Abbreviations		Soil Screening Level (ug/kg)
EBZ	Ethylbenzene	5,400
TCE	Trichloroethene	910
124-TMB	1,2,4-Trimethylbenzene	62,000
VC	Vinyl Chloride	60
VOC	Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-1
VOC Concentrations
Exceeding Soil Screening Levels
Warehouse Area (Former AMCO Facility)

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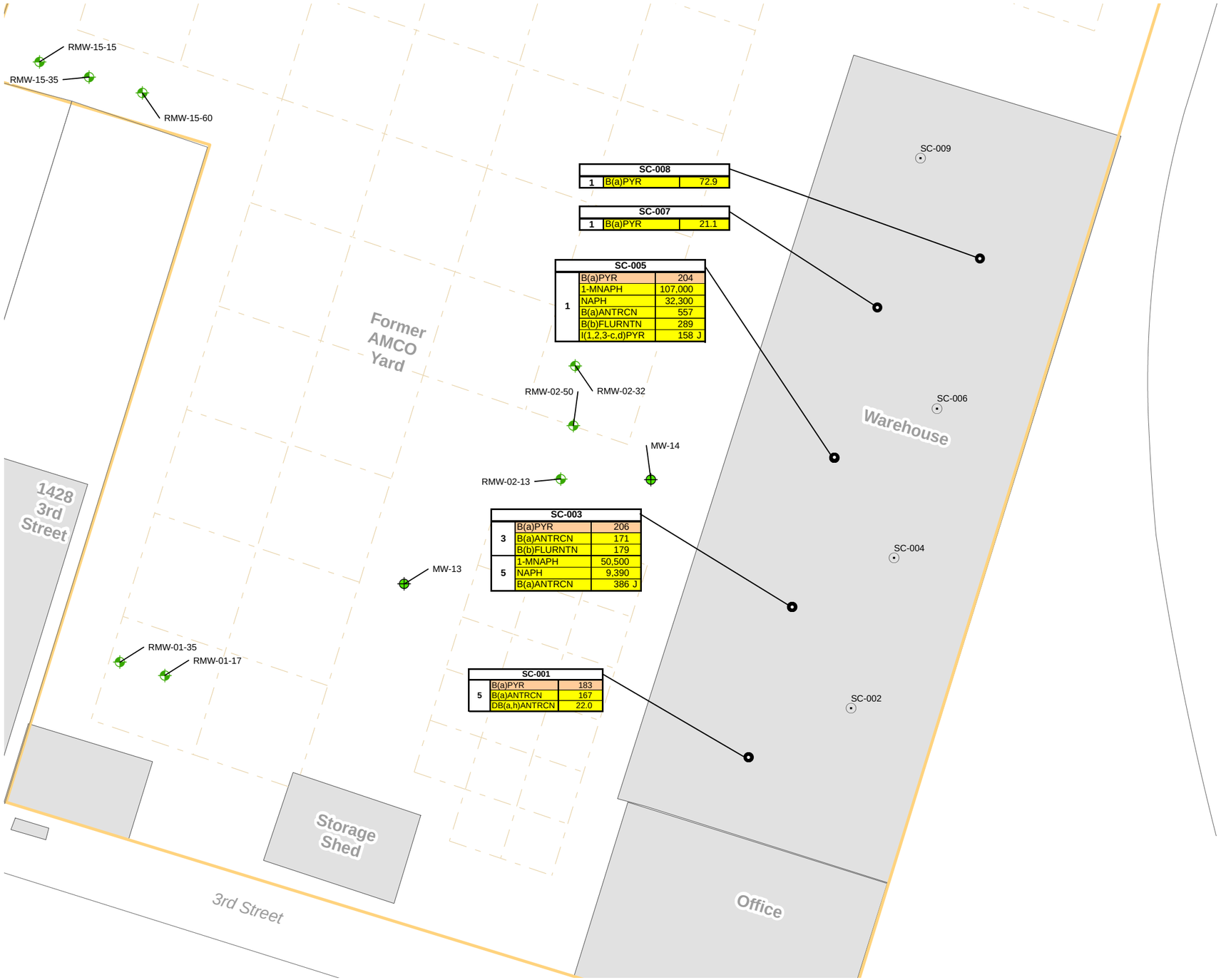

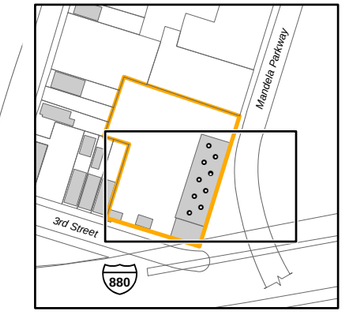

- Soil Boring with Concentration of **SVOCs** Exceeding Screening Level
- Soil Boring with No **SVOCs** Exceeding Screening Level
- Existing Upper Aquifer Groundwater Monitoring Well
- Existing Upper Aquifer Monitoring Well with Non-aqueous Phase Liquid
- Building
- Former AMCO Chemical Facility Boundary

Soil Boring Location ID

SC-123		
5	Analyte	Result
	Analyte	Result
	Analyte	Result

- Indicates result exceeded SL by a factor of over 100 times.
- Indicates result exceeded SL by a factor of over 10 times.
- Indicates result exceeded SL.

Soil concentration in micrograms per kilogram (ug/kg) (dry weight basis)

Chemical (see abbreviation list below)

Sample Depth in feet below soil surface

Abbreviations		Soil Screening Level (ug/kg)
B(a)ANTRCN	Benzo(a)anthracene	150
B(a)PYR	Benzo(a)pyrene	15
B(b)FLURNTN	Benzo(b)fluoranthene	150
DB(a,h)ANTRCN	Dibenzo(a,h)anthracene	15
I(1,2,3-c,d)PYR	Indeno(1,2,3-c,d)pyrene	150
1-MNAPH	1-Methylnaphthalene	16,000
NAPH	Naphthalene	3,600
SVOC	Semi-Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

20 0 20
Feet

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FIGURE 5-2
SVOC Concentrations
Exceeding Soil Screening Levels
Warehouse Area (Former AMCO Facility)

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Warehouse_SVOC.mxd 8/14/2014 [14:08 PM] EANDERSON, ITSI

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FIGURE 5-3
Metals Concentrations
Exceeding Soil Screening Levels
Warehouse Area (Former AMCO Facility)

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Warehouse_Metals.mxd 8/14/2014 [14:14 PM] EANDERSON, ITSI

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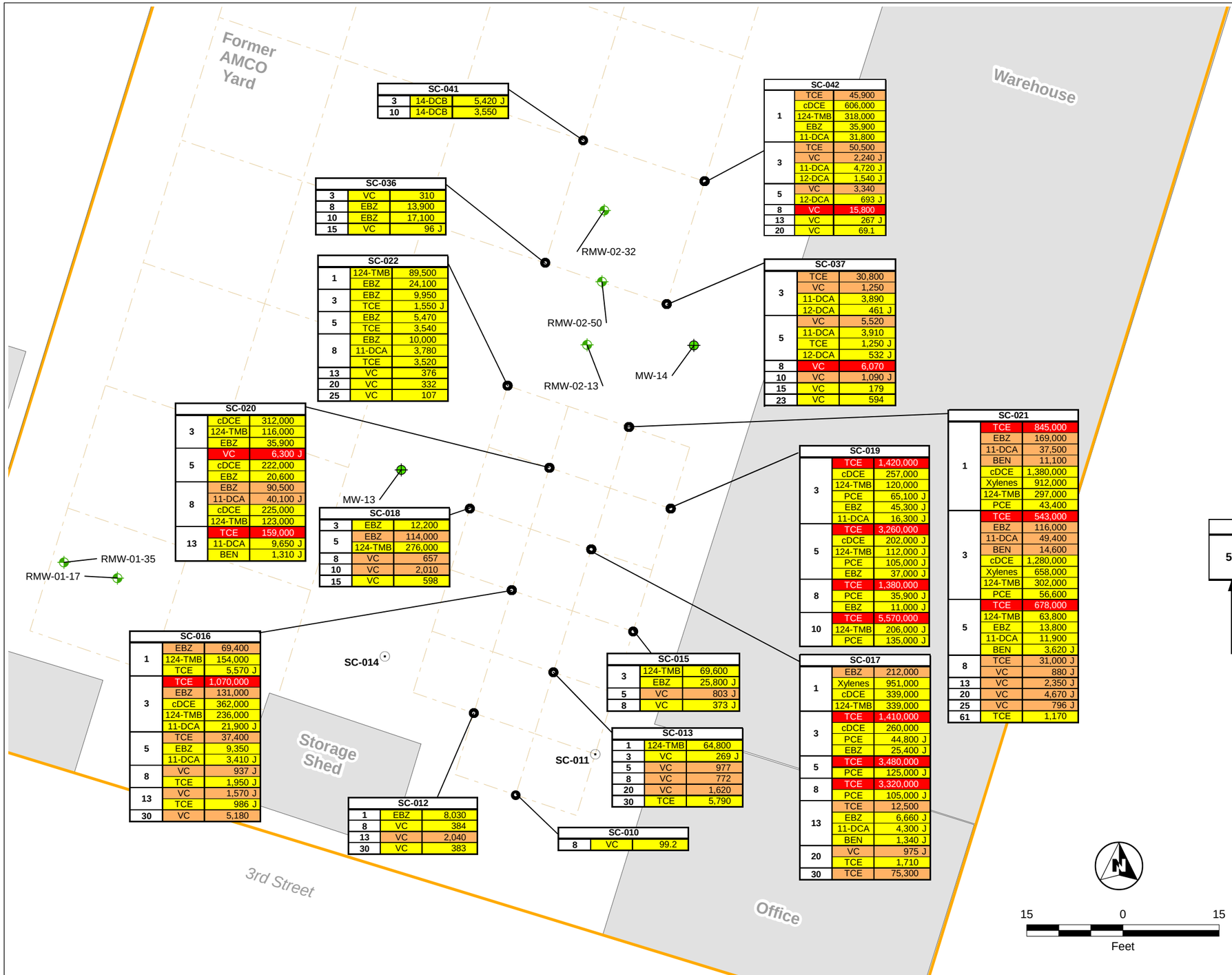
Oakland, California

FIGURE 5-4
Pesticide and PCB Concentrations Exceeding Soil Screening Levels Warehouse Area (Former AMCO Facility)

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Warehouse_PestPCB.mxd 8/14/2014 [14:13 PM] EANDERSON, ITSI



SC-041		
3	14-DCB	5,420 J
10	14-DCB	3,550

SC-042		
1	TCE	45,900
	cDCE	606,000
	124-TMB	318,000
	EBZ	35,900
	11-DCA	31,800
3	TCE	50,500
	VC	2,240 J
	11-DCA	4,720 J
	12-DCA	1,540 J
5	VC	3,340
	12-DCA	693 J
8	VC	15,800
13	VC	267 J
20	VC	69.1

SC-036		
3	VC	310
8	EBZ	13,900
10	EBZ	17,100
15	VC	96 J

SC-022		
1	124-TMB	89,500
	EBZ	24,100
3	EBZ	9,950
	TCE	1,550 J
5	EBZ	5,470
	TCE	3,540
8	EBZ	10,000
	11-DCA	3,780
	TCE	3,520
13	VC	376
20	VC	332
25	VC	107

SC-037		
3	TCE	30,800
	VC	1,250
	11-DCA	3,890
	12-DCA	461 J
5	VC	5,520
	11-DCA	3,910
	TCE	1,250 J
	12-DCA	532 J
8	VC	6,070
10	VC	1,090 J
15	VC	179
23	VC	594

SC-020		
3	cDCE	312,000
	124-TMB	116,000
	EBZ	35,900
5	VC	6,300 J
	cDCE	222,000
	EBZ	20,600
8	EBZ	90,500
	11-DCA	40,100 J
	cDCE	225,000
	124-TMB	123,000
13	TCE	159,000
	11-DCA	9,650 J
	BEN	1,310 J

SC-021		
1	TCE	845,000
	EBZ	169,000
	11-DCA	37,500
	BEN	11,100
	cDCE	1,380,000
	Xylenes	912,000
	124-TMB	297,000
	PCE	43,400
3	TCE	543,000
	EBZ	116,000
	11-DCA	49,400
	BEN	14,600
	cDCE	1,280,000
	Xylenes	658,000
	124-TMB	302,000
	PCE	56,600
5	TCE	678,000
	124-TMB	63,800
	EBZ	13,800
	11-DCA	11,900
	BEN	3,620 J
8	TCE	31,000 J
	VC	880 J
13	VC	2,350 J
20	VC	4,670 J
25	VC	796 J
61	TCE	1,170

SC-019		
3	TCE	1,420,000
	cDCE	257,000
	124-TMB	120,000
	PCE	65,100 J
	EBZ	45,300 J
	11-DCA	16,300 J
5	TCE	3,260,000
	cDCE	202,000 J
	124-TMB	112,000 J
	PCE	105,000 J
	EBZ	37,000 J
8	TCE	1,380,000
	PCE	35,900 J
	EBZ	11,000 J
10	TCE	5,570,000
	124-TMB	206,000 J
	PCE	135,000 J

SC-018		
3	EBZ	12,200
5	EBZ	114,000
	124-TMB	276,000
8	VC	657
10	VC	2,010
15	VC	598

SC-016		
1	EBZ	69,400
	124-TMB	154,000
	TCE	5,570 J
3	TCE	1,070,000
	EBZ	131,000
	cDCE	362,000
	124-TMB	236,000
	11-DCA	21,900 J
5	TCE	37,400
	EBZ	9,350
	11-DCA	3,410 J
8	VC	937 J
	TCE	1,950 J
13	VC	1,570 J
	TCE	986 J
30	VC	5,180

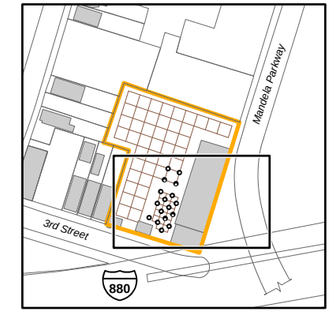
SC-015		
3	124-TMB	69,600
	EBZ	25,800 J
5	VC	803 J
8	VC	373 J

SC-013		
1	124-TMB	64,800
3	VC	269 J
5	VC	977
8	VC	772
20	VC	1,620
30	TCE	5,790

SC-017		
1	EBZ	212,000
	Xylenes	951,000
	cDCE	339,000
	124-TMB	339,000
3	TCE	1,410,000
	cDCE	260,000
	PCE	44,800 J
	EBZ	25,400 J
5	TCE	3,480,000
	PCE	125,000 J
8	TCE	3,320,000
	PCE	105,000 J
13	TCE	12,500
	EBZ	6,660 J
	11-DCA	4,300 J
	BEN	1,340 J
20	VC	975 J
	TCE	1,710
30	TCE	75,300

SC-012		
1	EBZ	8,030
8	VC	384
13	VC	2,040
30	VC	383

SC-010		
8	VC	99.2



- Soil Boring with Concentration of **VOCs** Exceeding Screening Criteria
- Soil Boring with No **VOCs** Exceeding Screening Level
- Existing Upper Aquifer Groundwater Monitoring Well
- Existing Upper Aquifer Monitoring Well with Non-aqueous Phase Liquid
- Building
- Former AMCO Chemical Facility Boundary

SC-123		
5	Analyte	Result
	Analyte	Result
	Analyte	Result

- Indicates result exceeded SL by a factor of over 100 times.
- Indicates result exceeded SL by a factor of over 10 times.
- Indicates result exceeded SL.

Soil Boring Location ID

Soil concentration in micrograms per kilogram (ug/kg) (dry weight basis)

Chemical (see abbreviation list below)

Sample Depth in feet below soil surface

Abbreviations		Soil Screening Level (ug/kg)
11-DCA	1,1-Dichloroethane	3,300
12-DCA	1,2-Dichloroethane	430
14-DCB	1,4-Dichlorobenzene	2,400
BEN	Benzene	1,100
cDCE	cis-1,2-Dichloroethene	160,000
EBZ	Ethylbenzene	5,400
PCE	Tetrachloroethene	22,000
TCE	Trichloroethene	910
124-TMB	1,2,4-Trimethylbenzene	62,000
VC	Vinyl Chloride	60
Xylenes	Xylenes, Total	630,000
VOC	Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

15 0 15
Feet

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FIGURE 5-5
VOC Concentrations Exceeding Soil Screening Levels
Source Area (Former AMCO Facility)

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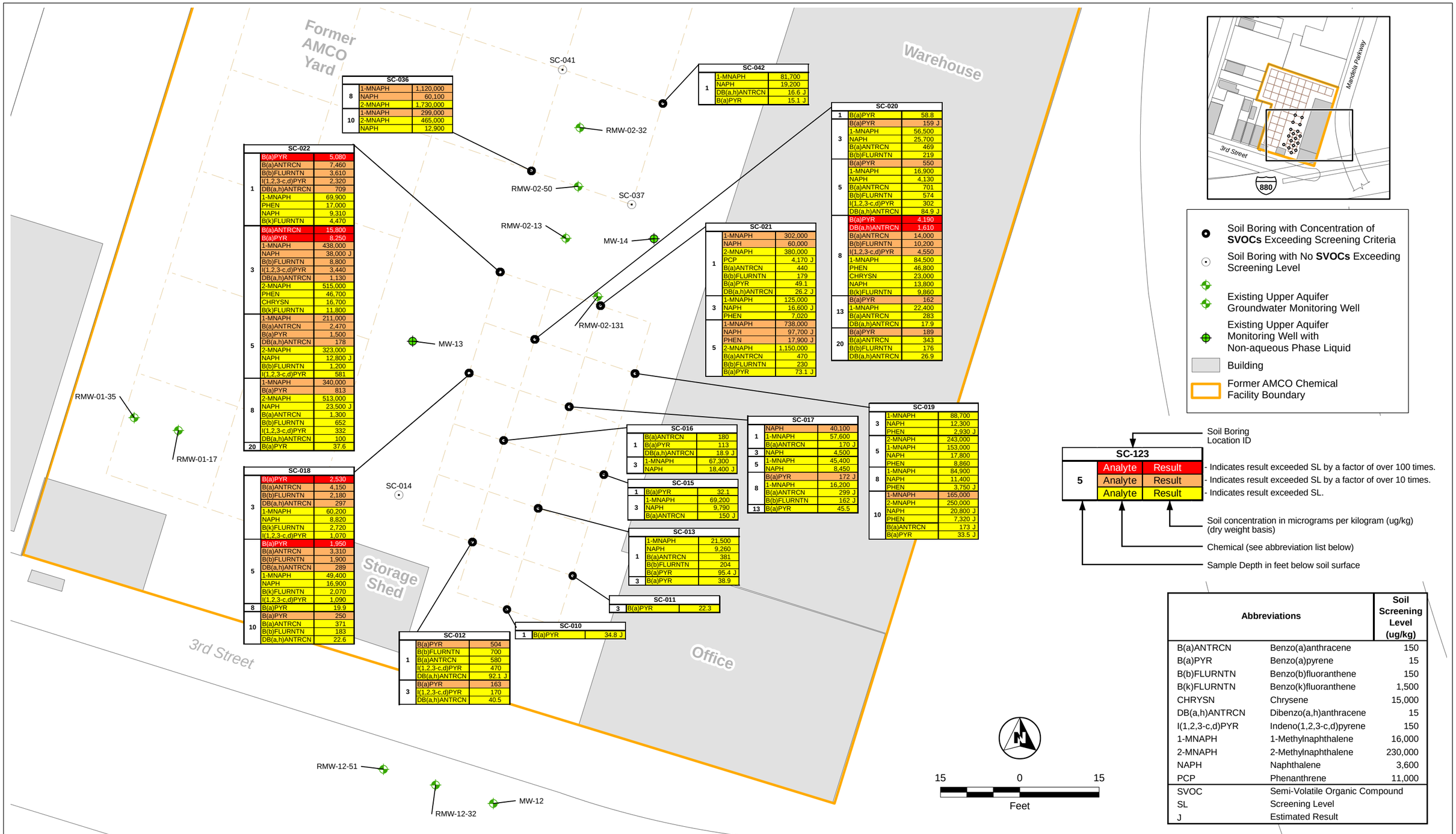

Abbreviations		Soil Screening Level (ug/kg)
B(a)ANTRCN	Benzo(a)anthracene	150
B(a)PYR	Benzo(a)pyrene	15
B(b)FLURNTN	Benzo(b)fluoranthene	150
B(k)FLURNTN	Benzo(k)fluoranthene	1,500
CHRYSN	Chrysene	15,000
DB(a,h)ANTRCN	Dibenzo(a,h)anthracene	15
I(1,2,3-c,d)PYR	Indeno(1,2,3-c,d)pyrene	150
1-MNAPH	1-Methylnaphthalene	16,000
2-MNAPH	2-Methylnaphthalene	230,000
NAPH	Naphthalene	3,600
PCP	Phenanthrene	11,000
SVOC	Semi-Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-6
SVOC Concentrations
Exceeding Soil Screening Levels
Source Area (Former AMCO Facility)

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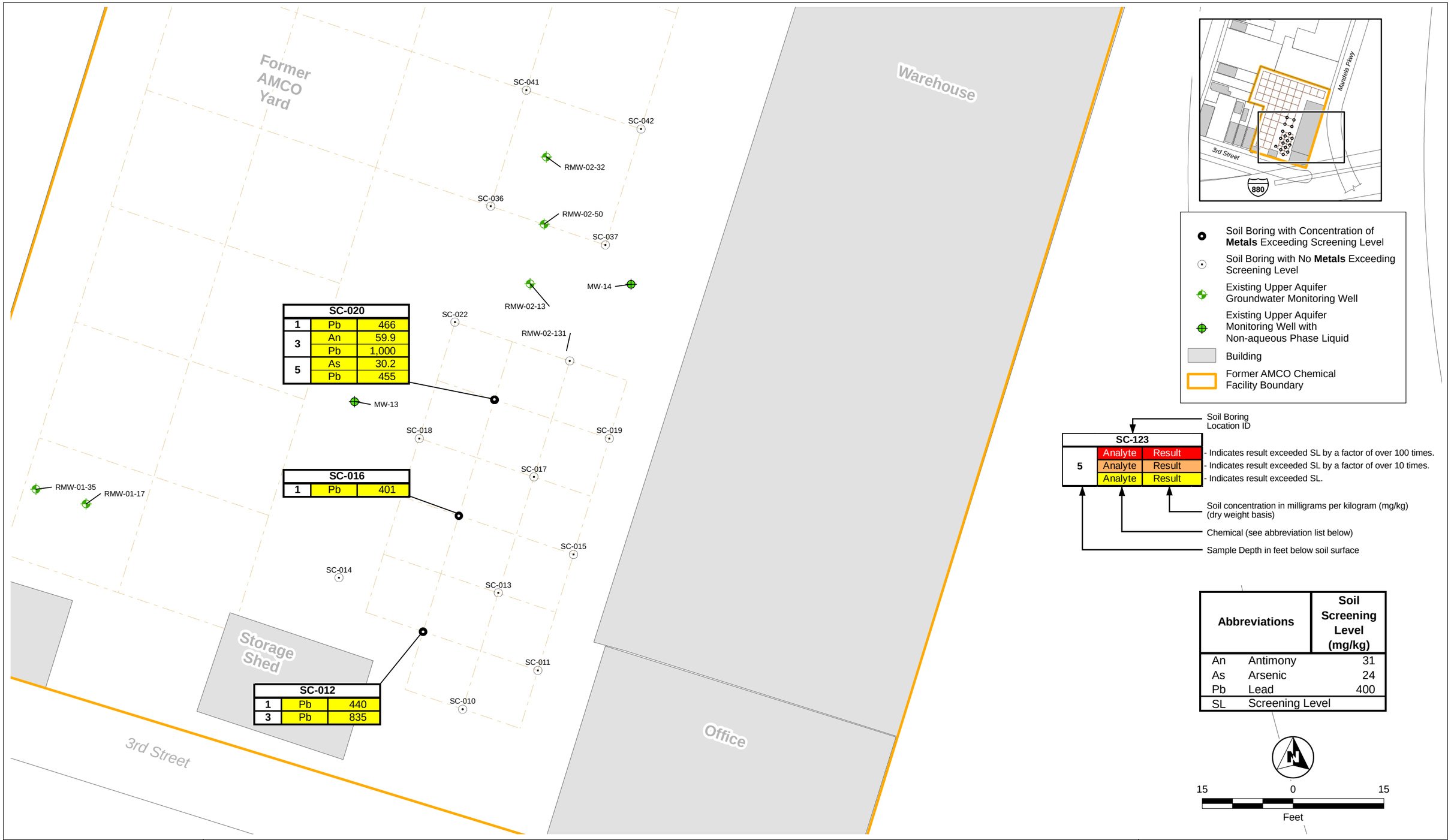

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FIGURE 5-7
Metals Concentrations
Exceeding Soil Screening Levels
Source Area (Former AMCO Facility)

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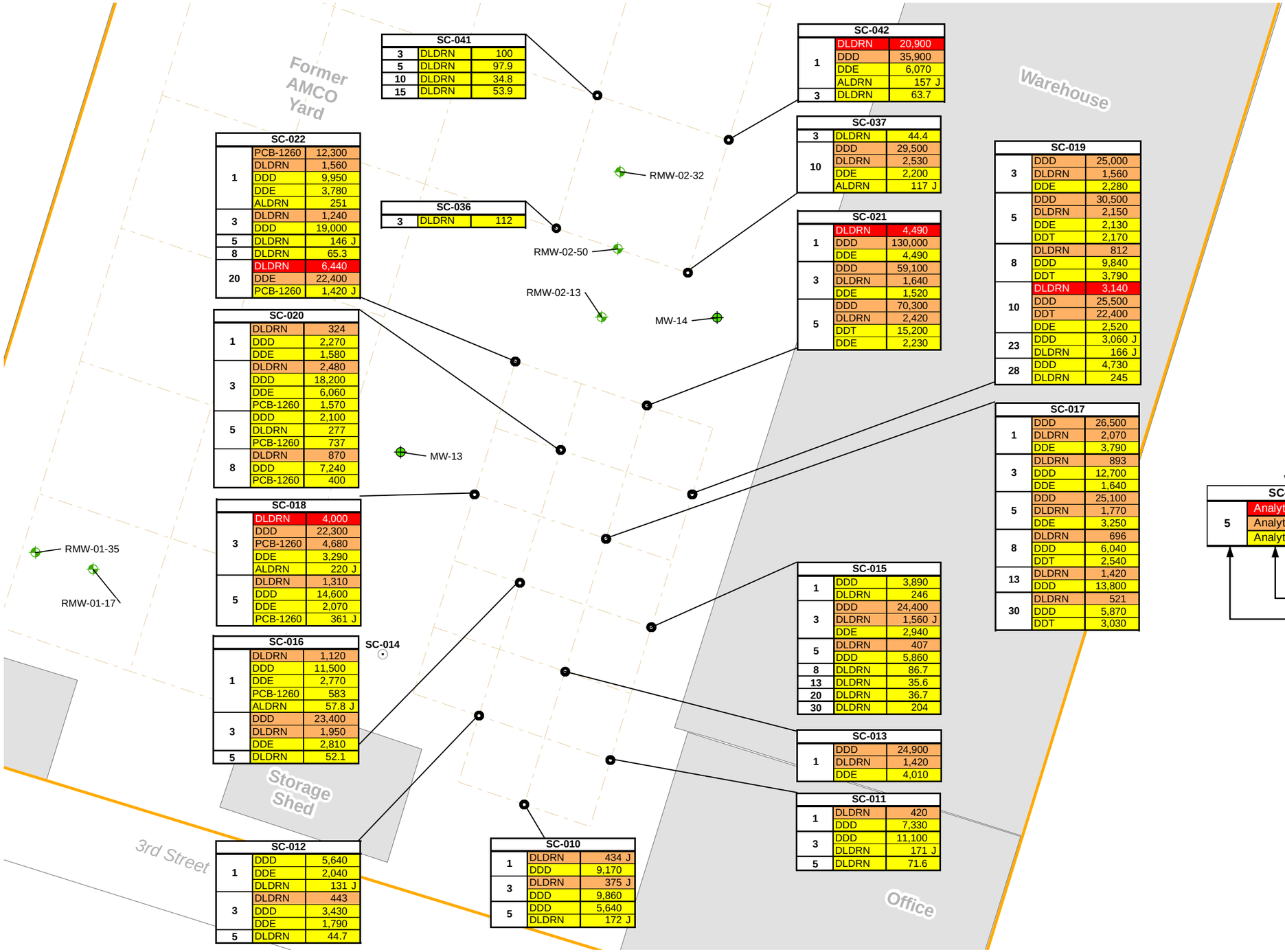

SC-041		
3	DLDRN	100
5	DLDRN	97.9
10	DLDRN	34.8
15	DLDRN	53.9

SC-036		
3	DLDRN	112

SC-022		
1	PCB-1260	12,300
	DLDRN	1,560
	DDD	9,950
	DDE	3,780
	ALDRN	251
3	DLDRN	1,240
	DDD	19,000
5	DLDRN	146 J
8	DLDRN	65.3
20	DLDRN	6,440
	DDE	22,400
	PCB-1260	1,420 J

SC-020		
1	DLDRN	324
	DDD	2,270
	DDE	1,580
3	DLDRN	2,480
	DDD	18,200
	DDE	6,060
	PCB-1260	1,570
5	DDD	2,100
	DLDRN	277
	PCB-1260	737
8	DLDRN	870
	DDD	7,240
	PCB-1260	400

SC-018		
3	DLDRN	4,000
	DDD	22,300
	PCB-1260	4,680
	DDE	3,290
	ALDRN	220 J
5	DLDRN	1,310
	DDD	14,600
	DDE	2,070
	PCB-1260	361 J

SC-016		
1	DLDRN	1,120
	DDD	11,500
	DDE	2,770
	PCB-1260	583
	ALDRN	57.8 J
3	DDD	23,400
	DLDRN	1,950
	DDE	2,810
5	DLDRN	52.1

SC-012		
1	DDD	5,640
	DDE	2,040
	DLDRN	131 J
3	DLDRN	443
	DDD	3,430
	DDE	1,790
5	DLDRN	44.7

SC-010		
1	DLDRN	434 J
	DDD	9,170
3	DLDRN	375 J
	DDD	9,860
5	DDD	5,640
	DLDRN	172 J

SC-042		
1	DLDRN	20,900
	DDD	35,900
	DDE	6,070
	ALDRN	157 J
3	DLDRN	63.7

SC-037		
3	DLDRN	44.4
10	DDD	29,500
	DLDRN	2,530
	DDE	2,200
	ALDRN	117 J

SC-021		
1	DLDRN	4,490
	DDD	130,000
	DDE	4,490
3	DDD	59,100
	DLDRN	1,640
	DDE	1,520
5	DDD	70,300
	DLDRN	2,420
	DDT	15,200
	DDE	2,230

SC-019		
3	DDD	25,000
	DLDRN	1,560
	DDE	2,280
5	DDD	30,500
	DLDRN	2,150
	DDE	2,130
	DDT	2,170
8	DLDRN	812
	DDD	9,840
	DDT	3,790
10	DLDRN	3,140
	DDD	25,500
	DDT	22,400
	DDE	2,520
23	DDD	3,060 J
	DLDRN	166 J
28	DDD	4,730
	DLDRN	245

SC-017		
1	DDD	26,500
	DLDRN	2,070
	DDE	3,790
3	DLDRN	893
	DDD	12,700
	DDE	1,640
5	DDD	25,100
	DLDRN	1,770
	DDE	3,250
8	DLDRN	696
	DDD	6,040
	DDT	2,540
13	DLDRN	1,420
	DDD	13,800
30	DLDRN	521
	DDD	5,870
	DDT	3,030

SC-015		
1	DDD	3,890
	DLDRN	246
3	DDD	24,400
	DLDRN	1,560 J
	DDE	2,940
5	DLDRN	407
	DDD	5,860
8	DLDRN	86.7
13	DLDRN	35.6
20	DLDRN	36.7
30	DLDRN	204

SC-013		
1	DDD	24,900
	DLDRN	1,420
	DDE	4,010

SC-011		
1	DLDRN	420
	DDD	7,330
3	DDD	11,100
	DLDRN	171 J
5	DLDRN	71.6

- Soil Boring with Concentration of **Pesticides/PCBs** Exceeding Screening Criteria
- Soil Boring with No **Pesticides/PCBs** Exceeding Screening Level
- Existing Upper Aquifer Groundwater Monitoring Well
- Existing Upper Aquifer Monitoring Well with Non-aqueous Phase Liquid
- Building
- Former AMCO Chemical Facility Boundary

Soil Boring Location ID

SC-123		
5	Analyte	Result
	Analyte	Result
	Analyte	Result

- Indicates result exceeded SL by a factor of over 100 times.
- Indicates result exceeded SL by a factor of over 10 times.
- Indicates result exceeded SL.

Soil concentration in micrograms per kilogram (ug/kg) (dry weight basis)

Chemical (see abbreviation list below)

Sample Depth in feet below soil surface

Abbreviations		Soil Screening Level (ug/kg)
ALDRN	Aldrin	29
DLDRN	Dieldrin	30
DDD	p,p'-DDD	2,000
DDE	p,p'-DDE	1,400
DDT	p,p'-DDT	1,700
PCB-1260	PCB-1260 (Arochlor 1260)	220
PCB	Polychlorinated biphenyl	
SL	Screening Level	
J	Estimated Result	

15 0 15
Feet

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FIGURE 5-8
Pesticide and PCB Concentrations Exceeding Soil Screening Levels Source Area (Former AMCO Facility)

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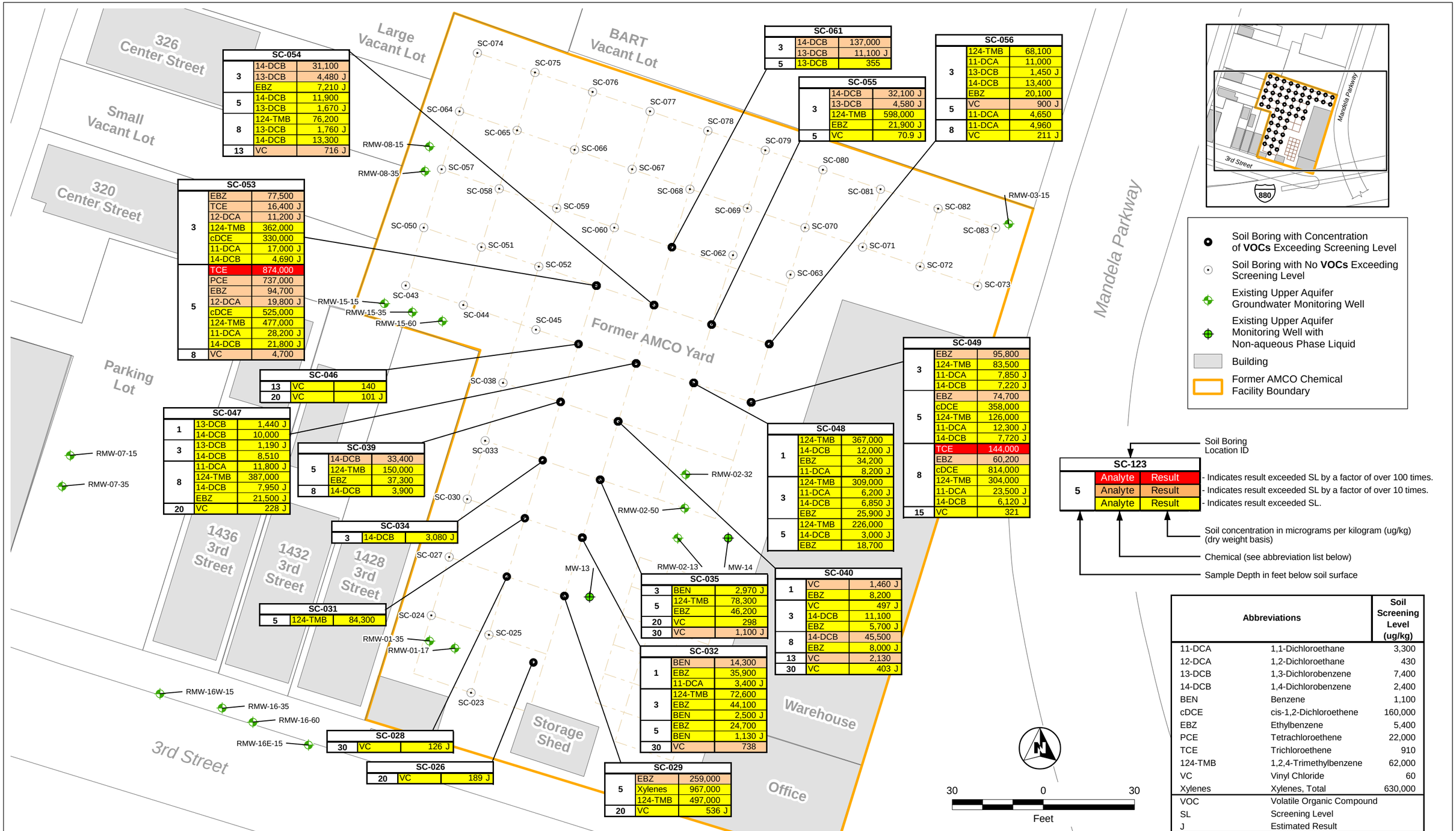

SC-054		
3	14-DCB	31,100
	13-DCB	4,480 J
	EBZ	7,210 J
5	14-DCB	11,900
	13-DCB	1,670 J
8	124-TMB	76,200
	13-DCB	1,760 J
	14-DCB	13,300
13	VC	716 J

SC-061		
3	14-DCB	137,000
	13-DCB	11,100 J
5	13-DCB	355

SC-056		
3	124-TMB	68,100
	11-DCA	11,000
	13-DCB	1,450 J
	14-DCB	13,400
	EBZ	20,100
5	VC	900 J
	11-DCA	4,650
8	11-DCA	4,960
	VC	211 J

SC-055		
3	14-DCB	32,100 J
	13-DCB	4,580 J
	124-TMB	598,000
	EBZ	21,900 J
5	VC	70.9 J

SC-053		
3	EBZ	77,500
	TCE	16,400 J
	12-DCA	11,200 J
	124-TMB	362,000
	cDCE	330,000
	11-DCA	17,000 J
	14-DCB	4,690 J
5	TCE	874,000
	PCE	737,000
	EBZ	94,700
	12-DCA	19,800 J
	cDCE	525,000
	124-TMB	477,000
	11-DCA	28,200 J
	14-DCB	21,800 J
8	VC	4,700

SC-046		
13	VC	140
20	VC	101 J

SC-047		
1	13-DCB	1,440 J
	14-DCB	10,000
3	13-DCB	1,190 J
	14-DCB	8,510
8	11-DCA	11,800 J
	124-TMB	387,000
	14-DCB	7,950 J
	EBZ	21,500 J
20	VC	228 J

SC-039		
5	14-DCB	33,400
	124-TMB	150,000
	EBZ	37,300
8	14-DCB	3,900

SC-034		
3	14-DCB	3,080 J

SC-031		
5	124-TMB	84,300

SC-028		
30	VC	126 J

SC-026		
20	VC	189 J

SC-049		
3	EBZ	95,800
	124-TMB	83,500
	11-DCA	7,850 J
	14-DCB	7,220 J
5	EBZ	74,700
	cDCE	358,000
	124-TMB	126,000
	11-DCA	12,300 J
	14-DCB	7,720 J
8	TCE	144,000
	EBZ	60,200
	cDCE	814,000
	124-TMB	304,000
	11-DCA	23,500 J
	14-DCB	6,120 J
15	VC	321

SC-048		
1	124-TMB	367,000
	14-DCB	12,000 J
	EBZ	34,200
	11-DCA	8,200 J
3	124-TMB	309,000
	11-DCA	6,200 J
	14-DCB	6,850 J
	EBZ	25,900 J
5	124-TMB	226,000
	14-DCB	3,000 J
	EBZ	18,700

SC-040		
1	VC	1,460 J
	EBZ	8,200
3	VC	497 J
	14-DCB	11,100
	EBZ	5,700 J
8	14-DCB	45,500
	EBZ	8,000 J
13	VC	2,130
30	VC	403 J

SC-035		
3	BEN	2,970 J
5	124-TMB	78,300
	EBZ	46,200
20	VC	298
30	VC	1,100 J

SC-032		
1	BEN	14,300
	EBZ	35,900
	11-DCA	3,400 J
3	124-TMB	72,600
	EBZ	44,100
	BEN	2,500 J
5	EBZ	24,700
	BEN	1,130 J
30	VC	738

SC-029		
5	EBZ	259,000
	Xylenes	967,000
	124-TMB	497,000
20	VC	536 J

Abbreviations		Soil Screening Level (ug/kg)
11-DCA	1,1-Dichloroethane	3,300
12-DCA	1,2-Dichloroethane	430
13-DCB	1,3-Dichlorobenzene	7,400
14-DCB	1,4-Dichlorobenzene	2,400
BEN	Benzene	1,100
cDCE	cis-1,2-Dichloroethene	160,000
EBZ	Ethylbenzene	5,400
PCE	Tetrachloroethene	22,000
TCE	Trichloroethene	910
124-TMB	1,2,4-Trimethylbenzene	62,000
VC	Vinyl Chloride	60
Xylenes	Xylenes, Total	630,000
VOC	Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

Gilbane

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AMCO Chemical Superfund Site
Oakland, California

FIGURE 5-9
VOC Concentrations
Exceeding Soil Screening Levels
Former AMCO Yard (excluding Source Area)

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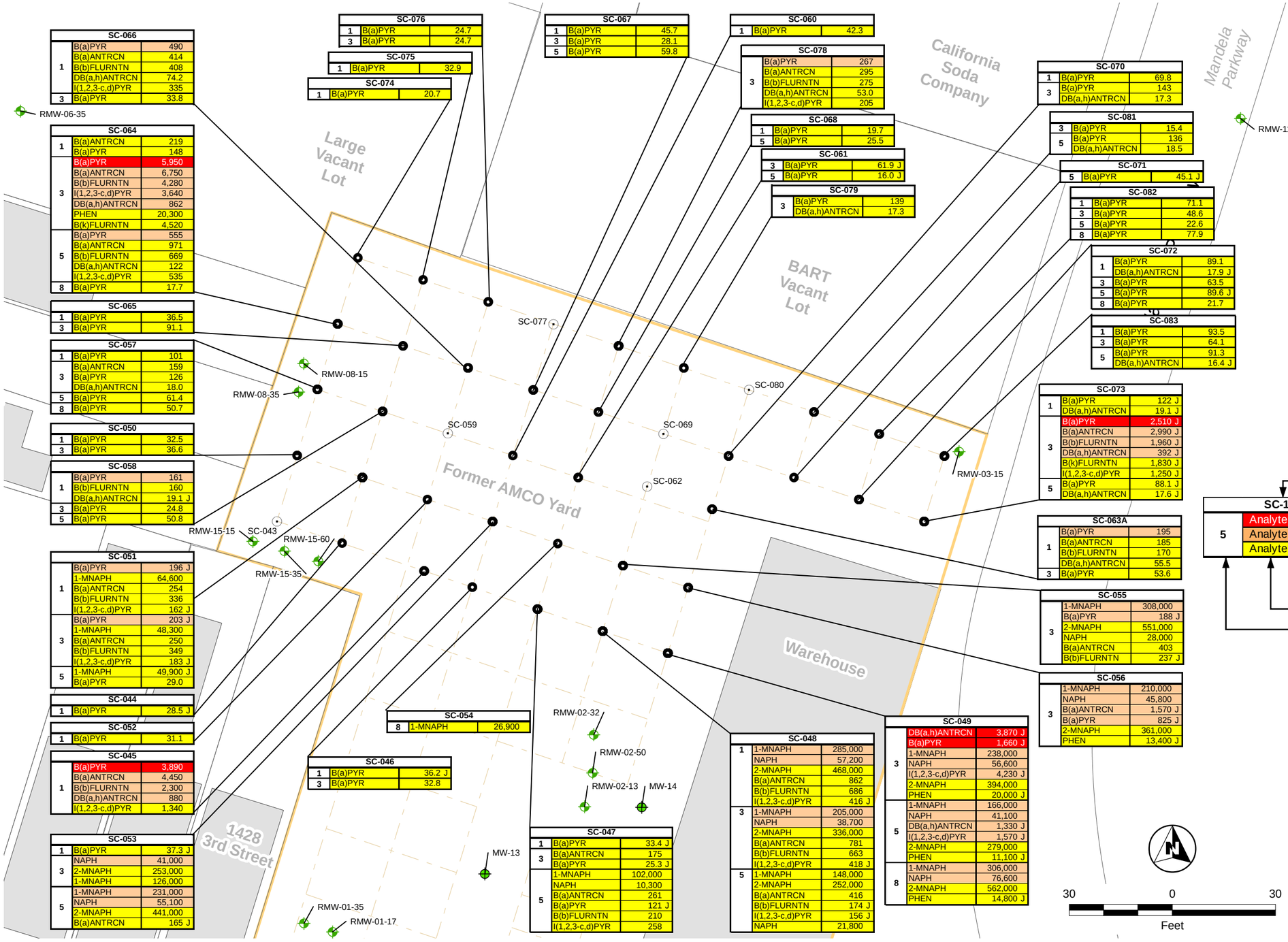


SC-066		
1	B(a)PYR	490
	B(a)ANTRCN	414
	B(b)FLURNTN	408
	DB(a,h)ANTRCN	74.2
	I(1,2,3-c,d)PYR	335
3	B(a)PYR	33.8

SC-064		
1	B(a)ANTRCN	219
	B(a)PYR	148
3	B(a)PYR	5,950
	B(a)ANTRCN	6,750
	B(b)FLURNTN	4,280
	I(1,2,3-c,d)PYR	3,640
	DB(a,h)ANTRCN	862
	PHEN	20,300
	B(k)FLURNTN	4,520
5	B(a)PYR	555
	B(a)ANTRCN	971
	B(b)FLURNTN	669
	DB(a,h)ANTRCN	122
	I(1,2,3-c,d)PYR	535
8	B(a)PYR	17.7

SC-065		
1	B(a)PYR	36.5
3	B(a)PYR	91.1

SC-057		
1	B(a)PYR	101
3	B(a)ANTRCN	159
	B(a)PYR	126
	DB(a,h)ANTRCN	18.0
5	B(a)PYR	61.4
8	B(a)PYR	50.7

SC-050		
1	B(a)PYR	32.5
3	B(a)PYR	36.6

SC-058		
1	B(a)PYR	161
	B(b)FLURNTN	160
	DB(a,h)ANTRCN	19.1 J
3	B(a)PYR	24.8
5	B(a)PYR	50.8

SC-051		
1	B(a)PYR	196 J
	1-MNAPH	64,600
	B(a)ANTRCN	254
	B(b)FLURNTN	336
	I(1,2,3-c,d)PYR	162 J
3	B(a)PYR	203 J
	1-MNAPH	48,300
	B(a)ANTRCN	250
	B(b)FLURNTN	349
	I(1,2,3-c,d)PYR	183 J
5	1-MNAPH	49,900 J
	B(a)PYR	29.0

SC-044		
1	B(a)PYR	28.5 J

SC-052		
1	B(a)PYR	31.1

SC-045		
1	B(a)PYR	3,890
	B(a)ANTRCN	4,450
	B(b)FLURNTN	2,300
	DB(a,h)ANTRCN	880
	I(1,2,3-c,d)PYR	1,340

SC-053		
1	B(a)PYR	37.3 J
3	NAPH	41,000
	2-MNAPH	253,000
	1-MNAPH	126,000
5	1-MNAPH	231,000
	NAPH	55,100
	2-MNAPH	441,000
	B(a)ANTRCN	165 J

SC-076		
1	B(a)PYR	24.7
3	B(a)PYR	24.7

SC-075		
1	B(a)PYR	32.9

SC-074		
1	B(a)PYR	20.7

SC-067		
1	B(a)PYR	45.7
3	B(a)PYR	28.1
5	B(a)PYR	59.8

SC-060		
1	B(a)PYR	42.3

SC-078		
3	B(a)PYR	267
	B(a)ANTRCN	295
	B(b)FLURNTN	275
	DB(a,h)ANTRCN	53.0
	I(1,2,3-c,d)PYR	205

SC-068		
1	B(a)PYR	19.7
5	B(a)PYR	25.5

SC-061		
3	B(a)PYR	61.9 J
5	B(a)PYR	16.0 J

SC-079		
3	B(a)PYR	139
	DB(a,h)ANTRCN	17.3

SC-070		
1	B(a)PYR	69.8
3	B(a)PYR	143
	DB(a,h)ANTRCN	17.3

SC-081		
3	B(a)PYR	15.4
5	B(a)PYR	136
	DB(a,h)ANTRCN	18.5

SC-071		
5	B(a)PYR	45.1 J

SC-082		
1	B(a)PYR	71.1
3	B(a)PYR	48.6
5	B(a)PYR	22.6
8	B(a)PYR	77.9

SC-072		
1	B(a)PYR	89.1
	DB(a,h)ANTRCN	17.9 J
3	B(a)PYR	63.5
5	B(a)PYR	89.6 J
8	B(a)PYR	21.7

SC-083		
1	B(a)PYR	93.5
3	B(a)PYR	64.1
5	B(a)PYR	91.3
	DB(a,h)ANTRCN	16.4 J

SC-073		
1	B(a)PYR	122 J
	DB(a,h)ANTRCN	19.1 J
3	B(a)PYR	2,510 J
	B(a)ANTRCN	2,990 J
	B(b)FLURNTN	1,960 J
	DB(a,h)ANTRCN	392 J
	B(k)FLURNTN	1,830 J
	I(1,2,3-c,d)PYR	1,250 J
5	B(a)PYR	88.1 J
	DB(a,h)ANTRCN	17.6 J

SC-063A		
1	B(a)PYR	195
	B(a)ANTRCN	185
	B(b)FLURNTN	170
	DB(a,h)ANTRCN	55.5
3	B(a)PYR	53.6

SC-055		
3	1-MNAPH	308,000
	B(a)PYR	188 J
	2-MNAPH	551,000
	NAPH	28,000
	B(a)ANTRCN	403
	B(b)FLURNTN	237 J

SC-056		
3	1-MNAPH	210,000
	NAPH	45,800
	B(a)ANTRCN	1,570 J
	B(a)PYR	825 J
	2-MNAPH	361,000
	PHEN	13,400 J

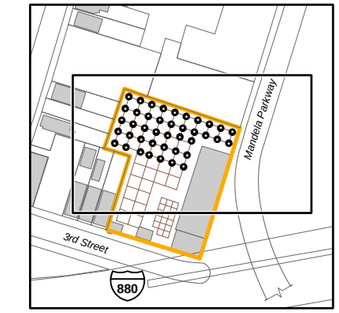
SC-054		
8	1-MNAPH	26,900

SC-046		
1	B(a)PYR	36.2 J
3	B(a)PYR	32.8

SC-047		
1	B(a)PYR	33.4 J
3	B(a)ANTRCN	175
	B(a)PYR	25.3 J
5	1-MNAPH	102,000
	NAPH	10,300
	B(a)ANTRCN	261
	B(a)PYR	121 J
	B(b)FLURNTN	210
	I(1,2,3-c,d)PYR	258

SC-048		
1	1-MNAPH	285,000
	NAPH	57,200
	2-MNAPH	468,000
	B(a)ANTRCN	862
	B(b)FLURNTN	686
	I(1,2,3-c,d)PYR	416 J
3	1-MNAPH	205,000
	NAPH	38,700
	2-MNAPH	336,000
	B(a)ANTRCN	781
	B(b)FLURNTN	663
	I(1,2,3-c,d)PYR	418 J
5	1-MNAPH	148,000
	2-MNAPH	252,000
	B(a)ANTRCN	416
	B(b)FLURNTN	174 J
	I(1,2,3-c,d)PYR	156 J
	NAPH	21,800

SC-049		
3	DB(a,h)ANTRCN	3,870 J
	B(a)PYR	1,660 J
	1-MNAPH	238,000
	NAPH	56,600
	I(1,2,3-c,d)PYR	4,230 J
	2-MNAPH	394,000
	PHEN	20,000 J
5	1-MNAPH	166,000
	NAPH	41,100
	DB(a,h)ANTRCN	1,330 J
	I(1,2,3-c,d)PYR	1,570 J
	2-MNAPH	279,000
	PHEN	11,100 J
8	1-MNAPH	306,000
	NAPH	76,600
	2-MNAPH	562,000
	PHEN	14,800 J



- Soil Boring with Concentration of **SVOCs** Exceeding Screening Level
- Soil Boring with No **SVOCs** Exceeding Screening Level
- Existing Upper Aquifer Groundwater Monitoring Well
- Existing Upper Aquifer Monitoring Well with Non-aqueous Phase Liquid
- Building
- Former AMCO Chemical Facility Boundary

SC-123		
5	Analyte	Result
	Analyte	Result
	Analyte	Result

- Indicates result exceeded SL by a factor of over 100 times.
- Indicates result exceeded SL by a factor of over 10 times.
- Indicates result exceeded SL.

Soil Boring Location ID

Soil concentration in micrograms per kilogram (ug/kg) (dry weight basis)

Chemical (see abbreviation list below)

Sample Depth in feet below soil surface

Abbreviations		Soil Screening Level (ug/kg)
B(a)ANTRCN	Benzo(a)anthracene	150
B(a)PYR	Benzo(a)pyrene	15
B(b)FLURNTN	Benzo(b)fluoranthene	150
B(k)FLURNTN	Benzo(k)fluoranthene	1,500
CHRYSN	Chrysene	15,000
DB(a,h)ANTRCN	Dibenzo(a,h)anthracene	15
I(1,2,3-c,d)PYR	Indeno(1,2,3-c,d)pyrene	150
1-MNAPH	1-Methylnaphthalene	16,000
2-MNAPH	2-Methylnaphthalene	230,000
NAPH	Naphthalene	3,600
PCP	Pentachlorophenol	890
PHEN	Phenanthrene	11,000
SVOC	Semi-Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-10
SVOC Concentrations
Exceeding Soil Screening Levels
Northern Portion of Former AMCO Yard

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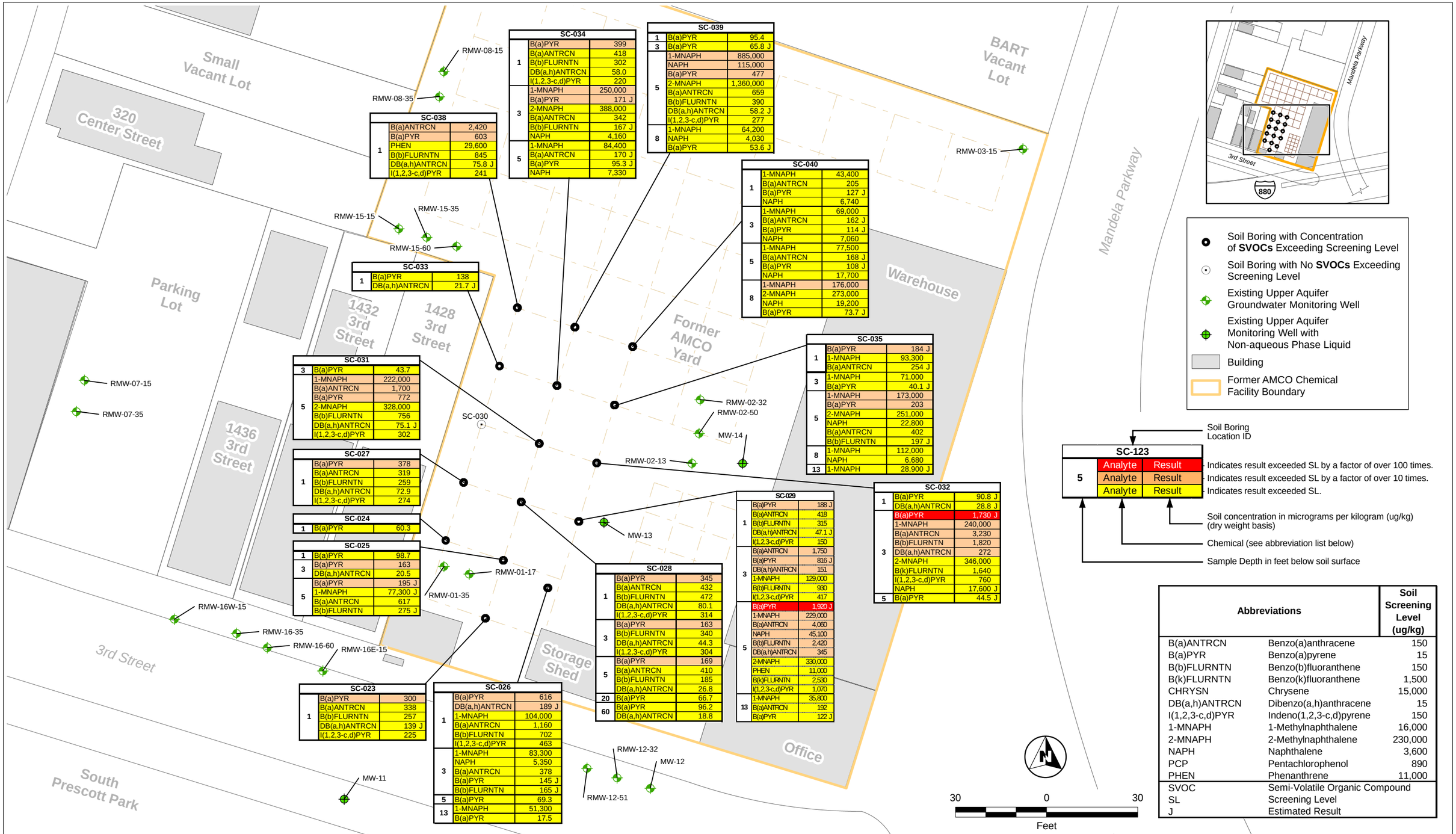

SC-034

1	B(a)PYR	399
	B(a)ANTRCN	418
	B(b)FLURNTN	302
	DB(a,h)ANTRCN	58.0
	I(1,2,3-c,d)PYR	220
3	1-MNAPH	250,000
	B(a)PYR	171 J
	2-MNAPH	388,000
	B(a)ANTRCN	342
	B(b)FLURNTN	167 J
	NAPH	4,160
5	1-MNAPH	84,400
	B(a)ANTRCN	170 J
	B(a)PYR	95.3 J
	NAPH	7,330

SC-039

1	B(a)PYR	95.4
3	B(a)PYR	65.8 J
5	1-MNAPH	885,000
	NAPH	115,000
	B(a)PYR	477
	2-MNAPH	1,360,000
	B(a)ANTRCN	659
	B(b)FLURNTN	390
	DB(a,h)ANTRCN	58.2 J
	I(1,2,3-c,d)PYR	277
8	1-MNAPH	64,200
	NAPH	4,030
	B(a)PYR	53.6 J

SC-038

1	B(a)ANTRCN	2,420
	B(a)PYR	603
	PHEN	29,600
	B(b)FLURNTN	845
	DB(a,h)ANTRCN	75.8 J
	I(1,2,3-c,d)PYR	241

SC-040

1	1-MNAPH	43,400
	B(a)ANTRCN	205
	B(a)PYR	127 J
	NAPH	6,740
3	1-MNAPH	69,000
	B(a)ANTRCN	162 J
	B(a)PYR	114 J
	NAPH	7,060
5	1-MNAPH	77,500
	B(a)ANTRCN	168 J
	B(a)PYR	108 J
	NAPH	17,700
8	1-MNAPH	176,000
	2-MNAPH	273,000
	NAPH	19,200
	B(a)PYR	73.7 J

SC-033

1	B(a)PYR	138
	DB(a,h)ANTRCN	21.7 J

SC-035

1	B(a)PYR	184 J
	1-MNAPH	93,300
	B(a)ANTRCN	254 J
3	1-MNAPH	71,000
	B(a)PYR	40.1 J
5	1-MNAPH	173,000
	B(a)PYR	203
	2-MNAPH	251,000
	NAPH	22,800
	B(a)ANTRCN	402
	B(b)FLURNTN	197 J
8	1-MNAPH	112,000
	NAPH	6,680
13	1-MNAPH	28,900 J

SC-031

3	B(a)PYR	43.7
5	1-MNAPH	222,000
	B(a)ANTRCN	1,700
	B(a)PYR	772
	2-MNAPH	328,000
	B(b)FLURNTN	756
	DB(a,h)ANTRCN	75.1 J
	I(1,2,3-c,d)PYR	302

SC-027

1	B(a)PYR	378
	B(a)ANTRCN	319
	B(b)FLURNTN	259
	DB(a,h)ANTRCN	72.9
	I(1,2,3-c,d)PYR	274

SC-024

1	B(a)PYR	60.3

SC-025

1	B(a)PYR	98.7
3	B(a)PYR	163
	DB(a,h)ANTRCN	20.5
5	B(a)PYR	195 J
	1-MNAPH	77,300 J
	B(a)ANTRCN	617
	B(b)FLURNTN	275 J

SC-029

1	B(a)PYR	188 J
	B(a)ANTRCN	418
	B(b)FLURNTN	315
	DB(a,h)ANTRCN	47.1 J
	I(1,2,3-c,d)PYR	150
3	B(a)ANTRCN	1,750
	B(a)PYR	816 J
	DB(a,h)ANTRCN	151
	1-MNAPH	129,000
	B(b)FLURNTN	930
	I(1,2,3-c,d)PYR	417
5	B(a)PYR	1,920 J
	1-MNAPH	229,000
	B(a)ANTRCN	4,060
	NAPH	45,100
	B(b)FLURNTN	2,420
	DB(a,h)ANTRCN	345
	2-MNAPH	330,000
	PHEN	11,000
	B(k)FLURNTN	2,530
	I(1,2,3-c,d)PYR	1,070
13	1-MNAPH	35,800
	B(a)ANTRCN	192
	B(a)PYR	122 J

SC-032

1	B(a)PYR	90.8 J
	DB(a,h)ANTRCN	28.8 J
3	B(a)PYR	1,730 J
	1-MNAPH	240,000
	B(a)ANTRCN	3,230
	B(b)FLURNTN	1,820
	DB(a,h)ANTRCN	272
	2-MNAPH	346,000
	B(k)FLURNTN	1,640
	I(1,2,3-c,d)PYR	760
	NAPH	17,600 J
5	B(a)PYR	44.5 J

SC-028

1	B(a)PYR	345
	B(a)ANTRCN	432
	B(b)FLURNTN	472
	DB(a,h)ANTRCN	80.1
	I(1,2,3-c,d)PYR	314
3	B(a)PYR	163
	B(b)FLURNTN	340
	DB(a,h)ANTRCN	44.3
	I(1,2,3-c,d)PYR	304
5	B(a)PYR	169
	B(a)ANTRCN	410
	B(b)FLURNTN	185
	DB(a,h)ANTRCN	26.8
20	B(a)PYR	66.7
60	B(a)PYR	96.2
	DB(a,h)ANTRCN	18.8

SC-023

1	B(a)PYR	300
	B(a)ANTRCN	338
	B(b)FLURNTN	257
	DB(a,h)ANTRCN	139 J
	I(1,2,3-c,d)PYR	225

SC-026

1	B(a)PYR	616
	DB(a,h)ANTRCN	189 J
	1-MNAPH	104,000
	B(a)ANTRCN	1,160
	B(b)FLURNTN	702
	I(1,2,3-c,d)PYR	463
3	1-MNAPH	83,300
	NAPH	5,350
	B(a)ANTRCN	378
	B(a)PYR	145 J
	B(b)FLURNTN	165 J
5	B(a)PYR	69.3
13	1-MNAPH	51,300
	B(a)PYR	17.5

Abbreviations		Soil Screening Level (ug/kg)
B(a)ANTRCN	Benzo(a)anthracene	150
B(a)PYR	Benzo(a)pyrene	15
B(b)FLURNTN	Benzo(b)fluoranthene	150
B(k)FLURNTN	Benzo(k)fluoranthene	1,500
CHRYSN	Chrysene	15,000
DB(a,h)ANTRCN	Dibenzo(a,h)anthracene	15
I(1,2,3-c,d)PYR	Indeno(1,2,3-c,d)pyrene	150
1-MNAPH	1-Methylnaphthalene	16,000
2-MNAPH	2-Methylnaphthalene	230,000
NAPH	Naphthalene	3,600
PCP	Pentachlorophenol	890
PHEN	Phenanthrene	11,000
SVOC	Semi-Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-11
SVOC Concentrations
Exceeding Soil Screening Levels
Southern Portion of Former AMCO Yard
(excluding the Source Area)

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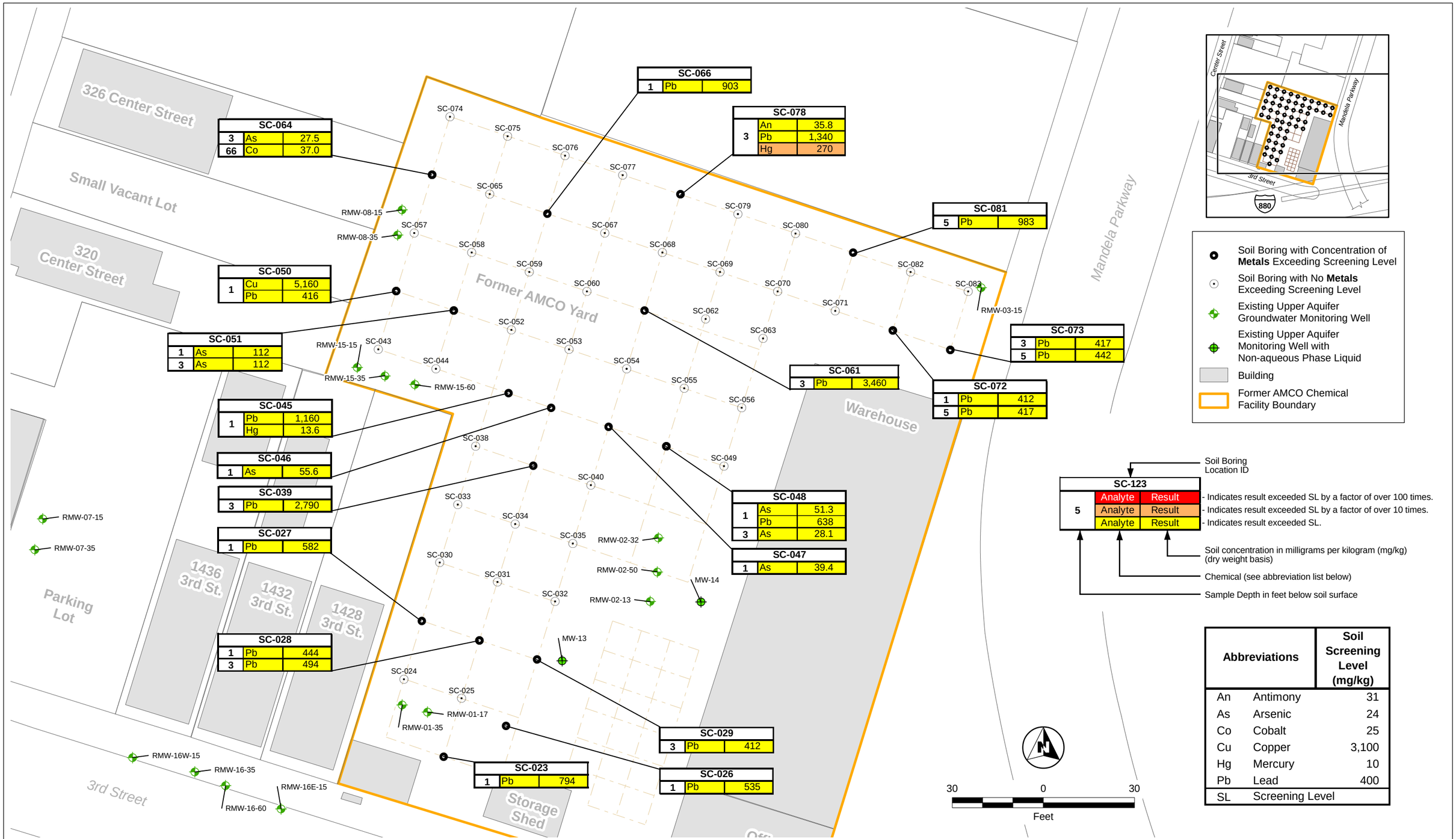

Abbreviations		Soil Screening Level (mg/kg)
An	Antimony	31
As	Arsenic	24
Co	Cobalt	25
Cu	Copper	3,100
Hg	Mercury	10
Pb	Lead	400
SL	Screening Level	

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FIGURE 5-12
Metals Concentrations
Exceeding Soil Screening Levels
Former AMCO Yard (excluding the Source Area)

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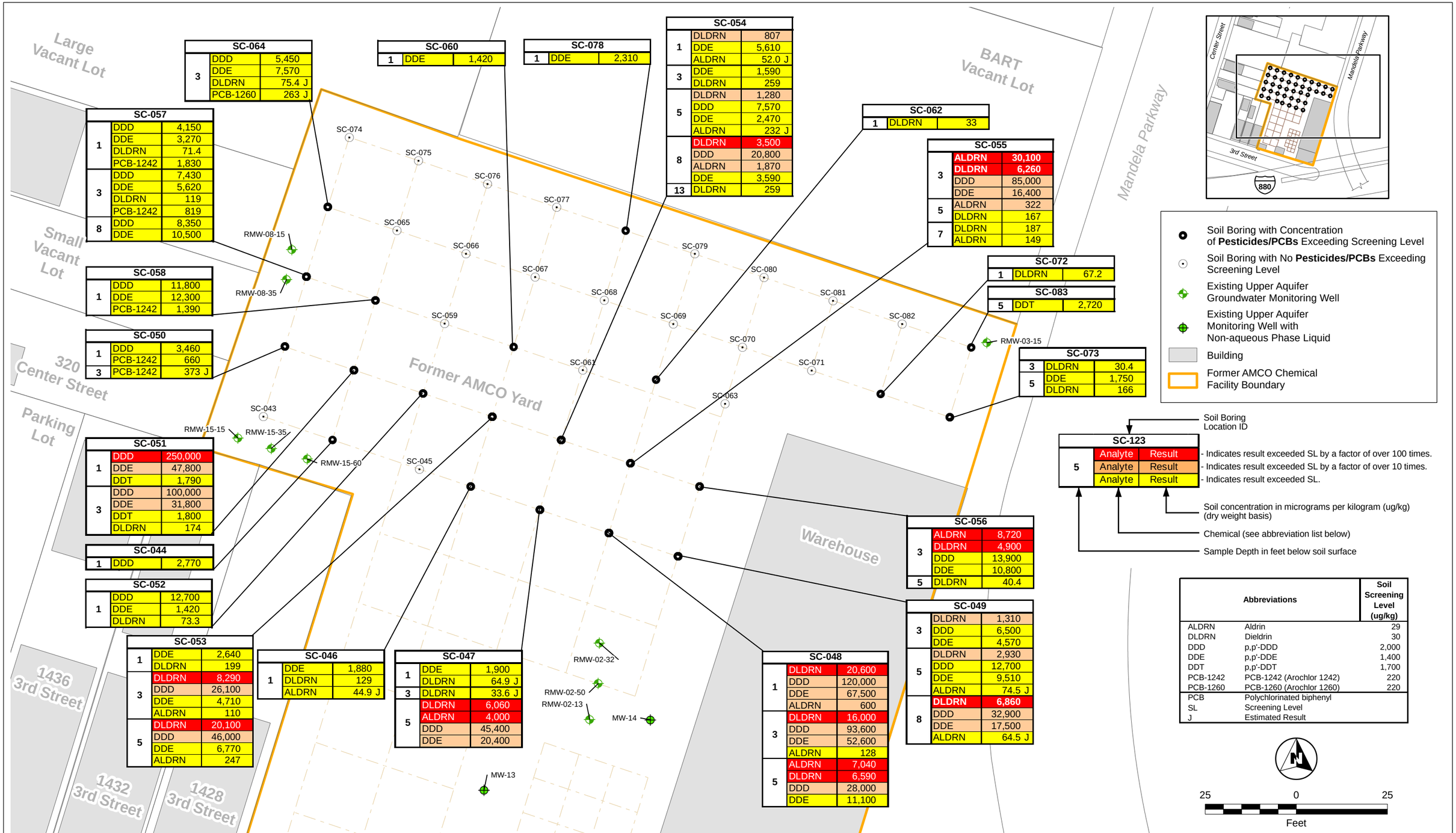

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FIGURE 5-13
Pesticide and PCB Concentrations Exceeding Soil Screening Levels Northern Portion of Former AMCO Yard

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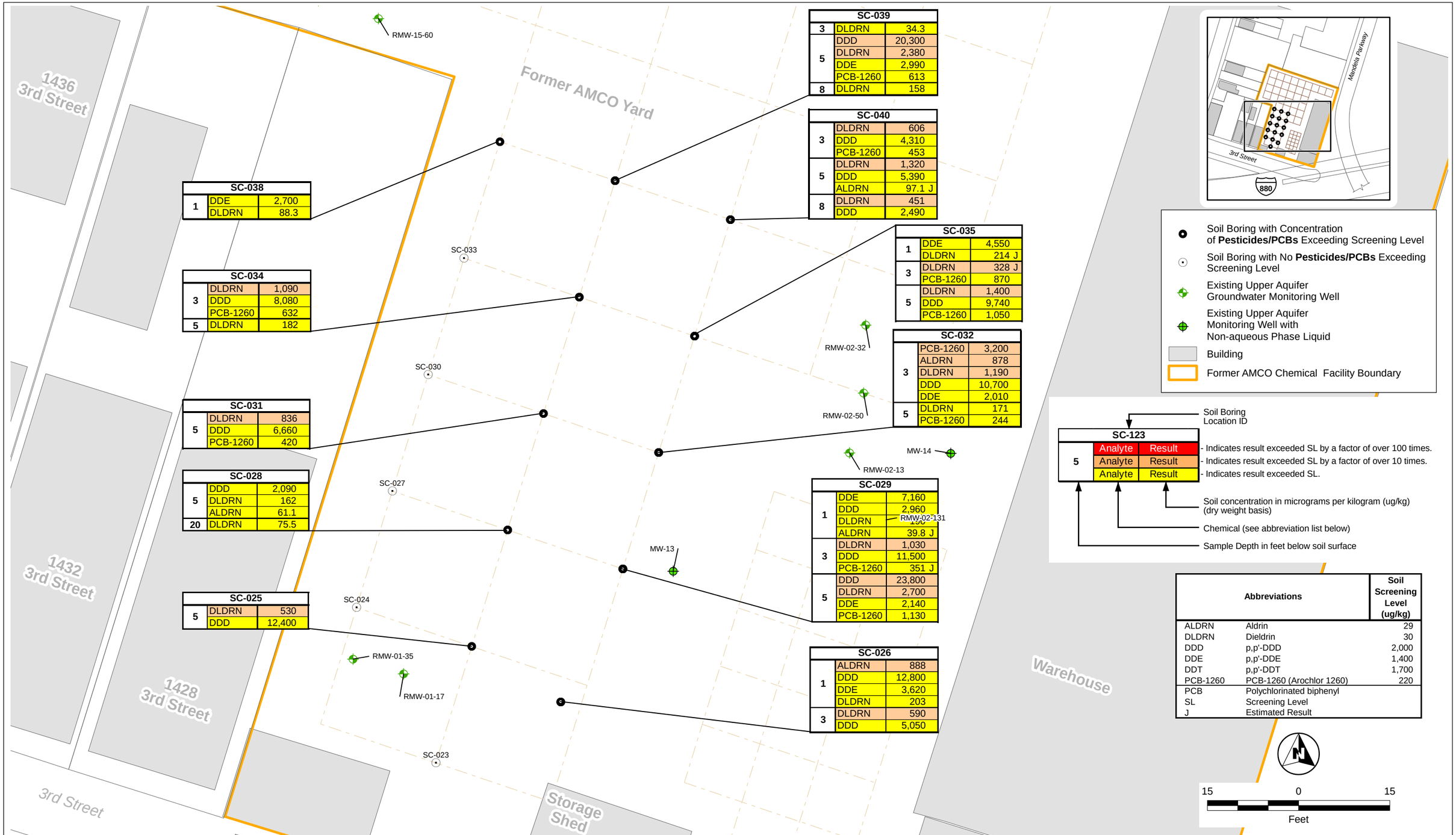

SC-038		
1	DDE	2,700
	DLDRN	88.3

SC-034		
3	DLDRN	1,090
	DDD	8,080
	PCB-1260	632
5	DLDRN	182

SC-031		
5	DLDRN	836
	DDD	6,660
	PCB-1260	420

SC-028		
5	DDD	2,090
	DLDRN	162
	ALDRN	61.1
20	DLDRN	75.5

SC-025		
5	DLDRN	530
	DDD	12,400

SC-039		
3	DLDRN	34.3
5	DDD	20,300
	DLDRN	2,380
	DDE	2,990
	PCB-1260	613
8	DLDRN	158

SC-040		
3	DLDRN	606
	DDD	4,310
	PCB-1260	453
5	DLDRN	1,320
	DDD	5,390
	ALDRN	97.1 J
8	DLDRN	451
	DDD	2,490

SC-035		
1	DDE	4,550
	DLDRN	214 J
3	DLDRN	328 J
	PCB-1260	870
5	DLDRN	1,400
	DDD	9,740
	PCB-1260	1,050

SC-032		
3	PCB-1260	3,200
	ALDRN	878
	DLDRN	1,190
	DDD	10,700
	DDE	2,010
5	DLDRN	171
	PCB-1260	244

SC-029		
1	DDE	7,160
	DDD	2,960
	DLDRN	190
	ALDRN	39.8 J
3	DLDRN	1,030
	DDD	11,500
	PCB-1260	351 J
5	DDD	23,800
	DLDRN	2,700
	DDE	2,140
	PCB-1260	1,130

SC-026		
1	ALDRN	888
	DDD	12,800
	DDE	3,620
	DLDRN	203
3	DLDRN	590
	DDD	5,050

Abbreviations		Soil Screening Level (ug/kg)
ALDRN	Aldrin	29
DLDRN	Dieldrin	30
DDD	p,p'-DDD	2,000
DDE	p,p'-DDE	1,400
DDT	p,p'-DDT	1,700
PCB-1260	PCB-1260 (Arochlor 1260)	220
PCB	Polychlorinated biphenyl	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-14
Pesticide and PCB Concentrations Exceeding Soil Screening Levels Southern Portion of Former AMCO Yard (excluding the Source Area)

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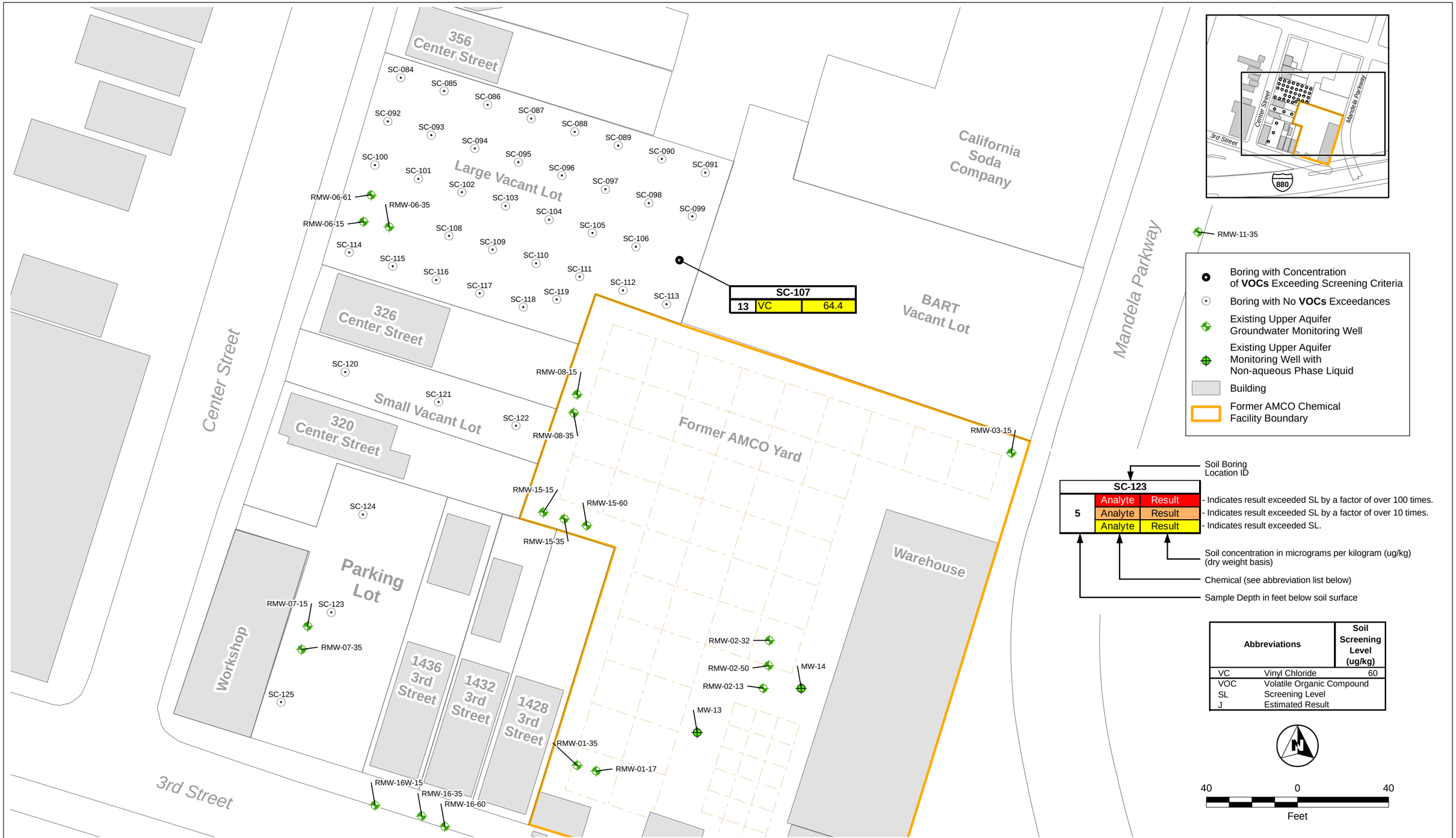

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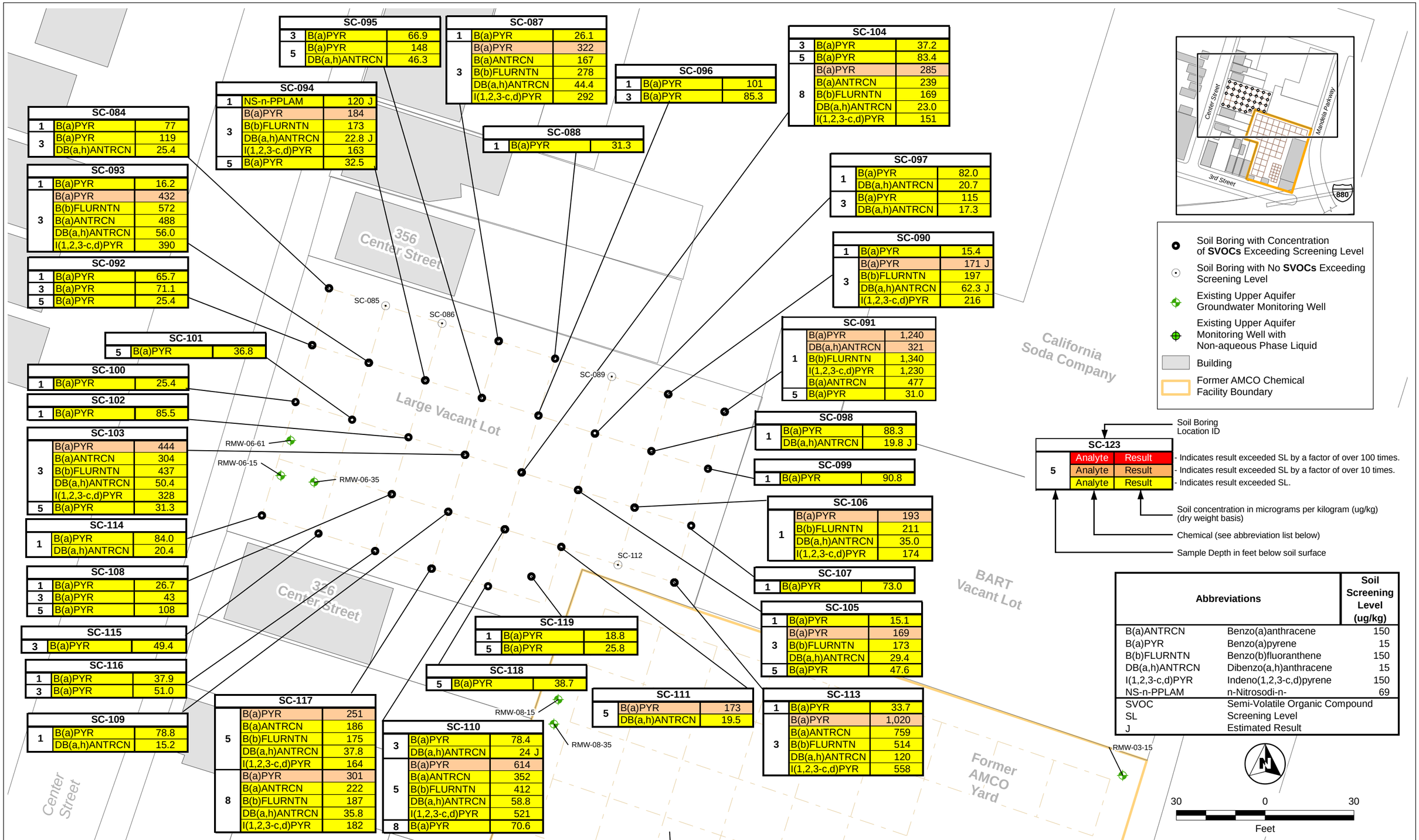
FIGURE 5-15
VOC Concentrations
Exceeding Soil Screening Levels
Neighboring Properties

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Neighbor_VOC.mxd 8/14/2014 [18:00 PM] EANDERSON, ITSI



SC-095		
3	B(a)PYR	66.9
5	B(a)PYR	148
	DB(a,h)ANTRCN	46.3

SC-087		
1	B(a)PYR	26.1
3	B(a)PYR	322
	B(a)ANTRCN	167
	B(b)FLURNTN	278
	DB(a,h)ANTRCN	44.4
	I(1,2,3-c,d)PYR	292

SC-104		
3	B(a)PYR	37.2
5	B(a)PYR	83.4
8	B(a)PYR	285
	B(a)ANTRCN	239
	B(b)FLURNTN	169
	DB(a,h)ANTRCN	23.0
	I(1,2,3-c,d)PYR	151

SC-096		
1	B(a)PYR	101
3	B(a)PYR	85.3

SC-094		
1	NS-n-PPLAM	120 J
3	B(a)PYR	184
	B(b)FLURNTN	173
	DB(a,h)ANTRCN	22.8 J
	I(1,2,3-c,d)PYR	163
5	B(a)PYR	32.5

SC-088		
1	B(a)PYR	31.3

SC-084		
1	B(a)PYR	77
3	B(a)PYR	119
	DB(a,h)ANTRCN	25.4

SC-093		
1	B(a)PYR	16.2
3	B(a)PYR	432
	B(b)FLURNTN	572
	B(a)ANTRCN	488
	DB(a,h)ANTRCN	56.0
	I(1,2,3-c,d)PYR	390

SC-097		
1	B(a)PYR	82.0
	DB(a,h)ANTRCN	20.7
3	B(a)PYR	115
	DB(a,h)ANTRCN	17.3

SC-090		
1	B(a)PYR	15.4
3	B(a)PYR	171 J
	B(b)FLURNTN	197
	DB(a,h)ANTRCN	62.3 J
	I(1,2,3-c,d)PYR	216

SC-092		
1	B(a)PYR	65.7
3	B(a)PYR	71.1
5	B(a)PYR	25.4

SC-101		
5	B(a)PYR	36.8

SC-091		
1	B(a)PYR	1,240
	DB(a,h)ANTRCN	321
	B(b)FLURNTN	1,340
	I(1,2,3-c,d)PYR	1,230
	B(a)ANTRCN	477
5	B(a)PYR	31.0

SC-100		
1	B(a)PYR	25.4

SC-102		
1	B(a)PYR	85.5

SC-098		
1	B(a)PYR	88.3
	DB(a,h)ANTRCN	19.8 J

SC-103		
3	B(a)PYR	444
	B(a)ANTRCN	304
	B(b)FLURNTN	437
	DB(a,h)ANTRCN	50.4
	I(1,2,3-c,d)PYR	328
5	B(a)PYR	31.3

SC-099		
1	B(a)PYR	90.8

SC-106		
1	B(a)PYR	193
	B(b)FLURNTN	211
	DB(a,h)ANTRCN	35.0
	I(1,2,3-c,d)PYR	174

SC-114		
1	B(a)PYR	84.0
	DB(a,h)ANTRCN	20.4

SC-107		
1	B(a)PYR	73.0

SC-108		
1	B(a)PYR	26.7
3	B(a)PYR	43
5	B(a)PYR	108

SC-105		
1	B(a)PYR	15.1
3	B(a)PYR	169
	B(b)FLURNTN	173
	DB(a,h)ANTRCN	29.4
5	B(a)PYR	47.6

SC-119		
1	B(a)PYR	18.8
5	B(a)PYR	25.8

SC-115		
3	B(a)PYR	49.4

SC-118		
5	B(a)PYR	38.7

SC-116		
1	B(a)PYR	37.9
3	B(a)PYR	51.0

SC-111		
5	B(a)PYR	173
	DB(a,h)ANTRCN	19.5

SC-113		
1	B(a)PYR	33.7
3	B(a)PYR	1,020
	B(a)ANTRCN	759
	B(b)FLURNTN	514
	DB(a,h)ANTRCN	120
	I(1,2,3-c,d)PYR	558

SC-109		
1	B(a)PYR	78.8
	DB(a,h)ANTRCN	15.2

SC-117		
5	B(a)PYR	251
	B(a)ANTRCN	186
	B(b)FLURNTN	175
	DB(a,h)ANTRCN	37.8
	I(1,2,3-c,d)PYR	164
8	B(a)PYR	301
	B(a)ANTRCN	222
	B(b)FLURNTN	187
	DB(a,h)ANTRCN	35.8
	I(1,2,3-c,d)PYR	182

SC-110		
3	B(a)PYR	78.4
	DB(a,h)ANTRCN	24 J
5	B(a)PYR	614
	B(a)ANTRCN	352
	B(b)FLURNTN	412
	DB(a,h)ANTRCN	58.8
	I(1,2,3-c,d)PYR	521
8	B(a)PYR	70.6

Abbreviations		Soil Screening Level (ug/kg)
B(a)ANTRCN	Benzo(a)anthracene	150
B(a)PYR	Benzo(a)pyrene	15
B(b)FLURNTN	Benzo(b)fluoranthene	150
DB(a,h)ANTRCN	Dibenzo(a,h)anthracene	15
I(1,2,3-c,d)PYR	Indeno(1,2,3-c,d)pyrene	150
NS-n-PPLAM	n-Nitrosodi-n-	69
SVOC	Semi-Volatile Organic Compound	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-16
SVOC Concentrations
Exceeding Soil Screening Levels
Large Vacant Lot (Neighboring Properties)

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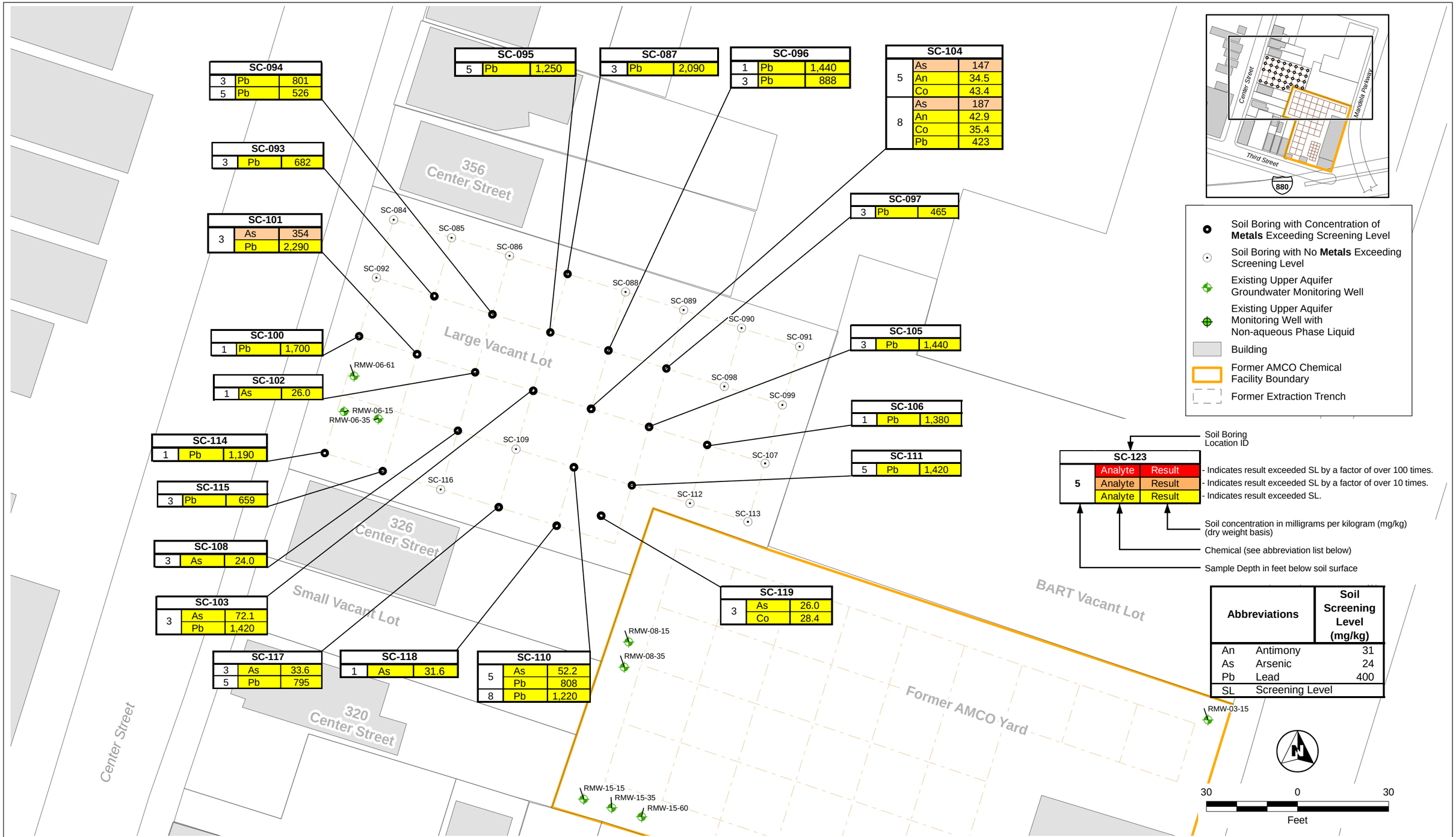

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FIGURE 5-17
Metals Concentrations
Exceeding Soil Screening Levels
Large Vacant Lot (Neighboring Properties)

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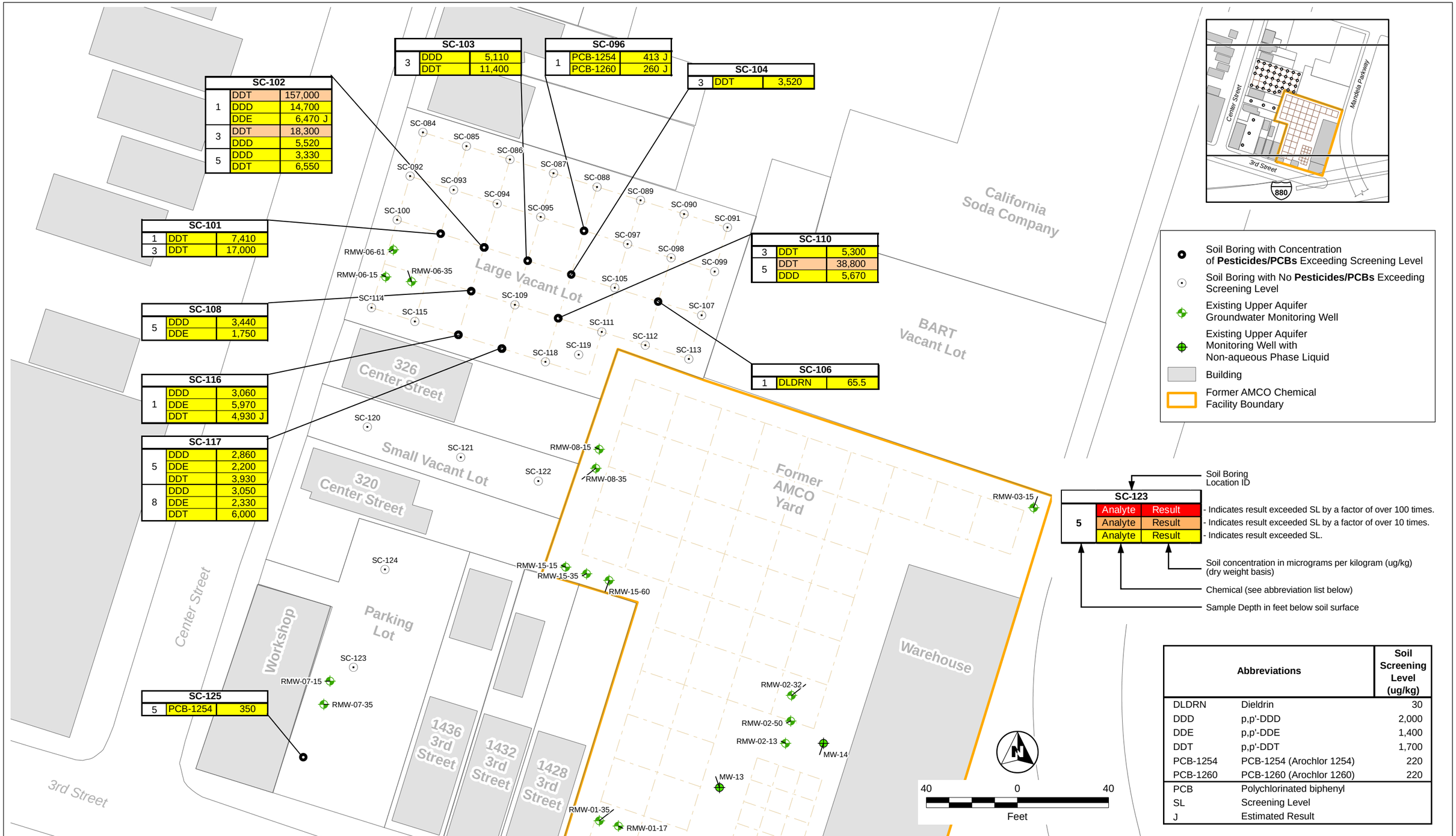

Abbreviations		Soil Screening Level (ug/kg)
DLDRN	Dieldrin	30
DDD	p,p'-DDD	2,000
DDE	p,p'-DDE	1,400
DDT	p,p'-DDT	1,700
PCB-1254	PCB-1254 (Arochlor 1254)	220
PCB-1260	PCB-1260 (Arochlor 1260)	220
PCB	Polychlorinated biphenyl	
SL	Screening Level	
J	Estimated Result	

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FIGURE 5-18
Pesticide and PCB Concentrations Exceeding Soil Screening Levels Neighboring Properties

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Neighbor_PestPCB.mxd 8/15/2014 [10:47 AM] EANDERSON, ITSI

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FIGURE 5-19
SVOC Concentrations
Exceeding Soil Screening Levels
Small Vacant Lot and Parking Lot
(Neighboring Properties)

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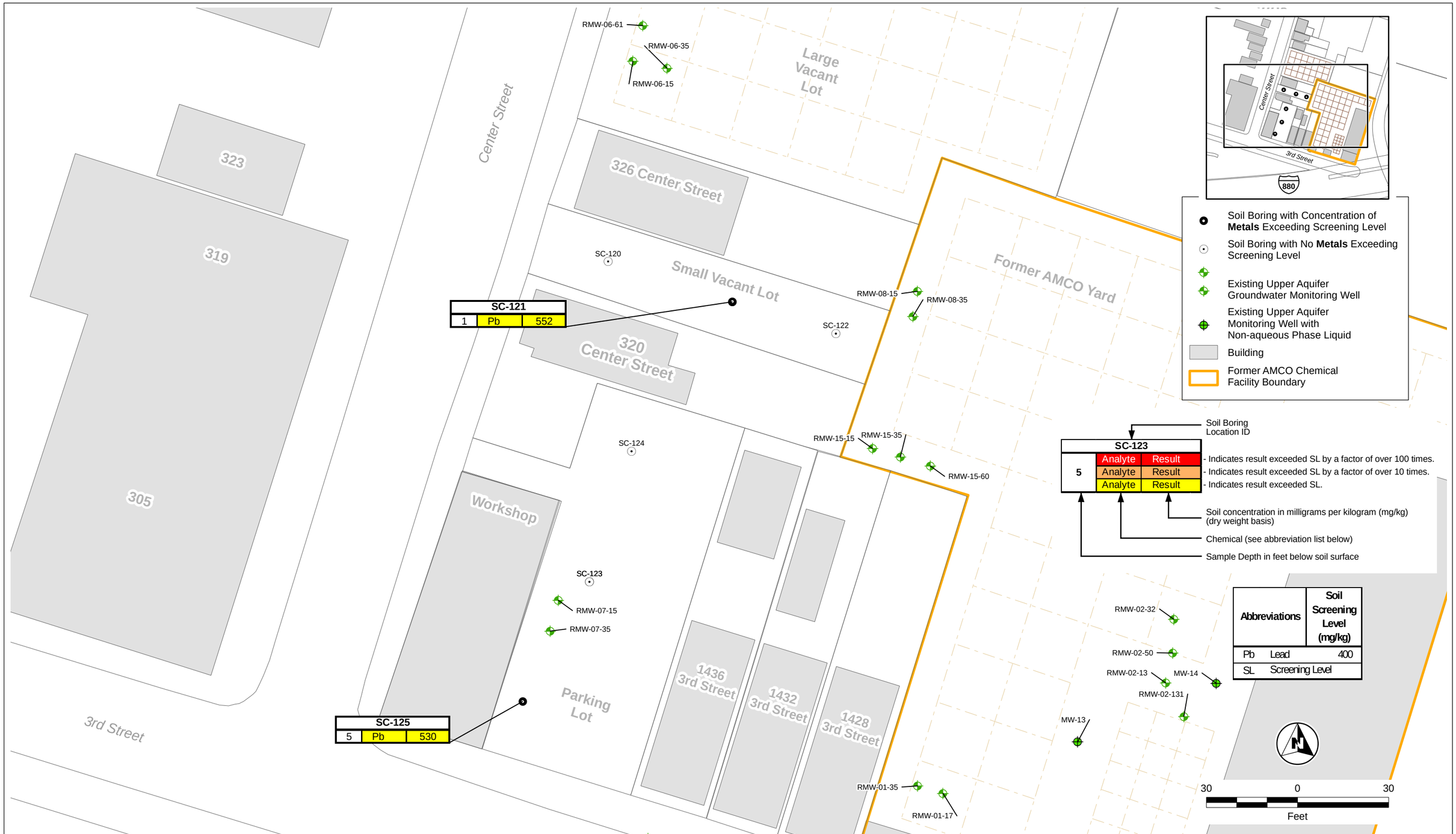

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FIGURE 5-20
Metals Concentrations Exceeding Soil Screening Levels
Small Vacant Lot and Parking Lot
(Neighboring Properties)

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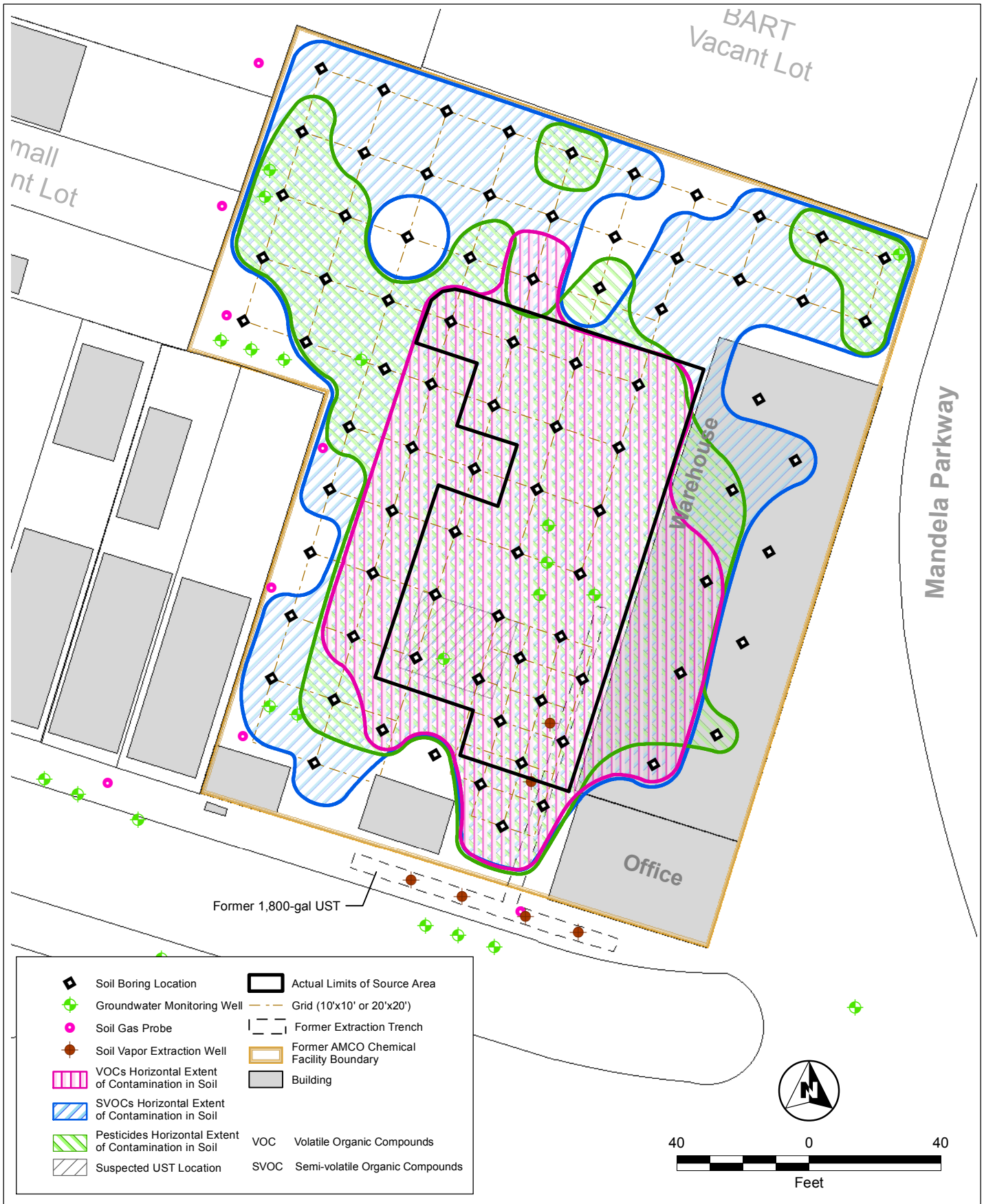

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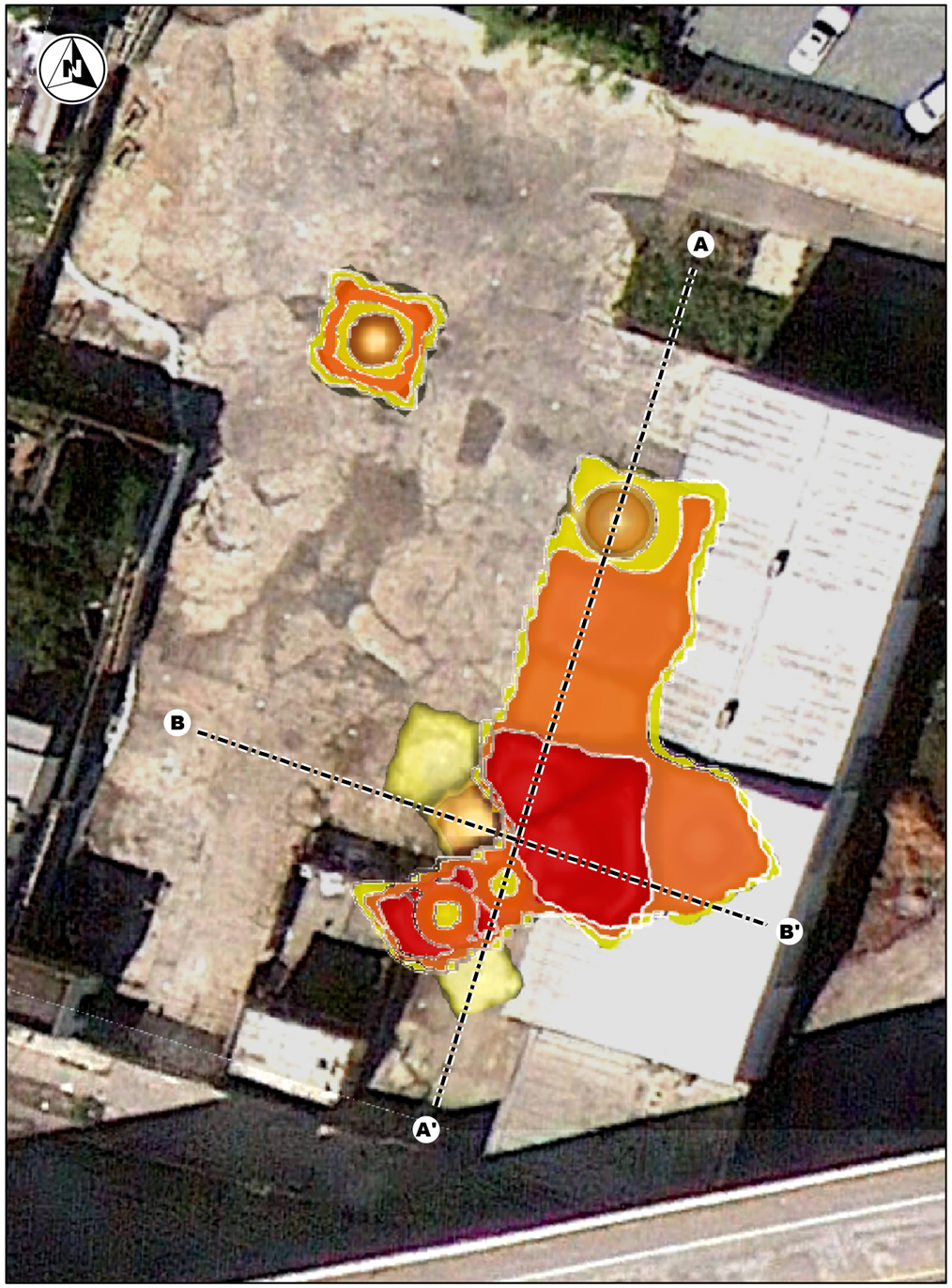
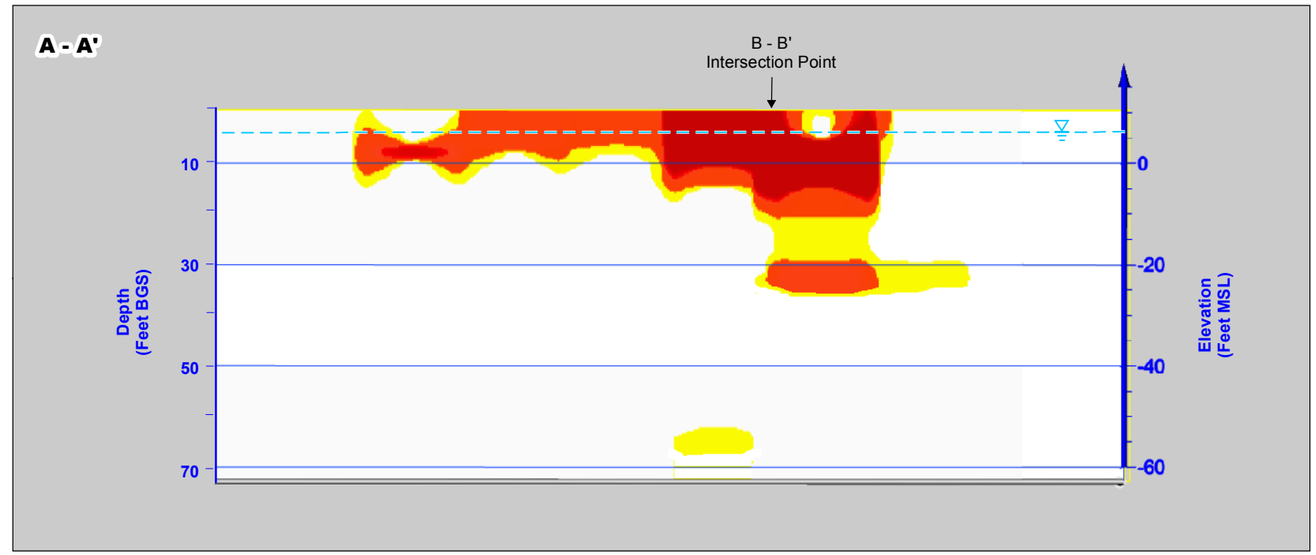
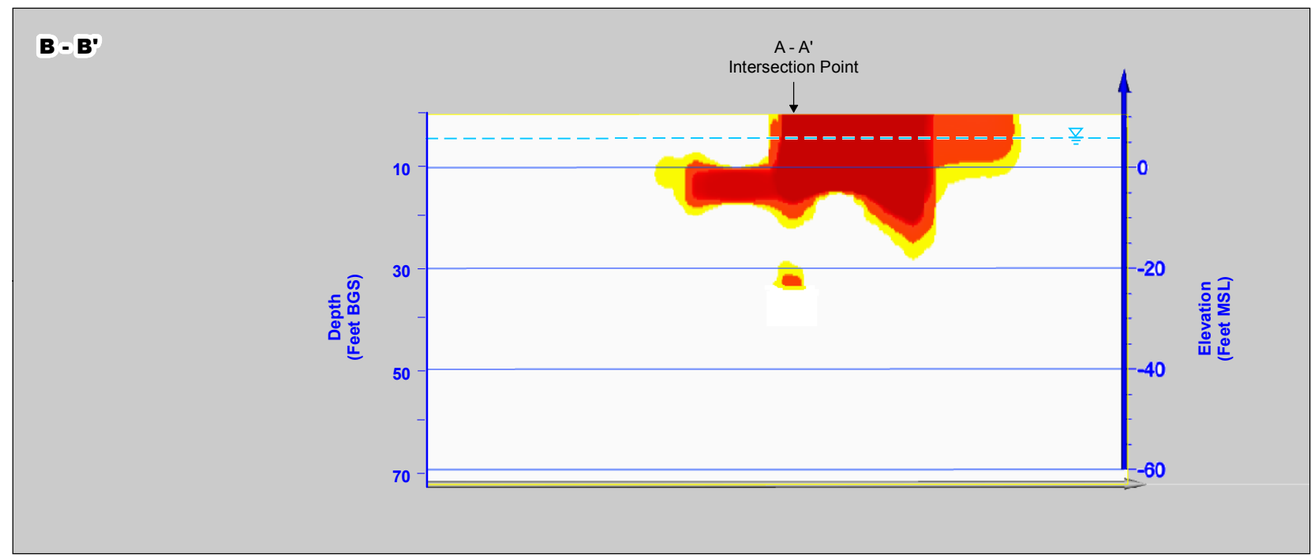
FIGURE 5-21
VOCs, SVOCs, and Pesticides Horizontal Extent of Contamination in Soil Former AMCO Yard

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\Analytes_Horizontal_Extent.mxd 8/15/2014 [11:00 AM] EANDERSON, ITSI







Projected Groundwater Level Measured at Well RMW 02-13 in August 2012

TCE Soil Concentration (ug/kg)

- > 91,000
- > 9,100
- > 910

Notes:
1. U.S. Environmental Protection Agency (EPA) Residential Screening Level for TCE = 910 ug/kg.
2. The plume 3-D model is created with the inverse distance isotropic model, with power 20.

BGS Below ground surface
MSL Mean sea level
ug/kg Micrograms per kilogram
TCE Trichloroethene

30 0 30
Feet

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FIGURE 5-22
Trichloroethene Concentrations in Soil at the Former AMCO Facility

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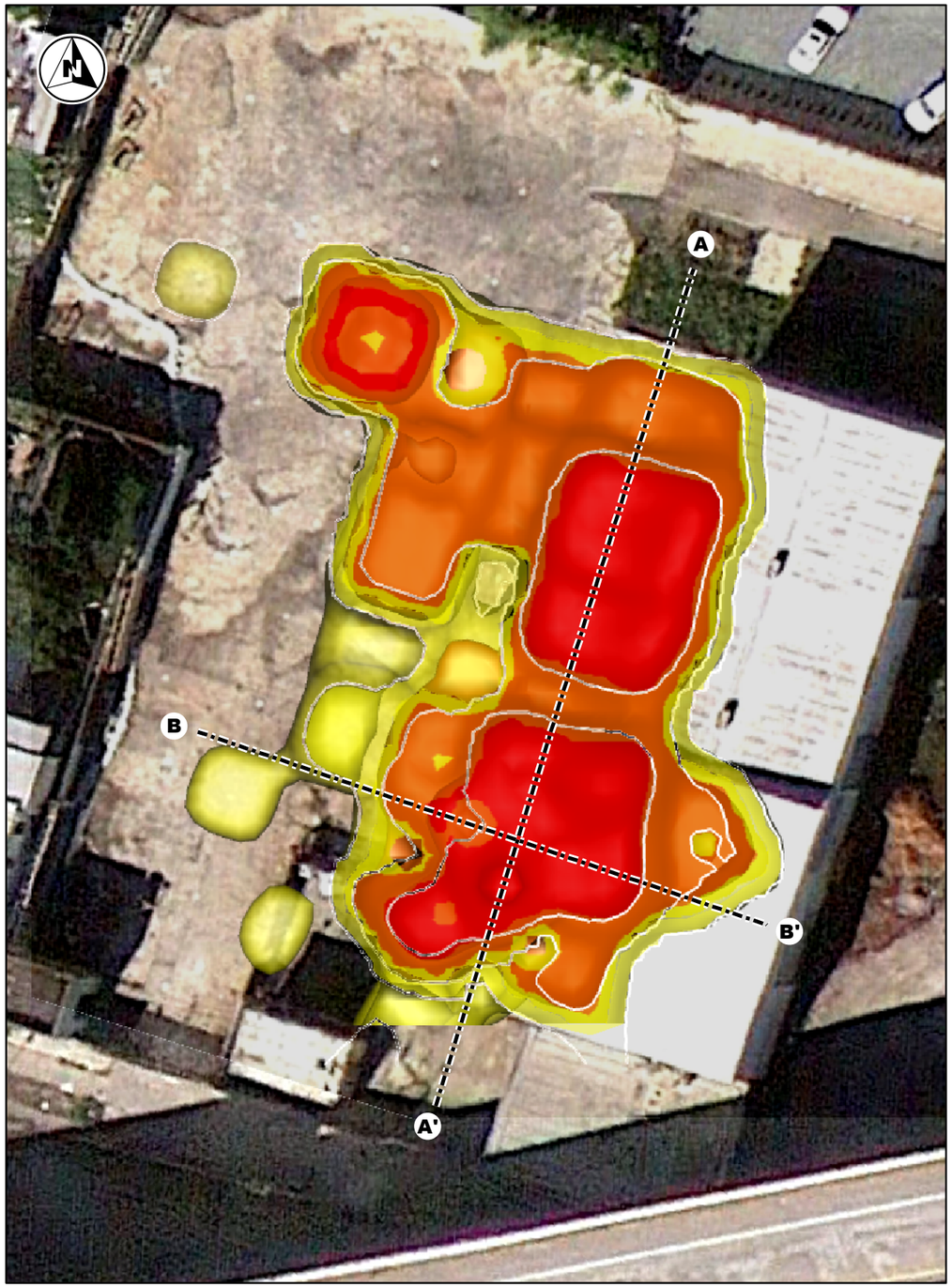

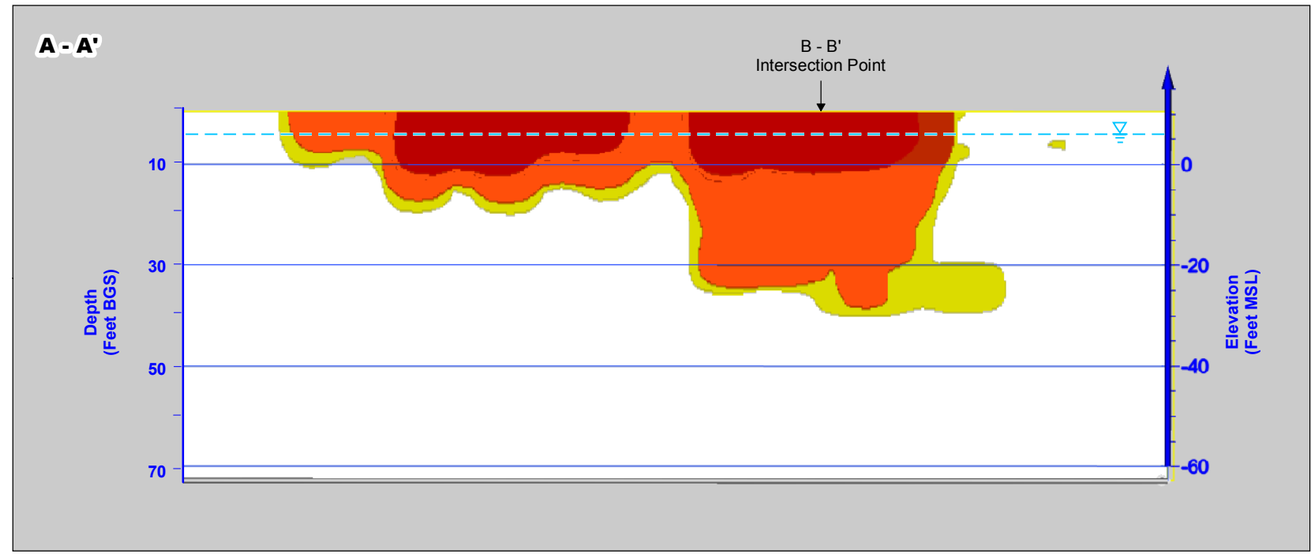

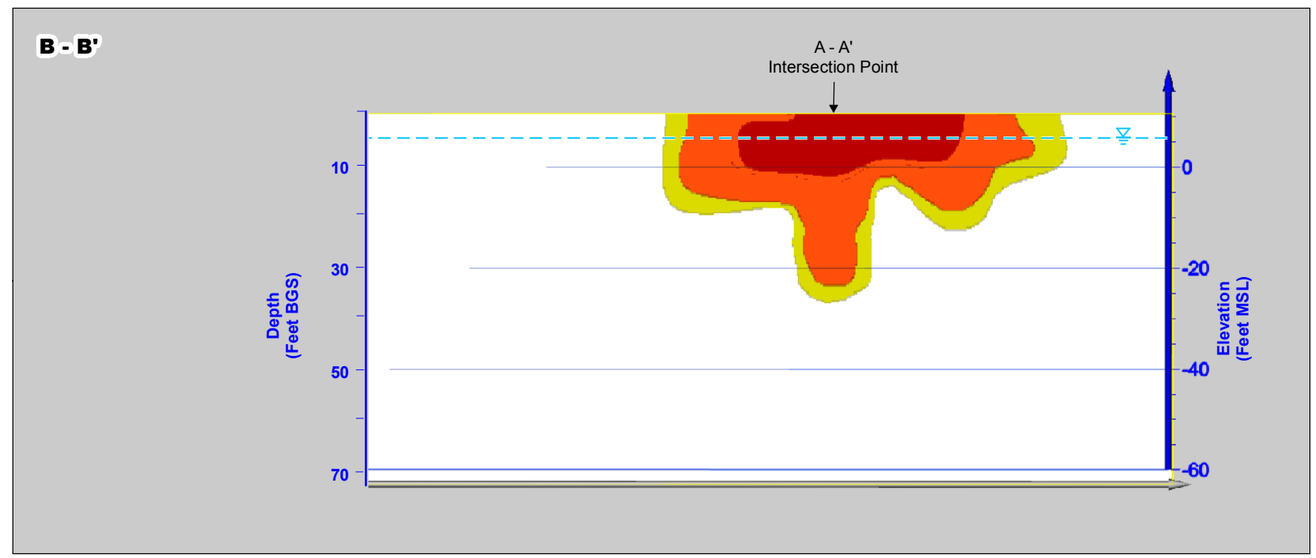

Projected Groundwater Level Measured at Well RMW 02-13 in August 2012

cDCE Soil Concentration (ug/kg)

- > 67,000
- > 6,700
- > 670

Notes:
1. U.S. Environmental Protection Agency (EPA) Residential Screening Level for cDCE = 160,000 ug/kg.
2. The plume 3-D model is created with the inverse distance isotropic model, with power 10.

BGS Below ground surface
MSL Mean sea level
ug/kg Micrograms per kilogram
cDCE cis-1,2-Dichloroethene

30 0 30
Feet

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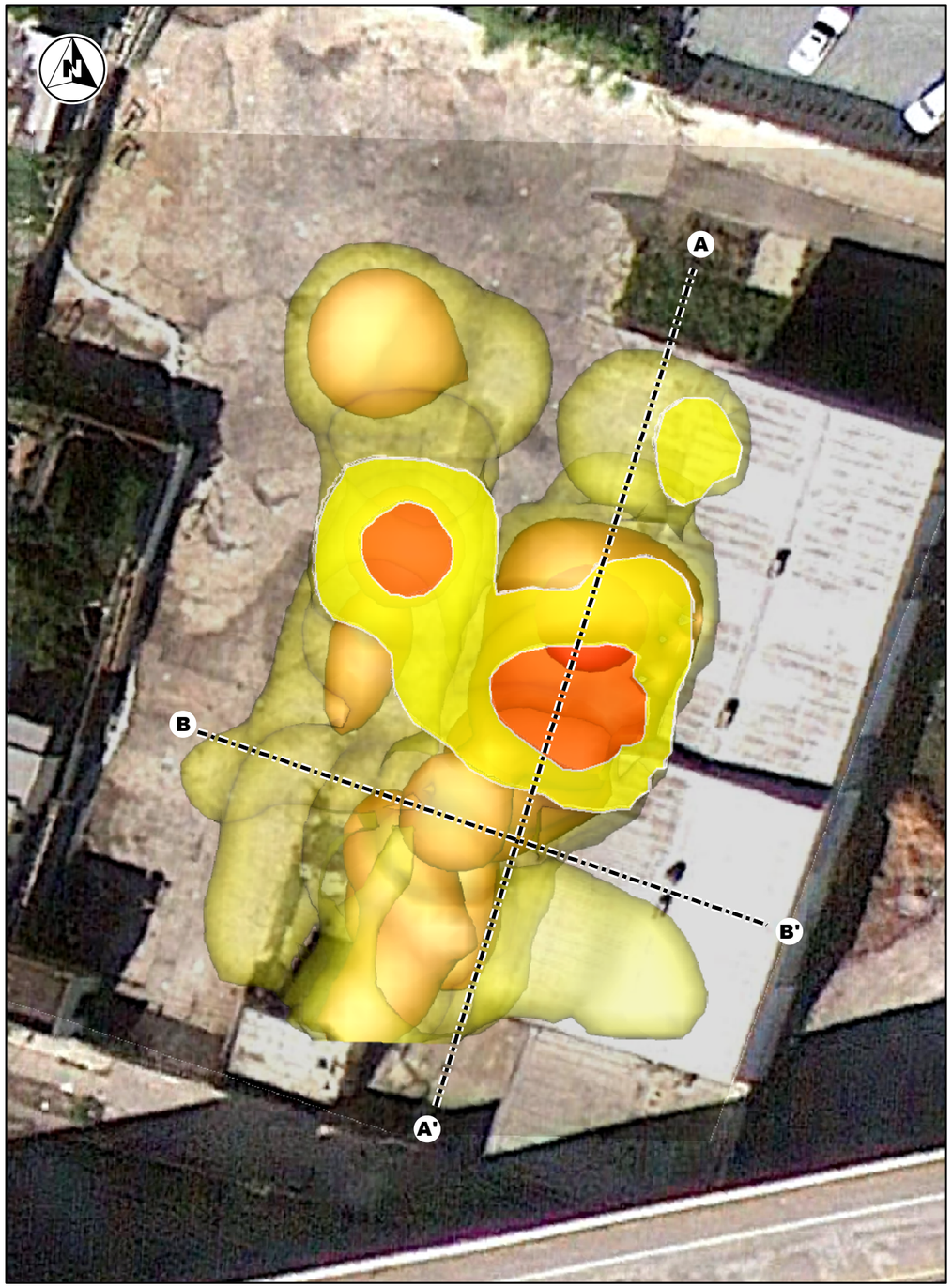
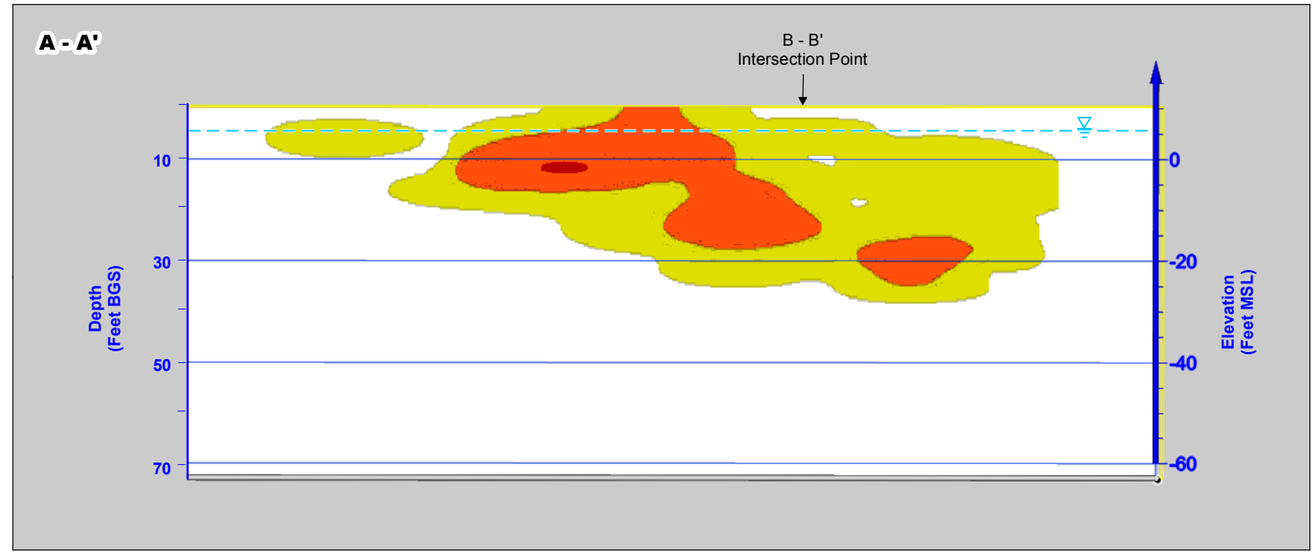
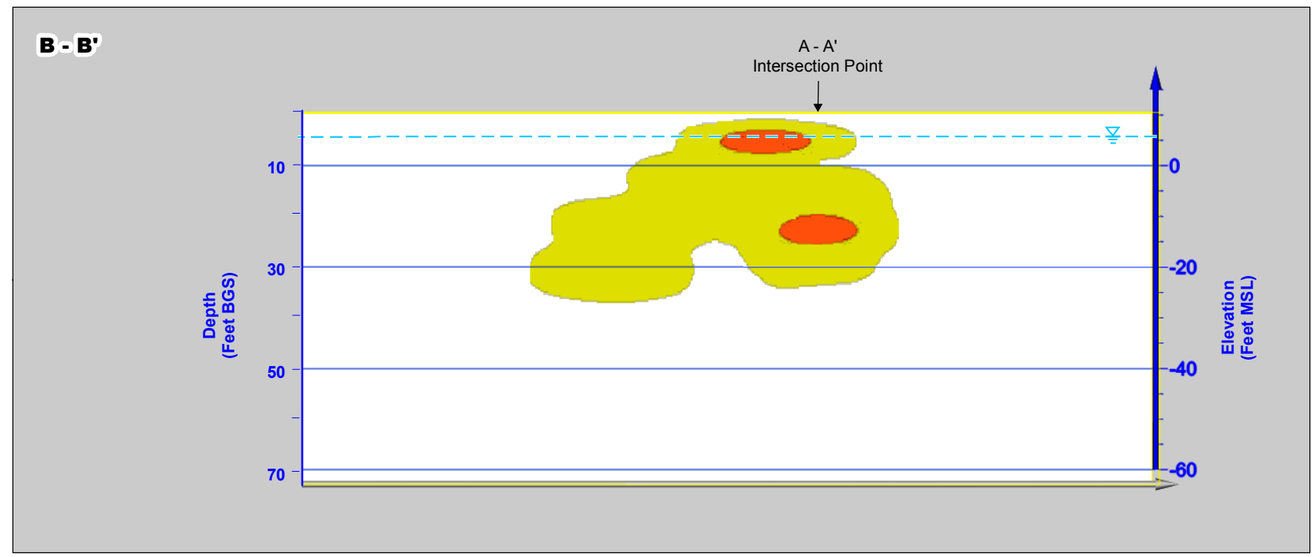
FIGURE 5-23
cis-1,2-Dichloroethene Concentrations in Soil at the Former AMCO Facility

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Plume3D\Renderings\c12DCE\c12DCE_Plume_XSects.mxd 8/15/2014 [11:10 AM] EANDERSON, Gilbane







Projected Groundwater Level Measured at Well RMW 02-13 in August 2012

Vinyl Chloride Soil Concentration (ug/kg)

- > 6,000
- > 600
- > 60

Notes:
1. U.S. Environmental Protection Agency (EPA) Residential Screening Level for Vinyl Chloride = 60 ug/kg.
2. The plume 3-D model is created with the inverse distance isotropic model, with power 30.

BGS Below ground surface
MSL Mean sea level
ug/kg Micrograms per kilogram

30 0 30
Feet

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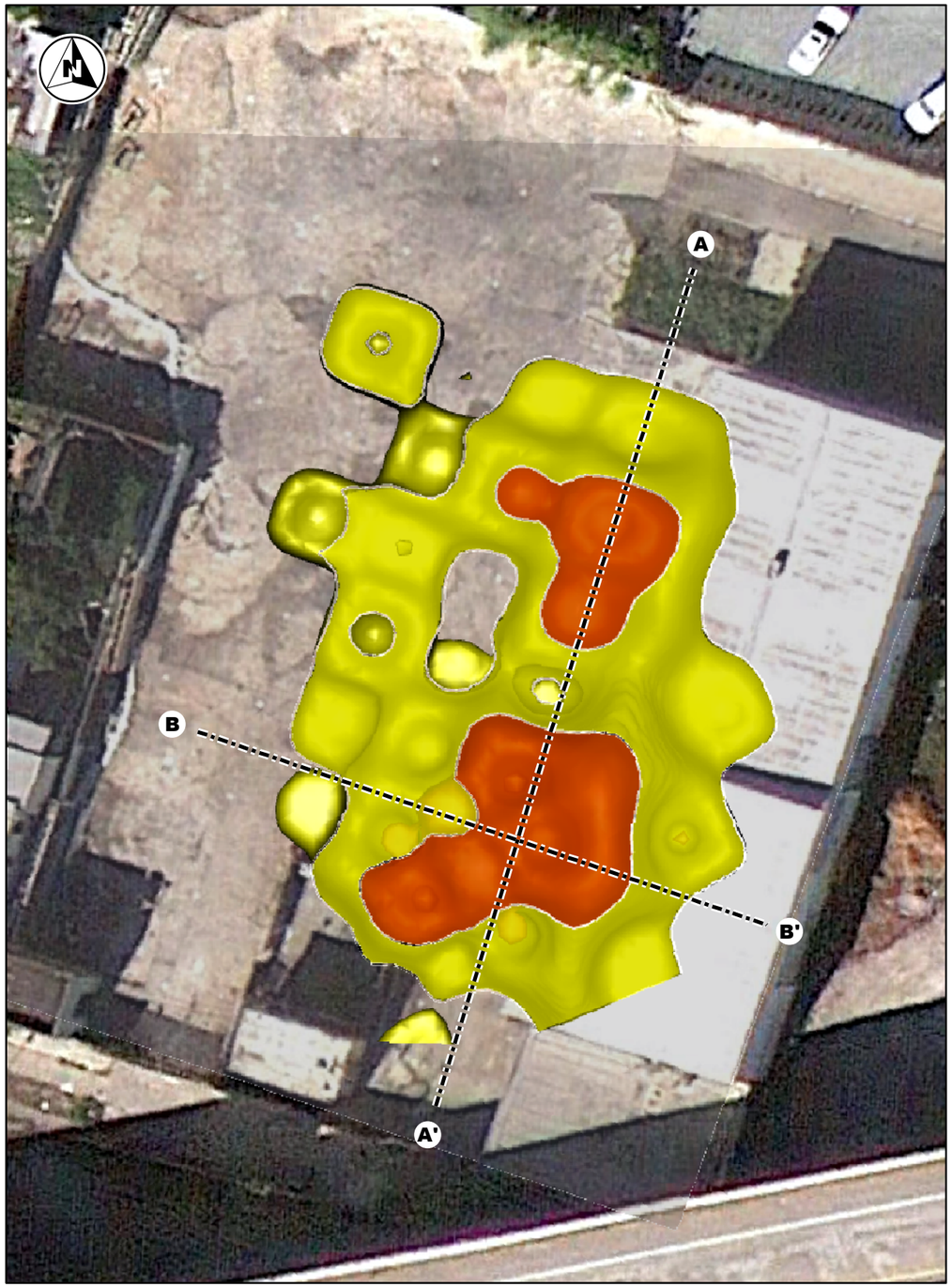
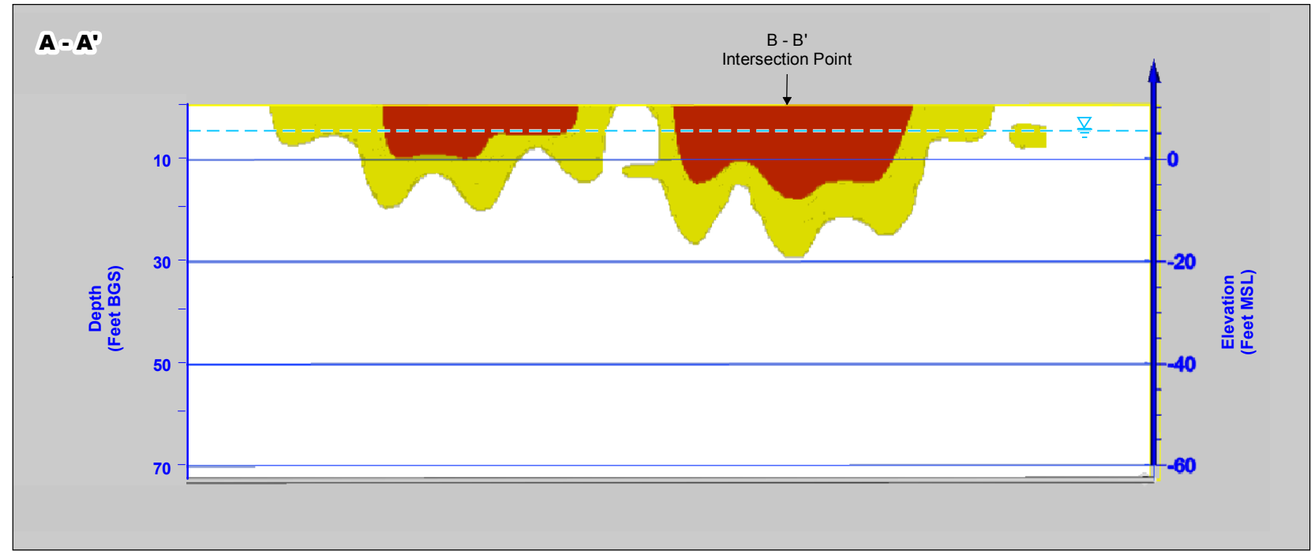
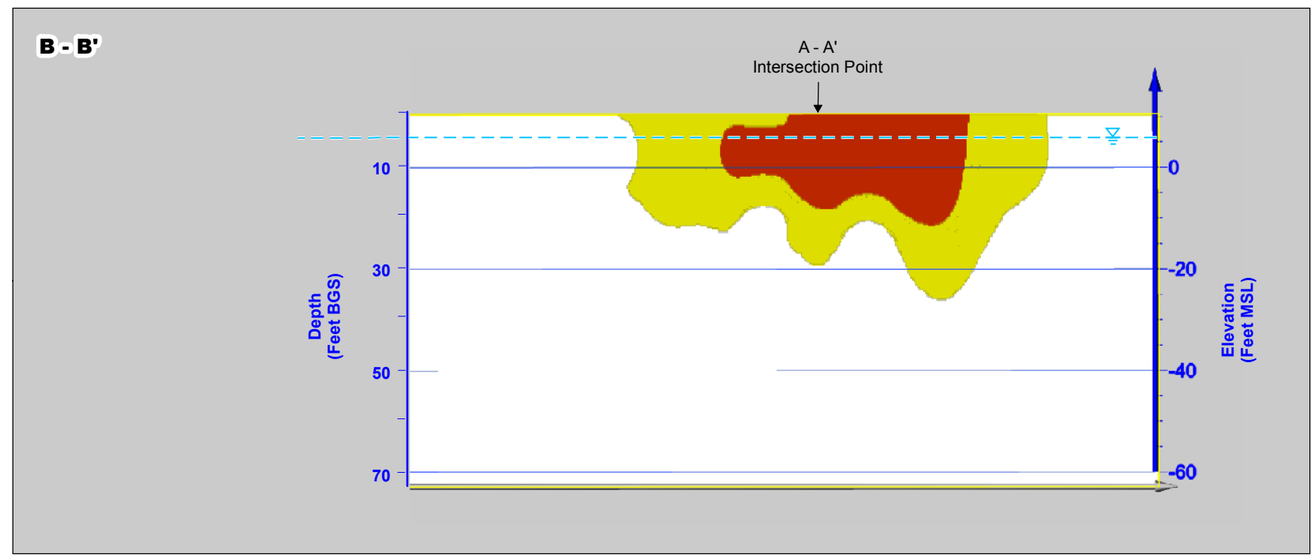
FIGURE 5-24
Vinyl Chloride Concentrations in Soil at the Former AMCO Facility

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Plume3D\Renderings\VC\VC_Plume_XSects.mxd 8/15/2014 [11:41 AM] EANDERSON, Gilbane







Projected Groundwater Level Measured at Well RMW 02-13 in August 2012

Toluene Soil Concentration (ug/kg)

> 250,000

> 25,000

Notes:
1. U.S. Environmental Protection Agency (EPA) Residential Screening Level for Toluene = 5,000,000 ug/kg.
2. The plume 3-D model is created with the inverse distance isotropic model, with power 30.

BGS Below ground surface
MSL Mean sea level
ug/kg Micrograms per kilogram

30 0 30
Feet

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FIGURE 5-25
Toluene Concentrations in Soil at the Former AMCO Facility

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\Soil_Characrtzn\SC2012\Plume3D\Renderings\Toluene\Toluene_Plume_XSects.mxd 8/15/2014 [11:41 AM] EANDERSON, Gilbane

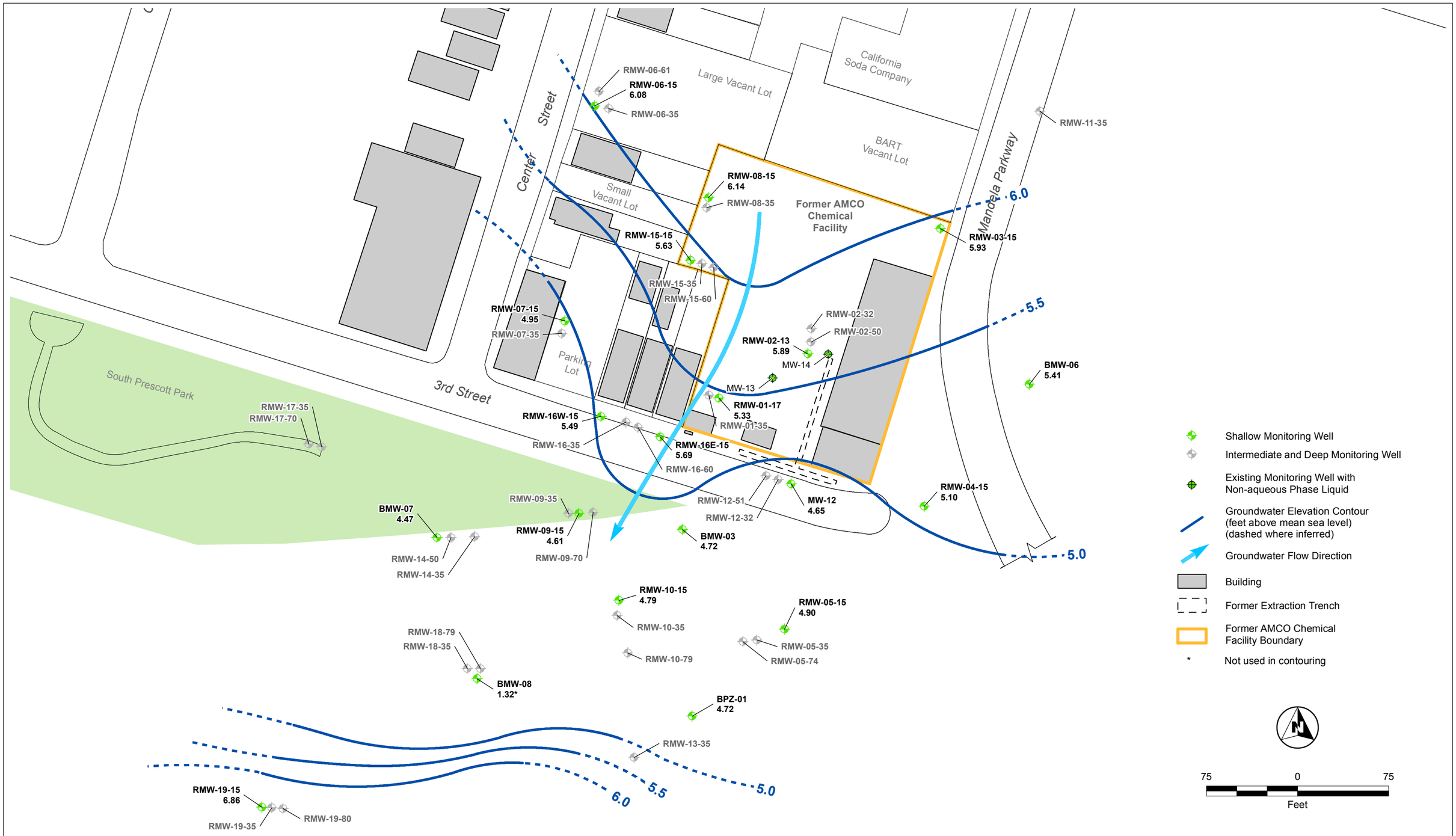

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FIGURE 6-1
Groundwater Elevations
February 2012 (Wet Season)

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\GW_Contours_Feb2012.mxd 8/15/2014 [11:48 AM] EANDERSON, ITSI

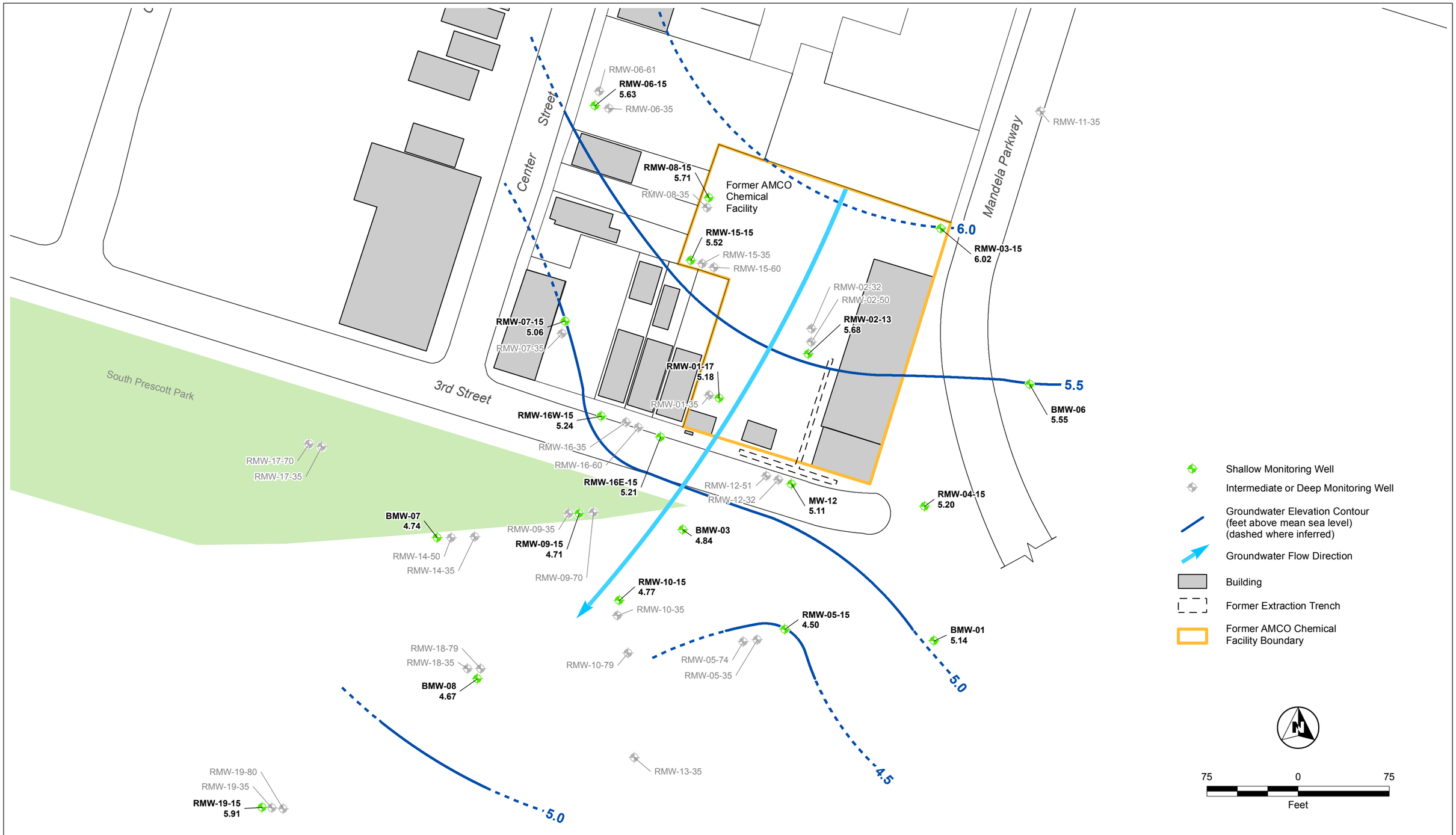

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FIGURE 6-2
Groundwater Elevations
August 2012 (Dry Season)

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\GW_Contours_Aug2012.mxd 8/18/2014 [11:56 AM] EANDERSON, ITSI

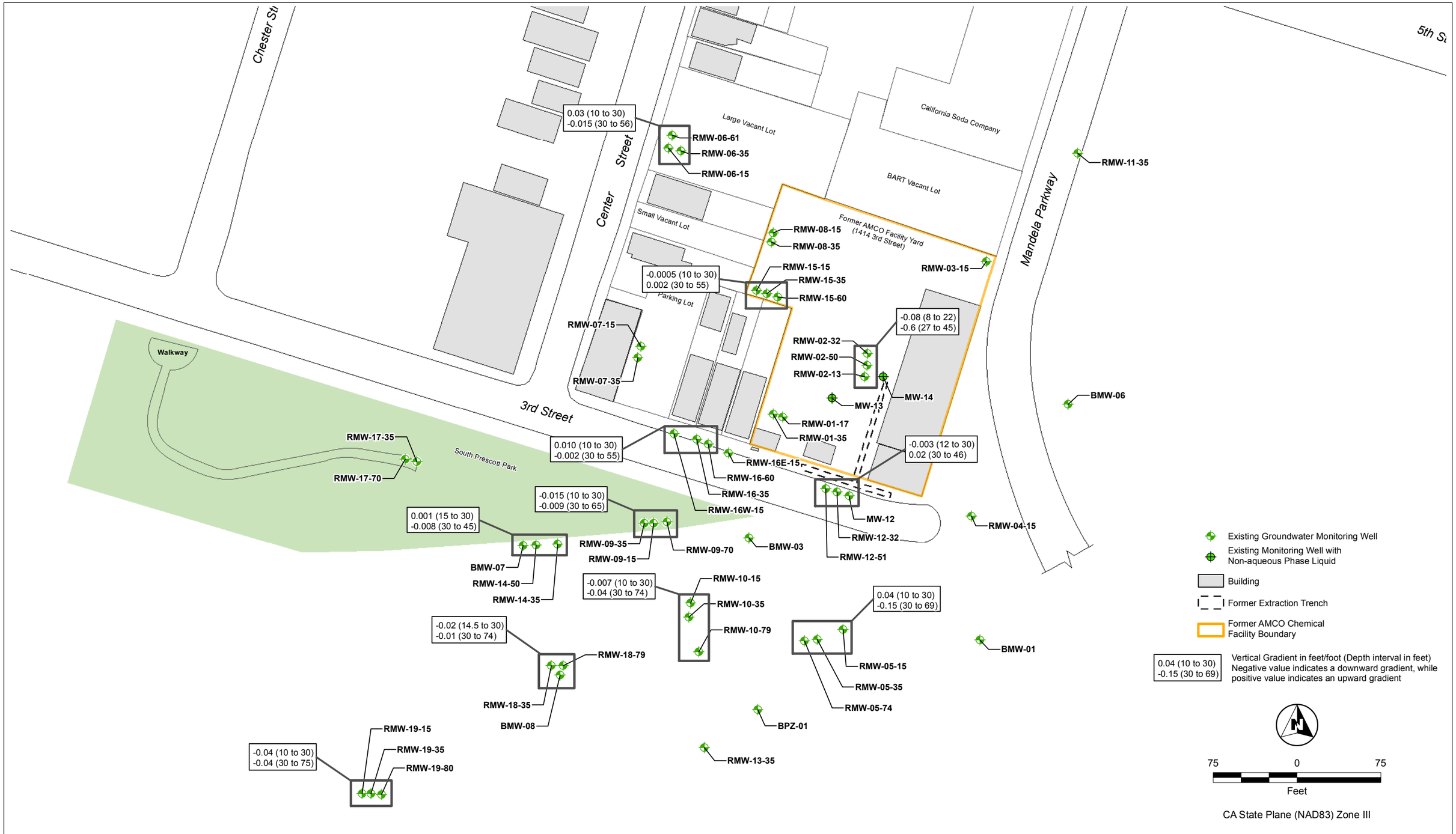

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FIGURE 6-3
Vertical Gradient Variation in Upper Aquifer Groundwater
August 2012

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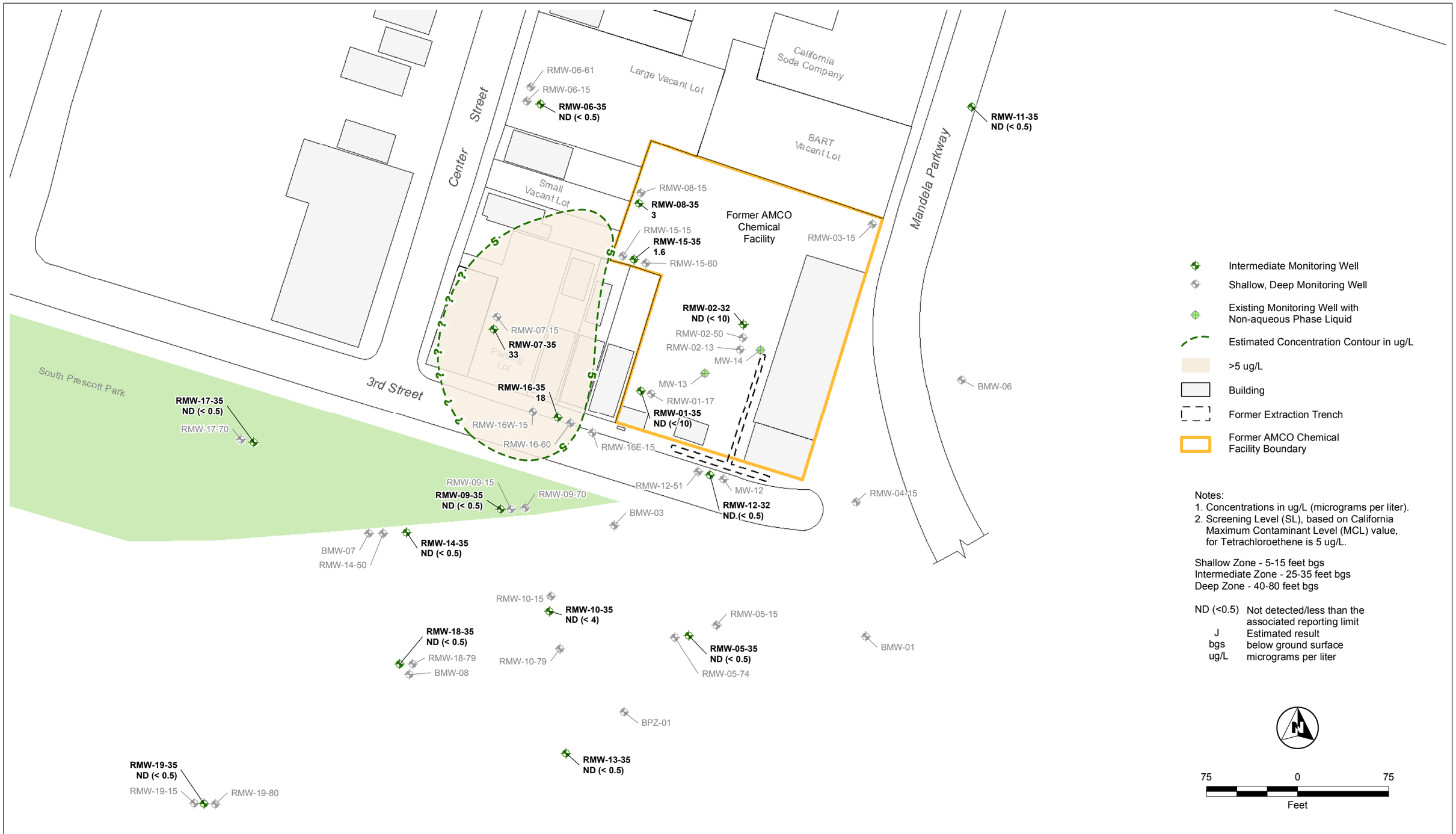

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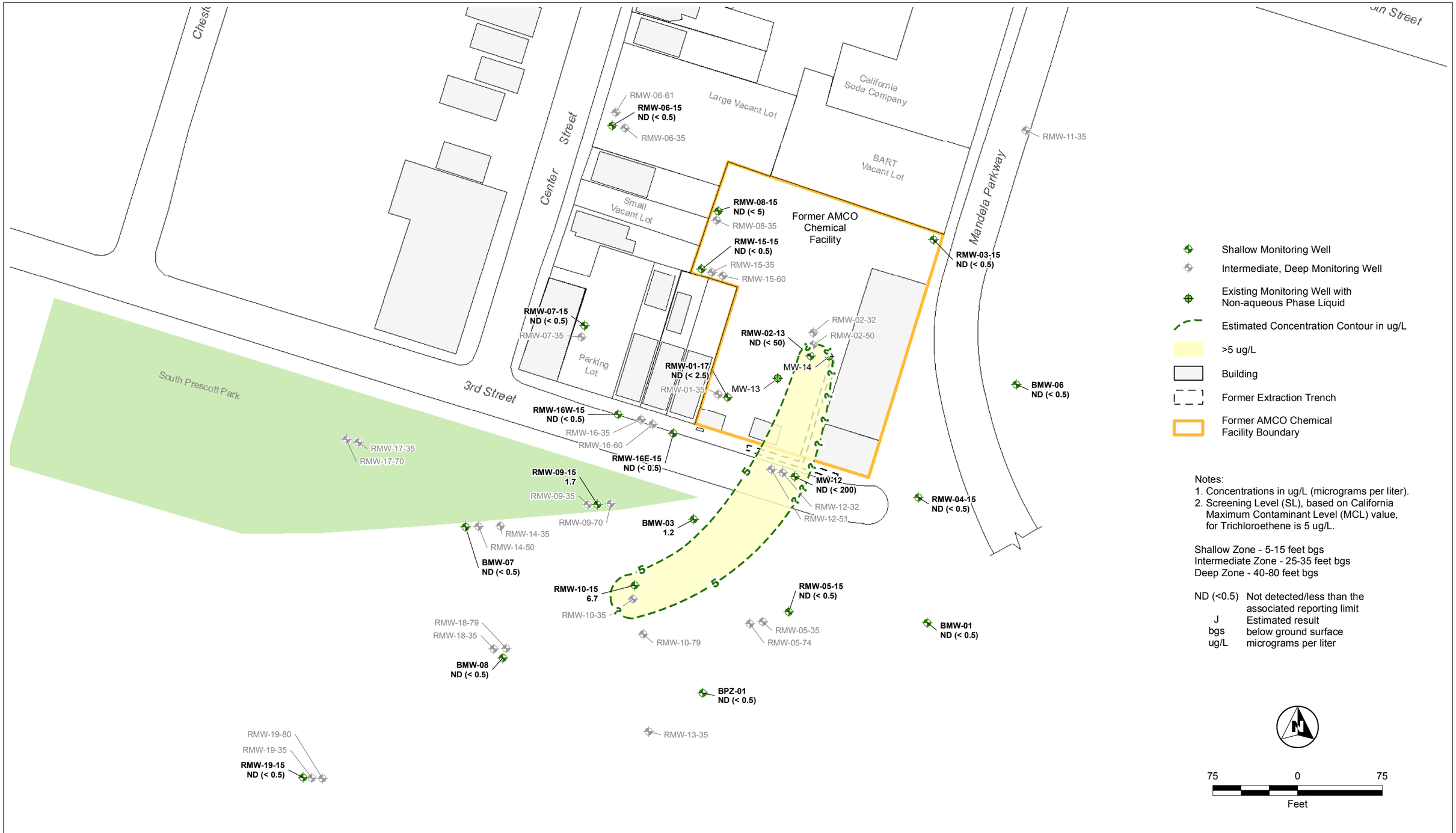
FIGURE 6-4
Tetrachloroethene Concentrations in Groundwater, Intermediate Zone
August 2012

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\PCE_IM_TEST.mxd 8/15/2014 [12:22 PM] EANDERSON, ITSI



Notes:
1. Concentrations in ug/L (micrograms per liter).
2. Screening Level (SL), based on California Maximum Contaminant Level (MCL) value, for Trichloroethene is 5 ug/L.

Shallow Zone - 5-15 feet bgs
Intermediate Zone - 25-35 feet bgs
Deep Zone - 40-80 feet bgs

ND (<0.5)	Not detected/less than the associated reporting limit
J	Estimated result
bgs	below ground surface
ug/L	micrograms per liter

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FIGURE 6-5
Trichloroethene Concentrations in Groundwater, Shallow Zone
August 2012

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\TCE_Shallow.mxd 8/15/2014 [13:25 PM] EANDERSON, ITSI

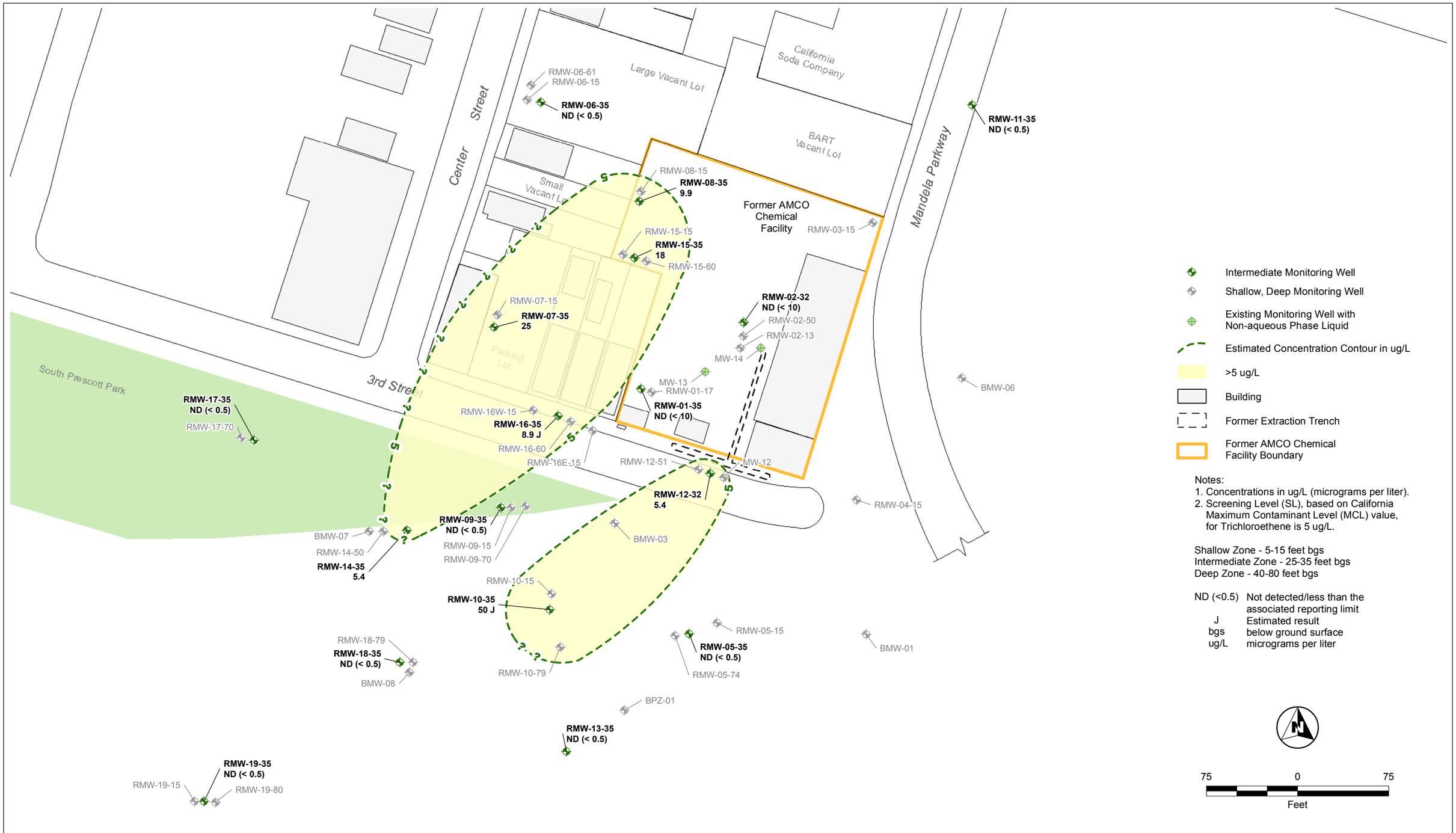

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FIGURE 6-6
Trichloroethene Concentrations in Groundwater, Intermediate Zone
August 2012

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\TCE_IM.mxd 8/15/2014 [13:25 PM] EANDERSON, ITSI

Notes:
1. Concentrations in ug/L (micrograms per liter).
2. Screening Level (SL), based on California Maximum Contaminant Level (MCL) value, for Trichloroethene is 5 ug/L.

Shallow Zone - 5-15 feet bgs
Intermediate Zone - 25-35 feet bgs
Deep Zone - 40-80 feet bgs

ND (<0.5)	Not detected/less than the associated reporting limit
J	Estimated result
bgs	below ground surface
ug/L	micrograms per liter

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FIGURE 6-7
Trichloroethene Concentrations in Groundwater, Deep Zone
August 2012

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\TCE_Deep.mxd 8/15/2014 [13:32 PM] EANDERSON, ITSI

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FIGURE 6-8
cis-1,2-Dichloroethene Concentrations in Groundwater, Shallow Zone
August 2012

G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\c12DCE_Shallow.mxd 8/15/2014 [13:32 PM] EANDERSON, ITSI

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FIGURE 6-9
cis-1,2-Dichloroethene Concentrations in Groundwater, Intermediate Zone
August 2012

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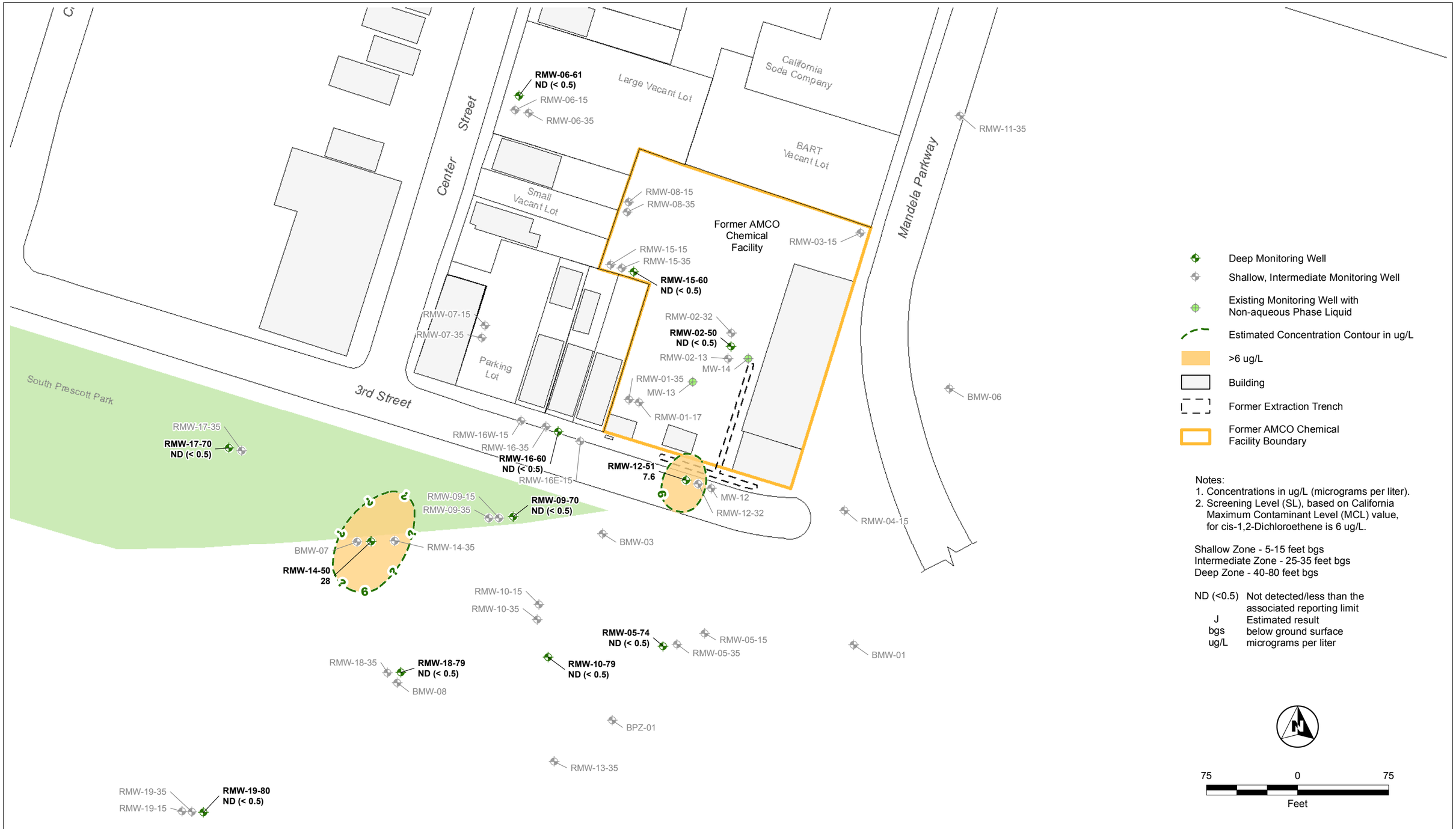

Notes:
1. Concentrations in ug/L (micrograms per liter).
2. Screening Level (SL), based on California Maximum Contaminant Level (MCL) value, for cis-1,2-Dichloroethene is 6 ug/L.

Shallow Zone - 5-15 feet bgs
Intermediate Zone - 25-35 feet bgs
Deep Zone - 40-80 feet bgs

ND (<0.5)	Not detected/less than the associated reporting limit
J	Estimated result
bgs	below ground surface
ug/L	micrograms per liter

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FIGURE 6-10
cis-1,2-Dichloroethene Concentrations in Groundwater, Deep Zone
August 2012

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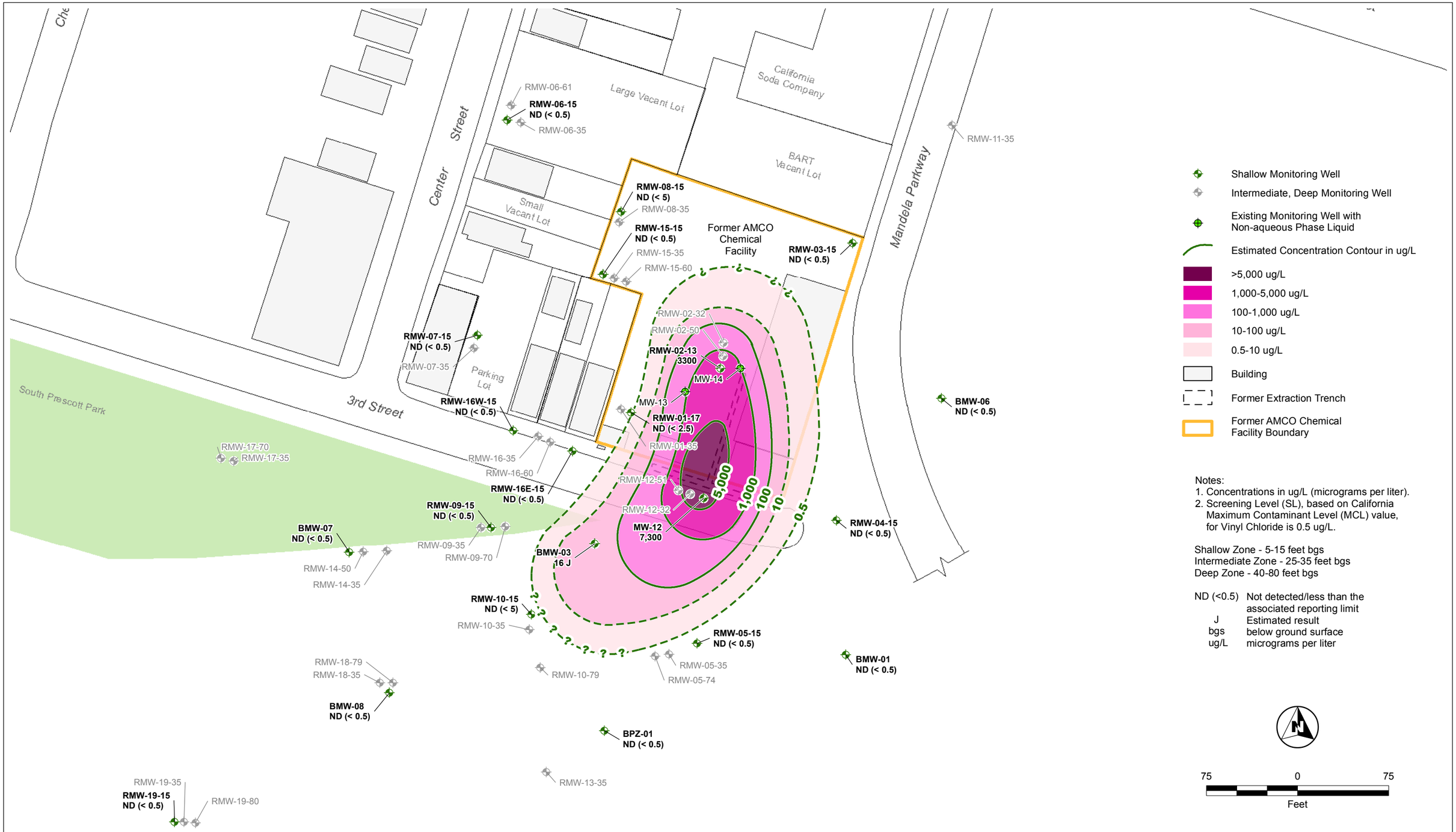

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FIGURE 6-11
Vinyl Chloride Concentrations in Groundwater, Shallow Zone
August 2012

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Notes:
1. Concentrations in ug/L (micrograms per liter).
2. Screening Level (SL), based on California Maximum Contaminant Level (MCL) value, for Vinyl Chloride is 0.5 ug/L.

Shallow Zone - 5-15 feet bgs
Intermediate Zone - 25-35 feet bgs
Deep Zone - 40-80 feet bgs

ND (<0.5)	Not detected/less than the associated reporting limit
J	Estimated result
bgs	below ground surface
ug/L	micrograms per liter

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FIGURE 6-12
Vinyl Chloride Concentrations in Groundwater, Intermediate Zone
August 2012

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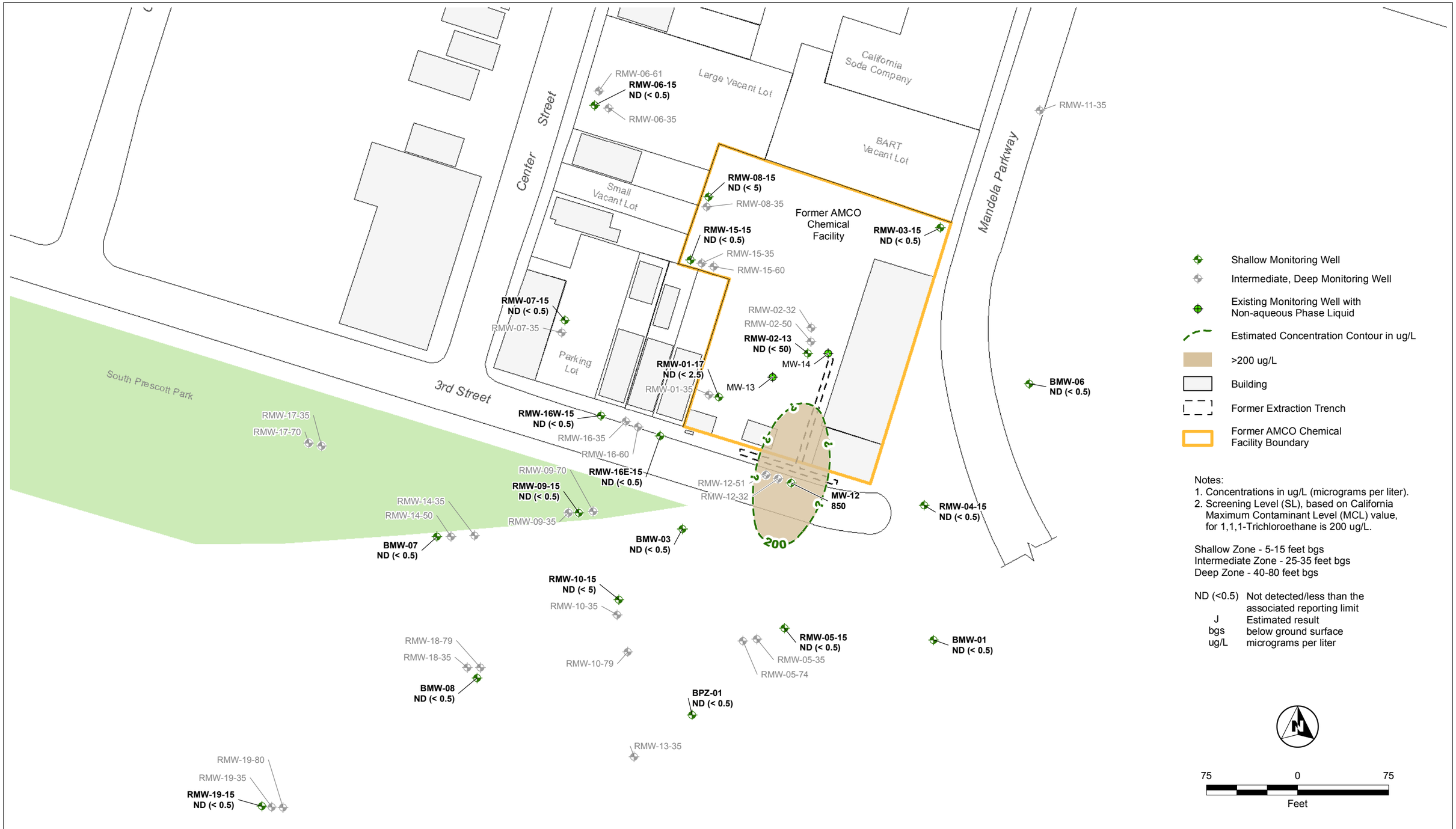

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FIGURE 6-13
1,1,1-Trichloroethane Concentrations in Groundwater, Shallow Zone
August 2012

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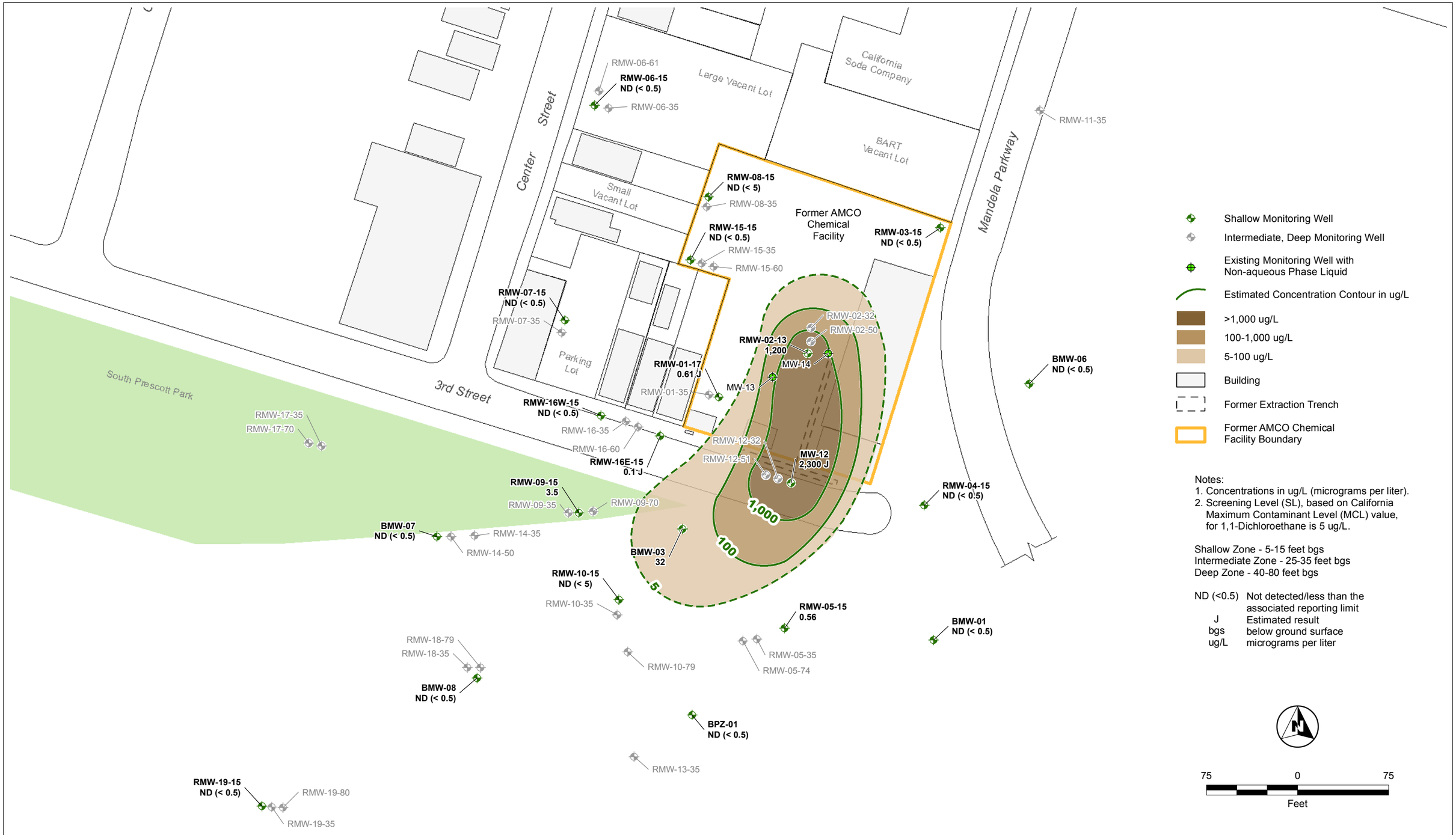

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FIGURE 6-14
1,1-Dichloroethane Concentrations in Groundwater, Shallow Zone
August 2012

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FIGURE 6-15
1,1-Dichloroethane Concentrations in Groundwater, Intermediate Zone
August 2012

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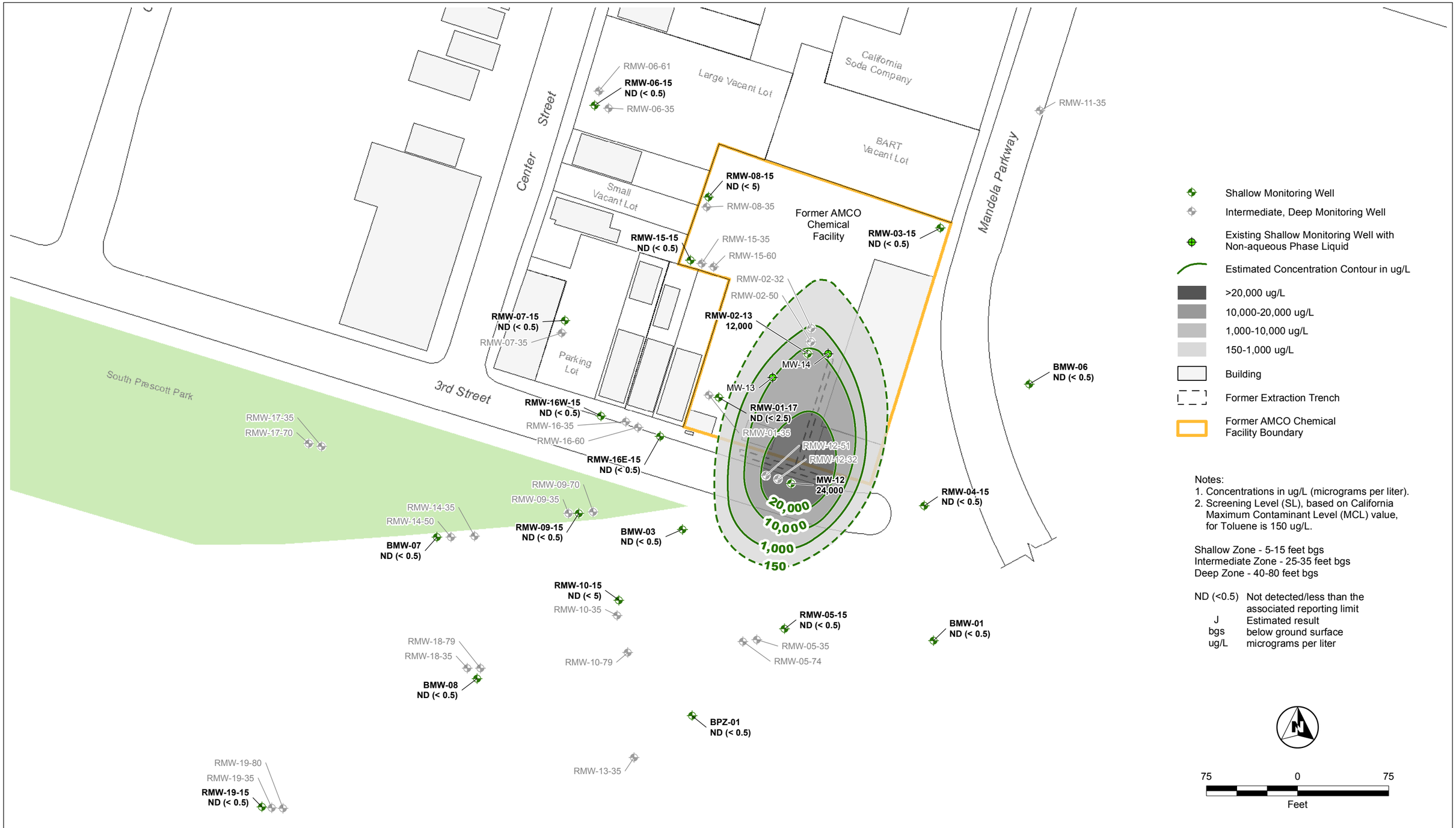

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FIGURE 6-16
Toluene Concentrations in Groundwater, Shallow Zone
August 2012

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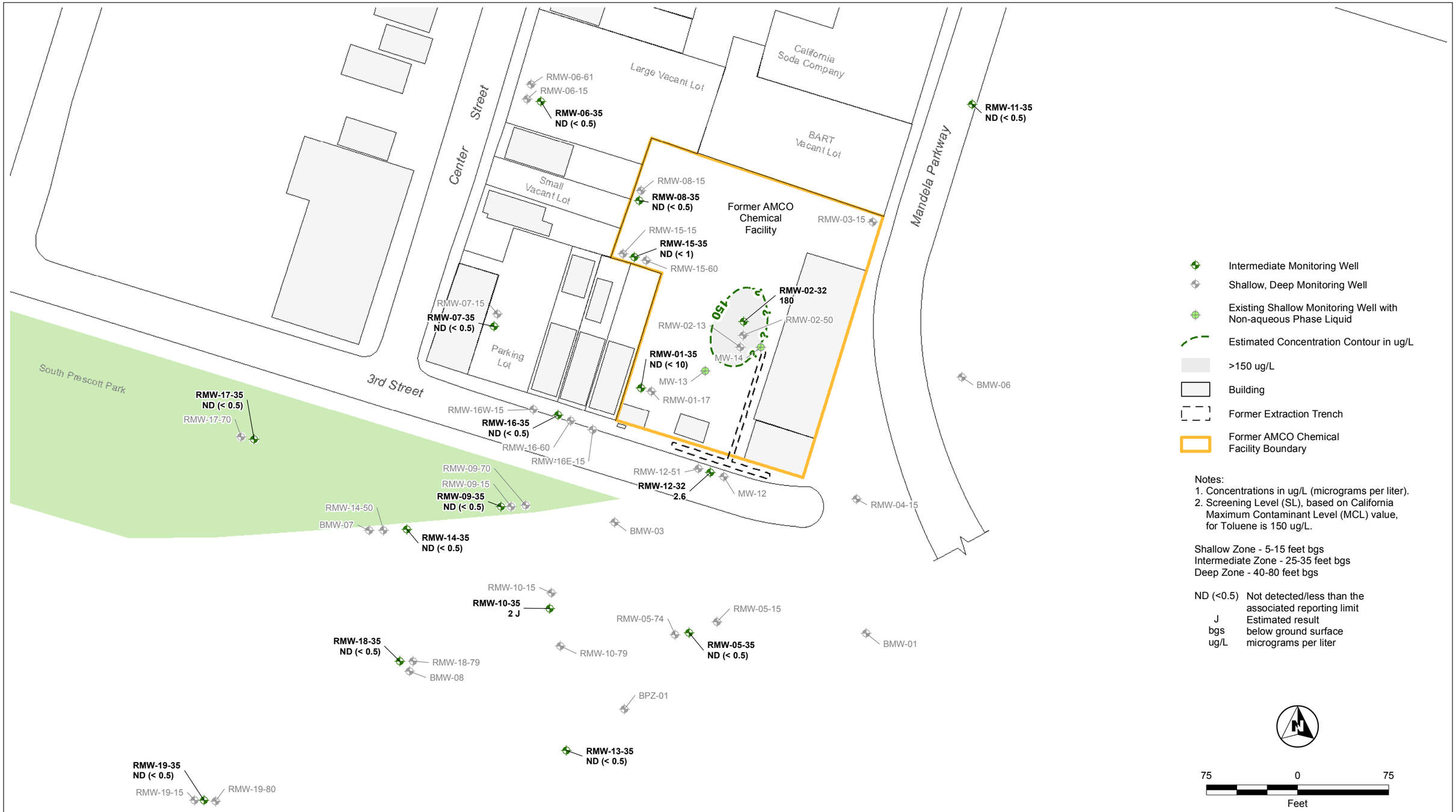

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FIGURE 6-17
Toluene Concentrations in Groundwater, Intermediate Zone
August 2012

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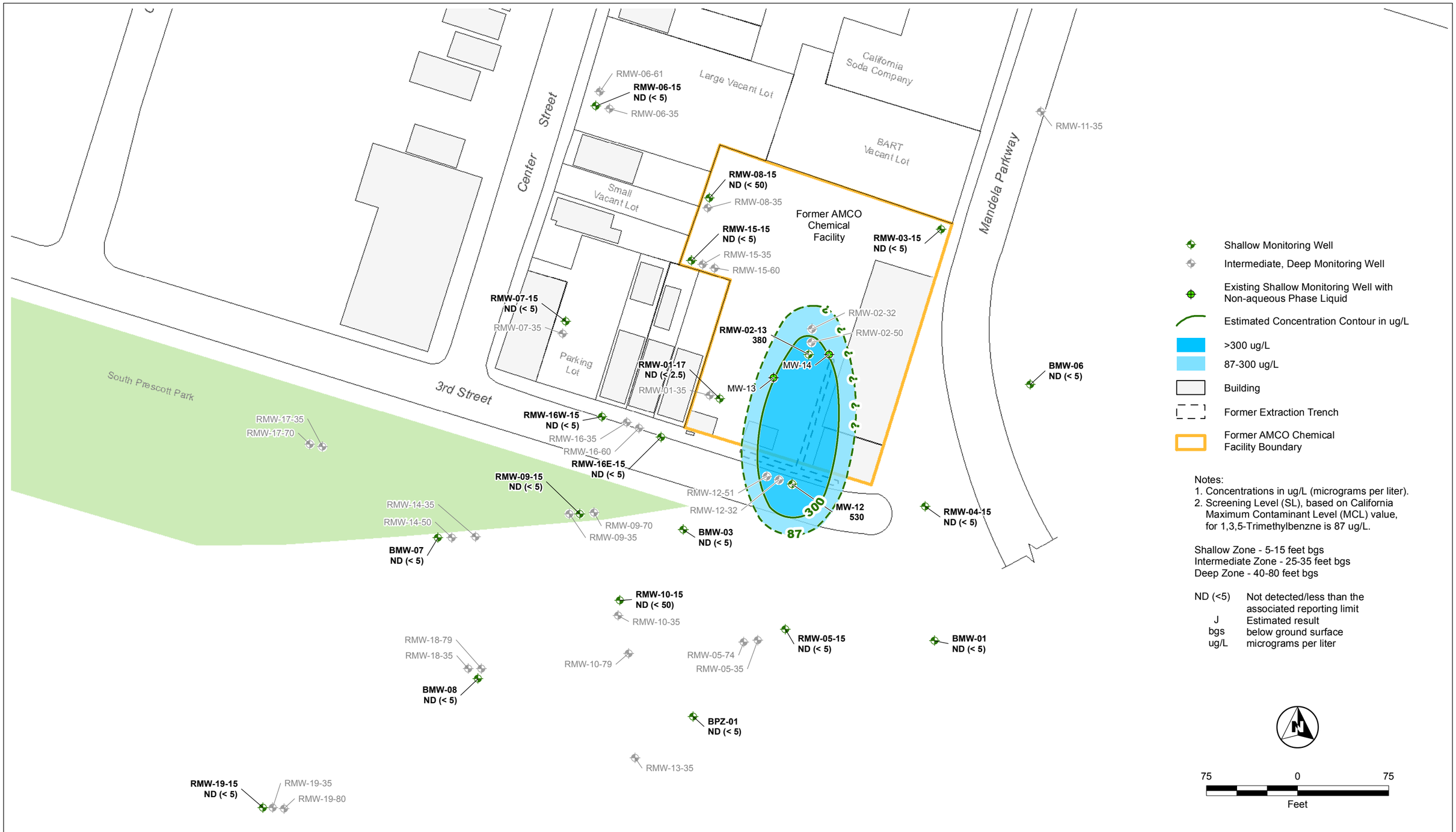

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FIGURE 6-18
1,3,5-Trimethylbenzene Concentrations in Groundwater, Shallow Zone
August 2012

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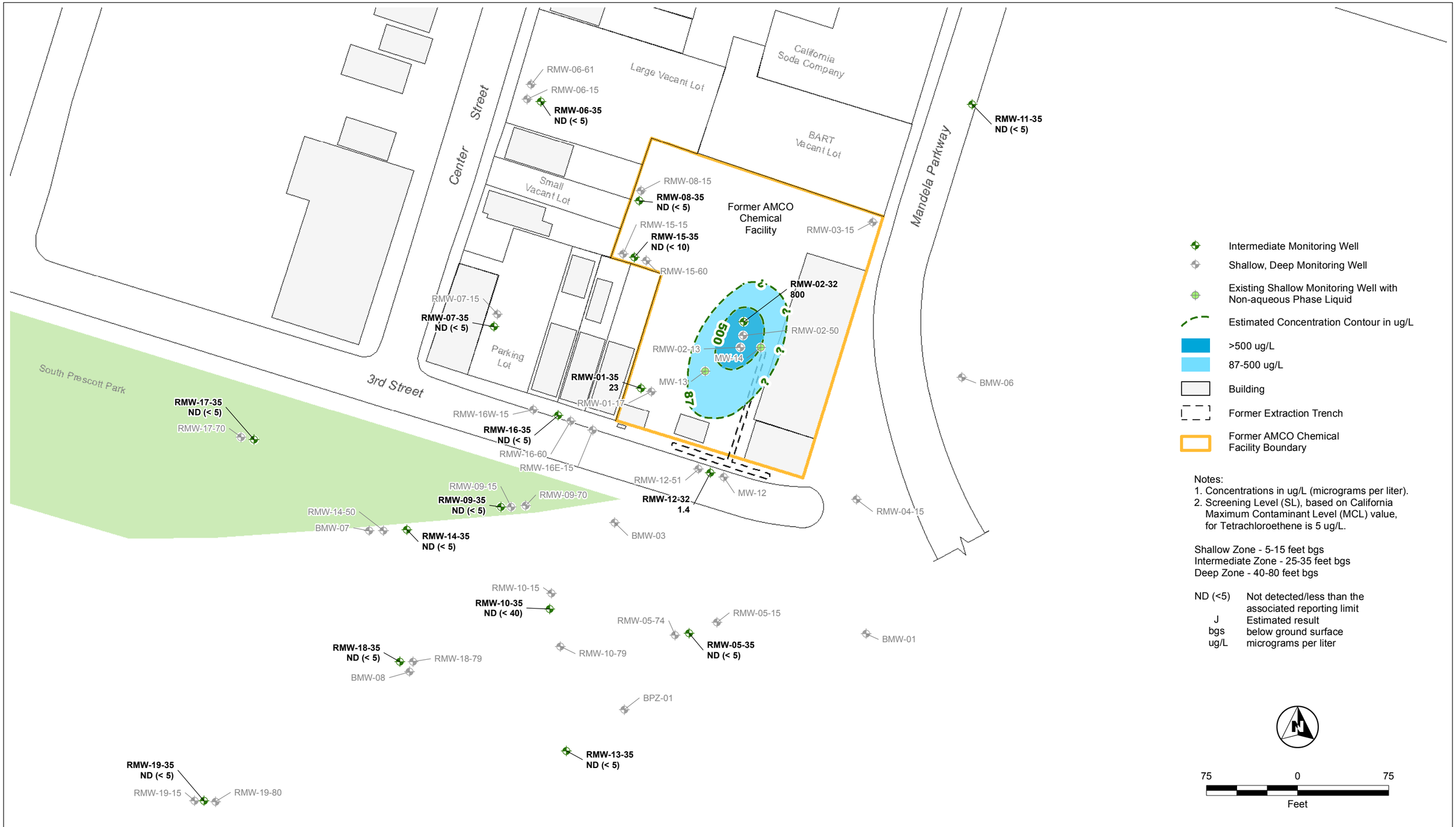

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FIGURE 6-19
1,3,5-Trimethylbenzene Concentrations in Groundwater, Intermediate Zone
August 2012

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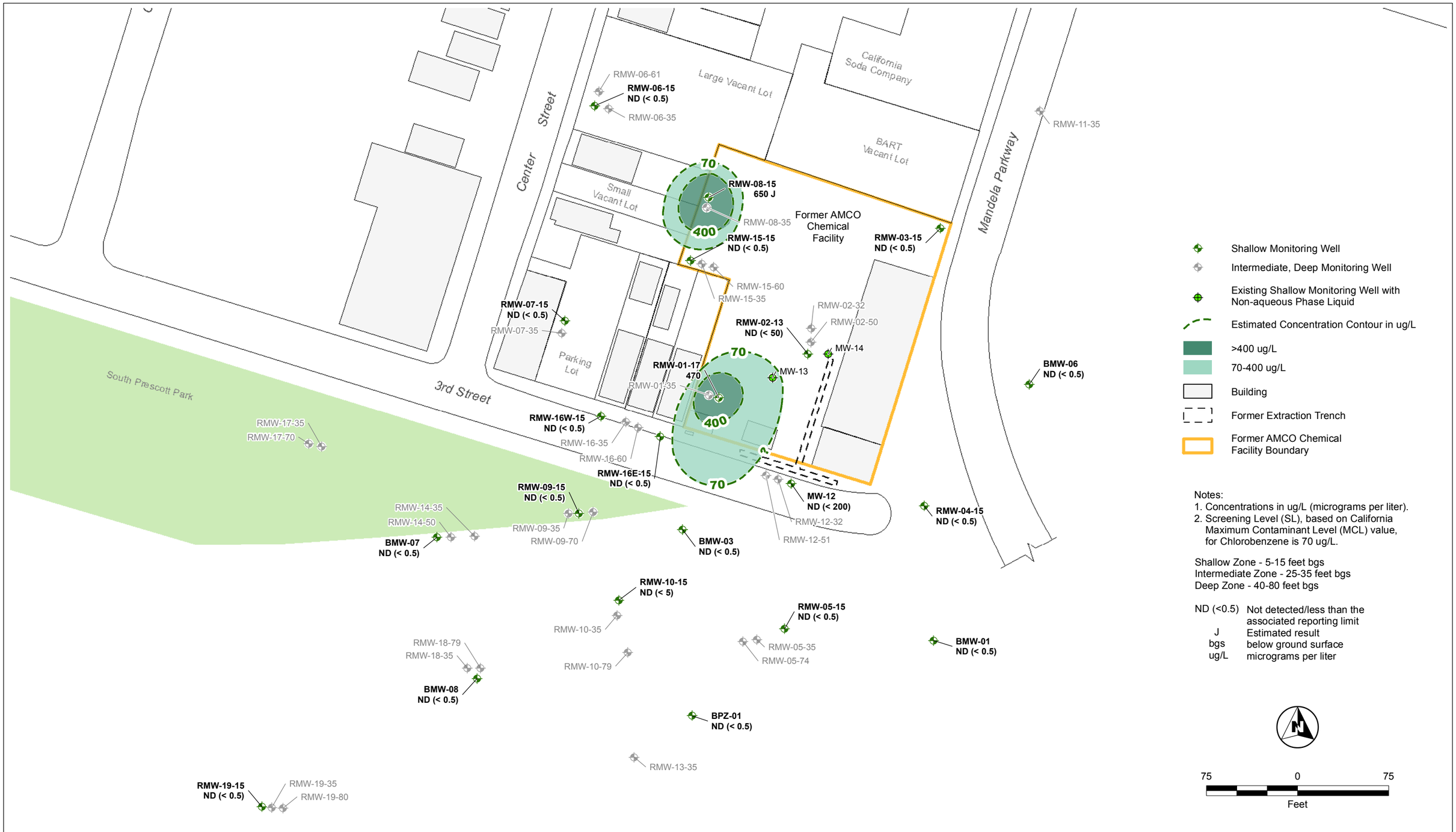

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FIGURE 6-20
Chlorobenzene Concentrations in Groundwater, Shallow Zone
August 2012

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FIGURE 6-21
Chlorobenzene Concentrations in Groundwater, Intermediate Zone
August 2012

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Notes:
1. Concentrations in ug/L (micrograms per liter).
2. Screening Level (SL), based on the EPA Regional Screening Level (RSL) value, for 1,4-Dioxane in tapwater is 0.67 ug/L.
3. Estimated concentration contour of 2 ug/L used instead of the SL due to analytical reporting limit for 1,4-Dioxane.

Shallow Zone - 5-15 feet bgs
Intermediate Zone - 25-35 feet bgs
Deep Zone - 40-80 feet bgs

ND (<2)	Not detected/less than the associated reporting limit
J	Estimated result
bgs	below ground surface
ug/L	micrograms per liter

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FIGURE 6-22
1,4-Dioxane Concentrations in Groundwater, Shallow Zone
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G:\ArcGIS\EPA\AMCO_Chemical\PROJECTS\GW\Aug2012\14_Dioxane_Shallow.mxd 8/15/2014 [17:24 PM] EANDERSON, ITSI

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FIGURE 6-23
1,4-Dioxane Concentrations in Groundwater, Intermediate Zone
August 2012

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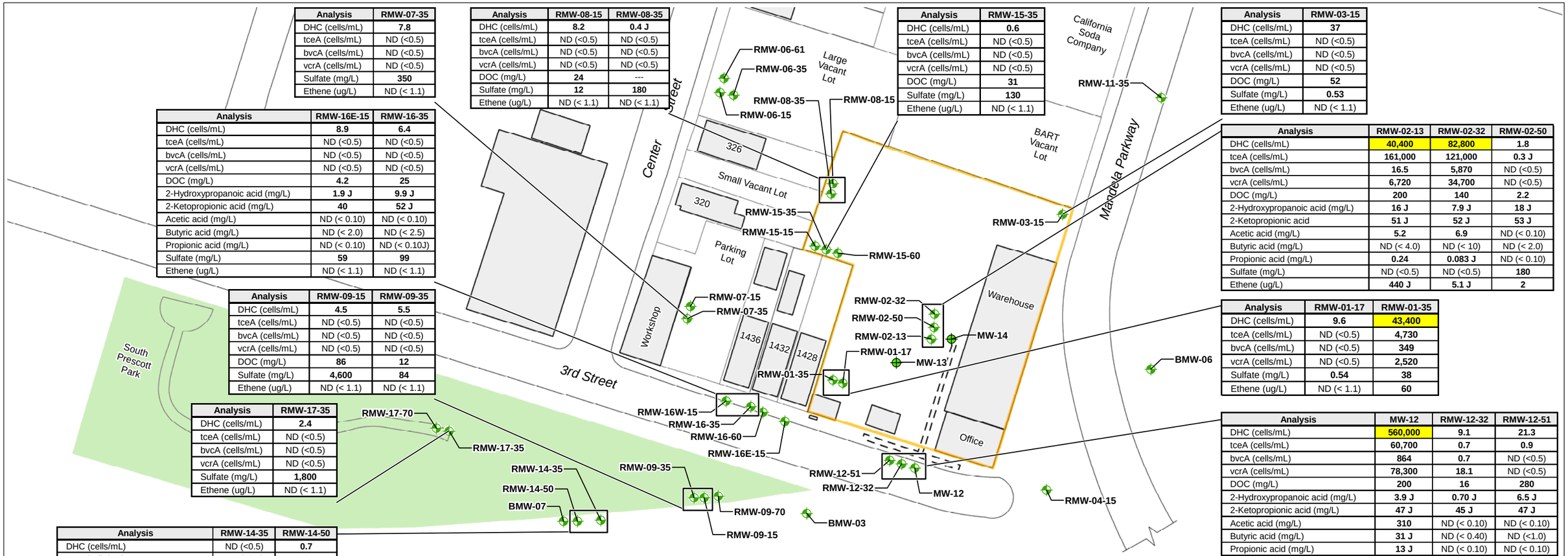

Analysis	RMW-07-35
DHC (cells/mL)	**7.8**
tceA (cells/mL)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)
Sulfate (mg/L)	**350**
Ethene (ug/L)	ND (< 1.1)

Analysis	RMW-08-15	RMW-08-35
DHC (cells/mL)	**8.2**	**0.4 J**
tceA (cells/mL)	ND (<0.5)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)	ND (<0.5)
DOC (mg/L)	**24**	---
Sulfate (mg/L)	**12**	**180**
Ethene (ug/L)	ND (< 1.1)	ND (< 1.1)

Analysis	RMW-15-35
DHC (cells/mL)	**0.6**
tceA (cells/mL)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)
DOC (mg/L)	**31**
Sulfate (mg/L)	**130**
Ethene (ug/L)	ND (< 1.1)

Analysis	RMW-03-15
DHC (cells/mL)	**37**
tceA (cells/mL)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)
DOC (mg/L)	**52**
Sulfate (mg/L)	**0.53**
Ethene (ug/L)	ND (< 1.1)

Analysis	RMW-16E-15	RMW-16-35
DHC (cells/mL)	**8.9**	**6.4**
tceA (cells/mL)	ND (<0.5)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)	ND (<0.5)
DOC (mg/L)	**4.2**	**25**
2-Hydroxypropanoic acid (mg/L)	**1.9 J**	**9.9 J**
2-Ketopropionic acid (mg/L)	**40**	**52 J**
Acetic acid (mg/L)	ND (< 0.10)	ND (< 0.10)
Butyric acid (mg/L)	ND (< 2.0)	ND (< 2.5)
Propionic acid (mg/L)	ND (< 0.10)	ND (< 0.10J)
Sulfate (mg/L)	**59**	**99**
Ethene (ug/L)	ND (< 1.1)	ND (< 1.1)

Analysis	RMW-02-13	RMW-02-32	RMW-02-50
DHC (cells/mL)	**40,400**	**82,800**	**1.8**
tceA (cells/mL)	**161,000**	**121,000**	**0.3 J**
bvcA (cells/mL)	**16.5**	**5,870**	ND (<0.5)
vcrA (cells/mL)	**6,720**	**34,700**	ND (<0.5)
DOC (mg/L)	**200**	**140**	**2.2**
2-Hydroxypropanoic acid (mg/L)	**16 J**	**7.9 J**	**18 J**
2-Ketopropionic acid	**51 J**	**52 J**	**53 J**
Acetic acid (mg/L)	**5.2**	**6.9**	ND (< 0.10)
Butyric acid (mg/L)	ND (< 4.0)	ND (< 10)	ND (< 2.0)
Propionic acid (mg/L)	**0.24**	**0.083 J**	ND (< 0.10)
Sulfate (mg/L)	ND (<0.5)	ND (<0.5)	**180**
Ethene (ug/L)	**440 J**	**5.1 J**	**2**

Analysis	RMW-09-15	RMW-09-35
DHC (cells/mL)	**4.5**	**5.5**
tceA (cells/mL)	ND (<0.5)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)	ND (<0.5)
DOC (mg/L)	**86**	**12**
Sulfate (mg/L)	**4,600**	**84**
Ethene (ug/L)	ND (< 1.1)	ND (< 1.1)

Analysis	RMW-01-17	RMW-01-35
DHC (cells/mL)	**9.6**	**43,400**
tceA (cells/mL)	ND (<0.5)	**4,730**
bvcA (cells/mL)	ND (<0.5)	**349**
vcrA (cells/mL)	ND (<0.5)	**2,520**
Sulfate (mg/L)	**0.54**	**38**
Ethene (ug/L)	ND (< 1.1)	**60**

Analysis	RMW-17-35
DHC (cells/mL)	**2.4**
tceA (cells/mL)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)
Sulfate (mg/L)	**1,800**
Ethene (ug/L)	ND (< 1.1)

Analysis	MW-12	RMW-12-32	RMW-12-51
DHC (cells/mL)	**560,000**	**9.1**	**21.3**
tceA (cells/mL)	**60,700**	**0.7**	**0.9**
bvcA (cells/mL)	**864**	**0.7**	ND (<0.5)
vcrA (cells/mL)	**78,300**	**18.1**	ND (<0.5)
DOC (mg/L)	**200**	**16**	**280**
2-Hydroxypropanoic acid (mg/L)	**3.9 J**	**0.70 J**	**6.5 J**
2-Ketopropionic acid (mg/L)	**47 J**	**45 J**	**47 J**
Acetic acid (mg/L)	**310**	ND (< 0.10)	ND (< 0.10)
Butyric acid (mg/L)	**31 J**	ND (< 0.40)	ND (<1.0)
Propionic acid (mg/L)	**13 J**	ND (< 0.10)	ND (< 0.10)
Sulfate (mg/L)	ND (<0.5)	**69**	**86**
Ethene (ug/L)	**3,800**	**42**	ND (< 1.1)

Analysis	RMW-14-35	RMW-14-50
DHC (cells/mL)	ND (<0.5)	**0.7**
tceA (cells/mL)	ND (<0.5)	**0.3 J**
bvcA (cells/mL)	ND (<0.5)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)	ND (<0.5)
DOC (mg/L)	---	**8.8**
2-Hydroxypropanoic acid (mg/L)	**6.3 J**	---
Acetic acid (mg/L)	ND (< 0.10)	---
Propionic acid (mg/L)	ND (< 0.10J)	---
Sulfate (mg/L)	---	**2,900**
Ethene (ug/L)	ND (< 1.1)	ND (< 1.1)

Analysis	RMW-10-15	RMW-10-35
DHC (cells/mL)	**15.1**	**1,620,000**
tceA (cells/mL)	ND (<0.5)	**107,000**
bvcA (cells/mL)	ND (<0.5)	**0.4 J**
vcrA (cells/mL)	ND (<0.5)	**404,000**
DOC (mg/L)	**77**	**150**
Sulfate (mg/L)	**2,200**	**16,000**
Ethene (ug/L)	ND (< 1.1)	**46**

Analysis	RMW-05-15	RMW-05-35
DHC (cells/mL)	**19.3**	**3.4**
tceA (cells/mL)	ND (<0.5)	ND (<0.5)
bvcA (cells/mL)	**0.2 J**	ND (<0.5)
vcrA (cells/mL)	**2.7**	ND (<0.5)
DOC (mg/L)	**29**	---
2-Hydroxypropanoic acid (mg/L)	---	**9.6 J**
2-Ketopropionic acid	---	**2,200**
Acetic acid (mg/L)	---	ND (< 0.10)
Propionic acid (mg/L)	---	ND (< 0.10)
Sulfate (mg/L)	**1.3**	---
Ethene (ug/L)	ND (< 1.1)	ND (< 1.1)

Analysis	RMW-18-35	RMW-18-79
DHC (cells/mL)	ND (<0.5)	**3.1**
tceA (cells/mL)	ND (<0.5)	< 0.3
bvcA (cells/mL)	ND (<0.5)	< 0.3
vcrA (cells/mL)	ND (<0.5)	< 0.3
2-Hydroxypropanoic acid (mg/L)	**41 J**	**26 J**
Acetic acid (mg/L)	ND (< 0.10)	ND (< 0.10)
Propionic acid (mg/L)	ND (< 0.10)	ND (< 0.10)
Ethene (ug/L) (mg/L)	ND (< 1.1)	ND (< 1.1)

Analysis	BMW-08
DHC (cells/mL)	ND (<0.5)
tceA (cells/mL)	ND (<0.5)
bvcA (cells/mL)	ND (<0.5)
vcrA (cells/mL)	ND (<0.5)
DOC (mg/L)	**53**
Sulfate (mg/L)	**4,000**
Ethene (ug/L)	ND (< 1.1 J)

Analysis	BPZ-01
DHC (cells/mL)	**149**
tceA (cells/mL)	ND (< 2)
bvcA (cells/mL)	**1.5 J**
vcrA (cells/mL)	ND (< 2)
Sulfate (mg/L)	**340**
Ethene (ug/L)	ND (< 1.1 J)

Shallow Zone: 5-15 ft bgs
Intermediate Zone: 25-35 ft bgs
Deep Zone: 40-80 ft bgs

DHC concentrations representative of active reductive dechlorination
--- - Not Available
Detects are displayed in **Bold** font
tceA, bvcA, vcrA - functional DHC genes
cells/mL - cells per milliliter
DHC - *Dehalococcoides*
J - Estimated result
mg/L - milligrams per liter
ND (<0.5) - Not detected/less than the associated reporting limit
ug/L - micrograms per liter

Existing Groundwater Monitoring Well
Existing Monitoring Well with Non-aqueous Phase Liquid
Building
Former Extraction Trench
Former AMCO Chemical Facility Boundary

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FIGURE 6-24
Microbial Parameter Concentrations in Upper Aquifer Groundwater
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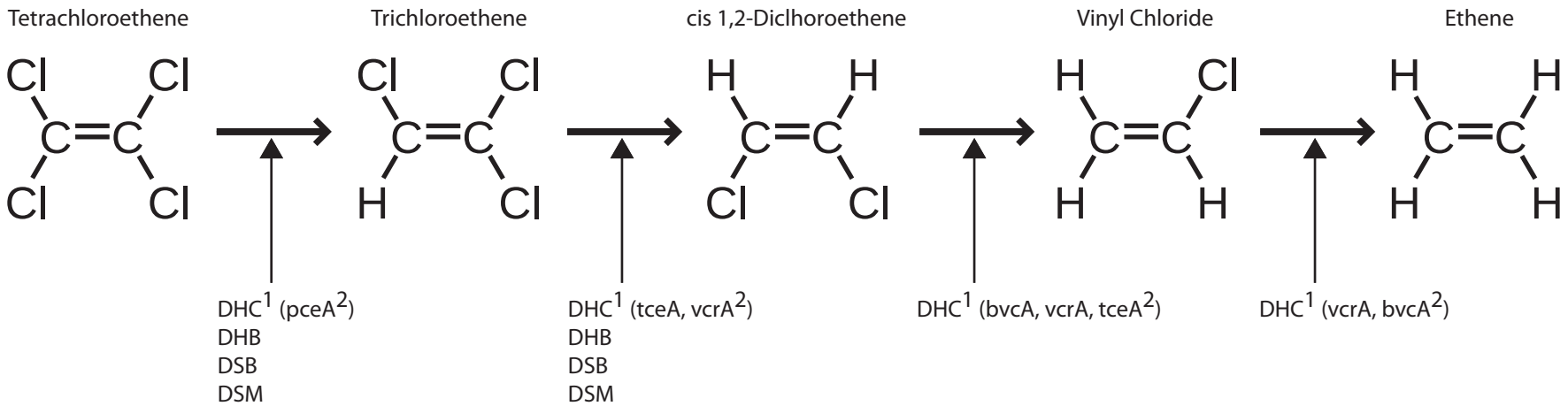

NOTES:

[1] *Dehalococcoides* (DHC) and examples of other bacteria capable of reductive dechlorination for identified chlorinated ethenes. (*Dehalobacter* [DHB], *Desulfitobacterium* [DSB] and *Desulfuromonas* [DSM]).

[2] Functional gene(s) associated with the encoding of the reductive dechlorination enzyme (reductase).

Source: Maymó-Gatell et. al., 1997; Müller et. al., 2004; and Behrens et. al., 2008)

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FIGURE 6-25
Bacteria and Reductase-Encoding Genes Associated with the Reductive Dechlorination of Chlorinated Ethenes

\\Engineering\projects\07163.0000 EPA Region 9\0019 TO 18 FS AMCO Chemical\15.0 Graphics\Bacteria_Genes.ai

RMW-02-50 (May 2013)	
Chemical	**Concentration (ug/L)**
Benzene	< 0.50
Chloroform	< 0.50
Toluene	< 0.50
Trichloroethene (TCE)	2.6

RMW-02-131 (Sep 2013)	
Chemical	**Concentration* (ug/L)**
Benzene	<0.5 (0.66)
Chloroform	0.31 J (0.40 J)
Toluene	<0.5 (0.33 J)
Trichloroethene (TCE)	<0.5 (0.24 J)

* Concentration of primary sample listed first, duplicate in parentheses.

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FIGURE 6-26
VOC Concentrations in Lower Aquifer Groundwater Compared to Deep-zone, Upper Aquifer Groundwater

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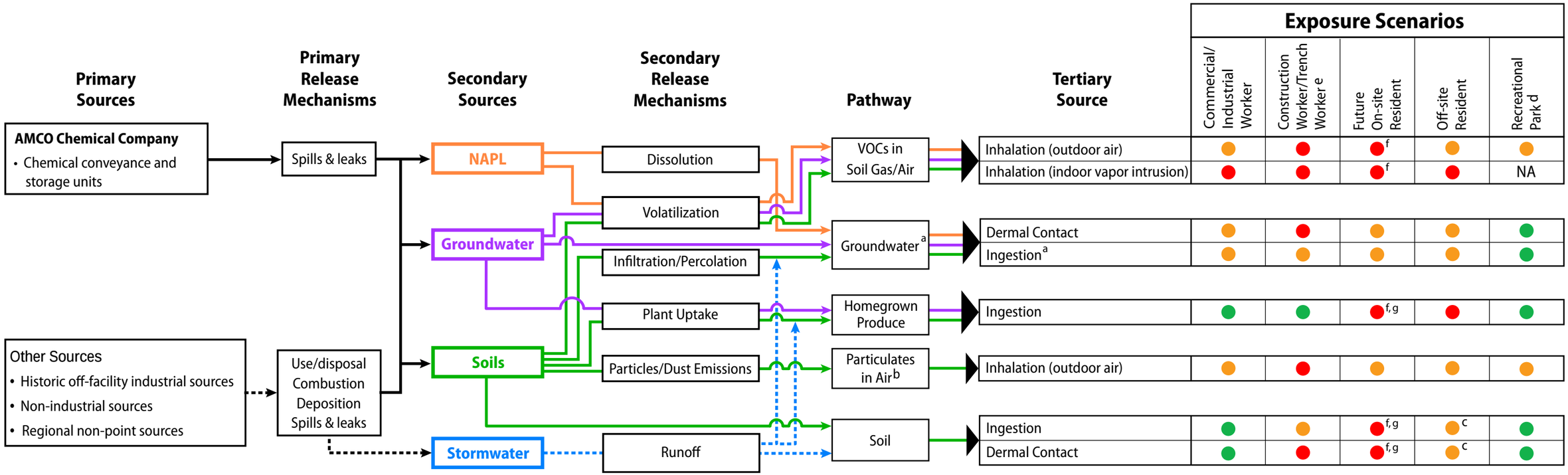

LEGEND:

- ● = Complete pathway
- ● = Potentially complete pathway but not an existing pathway and/or not considered a significant source of risk
- ● = Incomplete pathway
- NA = Not Applicable
- NAPL = Non-aqueous Phase Liquid
- VOC = Volatile Organic Compound
- → = Direct Source
- ⇢ = Indirect Source

NOTES:

a Groundwater is designated for municipal and domestic supply beneficial use by default; however, there are no domestic water wells within 1 mile of the Site, and there are no municipal water wells within 4 miles of the Site.

b Only during future construction activities.

c Exposure to contaminants in the residential soil. The pathway is currently incomplete for exposure to on-site soil.

d South Prescott Park

e Intrusive work (excavation, foundation, yard)

f Assumes typical residential land use at 1414 3rd Street property.

g Assumes typical residentail land use at Large Vacant Lot property

Based on CH2MHill, 2011

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FIGURE 7-1
Conceptual Site Exposure Model

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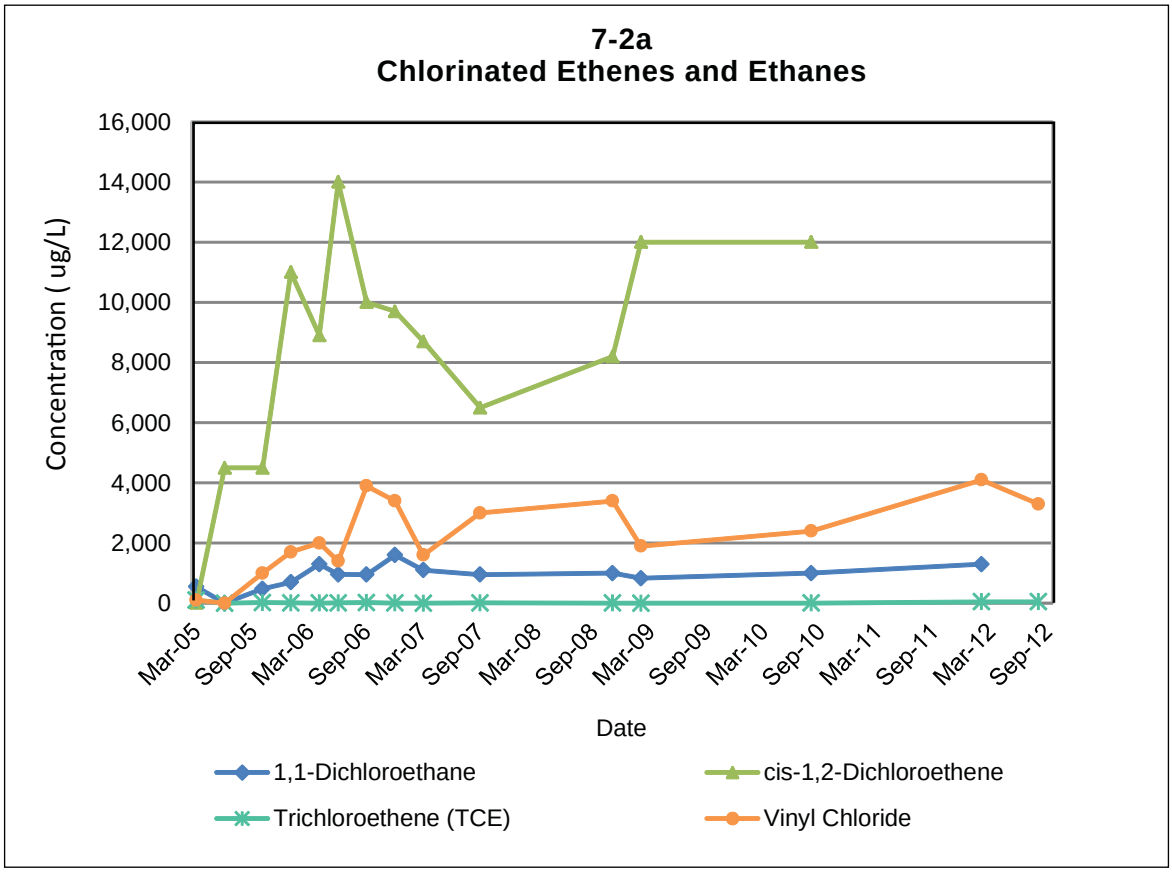

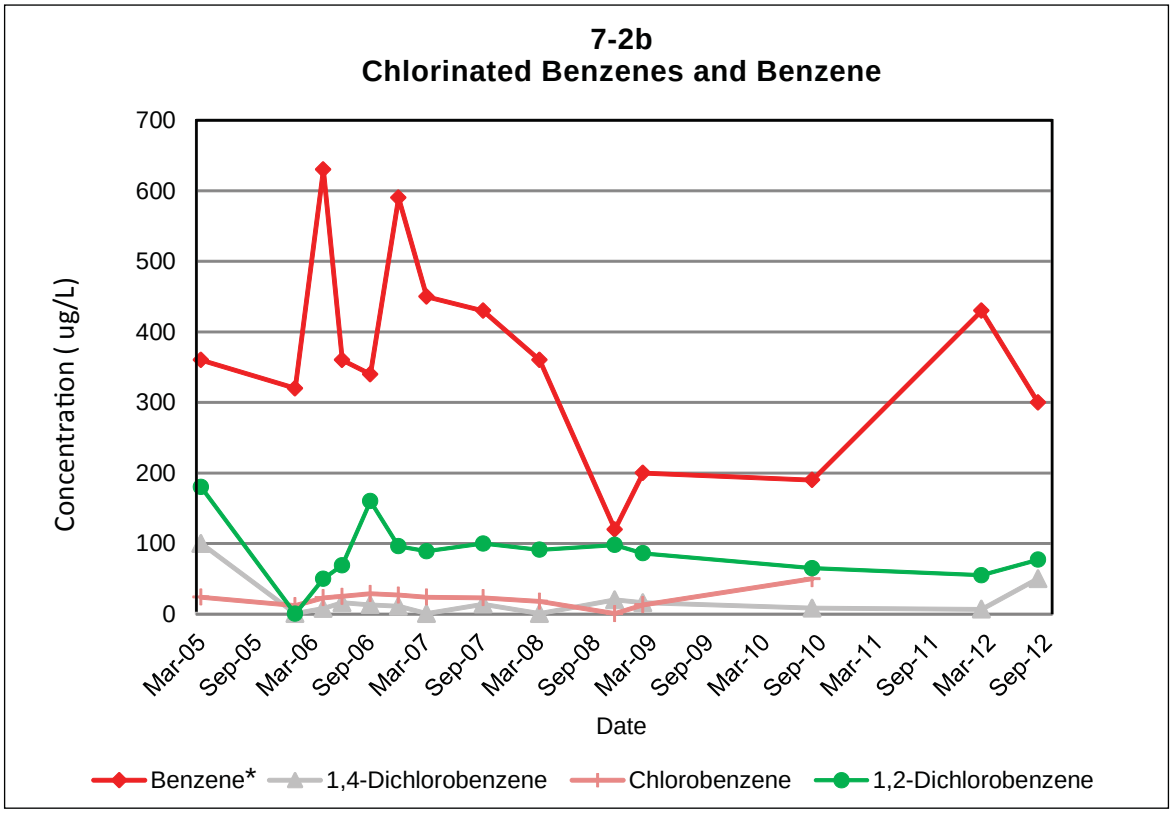

ug/L = micrograms per liter
VOC = volatile organic compound

* Benzene is the reductive dechlorination end-product for chlorinated benzenes.

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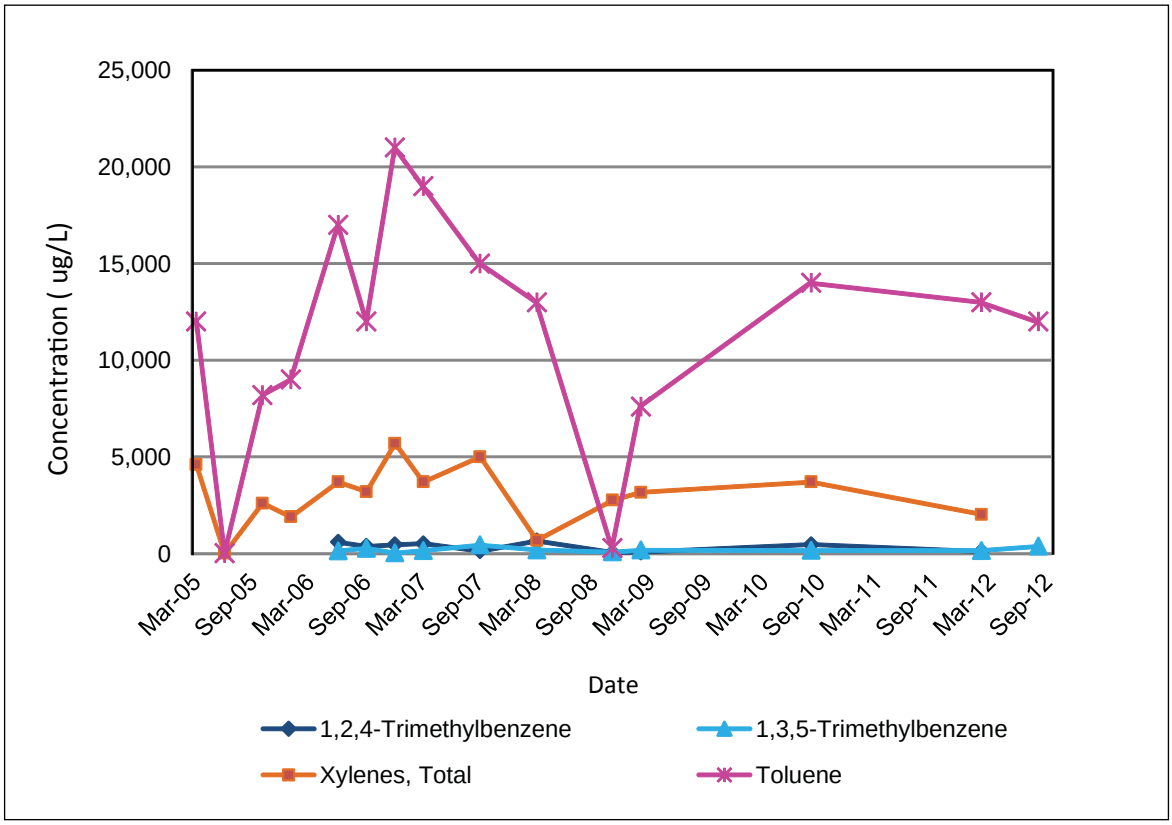
FIGURE 7-2
Chlorinated VOC Concentrations with Time for Groundwater from RMW-02-13

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\CL_VOC_RMW02-13.ai



ug/L = micrograms per liter
VOC = volatile organic compound

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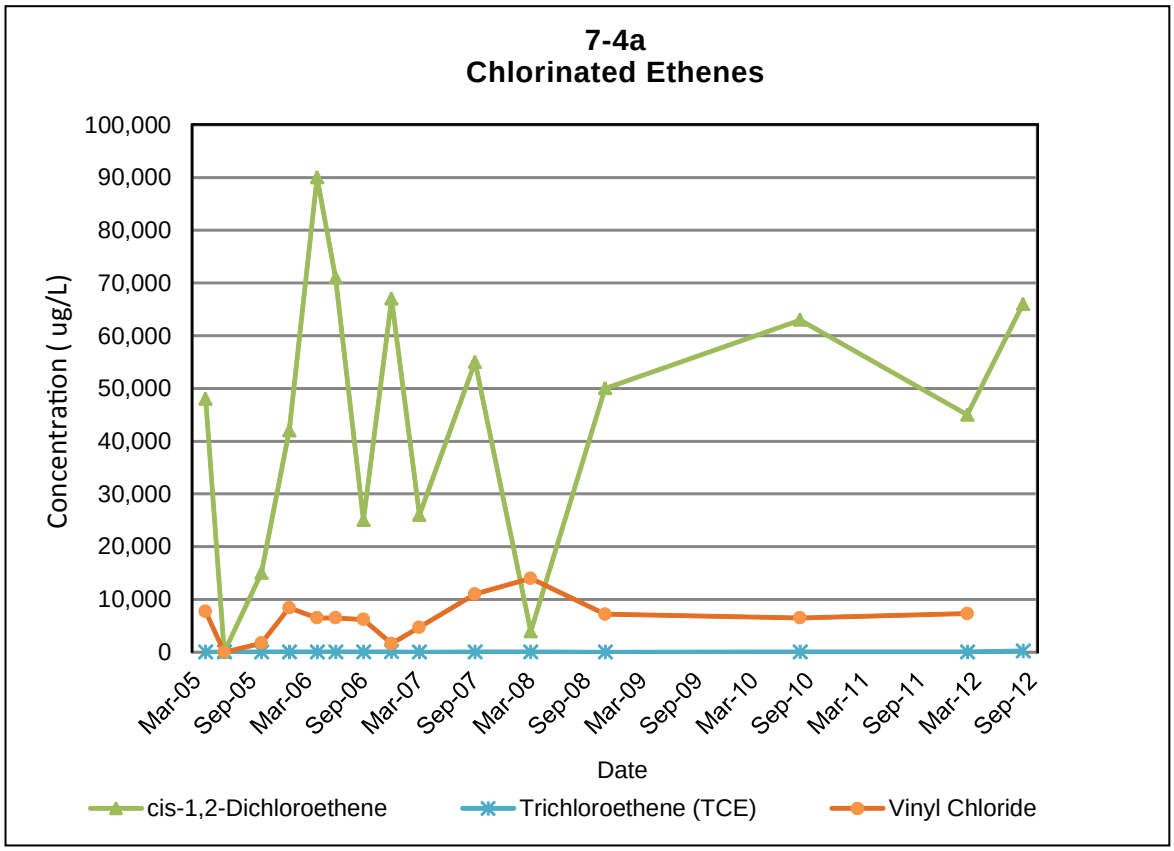
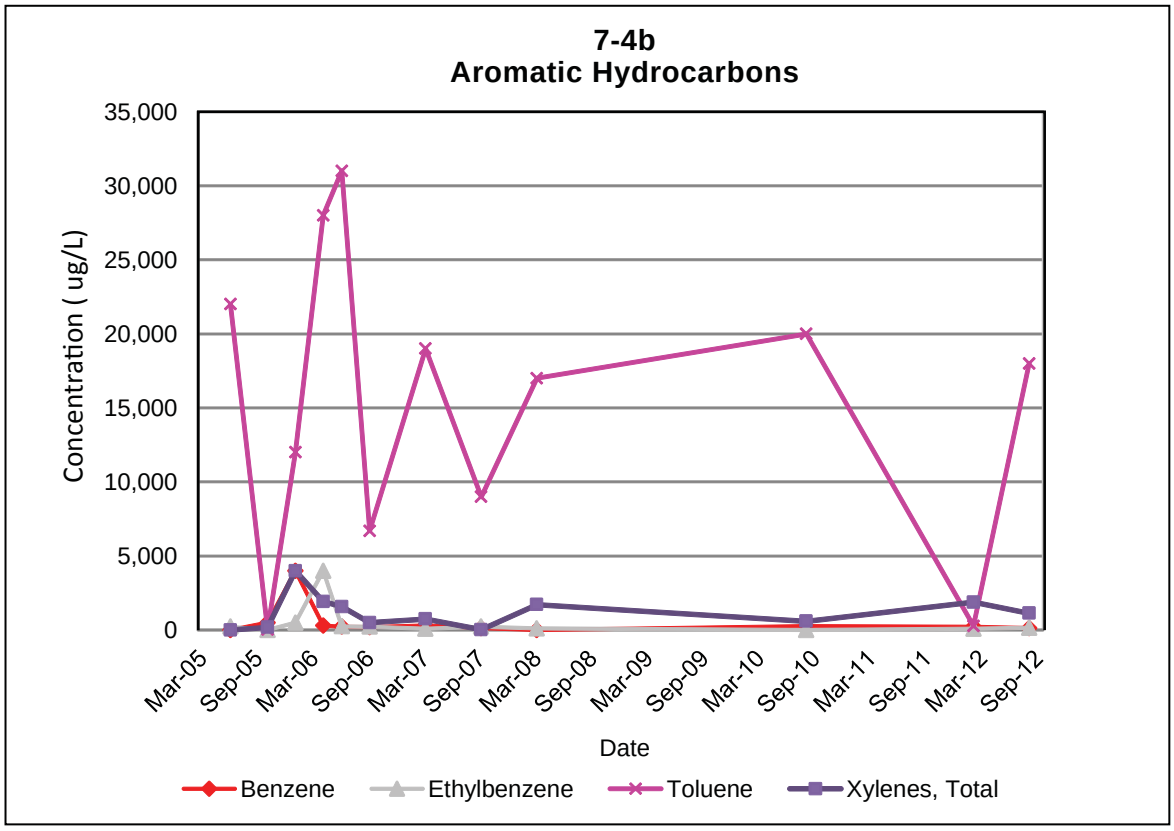
FIGURE 7-3
Non-Chlorinated VOC Concentrations with Time for Groundwater from RMW-02-13

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\Non_Cl_VOC_RMW02-13.ai





ug/L = micrograms per liter

VOC = volatile organic compound

* Benzene is also the reductive dechlorination end-product for chlorinated benzenes.

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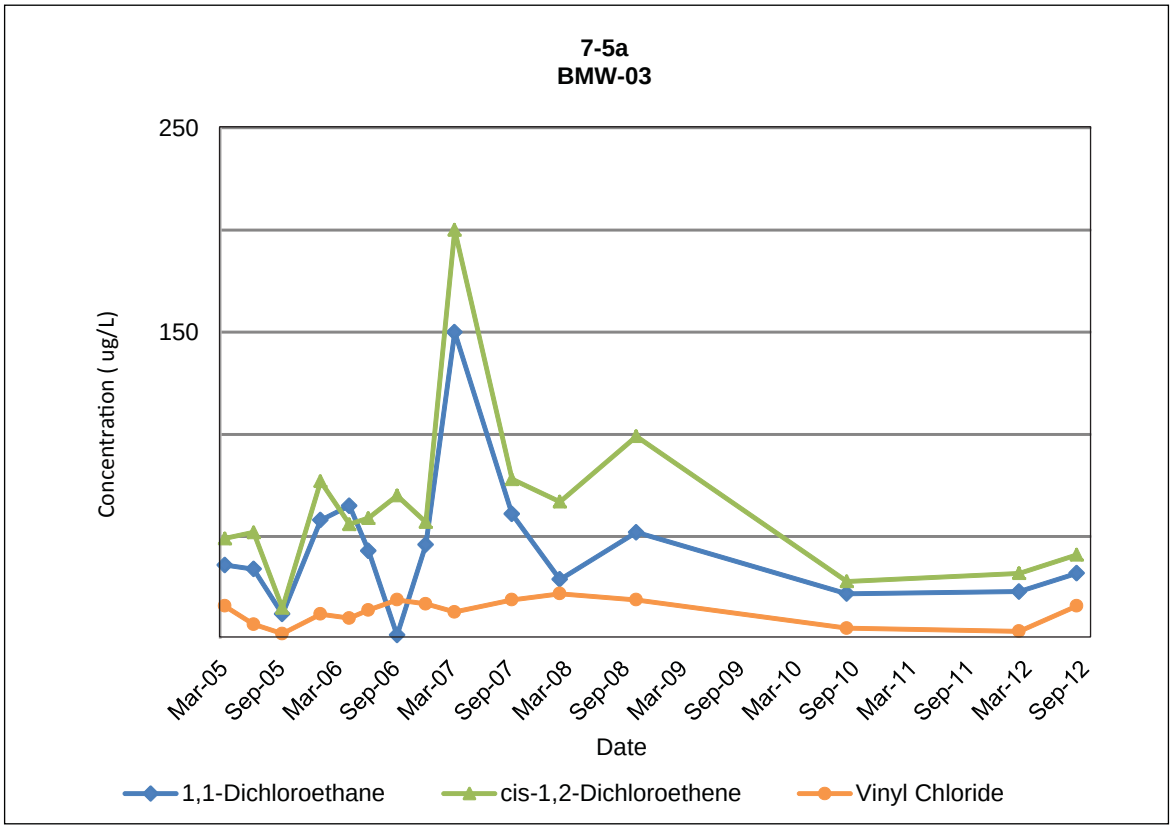
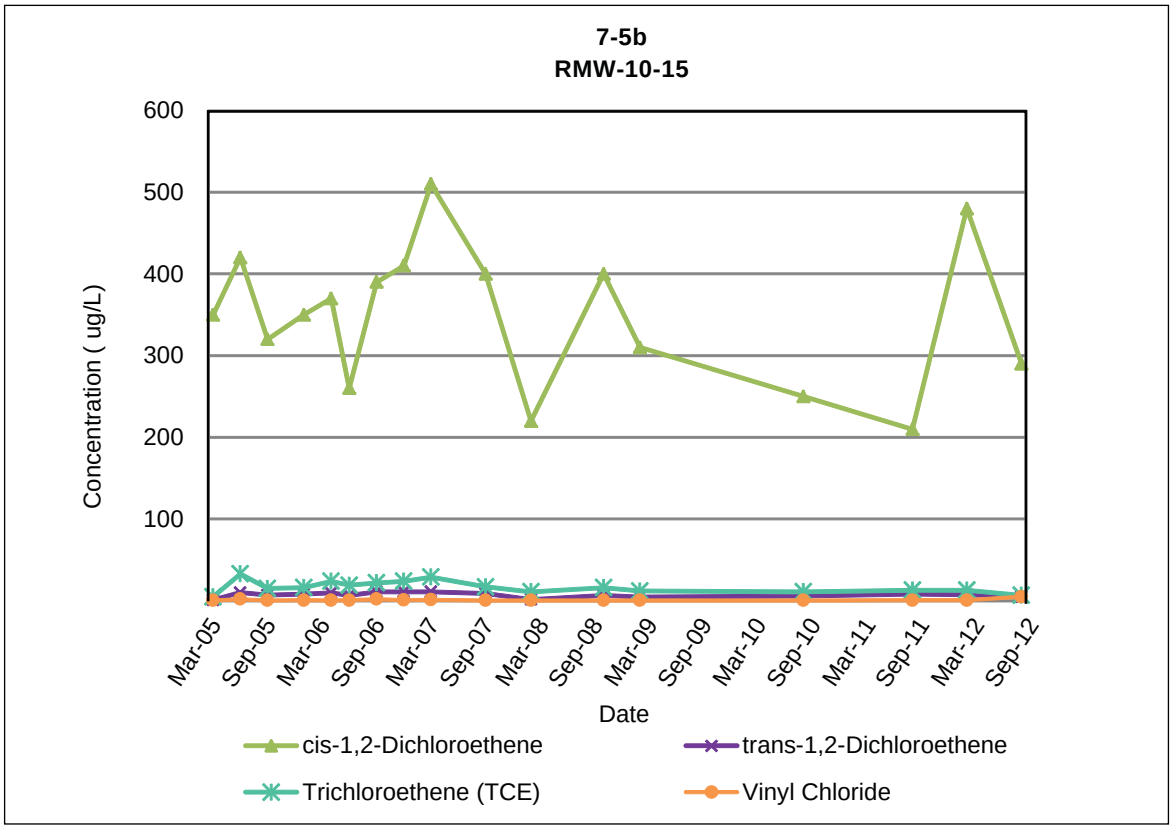
FIGURE 7-4
VOC Concentrations with Time for Groundwater from MW-12

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 FS AMCO Chemical\15.0 Graphics\Final_081814\VOC_MW-12.ai





ug/L = micrograms per liter

VOC = volatile organic compound

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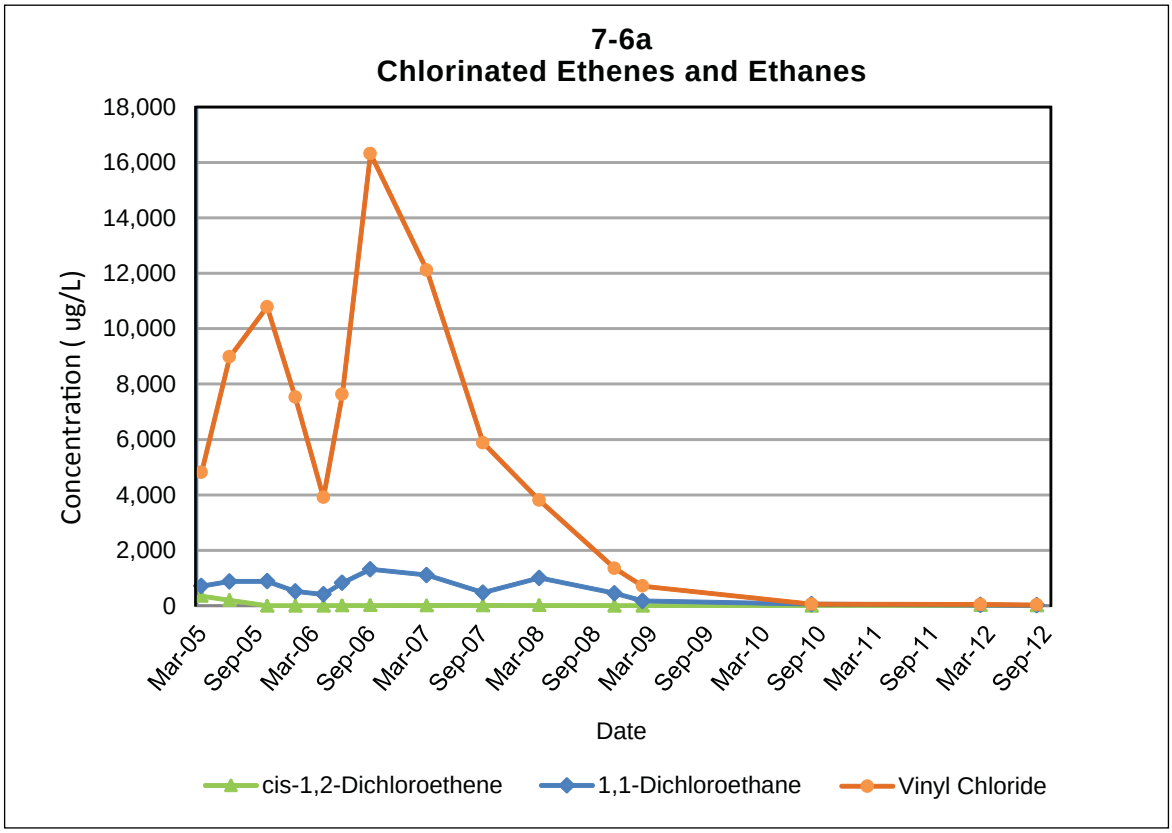
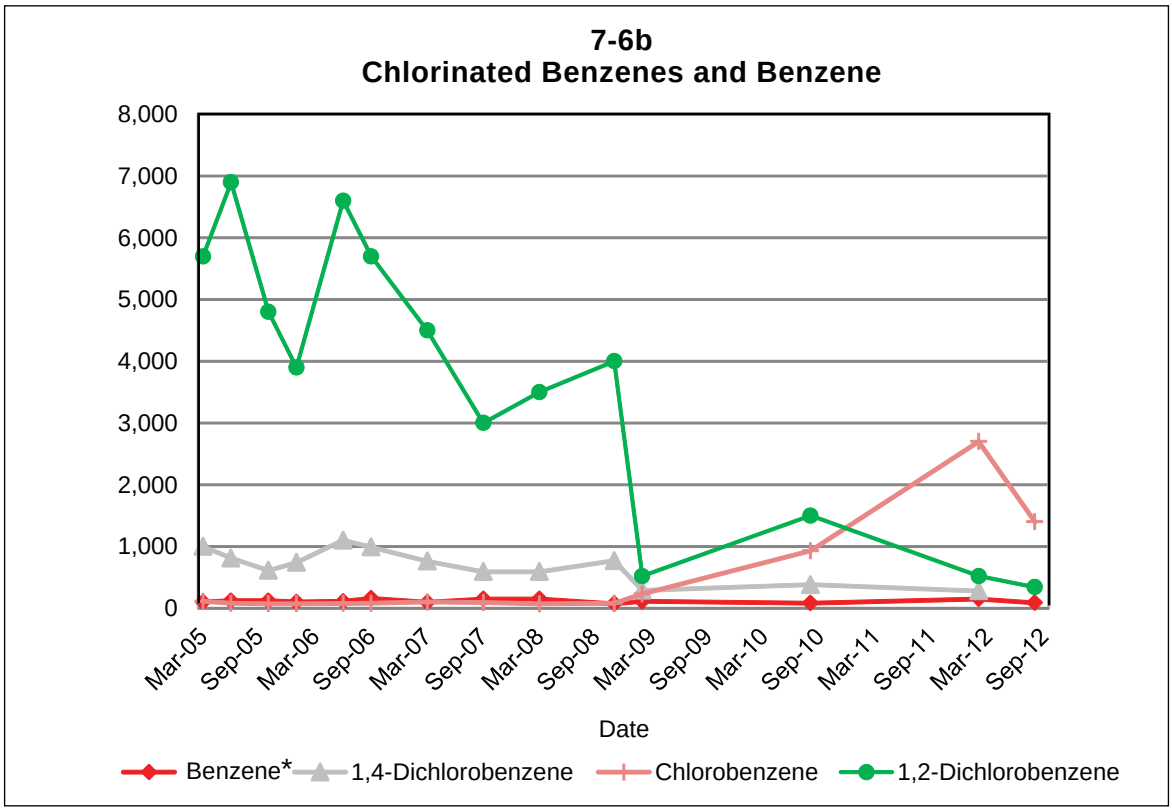
FIGURE 7-5
Chlorinated VOC Concentrations with Time for Groundwater from Downgradient Shallow Zone Wells

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\CL_VOC_Shallow_BMW-03_RMW10-15.ai





ug/L = micrograms per liter

VOC = volatile organic compound

* Benzene is the reductive dechlorination end-product for chlorinated benzenes.

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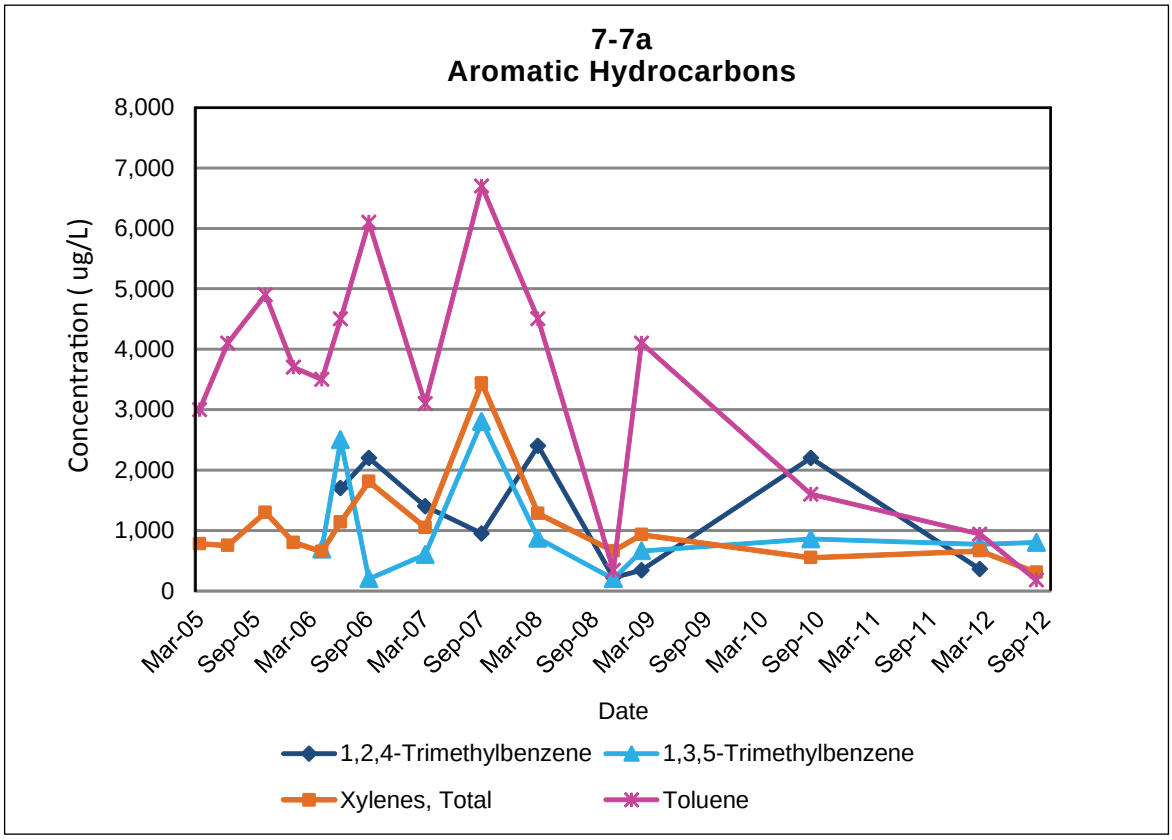
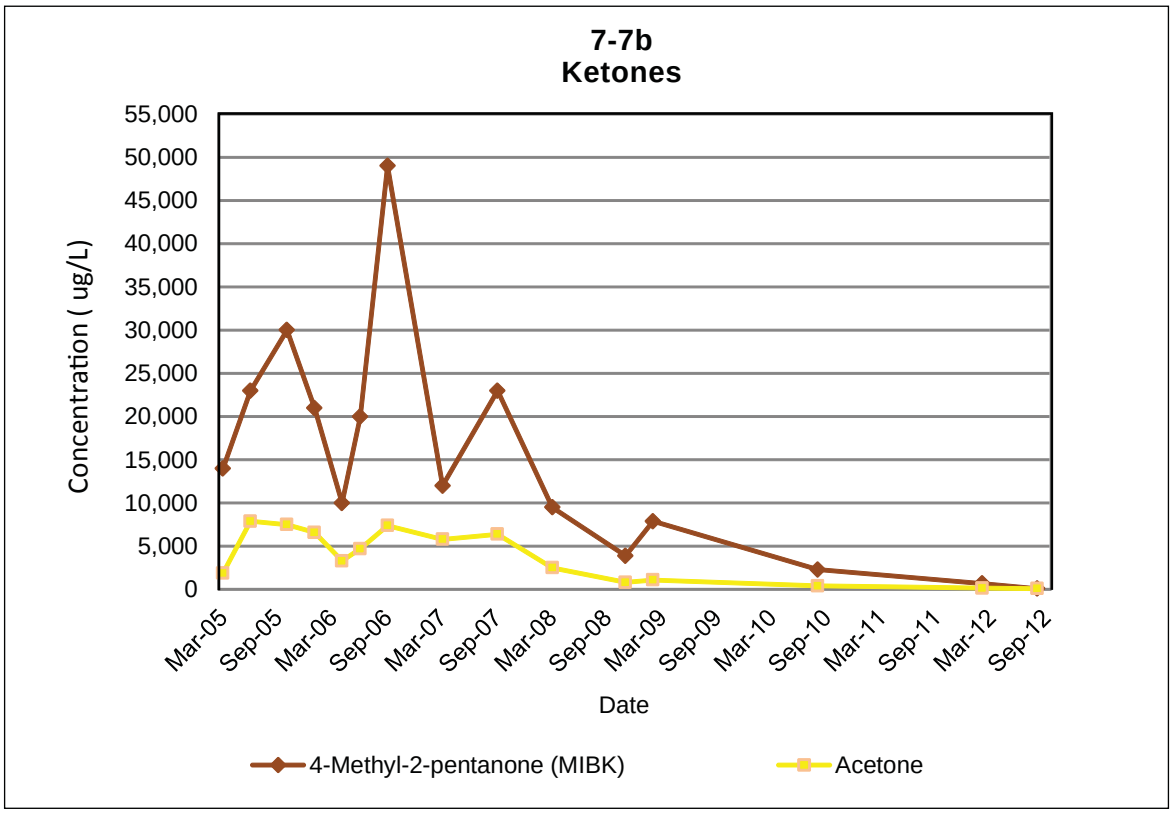
FIGURE 7-6
Chlorinated VOC Concentrations with Time for Groundwater from RMW-02-32

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\CL_VOC_RMW02-32.ai





ug/L = micrograms per liter

VOC = volatile organic compound

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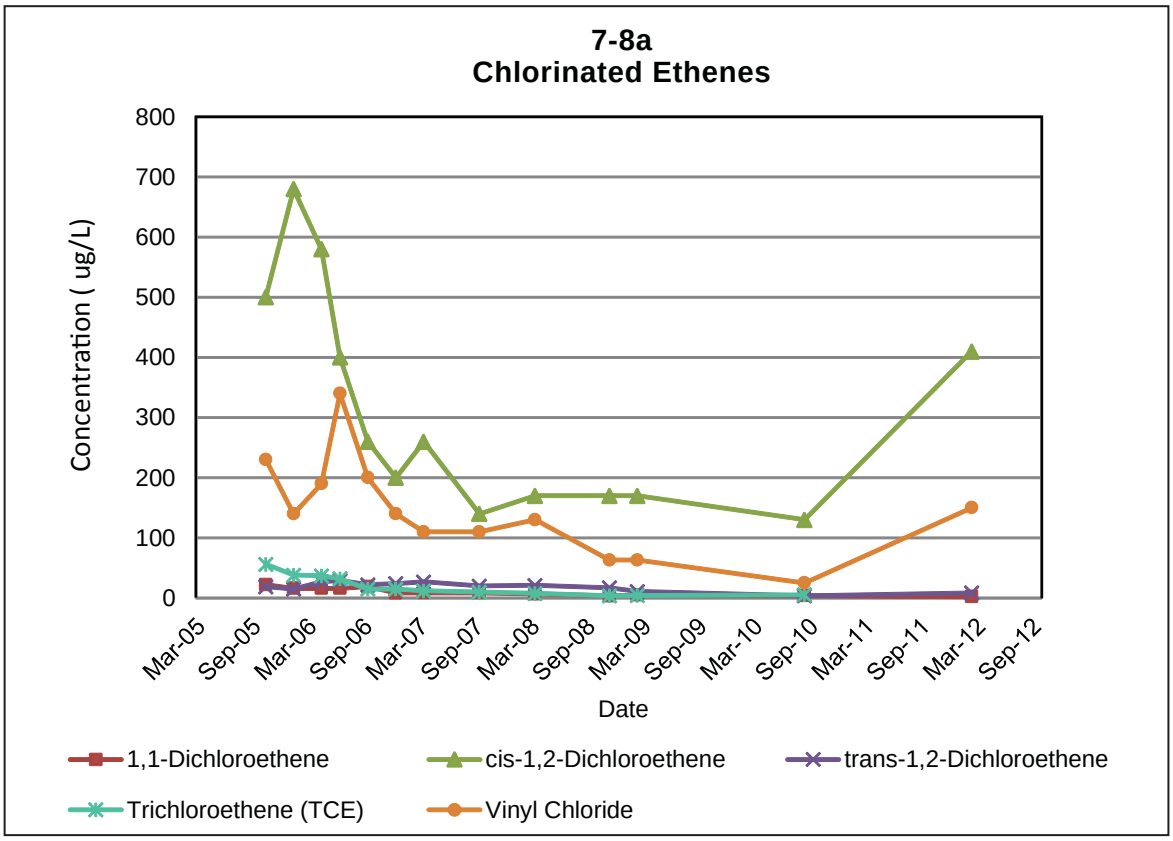
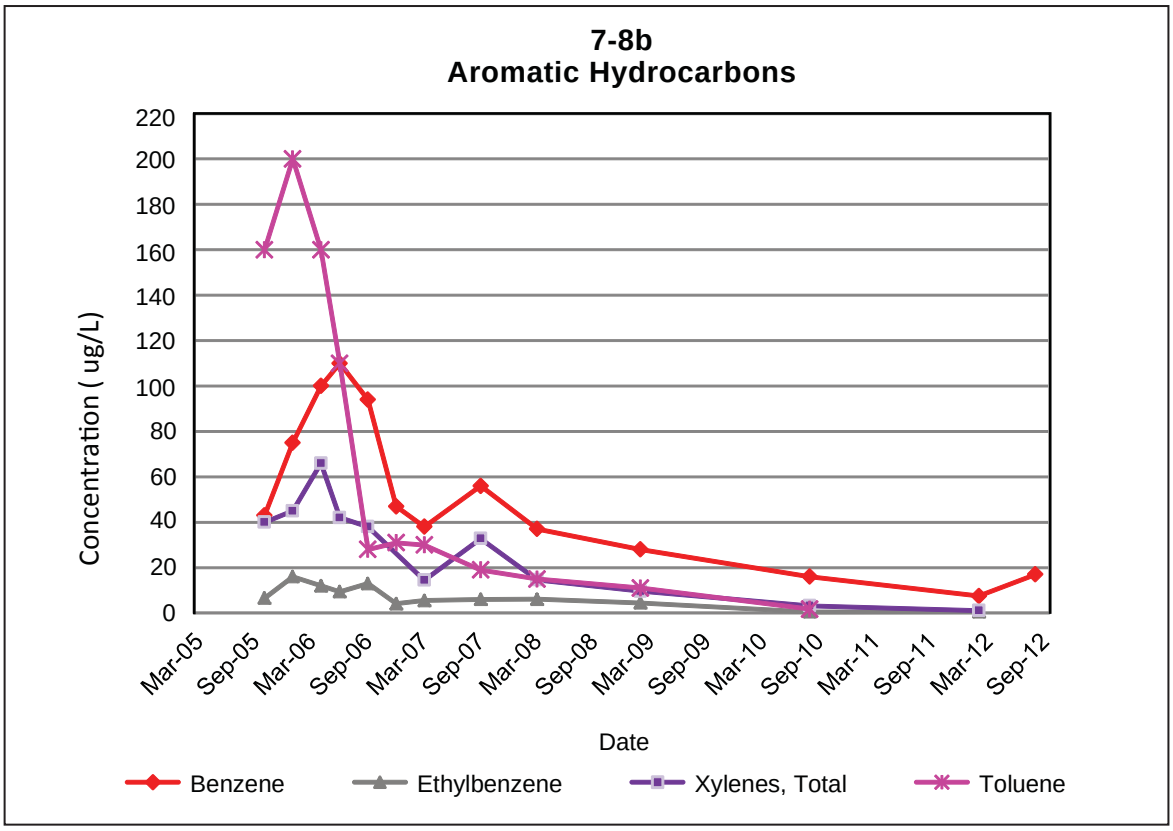
FIGURE 7-7
Non-Chlorinated VOC Concentrations with Time for Groundwater from RMW-02-32

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\Non_Cl_VOC_RMW02-32.ai





ug/L = micrograms per liter
VOC = volatile organic compound

* Benzene is also the reductive dechlorination end-product for chlorinated benzenes.

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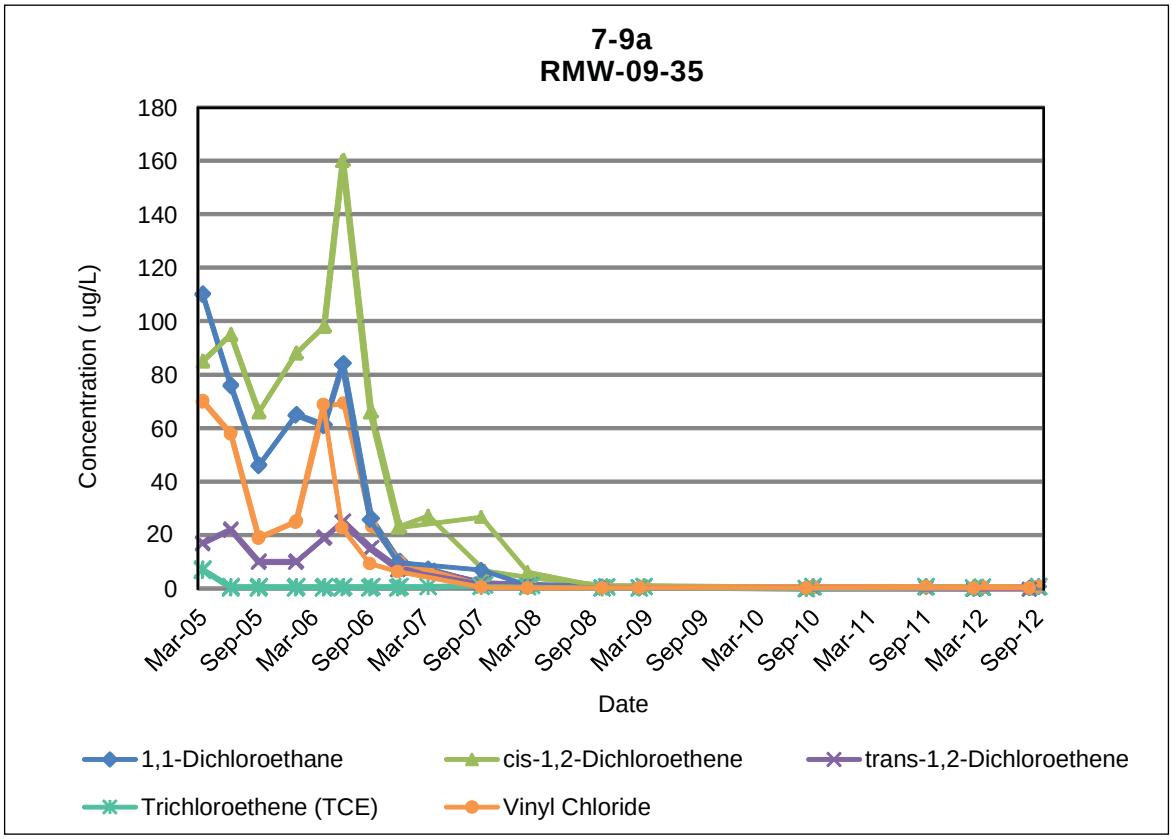
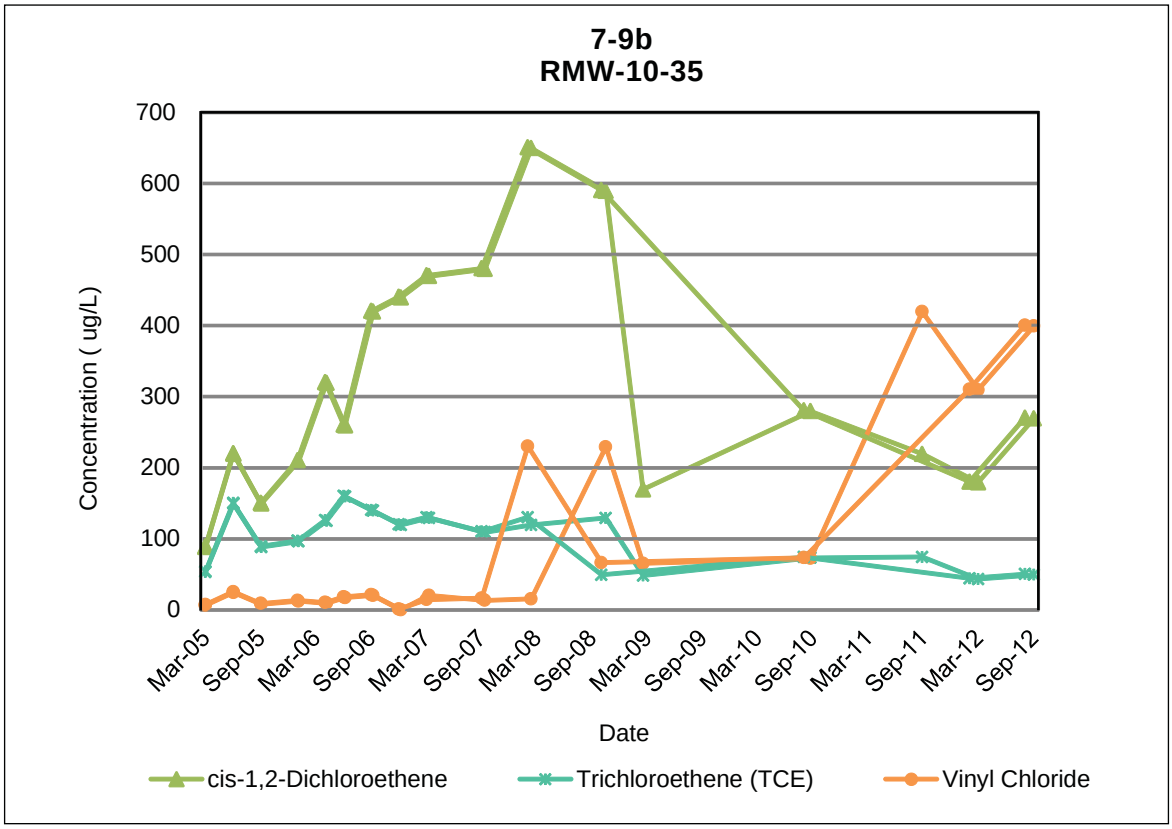
FIGURE 7-8
VOC Concentrations with Time for Groundwater from RMW-12-32

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 FS AMCO Chemical\15.0 Graphics\Final_081814\VOC_RMW12-32.ai





ug/L = micrograms per liter

VOC = volatile organic compound

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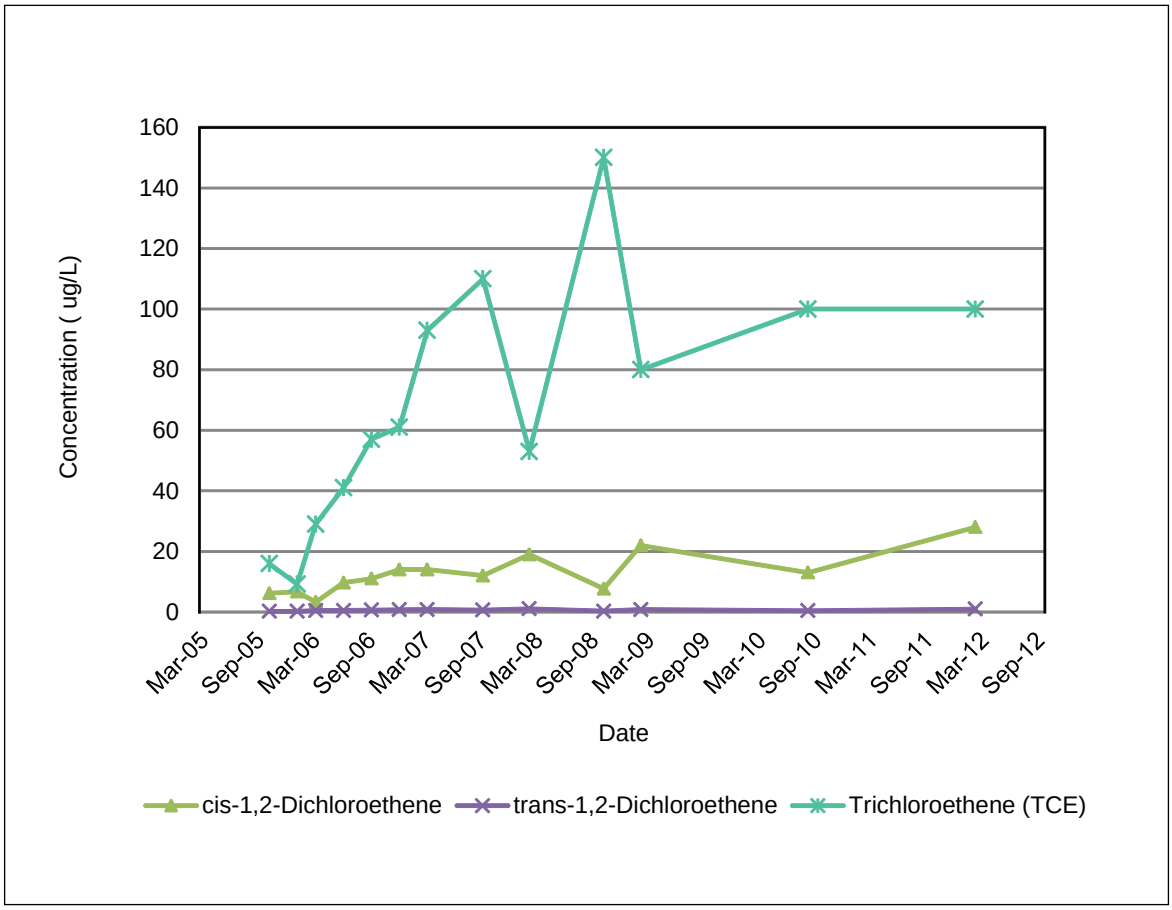
FIGURE 7-9
Chlorinated VOC Concentrations with Time for Groundwater from Downgradient Intermediate Zone Wells

Z:\epa89 (\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\CL_VOC_Intermediate_RMW10-35_RMW09-35.ai



ug/L = micrograms per liter
VOC = volatile organic compound

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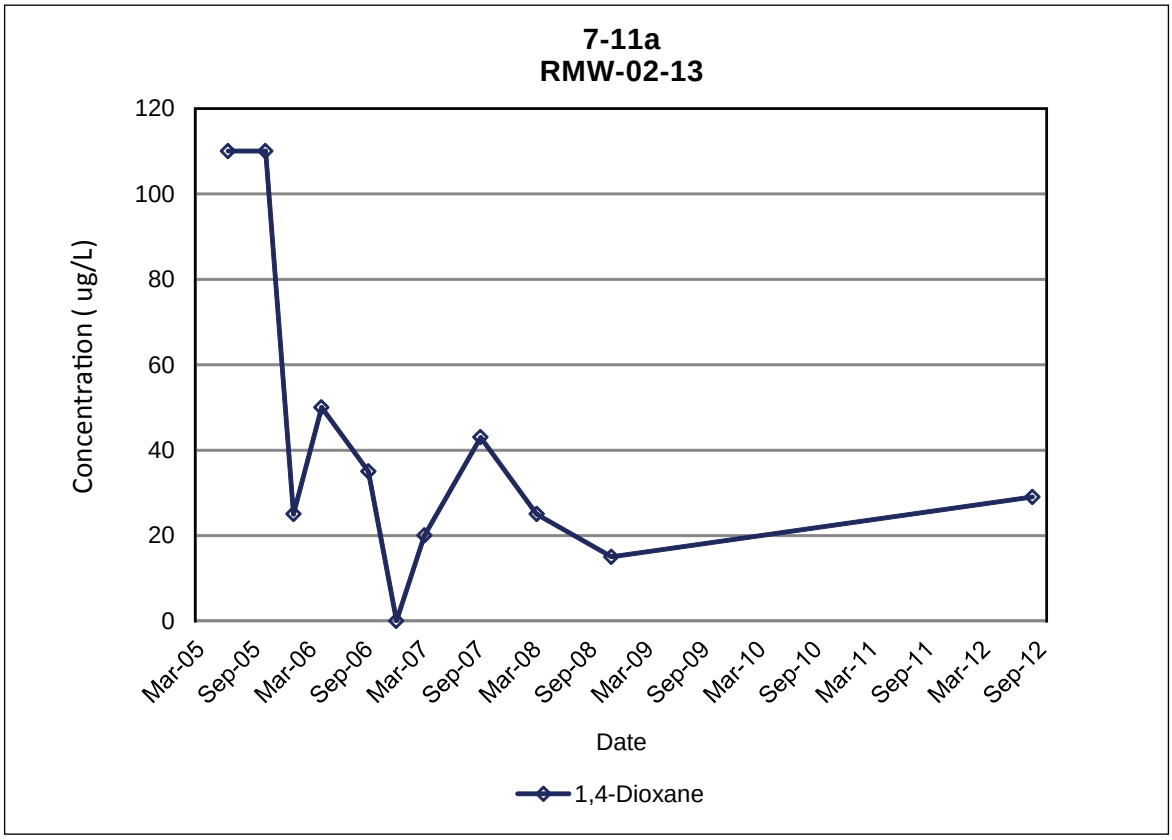
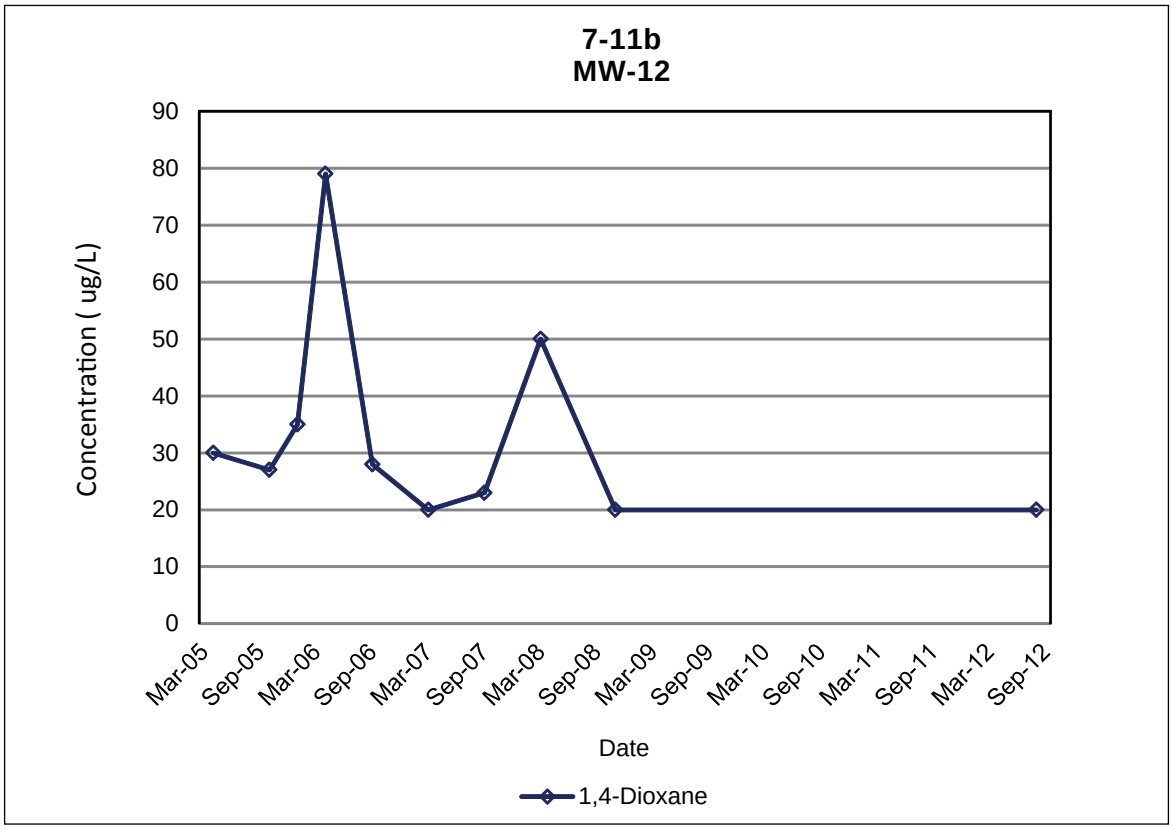
FIGURE 7-10
VOC Concentrations with Time for Groundwater from RMW-14-50

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\VOC_RMW14-50.ai





ug/L = micrograms per liter

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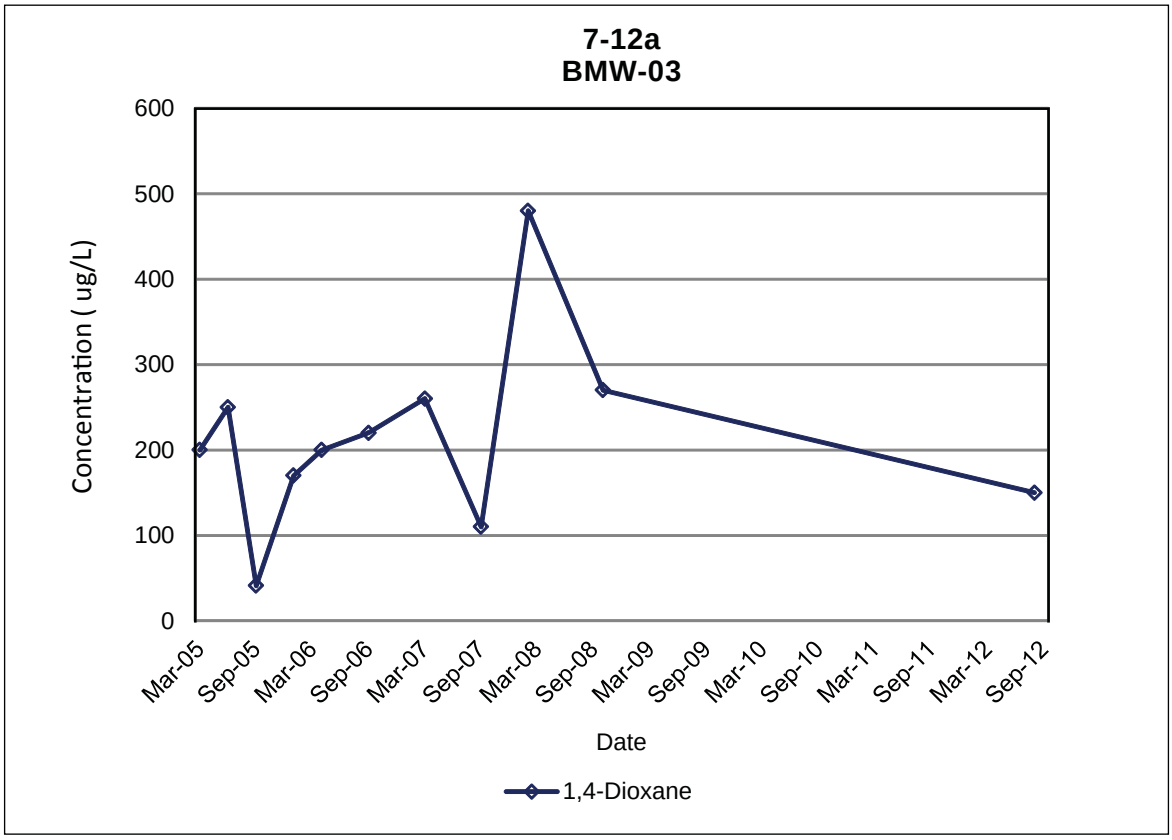
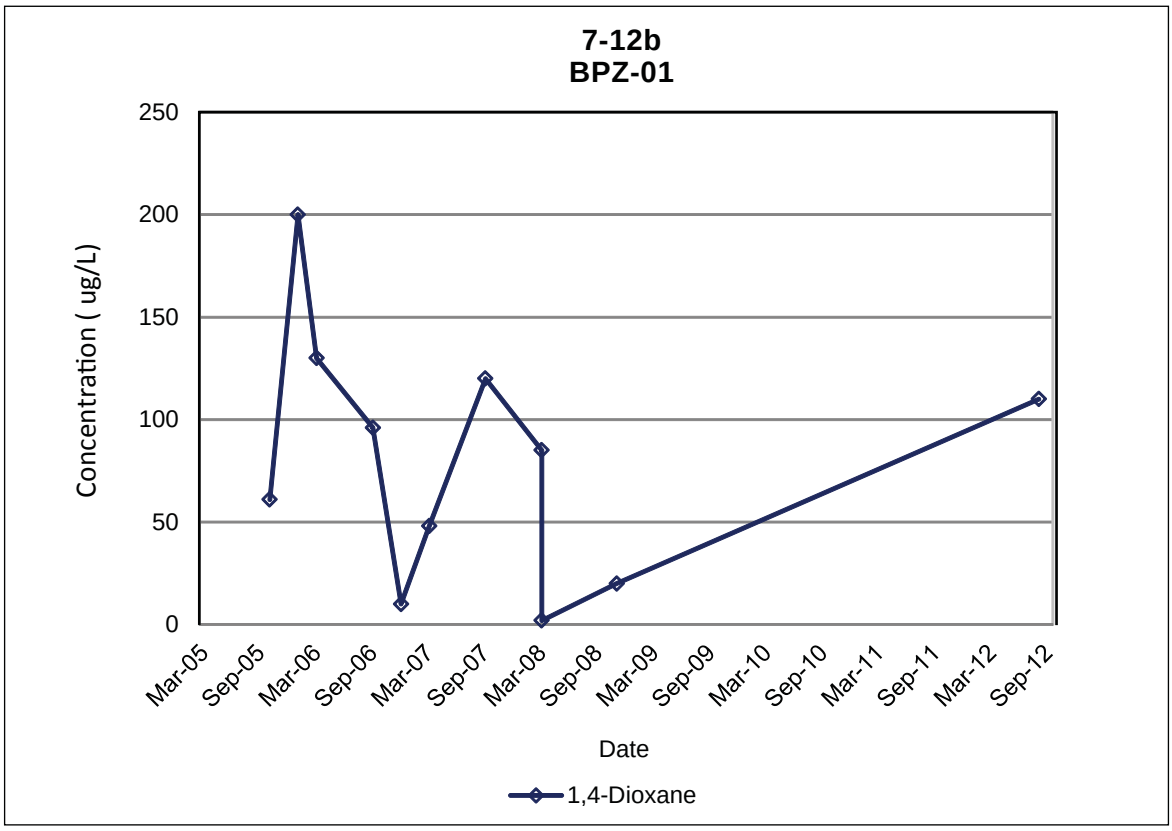
FIGURE 7-11
1,4-Dioxane Concentrations with Time for Groundwater from Shallow Zone Wells at the Former AMCO Facility

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\14Diox_Shallow_Wells.ai

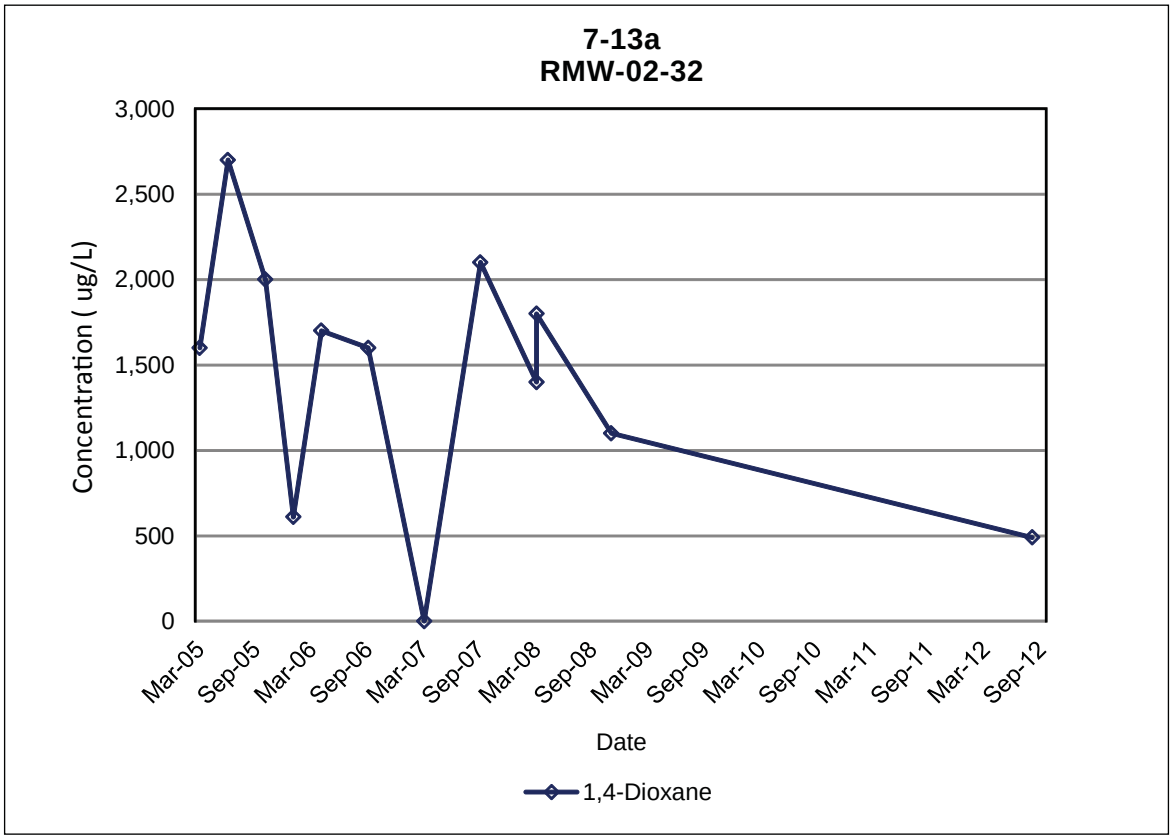


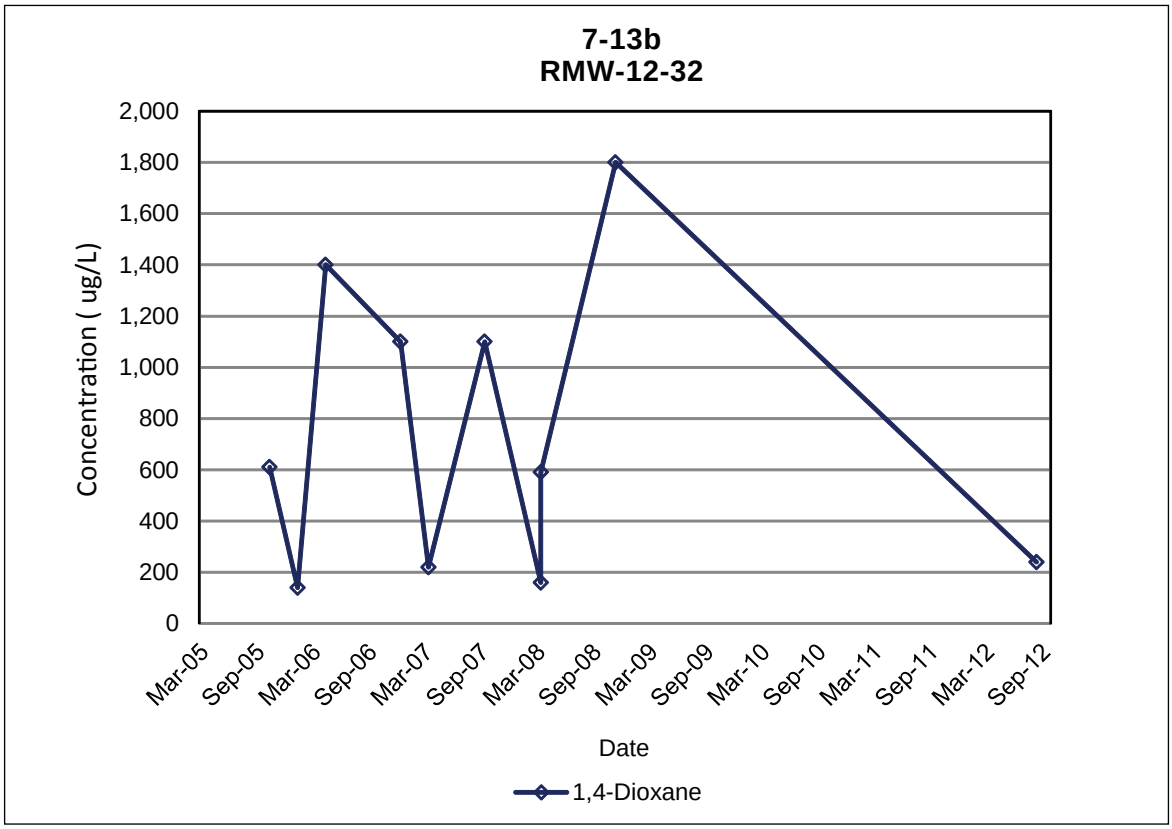


ug/L = micrograms per liter

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\14Diox_Downgradient_Shallow_Wells.ai

Gilbane	**USEPA, Region 9** **AMCO Chemical Superfund Site** Oakland, California	**FIGURE 7-12** 1,4-Dioxane Concentrations with Time for Groundwater from Downgradient Shallow Zone Wells





ug/L = micrograms per liter

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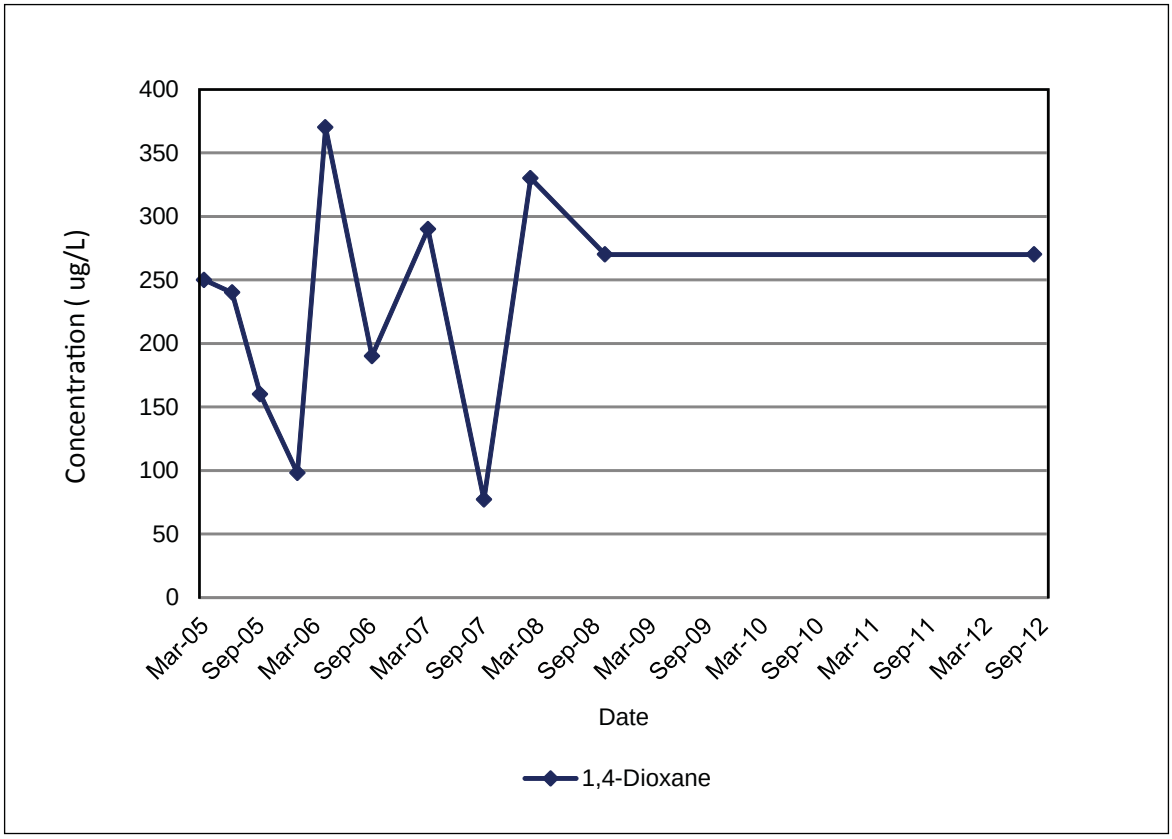
FIGURE 7-13
1,4-Dioxane Concentrations with Time for Groundwater from Intermediate Zone Wells

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 F5 AMCO Chemical\15.0 Graphics\Final_081814\14Diox_Intermediate_Wells.ai



ug/L = micrograms per liter

Z:\epa89 (\\ENGINEERING3)\0019 TO 18 FS AMCO Chemical\15.0 Graphics\Final_081814\14Diox_RMW10-35.ai

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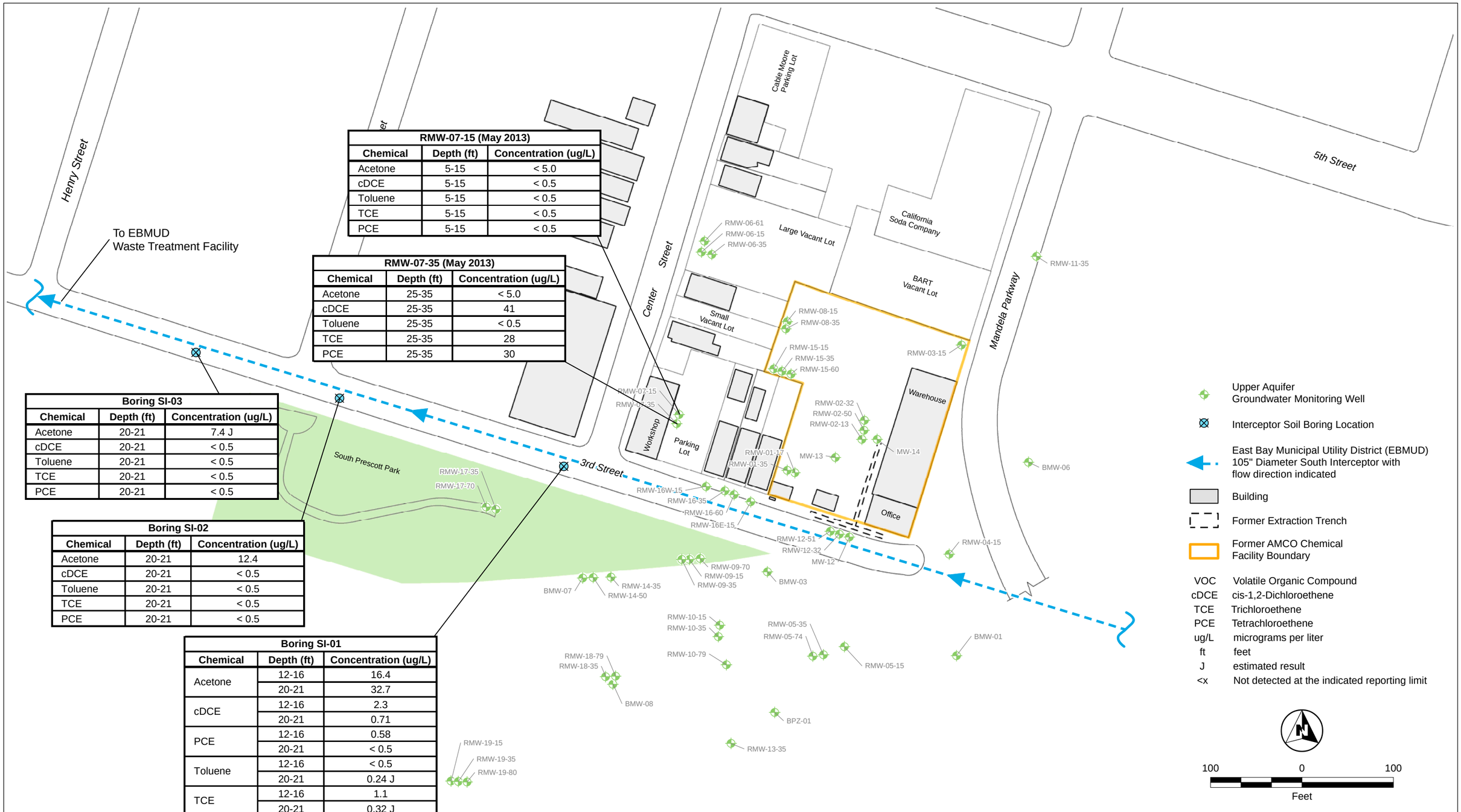
FIGURE 7-14
1,4-Dioxane Concentrations with Time for Groundwater from RMW-10-35



RMW-07-15 (May 2013)		
Chemical	**Depth (ft)**	**Concentration (ug/L)**
Acetone	5-15	< 5.0
cDCE	5-15	< 0.5
Toluene	5-15	< 0.5
TCE	5-15	< 0.5
PCE	5-15	< 0.5

RMW-07-35 (May 2013)		
Chemical	**Depth (ft)**	**Concentration (ug/L)**
Acetone	25-35	< 5.0
cDCE	25-35	41
Toluene	25-35	< 0.5
TCE	25-35	28
PCE	25-35	30

Boring SI-03		
Chemical	**Depth (ft)**	**Concentration (ug/L)**
Acetone	20-21	7.4 J
cDCE	20-21	< 0.5
Toluene	20-21	< 0.5
TCE	20-21	< 0.5
PCE	20-21	< 0.5

Boring SI-02		
Chemical	**Depth (ft)**	**Concentration (ug/L)**
Acetone	20-21	12.4
cDCE	20-21	< 0.5
Toluene	20-21	< 0.5
TCE	20-21	< 0.5
PCE	20-21	< 0.5

Boring SI-01		
Chemical	**Depth (ft)**	**Concentration (ug/L)**
Acetone	12-16	16.4
	20-21	32.7
cDCE	12-16	2.3
	20-21	0.71
PCE	12-16	0.58
	20-21	< 0.5
Toluene	12-16	< 0.5
	20-21	0.24 J
TCE	12-16	1.1
	20-21	0.32 J

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FIGURE 7-15
VOC Concentrations in Groundwater Used to Assess the 3rd Street Sewer Interceptor Preferential Pathway

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APPENDICES
(On CD Only)

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