Delta
Environmental Consultants, Inc.

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Date: February 3, 2005
Project No.:WA255-3507-1

To: Mr. Kipp Eckert
ConocoPhillips
1144 Eastlake Avenue East
Seattle, Washington 98109-4450

We have enclosed:

Copies	Description
1	4Q04 Remediation System Status Report
	600 Westlake Avenue, Seattle, Washington
	ConocoPhillips Site No. 255353

For your:
- ☒ Use/Files
- ☐ Approval
- ☐ Review
- ☐ Information

Sent Via:
- ☒ Regular Mail
- ☐ Priority Mail (USPS)
- ☐ Overnight (UPS)
- ☐ Other _____

Comments: _____

Eric Larsen

cc: LUST Coordinator, Department of Ecology – Northwest Regional Office, Bellevue, WA 98008

Delta Environmental Consultants, Inc.

CONOCOPHILLIPS COMPANY
REMEDIATION SYSTEM STATUS REPORT

February 2, 2005

Site No.: 255353 Site Address: 600 Westlake Avenue N., Seattle, Washington
ConocoPhillips Site Manager: Kipp Eckert
Consultant/Contact Person: Delta Environmental Consultants, Inc. – Eric Larsen
Primary Agency/Regulatory ID No.: **Washington DOE Northwest Region**

WORK PERFORMED THIS QUARTER [Fourth - 2004]

- Monthly operation and maintenance (O&M) of the remediation system. The remediation system consists of an air sparge (AS) unit operating at 15 AS wells within a sparge trench, a deep air sparge (DAS) unit operating at four DAS wells, and a vapor extraction (VE) unit to extract combined vapors from five on-site VE wells and three off-site VE wells, and to capture sparge vapors from two sections of horizontal piping within the sparge trench (east and west VE trenches).

- Temporary shut down of the remediation system.

WORK PROPOSED FOR NEXT QUARTER [First - 2005]

- Restart and continue monthly O&M of the remediation system.

VE SUMMARY

Extraction Equipment:	Rotron EN6F5L VE blower	
Offgas Treatment Equipment:	H2Oil 55-gallon moisture separator; Two 1,800-pound activated carbon units	
Permits for Discharge:	PSCAA No. 8905 (air)	(NPDES, POTW, etc.)
Start-up Date:	8/20/03	
Reporting Period:	10/01/04 - 12/31/04	
Days in Operation During Period:	78	(days)
Total Days in Operation Since Start-Up:	467	(days)
Percent Operating Time During Period:	85%	(%)
System Alarms and Shutdowns:	Temporary shut down on 12/17/04	
VE Points Extracted During Period:	On-site VE wells, East & West VE trenches	
Average Influent Vacuum:	3.5	(inches H2O)
Average Vapor Influent Flow Rate:	217 (estimated based on blower curve)	(SCFM)
Maximum Vapor Influent Concentration for Period (PID):	14.1	(ppmv)
Maximum Vapor Effluent Concentration for Period (PID):	2.3	(ppmv)
Total Hydrocarbon Removal for Period:	79.2	(lbs)
Cumulative Hydrocarbon Removal to Date:	829 (since 8/20/03 startup)	(lbs)
Analytical Results of TPH Concentration in Offgas Emission Sample:	17.9 (July 22, 2004)	(ppmv)

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AS SUMMARY

Sparging Equipment:	Sutortbilt air sparge blower	
Start-up Date:	8/20/03	
Reporting Period:	10/01/04 - 12/31/04	
Days in Operation During Period:	78	(days)
Total Days in Operation Since Start-Up:	467	(days)
Percent Operating Time During Period:	85%	(%)
Number of Wells On-line:	15 AS Wells (AS-1 through AS-15)	
Average System Injection Pressure:	4.5	(psig)
Average System Flow Rate:	8.6 (per AS point)	(SCFM)

DAS SUMMARY

Sparging Equipment:	Gast 6066 Compressor	
Start-up Date:	9/22/04	
Reporting Period:	10/01/04 - 12/31/04	
Days in Operation During Period:	78	(days)
Total Days in Operation Since Start-Up:	86	(days)
Percent Operating Time During Period:	85%	(%)
Number of Wells On-line:	4 DAS Wells (DAS-2 through DAS-5)	
Average System Injection Pressure:	10.5	(psig)
Average System Flow Rate:	6.8 (per DAS point)	(SCFM)

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DISCUSSION

System Operation and Maintenance

Delta conducted monthly site visits on October 28, November 22, and December 17, 2004 to perform operation and maintenance (O&M) of the remediation system during the fourth quarter of 2004. The deep air-sparge (DAS), air-sparge (AS), and vapor extraction (VE) units operated continuously over the reporting period until the system was temporarily shut down on December 17, 2004 at the request of ConocoPhillips.

A summary of VE unit operation parameters is presented in Table 1. Operation summaries of the AS and DAS units are presented in Tables 2 and 3, respectively.

Temporary System Shutdown

Recent revisions to Puget Sound Clean Air Agency (PSCAA) regulations include an exemption for soil and groundwater remediation projects emitting less than 15 pounds of benzene and less than 1,000 pounds of toxic air contaminants (i.e.: volatile hydrocarbons) per year. Based on monthly VE system monitoring data, Delta estimated that total annual emissions of benzene and volatile hydrocarbons discharged by the system would be well below the regulatory limits. As such, the revision prompted the temporary shutdown such that the system is restarted at a later date under the new exemption. Delta provided a detailed explanation of the revised PSCAA regulation and how the revision applies to this remediation system in a letter submitted to ConocoPhillips on December 8, 2004.

Hydrocarbon Removal and Vapor Emissions

During this reporting period, the VE unit effectively removed hydrocarbons from the site at an average rate of 0.9 pounds per day (79 pounds over the operational period during fourth quarter of 2004). An estimated total of 829 pounds of hydrocarbons have been removed from the subsurface by vapor extraction since startup of the current remediation system. Hydrocarbon concentrations in vapor emissions were below the limits of the PSCAA permit based on monthly field monitoring conducted during site visits. A summary of the estimated hydrocarbons removed by the VE unit is included in Table 1.

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CONOCOPHILLIPS COMPANY
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LIMITATIONS

The services described in this report were performed in accordance with generally accepted professional consulting principles and practices. No other warranty, either express or implied, is made. These services were performed in accordance with terms established with our client. This report is solely for the use of our client and reliance on any part of this report by a third party is at such party's sole risk.

Delta appreciates the opportunity to provide environmental services for ConocoPhillips Company. Please call if you have any questions regarding the contents of this report.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Tena Seeds
Project Engineer

Eric Larsen, L.H.G.
Senior Geologist

State of Washington
Hydrogeologist
122
Licensed Geologist
Eric Bruce Larsen

ATTACHMENTS

Table 1 – VE Unit and Vapor Treatment Operation Summary
Table 2 – Air Sparge Unit Operational Summary
Table 3 – Deep Air Sparge Unit Operational Summary
Figure 1 – Remedial System Site Map

cc: LUST Coordinator, WA State Dept. of Ecology – Northwest Regional Office, Bellevue, WA 98008

TABLE 1
VE UNIT AND VAPOR TREATMENT OPERATION SUMMARY
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Date	Operational Time Since Last Event (days)	Power Reading (KWH)	Vapor Extraction Vacuum (inches H2O)	Average Flowrate [1] (SCFM)	Influent Petroleum Hydrocarbon Concentration [2] (ppm)	Petroleum Hydrocarbon Concentration Between Carbons [3] (ppm)	Emission Petroleum Hydrocarbon Concentration [4] (ppm)	Estimated Petroleum Hydrocarbons Removed During Operating Period [5] (pounds)
01/29/04	45 [6]	NM	3.0	218	1.2	0.0	0.0	4.7
02/28/04	30	32,432	3.0	218	1.2	0.0	0.0	3.1
03/30/04	31	35,592	3.0	218	2.7	0.2	0.0	7.3
04/28/04	29	38,516	3.5	217	0.1	0.1	0.1	0.3
05/27/04	29	41,465	3.5	217	9.8 [9]	0.1	0.1	24.7
06/22/04	26	44,045	3.5	217	4.2 [9]	0.1	0.1	9.5
07/22/04	30	47,097	3.5	217	17.9 [9]	11.1	1.8	46.8
08/16/04	23	49,449	3.5	217	6.4	0.2	0.1	12.8
09/21/04	26	52,907	3.7	217	10.5	0.3	0.2	23.8
10/28/04	37	58,559	3.5	217	14.1	5.4	1.1	45.4
11/22/04	25	62,578	3.5	217	4.9	0.1	0.0	10.7
12/17/04 [10]	25	66,601	4.0	215	10.7	6.6	2.3	23.1
Total To Date	**463** [7]							**829** [8]
Total for 4th Qtr 2004	87							79.2

Notes:
KWH = kilowatt-hours
SCFM = standard cubic feet per minute
ppm = parts per million
NM = not measured
[1] Flowrate based on blower vacuum/flow rate curve.
[2] Influent petroleum hydrocarbon concentrations based on field measurements using a photoionization detector (PID), unless otherwise indicated.
[3] Concentrations between carbon units based on field measurements using a PID.
[4] Effluent concentrations based on field measurements using a PID.
[5] Hydrocarbons removed during each operating period estimated using influent concentration, average flowrate, and operational time period.
[6] Operation and maintenance of the remedial system was performed on 12/15/03 by the previous consultant. Delta assumed operation and maintenance of the system during January 2004.
[7] Total operational time to date includes 107.1 days operated by previous consultant, from system startup on 8/20/03 through 12/15/03.
[8] Total estimated petroleum hydrocarbons removed to date includes 616.9 pounds reportedly removed by previous consultant, from system startup on 8/20/03 through 12/15/03.
[9] Petroleum hydrocarbon concentration from laboratory analysis.
[10] At the request of ConocoPhillips, the remedial system was shut down upon departure of the site on 12/17/04, to be restarted at a later date.

TABLE 2
AIR SPARGE UNIT OPERATIONAL SUMMARY
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Date	Header Pressure (psig)	Air Flowrates per Air Sparge Point (SCFM)														
		AS-1	AS-2	AS-3	AS-4	AS-5	AS-6	AS-7	AS-8	AS-9	AS-10	AS-11	AS-12	AS-13	AS-14	AS-15
01/29/04	5	11	12	12	10	11	12	13	8	8	3	<3	5	11	12	8
02/28/04	4	11	12	14	11	11	12	13	8	8	3	4	<3	10	11	9
03/30/04	5	11	12	14	11	12	12	14	8	8	<3	<3	<3	10	12	8
04/28/04	NM	10.5	11.5	14	10.5	11	11.5	13.5	8	7.5	<3	<3	<3	9	10.5	7
05/27/04	4.5	10	11	14	9	10	11	12	7	7	<3	<3	<3	5.5	9	7.5
06/22/04	4.5	11	11	14	10	11	11	12	12.5	11	<3	<3	<3	<3	10	8
07/22/04	4	12	13	16	11	12	12	13	8	5.5	<3	<3	<3	<3	10.5	8
08/16/04	4.5	10	11.5	16	9.5	11	12	10.5	8	5.5	<3	<3	<3	<3	9.5	10.5
09/21/04	4.5	10	10	11.5	8.5	9	9.5	11	6	4.5	<3	<3	4	<3	9.5	7
10/28/04	4.5	9.5	10	11.5	9.5	9	9.5	10.5	5.5	4	<3	<3	<3	<3	10	6
11/22/04	4.5	8.5	10	10.5	9	9	9.5	10.5	5	3.5	<3	<3	<3	<3	8	6
12/17/04[1]	4.5	8.0	8.7	9.7	7.8	7.5	8.5	9.5	4	3.2	<3	<3	<3	<3	10	7
Average:	**4.5**	**10.2**	**11.1**	**13.1**	**9.7**	**10.3**	**10.9**	**11.9**	**7.3**	**6.3**	**3.0**	**4.0**	**4.5**	**9.1**	**10.2**	**7.7**

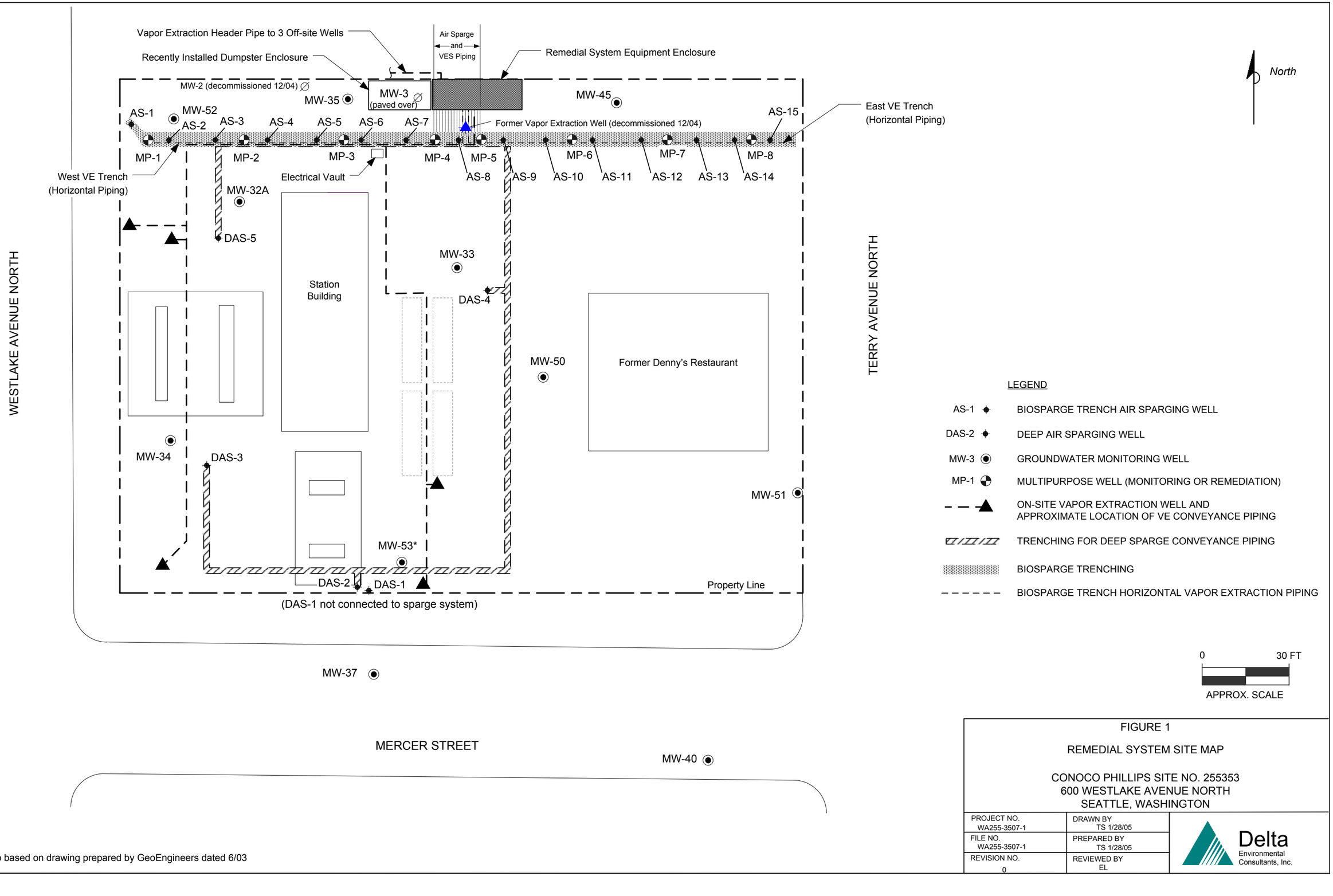
Notes:
psig = pounds per square inch, gauge
SCFM = standard cubic feet per minute

[1] At the request of ConocoPhillips, the remedial system was shut down upon departure of the site on 12/17/04, to be restarted at a later date.

TABLE 3
DEEP AIR SPARGE UNIT OPERATIONAL SUMMARY
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Date	Header Pressure (psig)	DAS-2	DAS-3	DAS-4	DAS-5
01/29/04	NIO	NIO	NIO	NIO	NIO
02/28/04	12	3	5	3.5	<3
03/30/04	NIO	NIO	NIO	NIO	NIO
04/28/04	NIO	NIO	NIO	NIO	NIO
05/27/04	NIO	NIO	NIO	NIO	NIO
06/22/04	NIO	NIO	NIO	NIO	NIO
07/22/04	NIO	NIO	NIO	NIO	NIO
08/16/04	NIO	NIO	NIO	NIO	NIO
09/21/04	NIO	NIO	NIO	NIO	NIO
09/22/04[1]	10.5*	5*	22*	4*	7*
10/28/04	10.5	5	22	4	7
11/22/04	10.5	6	5.5	4	7.5
12/17/04[2]	11	6.5	3.5	4	6.5

Notes:
psig = pounds per square inch, gauge
SCFM = standard cubic feet per minute
NIO = not in operation
* Estimated value
[1] The DAS system was modified and restarted on 9/22/04. DAS pressure and flowrates are estimated based on values recorded during fourth quarter monitoring in October 2004.
[2] At the request of ConocoPhillips, the remedial system was shut down upon departure of the site on 12/17/04, to be restarted at a later date.



Site map based on drawing prepared by GeoEngineers dated 6/03

FIGURE 1

REMEDIAL SYSTEM SITE MAP

CONOCO PHILLIPS SITE NO. 255353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

PROJECT NO. WA255-3507-1	DRAWN BY TS 1/28/05
FILE NO. WA255-3507-1	PREPARED BY TS 1/28/05
REVISION NO. 0	REVIEWED BY EL

Delta Environmental Consultants, Inc.