

Appendix C-6
Relevant Pages from
VIOX Corporation Documents



October 14, 1999

Anchorage

Mr. Tom Burnett
VIOX Corporation
6701 Sixth Avenue South
Seattle, Washington 98108

Boston

Re: North Wall Sampling Results
VIOX Corporation Facility
Seattle, Washington
J-4909

Chicago

Dear Mr. Burnett:

Denver

This letter summarizes the results of the recent environmental investigation we conducted at the VIOX Corporation property in Seattle, Washington (Figure 1). The objectives of this work were to define the nature and extent of lead contamination in soil located along the northern wall of the electronic-glass manufacturing plant following the recent drain line breakage in this area and to provide recommendations regarding the need for remedial actions.

Fairbanks

SITE BACKGROUND

Jersey City

VIOX owns and operates an electronic-glass manufacturing plant located at 6701 Sixth Avenue South (Figure 2). The electronic-glass manufacturing plant is approximately 40 years old. VIOX also leased the lots directly west and adjacent to the plant (551 South River Street) since December of 1979. The 551 South River Street property, which was recently purchased by VIOX, contains a small metal building used as a shop and for storage, and an unpaved area used for large truck parking. VIOX also maintains offices in a portion of a building north of the glass plant at the corner of South River Street and 6th Avenue South. The site and surrounding area are zoned for general industrial land use.

Juneau

Long Beach

VIOX plans to construct a 18,400-square-foot addition onto its existing glass plant next year. The addition would be located on the 551 South River Street property. As part of this construction project, VIOX will be installing a sidewalk and altering the landscaping along the northern wall of the existing glass production facility.

Portland

Seattle

**Table 1 - Analytical Results for Soil Samples
VIOX**

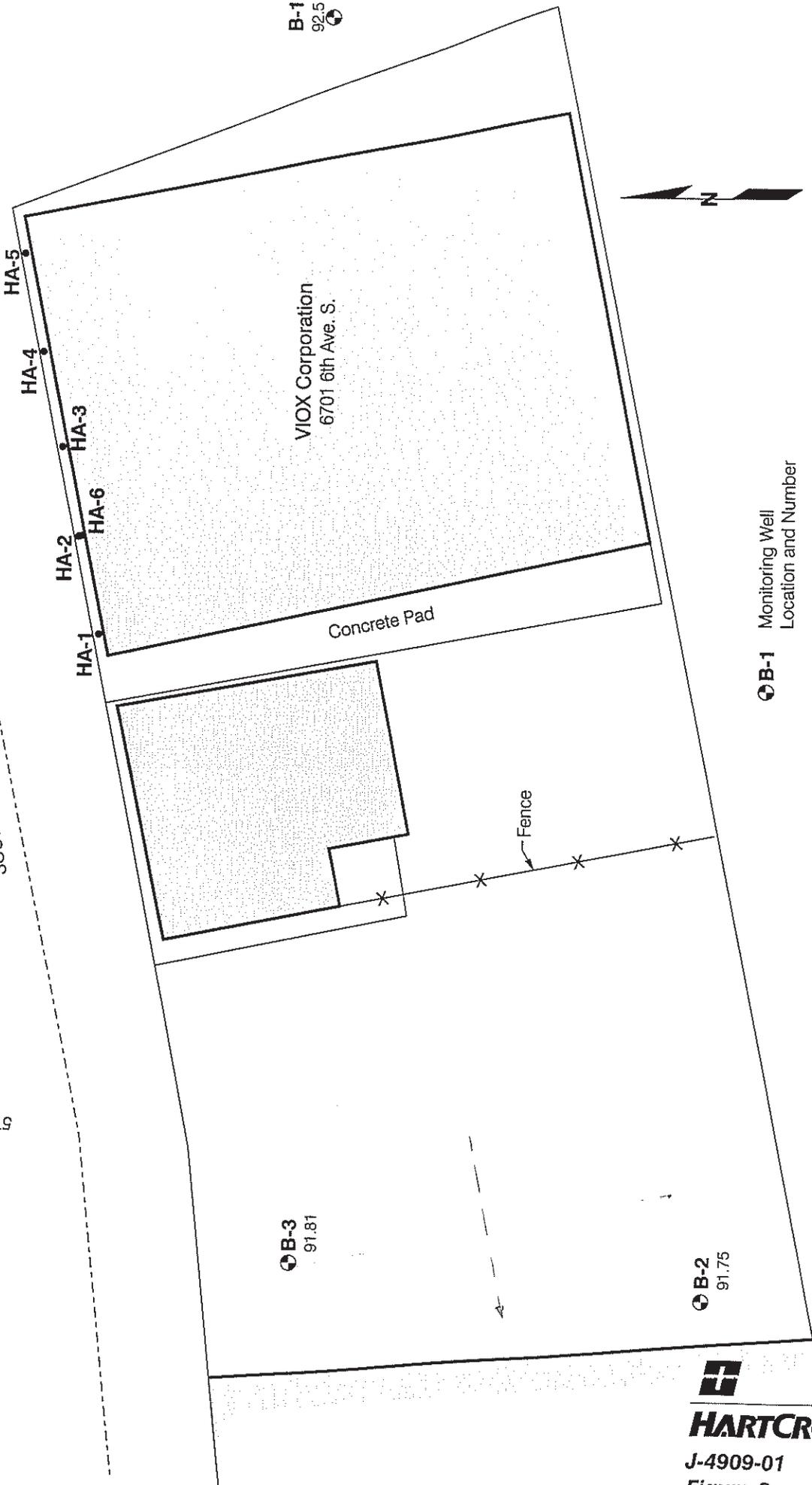
Sample ID	Sample Depth in feet	Lead Concentration in mg/kg	pH	Total Solids
HA-1 S-1 0-0.5	0 to 0.5	290	6.5	92.8
HA-1 S-2 1.5-2.0	1.5 to 2.0	56	7	94.5
HA-2 S-1 0-0.5	0 to 0.5	327	6.7	94.3
HA-2 S-2 1.5-2.0	1.5 to 2.0	125	7	95
HA-3 S-1 0-0.5	0 to 0.5	43.4	7	94.3
HA-3 S-2 1.5-2.0	1.5 to 2.0	142	7.1	92.8
HA-4 S-1 0-0.5	0 to 0.5	148	7.9	94.9
HA-4 S-2 1.5-2.0	1.5 to 2.0	47.2	7.6	93.7
HA-5 S-1 0-0.5	0 to 0.5	263	6.4	78.2
HA-5 S-2 1.5-2.0	1.5 to 2.0	12300	8	92
HA-5 S-2 1.5-2.0 (Dup)	1.5 to 2.0	145		
HA-5 S-2 1.5-2.0 A	1.5 to 2.0	156		
HA-5 S-2 1.5-2.0 B	1.5 to 2.0	140		
HA-5 S-2 1.5-2.0 C	1.5 to 2.0	97.2		
HA-6 S-1 2-2.5	2.0 to 2.5	128	8	88.7
HA-6 S-2 3-3.5	3 to 3.5	3.5	7.1	92.1
HA-6 S-3 3.75-4.25	3.75 to 4.25	107	7.2	87.5

(Dup) Duplicate of preceding sample; A, B, and C also reanalysis of sample HA 5 S-2.

Soil Exploration Location Plan

5TH PLACES S.

SOUTH RIVER STREET



B-1
92.5

B-3
91.81

B-2
91.75

HA-5

HA-4

HA-3

HA-6

HA-2

HA-1

VIOX Corporation
6701 6th Ave. S.

Concrete Pad

Fence



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J-4909-01

8/99

Figure 2

● B-1 Monitoring Well
Location and Number

● HA-1 Hand-Auger
Location and Number

92.5 Spot Groundwater Elevation
in Feet (October 12, 1989)



490901\SITE\490901 (COREL)

VIOX - Mc Dowell site
SIT 5.8

**Voluntary Cleanup Action Report
VIOX/McDowell Site
551 South River Street
Seattle, Washington**



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**Prepared for
VIOX Corporation**

**April 13, 2001
J-4909**

Table 1 - Lead Analytical Results for Soil Remaining on Site

Sample ID	Sample Depth below Ground Surface in Feet	Total Solids in %	Lead in mg/kg
MTCA Method A Industrial:			1,000
HC-1	2.5	91.6	16.2
HC-2	1.2	96.8	8.16
HC-3	0.5	96.2	43.9
HC-4	1.6	93.2	33.1
HC-5	0.5	86.0	46.3
HC-20	0.75	88.8	118
HC-21	0.75	89.5	7.58
HC-22	0.75	94.4	11.7
HC-23	0.75	93.8	50.8
HC-24	0.75	88.6	16.7
HC-25	0.75	93.5	41.6
HC-26	0.75	92.7	20.3
HC-27	0.75	88.8	27
HC-28	0.75	93.5	12.2
HC-29	0.75	91.9	24.9
HC-31	2.5	88.9	3,890
HC-35	2.3	85.4	2.53

Boxed value exceeds cleanup criteria

Table 2 - Metals Analytical Results for Soil Remaining on Site

	MTCA Method A Industrial	HC-5	HC-21	HC-22	HC-28	HC-29	HC-31	HC-35
Metals in mg/kg								
Arsenic	20	11.3	1.49	2.16	2.5	2.1	27.5	1.94
Cadmium	2	0.381	0.312 U	0.282 U	0.279 U	0.311 U	0.382 U	0.303 U
Chromium	2,000	13.9	11.9	21.7	52.1	26.4	27.8	31.7
Copper	2,960 (1)	20.5	11.4	12.7	14.7	12	11.6	10.8
Nickel	1,600 (1)	14.9	14.1	35	43	34.6	31.5	37.2
Lead	1,000	46.3	7.58	11.7	12.2	24.9	3,890	2.53
Zinc	24,000 (1)	55.6	23.1	28.8	35.2	28.7	32.5	27.3

U = Not detected at indicated detection limit.
 (1) MTCA Method C industrial direct contact criteria.
 Boxed value exceeds cleanup criteria

Table A-1 - Lead Analytical Results for Excavated Soil

Sample ID	Total Solids in %	Lead in mg/kg
MTCA Method A:		1000
HC-6	94.3	6390
HC-7	89.4	3960
HC-8	89.4	842
HC-9	92.5	108
HC-10	94.6	1450
HC-11	90.5	3200
HC-12	90.6	4510
HC-13	95.5	9.51
HC-14	96.8	22.2
HC-15	94.2	71.1
HC-16	95.0	474
HC-17	91.3	8230

Boxed value exceeds cleanup criteria

Table A-2 - Analytical Results for Excavated Containerized Soil

Sample ID	Total Solids	
	in %	Lead in mg/kg
MTCA Method A Industrial:		1000
HC-WMHV910404	93.7	1220
HC-Stockpile	93.5	575
HC-MWHV910406	94.4	718
HC-MWHV910403	94.8	687
HC-MWHV910411	95.0	644
CWMV7160	90.5	1230

CWMV7160	
Metals in mg/kg	
Arsenic	14.3
Cadmium	0.36 U
Chromium	22.8
Copper	14.1
Nickel	31.7
Lead	1230
Zinc	37.1

U = Not detected at indicated detection limit.
 Boxed value exceeds cleanup criteria

Table A-3 - TCLP Analytical Results for Excavated Containerized Soil

Sample ID	Lead in mg/L
Toxicity Characteristic Criteria:	5
CWMV-7186	0.227
CWMV-7484	5.51
CWMV-7363	0.973
CWMV-7153	0.128
CWMV-7105	0.456
CWMV-7247	0.24
WMHV-910211	7.07
910203	0.336
HC-WMHV910404	17.4
HC-Stockpile	4.66
HC-MWHV910406	10.1
HC-MWHV910403	8.88
HC-MWHV910411	7.94
CWMV7363	20.7

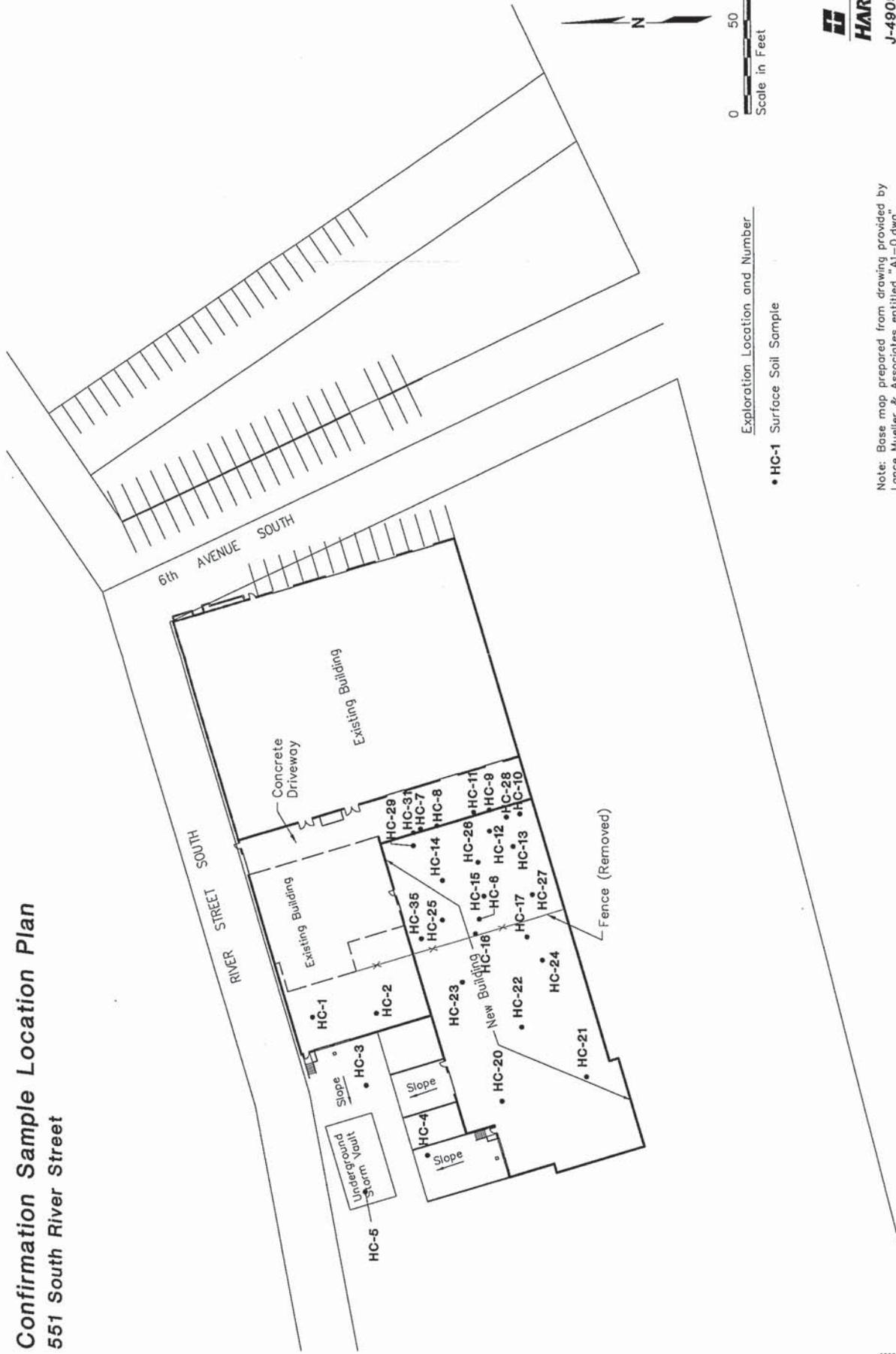
	CWMV7106	CWMV7160
Total Solids in %	74.2	90.5
Metals in mg/L		
Silver	0.05 UJ	0.05 UJ
Arsenic	0.5 U	0.5 U
Barium	1 U	1.64
Cadmium	0.005 U	0.005 U
Chromium	0.01 U	0.01 U
Mercury	0.001 U	0.001 U
Lead	4.99	12.4
Selenium	0.15 U	0.15 U

U = Not detected at indicated detection limit.

J = Estimated value.

Boxed value exceeds cleanup criteria

Confirmation Sample Location Plan
551 South River Street



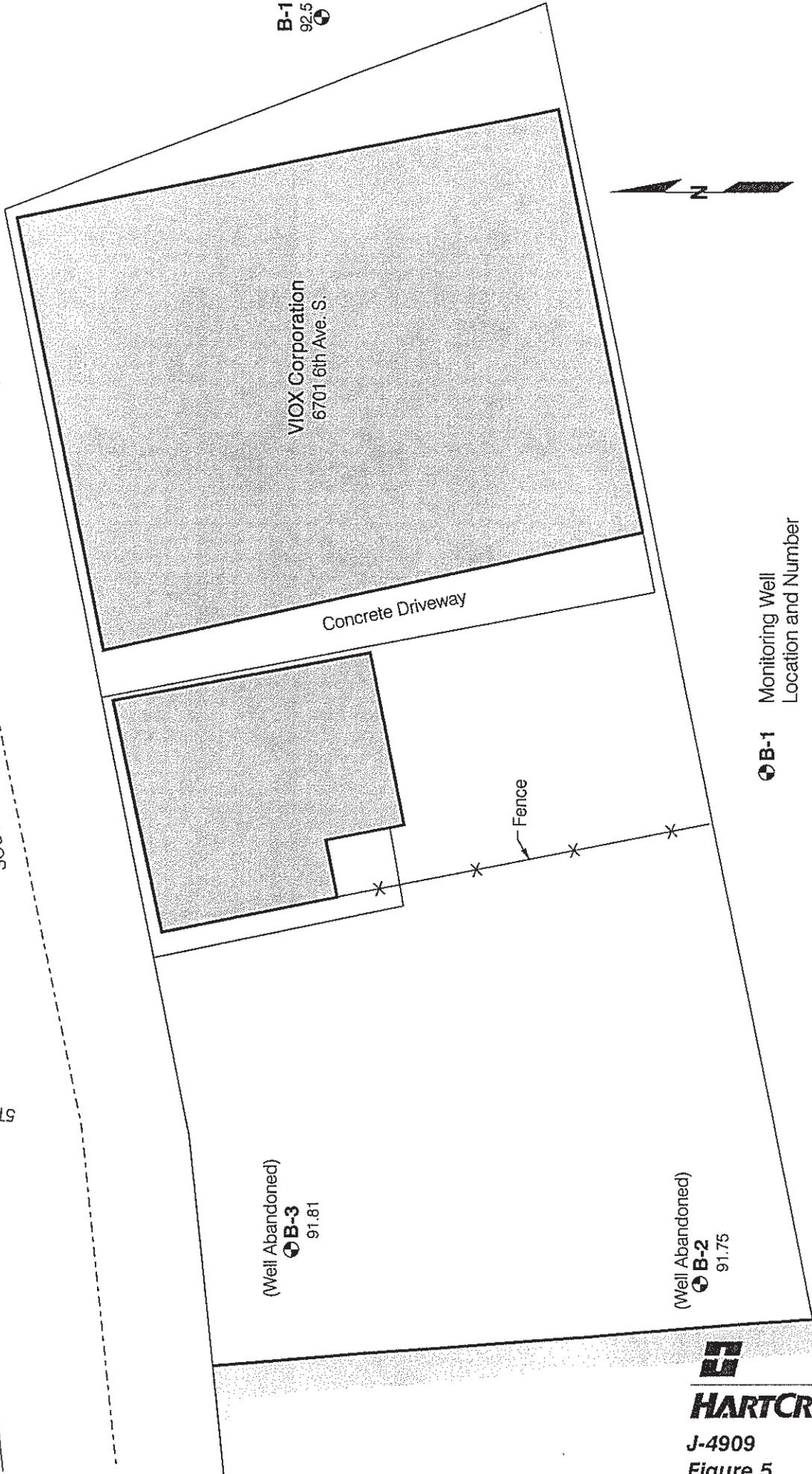
Exploration Location and Number
 • HC-1 Surface Soil Sample

Note: Base map prepared from drawing provided by Lance Mueller & Associates entitled "A1-0.dwg", dated February 18, 1998.

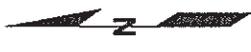
Monitoring Well Location Plan

5TH PLACE S.

SOUTH RIVER STREET



Monitoring Well Location and Number	Spot Groundwater Elevation in Feet (October 12, 1989)
B-1	92.5





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VIOX / McDowell site

SIT 5.8

www.hartcrowser.com

September 20, 2001

Anchorage

Mr. Bill Coats
VIOX Corporation
6701 Sixth Avenue South
Seattle, WA 98108

Boston

**Re: Summary of Well Installation and Groundwater Monitoring Results
VIOX/McDowell Site
Seattle, Washington
4909**

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Chicago

SEP 25 2001

DEPT OF ECOLOGY

Denver

Dear Bill:

This letter report summarizes well installation and groundwater monitoring activities recently completed at the VIOX/McDowell site located in Seattle, Washington. The groundwater monitoring program was initiated to support a "No Further Action" determination issued by Ecology in June of 2001. As part of this determination, Ecology required that two rounds of groundwater monitoring be completed to demonstrate that groundwater quality was not being significantly impacted.

Fairbanks

This letter report is presented in three sections:

Jersey City

- Well installation summary;
- Groundwater monitoring summary; and
- Schedule.

Juneau

A groundwater data quality summary is presented in Table 1. The site vicinity map is presented on Figure 1. A monitoring well location plan, including groundwater elevation measurements collected in July 2001, is presented on Figure 2. Appendix A presents boring logs and well construction diagrams for the two new wells installed to monitor groundwater at the site. The groundwater testing laboratory report is included in Appendix B.

Long Beach

WELL INSTALLATION SUMMARY

Portland

Two groundwater monitoring wells (identified B-2R and B-3R) were installed at the site in July 2001 using a hollow-stem auger drill rig (Figure 2). These wells were installed to replace

Seattle

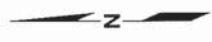
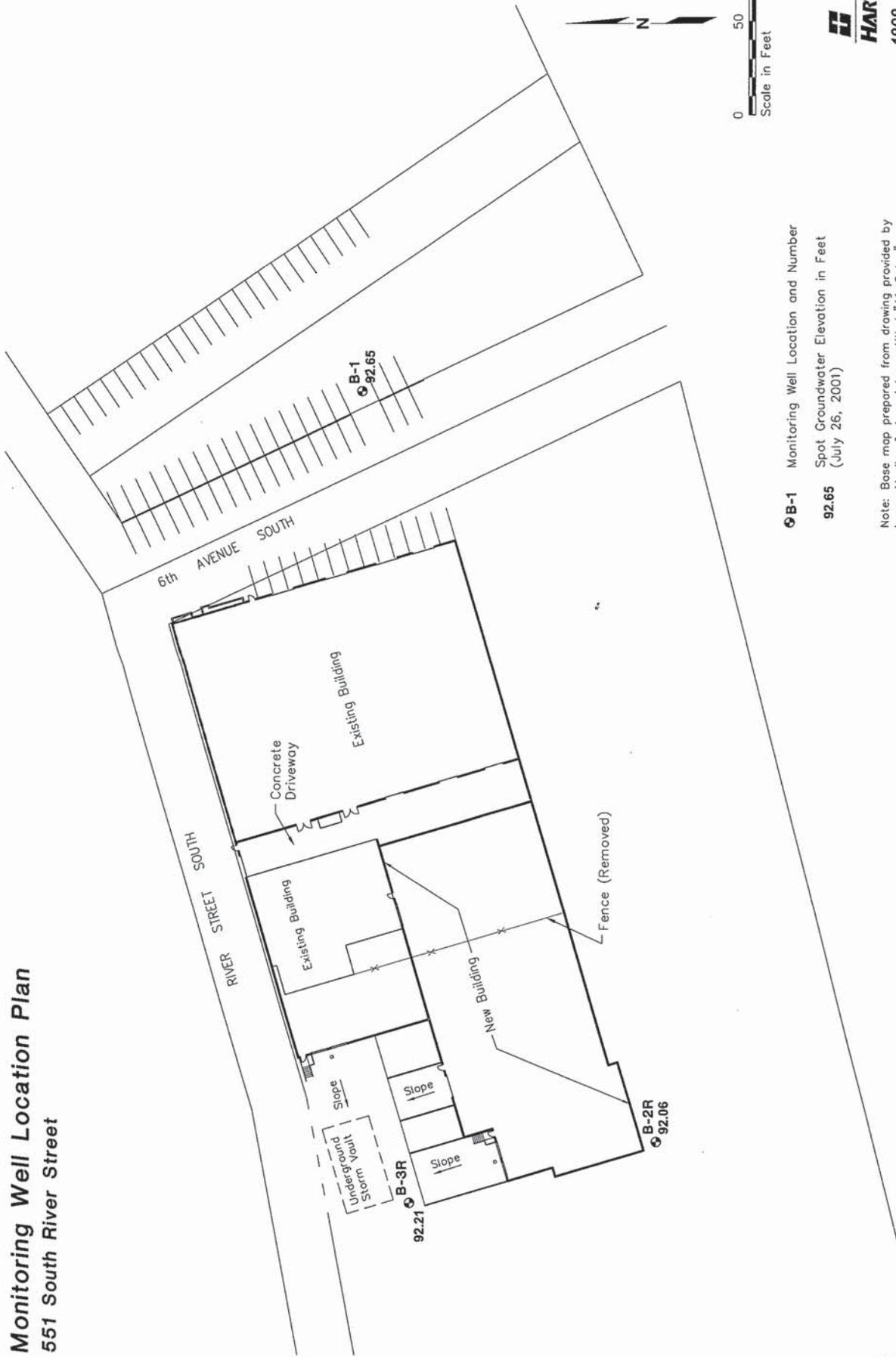
Table 1 - Groundwater Quality Data Summary

Analyte	Well B-1 7/26/01	Well B-2R 7/26/01	Well B-3R 7/26/01
Dissolved Arsenic	8.9	3.9	1.4
Dissolved Lead	1U	1U	1U

Concentrations are in ug/L (ppb) units.
U = not detected at indicated detection limit

Monitoring Well Location Plan

551 South River Street



B-1 Monitoring Well Location and Number
92.65 Spot Groundwater Elevation in Feet
 (July 26, 2001)

Note: Base map prepared from drawing provided by
 Lance Mueller & Associates entitled "A1-0.dwg",
 dated February 18, 1998.

VIOX/McDowell site

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December 21, 2001

Anchorage

Mr. Bill Coats
VIOX Corporation
6701 Sixth Avenue South
Seattle, WA 98108

Boston

**Re: Groundwater Monitoring Results
VIOX/McDowell Site
Seattle, Washington
4909**

Denver

Dear Bill:

Edmonds

This letter report summarizes groundwater monitoring activities recently completed at the VIOX/McDowell site located in Seattle, Washington. The groundwater monitoring program was initiated to support a "No Further Action" determination issued by Ecology in June of 2001. As part of this determination, Ecology required that two rounds of groundwater monitoring be completed following construction to demonstrate that groundwater quality was not being significantly impacted. The first round of post-construction groundwater monitoring was completed in July of 2001 and was summarized in a report dated September 20, 2001. The second round of post-construction groundwater monitoring was completed in November of 2001. Results of this sampling event along with previous groundwater monitoring events are discussed in this report.

Eureka

Jersey City

This letter report is presented in three sections:

- Summary of Previous Groundwater Monitoring Events;
- Second Round Post-Construction Groundwater Monitoring Summary; and
- Conclusions.

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Long Beach

Groundwater data quality summaries for pre- and post-construction sampling events are presented in Tables 1 and 2, respectively. The site vicinity map is presented on Figure 1. A monitoring well location plan, including groundwater elevation measurements collected in November 2001, is presented on Figure 2. The groundwater testing laboratory report from the second round of post-construction sampling is included in Appendix A.

Portland

Seattle

Table 1 - Pre-Construction Groundwater Quality Data Summary

Groundwater Sample Identification	Total Lead in ug/L	Dissolved Lead in ug/L	Total Arsenic in ug/L
Monitoring Well B-1 Hart Crowser 1989 CESI 1997	10 U 4	10 U NA	NA 18
Monitoring Well B-2 Hart Crowser 1989 CESI 1997	40 20	10 U NA	NA 14
Monitoring Well B-3 Hart Crowser 1989 CESI 1997	10 U NA	10 U NA	NA NA
Method A Drinking Water Criteria	15	15	5
Method B Marine Surface Water Criteria (a)	5.8	5.8	36

MTCAs - meth A
 Notes: *B - carcinog. 5 5 5 mg/L*
B - nonc. 0.058 3
 NA Not Analyzed *N. LISTING 4.8*
 (a) Method B surface water values are based on Washington State marine ambient surface water criteria presented in Chapter 173-201A WAC using an assumed hardness of 75.4 mg/L.
 U Not detected at indicated detection limit.

Table 2 - Post-Construction Groundwater Quality Data Summary

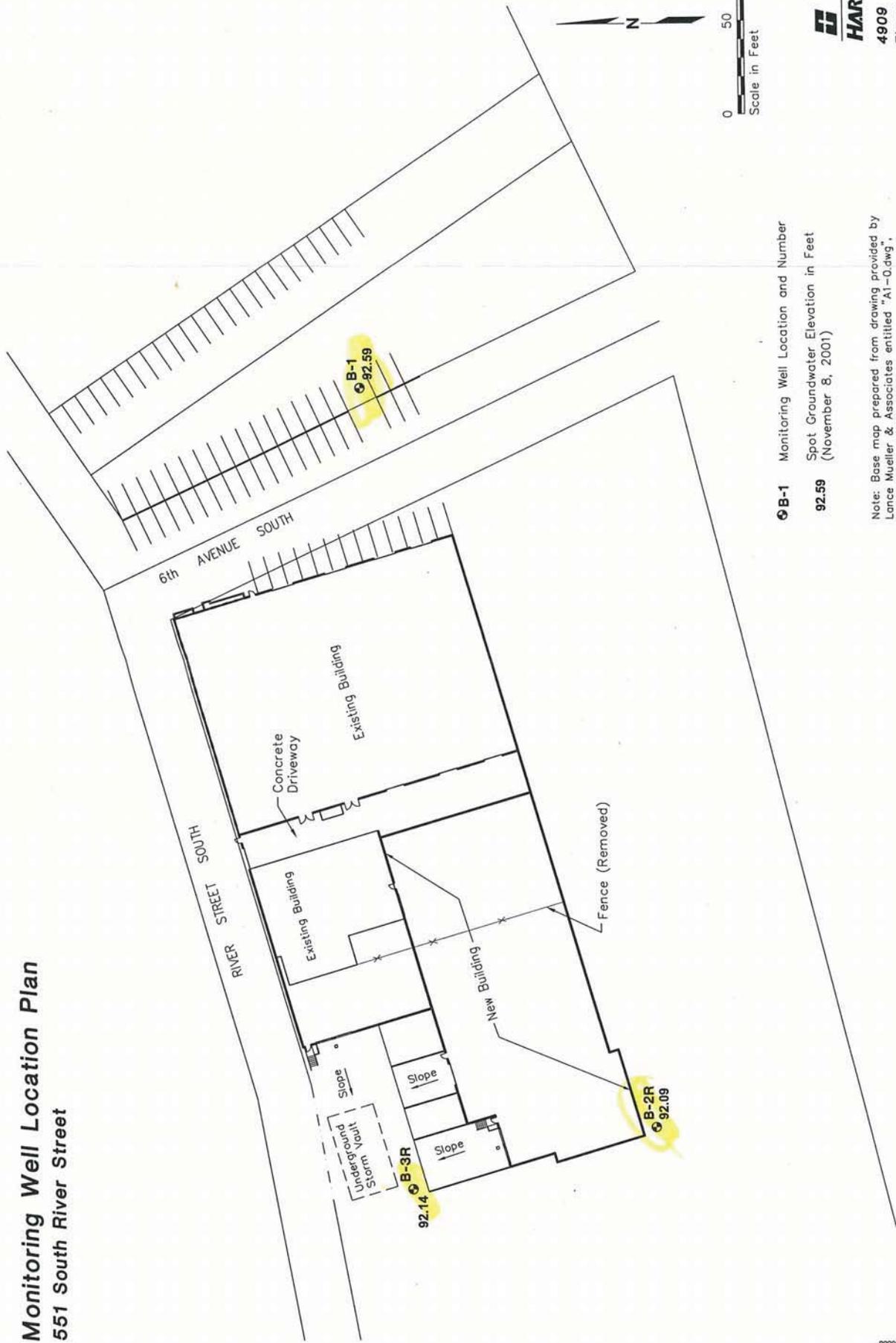
Analyte	Well B-1		Well B-2R		Well B-3R	
	7/26/01	11/8/01	7/26/01	11/8/01	7/26/01	11/8/01
Dissolved Arsenic	8.9	8.4	3.9	4.1	1.4	1.1
Dissolved Lead	1 U	1 U	1 U	1 U	1 U	1 U

Concentrations are in ug/L (ppb).

U = not detected at indicated detection limit

Monitoring Well Location Plan

551 South River Street



- B-1** Monitoring Well Location and Number
- 92.59** Spot Groundwater Elevation in Feet (November 8, 2001)

Note: Base map prepared from drawing provided by Lance Mueller & Associates entitled "A1-0.dwg", dated February 18, 1998.