T-1726-92

First Quarter 1998 Operation and Maintenance Summary and Groundwater Sample Results Biovent System, Nikkei manor Seattle, Washington

1996
TCP-700 Block 6th Ave
EAST-WEST INVEST. FILE

April 1998

Johannessen & Associates, P.S.
P.O. Box 70605
Seattle, Washington 98121

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
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SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

SEATTLE
HANFORD
FAIRBANKS
ANCHORAGE
SAINT LOUIS
BOSTON

April 28, 1998

Ms. Kim Maree Johannessen, Esq.
Johannessen & Associates, P.S.
P.O. Box 70605
Seattle, Washington 98121

RE: OPERATION AND MAINTENANCE SUMMARY AND APRIL 1998 GROUNDWATER SAMPLE RESULTS FOR BIOVENT SYSTEM, NIKKEI MANOR - ASSISTED LIVING FACILITY, SEATTLE, WASHINGTON

Dear Ms. Johannessen:

On January 9, 1998, Shannon & Wilson started biovent system operation at the referenced property (Figure 1). We performed weekly operation and maintenance (O&M) inspections at the site for the first four weeks of system operation and are currently performing monthly O&M visits. We have performed these tasks in accordance with the scope of services set forth in the Shannon & Wilson, Inc., letter dated July 10, 1997, and the clarification letter from Nikkei Concerns, Inc./East-West Investment dated September 29, 1997. Shannon & Wilson performed a round of groundwater sampling in April 1998. The results of the O&M checks and the sampling event are discussed in the following paragraphs.

OPERATIONS AND MAINTENANCE SUMMARY

In conformance with verbal instructions from Mr. Mike Staton of EMCON, the biovent system has been operating 24 hours a day, 6 days on and 1 day off, since January 9, 1998. O&M was performed on January 15, January 23, January 30, February 3, February 11, February 19, and March 20, 1998. During these O&M visits, we recorded system pressures, temperatures and flow rates, and attempted to equalize the flow of air to each vent well (V-1 through V-7). In addition, we performed a screening of the Assisted Living Facility with a photoionization detector (PID) to detect volatile hydrocarbon infiltration into the building. The results of the PID screening during each visit were negative. The O&M system checklist sheet for each visit is included in Appendix A.

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SEATTLE, WASHINGTON 98103
206 • 632 • 8020 FAX 206 • 633 • 6777

GROUNDWATER MONITORING RESULTS

On April 8, 1998, Shannon & Wilson performed groundwater monitoring at the site. Monitoring wells MW-2, MW-3, MW-4, MW-5 and MW-6 were sampled during this event. The samples were sent to Onsite Environmental, Inc. for analysis of gasoline-range hydrocarbons using method Washington Total Petroleum Hydrocarbons as Gasoline (WTPH-G) with benzene, toluene, ethylbenzene, and xylenes (BTEX) distinction, in conformance with our scope of services agreement. The analytical results are summarized in Table 1. The laboratory analytical reports are also included in Appendix B.

Gasoline-range hydrocarbon and BTEX concentrations in MW-5 increased markedly from previous sampling events, exceeding the Washington Model Toxics Control Act (MTCA) Method A residential cleanup criteria. In particular, benzene concentrations in MW-5 increased more than seven times from previous benzene concentrations measured in March 1997. Gasoline-range hydrocarbons and BTEX concentrations in MW-2 and MW-6 decreased from previous sampling events; however, the gasoline-range hydrocarbons and BTEX concentrations remain above the MTCA Method A residential cleanup criteria. No contaminants were detected in MW-3, and all gasoline-range hydrocarbon and BTEX concentrations were below method reporting limits (MRLs). Contaminant concentrations in MW-4 were virtually unchanged from previous sampling events, and both gasoline-range hydrocarbon and BTEX constituents were below MTCA Method A cleanup criteria. In summary, contaminant concentrations in MW-2, MW-5, and MW-6 remain above MTCA Method A cleanup criteria.

We believe the increase in contaminant concentrations in MW-5 was caused by air leakage at MW-5, which resulted in short-circuiting of the biovent system. During our first two O&M visits, we noted air leakage around the well casing and bubbles of air around the seal of the MW-5 monument. This short-circuiting of the biovent system probably created a preferential pathway for the air in the subsurface, causing migration of contaminants to MW-5. This is further corroborated by the dramatic increase of volatile BTEX constituents in MW-5. The air leakage resulted from damage sustained by MW-5 during site construction activities performed by Marpac Construction, Inc. We have detailed this damage to MW-5 in our letter dated April 8, 1998.

On February 2, 1998, Shannon & Wilson sent a technician out to the site to seal the casing within the well monument and install a locking well cap on MW-5. Since then, we have not noted any leakage or bubbling that would indicate short-circuiting to MW-5.

CONCLUSIONS

Gasoline-range hydrocarbon and BTEX concentrations in MW-2, MW-5, and MW-6 remain above MTCA Method A cleanup criteria. However, there was a marked decrease in gasoline-range hydrocarbon and BTEX concentrations in MW-2 and MW-6 when compared with previous sampling events. Although encouraging, it is unclear whether this contaminant concentration decrease in MW-2 and MW-6 is the result of bioventing or an artifact of the short-circuiting to MW-5. The July 1998 groundwater monitoring event should provide a better indication of the biovent treatment effectiveness, now that MW-5 has been repaired.

LIMITATIONS

The data presented in this report are based on limited research at the facility and should be considered representative at the time of our observations. Changes in the conditions of the property can occur with time from both natural processes and human activities. In addition, changes in governmental codes, regulations, or law may occur. Because of such changes beyond our control, our observations and recommendations applicable to this facility may need to be revised wholly or in part.

This report was prepared for the exclusive use of the Nikkei Concerns and their representatives. It in no way guarantees that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. We have prepared the attached "Important Information About Your Environmental Report" to assist you and others in understanding the use and limitations of our reports.

We will continue to monitor the biovent system closely and provide regular updates. If you have any questions regarding this information, please call Scott Gaulke at (206) 633-6893.

Sincerely,

SHANNON & WILSON, INC.

David Laughlin
Environmental Engineer

Scott Gaulke
Senior Principal Hydrogeologist

DKL:SWG/dkl

Enclosures: Table 1 - Groundwater Sample Results
Figure 1 - Site and Exploration Plan
Appendix A – O&M System Checklists
Appendix B – Analytical Laboratory Reports
Appendix C – Important Information About Your Environmental Report

GROUNDWATER SAMPLE RESULTS
NIKKEI MANOR - ASSISTED LIVING FACILITY
SEATTLE, WASHINGTON

Sample Location	Sample Number	Date Sampled	Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	DTW[c] (feet)	GW Elev.[d] (feet)
MW-1	172601	1/3/97	< 100	< 1	< 1	< 1	< 1	17.34	21.67
	172605	1/20/97	< 100	< 1	< 1	< 1	< 1	18.51	20.5
MW-2	172602	1/3/97	**3,300**	**11**	19	**87**	**117**	18.88	19.6
	172606	1/20/97	**2,600**	**15**	15	**34**	**43**	19.21	19.27
	172692-01	4/8/98	**1,200**	**2**	< 1	6	12	20.98	17.5
MW-3	172603	1/3/97	< 100	< 1	< 1	< 1	< 1	16.41	20.64
	172607	1/20/97	< 100	< 1	< 1	< 1	< 1	17.51	19.54
	172692-02	4/8/98	< 100	< 1	< 1	< 1	< 1	19.65	17.4
MW-4	172604	1/3/97	150	< 1	1.5	1.1	4.2	19.21	18.62
	172608	1/20/97	220	< 1	2.1	1.0	2.4	19.39	18.44
	172692-03	4/8/98	220	< 1	< 1	< 1	< 1	20.08	17.75
MW-5	MW5-GW-01	3/24/97	**1,800**	**53**	24	28	68	19.92	18.45
	172692-04	4/8/98	**4,300**	**390**	5	**260**	**106**	21.25	NA
MW-6	MW6-W1	8/27/97	**2,100**	4	3	**43**	49	22.62	16.48
	172692-05	4/8/98	**1,700**	2	2	**30**	34	21.95	17.15
MTCA Method A Cleanup Levels[a]			1,000[b]	5.0	40.0	30.0	20.0		

Notes:

[a] Model Toxics Control Act

[b] Cleanup level is reported for the sum of hydrocarbons.

[c] Depth to water (DTW) measured from top of casing.

[d] Groundwater (GW) elevation in feet, City of Seatle Datum.

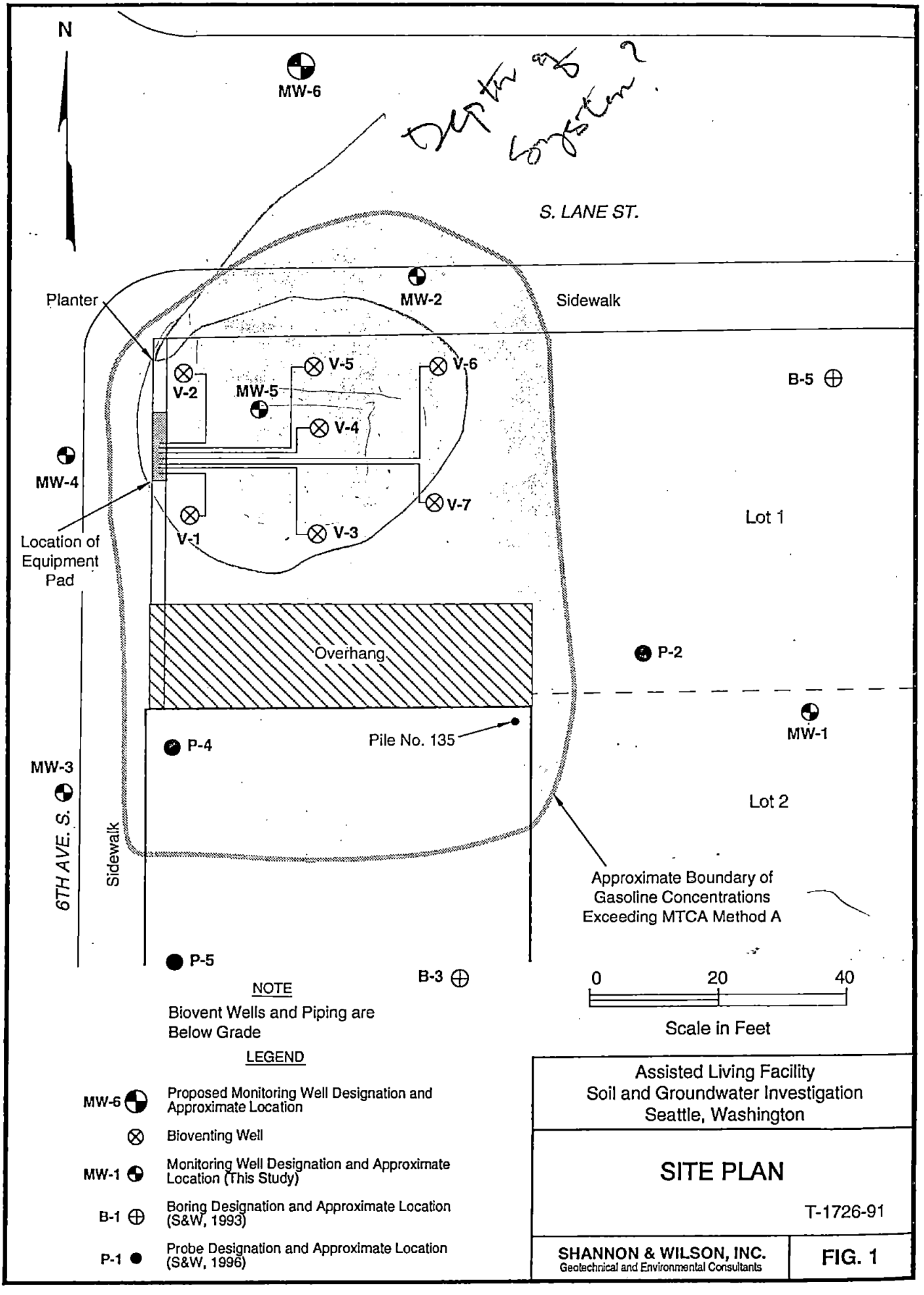
< = Less than the method reporting limit reported

µg/L = micrograms per liter - also parts per billion (ppb)

NA = Not analyzed or available

Boldface concentrations exceed cleanup level.

The groundwater was analyzed for gasoline-range hydrocarbons with benzene, toluene, ethylbenzene, and xylenes (BTEX) distinction by Washington State Method WTPH-G/BTEX.



Assisted Living Facility
Soil and Groundwater Investigation
Seattle, Washington

SITE PLAN

T-1726-91

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 1

APPENDIX A

O & M SYSTEM CHECKLISTS

SHANNON & WILSON, INC.

Date Completed: 01/15/98

Nikkei Concerns Biovent System Checklist

Biovent System		
Item	**Reading**	**Units**
Time		
System Pitot Tube Reading	8.5	in. H_2O
V-1 Pitot Tube Reading	GAUGE IS ORDERED	in. H_2O
V-2 Pitot Tube Reading		in. H_2O
V-3 Pitot Tube Reading		in. H_2O
V-4 Pitot Tube Reading		in. H_2O
V-5 Pitot Tube Reading		in. H_2O
V-6 Pitot Tube Reading		in. H_2O
V-7 Pitot Tube Reading		in. H_2O
MW-5 Pitot Tube Reading	—	in. H_2O
Outlet Temperature	60°	°F
Dilution Valve Position	0 —	open
Blower Oil Level	OK	--
Clean Blower Air Filter	—	--
Nikkei PID/Badge Readings		
BASEBOARDS/MAIN ROOM	0.1	ppm
OFFICES	0.1	ppm
HALLWAYS	0.0	ppm
		ppm
		ppm
		ppm
Timer Schedule		
Hours On		hours
Hours Off		hours
Days On	C	days
Days Off	1	days

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES: TURNED BLOWER OFF. PERFORMED SWEEP OF BUILDING W/ PID. ELECTRICIAN LET ME IN. SLIGHT PID READINGS. PAINT SMELL IN THE AREA. (COULD AFFECT PIDS).

DKL.

Schedule
Biovent System Check
Week of 1/26/1998
Week of 2/2/1998
Week of 2/9/1998
Week of 2/16/1998
Week of 3/16/1998
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

Date Completed: 01/30/98

SHANNON & WILSON, INC.

Nikkei Concerns Biovent System Checklist

Biovent System		
Item	**Reading**	**Units**
Time 16:17 DKL	16:15	
System Pitot Tube Reading	8.0	in. H_2O
V-1 Pitot Tube Reading		in. H_2O
V-2 Pitot Tube Reading		in. H_2O
V-3 Pitot Tube Reading		in. H_2O
V-4 Pitot Tube Reading		in. H_2O
V-5 Pitot Tube Reading		in. H_2O
V-6 Pitot Tube Reading		in. H_2O
V-7 Pitot Tube Reading		in. H_2O
MW-5 Pitot Tube Reading		in. H_2O
Outlet Temperature	70°	°F
Dilution Valve Position	0%	open
Blower Oil Level	FULL	--
Clean Blower Air Filter	✓	--
Nikkei PID/Badge Readings		
BASEBOARDS / MAIN ROOM	0.0	ppm
DRAINS / KITCHEN	0.2	ppm
UTILITY ROOM BY KITCHEN	0.6	ppm
NIKKEI LOBBY (FRESH PAINT)	0.9	ppm
HALLWAYS	0.0	ppm
MEETING ROOM / FRESH PAINT	0.8	ppm
Timer Schedule		
Hours On	24	hours
Hours Off	0	hours
Days On	6	days
Days Off	1	days

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES:

PETER PREACH HAS MOVED.
RICK LARSEN IS SITE MANAGER.
I MET HIM & SPOKE W/ HIM ABOUT WEEKLY PID MON. AND ABOUT PLACING BTEX BADGE IN MAIN ROOM. HE SAID NO PROBLEM. ✓

DKL

- NOTICED BUBBLES OF AIR AROUND SEAL OF MW-5 MON. WELL. ALSO NOTICED SHEEN ON MONUMENT COVER.

Schedule
Biovent System Check
Week of 1/26/1998 ✓
Week of 2/2/1998
Week of 2/9/1998
Week of 2/16/1998
Week of 3/16/1998
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

SHANNON & WILSON, INC.

Date Completed: 02/03/98

Nikkei Concerns Biovent System Checklist

afm.		
4.4	V80	
16.8	770	
14.6	670	
6.0	370	
13.4	615	
10.4	475	
8.3	380	
78.6		

Biovent System		
Item	**Reading**	**Units**
Time	8:00 A.M.	—
System Pitot Tube Reading	8.0	in. H_2O
V-1 Pitot Tube Reading	~~1.075~~ 0.005	in. H_2O
V-2 Pitot Tube Reading	0.04	in. H_2O
V-3 Pitot Tube Reading	0.03	in. H_2O
V-4 Pitot Tube Reading	0.010	in. H_2O
V-5 Pitot Tube Reading	0.025	in. H_2O
V-6 Pitot Tube Reading	0.015	in. H_2O
V-7 Pitot Tube Reading	0.010	in. H_2O
MW-5 Pitot Tube Reading	—	in. H_2O
Outlet Temperature	50°	°F
Dilution Valve Position	CLOSED	open
Blower Oil Level	✓	--
Clean Blower Air Filter	✓	--
Nikkei PID/Badge Readings		
BASEBOARDS / MAIN ROOM	0.0	ppm
FLOOR DRAINS / KITCHEN	0.2	ppm
UTIL. ROOM.	0.6	ppm
HALLWAYS	0.0	ppm
—	—	ppm
—	—	ppm
Timer Schedule		
Hours On	24	hours
Hours Off	0	hours
Days On	6	days
Days Off	1	days

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES:

TALKED TO CORY FROM MARPAC. SAID FLOOR DRAINS IN KITCHEN WERE CONNECTED TO CAST IRON PIPE. ALSO SAID UTIL. ROOM CONTAINED BOILER ENGINES AND HVAC EQUIP. (NORMAL FOR PID READINGS.) UTIL. ROOM VENTS OUT ~~INTO~~ USING WALL VENTS.

DKC

*FIXED PRESSURE GAUGE

Schedule
Biovent System Check
Week of 1/26/1998 ✓
Week of 2/2/1998 ✓
Week of 2/9/1998
Week of 2/16/1998
Week of 3/16/1998
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

MW-5 - SEALED AND DRY. ✓

SHANNON & WILSON, INC.

Date Completed: 02/11/98

w/ Cam Locks off (open)

w/ Cam Locks on (closed)

Nikkei Concerns Biovent System Checklist

Biovent System		
Item	**Reading**	**Units**
Time ~~9:10~~	9:05	A. m.
System Pitot Tube Reading	8.0	in. H_2O
V-1 Pitot Tube Reading	.01 / .005	in. H_2O
V-2 Pitot Tube Reading	.02	in. H_2O
V-3 Pitot Tube Reading	.05	in. H_2O
V-4 Pitot Tube Reading	.08 / .13	in. H_2O
V-5 Pitot Tube Reading	.02	in. H_2O
V-6 Pitot Tube Reading	.02	in. H_2O
V-7 Pitot Tube Reading	.01 / .012	in. H_2O
MW-5 Pitot Tube Reading		in. H_2O
Outlet Temperature	60°	°F
Dilution Valve Position	0%	open
Blower Oil Level	OK.	--
Clean Blower Air Filter	—	--
Nikkei PID/Badge Readings		
		ppm
		ppm
		ppm
		ppm
		ppm
		ppm
Timer Schedule		
Hours On	24	hours
Hours Off	0	hours
Days On	6	days
Days Off	1	days

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES:

Closing V-4

Schedule
Biovent System Check
Week of 1/26/1998 ✓
Week of 2/2/1998 ✓
Week of 2/9/1998 ✓
Week of 2/16/1998
Week of 3/16/1998
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

SHANNON & WILSON, INC.

Date Completed: 2/9/98

Nikkei Concerns Biovent System Checklist

Biovent System		
Item	**Reading**	**Units**
Time	9:05	AM
System Pitot Tube Reading		in. H_2O
V-1 Pitot Tube Reading		in. H_2O
V-2 Pitot Tube Reading		in. H_2O
V-3 Pitot Tube Reading	.03	in. H_2O
V-4 Pitot Tube Reading		in. H_2O
V-5 Pitot Tube Reading		in. H_2O
V-6 Pitot Tube Reading		in. H_2O
V-7 Pitot Tube Reading	.04	in. H_2O
MW-5 Pitot Tube Reading		in. H_2O
Outlet Temperature	60°	°F
Dilution Valve Position	0%	open
Blower Oil Level	OK.	--
Clean Blower Air Filter	—	--
Nikkei PID/Badge Readings		
MW-5 PID	23.7	ppm
Kitchen - ambient	0.0	ppm
Kitchen sink - floor drain	0.0 0.1	ppm
floor drain under stove	0.1	ppm
floor drain in front of stove	0.0 0.2	ppm
Outside of refrigerator	0.0	ppm
Timer Schedule		
Hours On	24	hours
Hours Off	0	hours
Days On	6	days
Days Off	1	days

Vault is closed

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES:
Adjusting flow pressure w/ valves.

Schedule
Biovent System Check
Week of 1/26/1998 ✓
Week of 2/2/1998 ✓
Week of 2/9/1998 ✓
Week of 2/16/1998
Week of 3/16/1998
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

PID readings cont.

Boiler room	0.0
Sprinkler (control valve) room	
~~Opus~~ Main room SW	0.0
Opus office area	0.0

SHANNON & WILSON, INC.

Date Completed: 2-19-98

Nikkei Concerns Biovent System Checklist

Biovent System		
Item	**Reading**	**Units**
Time	1315	PM
System Pitot Tube Reading	8.5	in. H_2O
V-1 Pitot Tube Reading	.005 / .030	in. H_2O
V-2 Pitot Tube Reading	.075 / .040	in. H_2O
V-3 Pitot Tube Reading	.005 / .035	in. H_2O
V-4 Pitot Tube Reading	.005 / .035	in. H_2O
V-5 Pitot Tube Reading	.055 / .030	in. H_2O
V-6 Pitot Tube Reading	.050 / .030	in. H_2O
V-7 Pitot Tube Reading	.075 / .035	in. H_2O
MW-5 Pitot Tube Reading	—	in. H_2O
Outlet Temperature	60°	°F
Dilution Valve Position	0%	open
Blower Oil Level	ok	--
Clean Blower Air Filter	—	--
Nikkei PID/Badge Readings		
MW#5 / w/ plug open	0.0 / 484.8	ppm
Kitchen ambient	0.0	ppm
Kitchen sink - floor drain	0.0	ppm
Stove - floor drain	0.0	ppm
Under Stove drain	0.0	ppm
Refridgerator floor drain	0.0	ppm
Timer Schedule		
Hours On	24	hours
Hours Off	0	hours
Days On	6	days
Days Off	1	days

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES:

Met Darlene Sumimatsu on site to access areas inside facility and retrieve PID readings. Note that Hiroko Evans will be the new point of contact for next site visit Call 726-6466 in advance

First Magnehelic readings were taken with the Camlocks open and out of the top holes. Readings were very touchy. Readings could vary depending on the length of time Magnehelic was given before taking reading.

Initial measurements were taken with valves as is. Second measurements were taken after valves were adjusted.

Schedule
Biovent System Check
Week of 1/26/1998
Week of 2/2/1998
Week of 2/9/1998
Week of 2/16/1998 ✓
Week of 3/16/1998
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

* Make sure to bring teflon tape to wrap pitot tube.

PID Readings cont.

Sprinkler Control Valve Room (Boiler Room)	0.0	ppm
Main Floor - open area	0.0	ppm
Office area - Opus	0.0	ppm

SHANNON & WILSON, INC.

Date Completed: 3-20-98

Nikkei Concerns Biovent System Checklist

Biovent System		
Item	**Reading**	**Units**
Time 1100	1100	AM
System Pitot Tube Reading	10.0	in. H_2O
V-1 Pitot Tube Reading	.035	in. H_2O
V-2 Pitot Tube Reading	.012	in. H_2O
V-3 Pitot Tube Reading	.013	in. H_2O
V-4 Pitot Tube Reading	.012	in. H_2O
V-5 Pitot Tube Reading	.012	in. H_2O
V-6 Pitot Tube Reading	.011	in. H_2O
V-7 Pitot Tube Reading	.125	in. H_2O
MW-5 Pitot Tube Reading	—	in. H_2O
Outlet Temperature	≈ 60'	°F
Dilution Valve Position	0%	open
Blower Oil Level	OK	--
Clean Blower Air Filter	—	--
Nikkei PID/Badge Readings		
MW# 5 / with plug open	0.0/240	ppm
Kitchen ambient	0.0	ppm
Kitchen sink-floor drain	0.0	ppm
Stove - floor drain	0.0	ppm
Under Stove - floor drain	0.0	ppm
Refrigerator-floor drain	0.0	ppm
Timer Schedule		
Hours On	24	hours
Hours Off	0	hours
Days On	6	days
Days Off	1	days

Monitoring Wells					
Well	**Time**	**D.O.**	**Product Level**	**Water Level**	**Sample No.**
MW-1					
MW-2					
MW-3					
MW-4					
MW-5					
MW-6					

NOTES:

Pitot tube readings were very sensitive. Difficult to get readings. Moved pitot tube around until magnehelic finally registered a reading. Readings were never registered in middle of line; usually near the back of line. V-1 line was most difficult to get reading from. Readings very different from last site visit. Did the best I could to even out readings relative to one another. Readings do not appear to be very accurate.
Readings taken with CamLocks OPEN.

Opus office area still vacant.
Met Hiroki Evans on site from Nikkei

Schedule
Biovent System Check
Week of 1/26/1998
Week of 2/2/1998
Week of 2/9/1998
Week of 2/16/1998
Week of 3/16/1998 ✓
Week of 4/13/1998
Week of 5/11/1998
Week of 6/8/1998
Week of 7/6/1998
GW Sampling
On or around 4/13/1998
On or around 7/13/1998

PID cont.

MAIN FLOOR 0.0
OPUS OFFICE ARE 0.0

APPENDIX B

ANALYTICAL LABORATORY REPORTS

OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

April 13, 1998

David Laughlin
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project T-1726-92
Laboratory Reference No. 9804-044

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on April 8 , 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

14924 NE 31st Circle • Redmond, WA 98052 • (425) 883-3881 • Fax (425) 885-4603

Date of Report: April 13, 1998
Samples Submitted: April 8 , 1998
Lab Traveler: 04-044
Project: T-1726-92

NWTPH-G/BTEX

Date Extracted: 4-9-98
Date Analyzed: 4-9-98

Matrix: Water
Units: ug/L (ppb)

Lab ID:	04-044-01			04-044-02		
Client ID:	**172692-01**			**172692-02**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**2.1**		1.0	**ND**		1.0
Toluene	**ND**		1.0	**ND**		1.0
Ethyl Benzene	**6.3**		1.0	**ND**		1.0
m,p-Xylene	**10**		1.0	**ND**		1.0
o-Xylene	**1.9**		1.0	**ND**		1.0
TPH-Gas	**1200**		100	**ND**		100
Surrogate Recovery:						
Fluorobenzene	74%			73%		

Date of Report: April 13, 1998
Samples Submitted: April 8 , 1998
Lab Traveler: 04-044
Project: T-1726-92

NWTPH-G/BTEX

Date Extracted: 4-9-98
Date Analyzed: 4-9&10-98

Matrix: Water
Units: ug/L (ppb)

Lab ID:	04-044-03			04-044-04		
Client ID:	**172692-03**			**172692-04**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		1.0	**390**		20
Toluene	**ND**		1.0	**5.4**		1.0
Ethyl Benzene	**ND**		1.0	**260**		20
m,p-Xylene	**ND**		1.0	**89**		1.0
o-Xylene	**ND**		1.0	**17**		1.0
TPH-Gas	**220**		100	**4300**		100
Surrogate Recovery:						
Fluorobenzene	73%			74%		

Date of Report: April 13, 1998
Samples Submitted: April 8 , 1998
Lab Traveler: 04-044
Project: T-1726-92

NWTPH-G/BTEX

Date Extracted: 4-9-98
Date Analyzed: 4-9-98

Matrix: Water
Units: ug/L (ppb)

Lab ID: 04-044-05
Client ID: **172692-05**

	Result	Flags	PQL
Benzene	**2.4**		1.0
Toluene	**1.6**		1.0
Ethyl Benzene	**30**		1.0
m,p-Xylene	**32**		1.0
o-Xylene	**1.9**		1.0
TPH-Gas	**1700**		100

Surrogate Recovery:
Fluorobenzene 96%

Date of Report: April 13, 1998
Samples Submitted: April 8 , 1998
Lab Traveler: 04-044
Project: T-1726-92

NWTPH-G/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 4-9-98
Date Analyzed: 4-9-98

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0409W1

	Result	Flags	PQL
Benzene	ND		1.0
Toluene	ND		1.0
Ethyl Benzene	ND		1.0
m,p-Xylene	ND		1.0
o-Xylene	ND		1.0
TPH-Gas	ND		100

Surrogate Recovery:
Fluorobenzene 76%

Date of Report: April 13, 1998
Samples Submitted: April 8 , 1998
Lab Traveler: 04-044
Project: T-1726-92

NWTPH-G/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 4-9-98
Date Analyzed: 4-9-98

Matrix: Water
Units: ug/L (ppb)

Lab ID:	04-044-05 **Original**	04-044-05 **Duplicate**	**RPD**	**Flags**
Benzene	**2.35**	**2.55**	8.2	
Toluene	**1.64**	**1.50**	8.9	
Ethyl Benzene	**30.4**	**32.1**	5.7	
m,p-Xylene	**32.0**	**33.8**	5.4	
o-Xylene	**1.89**	**1.89**	0	
TPH-Gas	**1710**	**1860**	8.4	
Surrogate Recovery:				
Fluorobenzene	71%	76%		

Date of Report: April 13, 1998
Samples Submitted: April 8 , 1998
Lab Traveler: 04-044
Project: T-1726-92

NWTPH-G/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 4-9-98
Date Analyzed: 4-9-98

Matrix: Water
Units: ug/L (ppb)
Spike Level: 50.0 ppb

Lab ID	04-022-08 **MS**	Percent Recovery	04-022-08 **MSD**	Percent Recovery	RPD
Benzene	**83.9**	**89**	**85.1**	**92**	2.7
Toluene	**45.3**	**91**	**46.1**	**92**	1.6
Ethyl Benzene	**53.8**	**91**	**54.6**	**93**	1.8
m,p-Xylene	**53.7**	**89**	**54.6**	**91**	1.9
o-Xylene	**45.8**	**92**	**46.6**	**93**	1.8
Surrogate Recovery:					
Fluorobenzene	78%		79%		

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - Quantitated from C7-C34 as diesel fuel #2.

M - Predominantly _____ range hydrocarbons present in the sample.

N1 - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample which are elevating the diesel result.

O1 - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P1 - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

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Anchorage, AK 99518
(907) 561-2120

303 Wellsian Way
Richland, WA 99352
(509) 946-6309

CHAIN OF CUSTODY RECORD

Page 1 of 1
Laboratory OAKTA
Attn: David

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	G/BTEX	VPH	EPH				Total Number of Containers	Remarks/Matrix
172692-01	1	1050	4/8/98		X	X	X	X				6	Water
172692-02	2	0940			X	X	X	X				6	
172692-03	3	0905			X	X	X	X				6	
172692-04	4	1125			X	X	X	X				6	
172692-05	5	1015			X	X	X	X				6	

LAW

Project Information	
Project Number: T-1726-92	
Project Name: Nikkei	
Contact: David Laughlin	
Ongoing Project? Yes ☒ No ☐	
Sampler: LAW	

Sample Receipt	
Total Number of Containers	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Delivery Method: (attach shipping bill, if any)	

Instructions

Requested Turn Around Time: Standard

Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1206	Signature: Time:	Signature: Time:
Printed Name: Larry A. Withrow Date: 4/8/98	Printed Name: Date:	Printed Name: Date:
Company: SAW	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Kristen Koch Time: 12:09	Signature: Time:	Signature: Time:
Printed Name: KRISTEN KOCH Date:	Printed Name: Date:	Printed Name: Date:
Company: OSE	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 26160

APPENDIX C

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL REPORT

Dated: April 28, 1998

To: Ms. Kim Maree Johannessen
Seattle, Washington

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland