



June 15, 2005

G-Logics File Number 01-0109-D

Mr. Michael Sibley II

U.S. Environmental Protection Agency Region 10, Emergency Response Unit

1200 6th Avenue, ECL-115-MS

Seattle, WA 98101

Subject: Progress Memo, June 15, 2005
Completed Removal Actions/May & June 2005 Work
Administrative Order on Consent, Docket No. CWA-10-2004-0039
Japanese Auto Wrecking Site on BB5 & BB7 Property
Kent, Washington

Dear Mr. Sibley:

In accordance with the authorized Administrative Order on Consent, please find our progress memo for tasks completed for the period between May 16, 2004 and June 15, 2005. Updated schedules also are attached to this letter.

Enhanced Fluid Recovery Testing Results

The enhanced fluid recovery test was conducted on May 11, 2005, but laboratory analysis data and additional findings were not presented in the May 15, 2005 Progress Memo as the laboratory results were not received by that time. The following data was collected during this testing.

Air sample analytical results, reported by Northcreek Analytical Laboratory follow.

Date/Sample Name	Matrix	PPMV(1)		mg/kg3	
		Benzene	Gasoline	Benzene	Gasoline
May 11, 2005					
EX1A-5-11-05	Air	9.76	627	31.7	2,660

G-Logics, Inc.

175 First Place NW, Suite A

Issaquah, WA 98027

T: 425-391-6874

F: 425-313-3074

01-0109-E-June 2005 Progress Memo.Doc

Date/Sample Name	Matrix	PPMV(1)		mg/kg3	
		Benzene	Gasoline	Benzene	Gasoline
May 11, 2005					
X1B-5-11-05	Air	10.9	360	35.4	1,530
EX2A-5-11-05	Air	9.52	79.5	30.9	337
EX2B-5-11-05	Air	0.986	13.4	3.2	57.0

⁽¹⁾PSCAA uses parts per million by volume (PPMV) to identify allowed air emission concentrations. Northcreek provided air sample results in PPMV and mg/m3. EX1 and EX2 designate which extraction well; 'A' indicates that the sample occurred prior to the applied vacuum, while 'B' indicates the sample occurred after the applied vacuum.

Water sample analytical results, reported by Northcreek Analytical Laboratory follow.

Date/Sample Name	Matrix	ug/L	
		Benzene	Gasoline
May 11, 2005⁰			
Tank-5-11-05	Water	692	10,200

The groundwater sample was collected from the water contained in the vacuum truck tank. Northcreek provided the groundwater sample result for gasoline and BTEX in micrograms per liter (ug/L).

During this testing, groundwater elevations were generally observed to fall between 2 and 4 tenths of an inch, across the monitored area. Based on the laboratory results, 0.425 pounds of hydrocarbons were removed in the five-thousand gallons of groundwater transported off-site, and 25.1 pounds were combusted in the extracted vapors.

Early-action VES Status

For the radius of influence (ROI) testing, conducted in early May, the Early-action Vapor Extraction System (VES) was switched off. However, after the ROI testing was completed, the early-action VES was restarted for 8 hours with all valves open in order to collect air samples from EW-1 through EW-5 and from the Exhaust Stack. Samples were collected to better understand whether or not the completed tests had an affect on the soil vapor concentrations in the early-action VES area. As recent samples from the early-action VES were collected with the air-bypass valve open to varying degrees, and only collected from the Exhaust Stack, the analytical results from January 2005 are included for comparison purposes (as these samples were similarly collected—valves open and air-bypass valve closed). Representative results are presented on the following page.

Air sample analytical results, reported by Northcreek Analytical Laboratory follow.

Date/Sample Location	PPMV ⁽¹⁾		Flow Rate (cfm)	Calculated lbs per day*	
	Benzene	Gasoline		Benzene	Gasoline
January 13, 2005⁽²⁾					
Exhaust Stack					
Sample C	32.2	1030.0	139.16	1.25	52.16
Sample D (Dup)	30.0	988.0	139.16	1.17	50.24
May 24, 2005					
EW-1	1.83	271	24.2	0.01	2.40
EW-2	0.48	107	15.95	0.0	0.62
EW-3	64.70	2020	13.97	0.25	10.32
EW-4	3.78	285	27.94	0.03	2.91
EW-5	0.10	4.11	33.0	0.0	0.05
Exhaust Stack	8.02	458.0	122.5	0.27	20.48

⁽¹⁾PSCAA uses parts per million by volume (PPMV) to identify allowed emission concentrations. Northcreek provided sample results in PPMV and mg/m³. ⁽²⁾Sample D is a blind duplicate of Sample C.

The May 2005 air sample analytical results indicated that emission concentrations were over the Puget Sound Clean Air Agency (PSCAA) requirements. However, the May 2005 air sample analytical results to show a decrease in emission concentrations since January 2005.

Planned Vapor Treatment Equipment

Recent analysis of the early-action VES and the results obtained during the enhanced fluid recovery event indicate that the concentrations of volatile hydrocarbons have decreased. At these lower concentrations, coupled with the limited available electrical power at the site, G-Logics has eliminated the catalytic oxidizer as a viable treatment technology for the extracted vapors. Instead, the recovered soil vapors will be passed through activated carbon. Initially, four, 2,000-pound carbon units will be utilized, with three placed parallel at the front position, then connected to one unit in the polish position. Air samples will be collected for analysis monthly, from the air stream prior to the treatment units, between the front and polish units, and after the air has passed through the polish unit (exhaust). Monitoring for breakthrough (or exceeding the absorbent capacity of the carbon) also will be field tested utilizing a portable photo-ionization detector, as required.

The vacuum for the new soil vapor extraction system will be supplied by a Tuthill PD Plus series positive displacement blower. The blower will be powered by a 15 horsepower Siemens motor and will deliver 300 cubic feet of air per minute at a vacuum of 150-inches of water. Noise-reducers, vacuum relief valves, and other parts have been included in the equipment package.

Additional Soil Vapor Extraction Wells

On May 20 and 23, three additional extraction wells were installed (EX-3, EX-4, and EX-5). These additional wells were installed based on the 60-foot vacuum radius of influence results (presented in the May 2005 Progress Memo). These wells were screened similarly to test wells EX-1 and EX-2. See the attached Figure for locations and attached well logs for EX-3 through EX-5.

Air Sparge Point Installation

Pursuant to the work plan submitted on May 26, twenty-six air sparge points were installed, on the BB5 and BB7 properties. Initially, a direct push method was used to install sparge points (A-2, B-1 through B-4, and C-1 through C-3). However, this installation method caused several instances of breakage at the pipe joints to occur. G-Logics decided that the remaining sparge points would be installed using hollow-stem auger drilling methods (10-inch outside diameter hollow-stem auger).

The sparge points were typically completed to depths of approximately 37.5 feet (unless clay was encountered). B-7 and C-1 were installed to a depth of approximately 35 feet and 25 feet, respectively as clay was encountered at a depth of approximately 37 feet in B-7 and 30 feet in C-1. Air sparge point locations and location names are presented on the attached Figure.

Air Sparge Testing Results

Air sparge testing occurred on May 17 – 20, with results indicating influence approximately 20 to 30 feet (based on increased dissolved oxygen readings). The level of dissolved oxygen in GMW-04, located approximately 20-feet away from EX-2, rose from 0.38 mg/L to 0.73 mg/L. Similarly, the level of dissolved oxygen in GMW-03, located approximately 30-feet from EX-2, rose from a baseline of 0.34 mg/L to 0.42, after a period of one day. As such, the installed sparge points (based on a conservative 10-foot radius of influence) are appropriate for this site.

Plume Eater Testing Results

To test the Plume Eater application, air was injected into Plume Eater units temporarily installed within EX-1 and EX-2 at a rated of 1.4 standard cubic feet per minute and at a pressure of 15 pound per square inch. The level of dissolved oxygen in GMW-04, located 18-feet from EX-2, rose from a baseline of 0.24 mg/L to 0.39, after a period of three days. Similarly, the level of dissolved oxygen in GMW-08, located 11 feet away from EX-1, rose from 0.17 mg/L to 0.38 mg/L. These results are consistent with the air sparge radius of influence test results.

Air Sparge Equipment

Air for the completed sparge points will be supplied by an Atlas Copco GX series rotary screw compressor. The compressor was delivered on June 15. The compressor is rated at 20 horsepower, and can continually deliver more than 110 cubic feet of air a minute at a pressure, in excess, of 100 pounds per square inch. Air dryers, auto-drains, coalescing filters, and other parts have been included in the equipment package.

Electrical Service Upgrades

As the planned treatment system requires additional electrical capacity beyond cabling previously installed in October 2004. As such, the existing conduit and lines have been replaced with two-inch, schedule 80 conduit and two 03 and two 04-gauge power cables. In addition, a new service panel was installed. The trench passed the required inspection.

Additionally, only single phase electrical service is available at the site. In order to meet the energy requirements of the remediation equipment, a three-phase power converter is required. A P-Roto Phase power converter is scheduled for delivery the week of June 20.

Piping Layout and Trenching Detail

Air supply piping will consists of $\frac{3}{4}$ -inch, high density polyethylene (HDPE) piping. Similarly, the vapor return lines will consists of 1.5-inch HDPE. Where vehicle traffic typically occurs, the lines will be buried to a depth of approximately 18 inches. All lines will be 'home-run' or have a single line from the distribution manifold (inside the equipment enclosure) to the injection (or extraction) point. The planned layout is presented on the attached Figure.

PSCAA Permit

As of June 14, 2005 the Notice of Construction Permit Number 9158 has been approved by Mr. Kwame Agyei with the Puget Sound Clean Air Agency (PSCAA). A copy of the draft permit is attached to this memo. We understand the permit will be accepted upon review by Mr. Michael Sibley with the EPA and payment to PSCAA.

Schedule

The attached Key Tasks and Planned Schedule and Gant chart have been updated to reflect key tasks and tentative timelines. The remediation system startup date is still projected for the end of June. However, the required carbon canisters may postpone startup if their delivery is delayed.

Closing

Please feel free to contact us if you have questions regarding the completed work, the presented information, or the remaining tasks and schedules.

Sincerely,
G-Logics, Inc.

Rory L. Galloway, LG, LHG
Principle

Lynda Kupfer
Staff Scientist

Michael Harrington, P.E.
Senior Environmental Engineer

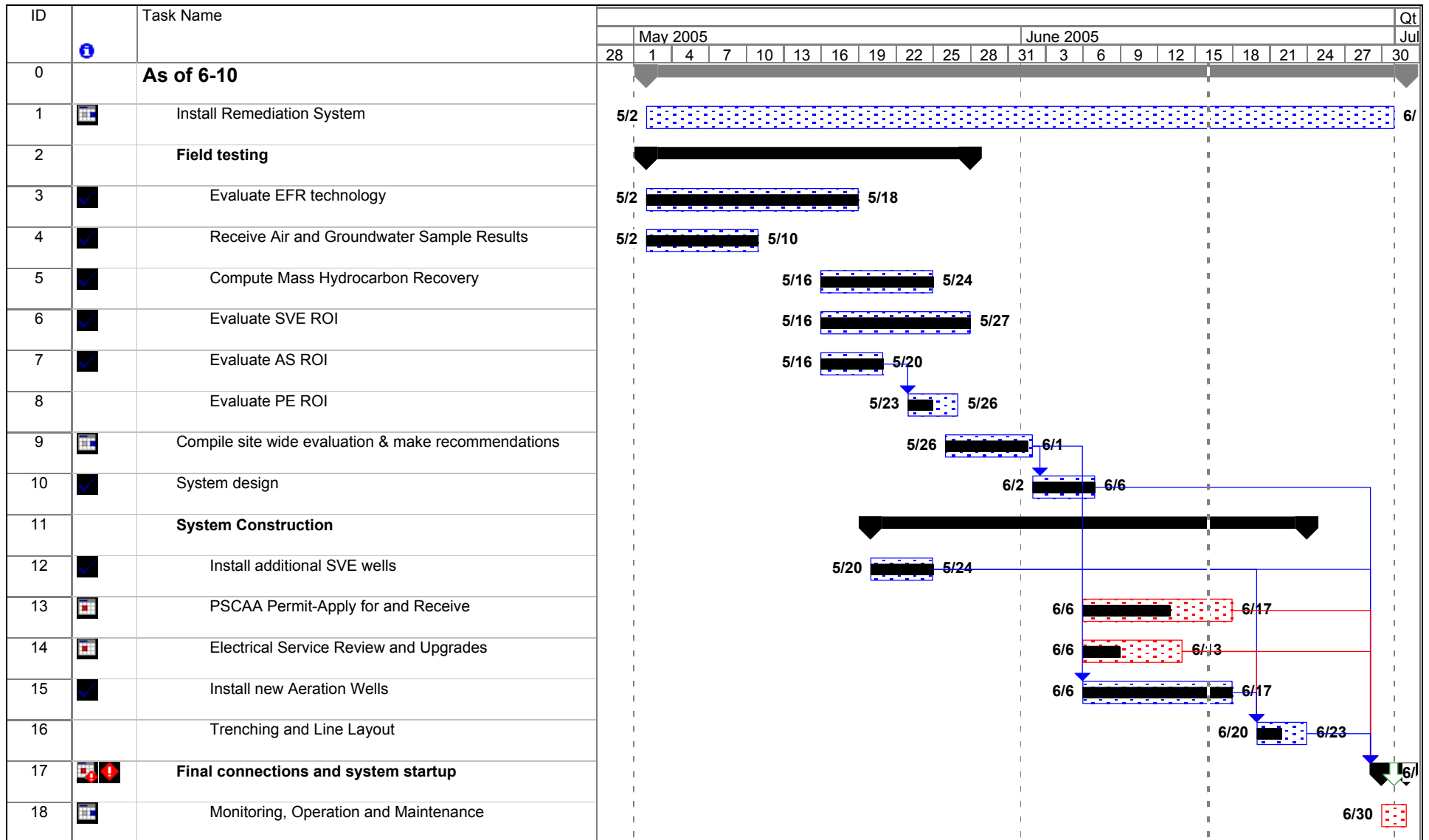
Attachments: Key Tasks and Planned Schedule
Gantt Chart
Boring Logs for EX-3, EX-4, and EX-5
Figure: Planned Treatment System Equipment
Draft PSCAA Permit

cc Mr. Brad Corner
Mr. Alan Tonnon
Mr. John Briggs
Mr. Shawn Blocker

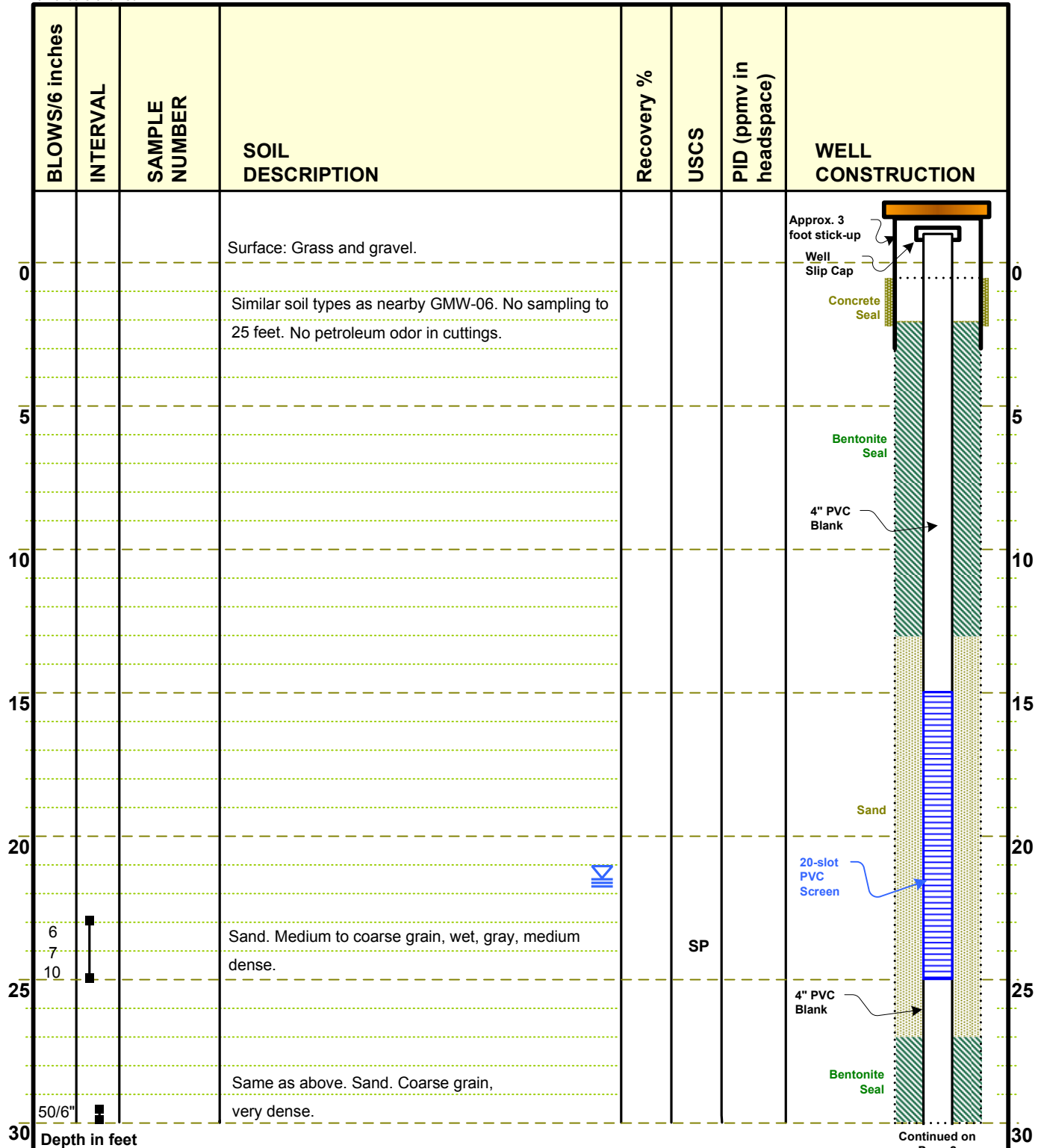
Key Tasks and Planned Schedule

Task Activity	Schedule
E&E Data Corrections, Consolidation, and Organization	Completed
Draft Workplan Preparation	Completed
Health and Safety Plan Preparation	Completed
Utility Locate	Completed
Field Labor, Boring Locations (grid) and Equipment Setup	Completed
G-Logics Field Labor, Drilling	Completed
Strataprobe Driller (soil borings, well materials, labor, and start cards)	Completed
Soil Cuttings Drums	Completed
Mobile Laboratory Soil Analysis	Completed
Early-action VES System Siting Review	Completed
AOC Signed by the EPA	Completed
Revised Draft Workplan Preparation	Completed
Health and Safety Plan Preparation	Completed
EPA Workplan and H/S Plan Comments	Completed
Progress Memo	Not Applicable
Final Workplan Preparation	Completed
Final Health and Safety Plan Preparation	Completed
Early-action VES System Design Submitted to EPA	Completed
G-Logics Field Labor, Well Sampling	Completed
EPA Approval of Early-action VES Design	Completed
Groundwater Elevation Survey Measurements (new and existing wells)	Completed
Groundwater Sample Analyses and Review	Completed
Document Removal/Disposal of 2,500-gallon AST on BB7 Property	Completed
Progress Memo, October 15, 2004	Completed
Early-action VES System Installation, Recovery Well Installation	Completed

Task Activity (continued)	Schedule
Early-action VES Installation, Blower and Piping Installation, Week of	Completed
Draft Site Exploration Report Preparation and Submittal for EPA	Completed
Draft Report, EPA Comments	Completed
Final Report Preparation and EPA Submittal	Completed
Progress Memo, November 15, 2004	Completed
Draft Remedial Option Review Document	Completed
Remedial Options, EPA Comments	Completed
Progress Memo, December 15, 2004	Completed
EPA Meeting, January 5, 2005	Completed
Draft Groundwater Sampling Workplan, February 2005 Work	Completed
G-Logics' Environmental Site Exploration, February 2005 Work	Completed
Progress Memo, February 15, 2005	Completed
G-Logics' Draft Environmental Site Exploration, 2/2005 Work Report	Completed
EPA Informational Meeting with B&B Partnerships (Thurs. 1 pm)	Completed
Draft March 2005 Exploration Workplan	Completed
G-Logics Exploration, March 2005 Work	Completed
G-Logics' Draft Environmental Site Exploration, 3/2005 Work Report	Completed
Present 3/2005 Report Findings and Cleanup Estimates to BB5 & BB7 Partnerships' Members	Completed
Progress Memo, April 15, 2005	Completed
Progress Memo, May 15, 2005	Completed
G-Logics Planned Upcoming Work, dated May 26, 2005	Completed
EPA approval of Planned Upcoming Work	Completed
Progress Memo, June 15, 2005	Completed
Construct Expanded VES, Air-sparge System and Catalytic Oxidizer	June 30, 2005
Submit Technical Memo re Section 4.2 (remediation levels)	TBD
EPA Comments/Approval of Technical Memo	TBD
Final Remedial Option Report	TBD
Final Removal Action Report	TBD



Project: As of 6-10.mpp Date: Thu 6/16/05	Task		Rolled Up Task		External Tasks	
	Critical Task		Rolled Up Critical Task		Project Summary	
	Progress		Rolled Up Milestone		Group By Summary	
	Milestone		Rolled Up Progress		Deadline	
	Summary		Split			



Drilling Method: Hollow-stem Auger

Date: 5-20-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Overcast With Sun Breaks

Boring Diameter: 4 Inches

Page 1 of 2

Logged By: Lynda Kupfer



Well Log
BB5 & BB7 Auto Wrecking Properties
Kent, WA

EX-3

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
30							
8					SP		
13							
14			Sand. Medium to coarse grain, wet, gray, medium dense. No petroleum odor.				
35							
			Sand. Fine to medium grain. Wet, gray, very dense.		SM		
11							
50/6"							
40			EOB at 40'				
45							
50							
55							
60							

Depth in feet

60

Drilling Method: Hollow-stem Auger

Date: 5-20-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Overcast With Sun Breaks

Boring Diameter: 4 Inches

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Logged By: Lynda Kupfer

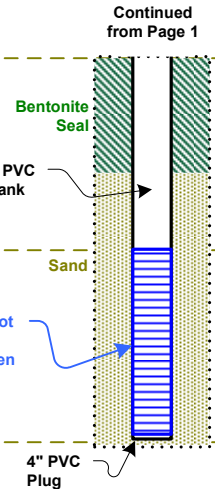


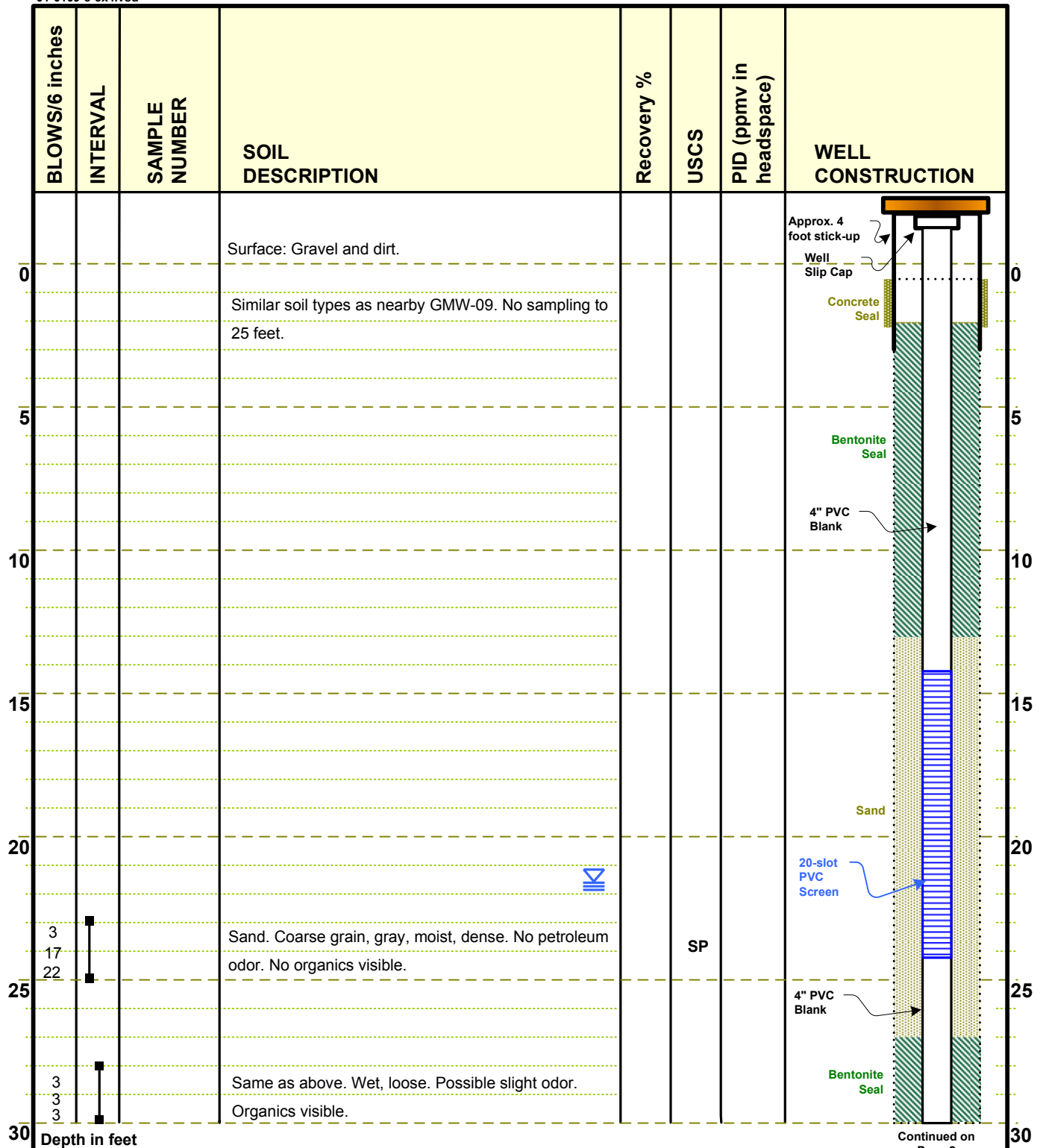
Well Log

BB5 & BB7 Auto Wrecking Properties

Kent, WA

EX-3





Drilling Method: Hollow-stem Auger

Date: 5-20-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Rain, Thunder, Lightning

Boring Diameter: 4 Inches

Page 1 of 2

Logged By: Lynda Kupfer



Well Log
BB5 & BB7 Auto Wrecking Properties
Kent, WA

EX-4

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
30							Continued from Page 1
4	4		Sand. Coarse grain, gray, wet, loose. No petroleum odor. Fewer organics visible.		SP		Bentonite Seal
4	4						4" PVC Blank
5	5						Sand
35							20-slot PVC Screen
4	4		Sand. Fine to medium grain. Wet, dark brown, dense. No odor.		SM		Heaving
15	15						4" PVC Plug
20	20		EOB at 39'				
40							
45							
50							
55							
60							

Depth in feet

Drilling Method: Hollow-stem Auger

Date: 5-20-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Rain, Thunder, Lightning

Boring Diameter: 4 Inches

Page 2 of 2

End of boring at 39' due to heaving. Well construction moved up by one foot.

Logged By: Lynda Kupfer



Well Log

BB5 & BB7 Auto Wrecking Properties

Kent, WA

EX-4

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0			Surface: Soil and roots.				Approx. 3 foot stick-up Well Slip Cap
			Similar soil types as nearby GMW-07, GMW-09, and EX-3. No sampling to 25 feet.				Concrete Seal
			No petroleum odor in cuttings.				Bentonite Seal
5							4" PVC Blank
10							
15							
20							Sand
							20-slot PVC Screen
25	50/6"		Sand. Coarse grain. Gravel. Fine to Coarse grain, wet, gray, dense. No odor.		SP		4" PVC Blank
	6		Same as above.				Bentonite Seal
	7		Approximately 3" of sand. Fine to medium grain.				
	9		Medium dense.				
30							Continued on Page 2

Drilling Method: Hollow-stem Auger

Date: 5-23-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Overcast With Sun Breaks

Boring Diameter: 4 Inches

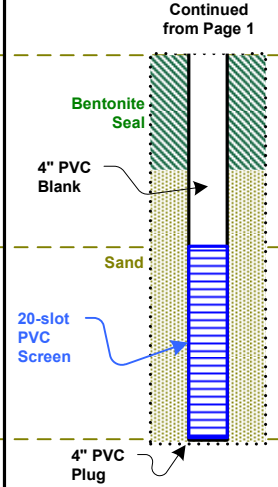
Page 1 of 2

Logged By: Lynda Kupfer



Well Log
BB5 & BB7 Auto Wrecking Properties
Kent, WA

EX-5

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
30							Continued from Page 1 
5 10 14			Sand. Fine to medium grain, moist, gray, medium dense. No petroleum odor.		SP		
35							
5 14 14			Same as above. Wet, clay at 40'.		SM		
40			EOB at 40'				
45							
50							
55							
60							

Depth in feet

Drilling Method: Hollow-stem Auger

Date: 5-23-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Overcast With Sun Breaks

Boring Diameter: 4 Inches

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Logged By: Lynda Kupfer










Well Log

BB5 & BB7 Auto Wrecking Properties

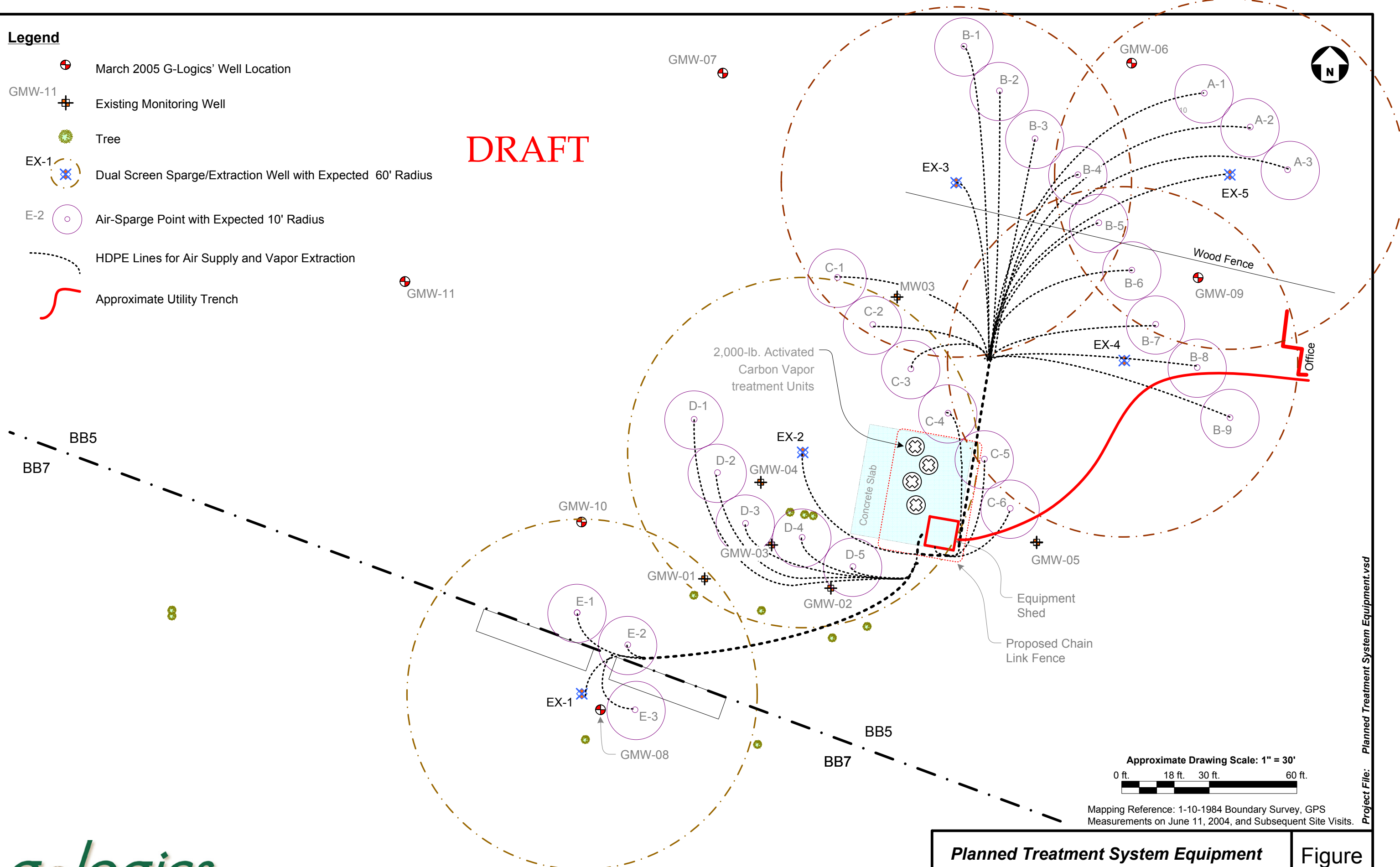
Kent, WA

EX-5

Legend

-  March 2005 G-Logics' Well Location
-  Existing Monitoring Well
-  Tree
-  EX-1 Dual Screen Sparge/Extraction Well with Expected 60' Radius
-  E-2 Air-Sparge Point with Expected 10' Radius
-  HDPE Lines for Air Supply and Vapor Extraction
-  Approximate Utility Trench

DRAFT



Approximate Drawing Scale: 1" = 30'
0 ft. 18 ft. 30 ft. 60 ft.

Mapping Reference: 1-10-1984 Boundary Survey, GPS Measurements on June 11, 2004, and Subsequent Site Visits.



Important Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

Binford's Fluid Removal Canopy

Planned Treatment System Equipment
BB5 & BB7 Partnerships - Auto Wrecking Property
Kent, Washington

Figure

Project File: Planned Treatment System Equipment.vsd



Puget Sound Clean Air Agency

Notice of Construction Worksheet

NOC Number: 9158	Reg. No. 21360	Source Name: BB5 & BB7 Partnership
Received Fee: 1/18/05	Due Date: 2/18/05	Source Location West of 78th Ave S and North of S 262nd Street Kent, WA 98032
Engineer K. Agyei	Inspector R. Pogers	Compliance Issues: Yes, EPA is involved

A. Project Description

Soil & groundwater remediation by Soil Vapor Extraction of vapors routed through a two-stage carbon adsorber system to a stack by a blower.

B. Fee

Paid \$750 1/18/05

Name of Source: BB5 and BB7 Partnership
Address of Source: West of 78th Ave S and North of 262nd St S, Kent, WA 98032
Registered Number: 21360
NOC Number: 9158
SEPA Review Fee \$500
Equipment Fee: \$500

Nailah: Please invoice for \$1000. Invoiced \$1,000 1/26/05

C. SEPA Review

If Puget Sound Clean Air Agency is the Lead Agency, who was contacted at the King County: Lisa Dinsmore (206 296 7171; lisa.dinsmore@metrokc.gov)
US EPA: Michael Sibley of EPA (206 553 1886, sibley.michael@epa.gov)

**PUGET SOUND CLEAN AIR AGENCY
NOC WORKSHEET
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Comments:

Lisa defers to PSCAA. If the Agency approves it, they have no other comments since the project does not require any county permits.

Rory (the consultant), the owner, and Michael Sibley (EPA) are still discussing a newly-found contaminated area. People dumped fuel wastes and gasoline on the property. They might expand the project. Rory will get back to me when things firm up more.

June 10, 2005

The project did expand to include control equipment. Initially they wanted to discharge uncontrolled. Mike Harrington is now the consultant project manager. The humming noise the blower for the project will generate should not be a concern for the location. It is a rural location with no residences nearby.

I sent revised worksheet to Lisa Dinsmore. She still had no comments.

D. Basic Equipment (BE)/Control Equipment (CE) Codes

Vapor Extraction System:	BE Code 1098
Control Equipment (Carbon Adsorbers)	CE Code 552

Project routes emissions through two-stage carbon adsorber system with 1, 2, or 3 parallel 2000-lb carbon drums in the first stage feeding a single lagging 2000-lb carbon drum.

E. Emission Estimate

1. *ACTUAL emissions (Worst Case)*

(Inlet 300 scfm, 210 mg/m³ Benzene, 8570 mg/m³ TPH (gasoline range), 0.1% daily decay, 95 % RE)

(a) Benzene: 6 kg in 1st yr, 13 kg for project life

(b) TPH (gasoline range): 157 kg in 1st yr, 315 kg for project life

2. *POTENTIAL to emit (Allowed Conditions)*

(@ Outlet 300 scfm; 1 ppmv Benzene, 50 ppmv TPH, no decay)

(a) Benzene: 15 kg in 1st yr, 58 kg for four-year project life

(b) TPH (gasoline range): 946 kg in 1st yr, 3795 kg for four-year project life

Anecdotal evidence suggests occupant spilled about 500 gallons gasoline on the land. If the project removes all the 500 gal gasoline the dumpers supposedly spilled, and vents uncontrolled, it would emit 1480 kg TPH (gasoline range).

**PUGET SOUND CLEAN AIR AGENCY
NOC WORKSHEET
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3. Facility wide Emissions

- A.) **REPORTING SOURCE:** NO
B.) **SYNTHETIC MINOR:** NO
C.) **OPERATING PERMIT:** NO

F. Applicable Regulations

1. PUGET SOUND CLEAN AIR AGENCY

Regulation I Section 6.03(c)(94): Water Clean-up (Soil & Groundwater Remediation)

2. State

WAC 173-460-080(e): Small Quantity Emissions Rates (SQER)

G. Technology Review RACT

1. **GENERIC BACT** NO
2. **Case-By-Case BACT:** Two-stage carbon drum system

H. Ambient Impact Analysis

Benzene is the pollutant of concern.

Benzene Emission Rates do not exceed 20-lb SQER limit for benzene.

Project emits 13 lb Benzene in the first year. If project emits all expected 28-lb benzene lifetime emissions in one year, the impact level would be 0.108 ug benzene/m³ (annual). Benzene's ASIL is 0.120 ug/m³ (annual).

Screening Analysis

Applicant screened emissions. I (Kwame) reviewed it and found it satisfactory.

Emission rate applicant used for TSCREEN:	6.4 mg benzene/sec
Resultant annual average concentration (applicant):	1.69 ug/m ³
Maximum potential emission rate for project (Kwame):	0.5 mg benzene/sec
Maximum potential annual average concentration for project:	0.121 ug/m ³
Maximum actual emission rate for project (Kwame):	12.8 kg/yr
Maximum potential emission rate for project (Kwame):	14.5 kg/yr
Maximum actual annual average concentration:	0.108 ug/m ³
Acceptable ASIL for Benzene:	0.120 ug/m ³ (annual)

PUGET SOUND CLEAN AIR AGENCY
NOC WORKSHEET
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I. Public Notice Requirement

Project does not require public notice because emissions rates do not cause ASIL exceedance. Emission rates do not even reach SQER levels.

J. Operating Permit or PSD

Not Applicable

K. Recommended Approval Conditions

(3) BB5 & BB7 Partnership (Partnership) shall route all emissions from the Soil Vapor Extraction System (SVES) through the two-stage carbon adsorber system before emitting it through the stack. The flow rate entering the lagging carbon adsorber in the two-stage carbon adsorber system and the stack shall not exceed 300 scfm. Partnership shall monitor and record the flow rate monthly.

(4) Partnership shall monitor monthly the concentration of Benzene and Total Gasoline Range Petroleum Hydrocarbons (TPH) in the vapor entering the leading carbon adsorber(s) in the two-stage carbon adsorber system by collecting samples and performing lab analysis. Partnership shall monitor monthly the concentration of Benzene and Total Gasoline Range Petroleum Hydrocarbons (TPH) in the vapor entering the lagging carbon adsorber in the two-stage carbon adsorber system by collecting samples and performing lab analysis. The concentration of Benzene in the vapor entering the lagging carbon adsorber in the two-stage carbon adsorber system shall not exceed 1 ppmv. The concentration of TPH in the vapor entering the lagging carbon adsorber in the two-stage carbon adsorber system shall not exceed 50 ppmv.

(5) Partnership may remove the two-stage carbon adsorber system if the concentration of Benzene in the vapor entering the leading carbon adsorber(s) in the two-stage carbon adsorber system is below 1 ppmv for three consecutive monitoring AND the concentration of TPH in the vapor entering the leading carbon adsorber(s) in the two-stage carbon adsorber system is below 50 ppmv for three consecutive monitoring, provided Partnership continues to monitor the concentrations of Benzene and TPH in the vapor entering the stack. If one monitoring indicates that the concentration of Benzene in the vapor entering the stack exceeds 1 ppmv OR the concentration of TPH in the vapor entering the stack exceeds 50 ppmv, Partnership shall re-install the two-stage carbon adsorber system.

(5) Partnership shall keep records of the flow rates, calibration records of the flow rate meter, and concentrations of benzene and TPH in the vapor entering the leading carbon adsorber(s) and lagging carbon adsorber in the two-stage carbon adsorber system. Partnership shall make the records available to personnel of the Puget Sound Clean Air Agency personnel on request.

PUGET SOUND CLEAN AIR AGENCY
NOC WORKSHEET
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(6) The duration of the project shall not exceed four years from the date of this Order.

L. Recommendation for Legal Review

None

M. Other Comments: Draft Estimates of Emissions

Description	Benzene	TPH(g)	Comments
Actual Emissions (Worst Case)			
Max mg/m3 in influent vapor	210	8570	Lab Analysis
m3/min of vapor entering stack	8.5	8.5	Permit Condition
Max influent pollutant (kg/day)	2.6	104.8	
Max influent pollutant (kg/life)	256.9	10484.7	1% daily decay
Max effluent pollutant (kg/life)	12.8	314.5	95% DRE
Potential Emissions (As Permitted)			
ppmv in effluent vapor	1	50	Permit Condition
mg/m3 in effluent vapor	3.2	212.1	Conversion of ppmv
m3/min of vapor entering stack	8.5	8.5	Permit Condition
Max effluent pollutant (kg/yr)	14.5	947.3	No decay assumed

Screening Analysis

Applicant screened emissions. I (Kwame) reviewed it and found it satisfactory.

Emission rate applicant used for TSCREEN:	6.4 mg benzene/sec
Resultant annual average concentration (applicant):	1.69 ug/m3
Maximum potential emission rate for project (Kwame):	0.5 mg benzene/sec
Maximum potential annual average concentration for project:	0.121 ug/m3
Maximum actual emission rate for project (Kwame):	12.8 kg/yr
Maximum potential emission rate for project (Kwame):	14.5 kg/yr
Maximum actual annual average concentration:	0.108 ug/m3
Acceptable ASIL for Benzene:	0.120 ug/m3 (annual)

The worst case scenarios I assumed still passes the ASIL. Reality stays below SQERs.

PUGET SOUND CLEAN AIR AGENCY
NOC WORKSHEET
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Has the source seen this:		Date:	
Done By:	Kwame Agyei	Date:	6/10/05
Inspector Review:		Date:	
Reviewed by: Supervising Engineer		Date:	