-3	Chloroethane	1900 U
75-09-2	Methylene Chloride	3700 B
67-64-1	Acetone	1000 J
75-15-0	Carbon Disulfide	850 U
75-35-4	1,1-Dichloroethene	1900 U
75-34-3	1,1-Dichloroethane	850 U
-60-5	Trans-1,2-Dichloroethene	1100 U
66-3	Chloroform	1100 U
107-06-2	1,2-Dichloroethane	970 U
78-93-3	2-Butanone	2700 U
71-55-6	1,1,1-Trichloroethane	1200
56-23-5	Carbon Tetrachloride	720 U
108-05-4	Vinyl Acetate	2500 U
75-27-4	Bromodichloromethane	550 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	680 U
10061-02-6	Trans-1,3-Dichloropropene	720 U
79-01-6	Trichloroethene	3000
124-48-1	Dibromochloromethane	680 U
79-00-5	1,1,2-Trichloroethane	680 U
71-43-2	Benzene	720 U
10061-01-5	cis-1,3-Dichloropropene	720 U
110-75-8	2-Chloroethylvinylether	1100 U
75-25-2	Bromoform	800 U
108-10-1	4-Methyl-2-Pentanone	2400
591-78-6	2-Hexanone	800 U
127-18-4	Tetrachloroethene	8400
79-34-5	1,1,2,2-Tetrachloroethane	890 U
108-88-3	Toluene	67000 B
108-90-7	Chlorobenzene	550 U
100-41-4	Ethylbenzene	46000 B
100-42-5	Styrene	1100 U
	Total Xylenes	250000 B

*Volatile Organic
Surrogate Recoveries

d8-Toluene	98.3%
Bromofluorobenzene	116%
d4-1,2-Dichloroethane	99.6%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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RGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: *15201 S-2

ab Sample ID: 11938
ample Matrix: Soils/Sediments

ata Release Authorized:

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

Amount Analyzed: 0.012 gm (Dry Weight Equiv.)
Percent Moisture: 5.5%
pH: NA

Instrument: FINN I
Date Analyzed: 11/09/87

CAS Number		µg/Kg
4-87-3	Chloromethane	1400 U
4-83-9	Bromomethane	1800 U
5-01-4	Vinyl Chloride	1600 U
5-00-3	Chloroethane	1900 U
5-09-2	**Methylene Chloride**	**2000 B**
7-64-1	Acetone	4900 U
5-15-0	Carbon Disulfide	850 U
5-35-4	1,1-Dichloroethene	1900 U
5-34-3	1,1-Dichloroethane	850 U
56-60-5	Trans-1,2-Dichloroethene	1100 U
7-66-3	Chloroform	1100 U
07-06-2	1,2-Dichloroethane	970 U
8-93-3	2-Butanone	2700 U
1-55-6	1,1,1-Trichloroethane	680 U
5-23-5	Carbon Tetrachloride	720 U
08-05-4	Vinyl Acetate	2500 U
5-27-4	Bromodichloromethane	550 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	680 U
10061-02-6	Trans-1,3-Dichloropropene	720 U
79-01-6	Trichloroethene	590 U
124-48-1	Dibromochloromethane	680 U
79-00-5	1,1,2-Trichloroethane	680 U
71-43-2	Benzene	720 U
10061-01-5	cis-1,3-Dichloropropene	720 U
110-75-8	2-Chloroethylvinylether	1100 U
75-25-2	Bromoform	800 U
108-10-1	**4-Methyl-2-Pentanone**	**1500 J**
591-78-6	2-Hexanone	800 U
127-18-4	**Tetrachloroethene**	**420 J**
79-34-5	1,1,2,2-Tetrachloroethane	890 U
108-88-3	**Toluene**	**2800 B**
108-90-7	Chlorobenzene	550 U
100-41-4	**Ethylbenzene**	**4700 B**
100-42-5	Styrene	1100 U
	Total Xylenes	**27000 B**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	100%
Bromofluorobenzene	101%
d4-1,2-Dichloroethane	95.7%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #15201 S-3

Lab Sample ID: 1193C
Sample Matrix: Soils/Sediments

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

Data Release Authorized: Brian N. Bebee

Amount Analyzed: 0.011 gm (Dry Weight Equiv.)
Percent Moisture: 10.6%
pH: NA

Instrument: FINN I
Date Analyzed: 11/09/87

CAS Number		µg/Kg
74-87-3	Chloromethane	1400 U
74-83-9	Bromomethane	1900 U
75-01-4	Vinyl Chloride	1700 U
75-00-3	Chloroethane	2000 U
75-09-2	**Methylene Chloride**	**2100 B**
67-64-1	**Acetone**	**1300 J**
75-15-0	Carbon Disulfide	890 U
75-35-4	1,1-Dichloroethene	2000 U
75-34-3	1,1-Dichloroethane	890 U
156-60-5	**Trans-1,2-Dichloroethene**	**490 J**
67-66-3	Chloroform	1100 U
107-06-2	1,2-Dichloroethane	1000 U
78-93-3	2-Butanone	2800 U
71-55-6	**1,1,1-Trichloroethane**	**1000**
56-23-5	Carbon Tetrachloride	760 U
108-05-4	Vinyl Acetate	2600 U
75-27-4	Bromodichloromethane	580 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	720 U
10061-02-6	Trans-1,3-Dichloropropene	760 U
79-01-6	**Trichloroethene**	**1400**
124-48-1	Dibromochloromethane	720 U
79-00-5	1,1,2-Trichloroethane	720 U
71-43-2	Benzene	760 U
10061-01-5	cis-1,3-Dichloropropene	760 U
110-75-8	2-Chloroethylvinylether	1200 U
75-25-2	Bromoform	850 U
108-10-1	4-Methyl-2-Pentanone	1600 U
591-78-6	2-Hexanone	850 U
127-18-4	**Tetrachloroethene**	**5400**
79-34-5	1,1,2,2-Tetrachloroethane	940 U
108-88-3	**Toluene**	**30000 B**
108-90-7	Chlorobenzene	580 U
100-41-4	**Ethylbenzene**	**32000 B**
100-42-5	Styrene	1200 U
	Total Xylenes	**160000 B**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	99.2%
Bromofluorobenzene	110%
d4-1,2-Dichloroethane	97.0%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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Analytical
Chemists &
Consultants

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Seattle, Wa 98109-5187
(206) 621-6490

ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #15201 S-4

Lab Sample ID: 1193D
Sample Matrix: Soils/Sediments

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

Data Release Authorized: Brian W Rober

Amount Analyzed: 0.012 gm (Dry Weight Equiv.)
Percent Moisture: 8.0%
pH: NA

Instrument: FINNI
Date Analyzed: 11/09/87

CAS Number		µg/Kg
74-87-3	Chloromethane	1400 U
74-83-9	Bromomethane	1800 U
75-01-4	Vinyl Chloride	1600 U
75-00-3	Chloroethane	1900 U
75-09-2	**Methylene Chloride**	**3400 B**
67-64-1	**Acetone**	**2700 J**
75-15-0	Carbon Disulfide	870 U
75-35-4	1,1-Dichloroethene	2000 U
75-34-3	1,1-Dichloroethane	870 U
156-60-5	**Trans-1,2-Dichloroethene**	**14000**
67-66-3	Chloroform	1100 U
107-06-2	1,2-Dichloroethane	1000 U
78-93-3	2-Butanone	2700 U
71-55-6	**1,1,1-Trichloroethane**	**90000**
56-23-5	Carbon Tetrachloride	740 U
108-05-4	Vinyl Acetate	2500 U
75-27-4	Bromodichloromethane	560 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	700 U
10061-02-6	Trans-1,3-Dichloropropene	740 U
79-01-6	**Trichloroethene**	**63000**
124-48-1	Dibromochloromethane	700 U
79-00-5	1,1,2-Trichloroethane	700 U
71-43-2	Benzene	740 U
10061-01-5	cis-1,3-Dichloropropene	740 U
110-75-8	2-Chloroethylvinylether	1100 U
75-25-2	Bromoform	830 U
108-10-1	4-Methyl-2-Pentanone	1600 U
591-78-6	2-Hexanone	830 U
127-18-4	**Tetrachloroethene**	**64000**
79-34-5	1,1,2,2-Tetrachloroethane	910 U
108-88-3	**Toluene**	**250000 BK**
108-90-7	Chlorobenzene	560 U
100-41-4	**Ethylbenzene**	**190000 BK**
100-42-5	Styrene	1200 U
	Total Xylenes	**610000 BK**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	81.3%
Bromofluorobenzene	122%
d4-1,2-Dichloroethane	99.5%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ANALYTICAL RESOURCES INCORPORATED

Analytical Chemists & Consultants

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Seattle, Wa 98109-5187
(206) 621-6490

ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #15201 S-4 [Rerun]

Lab Sample ID: 1193DR
Sample Matrix: Soils/Sediments

QC Report No: 1193-Chempro
Project No: #15201
Date Received: 11/06/87

Data Release Authorized: Brian N. Baker

Instrument: FINN I
Date Analyzed: 11/09/87

Amount Analyzed: 0.0023 gm (Dry Weight Equiv.)
Percent Moisture: 8.0%
pH: NA

CAS Number		µg/Kg
74-87-3	Chloromethane	7000 U
74-83-9	Bromomethane	9100 U
75-01-4	Vinyl Chloride	8000 U
75-00-3	Chloroethane	9600 U
75-09-2	**Methylene Chloride**	**25000 B**
67-64-1	Acetone	25000 U
75-15-0	Carbon Disulfide	4300 U
75-35-4	1,1-Dichloroethene	9800 U
75-34-3	1,1-Dichloroethane	4300 U
6-60-5	**Trans-1,2-Dichloroethene**	**12000**
-66-3	Chloroform	5400 U
107-06-2	1,2-Dichloroethane	5000 U
78-93-3	2-Butanone	14000 U
71-55-6	**1,1,1-Trichloroethane**	**83000**
56-23-5	Carbon Tetrachloride	3700 U
108-05-4	Vinyl Acetate	13000 U
75-27-4	Bromodichloromethane	2800 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	3500 U
10061-02-6	Trans-1,3-Dichloropropene	3700 U
79-01-6	**Trichloroethene**	**62000**
124-48-1	Dibromochloromethane	3500 U
79-00-5	1,1,2-Trichloroethane	3500 U
71-43-2	Benzene	3700 U
10061-01-5	cis-1,3-Dichloropropene	3700 U
110-75-8	2-Chloroethylvinylether	5600 U
75-25-2	Bromoform	4100 U
108-10-1	4-Methyl-2-Pentanone	7800 U
591-78-6	2-Hexanone	4100 U
127-18-4	**Tetrachloroethene**	**64000**
79-34-5	1,1,2,2-Tetrachloroethane	4600 U
108-88-3	**Toluene**	**570000 B**
108-90-7	Chlorobenzene	2800 U
100-41-4	**Ethylbenzene**	**190000 B**
100-42-5	Styrene	5900 U
	Total Xylenes	**850000 B**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	97.6%
Bromofluorobenzene	107%
d4-1,2-Dichloroethane	96.4%

*Surrogate recoveries indicate the validity of a given analysis

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

APPENDIX 2C

CURRENT PERMIT LANGUAGE AND PERMIT MODIFICATIONS

BURLINGTON ENVIRONMENTAL INC.,
A WHOLLY OWNED SUBSIDIARY OF
PHILIP SERVICES CORPORATION

GEORGETOWN FACILITY
WAD 00081 2909

MODIFICATION TO

AGENCY LEAD FOR CORRECTIVE ACTION

(to replace permit section VII)

VII.A. Corrective Action Requirements

VII.A.1. In the event any permit condition in Part VII of this permit is in conflict with any provisions in the approved workplans and reports submitted pursuant to Part VII of this permit, the permit condition shall be the applicable requirement.

VII.A.2. In this section of the permit the following terms have the respective meanings:

- *Corrective Action* refers to the process, and actions within that process, to investigate and cleanup environmental contamination from facility releases of dangerous waste and dangerous constituents, including actions taken pursuant to Chapter 70.105D RCW and Chapter 173-340 WAC, as defined in WAC 173-303-646(1).

- *Remedial Action* refers to the cleanup action reviewed and approved by the Department for the facility and set forth in a facility-specific Cleanup Action Plan (CAP) prepared in compliance with the requirements of Chapter 173-340 WAC, including WAC 173-340-360 (Selection of Cleanup Actions).

- *Environmental Indicators* are results-based measures of corrective action progress that are the Environmental Protection Agency's primary interim cleanup goals. There are two such indicators for RCRA Corrective Action:

  a) Current Human Exposures Under Control. When this Indicator has been met it is based on an Ecology conclusion that there are no "unacceptable" human exposures to "contamination" that can reasonably be expected under current soil and groundwater use conditions. And,

  b) Migration of contaminated Groundwater Under Control. When this Indicator has been met it is based on an Ecology conclusion that migration of "contaminated" groundwater has stabilized, that the contaminants in the groundwater do not discharge into surface water at currently "unacceptable" levels, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater."

- *Practical Quantitation Levels*, or PQLs, refer to analytical levels which are the lowest concentrations of analytes in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory conditions.

- *Remedial alternative* means a cleanup option.

- *RCRA Facility Investigation (RFI)* is equivalent to *Remedial Investigation (RI)* and is the facility wide investigation and characterization performed in accordance with the requirements of Chapter 173-340 WAC and the RI scope of work within

this Permit, undertaken in whole or in part to fulfill the corrective action requirements of WAC 173-303-646 (Corrective Action).

VII.A.3. Remedial Investigation (RI):

a) The Permittee shall complete a Remedial Investigation (RI) to fully delineate the nature and extent of hazardous constituents released at or from the facility. The Permittee shall perform all tasks and activities specified in the Permittee's Final RFI Addendum Scope of Work (submitted in 10/99), the EPA-approved Supplemental Off-site Characterization Work Plan (approved on 9/29/00), the Risk Assessment Work Plan (see A.3.d. below), the EPA-approved Soil Gas Sampling and Analysis Plan (approved on 12/4/00) and the EPA-approved RFI Well Installation Work Plan (approved on 1/10/02). The Supplemental Off-site Characterization Work Plan, the Final RFI Addendum Scope of Work, the Soil Gas Sampling and Analysis Plan and the Final RFI Well Installation Work Plan are hereby incorporated by reference as Attachment MM of this permit.

b) All RI work conducted pursuant to this permit condition shall be completed in acceptable quality by schedules contained in Attachment MM.

c) As a result of investigation findings, additional work may be required to complete the RI. In such cases the Permittee shall meet the requirements of VII.A.5. for amending the RI.

d) Human Health and Ecological Risk Assessment.

A quantitative human health and ecological risk assessment will be conducted for the site to assess current and future exposure pathways and to define risk-based remediation goals and proposed points of compliance. The risk assessment shall include an assessment of pathway-specific, as well as cumulative, risks to human and ecological receptors. This risk assessment shall be undertaken in a manner consistent with RCRA guidances and the Washington State Department of Ecology regulations and guidances, as specified in the final, approved Risk Assessment Work Plan.

Draft Human Health and Ecological Risk Assessment: By the date established for its submission in Table VII-1, a Draft Human Health and Ecological Risk Assessment shall be submitted to the Director.

Final Human Health and Ecological Risk Assessment: The Director shall review the draft Risk Assessment and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall submit a revised version of the risk assessment, per Table VII-1, that satisfactorily addresses the Director's comments. Failure to submit a revised risk assessment which adequately addresses each of the Director's comments shall constitute a violation of this permit. In such cases the Director will approve the

revision as Final with modifications, or disapprove it with comments.

VII.A.4. Remedial Investigation (RI) Report:

The Permittee shall document the results of the investigation, based on data collected during the RI, and submit a draft Comprehensive RI Report (as required by VII.A.4.a) to the Director by a date identified in Table VII-1.

a) Draft Comprehensive RI Report: This report shall include:

(1) conclusions and findings, substantively supported, of the investigations performed to characterize media actually or potentially contaminated by releases from the facility. Findings and conclusions will include descriptions of below-surface stratigraphy and hydrogeologic parameters, as well as characterization of the nature and extent of hazardous constituents.

(2) results of a groundwater beneficial use analysis (as specified in the Final RFI Scope of Work, Attachment MM).

(3) results from groundwater and soil gas modeling projects (including those specified in Attachment MM), including assumptions made, calculations used, and tables and figures.

(4) summary tables of all soil, soil gas, groundwater, and air monitoring/sampling results to include: sample collection date; sample location; constituents analyzed for and their concentrations; and the media-specific preliminary remediation goals, as described in the final, approved Risk Assessment (VII.A.3.d.). In addition, method reporting limits, method detection limits and Practical Quantitation Levels will be provided on these tables as available. If these limits are not available to the Permittee for certain historical data sets, the RI Report shall include a discussion describing why such limits are absent and how this absence affects the data useability.

(5) maps identifying the locations of all investigation-related sampling, and all remediation-related monitoring locations.

(6) a description and discussion of the groundwater point of compliance. The point of compliance is established as those wells where the lowest of the following screening criteria are, or have been since January 1, 1998, exceeded: Washington State Department of Ecology Model Toxics Control Act (MTCA) Method B groundwater cleanup criteria; MTCA Method A groundwater cleanup criteria; the EPA Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), any non-zero MCL goals, and conservative, peer-reviewed (by the scientific community),

ecological risk-based concentrations for Duwamish River receptors approved by the Director in the Risk Assessment.

7) may include a clearly defined, proposed modification to the point of compliance in (6) above for the remedial action objectives that will be used in the site-specific Feasibility Study, or "FS". Such a modification may be requested for cases where the Permittee believes the point of compliance should not include contaminated groundwater within the facility's property limits, and/or where the results of the risk assessment (performed according to requirements in (VII.A.3.d above) indicate that new criteria should be used to define those wells where remedial action levels must be met.

(8) proposed preliminary remedial action levels and preliminary remedial action objectives to be used in the FS, following approval by the Director.

As part of this identification of preliminary cleanup levels and objectives, the Permittee shall attach to the Report a determination as to whether the Environmental Indicators for protecting current human receptors from unacceptable exposures, and for stopping the downgradient movement of contaminated groundwater, have been met. If one or both of the two Indicators have not been met, the Permittee may be directed by the Director to submit an Interim Measures Work Plan, due on the date established in Table VII-1 for the Final Comprehensive RI Report, to meet the requirements of VII.C. The Director shall review the Environmental Indicator determinations together with the rest of the draft RI Report, and approve, disapprove, or approve them with comments in the Director's response to the draft Report.

(9) results of quality assurance activities and how and why they relate to the RI Report's findings and conclusions, as specified in the final RI Scope of Work (Attachment MM) and final, approved Risk Assessment Work Plan. This assessment of data quality shall be consistent with EPA's July 1996 Guidance for Data Quality Assessment (QA/G-9), and any updates provided in EPA's Quality Assurance Website at http://www.epa.gov/r10earth/offices/oea/r0qahome.htm.

(10) a discussion of the analysis of data usability and the results of that analysis. As required by the RFI SOW and Risk Assessment Work Plan, the Permittee shall calculate and evaluate the potential error associated with findings.

(11) a proposal for a new schedule for corrective action progress reports (condition VII.A.7.) to begin once the Director approves the Final Comprehensive RI Report (VII.A.4.b.). These progress reports shall not

be submitted less frequently than quarterly.

(12) a draft Community Relations Plan containing, at a minimum:

i) public notice requirements (fromWAC 173-303-830(4)WAC 173-303-840(3) - (9) and WAC 173-340-600) and planned activities, and how the Permittee shall meet these requirements and activities;

ii) the location of the Permittee's repository;

iii) methods for identifying the public's concerns;

iv) methods for addressing the public's concerns and conveying information to the public; and,

v) procedures for modifying the Plan (per WAC 173-303-830(4)).

The draft Plan shall be consistent with EPA's 1996 RCRA Public Participation Manual, the Department of Ecology's Guide to Public Involvement (June 1999), and the Model Toxics Control Act and WAC 173-340-600.

(13) the location of the Permittee's data/record storage, and the measures to be used to maintain and secure it (per VII.A.8.).

(14) the location of the public repository to be used to enable the public to review all final Corrective Action documents, reports, plans, and validated data used to support all Interim Actions and/or Cleanup Actions.

(15) a brief account of efforts made, in finalizing the RI, to notify all property owners and residents whose property lies above groundwater containing hazardous constituents which: exceed screening levels based on residential use of the groundwater as drinking water; and, are contaminants of potential concern for the Permittee's facility.

b) Final Comprehensive RI Report: The Director shall review the draft RI Report and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall submit to the Director for review and approval a revised draft of the RI Report, per Table VII-1, that satisfactorily addresses the Director's comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Report which adequately addresses each of the Director's comments shall constitute a violation of this permit.

A Feasibility Study (FS) Scope of Work Technical Memorandum, proposing the

focus and format of the FS, must be submitted to the Director. If the draft RI Report is not approved, this Memorandum must be submitted together with the next revision of that Report, the Final Comprehensive RI Report. If the draft RI Report is approved, or approved with modifications, the FS Scope of Work Technical Memorandum shall be submitted to the Director within twenty-one (21) days of receipt of the Director's RI Report approval letter. The FS may proceed, and the draft FS Report may be prepared, without the Director's approval of the Technical Memorandum.

Since contaminated groundwater moves in the direction of the Duwamish River, and since it is assumed that contaminated groundwater will continue to migrate downgradient in the absence of a Cleanup Action or Interim Measure, the FS Scope of Work must additionally include analyses and predictions of future groundwater movement and the risks to receptors potentially exposed to the groundwater (and/or surface water, soil gas, and indoor/outdoor air contaminated by groundwater). These analyses and assessments may be limited to scenarios relating to post-implementation of the Permittee's final Remedial Action alternatives.

VII.A.5. Additional Work: Additional work may become necessary due to the discovery of new information. The Permittee shall submit a Work Plan for performance of the additional work to the Director for approval within sixty (60) days of the Permittee's knowledge of such a need. "Knowledge of a need" in this context will be either the Permittee's identification of such a need or notification from the Director that such a need exists.

The Director shall review the Work Plan and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall, by a date established in the Director's comment letter, submit a revised Work Plan for the Director's review and approval that satisfactorily addresses the Director's comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Work Plan which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.A.6. Upon final approval of any Work Plan submitted pursuant to VII.A.5., the Permittee shall complete the tasks outlined in the Work Plan in accordance with its respective terms and schedules.

VII.A.7. RI Progress Reports: Progress Reports on the RI shall be submitted to the Director within 6 months of the effective date of the permit and every six months thereafter through approval of the Final Comprehensive RI Report, in accordance with VII.A.4.b. Each progress report shall contain the following information:

a) a description of the work completed;

b) summaries of all findings;

c) summaries of all problems encountered during the reporting period;

d) actions taken to rectify problems; and,

e) projected work for the next reporting period.

If, in the future, the Director determines, based on the amount and frequency of information being communicated by the Permittee, that six month intervals are too long, the Director shall notify the Permittee that quarterly reports must be submitted. The Permittee shall then have no more than ninety (90) days to submit the first quarterly progress report. Reports shall continue to be submitted by the Permittee every three months from that first quarterly progress report submittal date.

VII.A.8. All Corrective Action documents, reports, plans, and data collected to support an Interim Measure (VII.C.) and/or Cleanup Action (VII.D.), shall be stored and maintained at a secure location approved by the Director (as set out in VII.A.4.a..13.) . Such archiving must be maintained for a period not less than ten years after termination of Compliance Monitoring. Final versions of Corrective Action documents, reports, plans, and validated data collected to support all Interim and/or Cleanup Actions, shall be included in the Permittee's public repository as required by permit condition VII.A.4.a.14.

VII.A.9. Documents To Be Maintained In Corrective Action Operating Record: A written operating record shall be kept to document corrective action activities. This record may be included within the operating record required by Condition II.C.2. of the facility's "operating permit." The operating record shall include, at a minimum, the following documents and amendments, revisions, and modifications to these documents:

1) The permit, permit application, and all attachments:

2) Records and results of all laboratory analysis performed as part of the corrective action:

3) Summaries of all records of the corrective action. These records shall include logs of all soil borings taken during design of any containment barrier system; recovery well pumping rates and injection well rates; industrial pumping well rates; and other data collected to monitor each corrective action system. Records of cessation of pumping and treating and measures taken to mitigate and prevent further cessations, and dates and methods of groundwater, soil, and/or soil/gas treatment at the facility and adjacent properties shall also be maintained:

4) Records of inspections as provided by attachments to this permit:

5) All interim measures and remedial action cost estimates, and financial assurance documentation, prepared pursuant to this Permit:

6) Records of spills and releases:

7) Copies of all other environmental permits:

8) Training records of facility personnel conducting activities pursuant to this Permit.

9) Well construction, maintenance and replacement records.

VII.A.10. New Solid Waste Management Units. At any time during the life of this corrective action permit, when the Permittee becomes aware of the existence of a previously un-identified solid waste management unit, the Permittee shall notify the Director within thirty (30) days of such awareness as to: the nature of the solid waste managed -- and if applicable, being managed -- at the unit; the potential for past, current, and future releases of any constituents identified in WAC 173-303-646(1) from the unit; dates of operation and/or existence of the unit; any actions that have been taken to control or remediate releases from the unit; any environmental data associated with the unit or media potentially affected by releases; and, any plans for investigating the unit in accordance with RI requirements in VII.A.5.

If the Director determines, based on the potential for releases from the unit to threaten the health of humans or the environment, that the solid waste management unit must be investigated, the Director may direct the Permittee to submit a Work Plan for performance of the additional work. Such a Work Plan must be submitted to the Director for review and approval within sixty (60) days. Finalization of this Work Plan shall follow the requirements of VII.A.5.

If the Director determines, based on the potential for releases from the unit to threaten the health of humans or the environment, that the solid waste management unit must be expeditiously remediated, the Director may direct the Permittee to submit an Interim Measure Work Plan (per the requirements of VII.C.1.). Such a Work Plan must be submitted to the Director for review and approval within twenty-one (21) days. Finalization of this Work Plan shall follow the requirements of VII.C.2.

VII.A.11. In accordance with Section 3004(u) of RCRA and the regulations promulgated pursuant thereto, the Permittee must institute Corrective Action as necessary to protect human health and the environment for all releases of hazardous waste(s) or constituents from any solid waste management units (SWMUs) at the facility,

regardless of the time at which waste was placed in such units.

VII.A.12. In accordance with Section 3004(v) of RCRA and the regulations promulgated pursuant thereto, the Permittee must implement Corrective Action(s) beyond the facility property boundary, where necessary to protect human health and the environment.

VII.A.13. All Corrective Action reports, work plans, and other submittals required by this Permit, and submitted by the Permittee, shall be accompanied by a certification meeting the requirements of WAC 173-303-810(13).

VII.A.14 Notification of Property Owners and Residents: By the date of submittal of the draft Comprehensive RFI Report (pursuant to permit condition VII.A.4.a) and annually thereafter, the Permittee shall inform property owners and residents of property which lies above groundwater being monitored pursuant to this Permit and containing hazardous constituents which exceed screening levels (Permit condition VII.A.4.a.6) of the current status of such contaminated groundwater. This notice must include a summary of the prior year's monitoring data, and state that:

1. Contaminants in the groundwater exceed the standards established in the permit and is continuing to be monitored as part of the ongoing cleanup program; or,

2. Contaminants in the groundwater are in compliance with the standards established in this permit, but that monitoring will continue until a determination of "No Further Action" has been made at the conclusion of all cleanup activities.

VII.B. Pre-Corrective Action Monitoring

The Permittee shall monitor groundwater as required by the approved Pre-Corrective Action Monitoring Plan, hereby incorporated as enforceable permit conditions in Attachment MM, and all subsequent modifications to that Plan approved by the Director, until the implementation of the Remedial Action Groundwater Monitoring program designated in condition VII.E. of this permit.

VII.B.1. The Permittee shall enter all monitoring, testing, and analytical data obtained pursuant to Section VII.B. of this permit in the operating record (as required by VII.A.9.). One written copy of all monitoring, testing, and analytical data shall be provided to the Director. In addition, all monitoring, testing, and analytical data obtained pursuant to Section VII.B. shall be submitted to the Director in digital data files on computer diskette (or other mutually agreeable electronic media). These data files shall be formatted in accordance with instructions provided by the Director.

Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the approved Pre-Corrective Action Monitoring Plan, and in any case, b) no later than ninety (90) days following the ~~initiation~~ completion of sampling.

VII.B.2. The Permittee shall biennially analyze a groundwater sample from one monitoring well for all 40 CFR 264 Appendix IX constituents according to the requirements in VII.G.4. and VII.G.5. ~~Upon detection of 40 CFR 264 Appendix IX hazardous constituents in any monitoring well exceeding method-specific Practical Quantitation Limits (PQLs), the Permittee shall:~~

~~a) Notify the Director of this finding in writing within seven (7) calendar days after receiving validated data; and,~~

~~b) Within thirty (30) days of the validated Appendix IX detection(s), collect two (2) samples from any affected well(s) and reanalyze both samples for all constituents which were detected above PQLs. Such sampling shall not affect scheduled, Pre-Corrective Action monitoring.~~

~~An exception to this requirement is the case where groundwater metals concentrations are detected at levels exceeding PQLs, but at levels the Director has determined to be in the range of background concentrations. In this case, the Permittee shall only proceed to VII.B.3. if the validated metal analyte levels exceed screening levels identified in VII.A.4.a.6.~~

VII.B.3. If analytical results from:

a) Neither verification sample described in permit condition VII.B.2.b. confirm the detection of constituents above the Practical Quantitation Limits (PQLs), the Permittee shall resume monitoring according to the established schedule and notify the Director within seven (7) days of having received the validated verification data;

b) Only one of the verification samples described in permit condition VII.B.2.b. confirms the detection of constituents above the PQLs, the Permittee shall, within thirty (30) days of the validated initial verification sampling. repeat the verification or propose a permit modification to the Director, adding the newly detected constituents to the Pre-Corrective Action Monitoring analyte list, and proposing any other changes to the Monitoring Plan deemed necessary based on the analytical results. In either case a notification as to the Permittee's intended course of action shall be submitted to the Director within seven (7) days of receipt of the verification data;

c) Both verification samples described in permit condition VII.B.2.b. confirm the detection of constituents above the PQLs, or if one or more of the *second set* of verification samples taken (per VII.B.3.b.) confirms such detection, the Permittee

shall continue to monitor in accordance with the approved monitoring program in effect, but shall, within twenty-one (21) days, propose a permit modification to the Director, adding the newly detected constituents to the Pre-Corrective Action Monitoring analyte list, and proposing any other changes to the Monitoring Plan deemed necessary based on the analytical results.

VII.B.4. If the Permittee or the Director concludes that the Pre-Corrective Action Monitoring Plan must be revised, the Permittee shall propose such revisions in a permit modification request (per WAC 173-303-830(4)) or the Director may initiate such a modification (per WAC 173-303-830(3)).

VII.C. Interim Measures

Throughout the term of this permit, the Permittee shall continuously consider and evaluate information regarding releases, suspected releases, and/or potential releases of hazardous constituents and wastes from the facility. If the Permittee identifies a potential imminent and/or substantial threat to human health or the environment, or a need or opportunity to begin expedited cleanup actions, the Permittee shall immediately notify the Director by telephone. The Permittee shall additionally notify the Director in writing within seven (7) calendar days of such identification, describing the threat and any actions taken or proposed to be taken.

If the Director determines that any release, suspected release, or potential release of hazardous constituents at or from the facility may present a potential imminent and/or substantial threat, or a need or opportunity to begin expedited cleanup actions, the Director shall, in writing, direct the Permittee to design and implement an interim measure. Any interim measure shall be designed to protect human health and the environment and, to the maximum extent practicable, shall also strive to be consistent with, and capable of being integrated into, likely final corrective measures for the facility.

If the Director determines that any release, suspected release, or potential release of hazardous constituents at or from the facility results in groundwater contamination continuing to migrate downgradient at unacceptable levels (defined as RI screening levels prior to the start of Remedial Action Monitoring, and media clean up levels following Remedial Action selection), the Director may, in writing, direct the Permittee to plan, design, and implement an interim measure. In particular, if the draft RFI Report determines that one or both of the two Environmental Indicators have not been met, or the Director makes this determination following review of the draft RFI Report, the Permittee shall submit plans and designs to implement an interim measure. In such cases the Permittee shall submit an Interim Measures Workplan, and design and implement interim measures per a schedule which will, as soon as possible and no later than 2005, result in the control of the movement of groundwater contaminants at unacceptable levels. To the maximum extent practicable, such interim measures will be designed to be consistent with a likely final corrective measure for the facility.

VII.C.1. Draft Interim Measures Work Plan

Within twenty-one (21) calendar days of the Permittee's seven-day notification, or by such earlier or later date as may be required by written notification from the Director, the Permittee shall prepare and submit a draft Interim Measure Work Plan describing the nature of the threat, need, and/or opportunity, and proposing measures to address such threat, need, and/or opportunity. The Work Plan shall specifically include:

a) the proposed scheduling of a feasibility study, if required by the Director in order to select an optimal interim remedy;

b) a proposal and justification for the measure's design, operating procedures, and decontamination methods, to address the area(s) of contamination;

c) a summary of all relevant monitoring data, as well as information supporting the proposed location(s) for interim measures;

d) a project-specific data collection and management plan for obtaining and reporting quality assured results;

e) proposed performance goals for the interim measure, definition of "adequate progress" in meeting these goals, and a schedule for periodic evaluations of interim measure effectiveness;

f) any needed proposed changes to the Pre-Corrective Action Monitoring Plan (VII.B.), Remedial Action Monitoring Plan (VII.E.), or Compliance Monitoring Plan (VII.F.), to measure the effectiveness of the Measure. Or, a separate interim measure monitoring plan; and,

g) a detailed schedule for implementation of the Interim Measure Work Plan and for progress reports. This schedule shall also identify all post-Work Plan Interim Measure documents, and significant related activities, which will be prepared and/or carried out prior to implementation, including engineered design documents, specifications and a construction quality assurance plan. Such documents may include, e.g., design reports, enhanced design/operation specifications, pre-start-up inspections, and Operation and Maintenance (O&M) plans.

VII.C.2. Final Interim Measure Work Plan

After reviewing the draft Work Plan, the Director shall approve the Work Plan as Final, approve the Work plan as Final with modifications, or disapprove the Work Plan with comments. In the latter case, a revised Interim Measure Work Plan shall be submitted to the Director by the Permittee for the Director's review and approval. The revised Interim Measure Work Plan shall be submitted within fourteen (14) days of receipt of the Director's comments and shall satisfactorily address all comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Work Plan which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.C.3. Following approval of an Interim Measure Work Plan, the Plan shall be incorporated automatically into this permit, and the Permittee shall implement the cleanup action in accordance with the approved Work Plan, beginning on a date

established in the Director's approval letter. Operation of the cleanup action shall comply with operation and maintenance provisions in the approved Work Plan, or, as instructed by the Director, approved plans and reports submitted pursuant to the Work Plan.

VII.C.4. Previous Implementation of Interim Measures: the Permittee has constructed and operated a Soil Vapor Extraction (SVE) interim measure system to remove volatile organic hazardous constituents from the vadose zone beneath the facility. Until its effectiveness is evaluated in the evaluation due at the time of the draft Comprehensive RFI Report submission (VII.A.4.), or sooner, the Permittee must continue operation of the system unless the system is:

- replaced by a more effective source control/minimization Interim Measure, or
- found to be totally unproductive, or
- actually causing unacceptable levels of gaseous contaminants to be released to the atmosphere, and

the Permittee is unable to correct the performance problems by replacement of parts, or catalyst or SVE-well maintenance.

The Georgetown SVE Operation and Maintenance/Sampling and Analysis Plan (PSC, July 25, 2003) ~~July 2, 1993 Interim Measure Design and Implementation Work Plan for the Georgetown facility~~ is included in Attachment MM. The Permittee shall continue to operate the Soil Vapor Extraction system in compliance with the 2003 Plan ~~1993 Work Plan~~ until the Director approves the discontinuation of the measure, or the Work Plan is modified through a permit modification processed in accordance with WAC 173-303-830.

VII.C.5. No later than September 1, 2001, the Permittee shall submit to EPA and/or Ecology a workplan to implement immediate interim measures in order to address releases while the Remedial Investigation is being completed and final remedial alternatives are being evaluated and designed. The interim measure(s) must be designed to:

1. Establish hydraulic control of dense non-aqueous phase liquid (DNAPL) and dissolved plumes of contamination. This requirement includes controlling contaminated groundwater to prevent its discharge into the Duwamish Waterway at levels which exceed MTCA Level B or aquatic criteria, whichever is more stringent:

2. Ensure that contaminated groundwater is not being used as a drinking water source:

3. Prevent indoor inhalation exposure of residents and workers located

between the PSC Georgetown facility and the Duwamish Waterway in areas known or reasonably expected to have volatile organic contamination in the shallow aquifer.

The workplan must include all components required by Section VII.C.1.b through g. The workplan shall be approved, approved with modifications, or disapproved with comments in accordance with Permit Condition VII.C.2.

VII.C.6. Periodic Evaluation of Interim Measure Systems: On a semi-annual basis, the Permittee shall evaluate the performance of all interim measure systems which have been operating for at least one year. This requirement is above and beyond the evaluations of progress required by measure-specific Interim Measure Work Plans (as described in VII.C.1.e.). The evaluation shall include the following:

a) the environmental results attributed to the measure(s) since the last reporting interval;

b) a comparison of the effectiveness of the measure(s) compared to (1) its design goals, (2) its effectiveness at start up, and (3) its effectiveness since the last reporting interval;

c) any problems associated with O&M;

d) if applicable, a discussion of efforts on-going to ensure that the measure(s) does not transfer the contamination to another medium, and if so, that an estimate of risks associated with the transfer; and,

e) any recommendations to improve the overall effectiveness of the measure(s), and/or reduce the long-term O&M costs.

Semi-annual (every six months) reports of the evaluation shall be prepared by the Permittee and submitted to the Director. The first report shall be submitted on the date the Permittee submits the final Comprehensive RI Report to the Director.

VII.C.7. Interim Measure Progress Reports: within sixty (60) days of the completion of an Interim Measure's start-up phase, the Permittee shall submit to the Director an Interim Measure Progress Report. Following this first submittal, the Permittee shall submit Progress Reports for the Interim Measure every six months, or on a more frequent schedule as specified in the approved Interim Measure Work Plan (required by VII.C.1.e.).

Within each Progress Report the Permittee shall submit to the Director a demonstration that adequate progress (as defined in the approved Interim Measure Work Plan) is being made towards meeting the interim action objectives/levels. If the monitoring data do not meet the approved criteria for determining whether adequate progress is being made, the Permittee must submit a permit modification

request, pursuant to requirements in WAC 173-303-830(4), proposing measures to achieve adequate progress.

VII.D. Remedial Design and Remedial Action

The Permittee shall perform a Feasibility Study to propose an optimal remedy, or set of remedies, capable of meeting the remedial action objectives and levels contained in the final, approved Comprehensive RI Report.

VII.D.1. Draft Feasibility Study Report

Per the schedule in Table VII-1, the Permittee shall submit to the Director a draft Feasibility Study (FS) report. The submittal shall contain remedial action objectives and media cleanup levels from the final Comprehensive RI Report, remedial technologies, screening of those technologies, and remedial alternatives capable of achieving the RI's objectives and cleanup levels.

The Permittee shall identify a preferred remedial alternative which best meets the site-specific remedial action objectives approved by the Director in the final Comprehensive RI Report. This remedy will outperform other remedial alternatives when judged against the selection factors (evaluation criteria) listed below. An estimate of costs to complete all future corrective actions, including design, implementation, monitoring, and closure of the preferred remedy, shall also be submitted, as required by VII.J.

All potential treatment alternatives evaluated as part of this study shall meet the following criteria:

a) protection of human health and the environment through attainment of remedial action levels/objectives identified, and approved, in the Final Comprehensive RI Report; and,

b) reduction or elimination, to the extent practicable, of further releases that may pose threats to human health and the environment.

The final remedial action selection factors, required for inclusion and analysis in the Draft Feasibility Study Report, include:

- the permanence, and short and long-term practicability and performance reliability of the cleanup technologies
- the reduction of toxicity, mobility, and/or volume through treatment, and the estimated time to achieve these goals
- the short-term risks to public health, workers, and the environment
- the ease or difficulty of implementing the various remedial action alternatives, including technical, administrative, and logistical feasibility
- the capital and annual operation and maintenance costs, net present value of capital and annual operational and maintenance costs, and potential future remedial cost(s)
- any permitting issues, and/or institutional controls associated with the

remedial action alternatives
- the amount and nature of wastes generated from the remedial options
- the ability of the remedial action alternatives to achieve the Environmental Indicator concerning protection of current human receptors as quickly as possible, and at least by 2005
- the ability of the remedial action alternatives to achieve the Environmental Indicator concerning cessation of groundwater plume movement as soon as possible, and at least by 2005.

VII.D.2. Final FS report: the Director shall review the draft FS report and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall revise the report and submit it to the Director for review and approval per the schedule in Table VII-1. The revision shall satisfactorily address the Director's comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised report which adequately addresses each of the Director's comments shall constitute a violation of this permit.

The Director's approval of remedial action levels and objectives, and a preferred remedial action, before finalization of the permit modification described in VII.D.3., does not constitute full and final approval. Such full and final approval shall be attained at the time of the Final Permit Modification issuance.

VII.D.3. Permit Modification: once the final FS report has been approved by the Director, the Director shall initiate a permit modification pursuant to WAC 173-303-830(3), proposing that the Permittee design and implement the measure(s) preferred in the approved, Final FS Report. The modification shall also contain a proposed date for submittal of the Draft Remedial Design and Remedial Action Scope of Work (required by VII.D.4.).

The modification shall establish the overall strategy for managing the proposed remedy's design and implementation. It shall also contain the proposed cleanup criteria (remedial action levels and objectives) and identification of any limiting/bounding factors and conditions associated with the remedial decision.

The Director shall solicit public comment on the proposed remedy, new permit language, and the remedial action levels/objectives according to requirements in WAC 173-303-840 and WAC 173-340-600. Following the completion of the public comment period, the Director shall issue a Final modification, selecting the remedial action. The final modification becomes effective thirty (30) days later, unless appealed.

VII.D.4. Draft Remedial Design and Remedial Action Scope of Work. Once the permit has been modified to incorporate the selected remedial action, and by a date established in the Table VII-1 schedule revision contained in the Permit Modification (see preceding permit condition), the Permittee shall submit to the

Director a Remedial Design and Remedial Action Scope of Work (SOW) for the selected remedy or remedies. The SOW shall initiate the remedial action for the selected remedy and establish the overall strategy for managing the remedy's design and implementation. It shall also contain a proposed schedule for preparation and submission of all foreseeable design and implementation documents.

Additional elements of the SOW, which must be addressed in the Draft submittal, include:

a) the strategy for Remedial Design and Remedial Action (and a rationale for the proposed remedial work elements);

b) a *critical-path*, Gantt chart-type schedule and a list of milestones and deliverables. This schedule shall also be provided to the Director in electronic format;

c) a list of all needed permits;

d) the identification of any limiting/bounding factors and conditions;

e) the cleanup criteria and measurement methods for meeting the remedial action levels and objectives, as defined in the Final, remedy-selection, Permit Modification (VII.D.3.);

f) general design criteria; and,

g) a Remedial Design and Remedial Action cost estimate (for third party costs).

VII.D.5. Final Remedial Design and Remedial Action SOW. The Director shall review the draft Remedial Design and Remedial Action SOW and approve it as final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall revise the Scope of Work to satisfactorily address the Director's comments, and submit it to the Director for review and approval by a date established in Table VII-1. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised SOW which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.D.6. Draft Remedial Design and Remedial Action Work Plan. The Permittee shall prepare a draft Remedial Design and Remedial Action (RD/RA) Work Plan for implementing the selected remedy, or remedies. The RD/RA Work Plan shall be submitted to the Director in accordance with the schedule contained in Table VII-1 of the permit. The draft RD/RA Work Plan for the design, construction, operation, monitoring, maintenance/repair, and inspection of the remediation system must: a) be consistent with the RCRA Corrective Action Plan (OSWER

Directive 9902.3-2A, 5/94); b) be consistent with the Superfund Remedial Design and Action Guidance (9355.0-4A, 6/96), and the Remedial Design/Remedial Action Handbook (9355.0-4B, 6/95), or equivalent Washington State Department of Ecology documents; and, c) at a minimum, meet the following requirements:

a) address applicable local, State, and federal regulatory requirements;

b) include the selected remedy's, or remedies, remedial action levels/objectives (including objectives to achieve the two Environmental Indicators, if those Indicators have not been met), as set forth in the Final remedy-selection, Permit Modification (VII.D.3.), and describe how the design of the corrective measure(s) will achieve these levels/objectives;

c) describe the measurement methods that will be used to confirm achievement of the remedial objectives/levels, and include criteria for assessing monitoring data and triggering any response actions;

d) include a remedial action groundwater monitoring plan in accordance with permit condition VII.E.;

e) include a remedial action monitoring plan for any other media for which monitoring is identified by the Permittee or the Director within the permit modification described in VII.D.3.;

f) include a revised third party cost estimate for design, construction, and implementation of the selected remedy, and a schedule for adjusting these estimates in accordance with VII.J.2. Also, include an estimate of costs to complete all future corrective actions, as required by VII.J.;

g) include a critical path, Gantt chart-type project schedule, which identifies the significant upcoming remedial action activities, documents, and remedial progress reports deemed critical to the timely implementation and oversight of the Remedial Action (that must be prepared more frequently than required by VII.D.10.);

h) include a demonstration of financial assurance for the RD/RA in the form of one of the mechanisms required by section VII.J.;

i) include design/engineering documents, drawings, and specifications;

j) include field oversight protocol, coordination procedures, and the schedule and agenda for all pre-final and final inspections;

k) include a RD/RA-specific Health and Safety Plan (which must also discuss emergency procedures related to RD/RA activities). This Plan must be submitted, but it is not the Director's intention to review it for approval purposes;

l) include a remedial action-specific waste management plan, and decontamination and decommissioning plan;

m) include a construction Quality Assurance Plan, and a proposal for an independent, registered professional engineer, or another third-party specialist in the technologies constructed (if the Director agrees), to certify the construction completion and readiness for start up.;

n) include an Operation and Maintenance Plan; and,

o) include proposed Remedial Action Completion criteria, as well as a proposed definition of "adequate progress" for all stages of the implemented Remedial Action.

Any proposed post-Work Plan Remedial Action documents must be described in the Work Plan, as well as any planned deviations from EPA's 1994 RCRA Corrective Action Plan document (referenced above). In cases where documents are proposed to be submitted following Work Plan approval, the Work Plan must fully describe these documents and explain why the Permittee believes they must be submitted pursuant to Work Plan approval. Proposed due dates for these documents must be contained in the schedule required by condition g) above.

VII.D.7. Final Remedial Design and Remedial Action Work Plan: The Director shall review the draft Corrective Measures Work Plan and approve it as final, approve it with modifications, or disapprove of it with comments. In the latter case, the Permittee shall revise the Work Plan, satisfactorily addressing the Director's comments, and submit it to the Director for review and approval according to the schedule in Table VII-1. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Work Plan which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.D.8. Following the Director's approval of the RD/RA Work Plan, the Permittee shall implement the Work Plan pursuant to the schedule contained therein.

VII.D.9. The Permittee shall engage an independent, registered professional engineer, or other independent third party specialist in the technologies constructed to certify the construction completion and readiness for start up. In the latter case, any specialist who is not a registered professional engineer must be previously approved by the Director. Such certification shall be performed according to the final, approved RD/RA Work Plan requirements and schedule. Copies of written documentation certifying the completion, and containing the signature of the third-party certifier, shall be provided to the Director within thirty (30) days of the date of certification.

VII.D.10. RD/RA Progress Reports.

Within 6 months of the start-up of the selected remedial action, and quarterly thereafter, the Permittee shall submit to the Director a demonstration that adequate progress (as defined in the approved RD/RA Workplan) is being made towards meeting the remedial action objectives/levels. If the Director decides that adequate progress is not being made, the Permittee must submit a permit modification request, pursuant to WAC 173-303-830(4), proposing revisions, additions, and/or new measures which will demonstrate adequate progress. In this case the Permittee shall submit the modification request within thirty (30) days of receiving the Director's notification, or as otherwise requested in writing by the Director, that adequate progress is not being made. The Director may also initiate a permit modification, pursuant to WAC 173-303-830(3).

VII.D.11. Determination of Remedial Action Completion: The Permittee may, at any time following the implementation of the Remedial Action, and after four (4) consecutive quarters of monitoring demonstrating that remedial action objectives and levels have been met, submit a written demonstration to the Director that these objectives/levels have been achieved, and that no further operation of the remedial action is necessary to maintain the media cleanup levels at the point of compliance. Such a demonstration shall be contained in a draft Remedial Action Completion Report, submitted together with a draft Compliance Monitoring Plan (per VII.F.) and a permit modification request per WAC 173-303-830(4).

Once the Director has acted upon the Permittee's modification request, and in those cases where the request is approved, the Permittee shall:

a) Cease operation of the Remedial Action system as instructed by the Director in the final permit modification;

b) Maintain the Remedial Action system in readiness for re-starting, unless otherwise instructed by the Director in the final permit modification letter;

c) Implement the approved Groundwater Compliance Monitoring Plan, as described in VII.F.; and,

d) For any non-groundwater component of the Remedial Action system, implement any Compliance Monitoring Plan called for in the RD/RA Work Plan, or plans submitted, and approved, subsequent to that document.

If the Director denies the permit modification request, the Permittee shall continue operation of the Remedial Action and Remedial Action Monitoring (per the approved Plan).

VII.E. Groundwater Remedial Action Monitoring Plan

VII.E.1. The Groundwater Remedial Action Monitoring Plan, required in permit condition VII.D.6. as a part of the RD/RA Work Plan, must include plans to design, construct, operate, maintain, inspect, and repair a groundwater monitoring system capable of monitoring the performance of the selected remedy or remedies, and must satisfactorily include, at a minimum, the following additional requirements:

$ Designated monitoring locations providing a sufficient number of wells, installed at appropriate locations and depths, to yield samples that represent the quality of groundwater which will be impacted by the groundwater remediation system contained in the approved Remedial Action;

$ Any designated monitoring wells, installed at appropriate locations and depths, to yield samples that represent the quality of groundwater which will be used as an indication of background or upgradient conditions, or for any other purposes than measuring the impact of the remediation system;

$ A rationale demonstrating that the proposed monitoring well locations can sufficiently meet the remedial levels/objectives;

$ A discussion, and listing of criteria, describing how and when the Permittee shall demonstrate that remediation action levels/objectives have been sufficiently met to discontinue operation of the groundwater component of the Remedial Action, and begin Compliance Monitoring. The criteria proposed in the Monitoring Plan must be consistent with the criteria set out in the Final Remedial Action Permit Modification (VII.D.3.);

$ The name, monitoring frequency, and analyte/parameter list for all monitoring wells;

$ The program operation requirements in accordance with permit condition VII.G.;

$ The well construction, maintenance, and replacement requirements in accordance with permit condition VII.H.;

$ A project-specific Quality Assurance Plan (QAPjP), consistent with EPA's QAPjP guidance (EPA QA/R-5, 2001). The data evaluation requirements for Corrective Measure groundwater monitoring, and the remedial objectives set out in the RD/RA Work Plan (VII.D.7.), must be included in the QAPjP;

$ A project schedule for Remedial Action monitoring activities, including submittal of quality-assured sampling results;

The Groundwater Remedial Action Monitoring Plan, as part of the RD/RA Work Plan, must be submitted by Permittee, reviewed, and approved by the Director together with the Work Plan. Monitoring, in accordance with the approved Plan, shall be implemented once the groundwater component of the Remedial Action is operating.

VII.E.2. The Groundwater Remedial Action Monitoring Plan may be modified at any time to better evaluate the performance of the Measure. The Director may initiate a modification for the reasons set out in WAC 173-303-830(3). Regardless of whether the Director or the Permittee initiates the permit modification -- to make changes to the Monitoring Plan -- the modification process will comply with the requirements of WAC 173-303-830.

VII.E.3. The Permittee shall enter all monitoring, testing, and analytical data obtained pursuant to this section in the operating record required by VII.A.9.

VII.E.4. All monitoring, testing, and analytical data obtained pursuant to Section VII.E. shall be submitted to the Director in paper and in digital data files on computer diskette (or other mutually agreeable electronic media). These data files shall be formatted in accordance with instructions provided by the Director.

VII.F. Groundwater Compliance Monitoring: At the completion of the groundwater component of the Remedial Action a groundwater compliance monitoring plan must be implemented for the purpose of monitoring groundwater at the point(s) of compliance. Compliance monitoring shall help establish how effective the Remedial Action was at achieving remedial action levels/objectives that must continue to be met after discontinuation of the Remedial Action operation.

VII.F.1. Compliance Monitoring Plan. The Compliance Monitoring Plan must include plans to design, construct, operate, maintain, inspect, and repair a groundwater compliance monitoring system capable of yielding samples representing groundwater quality at the point of compliance, as well as at any monitoring points selected for other purposes. The Permittee shall submit a Draft Compliance Monitoring Plan as part of the Remedial Action Completion report (VII.D.11). Following review, the Director shall either a) approve the Draft Plan as Final, b) approve the Draft Plan as Final, but with modifications, c) disapprove the Draft Plan with comments, or d) in the event the Remedial Action Completion permit modification request itself is disapproved, disapprove the Plan without comments. If the Plan is disapproved with comments, within thirty (30) days the Permittee shall submit a revised Plan to the Director for review and approval which satisfactorily address the Director's comments.

At a minimum the Compliance Monitoring Plan must satisfy the following requirements:

a) Sufficient wells to demonstrate whether the groundwater at the point(s) of compliance continues to meet the remedial action levels and objectives approved in the Final RD/RA Work Plan (VII.D.7.);

b) a discussion, and a listing of the criteria, describing how the Permittee shall propose to demonstrate that remediation action levels/objectives have been met sufficiently, and long enough, to fully close (i.e., take those closure actions beyond discontinuing operation of the system) the groundwater component of the Remedial Action (per VII.I.), and end Compliance Monitoring;

c) a project-specific Quality Assurance Plan, which includes the data evaluation requirements set out in the Final, approved, Remedial Action Work Plan (VII.D.6.);

d) a project schedule for Compliance monitoring activities, including submittal of quality-assured sampling results;

e) designated monitoring well locations, monitoring frequencies, and analyte/parameter lists;

f) The program operation requirements in accordance with permit condition VII.G.; and,

g) The well construction, maintenance, and replacement requirements in accordance with permit condition VII.H.

VII.F.2. The groundwater data obtained in accordance with the compliance monitoring plan shall be compared to the remedial action levels. Any constituent less than the remedial action level will be considered to be in compliance.

VII.F.3. During the compliance monitoring period, detection of constituents in any point-of-compliance monitoring well exceeding the remedial action levels established under this permit, shall cause the Permittee to:

a) Notify the Director of this finding in writing within seven (7) calendar days after receiving validated data; and,

b) Immediately collect two (2) samples from any affected well(s) and reanalyze both samples for all constituents with established remedial action levels.

VII.F.4. If analytical results from:

a) Neither validated verification sample described in permit condition VII.F.3.b. confirm the detection of constituents above the remedial action levels, the Permittee shall resume compliance monitoring according to the established schedule and notify the Director that the compliance monitoring program is being resumed;

b) Both or one of the validated verification samples described in permit condition VII.F.3.b. confirm the detection of constituents above the remedial action levels, the Permittee shall continue to monitor in accordance with the approved compliance monitoring program in effect, but will:

i) Re-implement the groundwater component of the Remedial Action system within 90 days, unless otherwise instructed by the Director; or,

ii) Submit to the Director, within seven (7) calendar days of receiving validated data, notice that the Permittee intends to demonstrate that an off-site source caused the increase. If the Director approves this course of action, a report of the off-site demonstration shall be made within sixty (60) calendar days. If necessary, a request for a modification to the Compliance Monitoring Plan (a permit modification per WAC 173-303-830(4)) shall be submitted with the demonstration report. If the Director disapproves the demonstration, the Permittee shall re-implement the groundwater component of the Remedial Action system within thirty (30) days of receipt of the Director's disapproval.

If the Remedial Action system, or a portion of the system, is re-implemented, the

Permittee shall simultaneously re-implement the Remedial Action Monitoring Plan (required by section VII.E.). To return to Compliance monitoring, the Permittee must follow procedures in VII.D.11. to determine, and receive the Director's approval, that the Remedial Action may be considered completed.

VII.F.5. The Permittee may, at any time following twelve (12) consecutive quarters of Compliance Monitoring, demonstrate that remedial action objectives and levels continue to be met in a written demonstration to the Director. The demonstration must show that these objectives/levels have been achieved and that the criteria for closure in the Compliance Monitoring plan have been met. The Permittee may then propose that portions or the entirety of the groundwater Remedial Action and/or Compliance Monitoring Program be closed/terminated. Such a proposal shall be contained in a permit modification request per WAC 173-303-830(4), and shall include a demonstration that the discontinued Remedial Action need no longer be kept in readiness for operation. The Director shall review the permit modification request. If the Director agrees that the remedial action levels/objectives of the Remedial Action have been met, that these levels will be maintained without active remediation efforts, and that the continued stand-by status of the system is no longer necessary, the Permittee can close the system per VII.I. (if applicable). Closure of the Remedial Action system does not shield the Permittee from the need to restart a measure if the Director determines that conditions require such action.

If the Director approves a permit modification to discontinue groundwater Compliance Monitoring, these activities may be terminated.

VII.F.6. The Permittee shall enter all monitoring, testing, and analytical data obtained during Compliance Monitoring in the operating record required by VII.A.9.

VII.F.7. All monitoring, testing, and analytical data obtained pursuant to Section VII.F. shall be submitted to the Director in paper and in digital data files on computer diskette (or other mutually agreeable electronic media). These data files shall be formatted in accordance with instructions provided by the Director.

VII.G. Program Operation for Groundwater Monitoring

VII.G.1. The Permittee shall use: the techniques and procedures for groundwater analysis specified in the most recent edition of EPA SW-846, Test Methods for Evaluating Solid Waste, or other acceptable analytical methods approved in advance by the Director; well sampling procedures conducted in accordance with the most recent RCRA Groundwater Monitoring Guidance; and, the specific requirements of sampling plans approved under Part VII of this permit.

VII.G.2. The Permittee shall obtain water level elevation measurements from each monitoring well, at a frequency specified in the applicable plan. Measurements for each monitoring well shall be obtained prior to purging of the well. In order to minimize the potential for error caused by temporal variations, the Permittee shall obtain all water level elevation measurements within as short a time period as possible, not to exceed one working day.

The Permittee shall use these data to determine the rate and direction of groundwater flow at least annually for the periods of high and low water table elevation. The resultant contour maps and flow rates shall be submitted to the Director by March 1 of each year. The Permittee shall submit, with the contour maps, a data analysis report which includes an evaluation of the adequacy of the groundwater monitoring system to detect contaminant movement relative to observed groundwater flow directions.

VII.G.3. Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the schedule of the appropriate groundwater monitoring program per Sections VII.B., VII.E., and VII.F. of this permit, and in any case, b) no later than ninety (90) days following completion of sampling.

VII.G.4. The Permittee shall biennially analyze a groundwater sample from one monitoring well for all 40 CFR 264 Appendix IX constituents. This well must be specified in the sampling plan. Any change to the sampling plan requires a modification of this permit.

If any 40 CFR Appendix IX constituents not included in the monitoring programs approved under VII.B., VII.E. or VII.F. are detected, the Permittee shall complete the procedures in VII.G.5. within thirty (30) calendar days of the Permittee's receipt of validated results. In no case shall the period between the date of sampling and the date of submission of analytical results to the Director exceed ~~ninety (90)~~one hundred twenty (120) calendar days. An exception to this requirement is the case where groundwater metals concentrations are detected at levels exceeding PQLs, but at levels that the Director has determined to be in the range of background concentrations. In this case, the Permittee shall only proceed to VII.G.5. if the metal analyte level is a contaminant of potential concern, and its

concentration is above approved screening levels (for Pre-Corrective Measure Monitoring) or remedial levels (established in the permit modification documenting the chosen Remedial Action).

VII.G.5. For any Appendix IX constituent(s) detected above their Practical Quantitation Limit under permit that are not included in the monitoring programs approved under VII.B., VII.E., or VII.F.~~condition VII.G.4. that is not included in the monitoring program currently in effect under the permit~~, the Permittee shall:

a) Add the newly detected constituent(s) to the list of monitoring constituents, and provide the Director with a copy of the revised list for inclusion into the Plan(s) approved per conditions VII.B., E., or F within thirty (30) days of receipt of the validated data. In addition, include information related to sampling and analytical methodology for the new analyte, method detection limits, QA, and other information consistent with the respective Monitoring Plan;

b) Notify the Director within seven (7) days of receiving of the validated data that the Permittee intends to ~~S~~submit a report justifying why the detected constituent(s) should not be included in the monitoring program or why the detected constituent(s) should only be added to some of the wells in the monitoring program. The report should be submitted within thirty (30) days of receipt of the validated data. If the Director does not accept the Permittee's justification, the Permittee shall, upon receipt of the Director's determination, add the constituent to the monitoring list in accordance with VII.G.5.a. If the Director accepts the justification, the constituent does not have to be added to the list of monitoring constituents; or,

c) Submit a notice to the Director within seven (7) days that the Permittee is resampling the well ~~has resampled~~ and ~~is~~ repeating the analysis for the newly detected constituent(s). Within thirty (30) calendar days of the Permittee's receipt of validated results of the ~~second~~ verification analysis, the Permittee shall submit the results of the ~~second~~ verification analysis to the Director. In no case shall the period between the date of sampling and the date of submission of analytical results to the Director exceed ninety (90) calendar days. If the verification sampling does not detect the constituent(s) previously detected during Appendix IX sampling, the constituent(s) do not need to be added to the monitoring program analyte list. If the verification sampling does detect the constituent(s) previously detected during Appendix IX sampling, ~~T~~the Permittee shall either add the newly detected constituent(s) to the list of monitoring constituents pursuant to VII.G.5.a., or submit a report justifying why the detected constituent(s) should not be included in the monitoring program pursuant to VII.G.5.b within thirty (30) days of receipt of validated verification data.

VII.H. Well Construction, Maintenance and Replacement

VII.H.1. The Permittee shall maintain all monitoring wells in good working order, making necessary repairs in a timely manner so that the sampling program is not hindered or delayed in any way. The Permittee shall maintain an adequate supply of replacement parts and repair equipment as necessary to ensure that each sampling event proceeds on schedule.

VII.H.2. Visual evidence of damage to or deterioration of wells, and complete records of all well maintenance activities, must be noted in the operating record.

VII.H.3. The Permittee shall maintain borehole integrity of each monitoring well, using one of the methods designated in permit conditions VII.H.3.a., VII.H.b., or VII.H.c., consistently using the same method for each well.

a) For any existing monitoring well, the Permittee shall calculate the specific capacity of that well during the first sampling event after the effective date of this permit. The specific capacity shall then be recalculated for that well on a biennial basis during the term of this permit. If, at any time, the specific capacity of that well decreases by more than twenty percent (20%) of the original calculated value, that well shall be redeveloped to within five percent of the original specific capacity.

The Permittee shall calculate the specific capacity for any well installed during the term of this permit during the first sampling event for which that well is available for sampling. The recalculation and redevelopment criteria, as specified above for existing wells, shall then be followed by the Permittee; or,

b) The well shall be sounded on an annual basis. If the well has a build-up of one (1.0) foot or more of sediment at the bottom, the well shall be redeveloped and the sediment removed; or,

c) For any existing monitoring well, the Permittee shall perform a slug test on the well to determine the hydraulic conductivity of the well during the first sampling event after the effective date of this permit. A slug test shall then be performed on the well on a biennial basis using the same slug test method. If the hydraulic conductivity determined by this method decreases by twenty percent (20%) or greater from the original value, that well shall be redeveloped to within five percent (5%) of the original hydraulic conductivity.

The Permittee shall perform a slug test noted above to determine the hydraulic conductivity of any well installed during the term of this permit during the first sampling event for which that well is available for sampling. The re-performance of the slug test and the redevelopment criteria shall be conducted by the Permittee as specified above for existing wells.

VII.H.4. If a monitoring well must be decommissioned, the Permittee shall give notice in writing to the Director of the rationale for the decision at least thirty (30) days prior to the actual decommissioning. The notice shall include a proposed timeframe and location for well replacement. The Director shall review the proposal and approve it, disapprove it with comments, or approve it with modifications. If the Director disapproves the proposal, the Permittee shall replace the well per the Director's instructions in the disapproval letter. The Permittee shall also provide information regarding the new well in the operating record and to the Director as specified by permit conditions VII.H.5. and VII.H.6.

The Permittee shall close each well being replaced no later than ninety (90) calendar days after installation of the replacement well. Wells must be abandoned per Washington State requirements in WAC 170-303-160. Unless samples from that well have been at or below the approved clean-up levels for three (3) consecutive years, closure of wells that are not separated from the contaminated zones by a well-defined aquitard (defined below) shall be accomplished by pulling the casing or drilling out the casing and screen, redrilling the borehole, and backfilling the entire depth of the borehole with a three to five percent (3% - 5%) bentonite and cement grout, using a tremie pipe. With prior Ecology approval, wells that are separated from the contaminated zones by a continuous, well-defined aquitard can be abandoned by having their casings ripped below the seal, to destroy the screen and filter pack, and pressure grouting from the bottom up. Equivalent or superior methods may be substituted upon written approval of such substitution by the Director. Such substitution and approval will not require a permit modification. The Permittee shall provide information regarding closed wells in the operating record and to the Director as specified by permit conditions VII.H.5. and VII.H.6.

VII.H.5. Minor deviations from the abandonment procedures specified in VII.H.4. deemed necessary by the Permittee due to unforeseen events in the field at the time of well abandonment shall not be considered a modification of this permit. The Permittee shall place a notation of such a deviation, accompanied by a narrative explanation, in the operating record. The Director may judge the soundness of this determination during inspections of the facility and take appropriate action.

VII.H.6. Inspection of drilling and well construction of any new or replacement monitoring well shall be performed by a qualified geologist. The geologist shall construct and maintain a detailed log of each well describing the geologic strata encountered during drilling. The logs and descriptions shall include:
(a) Date and time of construction;
(b) Drilling method and any fluid used;
(c) Well location (surveyed to within 0.5 feet);
(d) Borehole diameter and well casing diameter;
(e) Well depth (to within 0.1 feet);
(f) Drilling logs and lithologic logs from the field, including a description of soil or rock types, color, weathering, texture, structure and fractures;

(g) Casing materials;
(h) Screen material and design, including screen length and slot size;
(i) Casing and screen joint type;
(j) Filter pack material, including size and placement method and approximate volume;
(k) Composition and approximate volume for sealant material and method of placement;
(l) Surface seal design and construction;
(m) Well development procedures;
(n) Ground surface elevation (to within 0.01 feet);
(o) Top of casing elevation (to within 0.01 feet); and,
(p) Detailed drawing of well, including dimensions.

VII.H.7. The Permittee shall submit the logs and descriptions obtained pursuant to permit condition VII.H.6., as-built drawings, and location information of the new well to the Director within sixty (60) calendar days after completion of the well or by the schedule approved by the Director in specific work plans.

VII.I. Remedial Action System Closure

The Permittee shall submit to the Director a request to close the Remedial Action system at least ninety (90) calendar days before closure is anticipated. At this time, the Permittee shall submit a Remedial Action closure plan. The plan shall be submitted as a permit modification request in accordance with WAC 173-303-830(4). The closure plan must include detailed procedures and a schedule for the disposal or decontamination of all elements of the Remedial Action.

For the purposes of this section (VII.I.), "closure" is used in its broad context as any activities related to the Remedial Action the Permittee takes following discontinuation of the remedial action operation. Closure of the Remedial Action, as described in VII.F.5., therefore, does not imply that the Remedial Action is necessarily a hazardous waste treatment, storage, or disposal unit/facility.

VII.J. Financial Responsibility

VII.J.1. Within thirty (30) days of the effective date of this Permit, the Permittee shall prepare and submit to the Director a detailed written estimate, in current dollars, of the cost completion of all IM, RI, FS, and RD/RA activities required by this Permit, including development of workplans, implementation, operation and maintenance costs, costs of any necessary long-term monitoring, and satisfactory performance of all such activities. The cost estimate must be based on the costs to the Permittee of hiring a third party to perform all activities required by this Permit. A third party is a party who is neither a parent nor a subsidiary of the Permittee.

VII.J.2. ~~Concurrent with submission of any~~ Within 30 days of the Director's approval of any Final IM RI, FS, and RD/RA Workplan required pursuant to this Permit, the Permittee shall submit to the Director a revised corrective action cost estimate which shall provide a detailed written estimate of the cost, in current dollars, of completion of all IM, RI, FS, and RD/RA activities required by this Permit in addition to the most up to date estimated costs for corrective action prepared pursuant to Paragraph VII.J.1. The revised corrective action cost estimate must include the additional costs for development of workplans, implementation, operation and maintenance costs, costs of any associated monitoring, and satisfactory performance of all IM, RI, FS, and RD/RA activities. The estimate of these additional costs must be based on the costs to the Permittee of hiring a third party to perform all IM, RI, FS, and RD/RA activities required by this Permit. A third party is a party who is neither a party nor a subsidiary of the Permittee.

VII.J.3. The Permittee shall annually adjust and submit to the Director the most up to date corrective action cost estimate within ~~thirty (30)~~ sixty (60) days ~~after the close of the Permittee's fiscal year.~~ prior to the anniversary date of the establishment of the financial instrument used to comply with VII.J.7.

VII.J.4. The Permittee shall adjust and submit to the Director ~~the most up to date~~ a corrective action cost estimate in current dollars within thirty (30) days ~~after~~ of either:

i. When the Permittee ~~becomes aware~~ comes into possession of new information or knowledge that would necessitate increasing or decreasing the cost estimate, or ~~which may increase the cost of satisfactory completion of corrective action activities required by this Permit, and within thirty (30) days after Director approval of any workplan pursuant to this Permit. The Permittee may propose to adjust the most up to date corrective action cost estimate when the Permittee becomes aware of new information which may increase the cost of satisfactory completion of corrective action activities.~~

ii. When the Director provides such knowledge, necessitating an increase or decrease in the cost estimate because of new information, the Director shall notify the Permittee by certified mail of the need for an adjustment in the cost estimate.

VII.J.5 No revision to the cost estimate shall be required, unless the difference between the new and old costs, when calculated pursuant to VII.J.2, VII.J.4.i, or VII.J.4.ii., is at least an increase of 10 percent of the current cost estimate provided that:

i. The Director may require submission of a revised cost estimate for changes of less than 10 percent as a result of the Department's normal detailed review of the corrective action cost estimate and comments based on the adequacy and

completeness of third party costs submitted by the Permittee; and,

ii. When the annual adjustment under VII.J.3 is made, the Permittee shall incorporate the sum of all the year-to-date corrective action cost increases, which may be less than 10 percent individually, into the revised cost estimate.

The corrective action cost estimate may be decreased only upon Director approval or modification and approval of the proposed decrease pursuant to this Permit. The corrective action cost estimate shall not be decreased to zero at any time prior to termination of this Permit.

VII.J.~~5~~6. The Permittee shall maintain the most up to date cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.45. of this Section in the operating record.

VII.J.~~6~~7. ~~Within sixty (60) days of the effective date of this Permit, and within thirty (30) days of any increase in the corrective action cost estimate, t~~ By June 30, 2002, and within thirty (30) days of any increase in the corrective action cost estimate, the Permittee shall establish and continuously maintain financial assurance for performance of corrective actions at the Facility in at least the amount of the ~~most up to date~~ current cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.54. of this Section. The mechanism(s) for obtaining and demonstrating financial assurance for corrective action must be in a form consistent with 40 C.F.R. ' 264.143, to be approved by the Director. The Permittee shall submit documentation of such financial assurance to the Director annually, and within ~~thirty (30)~~ sixty (60) days of any adjustment to the ~~corrective action~~ cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.45. of this Section. ~~The financial assurance mechanism shall not be decreased to zero at any time prior to termination of this Permit.~~

VII.K Dispute Resolution

VII.K.1. In the event the Director approves with modification, or disapproves, in whole or in part, any plan, report, or schedule required by Part VII of this permit, the following procedure will apply:

a) The Director will notify the Permittee in writing of the disapproval or proposed modification to the plan, schedule, or submittal. Such notice shall:

i) Identify the problem(s) and, where appropriate, suggest the exact change(s) which need to be made to the plan, schedule, or submittal;

ii) Provide an explanation and supporting documentation or data of why modification is needed; and,

iii) Provide a date by which comments on the proposed modification or disapproval must be received from the Permittee. Such date will not be less than thirty (30) calendar days from the date of the Permittee's receipt of the notice under permit condition VII.K.1.a.

b) If the Director receives no written comments on the disapproval or proposed modification from the Permittee, the disapproval or modification will become effective five (5) calendar days after the close of the response period specified under condition VII.K.1.a.iii. The Director will promptly notify the Permittee that the modification has become effective.

VII.K.2. If the Permittee chooses to invoke the provisions of this section, the Permittee shall notify the Director in writing within thirty (30) days of receipt of the notice under permit condition VII.K.1.a). Such notice shall set forth the specific matter in dispute, the position the Permittee asserts should be adopted as consistent with the requirements of this permit, the basis for the Permittee's position, and any matters considered necessary for the Director's determination.

a) The Director and the Permittee shall have an additional thirty (30) days from Ecology's receipt of the notification, provided for in VII.K.2., to meet or confer to resolve any disagreement.

b) If agreement is reached, the Permittee shall comply with the terms of such agreement or if appropriate submit the revised submittal and implement the same in accordance with, and within the timeframe specified in, such agreement.

c) If agreement is not reached with the thirty (30) day period, the Director shall make a final determination concerning the disapproval or modification and notify the Permittee in writing of the final decision. The Permittee shall comply with the terms and conditions of the Director's decision in the dispute.

Such notification shall:

i) Indicate the effective date of the disapproval or modification, which shall be no later than fifteen (15) calendar days after the date of notification of the final decision;

ii) Include an explanation of how comments were considered in developing the final disapproval or modification; and,

iii) Provide a copy of the final disapproval or modification.

VII.K.3. The Director's decision using the procedures specified in permit conditions VII.K.1. and VII.K.2. does not require permit modification and is not subject to administrative appeal.

VII.L. Off-site Access

To the extent that work required by this permit must be done on property not owned or controlled by the Permittee, the Permittee shall use its best efforts to obtain site access agreements from the present owner(s) of such property. "Best efforts" shall mean, at a minimum, a certified letter from the Permittee to the relevant property owner(s) stating the need and purpose for site access, requesting access to such property by the Permittee, the Director, and the Director's authorized representatives, and offering reasonable compensation for any financial losses sustained as a result of the activities conducted during the access period. If a reply is received from the property owner(s), the Permittee shall send follow-up letters as appropriate to clarify the work contemplated and address the owner's reasonable concerns. The Director may assist the Permittee in obtaining such agreements.

VII.M. Other Permits and/or Approvals

To the extent that work required by this permit must be done under a permit(s) and/or approval(s) pursuant to other Federal, State, or local regulatory authorities, the Permittee shall use its best efforts to obtain such permits in a timely manner. For the purposes of this permit condition, "best efforts" shall mean submittal of a complete application for the permit(s) and/or approval(s) at the earliest opportunity after the information necessary to prepare the application is available to the Permittee.

VII.N. Corrective Action Schedule Extensions

Failure to meet the schedules contained in this permit shall constitute a violation of the permit. Extensions to any schedule contained in this Permit require a permit modification pursuant to WAC 173-303-830(4).

TABLE VII-1: CORRECTIVE ACTION COMPLIANCE SCHEDULE

Item #	Permit Condition	Due Date
1	VII.A.4.a - Draft Comprehensive RFI Report not including Draft Risk Assessment	June 30, 2001
2	VII.A.3.d - Draft Risk Assessment	August 10,2001
~~3~~	~~VII.A.4.b - Revised Draft RI (RFI), if necessary (including revised draft Risk Assessment)~~	~~April 23, 2002~~August 2, 2002
4	VII.A.3.d and VII.A.4.b - Final Comprehensive RI Report (including final Risk Assessment)	November 14, 2003. ~~October 31, 2003 45 days after receipt of the Director's comments on the Draft or Revised Draft RI~~
5	VII.A.4.b - FS Scope of Work Technical Memorandum	November 14, 2003. ~~21 days after the Director's approval of the draft RI report; or, if the draft RI report is not approved, concurrent with submittal of the Final RI report~~
6	VII.A.7 - RI Progress Reports	Every quarter in February, May, August and November. Within 90 days of the last day of groundwater sampling.~~Every six months on February 10 and August 10~~
7	VII.C.1. - Draft Interim Measure(s) Work Plan	September 1, 2001
8	VII.C.2. - Final Interim Measure(s) Work Plan	14 days after receipt of the Director's comments

		on the Draft Interim Measures Work Plan
9	VII.D.1 - Draft Feasibility Study Report	Within 60 days of the Director's approval of the Final Comprehensive RI Report
10	VII.D.2 - Final Feasibility Study Report	Within 45 days of receipt of the Director's comments on the Draft.
11	VII.D.3 - Permit Modification (including public comment on the draft permit modification)	Following the Director's approval of the Final Corrective Measure Study *See Below
12	VII.D.4 - Draft Remedial Design and Remedial Action Scope of Work	Per the date established in the Final Permit Modification, as required by VII.D.3.
13	VII.D.5 - Final Remedial Design and Remedial Action Scope of Work	Within 30 days of receipt of the Director's comments on the Draft
14	VII.D.6 - Draft RD/RA Work Plan	Within 45 days of the Director's approval of the Final Remedial Design and Remedial Action Scope of Work, or no later than 180 days following the effective date of the permit modification (Item #13), whichever is soonest
15	VII.D.7 - Final RD/RA Work Plan	Within 45 days of receipt of the Director's comments on the Draft
16	VII.I. - Closure of the Remedial Action System	Provide 90 days prior notice of closure to Ecology
17	Hydraulic Control Interim Measure Preliminary Design	December 1, 2002
18	Public comment on the Hydraulic Control Interim Measure Preliminary Design	December 1, 2002 to January 3, 2003

19	Hydraulic Control Interim Measure Draft Final Design	No more than 60 days following the Director's comments on, or approval of, the initial Preliminary Design
20	Revised HCIM Schedule	No more than 60 days following the Director's comments on, or approval of, the initial Preliminary Design
21	Revised Inhalation Pathway Interim Measure Work Plan	August 12, 2002
22	Final Inhalation Pathway Interim Measure Work Plan	Within 30 days of receipt of any comments from the Director on the Revised IPIMWP
23	Technical Memorandum IPIM1: results of the GIVF study and, in accordance with the approved IPIM Work Plan, proposed IPIM decisions	Within 60 days of receipt of validated data from the GIVF study, but no later than November 27, 2002
24	Technical Memorandum IPIM2: proposed IPIM decisions, in accordance with the approved IPIM Work Plan,	21 days after the due date for submitting the revision of Item **23**, IPIM Technical Memorandum 1.
25	Technical Memorandum IPIM3: proposed IPIM decisions, in accordance with the approved IPIM Work Plan,	No later than March 31, 2003
26	Technical Memorandum IPIM4: proposed IPIM decisions, in accordance with the approved IPIM Work Plan,	No later than June 30, 2003

* Assuming the modification here is an Agency-initiated modification (per WAC 173-303-830(3)), the Director will prepare a draft permit modification per procedures in WAC 173-303-830(3) and 840. This draft permit modification will be available for public comment, along with the Director's Statement of Basis. At the end of this comment period the Director will consider all comments and prepare a final permit modification.

ATTACHMENT MM -- SCOPES OF WORK, PLANS, AND WORKPLANS

The following Scopes of Work and Work Plans have been approved by EPA and are hereby incorporated into the permit by reference.

- Pre-Corrective Action Monitoring Plan (July 1992)
- Final RFI Addendum Scope of Work (October 1999)
- Final Off-Site Characterization Work Plan (September 2000)
- Final Soil Gas Sampling and Analysis Plan (October 2000)
- Final Risk Assessment Work Plan (February 2001)
- Final RFI Well Installation Work Plan (November 2001)

Title: Schedule for the Final Comprehensive Remedial Investigation Report including the Human Health and Ecological Risk Assessment

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 47-1[1] **Submitted:** 4/1/02

Summary Description:

This modification request would modify the permit specified schedule for the Final Comprehensive Remedial Investigation Report including the Human Health and Ecological Risk Assessment due to data gaps identified by PSC, the Washington State Department of Ecology (Ecology), the US Environmental Protection Agency (EPA) and the agencies that are required to be fulfilled prior to finalizing this document.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, A.5.a addressing changes in the schedule of a permit required deliverable.

Detailed Description:

On August 10, 2001, Philip Services Corporation submitted a draft Comprehensive Remedial Facility Investigation Report, which included a baseline human health and ecological risk assessment. The purpose of the RFI report is to define the nature and extent of surface and subsurface contamination that originated at the facility property, and to evaluate the potential for risk of harm to human health and the environment resulting from exposure to the contamination. The results presented in the RFI report are used to evaluate the need for and focus the selection of appropriate remedial activities for the contamination at the site. Furthermore, the results of the baseline risk assessment will be used to help focus on areas where interim actions may be necessary to limit exposure to contamination at and near the site.

On January 3, 2002, Ecology and EPA jointly submitted comments on PSC's Draft Comprehensive RFI Report, including the risk assessment. Despite the extensive characterization work that has been completed to date, there is still too much uncertainty regarding the nature and extent of contamination at and downgradient of the site to use only the currently available data based on a single set of direct-push groundwater samples to make risk-based decisions and to begin the evaluation of remedial actions. Ecology and EPA requested that additional field work is required to help better delineate the current nature and extent of contamination before a revised version of the RI report, including the risk assessment, is submitted.

Therefore, PSC requests a 60-day extension on the due date of the Revised Draft RI report. During the 60-day extension, PSC will submit a class 2 permit modification request for an extension on the due date of the Final Comprehensive RI Report. The Class 2 permit modification will include a detailed rationale for the time required to fill the identified data gaps. A 60-day public comment period and a public meeting will be held for the Class 2 permit modification.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

List of Affected Sections:

This class 1' permit modification request would modify the due date of the Final RI report to make the following modifications to Table VII.1:

> Table VII.1, Item 3, Revised Draft RI Report (including Revised Draft Risk Assessment): Change due date from "April 23, 2002" to "June 22, 2002."

Title: Schedule for Quarterly Corrective Action Progress Reports and Schedule for the Final Comprehensive Remedial Investigation Report including the Human Health and Ecological Risk Assessment for the Georgetown Facility

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 48-2 **Submitted:** 4/2/02

Summary Description:

This permit modification request would modify the time required to submit quality-assured data to the Washington State Department of Ecology (Ecology) under the quarterly corrective action progress reports. In addition, this modification request would modify the permit specified schedule for the Final Comprehensive Remedial Investigation Report, including the Human Health and Ecological Risk Assessment, due to data gaps, identified by Philip Services Corporation (PSC), the Environmental Protection Agency (EPA), and Ecology, that are required to be fulfilled prior to finalizing this document.

Modification Class:

This is a Class 2 permit modification, per 40 CFR 270.42, Appendix I, A.5.a, which addresses changes in the schedule of a permit required deliverable.

Detailed Description:

Quarterly Reports
The first request is to modify the language in Section VII.B.1, paragraph 2, from:

> "Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the approved Pre-Corrective Action Monitoring Plan, and in any case, b) no later than ninety (90) days following the *initiation* of sampling"

to:

> "Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the approved Pre-Corrective Action Monitoring Plan, and in any case, b) no later than ninety (90) days following the *completion* of sampling."

The modification would also clarify Section VII.G.3 to read:

> "Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the schedule of the

appropriate groundwater monitoring program per Sections VII.B., VII.E. and VII.F. of this permit and in any case, b) no later than ninety (90) days following *completion of* sampling."

The modification would change Table VII-1, Item 6 to:

"Due Date: every quarter on February 28, May 31, August 31 and November 30."

This schedule change is prompted by the additional time requirements for sampling of approximately 50 additional wells in the Pre-Corrective Action Monitoring Plan network, and performing laboratory analysis on all samples, conducting data validation on all analytical results and the subsequent increase in the data management workload prior to agency submittal.

RI Schedule Change

The second request is to make the following modifications to Table VII.1:

Table VII.1, Item 3: Delete this item. The permit text does not refer to a "Revised Draft RI." Furthermore, PSC does not believe that submission of a Revised Draft RI report would be beneficial at this point in time as data gaps identified in Ecology and EPA's comments on the Draft RFI Report will not have been addressed.

Table VII.1, Item 4, Final Comprehensive RI Report (including final Risk Assessment: Change due date from "45 days after receipt of the Director's comments on the Draft or Revised Draft RI" to "October 31, 2003."

Rationale for RI Schedule Change

On August 10, 2001, Philip Services Corporation submitted a Draft Comprehensive Remedial Facility Investigation Report which included a baseline human health and ecological risk assessment. The RFI report was prepared as part of corrective action requirements included in the facility's Resource Conservation and Recovery Act (RCRA) Part B permit, issued jointly by Ecology and EPA in 1991. The purpose of the report is to define the nature and extent of surface and subsurface contamination that originated at the facility property, and to evaluate the potential for risk of harm to human health and the environment resulting from exposure to the contamination. The results of the report will be used to evaluate the need for and focus the selection of appropriate remedial activities for the site. Furthermore, the results of the baseline risk assessment will be used to help focus on areas where interim actions may be necessary to limit exposure to contamination at and near the site.

On January 3, 2002, Ecology and EPA jointly submitted comments on PSC's Draft Comprehensive RFI Report, including the risk assessment. Despite the extensive characterization work that has been completed to date, there is still too much uncertainty regarding the nature and extent of contamination at and downgradient of the site to make risk-based decisions and to begin the evaluation of remedial alternatives. Ecology and EPA requested that additional field work be performed to better delineate the current nature and extent of contamination before the report is finalized.

The comments on the report identified several main areas for which additional information is needed to sufficiently characterize the:

- geologic conditions and groundwater concentrations downgradient of the facility;

- background conditions;
- nature and extent of the source area contamination; and
- geological conditions near the proposed interim measure and final remedy.

The comments outlining data needs that require additional sampling are summarized in **Table 1**. The data needs for each of these areas, and the methods PSC has proposed to obtain the required data, are discussed in more detail below.

Risk Assessment Data Needs
An initial characterization of the groundwater in the area between the facility and the Duwamish Waterway has been underway since 1998 and has included direct-push groundwater investigations that were conducted over a two and one half year period in a step out fashion. Each investigation has built on the results of the previous survey, adding to the conceptual model of groundwater contamination patterns in the area. The results of the surveys provide only a "snapshot" in time of the groundwater conditions, and do not provide information on how the groundwater concentrations vary seasonally and over time. Consequently, these data alone are not sufficient in scope for risk-based decision making as these data do not provide information on seasonal variation in groundwater concentrations. PSC is currently installing over 55 new groundwater monitoring wells in the area between the facility and the Duwamish Waterway. Groundwater samples from these wells can be collected periodically over time to capture changes in groundwater concentrations due to seasonal fluctuations in the hydrologic cycle, and to supply additional information on the movement of the groundwater within the area.

Groundwater concentrations may vary throughout the year with the strong seasonal fluctuation in precipitation (Ecology, 1992) which recharges groundwater in at least the shallow and intermediate aquifers at the site. The risk assessment seeks to estimate the concentrations to which the receptor is exposed over a given period of time, typically spanning multiple years. Consequently, if seasonal variation in groundwater concentrations is not characterized, the estimate of the exposure concentration may be biased resulting in either an over- or under-estimation of risks. The new monitoring wells will constitute the only monitoring well data available for Area 3, defined as the area between Denver Avenue and the Duwamish Waterway. As recommended by EPA risk assessment guidance (EPA, 1989), at least one year's worth of data is necessary to estimate exposure concentrations for this area. By characterizing groundwater concentrations for at least one year, uncertainties in the estimated exposure concentration will be reduced (EPA, 1989).

Uncertainties are also inherent in the estimation of the actual groundwater concentration from a sub-sample of the actual groundwater concentrations as collected during groundwater sampling events. These uncertainties are compounded by a censored data set. A censored data set is a data set in which many of the results are not necessarily zero but are not able to be accurately quantified as they are below laboratory detection limits. Assuming unbiased sampling, the true groundwater concentration can be estimated with increasing precision as the number of samples increases. By collecting samples for at least 4 quarters, a more robust data set is available, thereby reducing uncertainty in the estimation of the true groundwater concentration. Consequently, groundwater analytical results from at least four quarters of sampling will be included in the revised report.

Data Needs for Fate and Transport Evaluation
Currently, only direct-push groundwater results are available for Area 3 and these data do not provide adequate information on groundwater flow that is used to determine the direction that constituents in groundwater are moving. With the installation of permanent monitoring wells in Area 3, the hydrogeologic conceptual site model for the site can be expanded to include the

area downgradient of the facility. Boring logs from the installation of these wells will be used to expand geologic cross-sections. As water levels will be measured quarterly at each of the newly installed monitoring wells, off-site groundwater flow patterns and their seasonal fluctuation will be determined and presented in the revised Report. This is essential for determining the flow path of groundwater downgradient of the facility.

Data Needs for Establishing Area Background Concentrations
A number of constituents detected in groundwater at and near the facility may be associated with natural or area background conditions rather than a release from the facility. Several metals occur naturally in bedrock, sediments, and soils of Washington state due solely to the geologic processes that formed these materials (San Juan, 1994). Furthermore, there may be a number of constituents ubiquitous in groundwater in the vicinity of the facility that are associated with human activities unrelated to releases from the site. The concentrations of these compounds are considered background concentrations.

Background conditions near the site have not been adequately characterized with the three background wells present at the site, CG-3 and CG-101 in the shallow aquifer and CG-111 in the intermediate aquifer. PSC is planning to install at least one additional background well in each of the shallow, intermediate and deep aquifers in locations upgradient of the site. Groundwater analytical results from these wells will be used to characterize background conditions upgradient of the site. Background concentrations will be used in the determination of groundwater potability and in the risk assessment to focus the list of chemicals of potential concern to those compounds which can be directly attributed to releases from the facility. Analytical results from at least four quarters of groundwater sampling are needed to account for seasonal fluctuations in groundwater concentrations (Ecology, 1992) and to provide a sufficient sample size for statistical analysis of the data.

Data Needs for Characterizing Source Area
Most of the soil samples collected at the facility were collected early in the characterization of the site. Since these soil samples were collected and analyzed, laboratory analytical methods have improved substantially providing more accurate and reliable data. The current evaluation of the nature and extent of soil contamination at the facility will be augmented with additional soil samples that may be collected along the northern and eastern sides perimeter of the PSC facility . Soil samples from a series of ten direct push borings will be field-screened and, at some locations, may be submitted for laboratory analysis.

Additional Time Requirements
A number of requested revisions to the RFI report do not directly require additional field work, but will require substantial effort nonetheless. The results and conclusions of each section are linked to those of the other sections. Substantial revisions will be required to all sections of the document, many of which cannot be revised until the data gaps described above are addressed. For example, the revision of the human health and ecological risk assessments can not commence until the nature and extent of groundwater contamination has been defined, which, in turn, depends on the interpretation on groundwater flow patterns and other information.

The development of the human health and ecological risk assessment consist of several steps which build on each other. The revision of the human health risk assessment will require evaluation of the new data set for usability, the selection of chemicals of potential concern (COPCs), the development of exposure point concentrations (EPCs) for each of the identified COPCS, and the calculation of risks using the calculated EPCs. Due to the large data set and number of complete exposure pathways to consider, each of these steps will take approximately one month to complete and adequately document in the text of the report. Similarly, the revision

of the ecological risk assessment requires a refinement of the ecological conceptual site model, selection of the data set to be used in the ecological risk assessment, and the terrestrial and aquatic ecological evaluations. The amount of time needed to conduct adequately document these steps is approximately one month each.

Schedule

Substantial additional field work has been proposed and is underway in order to address the data gaps identified in the draft RFI report. The amount of time necessary to complete each task and its associated analyses is summarized in Figure 1.

To address these data gaps, PSC will require more time to collect, analyze, validate, and evaluate the data according to MTCA and RCRA guidelines and to provide a well-documented RI and risk assessment for the site. Therefore, PSC requests that the Final Comprehensive RI Report be submitted to the agency on October 31, 2003. This date was selected based on the following schedule of activities:

Task	Estimated Completion Date
Collect source area data per Hydraulic Control Interim Measures Work Plan.	Summer 2002
Collect last set of data of four quarters of groundwater data from the new monitoring well system in Area 3 and background wells.	February 2003
Analyze last set of data of four quarters of groundwater data from the new monitoring well system in Area 3 and background wells.	March 2003
Validate last set of data of four quarters of groundwater data from the new monitoring well system in Area 3 and background wells.	April 2003
Manage last set of data of four quarters of groundwater data from the new monitoring well system in Area 3 and background wells.	May 2003
Perform the human health and ecological risk assessment on receipt of validated data from fourth quarter sampling event and Hydraulic Control Interim Measure Investigation	October 2003
Complete the RFI Report within 150 days of receipt of validated data from fourth quarter sampling event or Hydraulic Control Interim Measure Investigation, whichever is later.	October 2003

Public Notice Information:

Within seven days of submitting this permit modification, a public notice will be sent to all persons on the Georgetown Facility mailing list and to the appropriate units of state and local government as specified in 40 CFR 124.10(c)(ix) and WAC 173-303-840(3)(e)(i)(E). This notice will be published in a major local newspaper of general circulation, and will include the following information required by 40 CFR 270.42(b)(2) and WAC 173-303-830(4)(b)(ii).

- Announcement of a sixty-day comment period, and the name and address of agency contacts to whom comments are to be sent;

- Announcement of the date, time, and place for a public meeting to be held no earlier than fifteen days after the publication of the public notice and no later than fifteen days before the close of the sixty-day comment period;

- Name and telephone number of the PSC contact person;

- Name and telephone number of the agency contact person(s);

- Location where copies of this modification request and supporting documents can be viewed and copied; and

- The following statement: "The Permittee's compliance history during the life of the permit being modified is available from the Agency contact persons."

List of Affected Sections:

- The language in Section VII.B.1, paragraph 2, Section VII.G.3 and Table VII-1, Item 6 will be affected by the change in the progress report schedule.
- Table VII-1, Item 3 "Revised Draft RI Report" will be deleted.
- Section VII.A.4.b), Final Comprehensive RI Report, and Table VII-1 of the Part B permit will be affected by the change in the RI Report schedule.

References:

San Juan, C. 1994. Natural Background Soil Metals Concentrations in Washington State. Washington State Department of Ecology. Toxics Cleanup Program. Pub. No. 94-115.

United States Environmental Protection Agency (EPA). 1989. *Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part A)*. Office of Emergency and Remedial Response. EPA/540/1-89/002.

Washington State Department of Ecology (Ecology). 1992. Statistical Guidance for Ecology Site Managers. Toxics Cleanup Program. August 1992.

Title: GTMOD 50-1[1]
Abandonment of Well CG-7-S1

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 50-1[1] Submitted: 6/18/02

Summary Description:

PSC requests permission to abandon well CG-7-S1 due to well integrity problems.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, C.1.b addressing changes to wells.

Detailed Description and List of Affected Sections of the Permit:

The well integrity of well CG-7-S1 is poor and is in non-compliance with state well maintenance regulations. This well is in a high traffic area and the well cap has been broken many times possibly allowing surface water intrusion into the well. Permit condition VII.H.4. assumes that a new well will replace the abandoned well. However, in this case there will be no well installed to replace CG-7-S1 because EPA and Ecology already approved the discontinuation of chemical sampling at CG-7-S1. Abandonment of well CG-7-S1 will comply with State requirements set out in WAC 173-160-415 and permit conditions VII.H.4 and H.5.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: GTMOD 51-1[1]
Revision of the Pre-Corrective Action Monitoring Plan

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 51-1[1] **Submitted:** 6/28/02

Summary Description:

PSC revised the Pre-Corrective Action Monitoring Plan (PCAMP) after implementing permit modification GTMOD-43-2, which added 54 new monitoring wells to the PCAMP. Seven of the proposed wells in GTMOD 43-2 were unable to be installed at this time due to access problems.

In addition, Sections VII.B.2 and VII.G.4 and VII.G.5 were modified to make the requirements for Appendix IX sampling consistent throughout the permit.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, C.1.b addressing changes to wells.

Detailed Description and List of Affected Sections of the Permit:

The PCAMP was revised to include the well construction and specification information for the 54 new wells that were installed during the Spring of 2002 and to incorporate comments from the agencies on the draft of the PCAMP submitted to the agencies in March 2002. These changes will not affect any language in the actual permit, but do require that PSC resubmit the PCAMP and associated QAPP along with this permit modification, as those documents are incorporated into the permit by reference.

In addition, this modification also changes the language in the permit pertaining to Appendix IX sampling in order to clarify the actions necessary to be taken if a new chemical is detected during Appendix IX sampling.

The proposed changes to the Appendix IX permit language for Section VII.B.2., G.4., and G.5 follows. The purpose of this change is to eliminate the inconsistencies between sections B.2. and G.4/G.5. PSC has combined text from Sections VII.B and VII.G.4 and VII.G.5. PSC also proposes adding text to VII.G.5. that Appendix IX reporting requirement only pertains to detection of chemicals that are not on a current analyte list. In addition, PSC proposes to change the date for submitting data to the Director from 90 days to 120 days, to be consistent with permit modification request GTMOD-48-2.

VII.B.2 ~~Upon detection of 40 CFR 264 Appendix IX hazardous constituents in any monitoring well exceeding method-specific Practical Quantitation Limits (PQLs) the Permittee shall:~~

~~a) Notify the Director of this finding in writing within seven (7) calendar days after receiving validated data; and,~~
~~b) Within thirty (30) days of the validated Appendix IX detection(s), collect two (2) samples from any affected well(s) and reanalyze both samples for all constituents, which were detected above PQLs. Such sampling shall not affect scheduled, Pre-Corrective Action monitoring.~~

~~An exception to this requirement is the case where groundwater metals concentrations are detected at levels the Director has determined to be in the range of background concentrations. In this case, the Permittee shall only proceed to VII.B.3. if the validated metal analyte levels exceed screening levels identified in VII.A.4.a.6.~~

The Permittee shall biennially analyze a groundwater sample from one monitoring well for all 40 CFR 264 Appendix IX constituents according to the requirements in VII.G.4. and VII.G.5.

The proposed changes to the permit language in Section VII.G.4 and VII.G.5. follows.

VII.G.4. The Permittee shall biennially analyze a groundwater sample from one monitoring well for all 40 CFR 264 Appendix IX constituents according to the requirements in VII.G.4. and VII.G.5. This well must be specified in the sampling plan. Any change to the sampling plan requires a modification to this permit.

If any 40 CFR Appendix IX constituents not included in the monitoring programs approved under VII.B., VII.E., or VII.F. are detected, the Permittee shall complete the procedures in VII.G.5 within thirty (30) days of the Permittee's receipt of validated results. In no case shall the period between the date of sampling and the date of submission of the results to the Director exceed ~~ninety (90)~~ one-hundred twenty (120) days. An exception to this requirement is the case where groundwater metals concentrations are detected at levels exceeding PQLs, but at levels that the Director has determined to be in the range of background concentrations. In this case, the Permittee shall only proceed to VII.G.5. if the metal analyte level is a contaminant of potential concern, and its concentration is above approved screening levels (for Pre-Corrective Action Monitoring) or remedial levels (established in the permit modification documenting the chosen Remedial Action).

VII.G.5. For any Appendix IX constituent(s) detected above their Practical Quantitation Limit under the permit that are not included in the monitoring programs approved under VII.B., VII.E., or VII.F., the Permittee shall:

a) Add the newly detected constituent(s) to the list of monitoring constituents, and provide the Director with a copy of the revised list for inclusion into the Plan(s) approved per conditions VII.B., E., or F within thirty (30) days of receipt of the validated data. In addition, include information related to sampling and analytical methodology for the new analyte, method detection limits, QA, and other information consistent with the respective Monitoring Plan; or,

b) Notify the Director within seven (7) days of receiving of the validated data that the Permittee intends to submit a report justifying why the detected constituent(s) should not be included in the monitoring program or why the detected constituent(s) should only be added to some of the wells in the monitoring program. The report should be submitted within thirty (30) days of receipt of the validated data. If the Director does not accept the Permittee's justification, the Permittee shall, upon receipt of the Director's determination, add the constituent to the monitoring list in accordance with VII.G.5.a. If the Director accepts the justification, the constituent does not have to be added to the list of monitoring constituents; or,

c) Submit a notice to the Director within seven (7) days that the Permittee ~~has~~ is resamplinged the well and ~~is~~ repeating the analysis for the newly detected constituent(s). Within thirty (30) calendar days of the Permittee's receipt of validated results of the ~~second~~ verification analysis, the Permittee shall submit the results of the ~~second~~ verification analysis to the Director. In no case shall the period between the date of sampling and the date of submission of analytical results to the Director exceed ninety (90) days. If the verification sampling does not detect the constituent(s) previously detected during Appendix IX sampling, the constituent(s) do not need to be added to the monitoring program analyte list. If the verification sampling does detect the constituent(s) previously detected during Appendix IX sampling, ~~T~~the Permittee shall either add the newly detected constituent(s) to the list of monitoring constituents pursuant to VII.G.5.a., or submit a report justifying why the detected constituent(s) should not be included in the monitoring program pursuant to VII.G.5.b within thirty (30) days of receipt of validated verification data.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: GTMOD 52-1[1]
Revision of the Financial Assurance Corrective Action Language

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 52-1[1] **Submitted:** 4/24/03

Summary Description:

PSC proposed a revision of the Financial Assurance for Corrective Action Language in Section VII.J of the permit.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, A.5.a addressing changes to interim deliverables.

Detailed Description and List of Affected Sections of the Permit:

This modification changes the language in the permit pertaining to financial assurance for corrective action and related cost estimates. PSC proposes to streamline some of the cost estimate submittals and to provide a trigger for increasing the financial assurance mechanism rather than modifying it every time there is a change in a cost estimate. The proposed changes to the permit language for Section VII.J. follows.

VII.J. Financial Responsibility

VII.J.1. Within thirty (30) days of the effective date of this Permit, the Permittee shall prepare and submit to the Director a detailed written estimate, in current dollars, of the cost completion of all IM, RI, FS, and RD/RA activities required by this Permit, including development of workplans, implementation, operation and maintenance costs, costs of any necessary long-term monitoring, and satisfactory performance of all such activities. The cost estimate must be based on the costs to the Permittee of hiring a third party to perform all activities required by this Permit. A third party is a party who is neither a parent nor a subsidiary of the Permittee.

VII.J.2. ~~Concurrent with submission of any~~ Within 30 days of the Director's approval of any Final IM RI, FS, and RD/RA Workplan required pursuant to this Permit, the Permittee shall submit to the Director a revised corrective action cost estimate which shall provide a detailed written estimate of the cost, in current dollars, of completion of all IM, RI, FS,

and RD/RA activities required by this Permit in addition to the most up to date estimated costs for corrective action prepared pursuant to Paragraph VII.J.1. The revised corrective action cost estimate must include the additional costs for development of workplans, implementation, operation and maintenance costs, costs of any associated monitoring, and satisfactory performance of all IM, RI, FS, and RD/RA activities. The estimate of these additional costs must be based on the costs to the Permittee of hiring a third party to perform all IM, RI, FS, and RD/RA activities required by this Permit. A third party is a party who is neither a party nor a subsidiary of the Permittee.

VII.J.3. The Permittee shall annually adjust and submit to the Director the most up to date corrective action cost estimate for inflation within thirty (30) days after the close of the Permittee's fiscal year.

VII.J.4. The Permittee shall adjust and submit to the Director ~~the most up to date~~ a corrective action cost estimate in current dollars within thirty (30) days ~~after~~ of either:

i. When the Permittee ~~becomes aware~~ comes into possession of new information or knowledge that would necessitate increasing or decreasing the cost estimate, or ~~which may increase the cost of satisfactory completion of corrective action activities required by this Permit, and within thirty (30) days after Director approval of any workplan pursuant to this Permit. The Permittee may propose to adjust the most up to date corrective action cost estimate when the Permittee becomes aware of new information which may increase the cost of satisfactory completion of corrective action activities.~~

ii. When the Director provides such knowledge, necessitating an increase or decrease in the cost estimate because of new information, the Director shall notify the Permittee by certified mail of the need for an adjustment in the cost estimate.

VII.J.5 No revision to the cost estimate shall be required, unless the difference between the new and old costs, when calculated pursuant to VII.J.2, VII.J.4.i, or VII.J.4.ii., is at least an increase of 10 percent of the current cost estimate provided that:

i. The Director may require submission of a revised cost estimate for changes of less than 10 percent as a result of the Department's normal detailed review of the corrective action cost estimate and comments based on the adequacy and completeness of third party costs submitted by the Permittee; and,

ii. When the annual adjustment under VII.J.3 is made, the Permittee shall incorporate the sum of all the year-to-date corrective action cost increases, which may be less than 10 percent individually, into the revised cost estimate.

The corrective action cost estimate may be decreased only upon Director approval or modification and approval of the proposed decrease pursuant to this Permit. The corrective action cost estimate shall not be decreased to zero at any time prior to termination of this Permit.

VII.J.~~5~~6. The Permittee shall maintain the most up to date cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.4~~5~~. of this Section in the operating record.

VII.J.67. ~~Within sixty (60) days of the effective date of this Permit, and within thirty (30) days of any increase in the corrective action cost estimate, t~~The Permittee shall establish and continuously maintain financial assurance for performance of corrective actions at the Facility in at least the amount of the ~~most up to date~~ current cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.54. of this Section. The mechanism(s) for obtaining and demonstrating financial assurance for corrective action must be in a form consistent with 40 C.F.R. ' 264.143, to be approved by the Director. The Permittee shall submit documentation of such financial assurance to the Director annually, and within ~~thirty (30)~~ sixty (60) days of any adjustment to the ~~corrective action~~ cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.45. of this Section. ~~The financial assurance mechanism shall not be decreased to zero at any time prior to termination of this Permit.~~

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: Schedule for the Final Comprehensive Remedial Investigation Report including the Human Health and Ecological Risk Assessment

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 53-1[1] **Submitted:** 6/20/02

Summary Description:

This modification request would modify the permit specified schedule for the Final Comprehensive Remedial Investigation Report including the Human Health and Ecological Risk Assessment due to data gaps identified by PSC, the Washington State Department of Ecology (Ecology), the US Environmental Protection Agency (EPA) and the agencies that are required to be fulfilled prior to finalizing this document.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, A.5.a addressing changes in the schedule of a permit required deliverable.

Detailed Description:

On August 10, 2001, Philip Services Corporation submitted a draft Comprehensive Remedial Facility Investigation Report, which included a baseline human health and ecological risk assessment. The purpose of the RFI report is to define the nature and extent of surface and subsurface contamination that originated at the facility property, and to evaluate the potential for risk of harm to human health and the environment resulting from exposure to the contamination. The results presented in the RFI report are used to evaluate the need for and focus the selection of appropriate remedial activities for the contamination at the site. Furthermore, the results of the baseline risk assessment will be used to help focus on areas where interim actions may be necessary to limit exposure to contamination at and near the site.

On January 3, 2002, Ecology and EPA jointly submitted comments on PSC's Draft Comprehensive RFI Report, including the risk assessment. Despite the extensive characterization work that has been completed to date, there is still too much uncertainty regarding the nature and extent of contamination at and downgradient of the site to use only the currently available data based on a single set of direct-push groundwater samples to make risk-based decisions and to begin the evaluation of remedial actions. Ecology and EPA requested that additional field work is required to help better delineate the current nature and extent of contamination before a revised version of the RI report, including the risk assessment, is submitted.

In April 2002, PSC requested an extension on the due date of the Final RI report to June 23, 2002 in permit modification GTMOD-47-1[1]. The purpose of that extension request was to allow PSC time to submit a Class 2 permit modification, GTMOD-48-2, to formally submit this extension request to the public for comment and to allow for a public meeting and agency review. On June 20, 2002, PSC received a request from Ecology to request an extension on the due date of the Final RI Report to August 2, 2002 to allow Ecology more time to review public comments on this Class 2 GTMOD-48-2. Therefore, PSC is hereby submitting that request as permit modification GTMOD 53-1[1].

List of Affected Sections:

This class 1' permit modification request would modify the due date of the Final RI report to make the following modifications to Table VII.1:

Table VII.1, Item 3, Revised Draft RI Report (including Revised Draft Risk Assessment): Change due date from "June 22, 2002" to "August 2, 2002".

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: Modification of Pre-Corrective Action Monitoring Plan Analyte List

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 57-1[1] Submitted: 11/1/02

Summary Description:

This modification request would modify the analyte list in the Pre-Corrective Action Monitoring Plan for the PSC Georgetown Facility dated June 2002.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, A.5.a addressing changes in the schedule of a permit required deliverable.

Detailed Description:

The June 2002 PCAMP required testing for total petroleum hydrocarbons (TPH) by Washington State Method TPH-DRO and TPH-GRO for gasoline and diesel range hydrocarbons. In 2002, PSC also started testing for extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) as part of the MTCA requirement WAC 173-340-720 (4)(b)(C) and WAC 173-340-900 (Table 830-1). This section of MTCA requires accounting for the additive effects of the petroleum fractions and volatile organic compounds present in the petroleum mixture as listed in Table 830-1. After reviewing the second quarter 2002 data that included the EPH/VPH results, EPA and Ecology requested that PSC change the TPH analysis to EPH/VPH analysis at all wells where TPH analysis were required in the PCAMP. . This change is reflected in the updated Table 2 from the PCAMP, which is attached.

List of Affected Sections:

This class 1' permit modification request does not change actual wording in the permit, but modifies a document that is incorporated into the permit under Section VII.B, Pre-Corrective Action Monitoring, which requires a Pre-Corrective Action Monitoring Plan.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice containing the following information will be sent to all persons on the facility mailing list, the community mailing list and

to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: Modification of the Schedule for the Submission of the Inhalation Pathway Interim Measure Technical Memorandums

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 58-1[1] **Submitted:** 1/7/03

Summary Description:

This modification request would modify the schedule for the submission of the Inhalation Pathway Interim Measure Technical Memorandum 2.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, A.5.a addressing changes in the schedule of a permit required deliverable.

Detailed Description:

On December 30, 2002, Philip Services Corporation (PSC) emailed to the Washington State Department of Ecology (Ecology) a request for a Class 1[1] permit modification to revise the date for Inhalation Pathway Interim Measure (IPIM) Technical Memorandum #2, due December 31, 2002. PSC requested the modification because IPIM Technical Memorandum #1, submitted on time last November, was still under review by Ecology at that time, and it would be preferable for the Department to comment on the first memorandum prior to PSC's submittal of the second. Ecology pre-approved this modification in a letter dated December 31, 2002.

The new due date will be established for a date twenty-one (21) days after the due date of PSC's revised IPIM Technical Memorandum #1. Ecology will provide the due date for the revision in the comment letter.

List of Affected Sections:

This change only affects Item 24 of Table VII-1 in the PSC-Georgetown permit. Once modified, this Item shall read as follows:

> ~~*30 days after the submittal of Item 23, or 60 days after the Permittee's receipt of validated, Third Quarter 2002 groundwater monitoring data, whichever occurs later.*~~

21 days after the due date for submitting the revision of Item ***23****, IPIM Technical Memorandum 1.*

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice containing the following information will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: Changes to the Pre-Corrective Action Monitoring Plan

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 59-1[1] **Submitted:** 6/11/03

Summary Description:

This modification would modify the analyte list, the wells sampled for each analyte, and the sampling frequency described in the Pre-Corrective Action Monitoring Plan (PSC, June 2002) and GTMOD 57-1[1].

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, C.2. addressing changes groundwater monitoring schedule, with prior approval of the director. Ecology sent a pre-approval letter to PSC on May 8, 2003.

Detailed Description:

On April 28, 2003, Philip Services Corporation (PSC) requested a Class 1[1] permit modification to revise the analyte list, the wells sampled for each analyte, and the sampling frequency described in the *Pre-Corrective Action Monitoring Plan* (PCAMP) (PSC, June 2002), Ecology's April 8, 2003 letter regarding *Technical Memorandum X: Supplemental Off-Site Groundwater Characterization* (PSC, 2003) and GTMOD 57-1[1]. The PCAMP proposed a fixed sampling and analysis schedule for one year beginning in May 2002, after which time the required analytes and sampling locations would be re-evaluated. On April 28, 2003, PSC re-evaluated the sampling and analysis schedule and proposed changes to the Department of Ecology (Ecology). On May 8, 2003, Ecology pre-approved changes to the PCAMP sampling and analysis schedule. The changes to the PCAMP sampling and analysis schedule are:

1. Semiannual (instead of quarterly) analyses of groundwater (GW) samples for phenols, which are all included in the 8270 (semi-volatile organic compounds (SVOCs)) analysis.

2. Semiannual analyses of GW samples for SVOCs.

3. No further routine analyses of GW samples for EDB.

4. Reduction in the number of wells sampled for PCBs, and only annual sampling at those remaining (with the effect that monitoring wells 126WT, 102S1, 102S2, 102I, 102D, 103I, 104I, 104D, 105I, 106I, 106D, 111, 113, 114, 115-75, 120, 121-40, 121-

70, 122WT, 122-60, 123, 124WT, 124-40, 124-70 and 125 would be dropped from the PCAM program for PCBs).

5. No further analyses of GW samples for Cu, Ag, Ba, Mn, Ni, Se, Cr+3, Cr+6, n-butylbenzene, or 1-methylnaphthalene.

6. Annual sampling at all 105 wells and well V-1.

7. Annual sampling at designated "background wells" (CG-3, CG-101-S1, CG-106-WT, CG-106-D, CG-107-WT, CG-111-I).

8. Annual analyses for Pb at wells CG1, 3, 2S1, 9S1, 10S1, 11S1, 101S1, 102I, 102D, 103I, 104I, 104D, 105S1, 105S2, 105I, 106WT, 106I, 106D, 107WT, 111-I, 114-75, 115-75, 120-75, 121-70, 122-60, 123-90. However, PSC should additionally sample well 124-70 **semi-annually**, and wells 104S2, 115WT, 113, and 129WT annually.

9. Annual analyses for As at all wells listed in the PCAMP, except wells 104D, 114-75, 120-75, 121-70, 122-60, and 124-70. Samples from these wells should be analyzed **semi-annually**. In addition, downgradient wells 134WT, 134-40, 135-40, 135-50, 138WT, 138-70, and 139-40 should also be sampled for arsenic in **May 2003** (2Q03).

10. Annual analyses for cyanide at wells CG1, 3, 2S1, 9S1, 10S1, 11S1, 101S1, 102I, 102D, 103I, 104I, 104D, 105S1, 105S2, 105I, 106WT, 106I, 106D, 107WT, 120-75, 122-60, 123-90, 124-70, 128-70, and 111-I. However, wells 114-75, 115-75, and 121-70 should be sampled **semi-annually**. Well 113 should additionally be sampled annually.

11. Semiannual analyses for 1,4-dioxane out to 4th Ave S. (to include wells 133, 134, and 135). However, in addition, all downgradient wells[1] should also be sampled for 1,4-dioxane in **May** 2003 (2Q03).

12. Annual sampling for EPH/VPH at wells 2S1, 3, 101S1, 101S2, 102D, 102I, 102S1, 102S2, 103S1, 103S2, 106D, 106I, 111-I, 114-75, 115-75, 119-40, 120-75, 121-70, 122-60, 123-90, 124-40, 124-70, 125-40, 126WT, 127-40, 127WT, 128-70, 128WT, 129WT, 131-40, and 131WT. However, samples from wells 103I, 104D, 104I, 104S1, 104S2, 112, 113, 115WT, 121-40, 122WT, 124WT, 129-40, 130WT, 132WT, and 132-40 should be analyzed **in May of 2003** before starting yearly sampling[2].

13. No further groundwater chemical analysis at CG-140-WT. Water levels will be measured at this well.

Furthermore, PSC and Ecology agreed that semi-annual sampling be conducted in the 1st and 4th quarters to coincide with high and low water levels and that sampling be conducted during the 4th quarter when annual sampling is required.

List of Affected Sections:

[1] i.e., all wells proposed by PSC plus wells 136-WT, 136-40, 137WT, 137-40, 138WT, 138-40, 138-70, 139-40, 140-WT, 140-40, 141-WT, 141-40, 141-50, 142-WT, 142-40, 143-WT, 143-40, 144-35, and 145-35.

[2] While samples from WT wells should continue to be analyzed for petroleum fractions, deeper wells may be analyzed per TPH methods.

This change affects only Table 2 of the Revised PCAMP. A red-line strikeout version and the modified version of Table 2 are attached.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice containing the following information will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: Changes to the Pre-Corrective Action Monitoring Plan

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 60-1 Submitted: 7/29/03

Summary Description:

This modification would modify the wells in the Pre-Corrective Action Monitoring Plan (PSC, June 2002) based on the work being conducted in accordance with the Hydraulic Control Interim Measure Construction Work Plan (URS/Geomatrix, April 2003).

Modification Class:

This is a Class 1 permit modification per 40 CFR 270.42, Appendix I, C.2. addressing changes groundwater monitoring network.

Detailed Description:

In the Hydraulic Control Interim Measure Construction Work Plan (URS/Geomatrix, April 2003), PSC proposed to abandon some wells because they were either within the wall alignment or so close to the proposed wall alignment that they would be damaged by the construction of the wall. PSC and Geomatrix recently walked the wall alignment and determined that the following wells would have to be abandoned prior to wall construction: CG-7-S1, CG-7-S2, CG-8-S1, CG-8-S2, CG-9-S1, CG-9-S2, CG-9-I, CG-11-S1, CG-11-S2, CG-11-I, CG-12-S1. CG-12-I, CG-105-S1, CG-105-S2, CG-105-I. This information was communicated to Ecology during a regularly scheduled HCIM Conference Call.

This work will be completed during the week of July 28, 2003. If during wall construction other wells near the alignment are destroyed, PSC will have to abandon and replace those wells. Wells that may fall into this category include CG-2-S1, CG-2-S2. After the wall is completed, PSC will replace the CG-105 well nest with a well nest called CG-152 in the vicinity of the original location of the well nest CG-105 and inside the wall.

Based on Ecology's April 8, 2003 comment letter on the *Technical Memorandum X: Supplemental Off-site Groundwater Characterization* and Ecology's April 18, 2003 comment letter on the *RI/RA Fate and Transport Evaluation Planning Document*, PSC has installed two new wells . PSC has replaced well CG-140-WT with a new well CG-140-30. Well CG-140-WT will only be used for water levels and well CG-140-30 will be used for groundwater chemical sampling and water levels. PSC has also added well CG-151-25.

List of Affected Sections:

This change affects only Table 2 and Figures 2 and 3 of the Revised PCAMP. A red-line strikeout version and the modified version of Table 2 and Figures 2 and 3 are attached.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice containing the following information will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting documents can be viewed and copied.

Title: Change of Soil Vapor Extraction System Blower and Air Treatment Method

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 61-1[1] **Submitted**: 8/12/03

Summary Description:

This modification replaces the Soil Vapor Extraction (SVE) system blower type and air treatment method from that described in the July 2, 1993 Interim Measures Design and Implementation Work Plan. It also replaces that work plan with a revised SVE Operation and Maintenance/Sampling and Analysis Plan dated July 25, 2003.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, C.2. addressing changes to some of the SVE system components, with prior approval of the director. Ecology sent PSC a pre-approval letter for the permit modification request dated May 19, 2003.

Detailed Description:

In a June 19, 2002 letter to the Department of Ecology PSC proposed replacing the catalytic oxidation air treatment equipment being used on the Georgetown SVE system to a granular activated carbon (GAC) system. The new equipment was installed in September 2002, and the old system was removed later that month. A pilot study was competed in October 2002 to demonstrate that the GAC system was protective of human health and the environment. The results of this study contained anomalous data such that it was not useable as input to an air-screening model. Another pilot study was run in February 2003. Data from this test was useable. A pilot study report was prepared and submitted to Ecology on April 25, 2003. On May 8, 2003 PSC received conditional approval to restart the SVE system.

The new equipment installed as part of this update includes:

- One Rotron Blower, Model DR707D89MX, sized for 200 scfm at a vacuum of 40 inches of water.
- Condensate knock-out drum
- EPG Series R710-VFD Controller

- Two Clean Environmental Concepts TSU 2000, 2000-pound vapor phase granular activated carbon (GAC) air treatment adsorbers.
- Associated piping and sensors.

List of Affected Sections:

This change affects Section VII.C.4 of the Permit by replacing the referenced July 2, 1993 Interim Measures Design and Implementation plan with the July 25, 2003 Georgetown SVE Operation and Maintenance/Sampling and Analysis Plan. The changes are provided below:

VII.C.4. Previous Implementation of Interim Measures: the Permittee has constructed and operated a Soil Vapor Extraction (SVE) interim measure system to remove volatile organic hazardous constituents from the vadose zone beneath the facility. Until its effectiveness is evaluated in the evaluation due at the time of the draft Comprehensive RFI Report submission (VII.A.4.), or sooner, the Permittee must continue operation of the system unless the system is:

- replaced by a more effective source control/minimization Interim Measure, or
- found to be totally unproductive, or
- actually causing unacceptable levels of gaseous contaminants to be released to the atmosphere, and

the Permittee is unable to correct the performance problems by replacement of parts, or catalyst or SVE-well maintenance.

The Georgetown SVE Operation and Maintenance/Sampling and Analysis Plan (PSC, July 25, 2003) ~~July 2, 1993 Interim Measure Design and Implementation Work Plan for the Georgetown facility~~ is included in Attachment MM. The Permittee shall continue to operate the Soil Vapor Extraction system in compliance with the 2003 Plan ~~1993 Work Plan~~ until the Director approves the discontinuation of the measure, or the Work Plan is modified through a permit modification processed in accordance with WAC 173-303-830.

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice containing the following information will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and

- Location where copies of this modification request and supporting document can be viewed and copied.

Title: Extension on the Submittal of the Final Comprehensive Remedial Investigation Report for the PSC Georgetown Facility

Permittee: Philip Services Corporation
Permit No: WAD 00081 2909
Facility: Philip Services Corporation – Georgetown Facility
734 South Lucile Street
Seattle, WA

Modification Number: GTMOD 62-1[1] **Submitted**: 10/23/03

Summary Description:

This modification extends the deadline of the Final Comprehensive Remedial Investigation Report, which includes a Final Human Health and Ecological Risk Assessment and a FS Scope of Work Technical Memorandum. This report is a requirement of the facility permit, per Section VII.A.4 and Table VII-1. The document was due to Ecology on October 31, 2003 per Permit Table VII-1. This modification extends the deadline 14 days, to November 14, 2003, in order to complete a thorough technical edit of the three part RI.

Modification Class:

This is a Class 1[1] permit modification with agency pre-approval per 40 CFR 270.42, Appendix I, A.5. change in compliance date, with prior approval of the director. Ecology sent PSC a pre-approval letter for the permit modification request dated October 20, 2003.

List of Affected Sections:

This change affects Items 4 and 5 of Table VII-1 of the Permit by replacing the due date of the Final Comprehensive Remedial Investigation and the FS Scope of Work Technical Memorandum from October 31, 2003 to November 14, 2003. The changes are provided below:

4	VII.A.3.d and VII.A.4.b - Final Comprehensive RI Report (including final Risk Assessment)	November 14, 2003. ~~October 31, 2003~~
5	VII.A.4.b - FS Scope of Work Technical Memorandum	November 14, 2003. ~~21 days after the Director's approval of the draft RI report; or, if the draft RI report is not approved, concurrent with submittal of the Final RI report~~

Public Notice Information:

Within 90 days of approval of this permit modification, a public notice containing the following information will be sent to all persons on the facility mailing list, the community mailing list and to the appropriate units of state and local government as specified in 40 CFR 270.42(a)(1)(ii) and WAC 173-303-840(3)(e)(i)(E).

- A summary of the modification;
- The names and contact information of agency and facility contacts; and
- Location where copies of this modification request and supporting document can be viewed and copied.

Final Comprehensive
Remedial Investigation Report
Part I of IV
Volume 3 of 7

For Philip Services Corporation's
Georgetown Facility
734 S. Lucile Street,
Seattle, Washington
WAD 00081 2909

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November 14, 2003