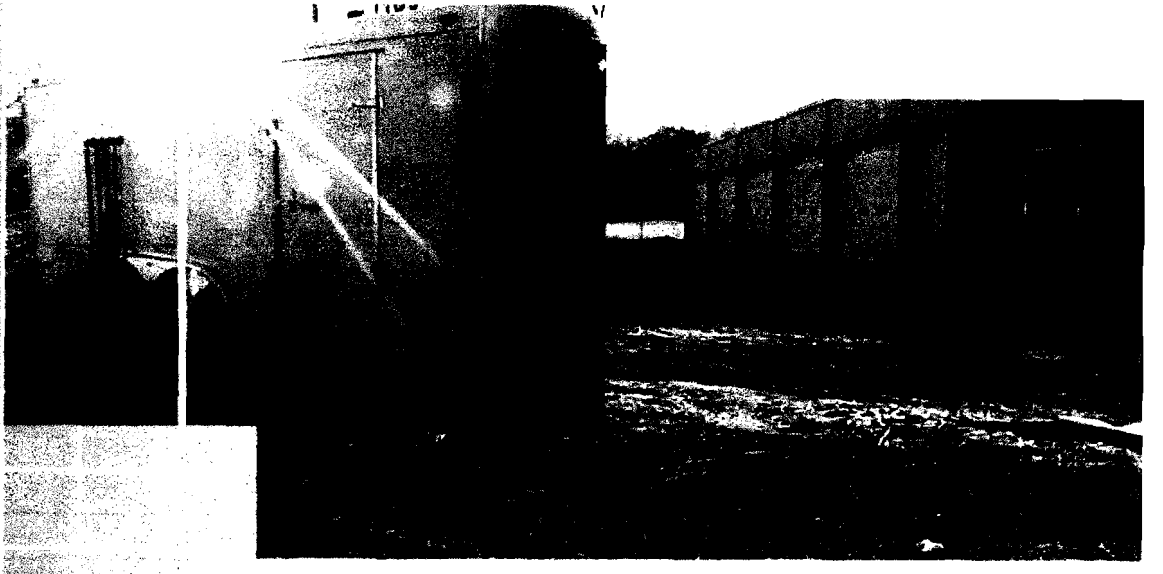
NEW YORK STATE DEPARTMENT OF TRANSPORTATION

Albany, New York

Harrison Subresidency
Town of Harrison
Westchester County, New York

D008873
PIN 8807.31.301

Air Sparging and Soil Vapor Extraction System



Operation and Maintenance Report for June 2001

July 2001

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza • Pearl River, New York 10965

Lawler, Matusky & Skelly Engineers LLP
Environmental Science & Engineering Consultants

July 19, 2001
Project No. 446-173

Mr. John LaBarge
Acting Director, Consultant Management Bureau
NYS Dept. of Transportation
1220 Washington Avenue
Albany, NY 12232

Attn: Greg Menard

Re: **D008873, PIN 8007.31.301**
Harrison Petroleum Spill – Remediation
Town of Harrison, Westchester County, New York
Air Sparging/Soil Vapor Extraction System
Monthly Operations & Maintenance Report #8 (June 2001)

Dear Mr. Menard:

Lawler, Matusky & Skelly Engineers LLP (LMS) is pleased to submit the subject report for your use. This report represents the eighth in a series of twelve scheduled reports. The purpose of this report is to present the information necessary to assess the operation of the air sparging/soil vapor extraction system, to track the progress of the remediation, and to make recommendations to increase operating efficiency or lower operating costs. This report contains a corrected version of Table 4 (Cumulative System Runtime), which contained a calculation error in previous versions.

The air sparge/soil vapor extraction (AS/SVE) system was not operated in June 2001, awaiting warranty repairs to the AS blower. Blower repairs were completed by Handex on 13 July 2001 and the system is currently operating properly. Repair of the settled asphalt pavement, mentioned in previous correspondence, is tentatively scheduled for 27 July 2001.

If you have any questions, please call Ruth Fritsch or me at 845-735-8300.

Very truly yours,

George G. Gattullo

cc: David Wohlbach, NYSDOT (5 copies)

J:\04xx-xxx\0446_NYSDOT\0446-173_Harrison Spill - Construction\Monthly reports\June 2001\ltr - Menard monthly report june 2001.doc (07/19/01 3:48 PM)

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MONTHLY OPERATION AND MAINTENANCE REPORT

NYSDOT – HARRISON SUBRESIDENCY D008873 TOWN OF HARRISON – WESTCHESTER, NY PIN 8007.31.301	MONTH: June 2001

6/29/01- Handex arrived on site to attempt installation of refurbished AS blower. LMS was initially on site to provide access for Handex. The installation was not completed due to the absence of a coupling, which was not returned with the refurbished blower.

MAINTENANCE THIS MONTH:
None.

SPARE PARTS USED:
None.

SPARE PARTS ORDERED:
None.

TYPICAL OPERATING PARAMETERS:

Air Sparging – *Not Operational*

	Pressure	Flow
	(psi)	(scfm)
SP 1		
SP 2		
SP 3		
SP 4		

Vapor Extraction – *Not Active*

	Vacuum	
	(in.-H_2O)	
VE 1		
VE 2		
VE 3		
VE 4		

OUTSTANDING ISSUES AND ACTIONS:

- The AS system blower installation was completed on 16 July and AS/SVE operation was resumed.
- There is no air flow at sparge point SP-3. LMS will attempt to redevelop the well in July. In the mean time, all sparge wells have been set to manual-run mode (no pulse), to prevent AS blower overload.
- Handex to repair settled areas of trench pavement under warrantee.
- Handex to provide spare parts, per construction specifications.

- Was quarterly well sampling conducted? Yes _ No X
  If yes, date: _____

Since no groundwater sampling was conducted this month, the groundwater monitoring well data summaries are not included in this month's report

Lawler, Matusky & Skelly Engineers LLP

M0NTHLY OPERATION AND MAINTENANCE REPORT
AIR SPARGING / SOIL VAPOR EXTRACTION SYSTEM
HARRISON SUBRESIDENCY, WESTCHESTER, NEW YORK

JUNE 2001

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TABLE 1 (Page 1 of 2)

SVE CONCENTRATIONS AND LOADINGS AT SYSTEM STARTUP
(11 November 2000)
Harrison Subresidency

Location Collected LMS Sample ID Lab Sample ID Date Sampled	SVE AB13459 00110156-01 11/8/00 (ppbv)	Formula Weight (g/mole)	(µg/m³)	Loading (lb/hr) (assume Q = 218 ft³/min)
Volatile Organic Compounds (ug/L)				
Dichlorodifluoromethane	ND	120.92	ND	ND
Chloromethane	ND	50.5	ND	ND
Vinyl Chloride	ND	62.5	ND	ND
Bromomethane	ND	95	ND	ND
Chloroethane	ND	64.5	ND	ND
Trichlorofluoromethane	ND	137.37	ND	ND
Acetone	ND	58.08	ND	ND
1,1-Dichloroethene	ND	97	ND	ND
Methylene Chloride	ND	87.9	ND	ND
trans-1,2-Dichloroethene	ND	96.94	ND	ND
MTBE	ND	88.15	ND	ND
1,1-Dichloroethane	ND	99	ND	ND
2-Butanone	ND	72.11	ND	ND
cis-1,2-Dichloroethene	ND	96	ND	ND
2,2-Dichloropropane	ND	112.99	ND	ND
Chloroform	ND	119	ND	ND
Bromochloromethane	ND	129.38	ND	ND
1,1,1-Trichloroethane	ND	133.4	ND	ND
1,1-Dichloropropene	ND	110.97	ND	ND
1,2-Dichloroethane	ND	98.96	ND	ND
Carbon Tetrachloride	ND	154	ND	ND
Benzene	ND	78.1	ND	ND
Trichloroethene	ND	131.39	ND	ND
1,2-Dichloropropane	ND	113	ND	ND
Dibromomethane	ND	173.83	ND	ND
Bromodichloromethane	ND	163.83	ND	ND
trans-1,3-Dichloropropene	ND	111	ND	ND
4-Methyl-2-Pentanone	ND	100.16	ND	ND
cis-1,3-Dichloropropene	ND	111	ND	ND
Toluene	0.60	92.1	2.30	0.0019
trans-1,3-Dichloropropene	ND	110.97	ND	ND
1,1,2-Trichloroethane	ND	133	ND	ND
2-Hexanone	ND	100.16	ND	ND
1,3-Dichloropropane	ND	112.99	ND	ND
Dibromochloromethane	ND	208.28	ND	ND
Tetrachloroethylene	ND	166	ND	ND
1,2-Dibromoethane	ND	187.86	ND	ND
Chlorobenzene	ND	113	ND	ND
1,1,1,2-Tetrachloroethane	ND	168	ND	ND
Ethylbenzene	1.4	106	6.17	0.0050
m/p-Xylene	3.4	106	ND	ND
Styrene	ND	104	ND	ND
O-Xylene	0.77	106	3.39	0.0028
Bromoform	ND	252.73	ND	ND
1,1,2,2-Tetrachloroethane	ND	168	ND	ND

SVE CONCENTRATIONS AND LOADINGS AT SYSTEM STARTUP
(11 November 2000)
Harrison Subresidency

Location Collected LMS Sample ID Lab Sample ID Date Sampled	SVE AB13459 00110156-01 11/8/00 (ppbv)	Formula Weight (g/mole)	(µg/m³)	Loading (lb/hr) (assume Q = 218 ft³/min)
Isopropylbenzene	ND	120.19	ND	ND
1,2,3-Trichloropropane	ND	147.43	ND	ND
Bromobenzene	ND	157.01	ND	ND
n-Propylbenzene	ND	120.19	ND	ND
2-Chlorotoluene	ND	126.59	ND	ND
4-Chlorotoluene	ND	126.59	ND	ND
1,3,5-Trimethylbenzene	1.5	120	7.48	0.0061
tert-Butylbenzene	ND	134.22	ND	ND
1,2,4-Trimethylbenzene	4.2	120	20.95	0.0171
sec-Butylbenzene	ND	134.21	ND	ND
1,3-Dichlorobenzene	ND	147	ND	ND
1,4-Dichlorobenzene	ND	147	ND	ND
p-Isopropylbenzene	ND	120.19	ND	ND
1,2-Dichlorobenzene	ND	147	ND	ND
n-Butylbenzene	ND	134.22	ND	ND
1,2-Dibromo-3-Chloropropane	ND	236.33	ND	ND
1,2,4-Trichlorobenzene	ND	181	ND	ND
Naphthalene	ND	128.17	ND	ND
Hexachlorobutadiene	ND	261	ND	ND
1,2,3-Trichlorobenzene	ND	181.45	ND	ND
Total VOCs:	11.87			0.0329
Tentively Indentified Compounds, TIC (µg/L)				
2-Methyl-Butane	38.0	72.15	113.98	0.0930
Pentane	33.6	72.15	100.78	0.0823
2-Methyl-Pentane	46.9	86.18	168.03	0.1371
Hexane	49.8	86.18	178.41	0.1456
Methyl Cyclopentane	34.3	84.16	120.00	0.0979
2-Methyl-Hexane	34.7	100.2	144.54	0.1180
3-Methyl-Hexane	32.0	100.2	133.29	0.1088
Heptane	29.4	10.2	12.47	0.0102
Methyl-Cyclohexane	35.9	98.19	146.54	0.1196
1,5-Dimethylcyclopentene	33.5	96.17	133.93	0.1093

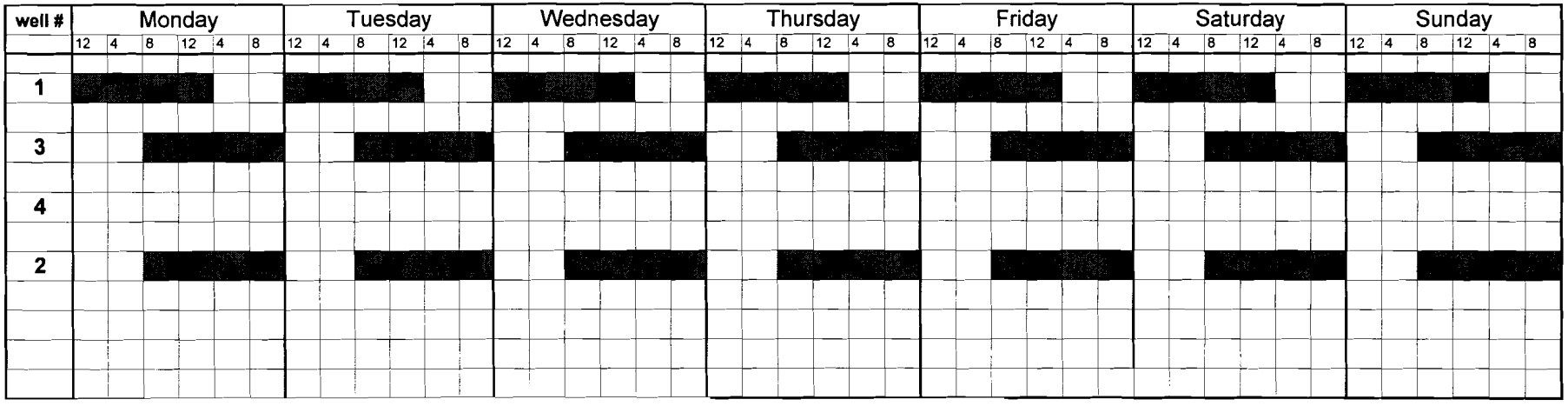
ND - Not detected at analytical reporting limit.

TABLE 3

AIR SPARGE WELL PULSING TIMER SETTING

NYSDOT Harrison Subresidency

timer set on: 2/24/01



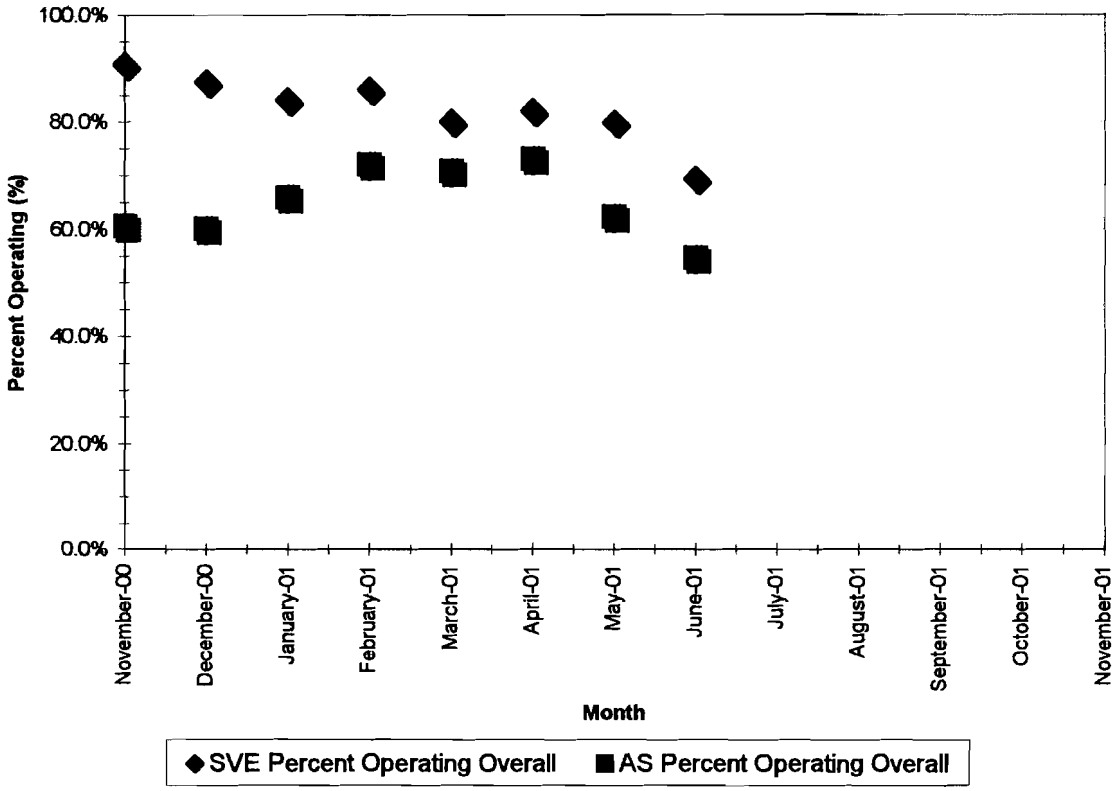
LEGEND:

= sparge air on

TABLE 4

CUMULATIVE SYSTEM RUNTIME
Harrison Subresidency

Month	SVE Cumulative Hours Running (approx.)	AS Cumulative Hours Running (approx.)	Cumulative Hours Available	OVERALL		MONTH	
				SVE Percent Operating Overall	AS Percent Operating Overall	SVE Percent Operating - Month	AS Percent Operating - Month
November-00	654	436	720	90.8%	60.6%	90.8%	60.6%
December-00	1,280	879	1,464	87.4%	60.0%	84.1%	59.5%
January-01	1,858	1,454	2,208	84.1%	65.8%	77.6%	77.2%
February-01	2,122 (a)	2,076	2,880	86.1% (b)	72.1%	92.6% (b)	92.6%
March-01	2,613	2,567	3,624	80.0%	70.8%	66.0%	66.0%
April-01	3,273	3,173	4,344	82.1%	73.0%	91.6%	84.1%
May-01	3,781	3,173	5,088	79.9%	62.4%	68.3%	0.0%
June-01	3,781	3,173	5,808	69.4%	54.6%	0.0%	0.0%
July-01			6,552				
August-01			7,296				
September-01			8,016				
October-01			8,760				
November-01			9,480				



Notes:
(a) Due to a malfunction in the SVE elapsed timer in February, this value is not representative of the actual hours of operation.
(b) This value is calculated using an estimated value for SVE elapsed time..

FIGURES

Figure 1

Site Location

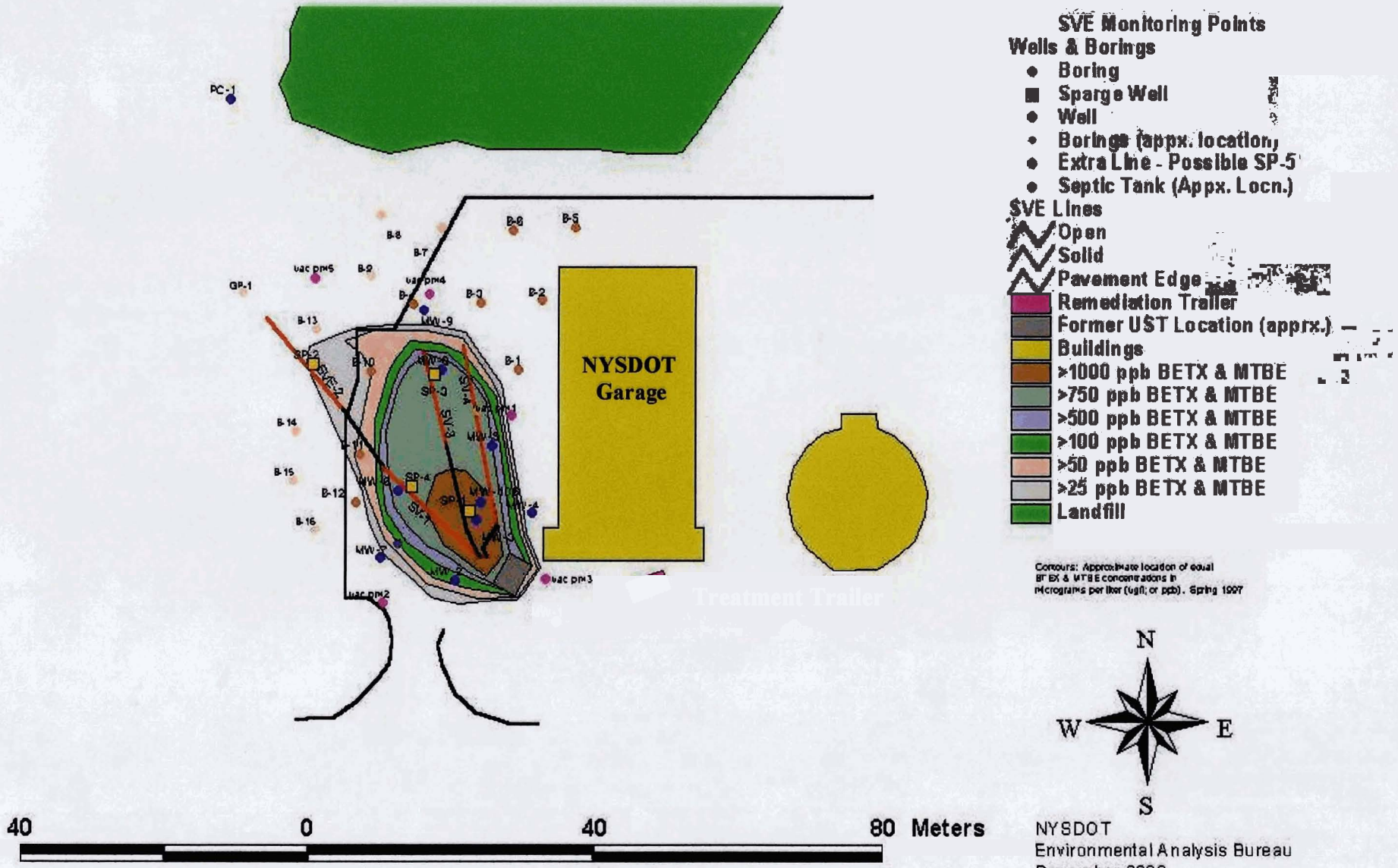
HARRISON SUBRESIDENCY
NYSDOT PIN A96906.701

Map source: USGS 7.5 minute quadrangle map, Glenville Conn. NY, 1960
Photorevised 1971.

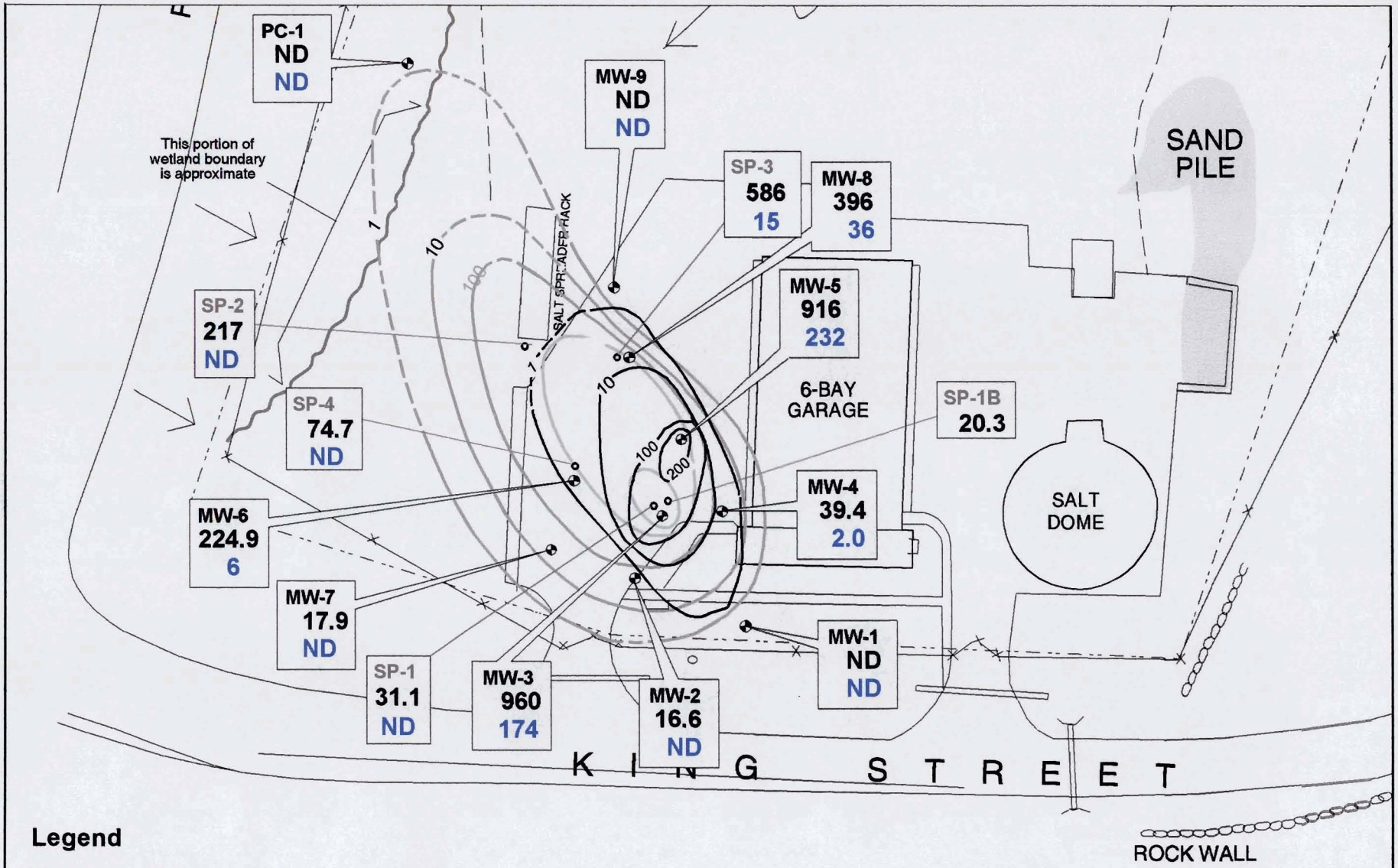
\446\harrison\135usgs.dsf

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

Figure 2
Harrison Subresidency, Westchester County
Petroleum (BTEX & MTBE) Contaminant Plume at the Water Table (Spring 1997)
Wells, Borings, and Soil Vapor Extraction Lines



NYSDOT
Environmental Analysis Bureau
December 2000



Legend

MW-2 ◆ Monitoring well

SP- • Sparge well

14 BTEX concentration - May 2000 (µg/L)

6 BTEX concentration - May 2001 (µg/L)

Contour lines dashed where inferred

0 150ft

SCALE IN FEET

450\102map-v2.dsf

Figure 3

Total BTEX Concentrations at Water Table AS/SVE Remediation

Harrison Subresidency PSA
NYSDOT PIN A989.06.701

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants

FIGURE 4
AS/SVE EQUIPMENT SPECIFICATIONS AND LAYOUT
Harrison Subresidency

NYSDOT HARRISON SUBRESIDENCY

D008873 CPIN 8007.31.301

AIR SPARGING AND SOIL VAPOR EXTRACTION SYSTEM SPECIFICATIONS

TRAILER (Class 1 , Div. 2)

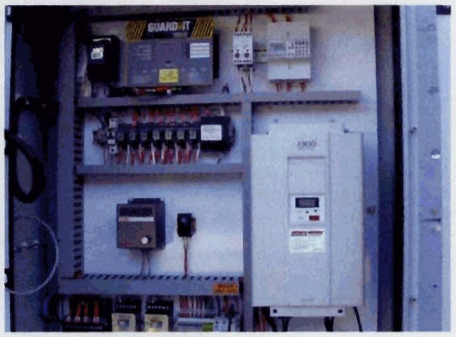
Haulmark	Grizzly
Model	#G816B2
OVERALL	
Length	19'17"
Width	100"
Height	103"
INTERIOR	
Length	16'4"
Width	96"
Height	78"
Platform Height	19"
Tire Size	ST205/R15 15"
Payload Cap.	4280 (avg.)
Double Rear doors	
Side door	
Color	white

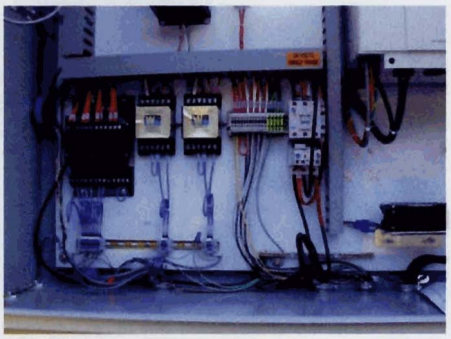
AIR SPARGING SYSTEM

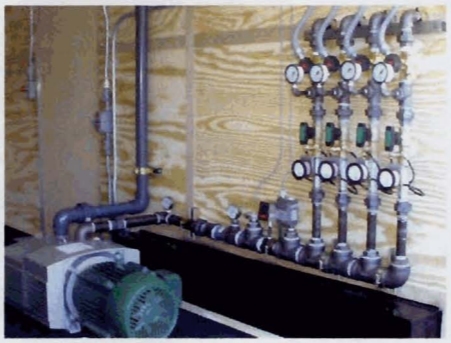
Blower	Becker KDT
Model #	3.140
HP	12
Voltage	230 V/3 phase
Converter	VFD
Max. pressure	22 psig
Max. flow	90 scfm
Max. temp.	125 F
Noise level	84 max. dBA
Outlet size	1 ½ " bsp

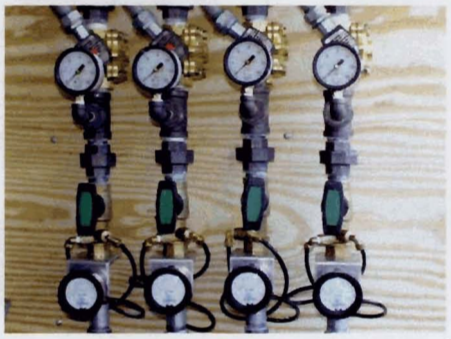
SOIL VAPOR EXTRACTION

Blower	Gast
Model #	R6P155Q-50
HP	5.5
Voltage	230 V/1 phase
Max. vacuum	85" w.c.
Max. flow	280 scfm
Max. temp.	100 F
Noise level	81 max. dBA
Moisture sep.	60 gal.



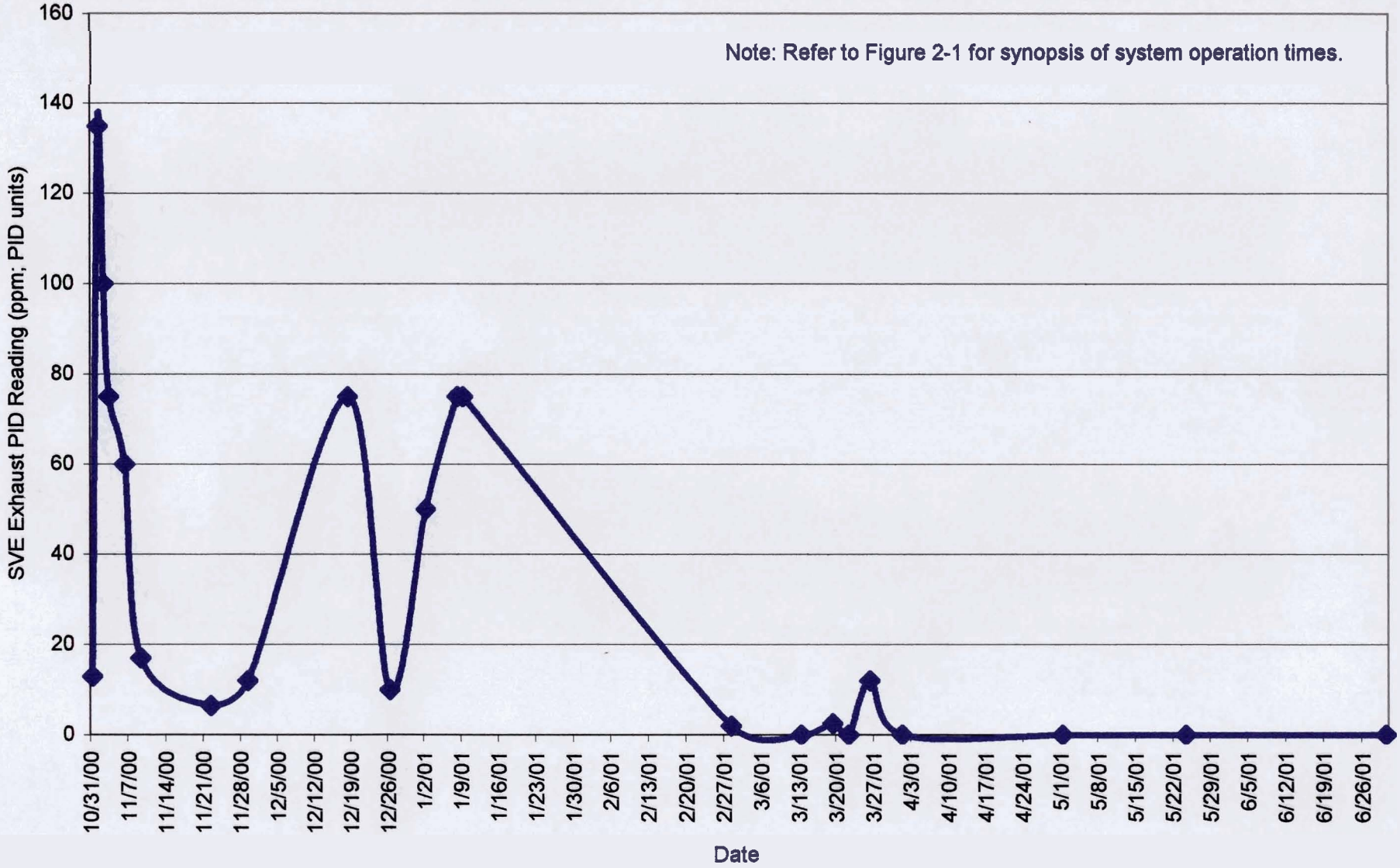






LMS

FIGURE 5
SVE EXHAUST PID READINGS FOR THE YEARS 2000-2001
Harrison Subresidency

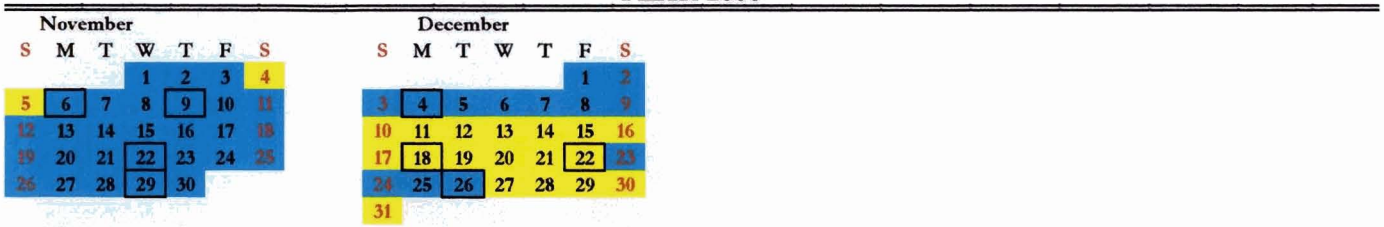


Lawler, Matusky & Skelly Engineers LLP

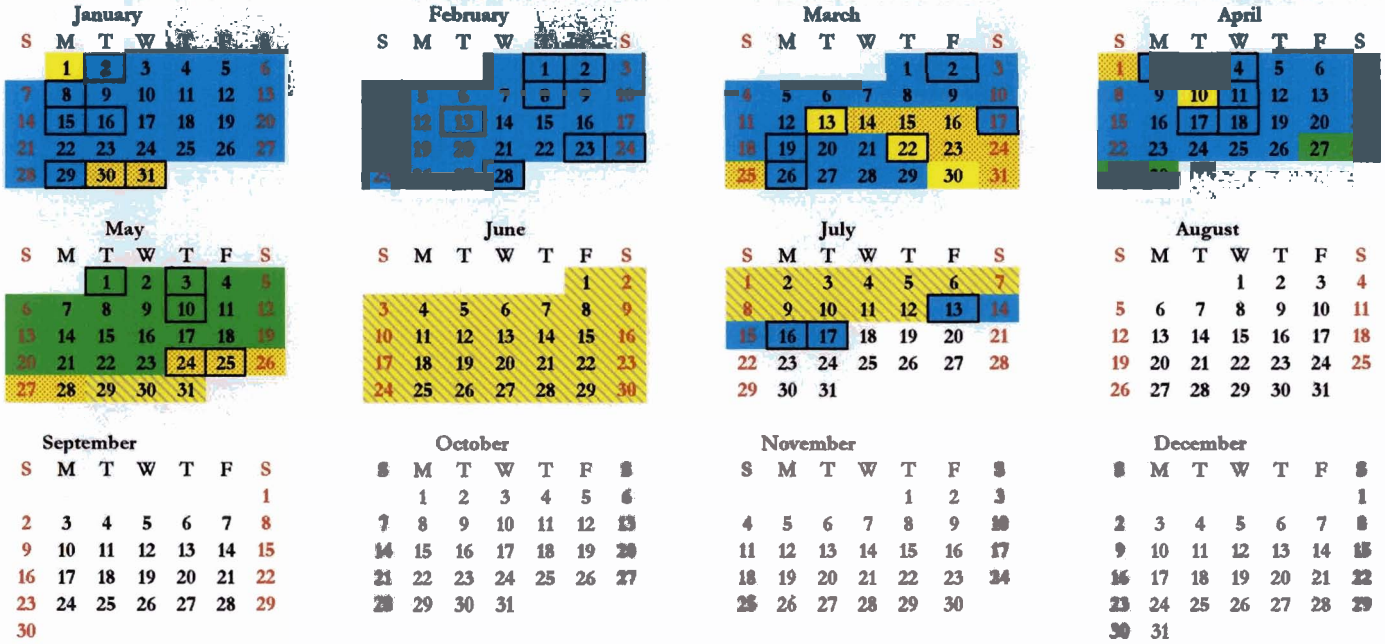
FIGURE 6
OPERATING CALENDAR

Harrison Subresidency

YEAR 2000



YEAR 2001



Legend

- Up time
- Unplanned downtime
- Unplanned downtime, warranty issues
- Planned downtime; quarterly sampling or maintenance
- Planned or Unplanned AS system down time; SVE running
- Site Visits

FIGURE 7
GROUNDWATER MONITORING - SECOND QUARTER RESULTS (MAY 2001)
Harrison Subresidency