

RM&R Document Attributes

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Sub Type I/Document Type: Retention Schedule:

	Remediation Superfund Project Files – ACT +30
	Remediation Legal Claims & Litigation Project Files –ACT + 4
X	Remediation Site Project Files -- ACT +10
	Remediation Active Refinery Project Files – ACT +10

State: WA City: Seattle
 4-Digit Project No.: _____ or Other Identifier: 255353

Sub Type II/Document Group: Naming Scheme:

	Agreements	Date + Sub Type III + Parties Involved + Subject
	Financial	Date + Sub Type III + Company Preparing Document + Descriptive Work Title (Subject)
	Correspondence	Date + Company Preparing Document + Company Receiving Document + Subject
	Permits	Date + Permitting Agency + Subject
X	Reports	Date + Sub Type III + Company Preparing Report + Title on Report
	Attorney-Client Privilege	Date + Sub Type II (ACP) + Parties + Subject/Title (Communication between attorney and client)
	Confidential	Date + Sub Type II + Parties + Subject/Title (Business or legal reason to restrict access)

Note: + indicates a space between words (ex: 19991118 Access Smith ConocoPhillips Monitoring)

Sub Type III/Document Class: (Abbreviations optional)

Agreements		Access &/or License	
		Settlement	Stmnt
		Court Order	Ct Ord
		Regulatory Order, Consent Order*	Reg Ord, Consent Ord
		Real Estate	RE
		Remediation & Indemnification	RI
		Participation /Allocation	Partic, Alloc
Financial		Financial Authorization – AFE, Budget Allocation, Accruals*	Bud Alloc
		Proposals-Cost Estimates-Work Orders*	Prop, SOW, WO
		Reimbursement – Applications, Regulatory Reimbursement Correspondence*	App, Reg Rmb Corres
		Miscellaneous Other – PRP Financial Documents, Exceptional Invoices** (i.e. Cash Calls, Fees for Permits, etc.), Monthly Financial Statements*	PRP Fin Doc, Excep Inv, Mntly Fin Stmt
Reports		Monitoring	Mntrg
		Assessment / Investigation	Assess
		Other	
		Maps / Drawing / Photos	Map, Drawing, Photo
	X	Remediation (CAP, System Design, Free Product Recovery - FPR, O&M, Work Plans, etc.)	Remed

*Circle one to be included in the document name as Sub Type III

** Regular Invoices for site work performed are not scanned

Document Author: Company or Agency name Delta Environmental Consultants, Inc.

Document Recipient: Company or Agency name ConocoPhillips

Subject: or Re: line: Remediation System Status Report

Document Date: 20040712

(yyyymmdd ex: 19990214 no spaces in between)

Return to Site Manager?

YES NO

Color Scan? YES NO

(Circle one answer for each question)



CONOCOPHILLIPS COMPANY
REMEDIATION SYSTEM STATUS REPORT

July 12, 2004

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 [First - 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 capture sparge vapors from three capture trenches.

WORK PROPOSED FOR NEXT QUARTER [Second - 2004]

- Continue monthly O&M of the remediation system.

VE SUMMARY

Extraction Equipment:	<u>Rotron EN6F5L VE blower</u>
Offgas Treatment Equipment:	<u>H2Oil 55-gallon moisture separator;</u> <u>Two 1,800-pound activated carbon units</u>
Permits for Discharge:	<u>PSCAA No. 4397 (air)</u> (NPDES, POTW, etc.)
Start-up Date:	<u>8/20/03</u>
Reporting Period:	<u>01/01/04 - 3/31/04</u>
Days in Operation During Period:	<u>91</u> (days)
Total Days in Operation Since Start-Up:	<u>213</u> (days)
Percent Operating Time During Period:	<u>100%</u> (%)
System Alarms and Shutdowns:	<u>None</u>
Trenches Extracted During Period:	<u>VE-01, VE-02, VE-03</u>
Average Influent Vacuum:	<u>3</u> (inches H2O)
Average Vapor Influent Flow Rate:	<u>218 (estimated based on blower curve)</u> (SCFM)
Maximum Vapor Influent Concentration for Period (PID):	<u>2.7</u> (ppmv)
Maximum Vapor Effluent Concentration for Period (PID):	<u>0</u> (ppmv)
Total Hydrocarbon Removal for Period:	<u>15.2</u> (lbs)
Cumulative Hydrocarbon Removal to Date:	<u>632.1 (since 8/20/03 startup)</u> (lbs)
Analytical Results of TPH Concentration in Offgas Emission Sample:	<u>Not Sampled</u> (ppmv)



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AS SUMMARY

Sparging Equipment: Sutortbilt air sparge blower
Start-up Date: 8/20/03
Reporting Period: 01/01/04 - 3/31/04
Days in Operation During Period: 91 (days)
Total Days in Operation Since Start-Up: 213 (days)
Percent Operating Time During Period: 100% (%)
Number of Wells On-line: 15 AS Wells (AS-1 through AS-15)
Average System Injection Pressure: 4.7 (psig)
Average System Flow Rate: 9.3 (SCFM)

DAS SUMMARY

Sparging Equipment: Four (4) GAST Compressors
Start-up Date: 8/20/03
Reporting Period: 01/01/04 - 3/31/04
Days in Operation During Period: 25 (estimated) (days)
Total Days in Operation Since Start-Up: 199 (estimated) (days)
Percent Operating Time During Period: 27% (%)
Number of Wells On-line: 4 DAS Wells (DAS-2 through DAS-5)
Average System Injection Pressure: 12 (when operating) (psig)
Average System Flow Rate: 3.6 (when operating) (SCFM)



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DISCUSSION

Transfer of Remedial Activities

GeoEngineers, Inc. operated the remediation system from startup in August 2003 until January 2004. Operation and maintenance of the system was transferred to Delta Environmental Consultants, Inc. in January 2004.

System Operation and Maintenance

Delta conducted three site visits on January 29, February 28, and March 30, 2004 to perform operation and maintenance (O&M) of the remediation system during the first quarter of 2004. The air-sparge (AS) and vapor extraction (VE) units operated continuously over the reporting period. Operation of the deep air sparge (DAS) unit was limited to a brief period of approximately 25 days in late February and early March. Operation of the DAS unit was limited due to separate times of mechanical failure of the deep sparge compressors. The DAS unit was shutdown on March 30, 2004 and replacement of the DAS compressors is being pursued.

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.

Hydrocarbon Removal and Vapor Emissions

During this reporting period, the VE unit effectively removed hydrocarbons from the site at an average rate of 0.14 pounds per day (15.2 pounds over the first quarter of 2004). An estimated total of 632 pounds of hydrocarbons have been removed from the subsurface by vapor extraction since startup of the 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.



**CONOCOPHILLIPS COMPANY
REMEDICATION SYSTEM STATUS REPORT**

July 12, 2004

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

LIMITATIONS

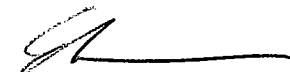
The services described in this report were performed in accordance with generally accepted professional consulting principles and practices. No other warranty, either express or implied, is made. These services were performed in accordance with terms established with our client. This report is solely 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.


Eric Buckle
Project Engineer


Eric Larsen, L.H.G.
Senior Geologist

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

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	218	1.2	0.0	0.0	4.7
02/28/04	30	32,432	3	218	1.2	0.0	0.0	3.1
03/30/04	31	35,592	3	218	2.7	0.2	0.0	7.3
Total To Date	213 ⁷							632.1 ⁸
Total for 1st Qtr 2004	106							15.2

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).

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 8/20/04 through 12/15/03.

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
Average:	4.7	11.0	12.0	13.3	10.7	11.3	12.0	13.3	8.0	8.0	3.0	3.3	3.7	10.3	11.7	8.3
Notes: psig = pounds per square inch, gauge SCFM = standard cubic feet per minute																

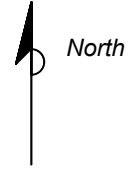
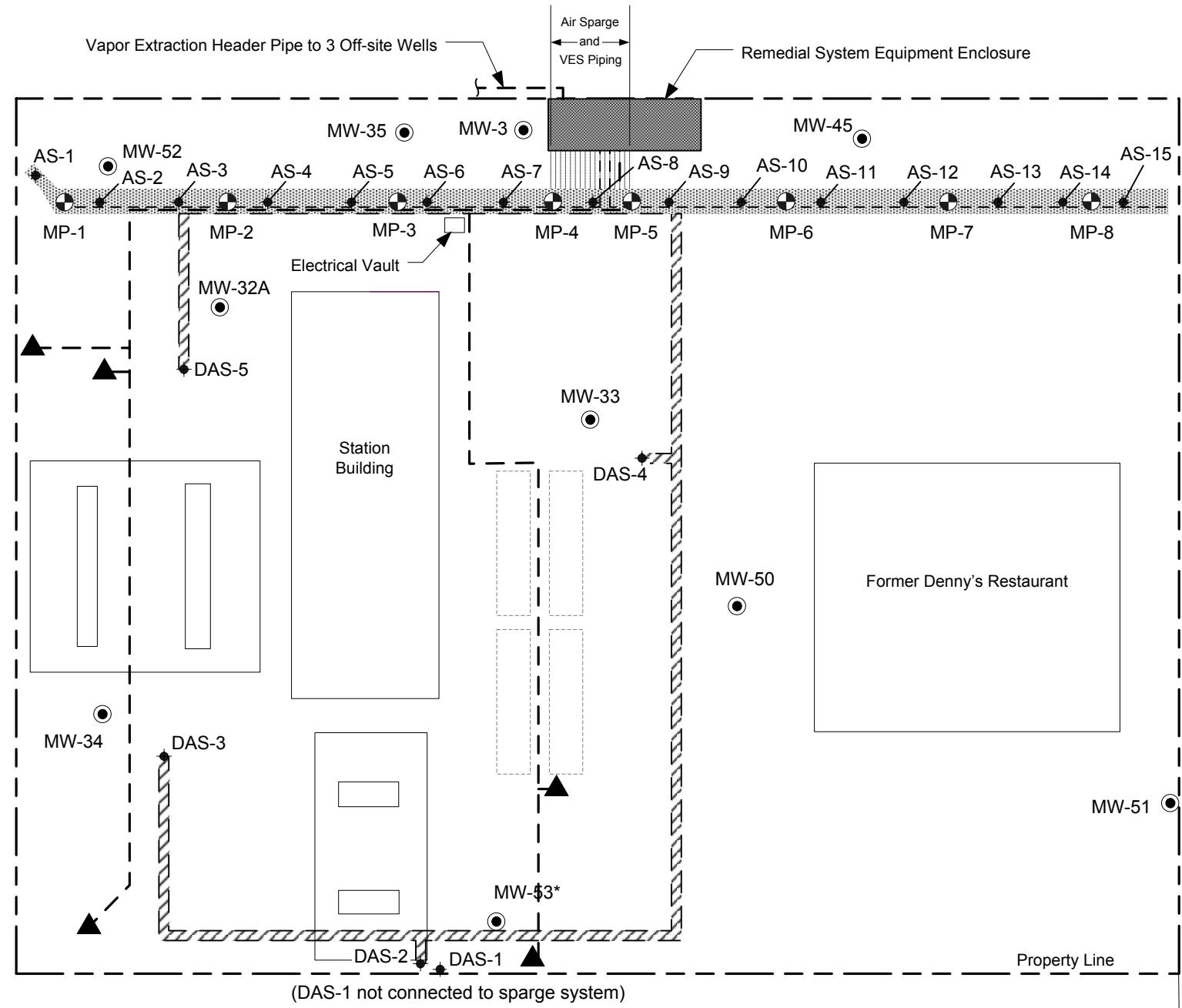
**TABLE 3
DEEP AIR SPARGE UNIT OPERATIONAL SUMMARY**

ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Date	Header Pressure (psig)	Air Flowrates per Air Sparge Point (SCFM)				
		DAS-1	DAS-2	DAS-3	DAS-4	DAS-5
1/29/2004	NIO	NIO	NIO	NIO	NIO	NIO
2/28/2004	12	NIO	3	5	3.5	<3
3/30/2004	NIO	NIO	NIO	NIO	NIO	NIO
Notes: psig = pounds per square inch, gauge SCFM = standard cubic feet per minute NIO = not in operation						

WESTLAKE AVENUE NORTH

TERRY AVENUE NORTH



LEGEND

- AS-1 ◆ BIOSPARGE TRENCH AIR SPARGING WELL
- DAS-2 ◆ DEEP AIR SPARGING WELL
- MW-3 ● GROUNDWATER MONITORING WELL
- MP-1 ● MULTIPURPOSE WELL (MONITORING OR REMEDIATION)
- - ▲ VAPOR EXTRACTION WELL AND APPROXIMATE LOCATION OF VE CONVEYANCE PIPING
- ▨ TRENCHING FOR DEEP SPARGE CONVEYANCE PIPING
- ▤ BIOSPARGE TRENCHING
- - - BIOSPARGE TRENCH HORIZONTAL VAPOR EXTRACTION PIPING

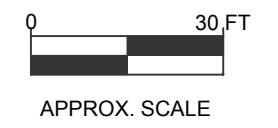



FIGURE 1
REMEDIATION SYSTEM SITE MAP
 CONOCO PHILLIPS SITE NO. 255353
 600 WESTLAKE AVENUE NORTH
 SEATTLE, WASHINGTON

PROJECT NO. WA25-535-2	DRAWN BY TS 6/25/04
FILE NO. WA25-535-2	PREPARED BY TS 6/25/04
REVISION NO. 0	REVIEWED BY EL



Delta
Environmental
Consultants, Inc.

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