Norwalk Tank Farm Update

Presented to the Norwalk Tank Farm Restoration Advisory Board

April 28, 2005

Presentation Overview

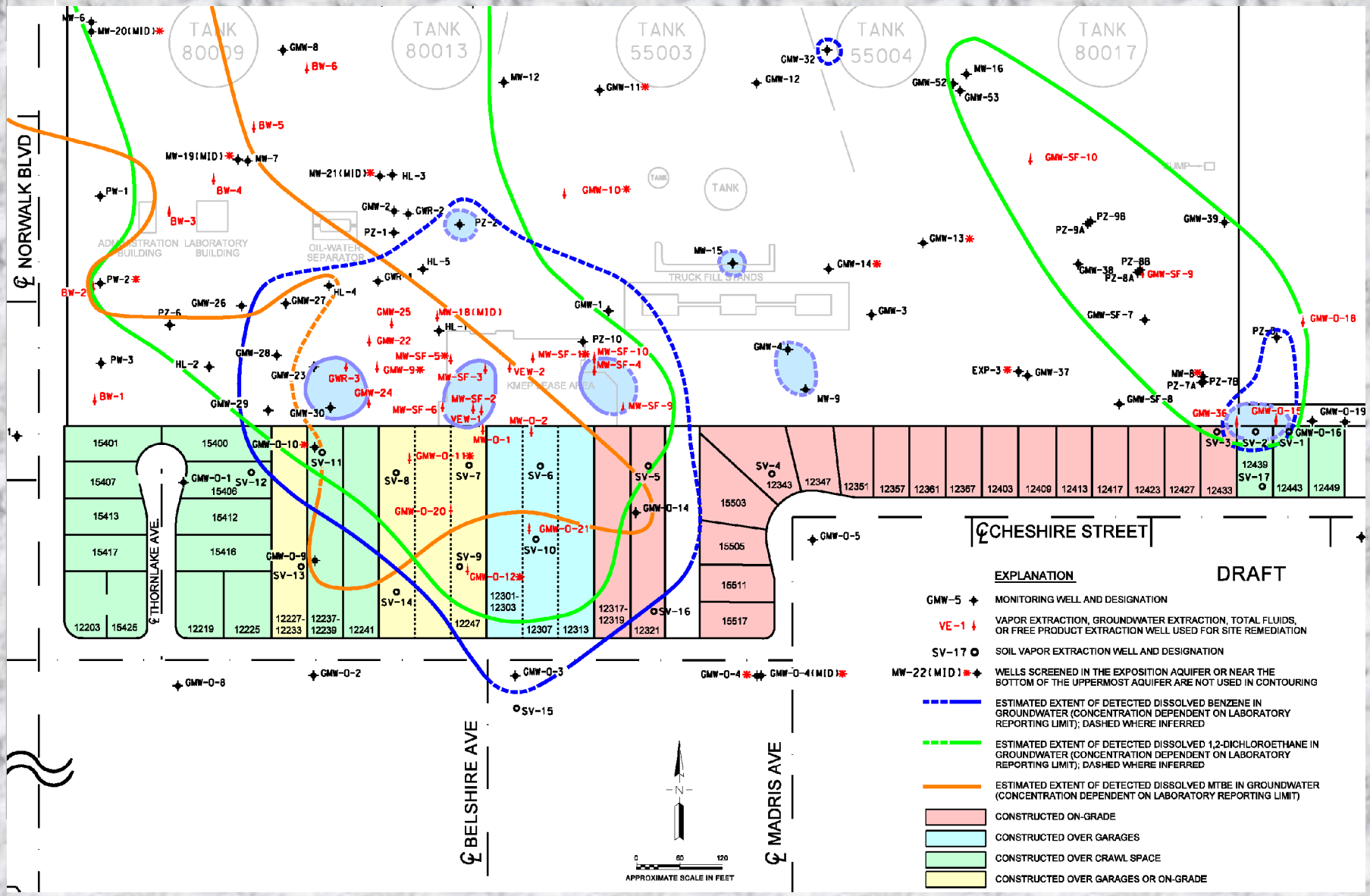
Topics to be Covered

- HHRA Update
- Remediation Operations Update
- Eastern Area Update
- Review of Intermediate Block Valve Area
- Southeastern Plume Update

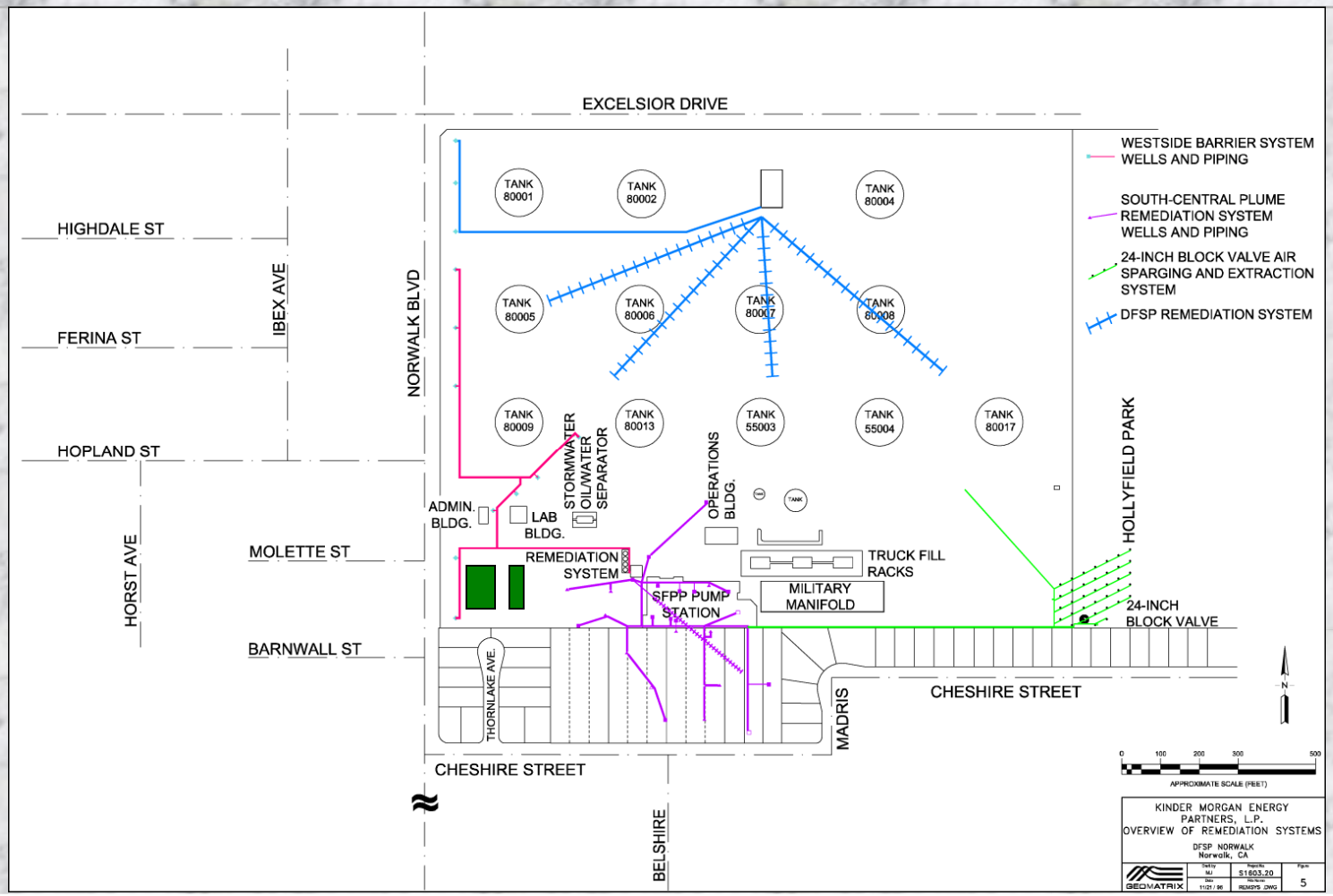
HHRA Update

- KMEP verified proposed soil gas sampling locations and confirmed access to these locations with southern off-site residents.
- KMEP prepared a draft work plan which will be submitted to the RWQCB and OCCS for review in May 2005.
- The HHRA will be implemented upon the RWQCB's approval of the final work plan.

HHRA Update (cont.)



Map of Current Remediation Systems



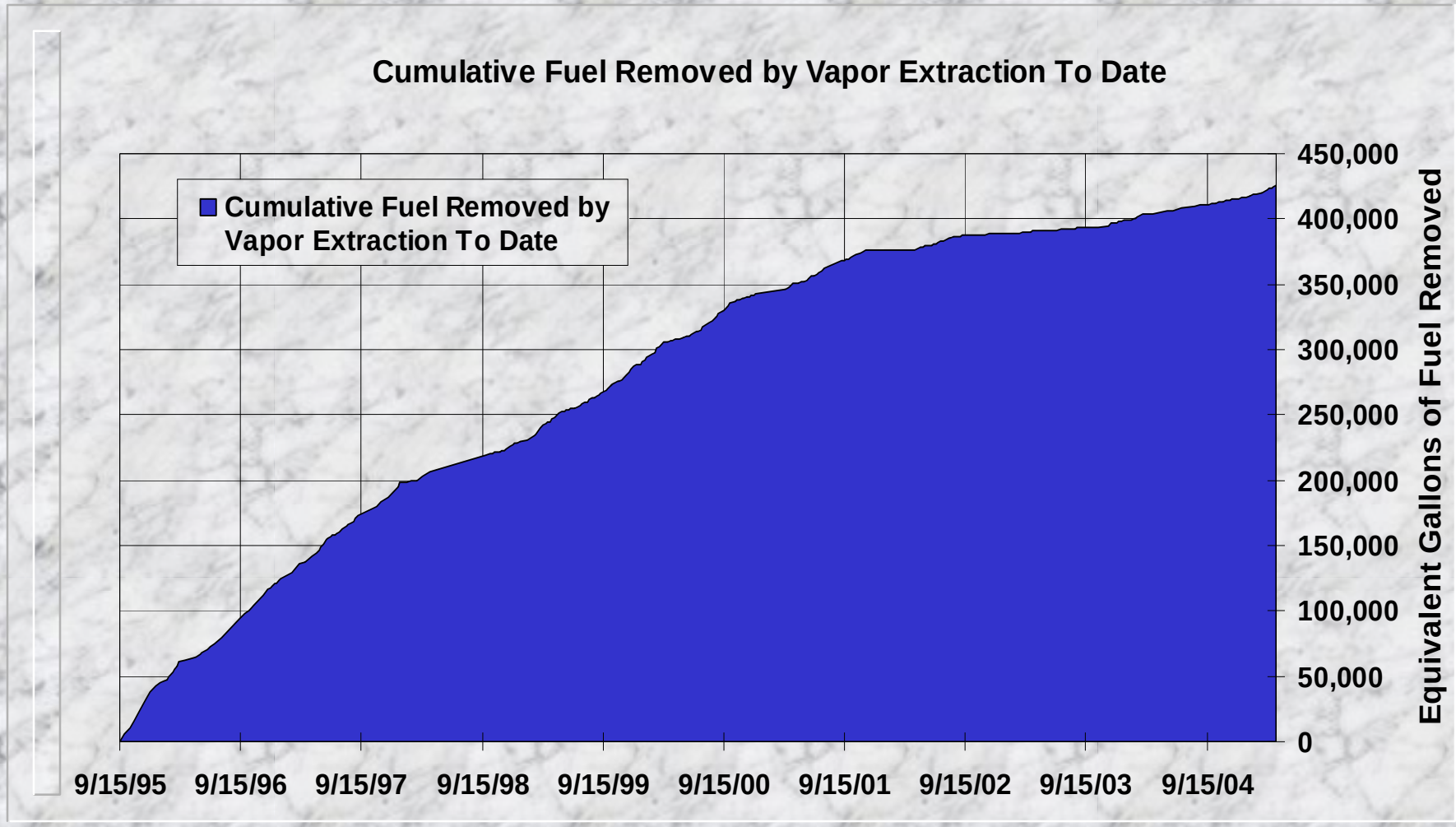
Soil Vapor Extraction System

- 17 onsite and 6 off-site vapor extraction wells in the South-Central Plume area.
- 2 vapor extraction wells in the Southeastern 24-Inch Block Valve area.

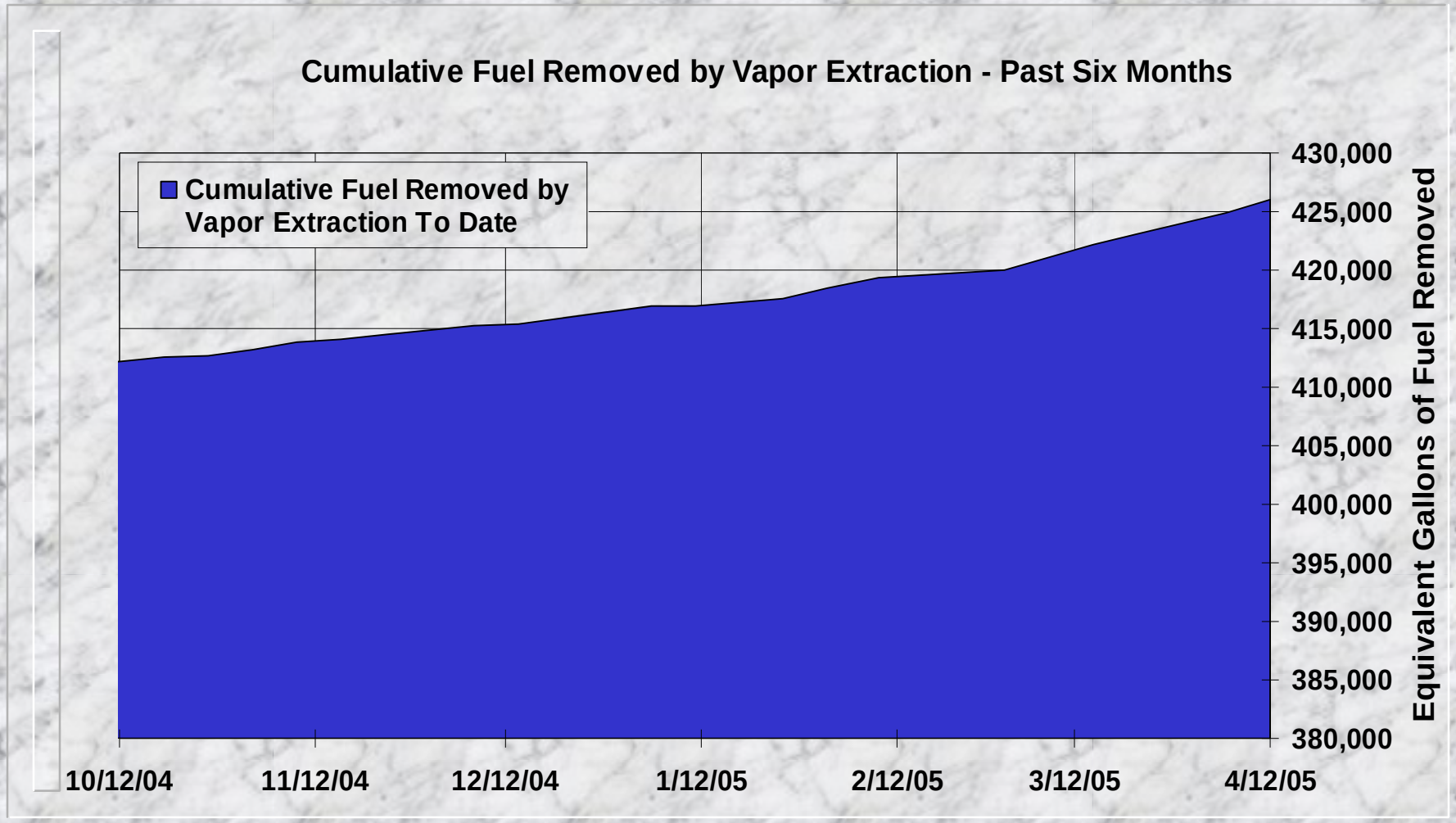
Soil Vapor Extraction System Operations Summary

- Approximately 9,138 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since the January 2005 RAB meeting.
- Approximately 426,030 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since September 1995.

Soil Vapor Extraction System Operations Summary



Soil Vapor Extraction System Operations Summary



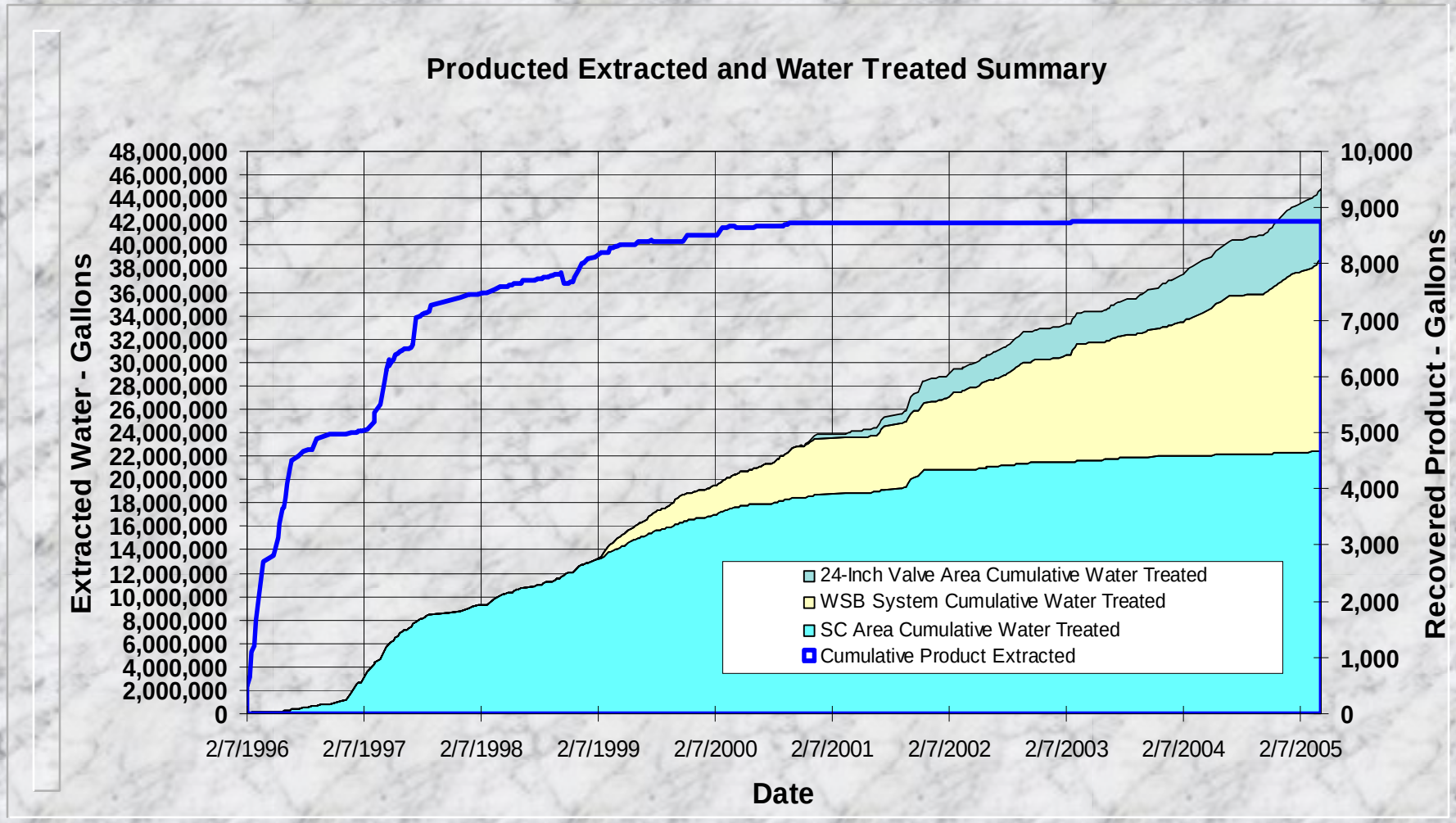
Groundwater/Product Extraction System

- 8 groundwater extraction wells in the West Side Barrier area
- 8 total fluids (product and groundwater) extraction wells in the South-Central Plume area
- 3 total fluids (product and groundwater) extraction wells and 2 groundwater extraction wells in the Southeastern 24-Inch Block Valve area

Groundwater/Product Extraction System Operations Summary

- Total groundwater extracted since January 2005 RAB meeting:
  - South-Central Plume area: 139,800 gallons
  - Southeastern 24-Inch Valve area: 160,200 gallons
  - West Side Barrier area: 1,230,000 gallons
  - Negligible amount of free product recovered
- Total groundwater extracted since September 1995:
  - South-Central Plume area: 22.4 million gallons
  - Southeastern 24-Inch Valve area: 5.9 million gallons
  - West Side Barrier area: 16.4 million gallons
  - Total groundwater extracted: 44.7 million gallons
  - 8,745 gallons free product removed

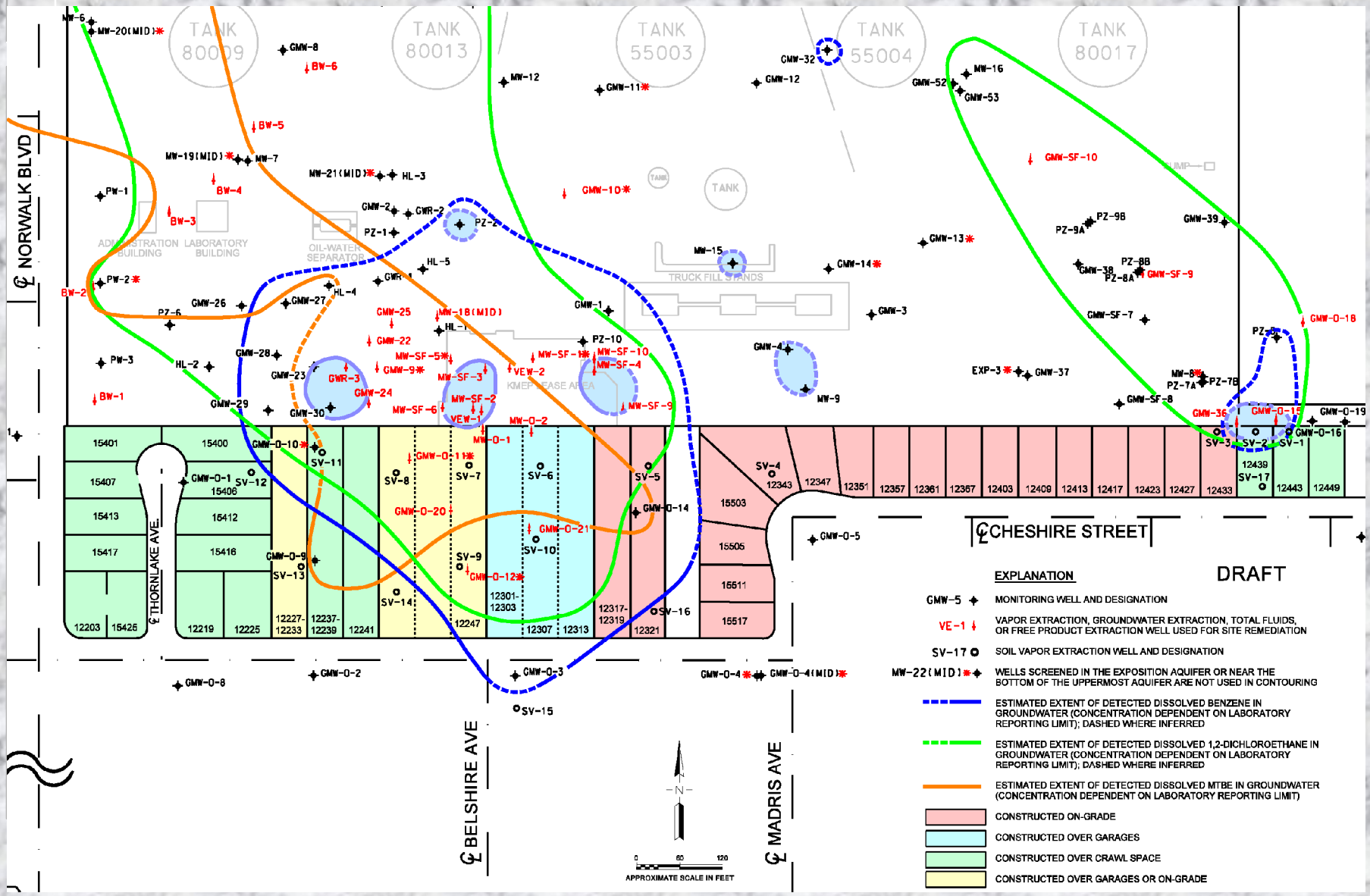
Groundwater/Product Extraction System Operations Summary



System Modification

- Primary objectives of Remedial Action Plan (RAP) were to contain and remove light non-aqueous phase liquids (LNAPLs) from the subsurface in the south-central portion of the site and the residential areas south of the site.
- The total fluids recovery system has been effective at reducing the extent and thickness of free product in the south-central area.

April/May 2004



System Modification

- KMEP proposes to focus remedial measures on the south-central dissolved-phase plume by increasing groundwater extraction.
- Total-fluids extraction wells in south-central area will be converted to groundwater-only extraction wells to increase groundwater extraction rates.
- Groundwater monitoring data will be used to evaluate the effects of increased groundwater extraction on groundwater quality in the area.

Eastern Area Update

- KMEP reviewed operations data for eastern pipeline:
  - Pipeline passed tracer test in February 2003.
  - No problems noted during an in-line inspection in June 2004.
  - No valves in the pipeline segment.
  - No problems identified during visual inspections in the field.

Eastern Area Update

- KMEP reviewed “Eastern Boundary Area Investigation Results Report” prepared by Parsons.
  - Not enough information to determine source of impacts at GMW-60 and GMW-61.
  - Benzene, TPHg, and other dissolved constituents have historically been detected in the northeastern part of the site.

Eastern Area Update

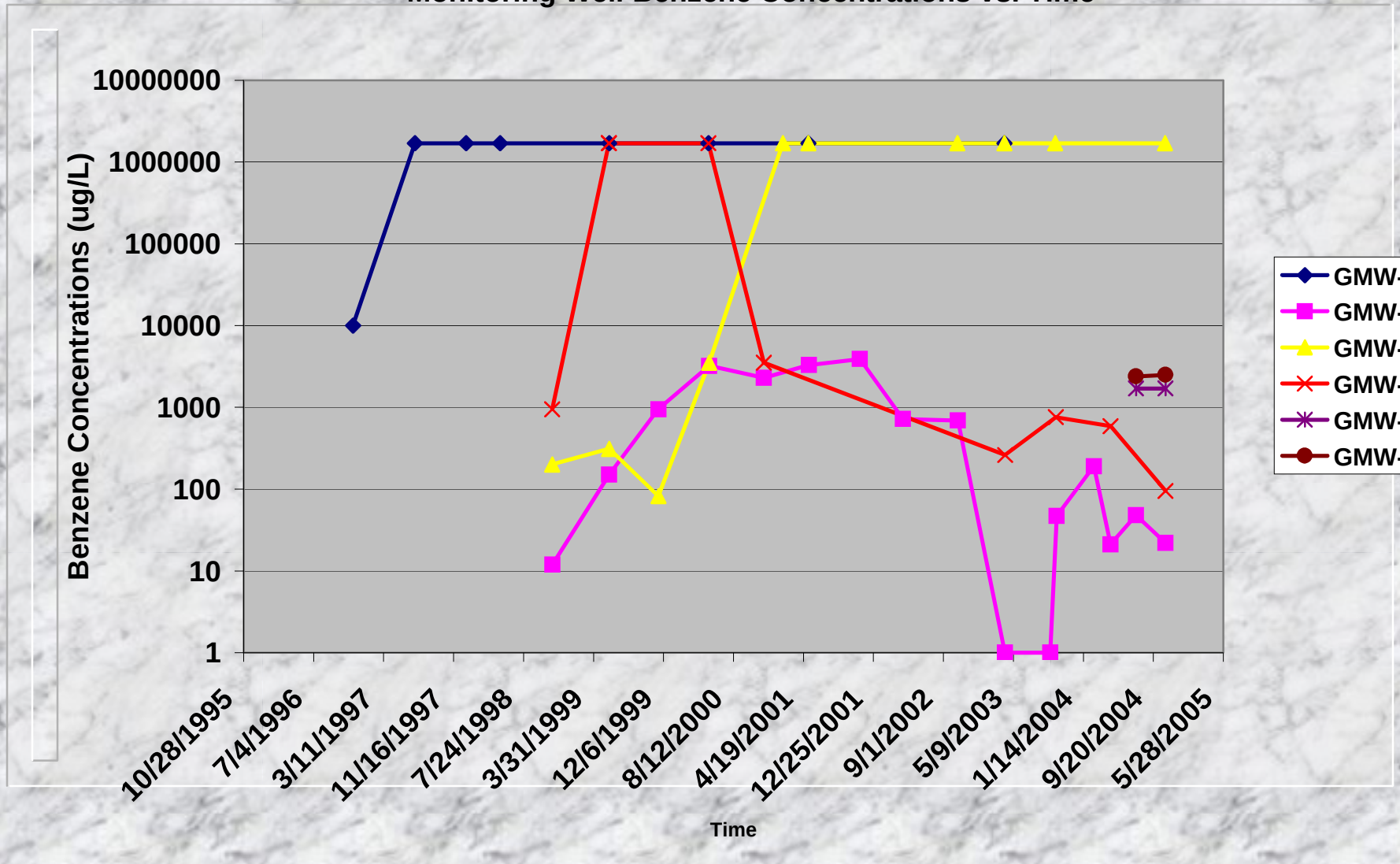
- KMEP collected groundwater samples for forensic evaluation during March 2005:
- GMW-60
  - dissolved-phase constituents
  - benzene detected at 6 µg/L
  - no MTBE
  - no isooctane
- GMW-61
  - dissolved-phase constituents
  - benzene detected at 240 µg/L
  - no MTBE
  - no isooctane

Eastern Area Update

- GMW-59
  - contained a sheen (insoluble fraction)
  - benzene detected at 110 µg/L
  - MTBE detected at 37 µg/L
  - no isooctane

Eastern Area Update

Logarithmic Graph
Monitoring Well Benzene Concentrations vs. Time



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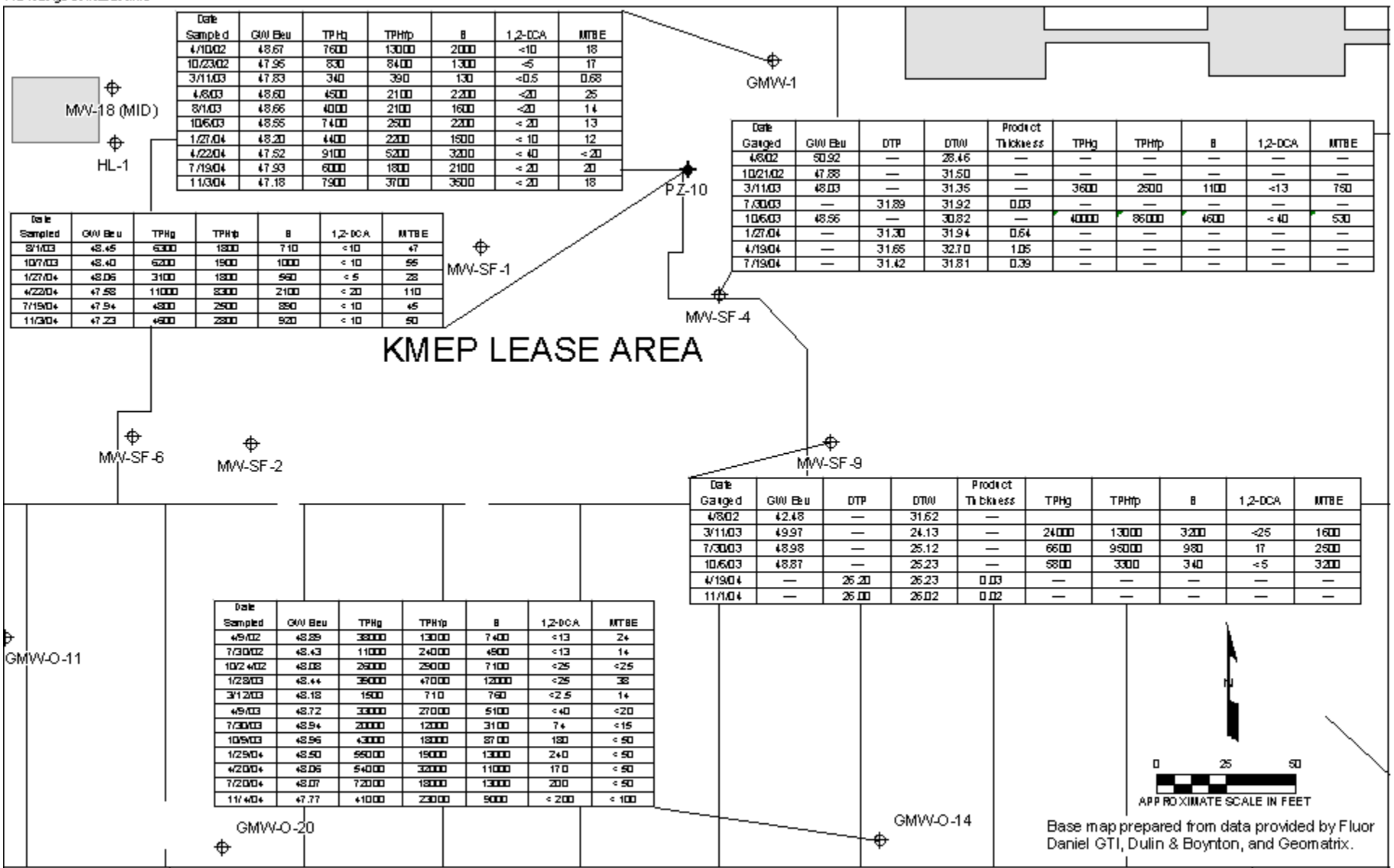


Date Sampled	GW Elev	TPHg	TPHfp	B	1,2-DCA	MTBE
4/10/02	48.67	7600	13000	2000	<10	18
10/23/02	47.95	830	8400	1300	<5	17
3/11/03	47.83	340	390	130	<0.5	0.68
4/8/03	48.60	4500	2100	2200	<20	25
8/1/03	48.66	4000	2100	1600	<20	14
10/6/03	48.55	7400	2500	2200	< 20	13
1/27/04	48.20	4400	2200	1500	< 10	12
4/22/04	47.52	9100	5200	3200	< 40	< 20
7/19/04	47.93	6000	1800	2100	< 20	20
11/3/04	47.18	7900	3700	3500	< 20	18

Date Gauged	GW Elev	DTP	DTW	Product Thickness	TPHg	TPHfp	B	1,2-DCA	MTBE
4/8/02	50.92	—	28.46	—	—	—	—	—	—
10/21/02	47.88	—	31.50	—	—	—	—	—	—
3/11/03	48.03	—	31.35	—	3600	2500	1100	<13	750
7/30/03	—	31.89	31.92	0.03	—	—	—	—	—
10/6/03	48.56	—	30.82	—	40000	86000	4600	< 40	530
1/27/04	—	31.30	31.94	0.64	—	—	—	—	—
4/19/04	—	31.65	32.70	1.05	—	—	—	—	—
7/19/04	—	31.42	31.81	0.39	—	—	—	—	—

Date Sampled	GW Elev	TPHg	TPHfp	B	1,2-DCA	MTBE
8/1/03	48.45	6300	1800	710	< 10	47
10/7/03	48.40	6200	1900	1000	< 10	55
1/27/04	48.06	3100	1800	560	< 5	28
4/22/04	47.58	11000	8300	2100	< 20	110
7/19/04	47.94	4800	2500	880	< 10	45
11/3/04	47.23	4600	2800	920	< 10	50

Date Gauged	GW Elev	DTP	DTW	Product Thickness	TPHg	TPHfp	B	1,2-DCA	MTBE
4/8/02	42.48	—	31.62	—					
3/11/03	49.97	—	24.13	—	24000	13000	3200	<25	1600
7/30/03	48.98	—	25.12	—	6600	95000	980	17	2500
10/6/03	48.87	—	25.23	—	5800	3300	340	< 5	3200
4/19/04	—	26.20	26.23	0.03	—	—	—	—	—
11/1/04	—	26.00	26.02	0.02	—	—	—	—	—

Date Sampled	GW Elev	TPHg	TPHfp	B	1,2-DCA	MTBE
4/9/02	48.89	38000	13000	7400	< 13	24
7/30/02	48.43	11000	24000	4900	< 13	14
10/24/02	48.08	26000	29000	7100	<25	<25
1/28/03	48.44	36000	47000	12000	<25	38
3/12/03	48.18	1500	710	760	<2.5	14
4/9/03	48.72	33000	27000	5100	< 40	<20
7/30/03	48.94	20000	12000	3100	74	< 15
10/9/03	48.96	43000	18000	8700	180	< 50
1/29/04	48.50	56000	19000	13000	240	< 50
4/20/04	48.06	54000	32000	11000	170	< 50
7/20/04	48.07	72000	18000	13000	200	< 50
11/4/04	47.77	41000	23000	9000	< 200	< 100

Base map prepared from data provided by Fluor Daniel GTI, Dulin & Boynton, and Geomatrix.

GEOMATRIX

INTERMEDIATE BLOCK VALVE AREA
DFSP NORWALK
Norwalk, California

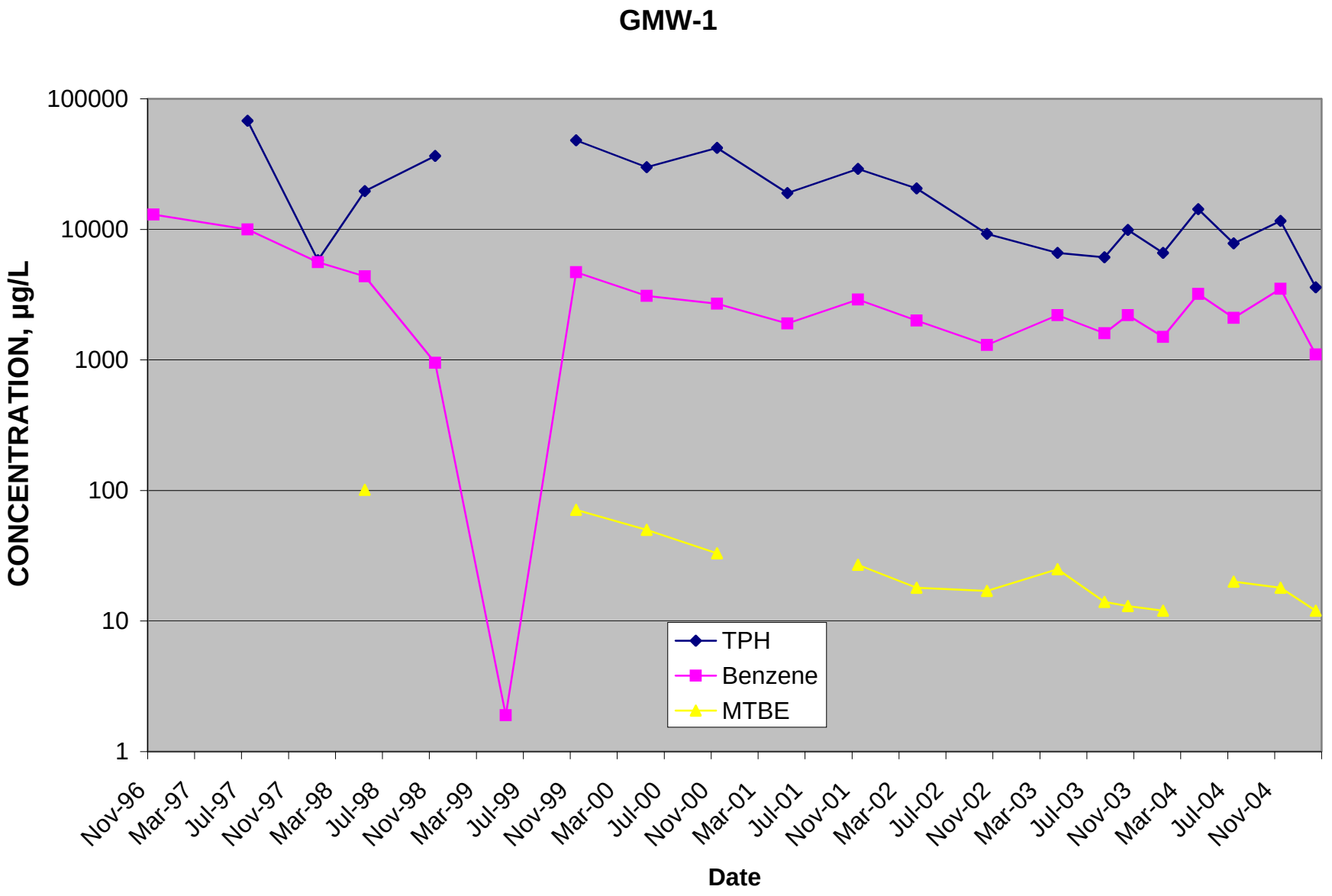
Project No.
1603

Figure
1

Review of Intermediate Block Valve Area GMW-1

Date Sampled	GW Elev	TPHg	TPHfp	B	1,2-DCA	MTBE
11/27/96	47.04			13000	<50	<500
7/17/97	46.8	68000		10000	<30	<300
1/9/98	46.92	5800		5600	-30	<300
5/27/98	50.00	19600		4360	<0.5	101
11/17/98	49.02	4260	32200	950	<50	<50
5/5/99	48.53	<500		1.9	<1	<0.5
11/17/99	48.38	23000	25000	4700	<5	71
5/16/00	48.51	14000	16000	3100	<25	50
11/30/00	47.82	14000	28000	2700	<0.5	33
5/9/01	49.27	1000	18000	1900	<13	<13
11/6/01	49.24	11000	18000	2900	<0.5	27
4/10/02	48.67	7600	13000	2000	<10	18
10/23/02	47.95	830	8400	1300	<5	17
4/8/03	48.60	4500	2100	2200	<20	25
8/1/03	48.66	4000	2100	1600	<20	14
10/6/03	48.55	7400	2500	2200	< 20	13
1/27/04	47.18	4400	2200	1500	< 10	12
4/22/04	48.20	9100	5200	3200	< 40	< 20
7/19/04	47.52	6000	1800	2100	< 20	20
11/3/04	47.93	7900	3700	3500	< 20	18
2/2/05	48.98	2100	1500	1100	<10	12

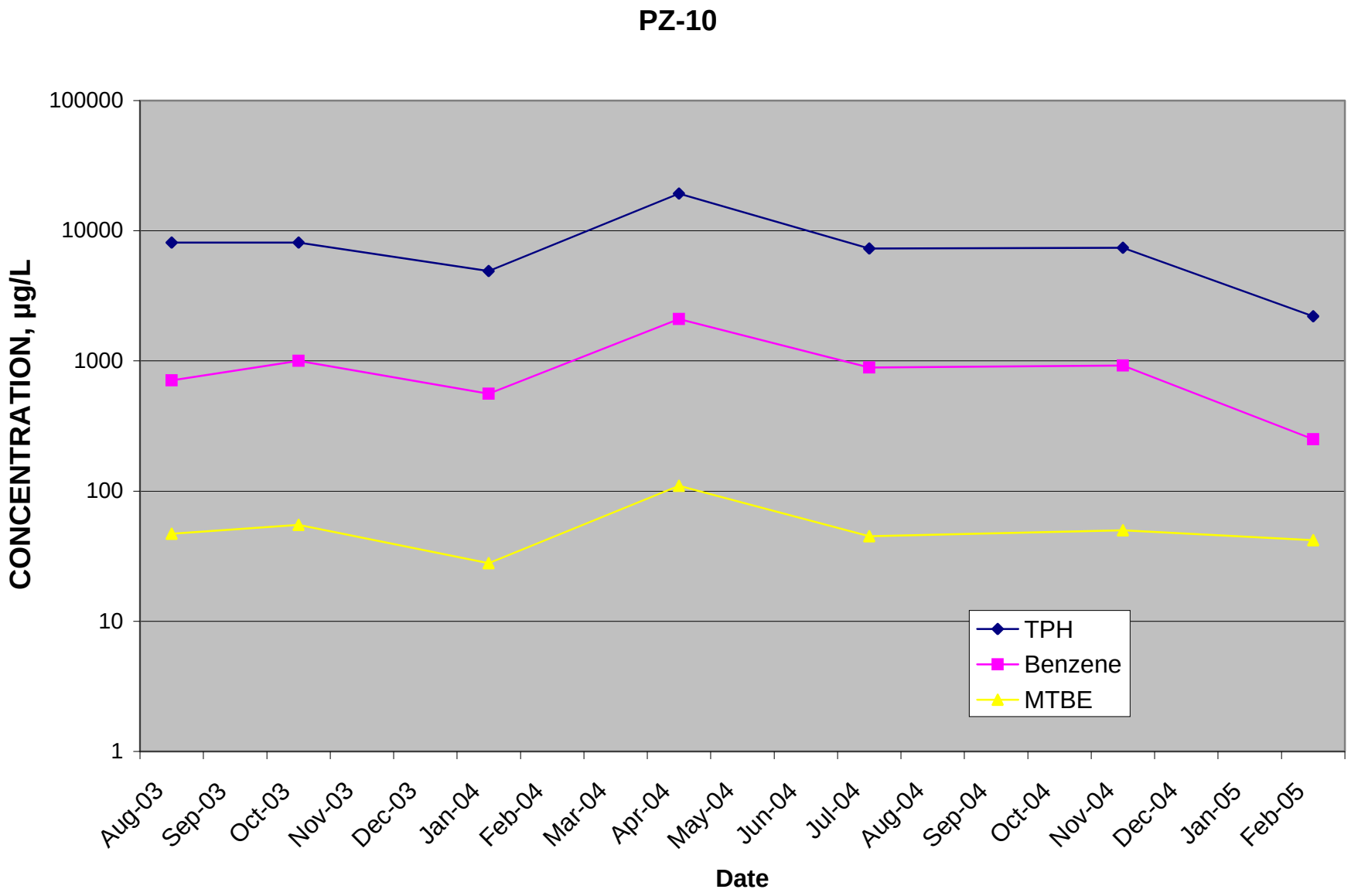
Review of Intermediate Block Valve Area



Review of Intermediate Block Valve Area PZ-10

Date Sampled	GW Elev	TPHg	TPHfp	B	1,2-DCA	MTBE
8/1/03	48.45	6300	1800	710	<10	47
10/7/03	48.40	6200	1900	1000	< 10	55
1/27/04	48.06	3100	1800	560	< 5	28
4/22/04	47.58	11000	8300	2100	< 20	110
7/19/04	47.94	4800	2500	890	< 10	45
11/3/04	47.23	4600	2800	920	< 10	50
2/3/05	51.01	1000	1200	250	<2	42

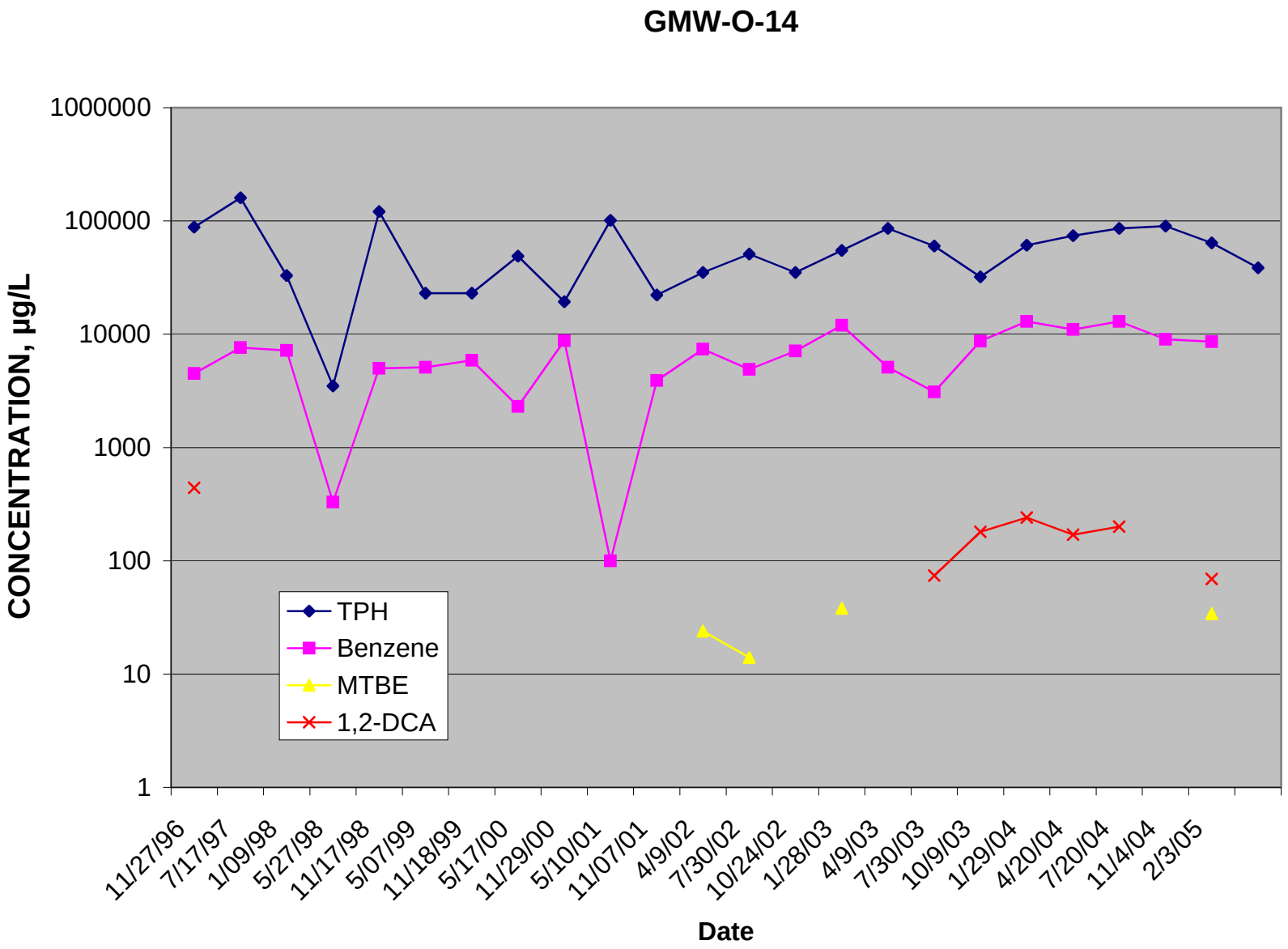
Review of Intermediate Block Valve Area



Review of Intermediate Block Valve Area GMW-O-14

Date Sampled	GW Elev	TPHg	TPHfp	B	1,2-DCA	MTBE
11/27/96	48.56	88000		4500	440	<300
7/17/97	47.69	160000		7600	<500	<5000
1/09/98	49.02	33000		7200	<30	<300
5/27/98	50.36	3500		330	<2.5	<0.5
11/17/98		3850	117000	5000	<100	<100
5/07/99		23000		5100	<50	<20
11/18/99		26000	23000	5900	<50	<50
5/17/00	47.41	10000	9300	2300	<50	<100
11/29/00	48.23	42000	59000	8800	<50	<50
5/10/01	49.74	5200	17000	100	<1	<1
11/07/01	49.43	15000	20000	3900	<1	<2
4/9/02	48.89	38000	13000	7400	<13	24
7/30/02	48.43	11000	24000	4900	<13	14
10/24/02	48.08	26000	29000	7100	<25	<25
1/28/03	48.44	39000	47000	12000	<25	38
4/9/03	48.72	33000	27000	5100	<40	<20
7/30/03	48.94	20000	12000	3100	74	<15
10/9/03	48.96	43000	18000	8700	180	< 50
1/29/04	48.50	55000	19000	13000	240	< 50
4/20/04	48.06	54000	32000	11000	170	< 50
7/20/04	48.07	72000	18000	13000	200	< 50
11/4/04	47.77	41000	23000	9000	< 200	< 100
2/3/05	49.00	34000	4600	8600	69	34

Review of Intermediate Block Valve Area



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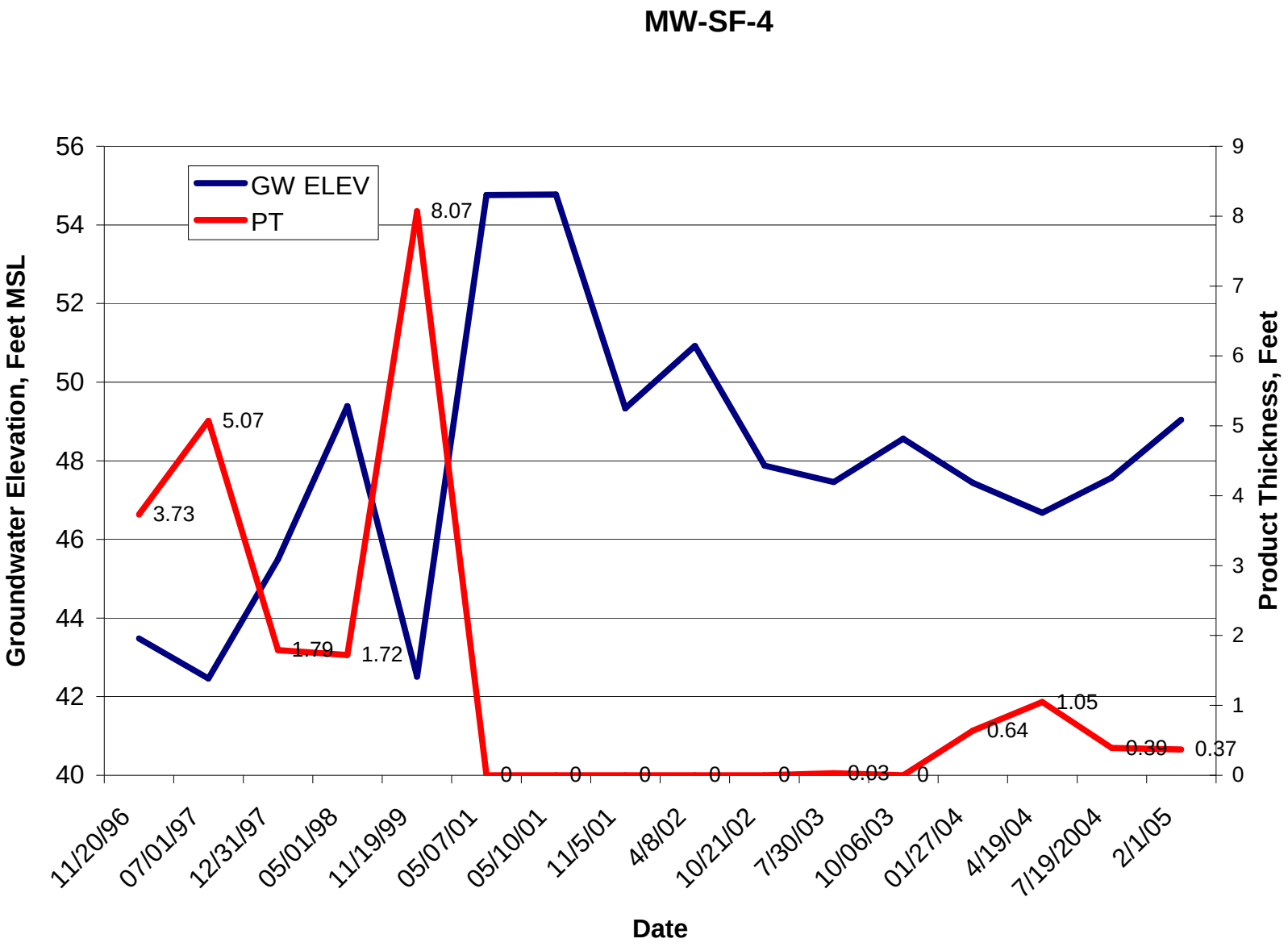

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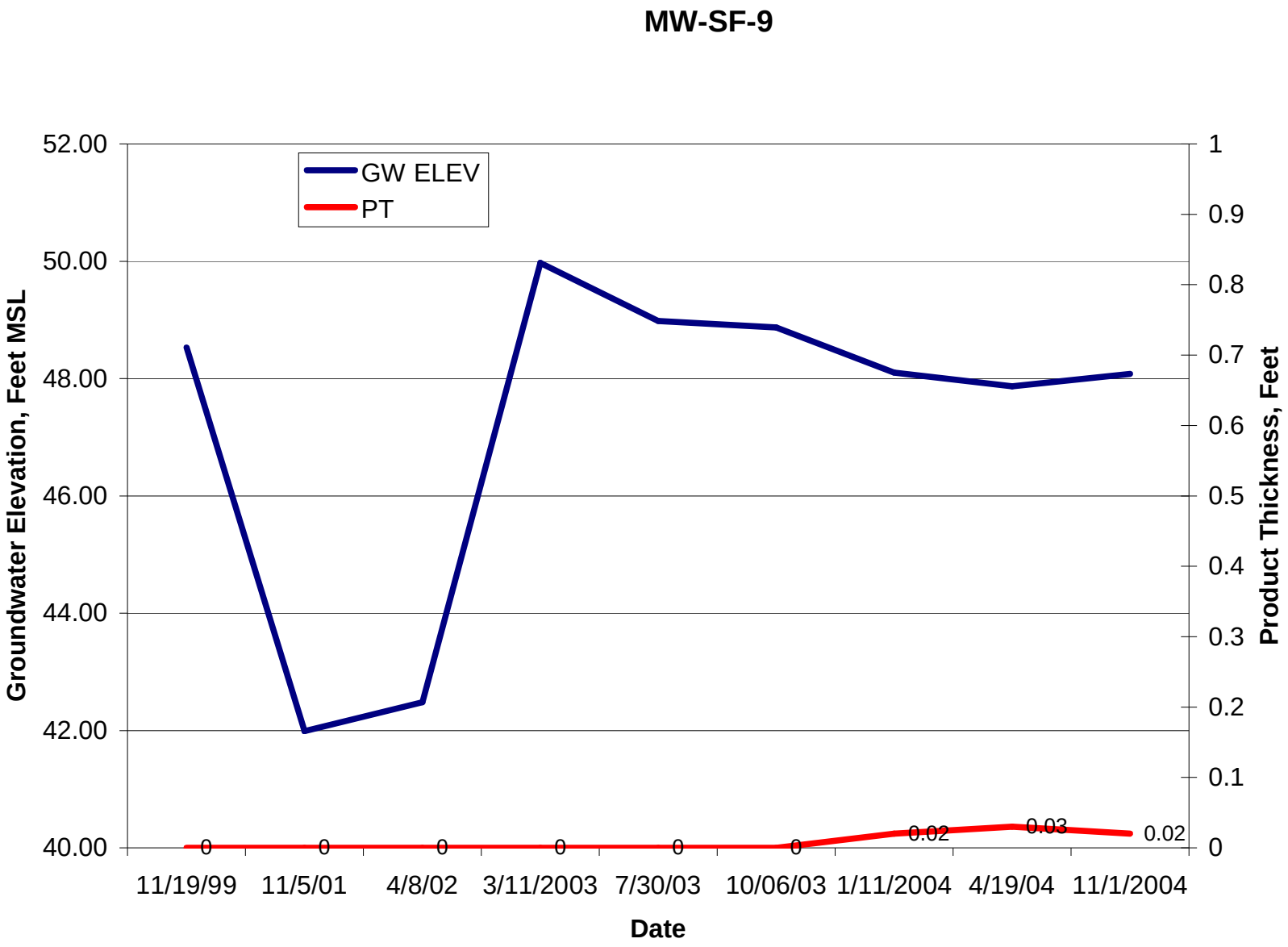

Southeastern Plume Update