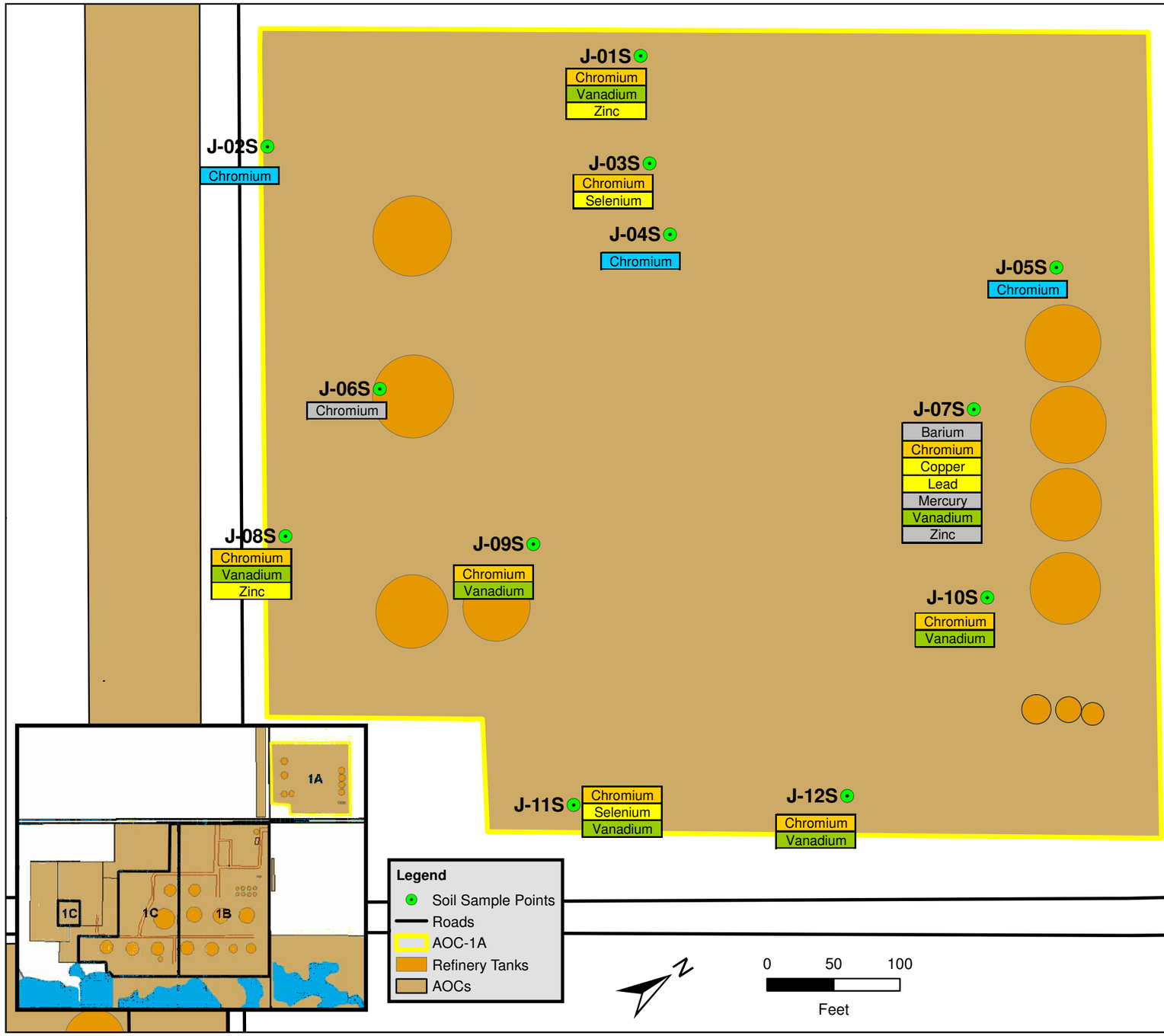

J-01 S FR-013	
Aluminum	3010
Arsenic	0.51 B
Barium	86.4
Beryllium	0.1 B
Chromium	2.8
Cobalt	0.74 B
Copper	1.7 B
Iron	1760
Lead	7
Manganese	66.4
Mercury	0.0083 B
Nickel	1 B
Selenium	0.33 U
Vanadium	4.7 B
Zinc	40.7

J-02 S FR-016	
Aluminum	820
Barium	31.4
Beryllium	0.023 B
Chromium	0.9
Hex Chrom	1.3
Copper	0.99 B
Iron	540
Lead	4.6
Manganese	21.1
Mercury	0.0069 B
Nickel	0.29 B
Selenium	0.26 B
Vanadium	1.1 B
Zinc	23.6

J-03 S FR-009A	
Aluminum	509.5
Barium	24.3 B
Chromium	1.25
Copper	1.025 B
Iron	444.5
Lead	4.4
Manganese	11.9
Mercury	0.0096 B
Nickel	0.33 B
Selenium	0.305 B
Vanadium	1.15 B
Zinc	11.8

J-04 S FR-007	
Aluminum	786
Arsenic	0.23 B
Barium	23.4
Chromium	0.92 B
Copper	0.93 B
Iron	480
Lead	3.6
Manganese	15.7
Mercury	0.007 B
Nickel	0.35 B
Vanadium	1.3 B
Zinc	8.7

J-05 S FR-033	
Aluminum	1250
Arsenic	0.29 B
Barium	19 B
Beryllium	0.087 B
Chromium	0.77 B
Cobalt	0.47 B
Copper	0.93 B
Iron	1740
Lead	4.8
Manganese	11.5
Mercury	0.0014 B
Nickel	0.56 B
Selenium	0.31 U
Vanadium	1.7 B
Zinc	10.4

J-06 S FR-019A	
Aluminum	609
Barium	6.25 B
Chromium	50.5 B
Copper	0.685 B
Iron	331
Lead	2.15
Manganese	9.3
Mercury	0.00535 B
Vanadium	0.985 B
Zinc	3.1

J-07 S FR-030	
Aluminum	2900
Antimony	0.54 B
Arsenic	2
Barium	1250
Beryllium	0.13 B
Cadmium	0.56
Chromium	13.3
Cobalt	2.5 B
Copper	23.5
Iron	4500
Lead	80.6
Manganese	39.6
Mercury	0.74
Nickel	4.3 B
Vanadium	5.1 B
Zinc	232

J-08 S FR-022	
Aluminum	5020
Arsenic	0.83 B
Barium	91.8
Beryllium	0.2 B
Chromium	3.6
Cobalt	1.3 B
Copper	3.2
Iron	3560
Lead	8.3
Manganese	102
Mercury	0.0014 B
Nickel	2.1 B
Vanadium	6.1
Zinc	80.3

J-09 S FR-025	
Aluminum	5460
Arsenic	1.2
Barium	25.9
Beryllium	0.24 B
Chromium	4.5
Hex Chrom	1.4
Cobalt	1.3 B
Copper	2.7
Iron	4280
Lead	8.9
Manganese	43.6
Mercury	0.013 B
Nickel	2.2 B
Vanadium	7.7
Zinc	16.6

J-10 S FR-027	
Aluminum	1670
Arsenic	0.31 B
Barium	13.9 B
Beryllium	0.094 B
Chromium	2.9
Hex Chrom	1.9
Cobalt	0.43 B
Copper	0.86 B
Iron	2170
Lead	6.9
Manganese	21.5
Mercury	0.0047 B
Nickel	0.76 B
Vanadium	2.4 B
Zinc	22.8

J-11 S FR-001	
Aluminum	14300
Arsenic	2.6
Barium	165
Beryllium	0.49
Chromium	11.3
Hex Chrom	3.1
Cobalt	3.3 B
Copper	5.1
Iron	7560
Lead	6
Manganese	121
Mercury	0.0037 B
Nickel	5.1
Selenium	0.37 B
Vanadium	22.3
Zinc	25.2

J-12 S FR-004	
Aluminum	3550
Arsenic	0.57 B
Barium	36
Beryllium	0.092 B
Chromium	2.3
Cobalt	0.61 B
Copper	1.1 B
Iron	1860
Lead	3.4
Manganese	37.3
Mercury	0.0065 B
Nickel	1.3 B
Vanadium	5.1
Zinc	6.1

9568727

Notes:

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2. Qualifiers:
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- Exceeds Earthworm Limit
- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm, Plant, and Median Background Limits
- SDL Exceeds Median Background Screening Level

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1A
Ecological
Metal Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
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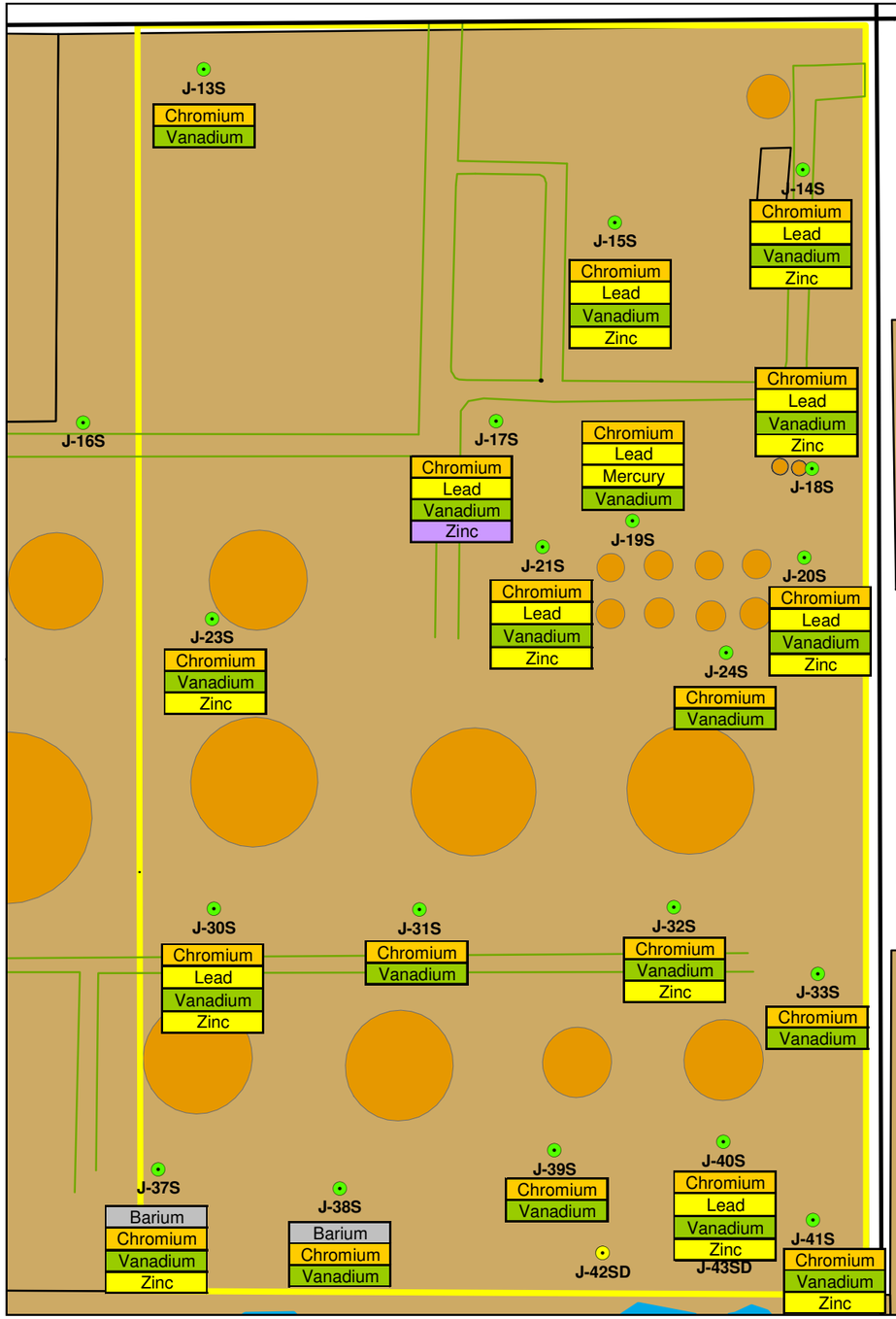
3601 Manor Road, Austin, Texas 78723
Phone: 512-926-6650 Fax: 512-926-3312
www.kleinfelder.com

FIGURE
21A



J-13 S FR-064	
Aluminum	2590
Arsenic	0.22 B
Barium	13.7 B
Beryllium	0.041 B
Chromium	1.4
Cobalt	0.2 B
Copper	1 B
Iron	928
Lead	2.6
Manganese	10
Nickel	0.27 B
Vanadium	2.4 B
Zinc	17.2

J-14 S FR-061	
Aluminum	2710
Arsenic	0.66 B
Barium	88.9
Beryllium	0.049 B
Cadmium	0.17 B
Chromium	5.1
Cobalt	1.3 B
Copper	10.7
Iron	3820
Lead	55.8
Manganese	47.3
Mercury	0.0054 B
Nickel	1.7 B
Vanadium	4.1 B
Zinc	92.6

J-15 S FR-035	
Aluminum	1440
Arsenic	2.6
Barium	26.9
Beryllium	0.078 B
Chromium	7.4
Cobalt	0.36 B
Copper	5.7
Iron	2430
Lead	18.9
Manganese	26.4
Mercury	0.011 B
Nickel	1.1 B
Vanadium	2.1 B
Zinc	31.1

J-17 S FR-046	
Aluminum	7070
Arsenic	2
Barium	200
Beryllium	0.19 B
Cadmium	0.23 B
Chromium	9
Cobalt	1.7 B
Copper	8.1
Iron	8120
Lead	16.1
Manganese	146
Mercury	0.024
Nickel	8.6
Vanadium	10.6
Zinc	143

J-18 S FR-050	
Aluminum	3030
Arsenic	0.58 B
Barium	64.5
Beryllium	0.056 B
Cadmium	0.12 B
Chromium	2.8
Cobalt	0.62 B
Copper	2.5 B
Iron	2010
Lead	80.7
Manganese	49.4
Mercury	0.0088 B
Nickel	1.2 B
Vanadium	4.1 B
Zinc	35

J-19 S FR-039A	
Aluminum	4375
Arsenic	1.8
Barium	93.95
Beryllium	0.2 B
Chromium	3.8
Cobalt	1.45 B
Copper	3.25
Iron	3095
Lead	19.75
Manganese	49.4
Mercury	0.049
Nickel	1.8 B
Vanadium	5.25
Zinc	26.15

J-20 S FR-044	
Aluminum	4570
Arsenic	0.86 B
Barium	61.5
Beryllium	0.22 B
Chromium	4
Cobalt	1.1 B
Copper	3.6
Iron	4620
Lead	17.1
Manganese	73.6
Mercury	0.013 B
Nickel	3.4 B
Vanadium	5.8
Zinc	30.2

J-21 S FR-037	
Aluminum	4470
Arsenic	0.93 B
Barium	67.1
Beryllium	0.2 B
Chromium	8.3
Cobalt	1.3 B
Copper	2.5 B
Iron	3050
Lead	17.7
Manganese	77
Mercury	0.016 B
Nickel	4.1
Vanadium	4.9 B
Zinc	39.5

J-23 S FR-054	
Aluminum	8090
Arsenic	1.7
Barium	66.6
Beryllium	0.23 B
Chromium	6.9
Hex Chrom	1.8
Cobalt	1.8 B
Copper	3.6
Iron	4900
Lead	9.9
Manganese	141
Mercury	0.012 B
Nickel	3.3 B
Vanadium	9.6
Zinc	44.1

J-24 S FR-042	
Aluminum	2110
Arsenic	0.35 B
Barium	36.1
Beryllium	0.11 B
Chromium	1.6
Cobalt	0.53 B
Copper	2.2 B
Iron	1560
Lead	7.2
Manganese	41
Mercury	0.026
Nickel	0.81 B
Vanadium	2.3 B
Zinc	22.2

J-30 S FR-094	
Aluminum	14400
Arsenic	3.1
Barium	98.6
Beryllium	0.52 B
Cadmium	0.14 B
Chromium	10.4
Cobalt	2.5 B
Copper	6.9
Iron	8740
Lead	23.8
Manganese	143
Mercury	0.024
Nickel	5.2
Selenium	0.31 U
Vanadium	16.6
Zinc	79

J-31 S FR-099A	
Aluminum	15650
Arsenic	1.6
Barium	61.7
Beryllium	0.46 B
Chromium	9.6
Cobalt	2.2 B
Copper	4.7
Iron	8115
Lead	14.75
Manganese	77.5
Mercury	0.0215
Nickel	4.55 B
Vanadium	17.25
Zinc	26.05

J-32 S FR-096	
Aluminum	14200
Arsenic	2.5
Barium	160
Beryllium	0.52 B
Chromium	8.9
Cobalt	3 B
Copper	5.2
Iron	7850
Lead	11.6
Manganese	191
Mercury	0.007 B
Nickel	5.3
Vanadium	16.2
Zinc	59

J-33 S FR-105	
Aluminum	2600
Arsenic	1.4
Barium	41.4
Beryllium	0.075 B
Chromium	2
Cobalt	1 B
Copper	2.4 B
Iron	2050
Lead	5.4
Manganese	207
Mercury	0.0076 B
Nickel	1.3 B
Vanadium	4.8 B
Zinc	11.1

J-37 S FR-119	
Aluminum	6190
Arsenic	2.2
Barium	381
Beryllium	0.27 B
Chromium	4.9
Cobalt	1.5 B
Copper	3.4
Iron	4810
Lead	6.7
Manganese	106
Mercury	0.0013 B
Nickel	2.5 B
Vanadium	13.2
Zinc	48.5

J-38 S FR-116	
Aluminum	9900
Arsenic	2.4
Barium	944
Beryllium	0.37 B
Chromium	6.4
Hex Chrom	1.2
Cobalt	2.3 B
Copper	4.2
Iron	6570
Lead	8
Manganese	110
Mercury	0.0054 B
Nickel	3.5 B
Vanadium	16
Zinc	29.8

J-39 S FR-113	
Aluminum	5110
Arsenic	1.5
Barium	63.5
Beryllium	0.12 B
Chromium	4.5
Cobalt	1.3 B
Copper	3.7
Iron	3560
Lead	6.9
Manganese	102
Mercury	0.019 B
Nickel	2.4 B
Vanadium	7.8
Zinc	25.9

J-40 S FR-109	
Aluminum	9850
Arsenic	2.8
Barium	177
Beryllium	0.34 B
Chromium	7.8
Cobalt	2.8 B
Copper	4.5
Iron	7510
Lead	20.9
Manganese	155
Mercury	0.0079 B
Nickel	4.2 B
Vanadium	15.8
Zinc	31.8

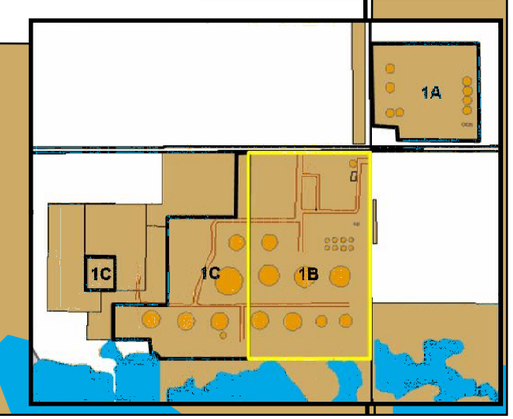
J-41 S FR-102	
Aluminum	4830
Arsenic	1.3
Barium	69.1
Beryllium	0.16 B
Cadmium	1.1
Chromium	3.7
Cobalt	1.2 B
Copper	4.8
Iron	3860
Lead	9.2
Manganese	65.6
Mercury	0.013 B
Nickel	2 B
Vanadium	7
Zinc	85.3

Legend

- Soil Sample Points
- Sediment Sample Points
- Roads
- Gravel/Dirt Road
- AOC-1B
- Refinery Tanks
- AOCs
- Wetland

N

0 100 200
Feet



Notes:

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2. Qualifiers:

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- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm and Median Background Limits
- Exceeds Earthworm, Plant, and Median Background Limits
- SDL Exceeds Median Background Screening Level

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

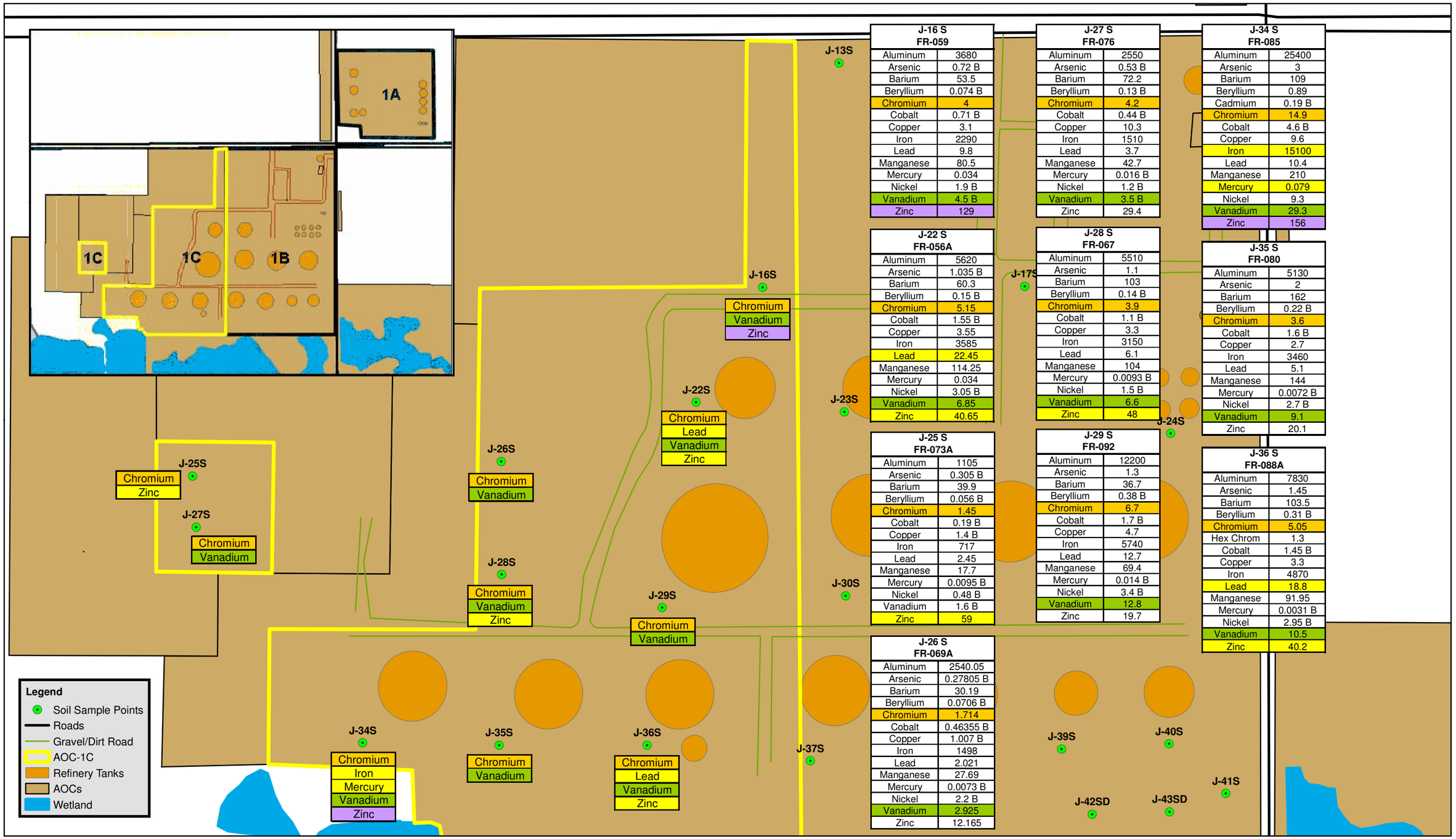
AOC-1B
Ecological
Metal Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
Bright People. Right Solutions.
3601 Manor Road, Austin, Texas 78723
Phone: 512-926-6650 Fax: 512-926-3312
www.kleinfelder.com

FIGURE
21B



J-16 S
FR-059

Aluminum	3680
Arsenic	0.72 B
Barium	53.5
Beryllium	0.074 B
Chromium	4
Cobalt	0.71 B
Copper	3.1
Iron	2290
Lead	9.8
Manganese	80.5
Mercury	0.034
Nickel	1.9 B
Vanadium	4.5 B
Zinc	129

J-27 S
FR-076

Aluminum	2550
Arsenic	0.53 B
Barium	72.2
Beryllium	0.13 B
Chromium	4.2
Cobalt	0.44 B
Copper	10.3
Iron	1510
Lead	3.7
Manganese	42.7
Mercury	0.016 B
Nickel	1.2 B
Vanadium	3.5 B
Zinc	29.4

J-34 S
FR-085

Aluminum	25400
Arsenic	3
Barium	109
Beryllium	0.89
Cadmium	0.19 B
Chromium	14.9
Cobalt	4.6 B
Copper	9.6
Iron	15100
Lead	10.4
Manganese	210
Mercury	0.079
Nickel	9.3
Vanadium	29.3
Zinc	156

J-22 S
FR-056A

Aluminum	5620
Arsenic	1.035 B
Barium	60.3
Beryllium	0.15 B
Chromium	5.15
Cobalt	1.55 B
Copper	3.55
Iron	3585
Lead	22.45
Manganese	114.25
Mercury	0.034
Nickel	3.05 B
Vanadium	6.85
Zinc	40.65

J-28 S
FR-067

Aluminum	5510
Arsenic	1.1
Barium	103
Beryllium	0.14 B
Chromium	3.9
Cobalt	1.1 B
Copper	3.3
Iron	3150
Lead	6.1
Manganese	104
Mercury	0.0093 B
Nickel	1.5 B
Vanadium	6.6
Zinc	48

J-35 S
FR-080

Aluminum	5130
Arsenic	2
Barium	162
Beryllium	0.22 B
Chromium	3.6
Cobalt	1.6 B
Copper	2.7
Iron	3460
Lead	5.1
Manganese	144
Mercury	0.0072 B
Nickel	2.7 B
Vanadium	9.1
Zinc	20.1

J-25 S
FR-073A

Aluminum	1105
Arsenic	0.305 B
Barium	39.9
Beryllium	0.056 B
Chromium	1.45
Cobalt	0.19 B
Copper	1.4 B
Iron	717
Lead	2.45
Manganese	17.7
Mercury	0.0095 B
Nickel	0.48 B
Vanadium	1.6 B
Zinc	59

J-29 S
FR-092

Aluminum	12200
Arsenic	1.3
Barium	36.7
Beryllium	0.38 B
Chromium	6.7
Cobalt	1.7 B
Copper	4.7
Iron	5740
Lead	12.7
Manganese	69.4
Mercury	0.014 B
Nickel	3.4 B
Vanadium	12.8
Zinc	19.7

J-36 S
FR-088A

Aluminum	7830
Arsenic	1.45
Barium	103.5
Beryllium	0.31 B
Chromium	5.05
Hex Chrom	1.3
Cobalt	1.45 B
Copper	3.3
Iron	4870
Lead	18.8
Manganese	91.95
Mercury	0.0031 B
Nickel	2.95 B
Vanadium	10.5
Zinc	40.2

J-26 S
FR-069A

Aluminum	2540.05
Arsenic	0.27805 B
Barium	30.19
Beryllium	0.0706 B
Chromium	1.714
Cobalt	0.46355 B
Copper	1.007 B
Iron	1498
Lead	2.021
Manganese	27.69
Mercury	0.0073 B
Nickel	2.2 B
Vanadium	2.925
Zinc	12.165

Notes:

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Exceeds Plant Limit
Exceeds Median Background Limit
Exceeds Earthworm and Plant Limits
Exceeds Earthworm and Median Background Limits

N

0 90 180
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1C
Ecological
Metal Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
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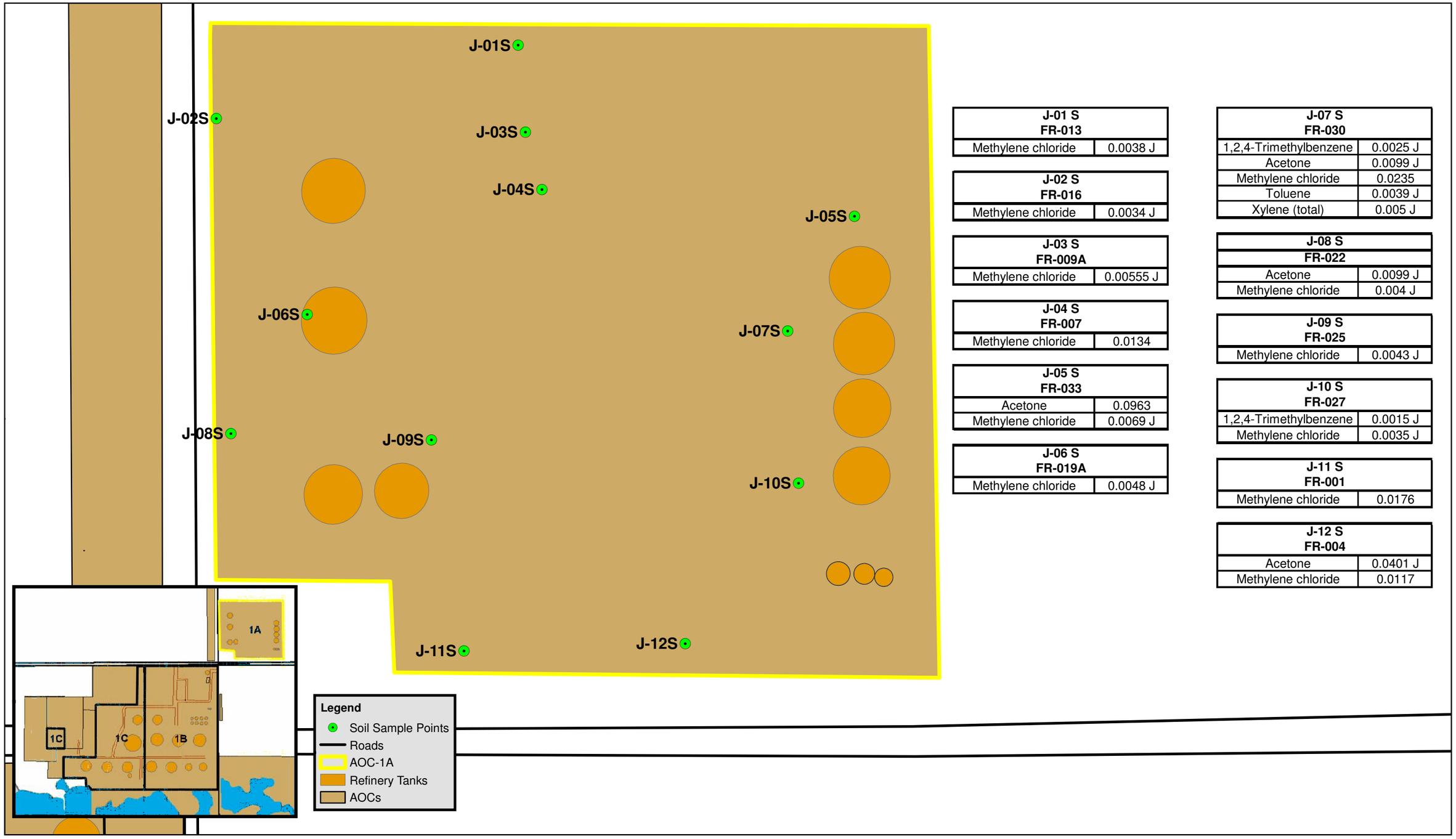
FIGURE
21C



J-01 S FR-013	
Methylene chloride	0.0038 J

J-02 S FR-016	
Methylene chloride	0.0034 J

J-03 S FR-009A	
Methylene chloride	0.00555 J

J-04 S FR-007	
Methylene chloride	0.0134

J-05 S FR-033	
Acetone	0.0963
Methylene chloride	0.0069 J

J-06 S FR-019A	
Methylene chloride	0.0048 J

J-07 S FR-030	
1,2,4-Trimethylbenzene	0.0025 J
Acetone	0.0099 J
Methylene chloride	0.0235
Toluene	0.0039 J
Xylene (total)	0.005 J

J-08 S FR-022	
Acetone	0.0099 J
Methylene chloride	0.004 J

J-09 S FR-025	
Methylene chloride	0.0043 J

J-10 S FR-027	
1,2,4-Trimethylbenzene	0.0015 J
Methylene chloride	0.0035 J

J-11 S FR-001	
Methylene chloride	0.0176

J-12 S FR-004	
Acetone	0.0401 J
Methylene chloride	0.0117

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1A
Ecological
VOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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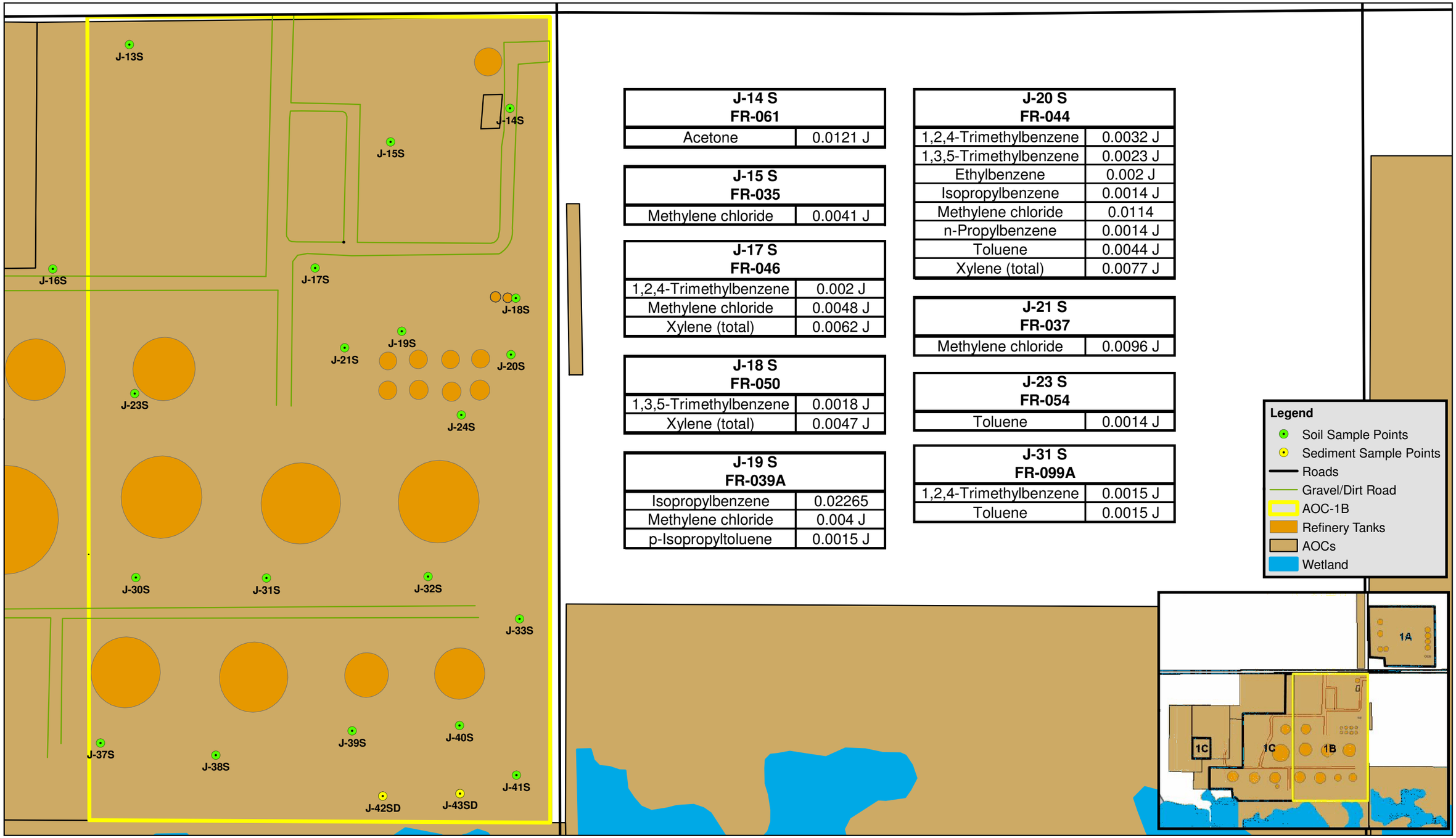
FIGURE
21D



J-14 S FR-061	
Acetone	0.0121 J

J-15 S FR-035	
Methylene chloride	0.0041 J

J-17 S FR-046	
1,2,4-Trimethylbenzene	0.002 J
Methylene chloride	0.0048 J
Xylene (total)	0.0062 J

J-18 S FR-050	
1,3,5-Trimethylbenzene	0.0018 J
Xylene (total)	0.0047 J

J-19 S FR-039A	
Isopropylbenzene	0.02265
Methylene chloride	0.004 J
p-Isopropyltoluene	0.0015 J

J-20 S FR-044	
1,2,4-Trimethylbenzene	0.0032 J
1,3,5-Trimethylbenzene	0.0023 J
Ethylbenzene	0.002 J
Isopropylbenzene	0.0014 J
Methylene chloride	0.0114
n-Propylbenzene	0.0014 J
Toluene	0.0044 J
Xylene (total)	0.0077 J

J-21 S FR-037	
Methylene chloride	0.0096 J

J-23 S FR-054	
Toluene	0.0014 J

J-31 S FR-099A	
1,2,4-Trimethylbenzene	0.0015 J
Toluene	0.0015 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1B
Ecological
VOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

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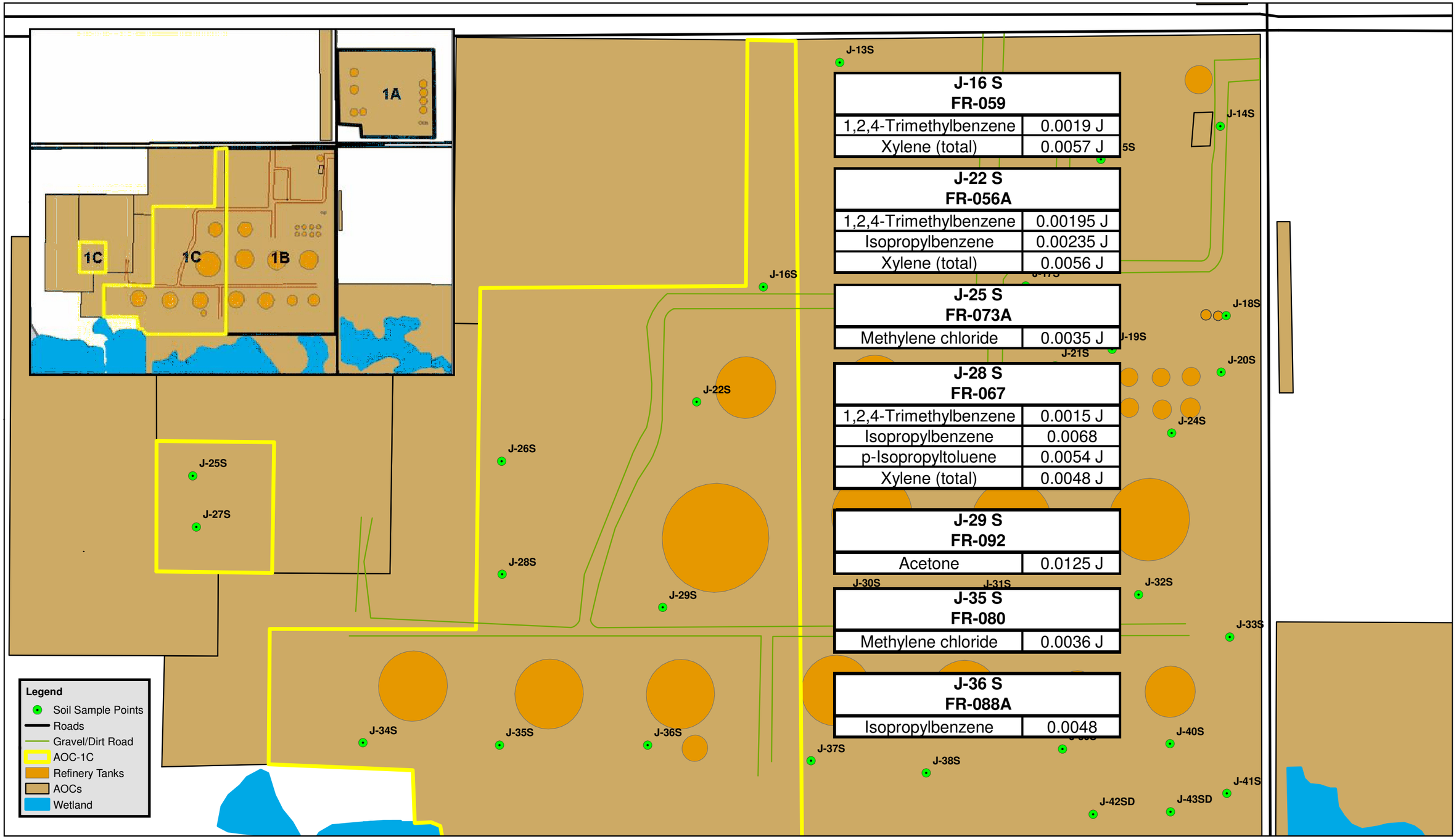
FIGURE
21E



J-16 S FR-059	
1,2,4-Trimethylbenzene	0.0019 J
Xylene (total)	0.0057 J

J-22 S FR-056A	
1,2,4-Trimethylbenzene	0.00195 J
Isopropylbenzene	0.00235 J
Xylene (total)	0.0056 J

J-25 S FR-073A	
Methylene chloride	0.0035 J

J-28 S FR-067	
1,2,4-Trimethylbenzene	0.0015 J
Isopropylbenzene	0.0068
p-Isopropyltoluene	0.0054 J
Xylene (total)	0.0048 J

J-29 S FR-092	
Acetone	0.0125 J

J-35 S FR-080	
Methylene chloride	0.0036 J

J-36 S FR-088A	
Isopropylbenzene	0.0048

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1C
Ecological
VOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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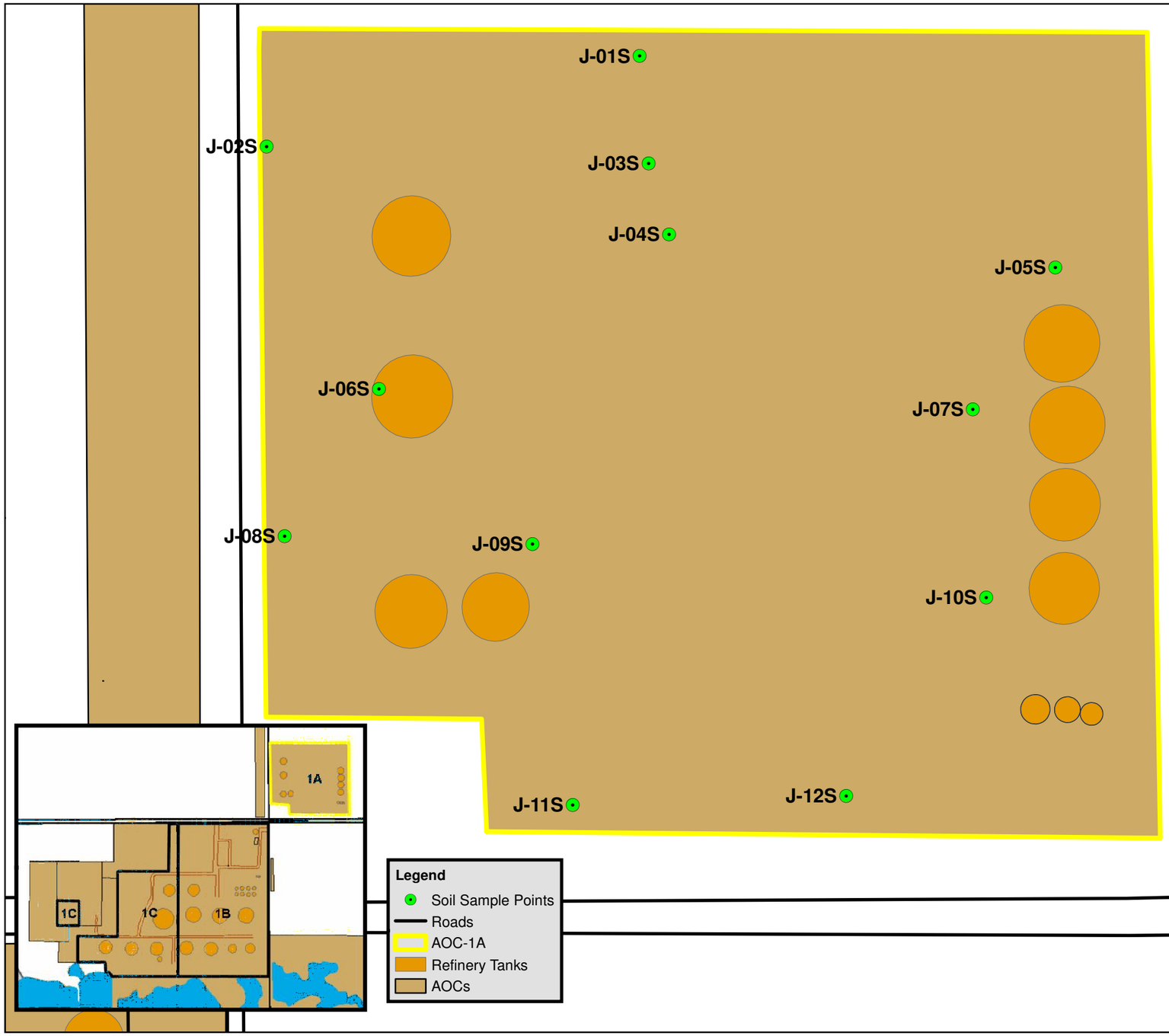
FIGURE
21F



J-03 S FR-009A	
6-Methyl Chrysene	3.93
Anthracene	3.245
Benzo(a)anthracene	2.07
bis(2-Ethylhexyl)phthalate	0.3395 J
Carbazole	0.325 J
Chrysene	18.905
Fluorene	0.25 J
Phenanthrene	1.1935
Pyrene	0.3825 J

J-04 S FR-007	
6-Methyl Chrysene	17.3
Anthracene	5.33
Benzo(a)anthracene	3.97
Benzo(a)pyrene	0.766 J
Chrysene	41.2
Phenanthrene	2.06 J

J-09 S FR-025	
Anthracene	0.107 J
Benzo(a)anthracene	0.648
Benzo(a)pyrene	0.775
Benzo(b)fluoranthene	1.03
Benzo(g,h,i)perylene	0.629
Benzo(k)fluoranthene	0.326
Chrysene	0.773
Dibenzo(a,h)anthracene	0.281
Fluoranthene	1.42
Indeno(1,2,3-cd)pyrene	0.813
Phenanthrene	0.679
Pyrene	1.58

J-12 S FR-004	
Benzo(a)anthracene	0.121 J
Benzo(a)pyrene	0.172 J
Benzo(b)fluoranthene	0.218
Benzo(g,h,i)perylene	0.295
Chrysene	0.163 J
Fluoranthene	0.192
Indeno(1,2,3-cd)pyrene	0.192
Pyrene	0.237

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

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AOC-1A
Ecological
SVOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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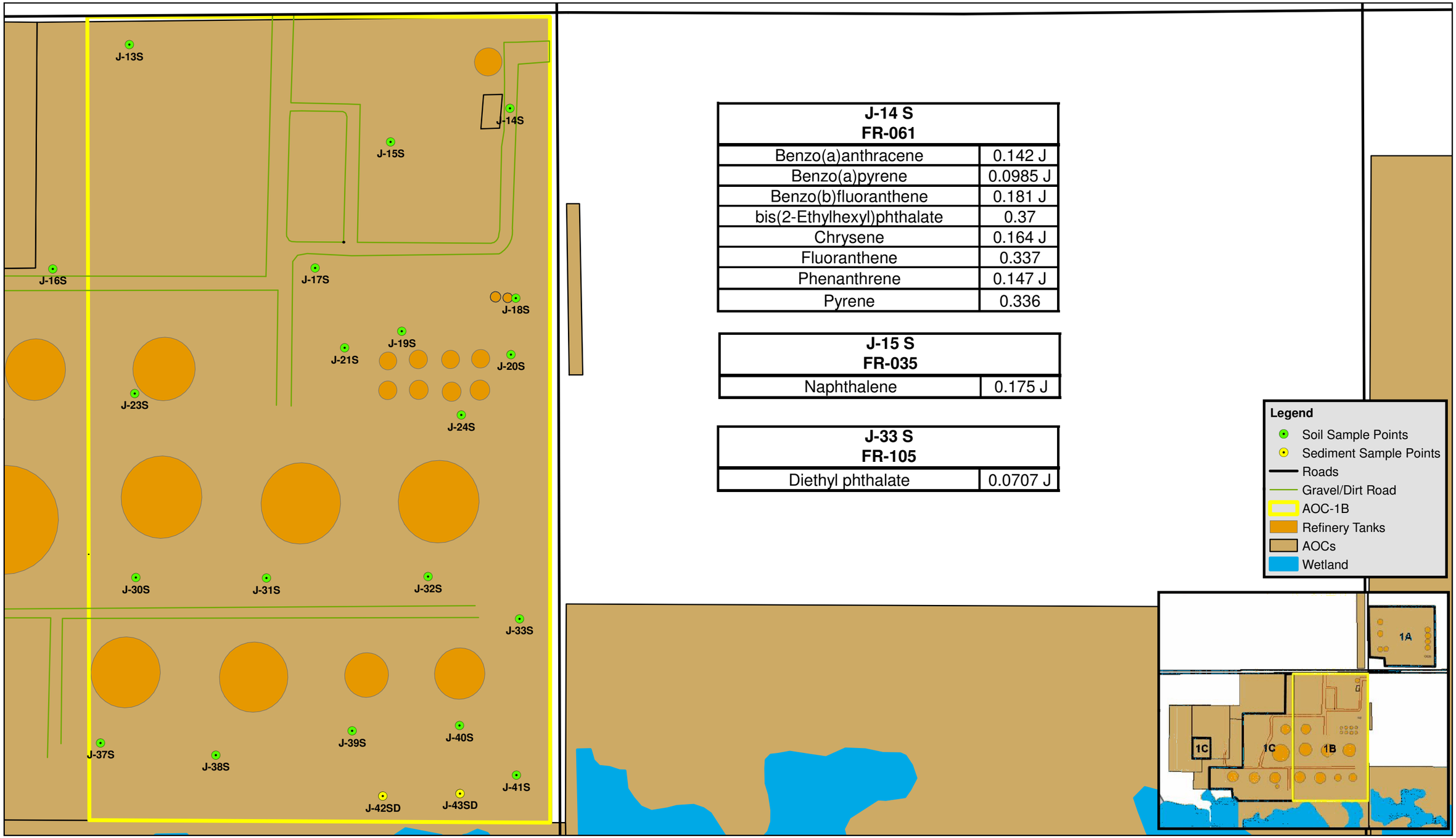
FIGURE
21G



J-14 S FR-061	
Benzo(a)anthracene	0.142 J
Benzo(a)pyrene	0.0985 J
Benzo(b)fluoranthene	0.181 J
bis(2-Ethylhexyl)phthalate	0.37
Chrysene	0.164 J
Fluoranthene	0.337
Phenanthrene	0.147 J
Pyrene	0.336

J-15 S FR-035	
Naphthalene	0.175 J

J-33 S FR-105	
Diethyl phthalate	0.0707 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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AOC-1B
Ecological
SVOC Surface Soil Distribution Map

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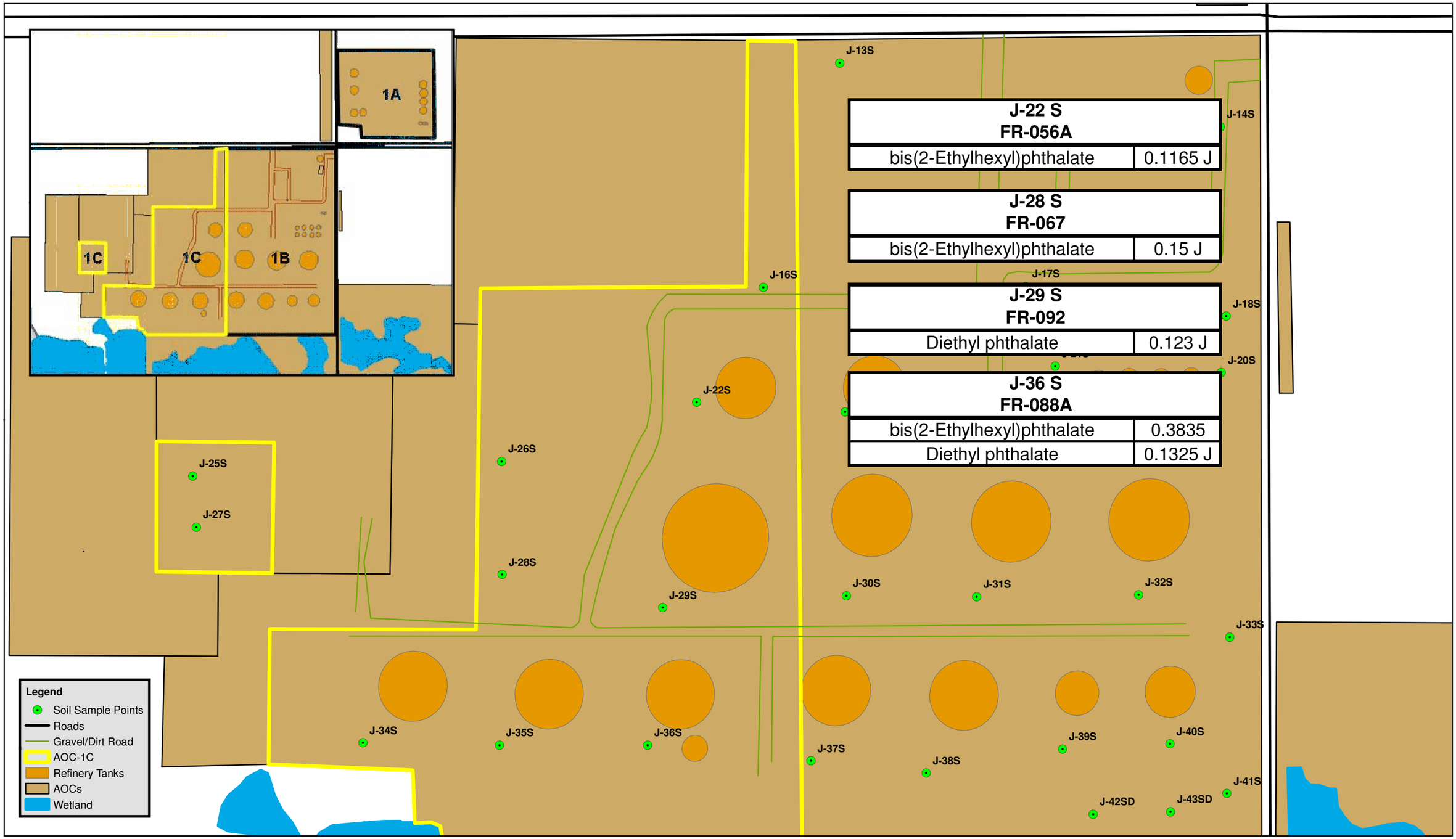
FIGURE
21H



J-22 S FR-056A	
bis(2-Ethylhexyl)phthalate	0.1165 J

J-28 S FR-067	
bis(2-Ethylhexyl)phthalate	0.15 J

J-29 S FR-092	
Diethyl phthalate	0.123 J

J-36 S FR-088A	
bis(2-Ethylhexyl)phthalate	0.3835
Diethyl phthalate	0.1325 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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APPROVED BY:	

AOC-1C
Ecological
SVOC Surface Soil Distribution Map

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INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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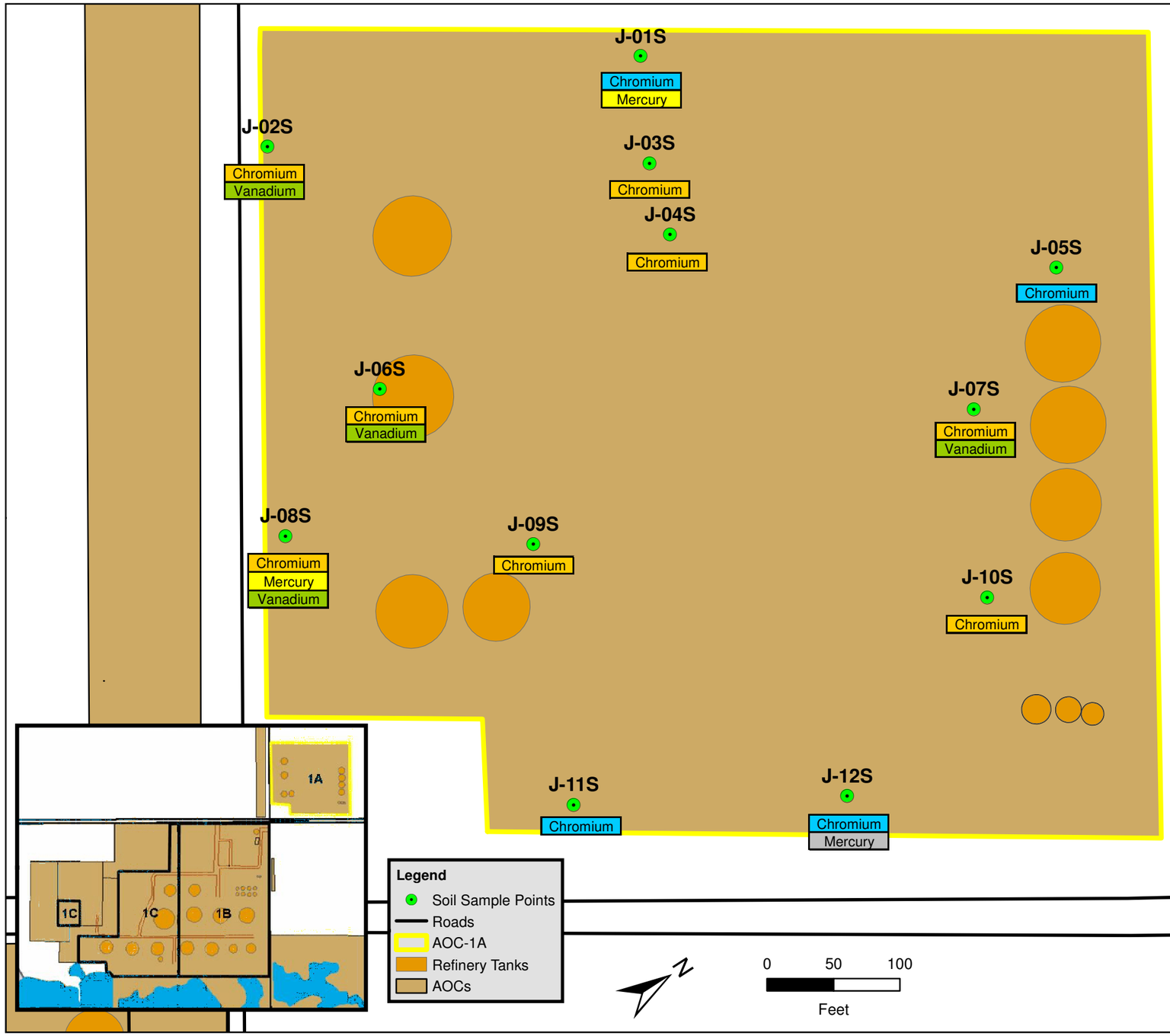
FIGURE
21I



J-01 S FR-014	
Aluminum	1200
Barium	7.7 B
Chromium	0.63 B
Copper	0.59 B
Iron	235
Lead	1.9
Manganese	4.4
Mercury	0.055
Nickel	0.18 B
Vanadium	0.97 B
Zinc	1.6 B

J-02 S FR-017	
Aluminum	7690
Arsenic	0.34 B
Barium	31.1
Beryllium	0.15 B
Chromium	3.9
Cobalt	0.44 B
Copper	1.5 B
Iron	1900
Lead	3.8
Manganese	12.9
Mercury	0.019
Nickel	1.8 B
Vanadium	5
Zinc	7.3

J-03 S FR-011	
Aluminum	2250
Barium	11.8 B
Beryllium	0.035 B
Chromium	1.2
Copper	0.58 B
Iron	494
Lead	2.4
Manganese	5.1
Mercury	0.0051 B
Nickel	0.46 B
Vanadium	1.7 B
Zinc	2.2

J-04 S FR-008	
Aluminum	747
Barium	8.6 B
Chromium	2.1
Copper	0.79 B
Iron	363
Lead	2.3
Manganese	6.2
Nickel	0.32 B
Vanadium	1 B
Zinc	2.9

J-05 S FR-034	
Aluminum	959
Barium	8.5 B
Beryllium	0.042 B
Chromium	0.8
Copper	0.44 B
Iron	624
Lead	2.7
Manganese	4.6
Mercury	0.0021 B
Nickel	0.28 B
Vanadium	0.77 B
Zinc	3.6

J-06 S FR-021	
Aluminum	6880
Arsenic	0.23 B
Barium	23.1
Beryllium	0.13 B
Chromium	3.7
Cobalt	0.35 B
Copper	1.3 B
Iron	2000
Lead	3.2
Manganese	9.9
Mercury	0.033
Nickel	1.3 B
Vanadium	5.3
Zinc	7

J-07 S FR-031	
Aluminum	11400
Arsenic	0.47 B
Barium	52.4
Beryllium	0.28 B
Chromium	4.3
Cobalt	0.56 B
Copper	1.6 B
Iron	2680
Lead	4.3
Manganese	10.8
Mercury	0.012 B
Nickel	1.8 B
Vanadium	7.1
Zinc	10.3

J-08 S FR-023	
Aluminum	10900
Arsenic	0.29 B
Barium	29.3
Beryllium	0.25 B
Chromium	5.2
Cobalt	0.72 B
Copper	2
Iron	4410
Lead	4.1
Manganese	13.9
Mercury	0.048
Nickel	1.8 B
Vanadium	5.7
Zinc	15

J-09 S FR-026	
Aluminum	858
Barium	5.4 B
Beryllium	0.035 B
Chromium	1.8
Copper	0.48 B
Iron	341
Lead	1.5
Manganese	4.1
Nickel	0.22 B
Vanadium	0.95 B
Zinc	1.6 B

J-10 S FR-028	
Aluminum	1090
Barium	6.7 B
Beryllium	0.047 B
Chromium	1
Copper	0.35 B
Iron	258
Lead	1.7
Manganese	3.1
Nickel	0.21 B
Vanadium	0.83 B
Zinc	3.1

J-11 S FR-002	
Aluminum	1110
Arsenic	0.26 B
Barium	10.2 B
Beryllium	0.1 B
Chromium	0.98 B
Copper	0.49 B
Iron	224
Lead	2.3
Manganese	3.5
Mercury	0.0017 B
Nickel	0.26 B
Vanadium	0.89 B
Zinc	1.5 B

J-12 S FR-005	
Aluminum	748
Barium	4.2 B
Chromium	0.58 B
Copper	0.47 B
Iron	174
Lead	1.3
Manganese	2.7
Mercury	0.59
Selenium	0.22 B
Vanadium	0.65 B
Zinc	1.5 B

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

- Exceeds Earthworm Limit
- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm, Plant, and Median Background Limits

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1A
Ecological
Metal Subsurface Soil Distribution Map

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INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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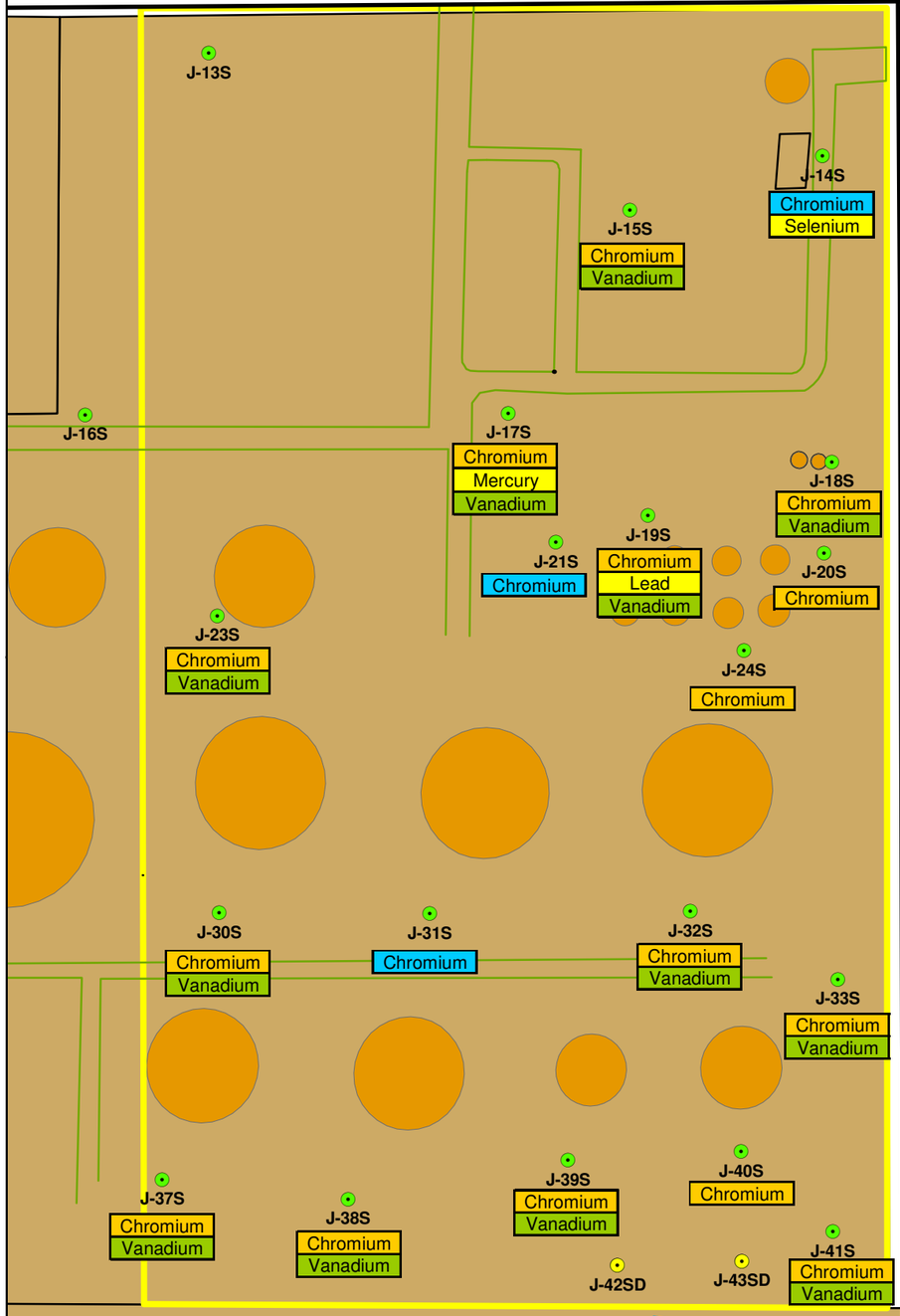
FIGURE
22A



J-14 S FR-062	
Aluminum	917
Barium	7.4 B
Chromium	0.6 B
Hex Chrom	1.3 B
Copper	0.39 B
Iron	270
Lead	1.8
Manganese	5.5
Selenium	0.36 B
Vanadium	1.3 B
Zinc	2.1 B

J-15 S FR-036	
Aluminum	5880
Arsenic	0.38 B
Barium	26.5
Beryllium	0.32 B
Chromium	3.4
Cobalt	0.58 B
Copper	3.8
Iron	2220
Lead	3.5
Manganese	11.9
Mercury	0.013 B
Nickel	1.5 B
Vanadium	4.4 B
Zinc	8.1

J-17 S FR-047	
Aluminum	1130
Arsenic	0.41 B
Barium	11.4 B
Chromium	2.4
Cobalt	0.24 B
Copper	0.45 B
Iron	1230
Lead	2.3
Manganese	9.9
Mercury	0.055
Nickel	0.29 B
Selenium	0.31 U
Vanadium	2.1 B
Zinc	2.3 B

J-18 S FR-051	
Aluminum	3510
Arsenic	0.44 B
Barium	21.5 B
Beryllium	0.086 B
Chromium	3.2
Hex Chrom	1.6 B
Cobalt	0.25 B
Copper	0.89 B
Iron	1270
Lead	4.2
Manganese	10.1
Mercury	0.0048 B
Nickel	0.36 B
Vanadium	3.6 B
Zinc	4.4

J-19 S FR-041	
Aluminum	1760
Arsenic	1.7
Barium	98.7
Beryllium	0.13 B
Chromium	15
Cobalt	0.69 B
Copper	5.9
Iron	3080
Lead	26
Manganese	19.7
Mercury	0.0065 B
Nickel	5.9
Vanadium	3.2 B
Zinc	18.9

J-20 S FR-045	
Aluminum	915
Barium	11.5 B
Chromium	2.5
Copper	0.62 B
Iron	548
Lead	2.1
Manganese	7.5
Nickel	0.22 B
Vanadium	1.8 B
Zinc	3.2

J-21 S FR-038	
Aluminum	648
Barium	4.6 B
Beryllium	0.054 B
Chromium	0.59 B
Hex Chrom	1.2 B
Copper	0.39 B
Iron	381
Lead	1.5
Manganese	4.5
Vanadium	1.1 B
Zinc	4.4

J-23 S FR-055	
Aluminum	4180
Arsenic	1.4
Barium	41.8
Beryllium	0.1 B
Chromium	3.5
Cobalt	1.2 B
Copper	2.4 B
Iron	2590
Lead	3.6
Manganese	130
Mercury	0.0077 B
Nickel	2.6 B
Vanadium	6.7
Zinc	11

J-24 S FR-043	
Aluminum	790
Arsenic	0.3 B
Barium	12 B
Beryllium	0.064 B
Chromium	1.2
Copper	0.9 B
Iron	529
Lead	3.1
Manganese	9.1
Mercury	0.012 B
Nickel	0.23 B
Vanadium	1.2 B
Zinc	5.7

J-30 S FR-095	
Aluminum	1770
Arsenic	0.54 B
Barium	25.1
Beryllium	0.11 B
Chromium	2.2
Cobalt	0.56 B
Copper	1.1 B
Iron	1130
Lead	2.7
Manganese	69.5
Mercury	0.0043 B
Nickel	1 B
Vanadium	2.4 B
Zinc	7

J-31 S FR-101	
Aluminum	1390
Arsenic	0.23 B
Barium	13.5 B
Beryllium	0.023 B
Chromium	0.76 B
Cobalt	0.31 B
Copper	1.2 B
Iron	693
Lead	1.7
Manganese	9
Mercury	0.0026 B
Nickel	0.26 B
Vanadium	1.7 B
Zinc	8.3

J-32 S FR-097	
Aluminum	2460
Arsenic	1.1
Barium	39.6
Beryllium	0.12 B
Chromium	2.9
Cobalt	0.55 B
Copper	1.1 B
Iron	1790
Lead	2.7
Manganese	29
Nickel	1.3 B
Vanadium	3.7 B
Zinc	6.4

J-33 S FR-106	
Aluminum	1240
Arsenic	0.81 B
Barium	36.2
Beryllium	0.044 B
Chromium	1.9
Cobalt	0.84 B
Copper	1 B
Iron	1400
Lead	5.9
Manganese	73
Mercury	0.0048 B
Nickel	0.36 B
Vanadium	2 B
Zinc	2.8

J-37 S FR-120	
Aluminum	8450
Arsenic	2.1
Barium	97.8
Beryllium	0.29 B
Chromium	8.8
Cobalt	1.5 B
Copper	4.4
Iron	5250
Lead	6
Manganese	112
Nickel	2.9 B
Vanadium	12.1
Zinc	16.6

J-38 S FR-117	
Aluminum	3310
Arsenic	2.2
Barium	25
Beryllium	0.11 B
Chromium	2.5
Cobalt	0.58 B
Copper	1.9 B
Iron	1930
Lead	5.7
Manganese	153
Mercury	0.0013 B
Nickel	1.4 B
Vanadium	5.8
Zinc	7.2

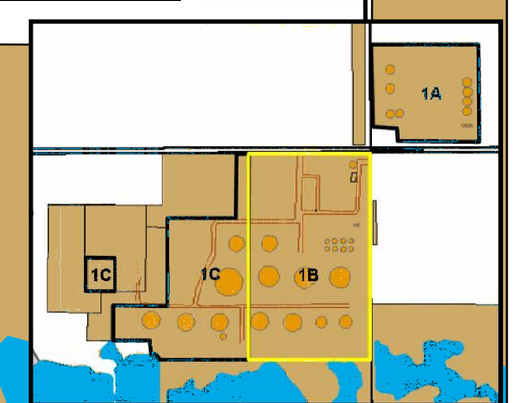
J-39 S FR-114	
Aluminum	1160
Arsenic	0.7 B
Barium	16.3 B
Beryllium	0.041 B
Chromium	1.4
Cobalt	0.26 B
Copper	0.61 B
Iron	954
Lead	1.6
Manganese	76.3
Mercury	0.014 B
Nickel	0.39 B
Vanadium	2.4 B
Zinc	2.3

J-40 S FR-110A	
Aluminum	1495
Arsenic	0.62 B
Barium	59.65
Beryllium	0.0445 B
Chromium	2.3
Cobalt	0.715 B
Copper	0.725 B
Iron	1350
Lead	2.15
Manganese	70.05
Mercury	0.0046 B
Nickel	0.66 B
Vanadium	1.95 B
Zinc	3.1

J-41 S FR-103	
Aluminum	2480
Arsenic	1.7
Barium	26.4
Beryllium	0.067 B
Chromium	2.2
Cobalt	0.78 B
Copper	1.9 B
Iron	1780
Lead	6.3
Manganese	134
Mercury	0.0053 B
Nickel	0.99 B
Vanadium	4.3 B
Zinc	6.7

Legend

- Soil Sample Points
- Sediment Sample Points
- Roads
- Gravel/Dirt Road
- AOC-1B
- Refinery Tanks
- AOCs
- Wetland



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

U = Undetected at the sample detection limit (SDL)

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

- Exceeds Earthworm Limit
- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- SDL Exceeds Median Background Screening Level

N

0 100 200

Feet

DATE DRAWN: 4/30/08	DATE REVISED:
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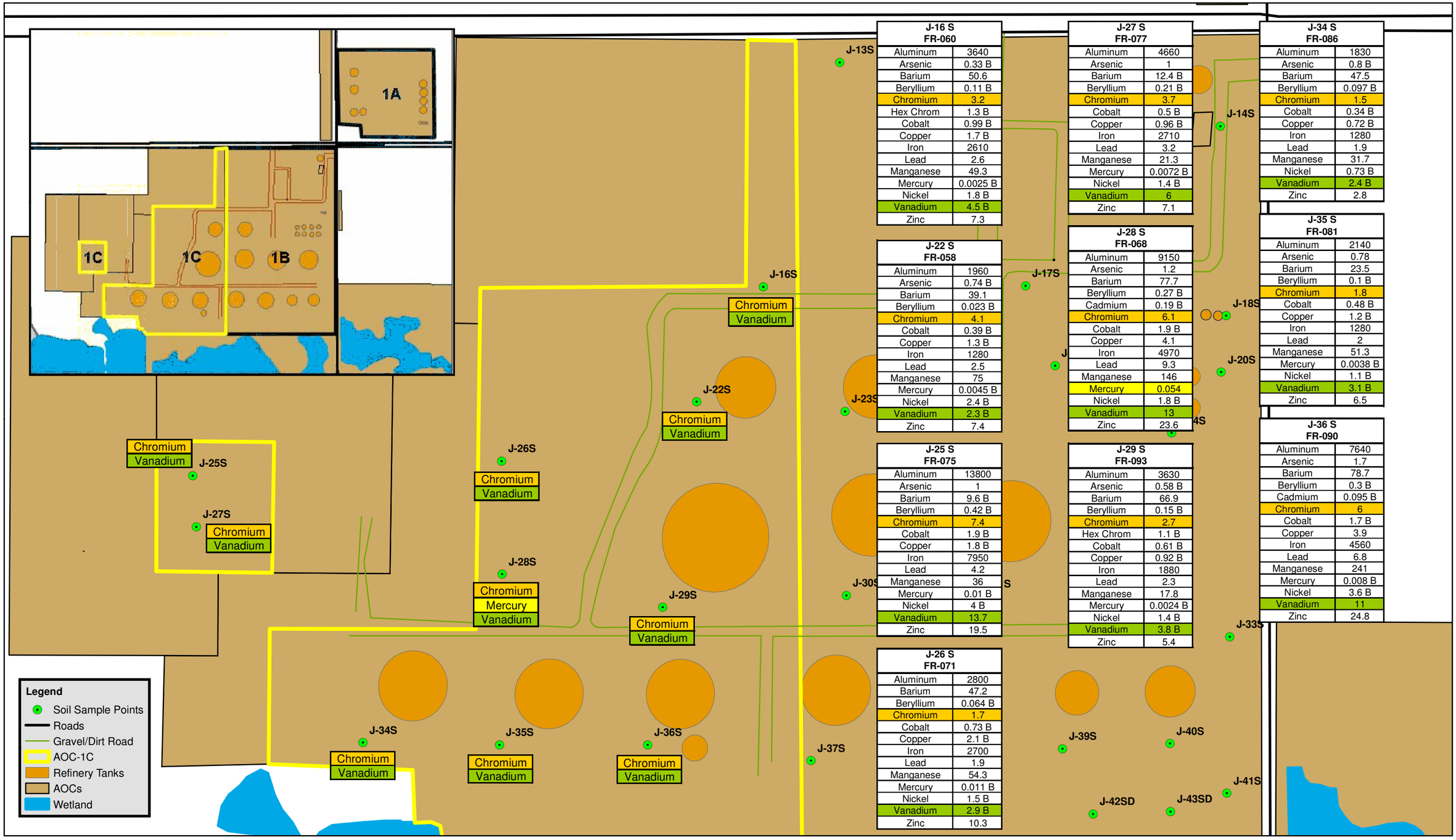
FIGURE

22B



J-16 S FR-060	
Aluminum	3640
Arsenic	0.33 B
Barium	50.6
Beryllium	0.11 B
Chromium	3.2
Hex Chrom	1.3 B
Cobalt	0.99 B
Copper	1.7 B
Iron	2610
Lead	2.6
Manganese	49.3
Mercury	0.0025 B
Nickel	1.8 B
Vanadium	4.5 B
Zinc	7.3

J-22 S FR-058	
Aluminum	1960
Arsenic	0.74 B
Barium	39.1
Beryllium	0.023 B
Chromium	4.1
Cobalt	0.39 B
Copper	1.3 B
Iron	1280
Lead	2.5
Manganese	75
Mercury	0.0045 B
Nickel	2.4 B
Vanadium	2.3 B
Zinc	7.4

J-25 S FR-075	
Aluminum	13800
Arsenic	1
Barium	9.6 B
Beryllium	0.42 B
Chromium	7.4
Cobalt	1.9 B
Copper	1.8 B
Iron	7950
Lead	4.2
Manganese	36
Mercury	0.01 B
Nickel	4 B
Vanadium	13.7
Zinc	19.5

J-26 S FR-071	
Aluminum	2800
Barium	47.2
Beryllium	0.064 B
Chromium	1.7
Cobalt	0.73 B
Copper	2.1 B
Iron	2700
Lead	1.9
Manganese	54.3
Mercury	0.011 B
Nickel	1.5 B
Vanadium	2.9 B
Zinc	10.3

J-27 S FR-077	
Aluminum	4660
Arsenic	1
Barium	12.4 B
Beryllium	0.21 B
Chromium	3.7
Cobalt	0.5 B
Copper	0.96 B
Iron	2710
Lead	3.2
Manganese	21.3
Mercury	0.0072 B
Nickel	1.4 B
Vanadium	6
Zinc	7.1

J-28 S FR-068	
Aluminum	9150
Arsenic	1.2
Barium	77.7
Beryllium	0.27 B
Cadmium	0.19 B
Chromium	6.1
Cobalt	1.9 B
Copper	4.1
Iron	4970
Lead	9.3
Manganese	146
Mercury	0.054
Nickel	1.8 B
Vanadium	13
Zinc	23.6

J-29 S FR-093	
Aluminum	3630
Arsenic	0.58 B
Barium	66.9
Beryllium	0.15 B
Chromium	2.7
Hex Chrom	1.1 B
Cobalt	0.61 B
Copper	0.92 B
Iron	1880
Lead	2.3
Manganese	17.8
Mercury	0.0024 B
Nickel	1.4 B
Vanadium	3.8 B
Zinc	5.4

J-34 S FR-086	
Aluminum	1830
Arsenic	0.8 B
Barium	47.5
Beryllium	0.097 B
Chromium	1.5
Cobalt	0.34 B
Copper	0.72 B
Iron	1280
Lead	1.9
Manganese	31.7
Nickel	0.73 B
Vanadium	2.4 B
Zinc	2.8

J-35 S FR-081	
Aluminum	2140
Arsenic	0.78
Barium	23.5
Beryllium	0.1 B
Chromium	1.8
Cobalt	0.48 B
Copper	1.2 B
Iron	1280
Lead	2
Manganese	51.3
Mercury	0.0038 B
Nickel	1.1 B
Vanadium	3.1 B
Zinc	6.5

J-36 S FR-090	
Aluminum	7640
Arsenic	1.7
Barium	78.7
Beryllium	0.3 B
Cadmium	0.095 B
Chromium	6
Cobalt	1.7 B
Copper	3.9
Iron	4560
Lead	6.8
Manganese	241
Mercury	0.008 B
Nickel	3.6 B
Vanadium	11
Zinc	24.8

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit
Exceeds Median Background Limit
Exceeds Earthworm and Plant Limits

0 90 180
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1C
Ecological
Metal Subsurface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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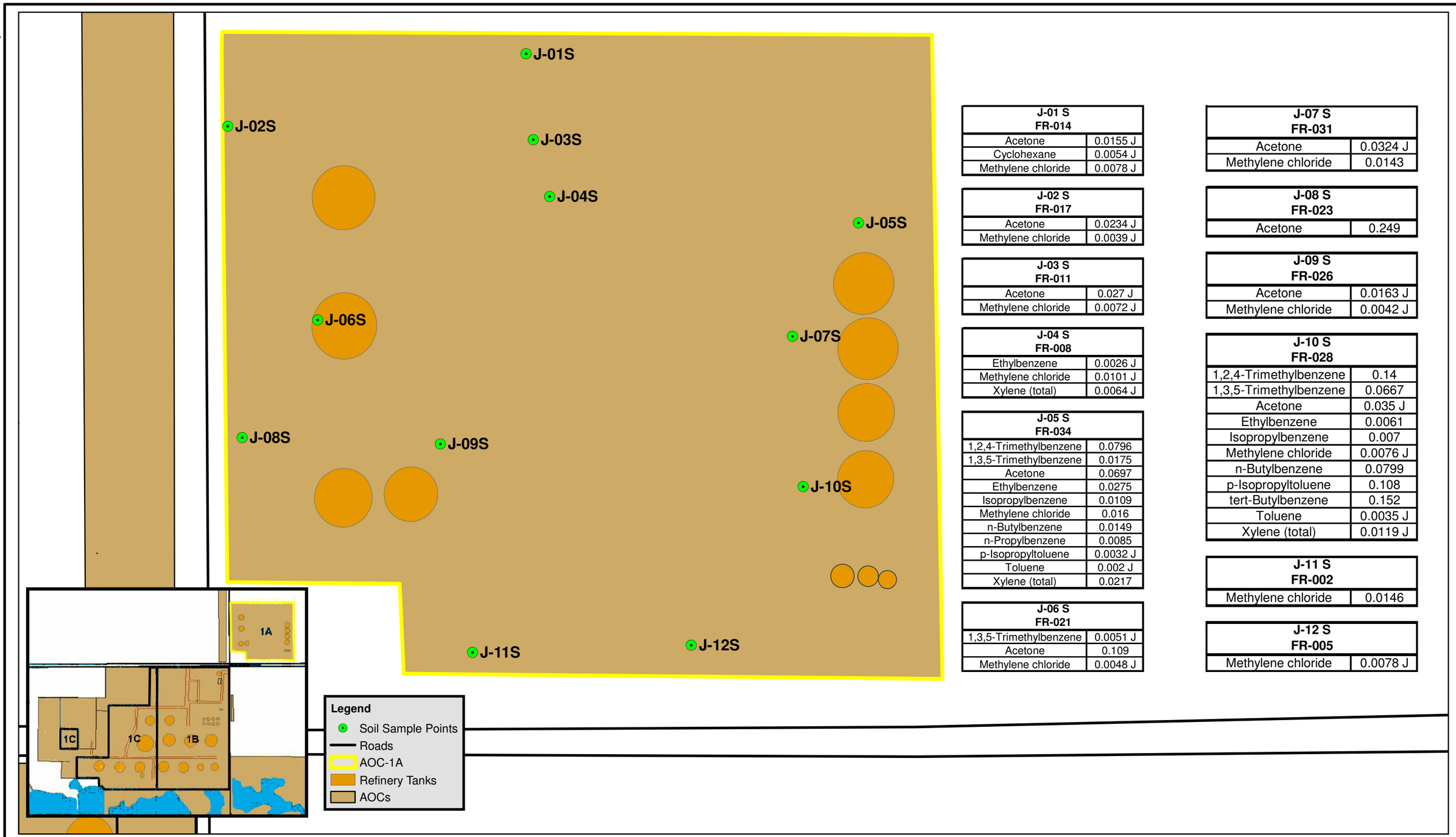
FIGURE
22C



J-01 S FR-014	
Acetone	0.0155 J
Cyclohexane	0.0054 J
Methylene chloride	0.0078 J

J-02 S FR-017	
Acetone	0.0234 J
Methylene chloride	0.0039 J

J-03 S FR-011	
Acetone	0.027 J
Methylene chloride	0.0072 J

J-04 S FR-008	
Ethylbenzene	0.0026 J
Methylene chloride	0.0101 J
Xylene (total)	0.0064 J

J-05 S FR-034	
1,2,4-Trimethylbenzene	0.0796
1,3,5-Trimethylbenzene	0.0175
Acetone	0.0697
Ethylbenzene	0.0275
Isopropylbenzene	0.0109
Methylene chloride	0.016
n-Butylbenzene	0.0149
n-Propylbenzene	0.0085
p-Isopropyltoluene	0.0032 J
Toluene	0.002 J
Xylene (total)	0.0217

J-06 S FR-021	
1,3,5-Trimethylbenzene	0.0051 J
Acetone	0.109
Methylene chloride	0.0048 J

J-07 S FR-031	
Acetone	0.0324 J
Methylene chloride	0.0143

J-08 S FR-023	
Acetone	0.249

J-09 S FR-026	
Acetone	0.0163 J
Methylene chloride	0.0042 J

J-10 S FR-028	
1,2,4-Trimethylbenzene	0.14
1,3,5-Trimethylbenzene	0.0667
Acetone	0.035 J
Ethylbenzene	0.0061
Isopropylbenzene	0.007
Methylene chloride	0.0076 J
n-Butylbenzene	0.0799
p-Isopropyltoluene	0.108
tert-Butylbenzene	0.152
Toluene	0.0035 J
Xylene (total)	0.0119 J

J-11 S FR-002	
Methylene chloride	0.0146

J-12 S FR-005	
Methylene chloride	0.0078 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1A
Ecological
VOC Subsurface Soil Distribution Map

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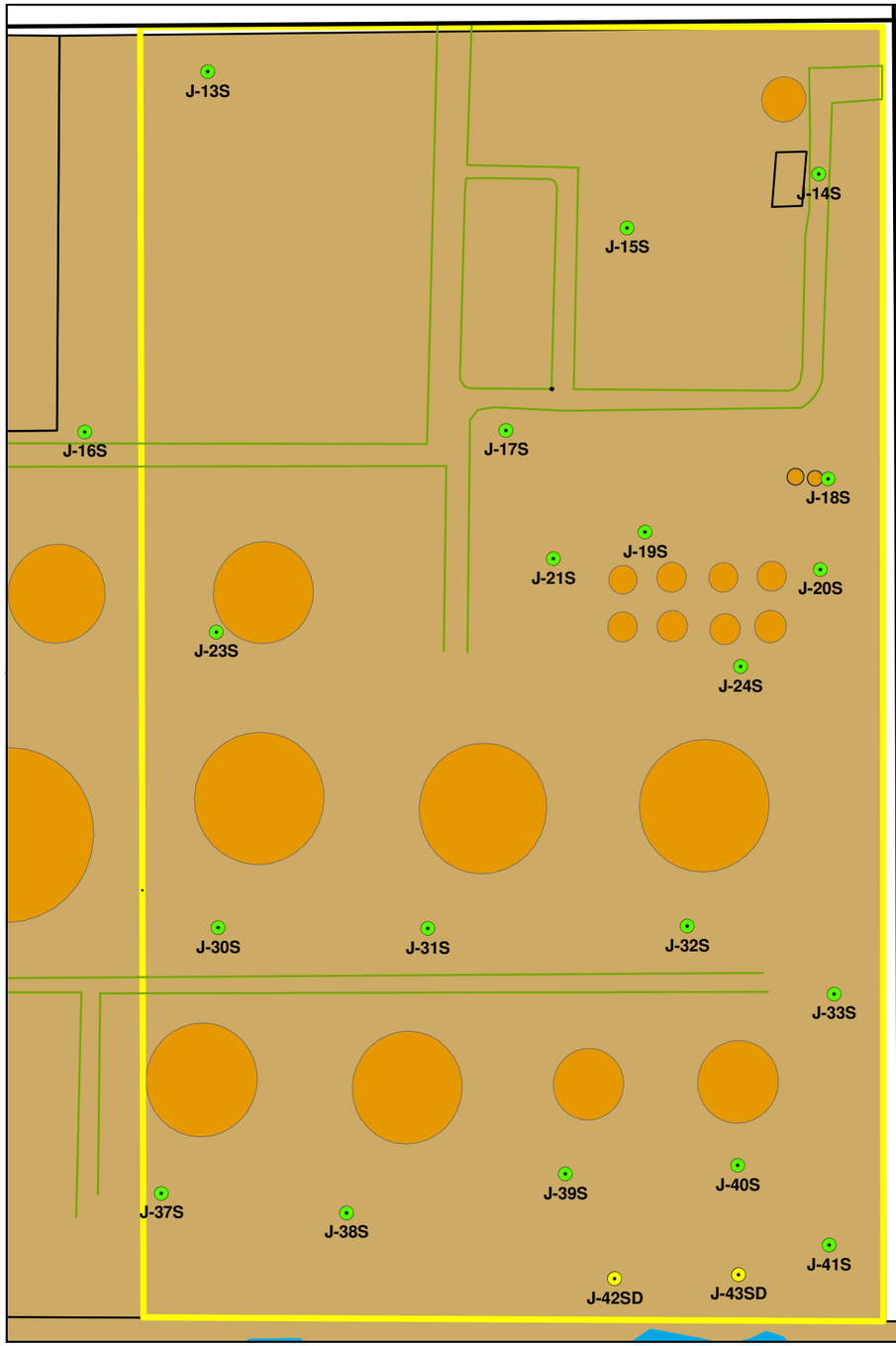
FIGURE
22D



J-13 S FR-065	
Acetone	0.0092 J

J-14 S FR-062	
Acetone	0.0127 J

J-15 S FR-036	
Acetone	0.0337 J
Methylene chloride	0.003 J

J-17 S FR-047	
Acetone	0.0265 J
Carbon disulfide	0.0021 J
Methylene chloride	0.0049 J

J-18 S FR-051	
Acetone	0.0219 J
Methylene chloride	0.006 J

J-19 S FR-041	
Carbon disulfide	0.002 J
Ethyl Ether	0.0133
Methylene chloride	0.0999

J-20 S FR-045	
Acetone	0.047 J
Methylene chloride	0.0334

J-23 S FR-055	
Acetone	0.0675

J-24 S FR-043	
Methylene chloride	0.0034 J

J-30 S FR-095	
Acetone	0.0109 J
Carbon disulfide	0.0023 J
Methylene chloride	0.0058 J

J-31 S FR-101	
Acetone	0.01 J

J-32 S FR-097	
Methylene chloride	0.0044 J

J-33 S FR-106	
Acetone	0.0127 J

J-37 S FR-120	
Acetone	0.0268 J
Carbon disulfide	0.0041 J
Methylene chloride	0.0031 J

J-38 S FR-117	
Acetone	0.0326 J
Carbon disulfide	0.0016 J

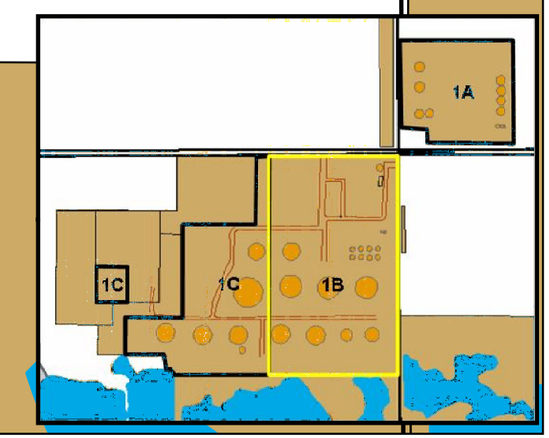
J-39 S FR-114	
Acetone	0.0228 J

J-40 S FR-110A	
Acetone	0.01985 J
Carbon disulfide	0.00155 J

J-41 S FR-103	
Acetone	0.0082 J

Legend

- Soil Sample Points
- Sediment Sample Points
- Roads
- Gravel/Dirt Road
- AOC-1B
- Refinery Tanks
- AOCs
- Wetland



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1B
Ecological
VOC Subsurface Soil Distribution Map

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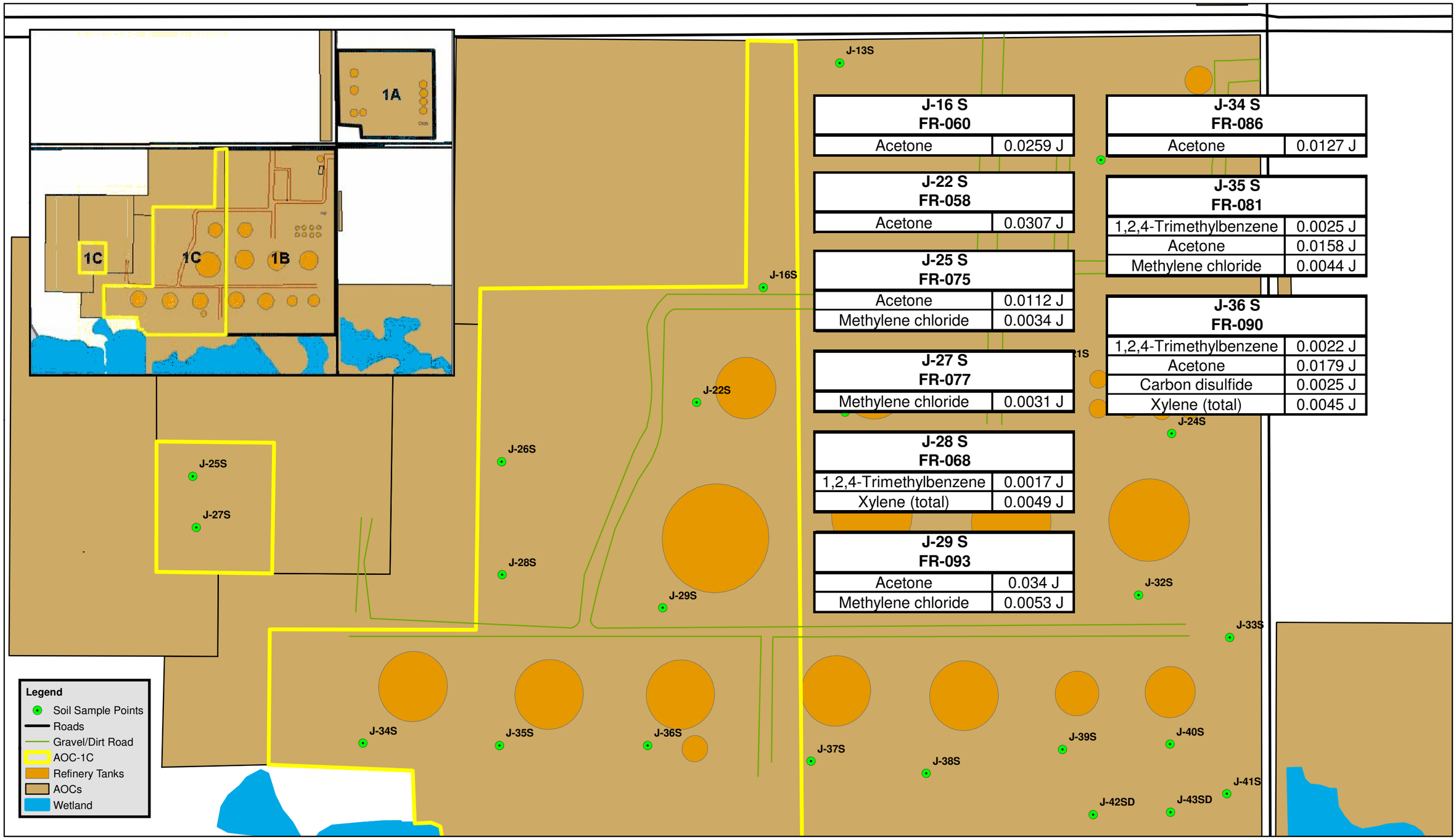
FIGURE
22E



J-16 S FR-060	
Acetone	0.0259 J

J-22 S FR-058	
Acetone	0.0307 J

J-25 S FR-075	
Acetone	0.0112 J
Methylene chloride	0.0034 J

J-27 S FR-077	
Methylene chloride	0.0031 J

J-28 S FR-068	
1,2,4-Trimethylbenzene	0.0017 J
Xylene (total)	0.0049 J

J-29 S FR-093	
Acetone	0.034 J
Methylene chloride	0.0053 J

J-34 S FR-086	
Acetone	0.0127 J

J-35 S FR-081	
1,2,4-Trimethylbenzene	0.0025 J
Acetone	0.0158 J
Methylene chloride	0.0044 J

J-36 S FR-090	
1,2,4-Trimethylbenzene	0.0022 J
Acetone	0.0179 J
Carbon disulfide	0.0025 J
Xylene (total)	0.0045 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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APPROVED BY:	

AOC-1C
Ecological
VOC Subsurface Soil Distribution Map

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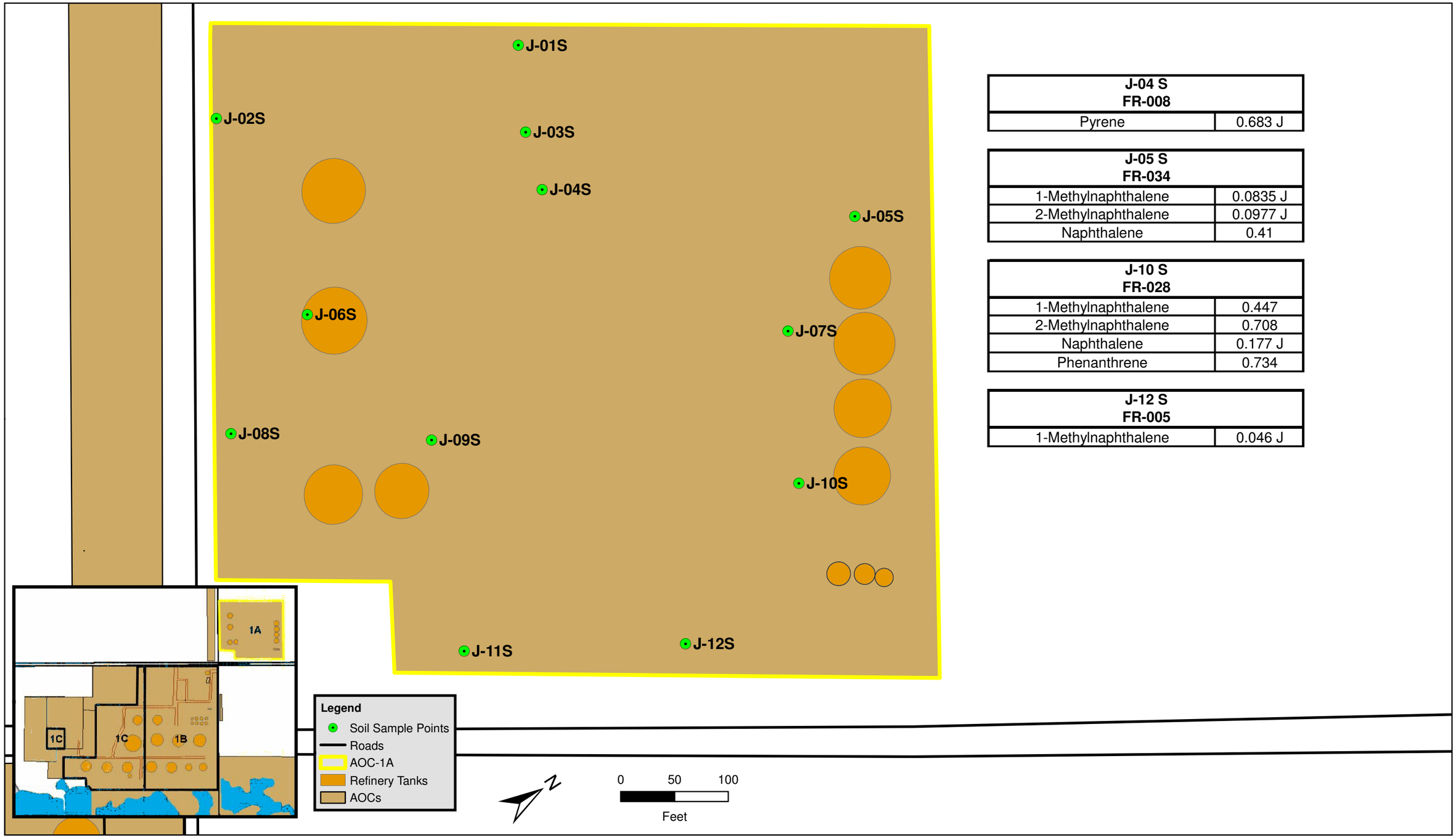
FIGURE
22F



J-04 S FR-008	
Pyrene	0.683 J

J-05 S FR-034	
1-Methylnaphthalene	0.0835 J
2-Methylnaphthalene	0.0977 J
Naphthalene	0.41

J-10 S FR-028	
1-Methylnaphthalene	0.447
2-Methylnaphthalene	0.708
Naphthalene	0.177 J
Phenanthrene	0.734

J-12 S FR-005	
1-Methylnaphthalene	0.046 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100

Feet

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CHECKED BY:	S. HALASZ	
APPROVED BY:		

AOC-1A
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SVOC Subsurface Soil Distribution Map

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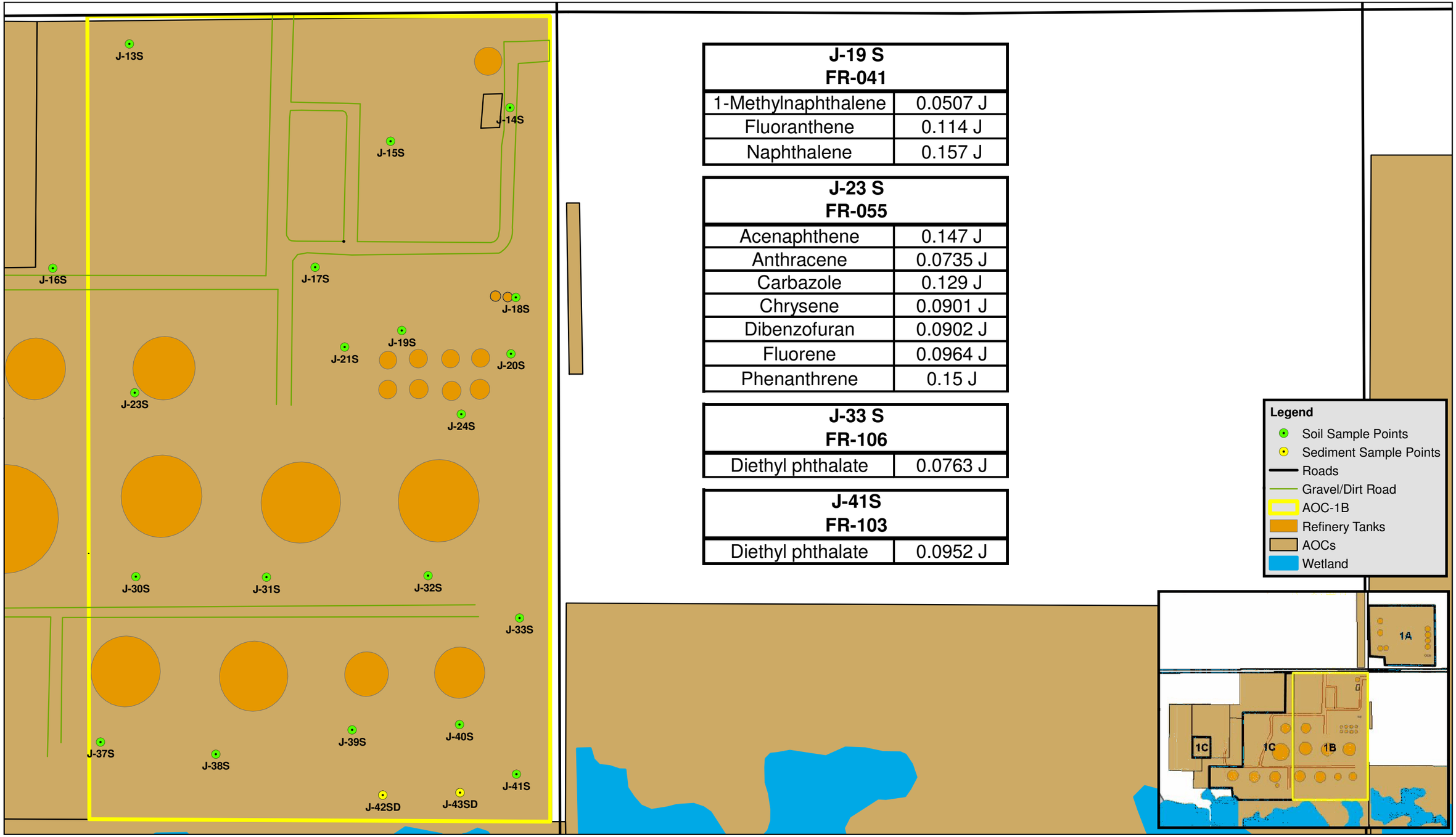
FIGURE

22G



J-19 S FR-041	
1-Methylnaphthalene	0.0507 J
Fluoranthene	0.114 J
Naphthalene	0.157 J

J-23 S FR-055	
Acenaphthene	0.147 J
Anthracene	0.0735 J
Carbazole	0.129 J
Chrysene	0.0901 J
Dibenzofuran	0.0902 J
Fluorene	0.0964 J
Phenanthrene	0.15 J

J-33 S FR-106	
Diethyl phthalate	0.0763 J

J-41S FR-103	
Diethyl phthalate	0.0952 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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APPROVED BY:	

AOC-1B
Ecological
SVOC Subsurface Soil Distribution Map

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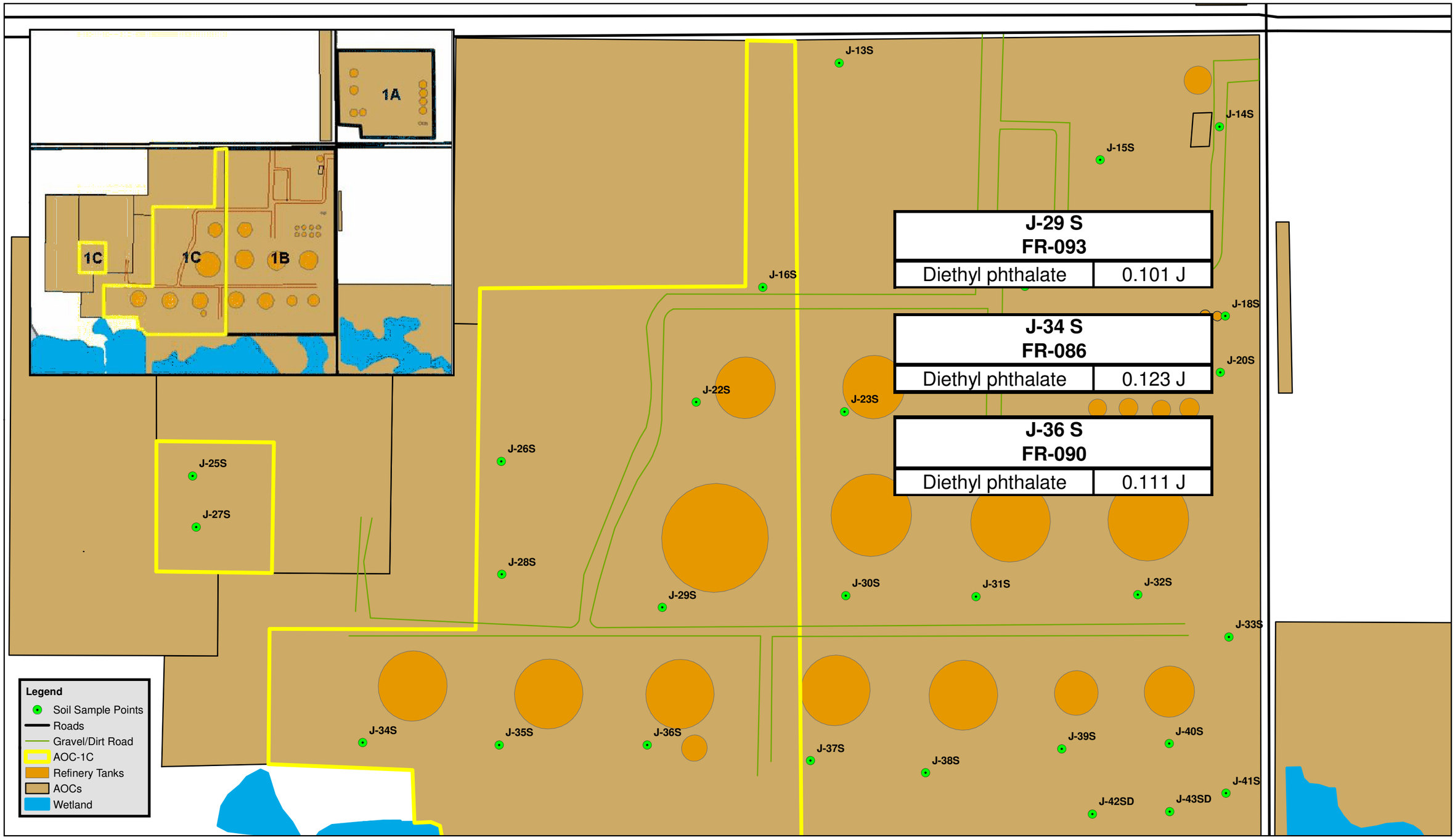
FIGURE
22H



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-1C
Ecological
SVOC Subsurface Soil Distribution Map

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PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

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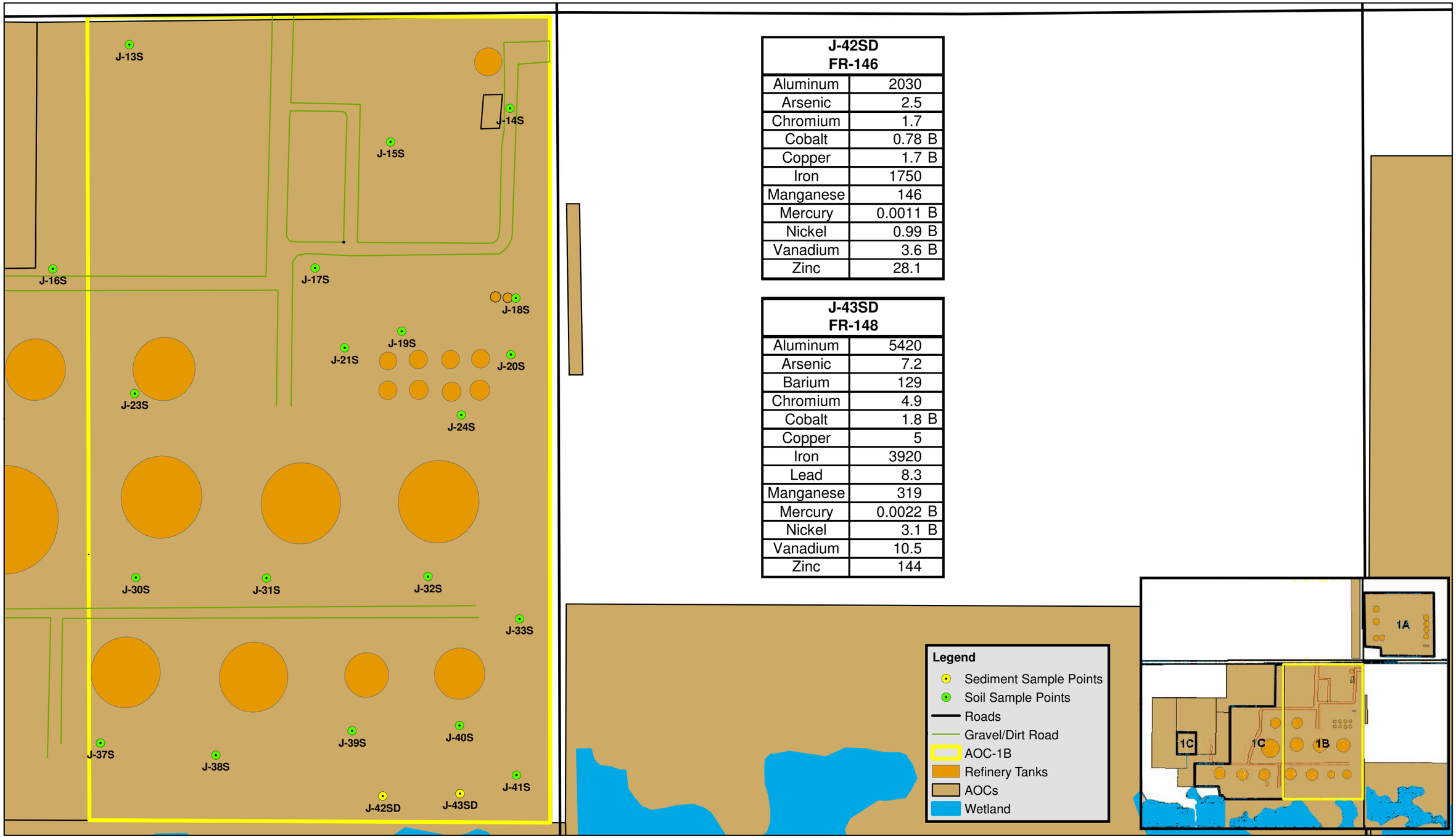
FIGURE
22I



J-42SD FR-146	
Aluminum	2030
Arsenic	2.5
Chromium	1.7
Cobalt	0.78 B
Copper	1.7 B
Iron	1750
Manganese	146
Mercury	0.0011 B
Nickel	0.99 B
Vanadium	3.6 B
Zinc	28.1

J-43SD FR-148	
Aluminum	5420
Arsenic	7.2
Barium	129
Chromium	4.9
Cobalt	1.8 B
Copper	5
Iron	3920
Lead	8.3
Manganese	319
Mercury	0.0022 B
Nickel	3.1 B
Vanadium	10.5
Zinc	144

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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AOC-1B
Ecological
Metal Sediment Distribution Map

FALCON REFINERY
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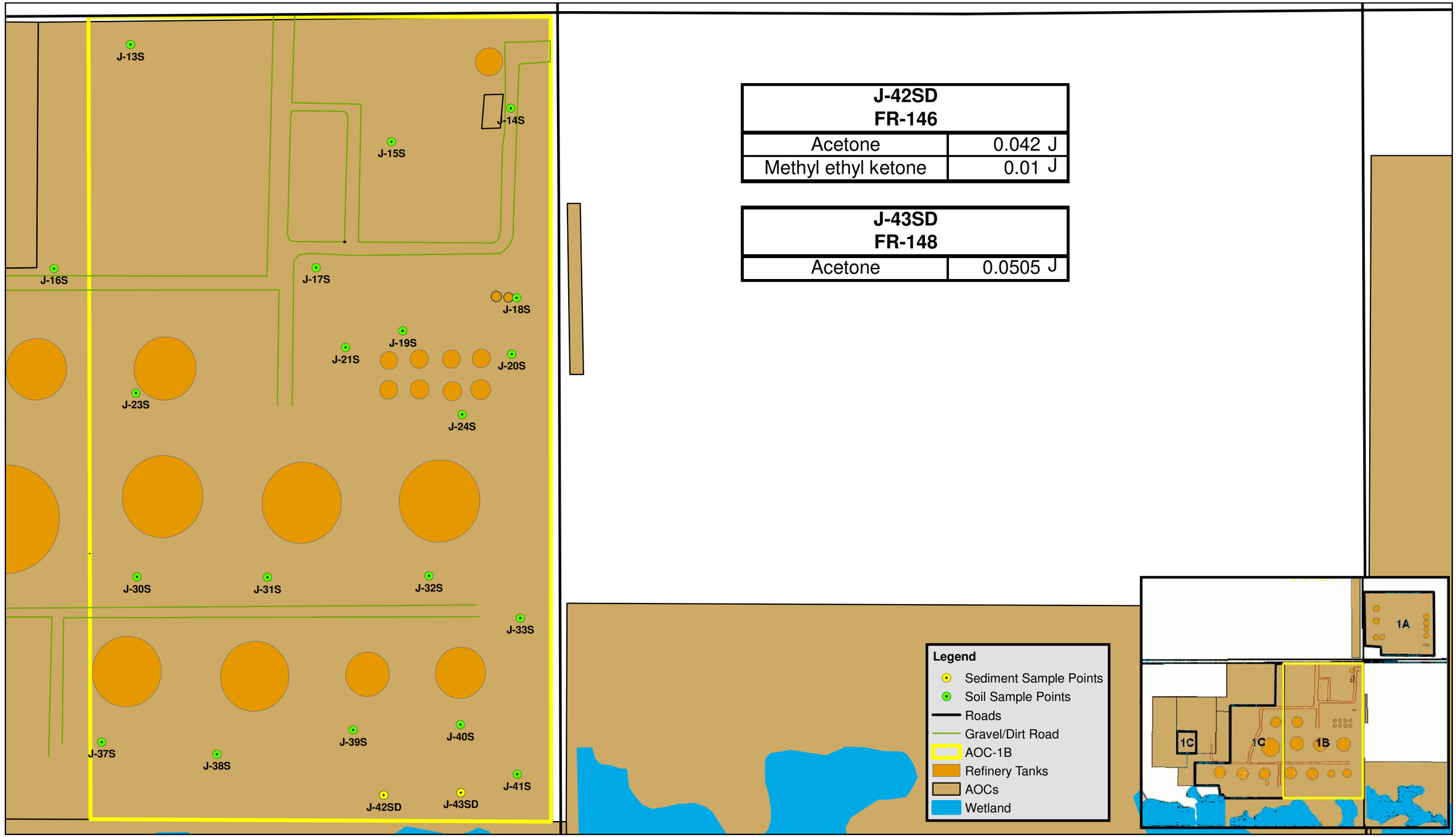
FIGURE
23A



J-42SD FR-146	
Acetone	0.042 J
Methyl ethyl ketone	0.01 J

J-43SD FR-148	
Acetone	0.0505 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
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APPROVED BY:	

AOC-1B
Ecological
VOC Sediment Distribution Map

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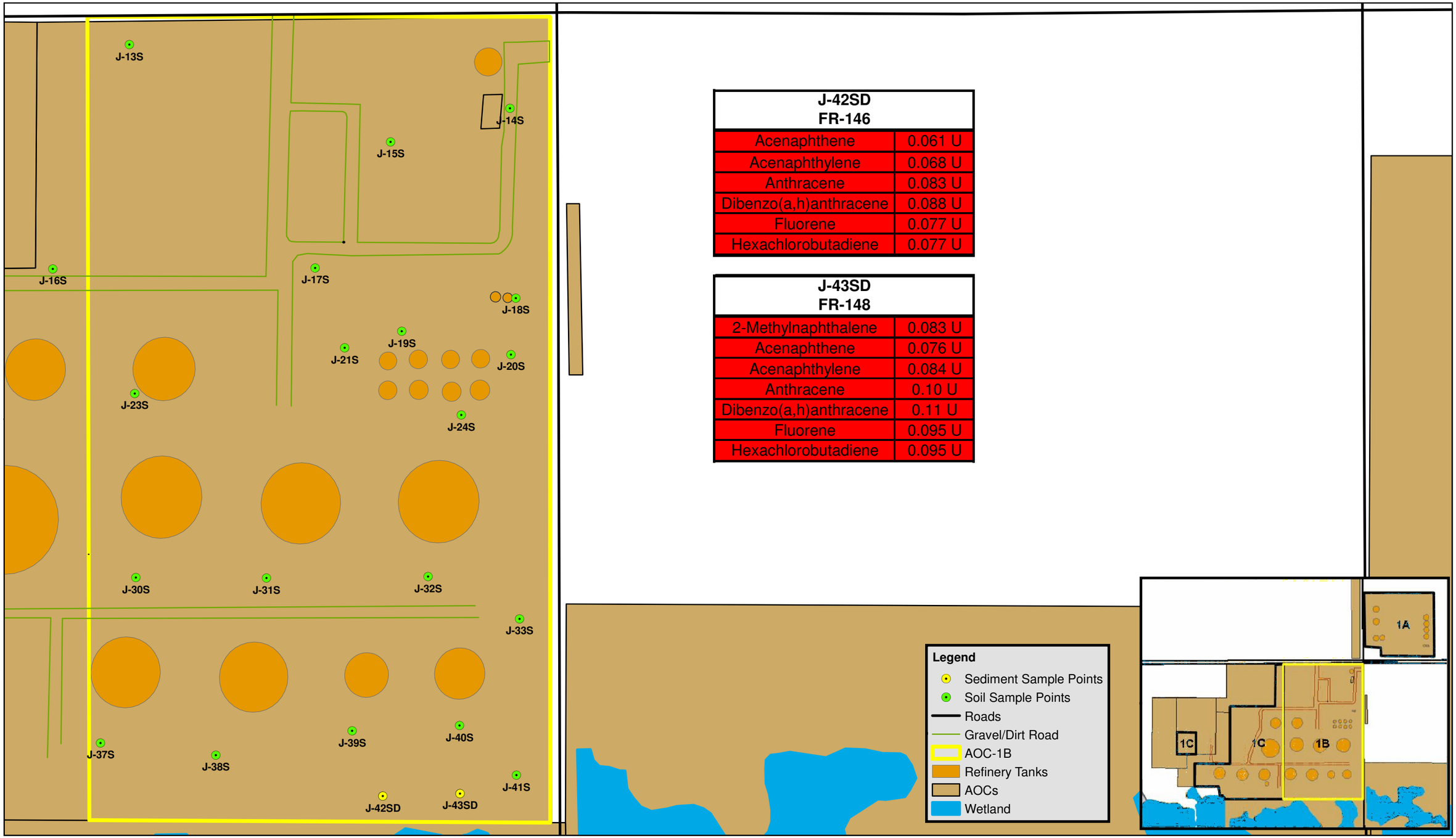
FIGURE
23B



J-42SD FR-146	
Acenaphthene	0.061 U
Acenaphthylene	0.068 U
Anthracene	0.083 U
Dibenzo(a,h)anthracene	0.088 U
Fluorene	0.077 U
Hexachlorobutadiene	0.077 U

J-43SD FR-148	
2-Methylnaphthalene	0.083 U
Acenaphthene	0.076 U
Acenaphthylene	0.084 U
Anthracene	0.10 U
Dibenzo(a,h)anthracene	0.11 U
Fluorene	0.095 U
Hexachlorobutadiene	0.095 U

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Exceeds Sediment Marine Screening Level

0 90 180
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
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AOC-1B
Ecological
SVOC Sediment Distribution Map

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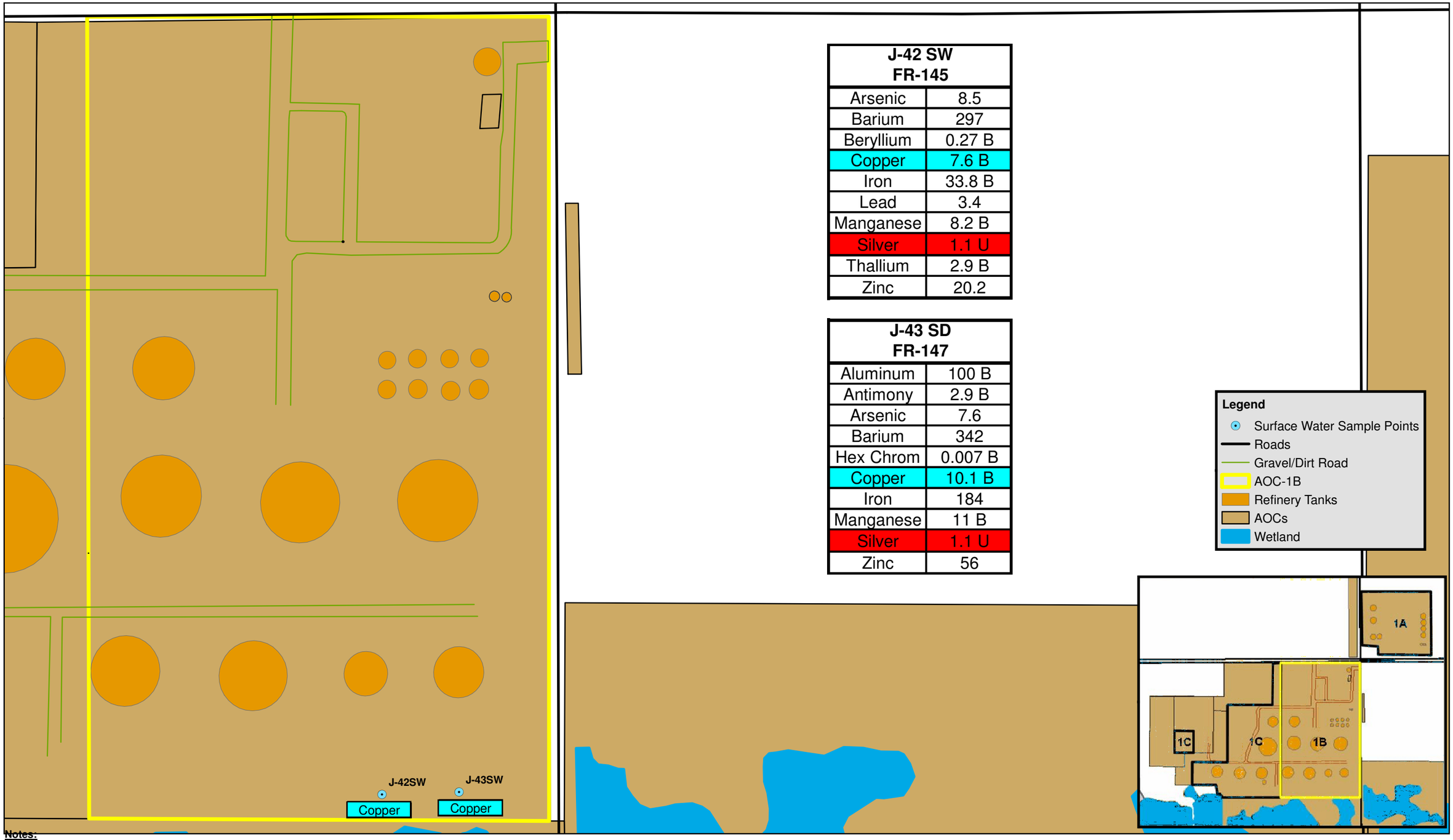
FIGURE
23C



J-42 SW FR-145	
Arsenic	8.5
Barium	297
Beryllium	0.27 B
Copper	7.6 B
Iron	33.8 B
Lead	3.4
Manganese	8.2 B
Silver	1.1 U
Thallium	2.9 B
Zinc	20.2

J-43 SD FR-147	
Aluminum	100 B
Antimony	2.9 B
Arsenic	7.6
Barium	342
Hex Chrom	0.007 B
Copper	10.1 B
Iron	184
Manganese	11 B
Silver	1.1 U
Zinc	56

Notes:

1. Results are posted in µg/l
   Hex Chrom posted in mg/l
2. Qualifiers:
   U = Undetected at the sample detection limit (SDL)
   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Above Marine Limit

Exceeds Marine Screening Level

N

0 90 180

Feet

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APPROVED BY:	

AOC-1B
Ecological
Metal Surface Water Distribution Map

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FIGURE

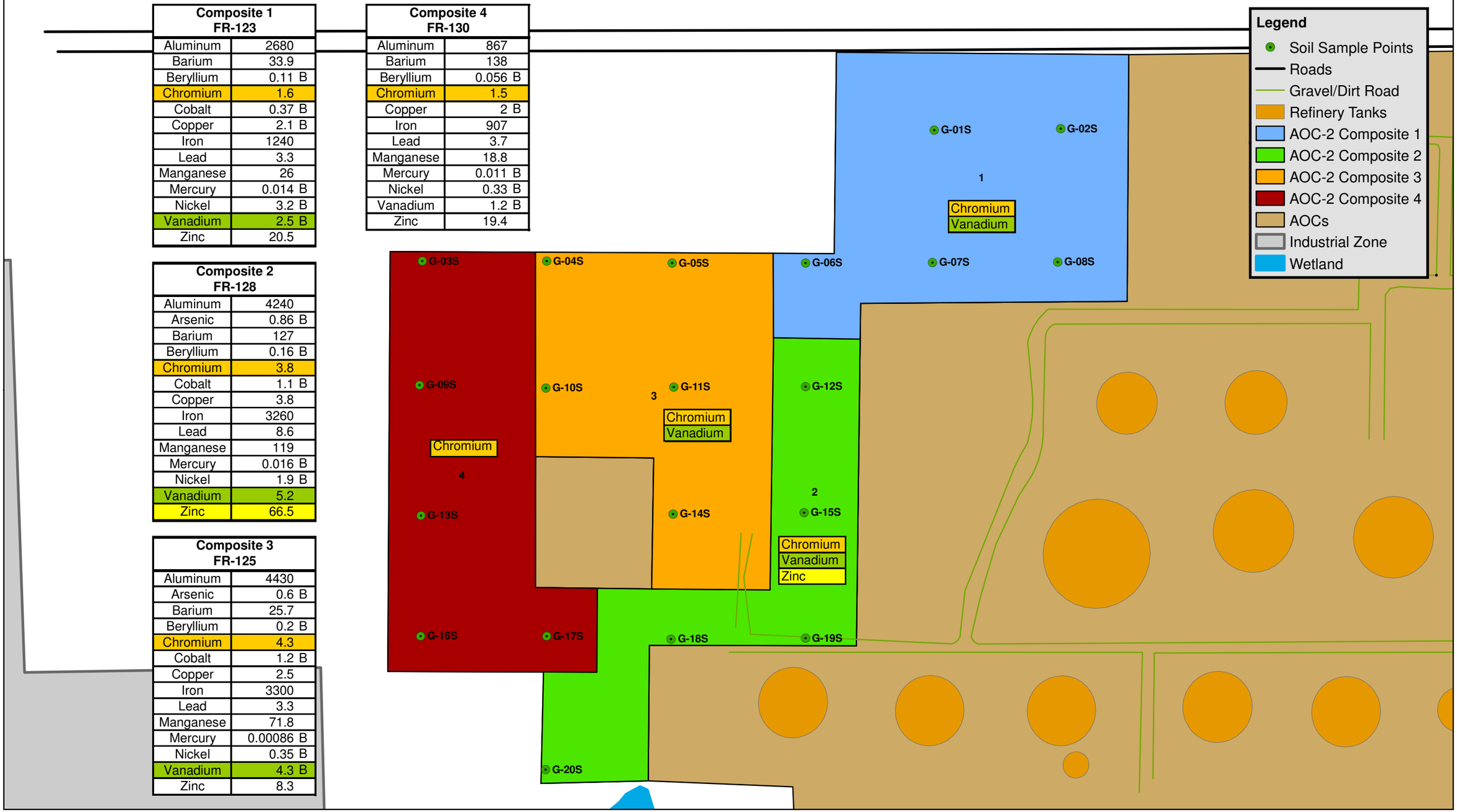
24

Composite 1 FR-123	
Aluminum	2680
Barium	33.9
Beryllium	0.11 B
Chromium	1.6
Cobalt	0.37 B
Copper	2.1 B
Iron	1240
Lead	3.3
Manganese	26
Mercury	0.014 B
Nickel	3.2 B
Vanadium	2.5 B
Zinc	20.5

Composite 4 FR-130	
Aluminum	867
Barium	138
Beryllium	0.056 B
Chromium	1.5
Copper	2 B
Iron	907
Lead	3.7
Manganese	18.8
Mercury	0.011 B
Nickel	0.33 B
Vanadium	1.2 B
Zinc	19.4

Composite 2 FR-128	
Aluminum	4240
Arsenic	0.86 B
Barium	127
Beryllium	0.16 B
Chromium	3.8
Cobalt	1.1 B
Copper	3.8
Iron	3260
Lead	8.6
Manganese	119
Mercury	0.016 B
Nickel	1.9 B
Vanadium	5.2
Zinc	66.5

Composite 3 FR-125	
Aluminum	4430
Arsenic	0.6 B
Barium	25.7
Beryllium	0.2 B
Chromium	4.3
Cobalt	1.2 B
Copper	2.5
Iron	3300
Lead	3.3
Manganese	71.8
Mercury	0.00086 B
Nickel	0.35 B
Vanadium	4.3 B
Zinc	8.3



Notes:

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2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit
Exceeds Median Background Limit
Exceeds Earthworm and Plant Limits

N

0 100 200
Feet

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APPROVED BY:	

AOC-2
Ecological
Metal Surface Soil Distribution Map

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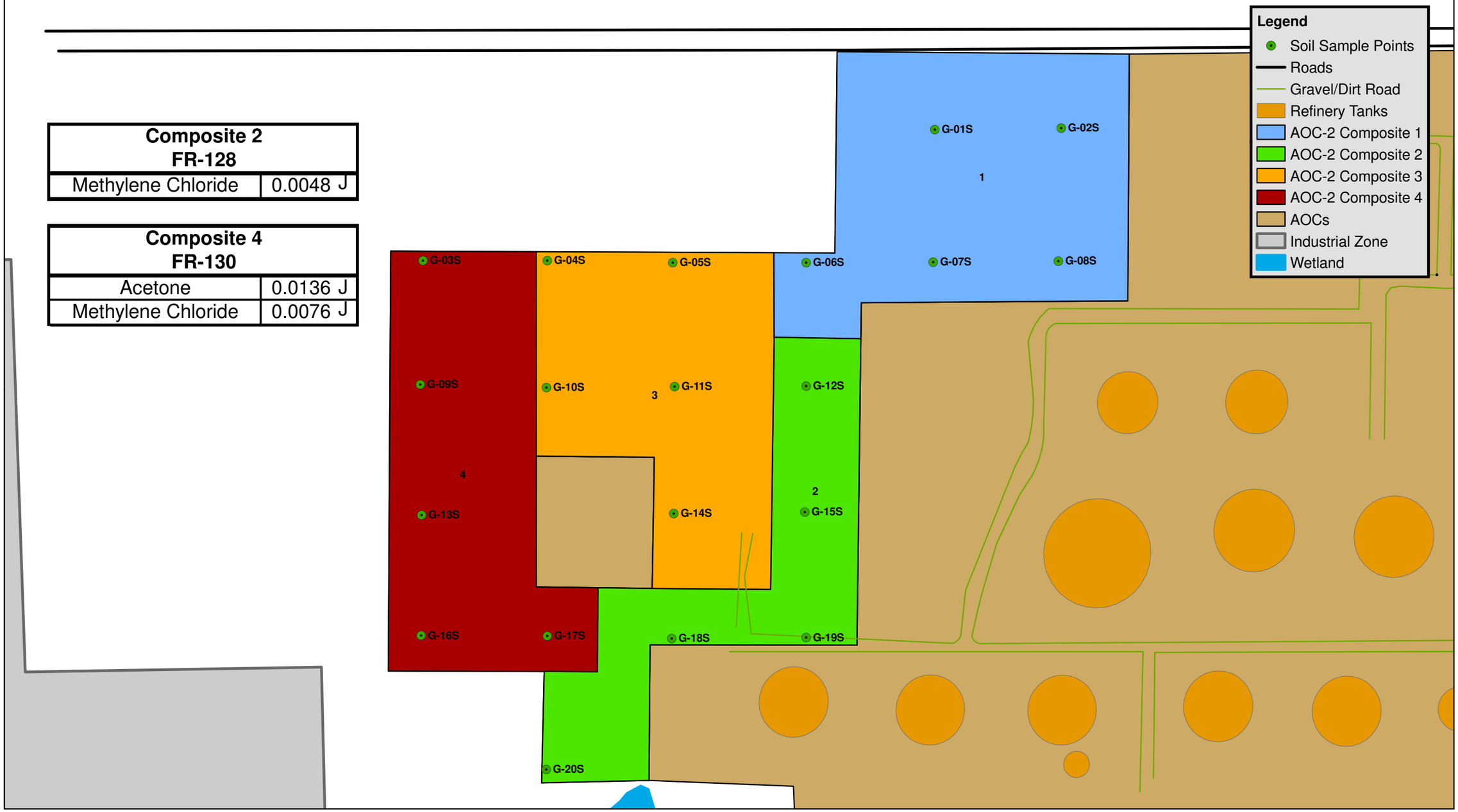
FIGURE
25A

Composite 2 FR-128	
Methylene Chloride	0.0048 J

Composite 4 FR-130	
Acetone	0.0136 J
Methylene Chloride	0.0076 J



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-2
Ecological
VOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

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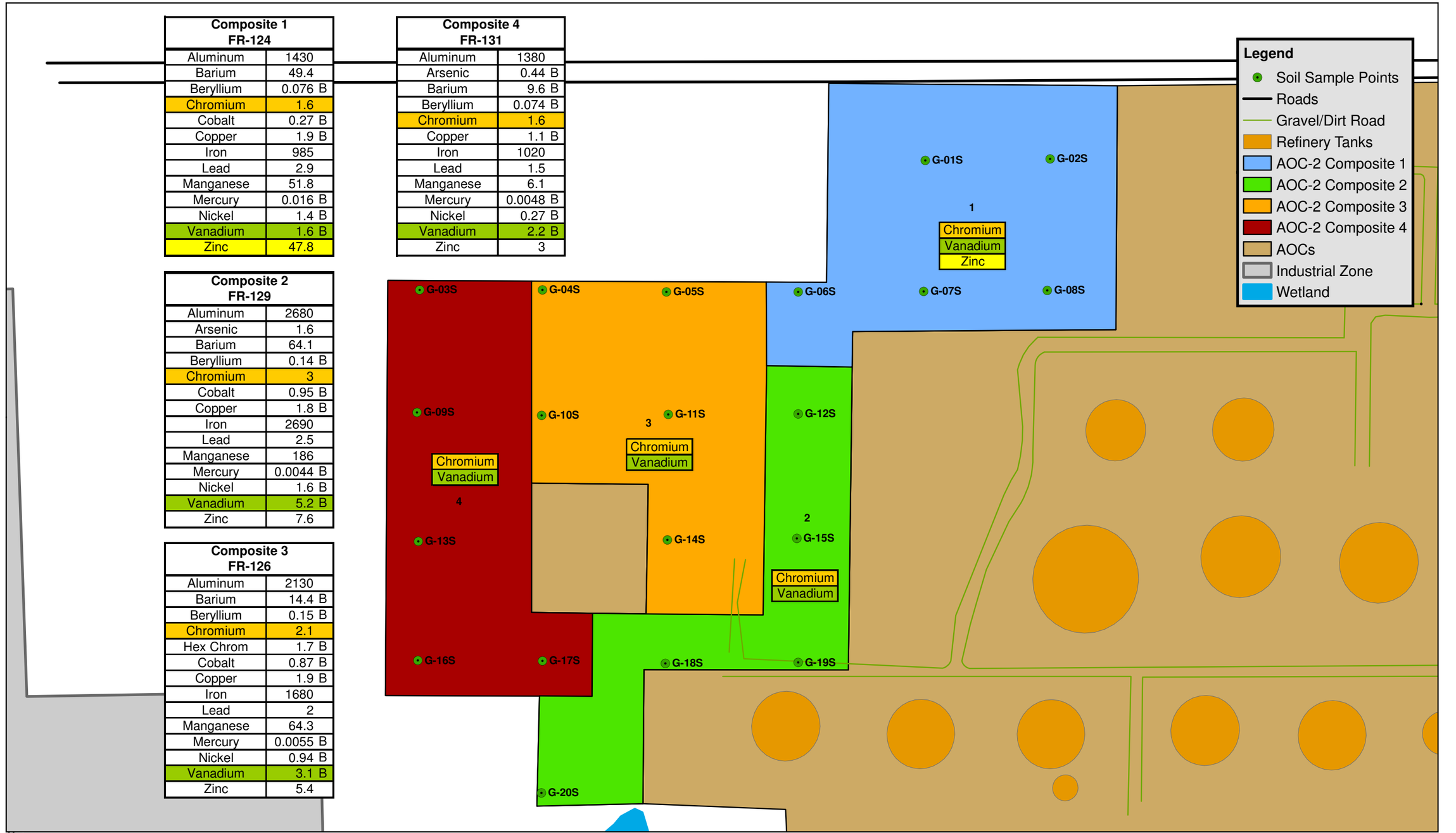
FIGURE
25B

Composite 1 FR-124	
Aluminum	1430
Barium	49.4
Beryllium	0.076 B
Chromium	1.6
Cobalt	0.27 B
Copper	1.9 B
Iron	985
Lead	2.9
Manganese	51.8
Mercury	0.016 B
Nickel	1.4 B
Vanadium	1.6 B
Zinc	47.8

Composite 4 FR-131	
Aluminum	1380
Arsenic	0.44 B
Barium	9.6 B
Beryllium	0.074 B
Chromium	1.6
Copper	1.1 B
Iron	1020
Lead	1.5
Manganese	6.1
Mercury	0.0048 B
Nickel	0.27 B
Vanadium	2.2 B
Zinc	3

Composite 2 FR-129	
Aluminum	2680
Arsenic	1.6
Barium	64.1
Beryllium	0.14 B
Chromium	3
Cobalt	0.95 B
Copper	1.8 B
Iron	2690
Lead	2.5
Manganese	186
Mercury	0.0044 B
Nickel	1.6 B
Vanadium	5.2 B
Zinc	7.6

Composite 3 FR-126	
Aluminum	2130
Barium	14.4 B
Beryllium	0.15 B
Chromium	2.1
Hex Chrom	1.7 B
Cobalt	0.87 B
Copper	1.9 B
Iron	1680
Lead	2
Manganese	64.3
Mercury	0.0055 B
Nickel	0.94 B
Vanadium	3.1 B
Zinc	5.4



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit
Exceeds Median Background Limit
Exceeds Earthworm and Plant Limits

N

0 90 180
Feet

DATE DRAWN: 4/30/08	DATE REVISED:
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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-2
Ecological
Metal Subsurface Soil Distribution Map

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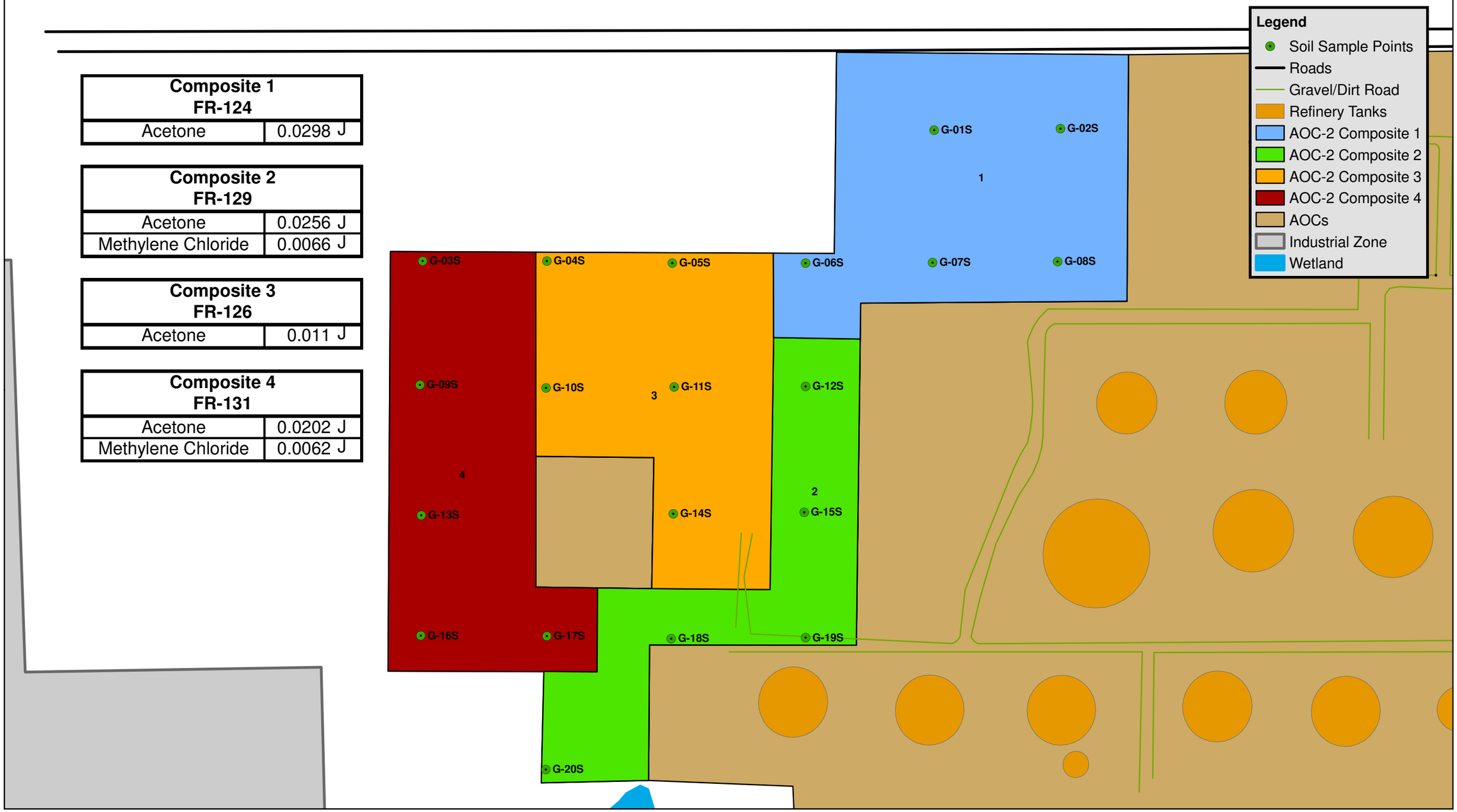
FIGURE
26A

Composite 1 FR-124	
Acetone	0.0298 J

Composite 2 FR-129	
Acetone	0.0256 J
Methylene Chloride	0.0066 J

Composite 3 FR-126	
Acetone	0.011 J

Composite 4 FR-131	
Acetone	0.0202 J
Methylene Chloride	0.0062 J



Notes:

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2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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VOC Subsurface Soil Distribution Map

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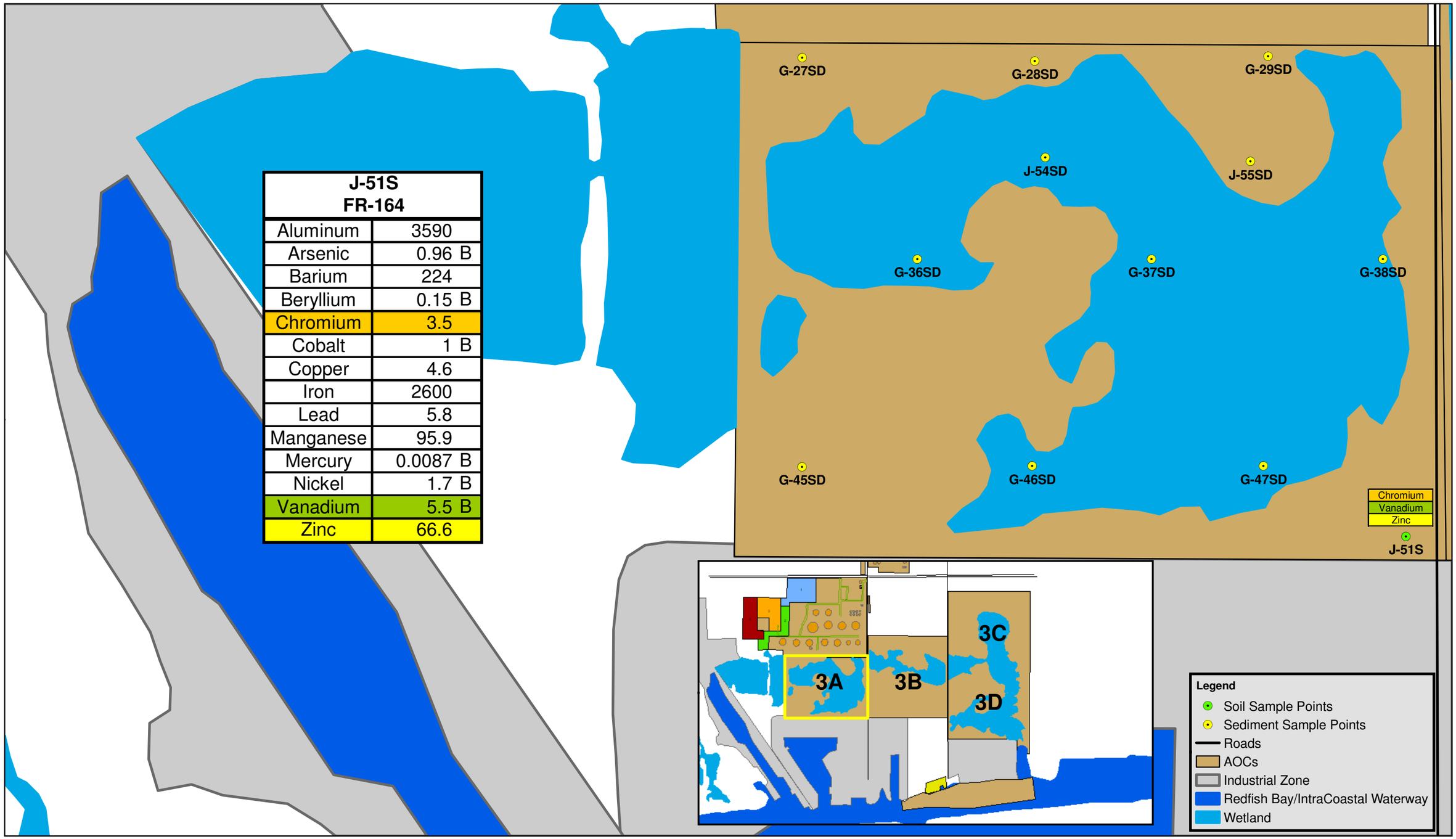
FIGURE
26B



J-51S FR-164	
Aluminum	3590
Arsenic	0.96 B
Barium	224
Beryllium	0.15 B
Chromium	3.5
Cobalt	1 B
Copper	4.6
Iron	2600
Lead	5.8
Manganese	95.9
Mercury	0.0087 B
Nickel	1.7 B
Vanadium	5.5 B
Zinc	66.6

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit
Exceeds Median Background Limit
Exceeds Earthworm and Plant Limits

N

0 100 200
Feet

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AOC-3A
Ecological
Metal Surface Soil Distribution Map

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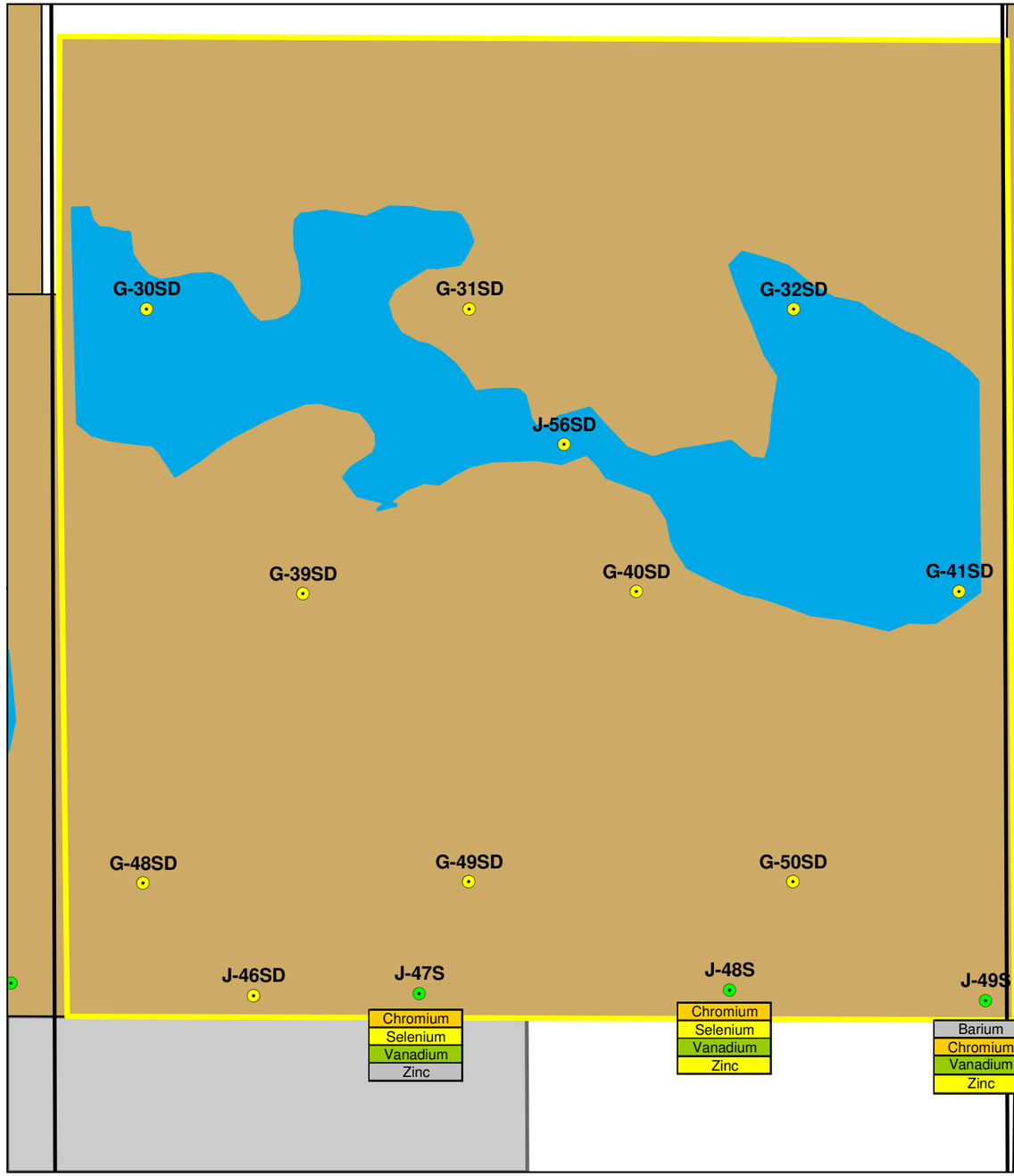
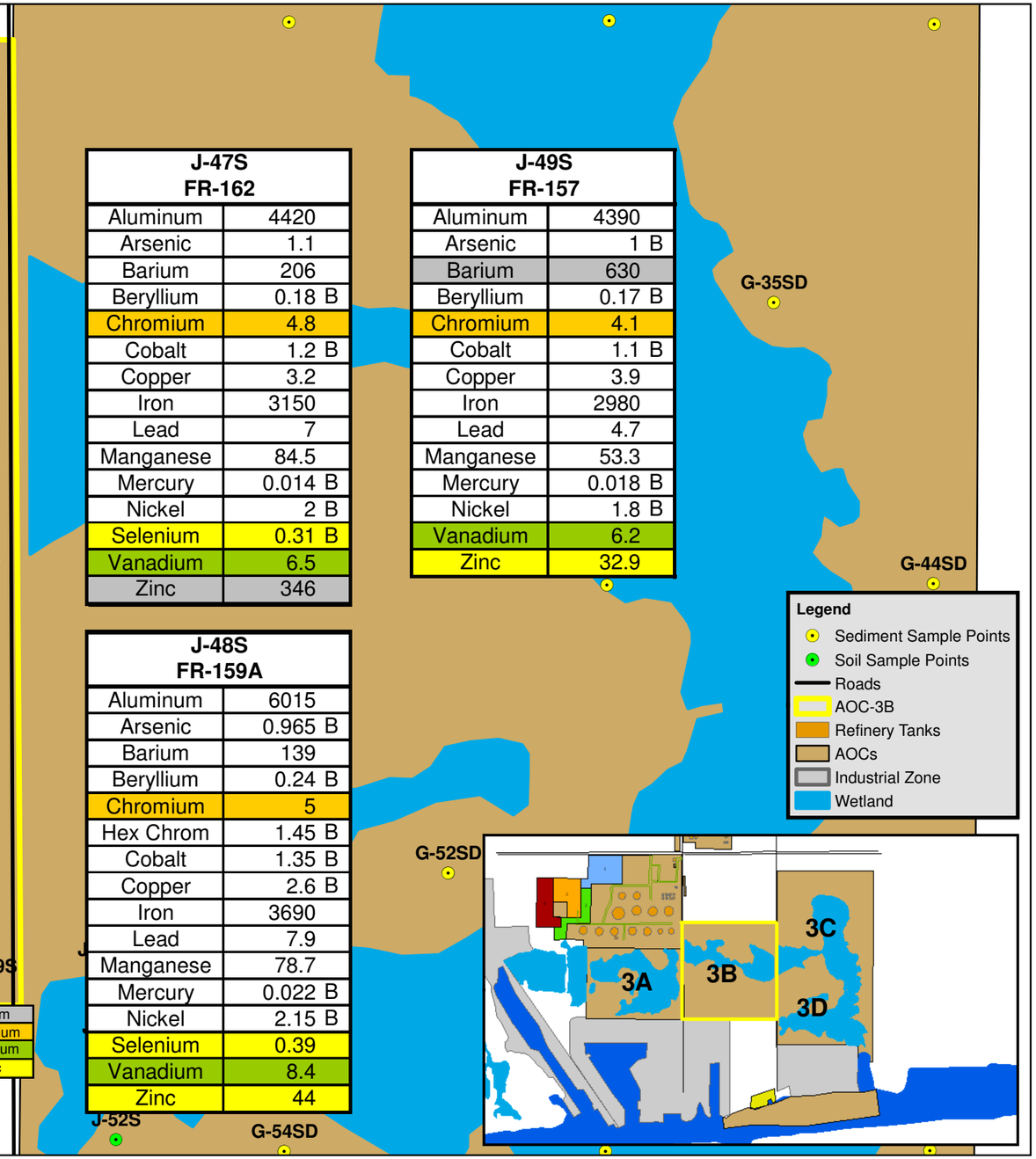
FIGURE
27A



J-47S FR-162	
Aluminum	4420
Arsenic	1.1
Barium	206
Beryllium	0.18 B
Chromium	4.8
Cobalt	1.2 B
Copper	3.2
Iron	3150
Lead	7
Manganese	84.5
Mercury	0.014 B
Nickel	2 B
Selenium	0.31 B
Vanadium	6.5
Zinc	346

J-49S FR-157	
Aluminum	4390
Arsenic	1 B
Barium	630
Beryllium	0.17 B
Chromium	4.1
Cobalt	1.1 B
Copper	3.9
Iron	2980
Lead	4.7
Manganese	53.3
Mercury	0.018 B
Nickel	1.8 B
Vanadium	6.2
Zinc	32.9

J-48S FR-159A	
Aluminum	6015
Arsenic	0.965 B
Barium	139
Beryllium	0.24 B
Chromium	5
Hex Chrom	1.45 B
Cobalt	1.35 B
Copper	2.6 B
Iron	3690
Lead	7.9
Manganese	78.7
Mercury	0.022 B
Nickel	2.15 B
Selenium	0.39
Vanadium	8.4
Zinc	44



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm, Plant, and Median Background Limits

N

0 100 200
Feet

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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3B
Ecological
Metal Surface Soil Distribution Map

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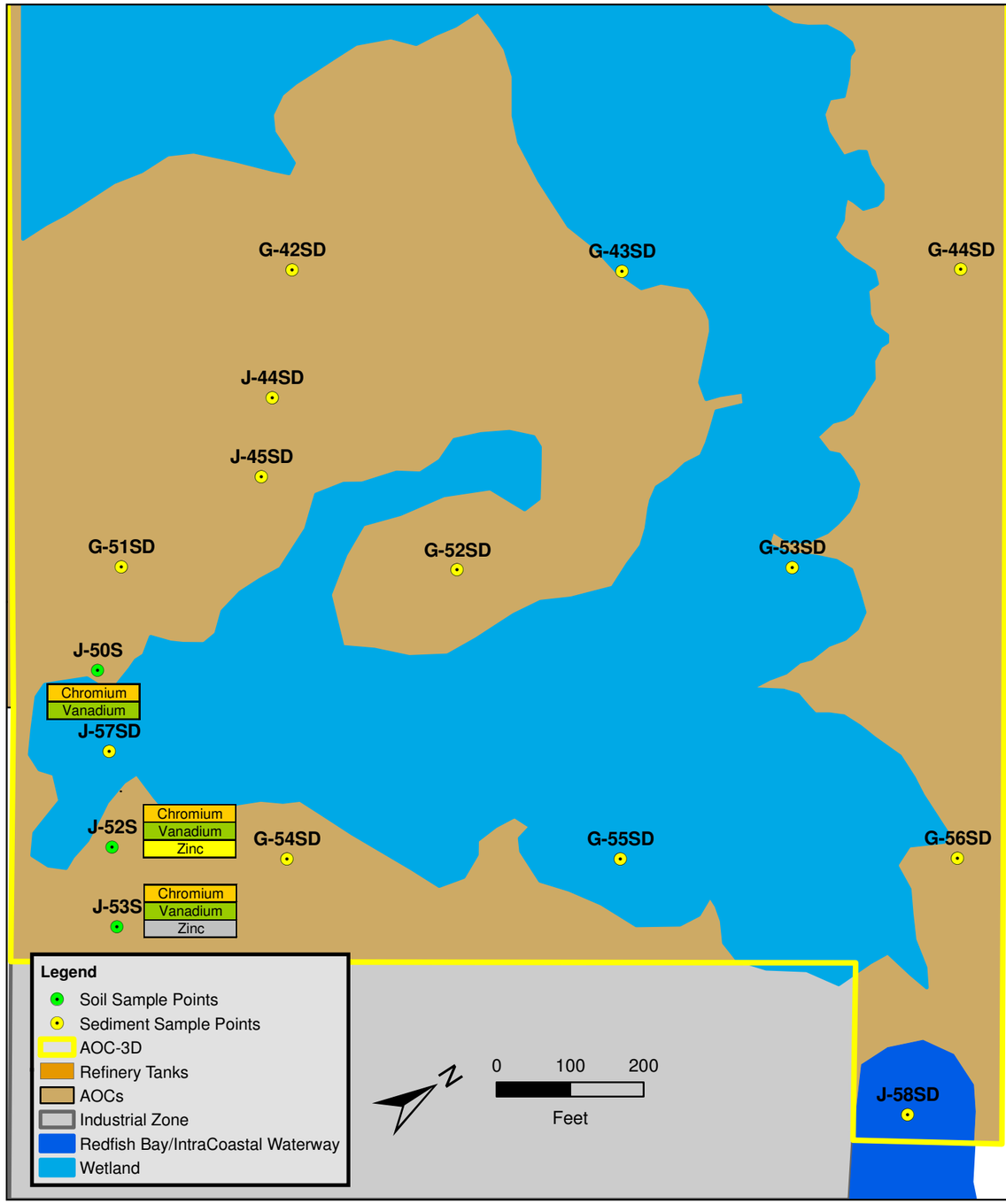
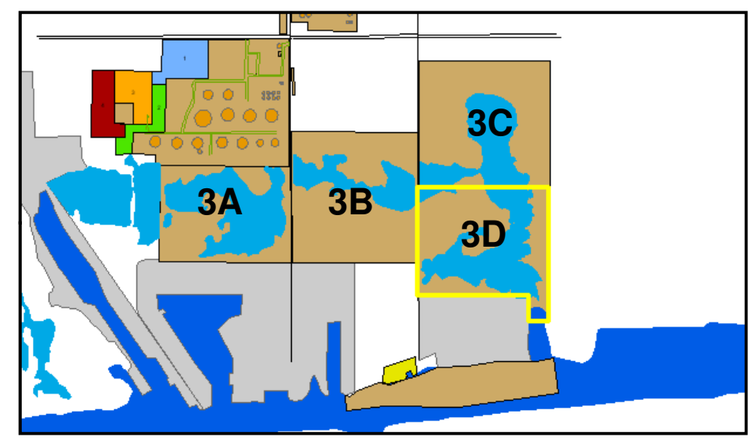
FIGURE
27B



J-50S FR-155	
Aluminum	1760
Arsenic	0.72 B
Barium	16.6 B
Beryllium	0.074 B
Chromium	1.4
Cobalt	0.36 B
Copper	2.5 B
Iron	1160
Lead	3.3
Manganese	226
Mercury	0.008 B
Nickel	0.59 B
Vanadium	2.5 B
Zinc	23.9

J-53S FR-136	
Aluminum	3420
Arsenic	2.5
Barium	74.4
Beryllium	0.21 B
Chromium	5.9
Cobalt	0.93 B
Copper	3.9
Iron	3050
Lead	13.5
Manganese	113
Mercury	0.0049 B
Nickel	2.5 B
Vanadium	6.3
Zinc	279

J-52S FR-138	
Aluminum	4590
Arsenic	1 B
Barium	37.9
Beryllium	0.23 B
Chromium	3.6
Cobalt	0.92 B
Copper	4.2
Iron	2450
Lead	4.5
Manganese	100
Mercury	0.008 B
Nickel	2.1 B
Selenium	0.32 U
Vanadium	6.1 B
Zinc	32.8



Notes:

1. Results are posted in mg/kg
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm, Plant, and Median Background Limits
- SDL Exceeds Median Background Screening Level

DATE DRAWN: 7/8/08	DATE REVISED:
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APPROVED BY:	

AOC-3D
Ecological
Metal Surface Soil Distribution Map

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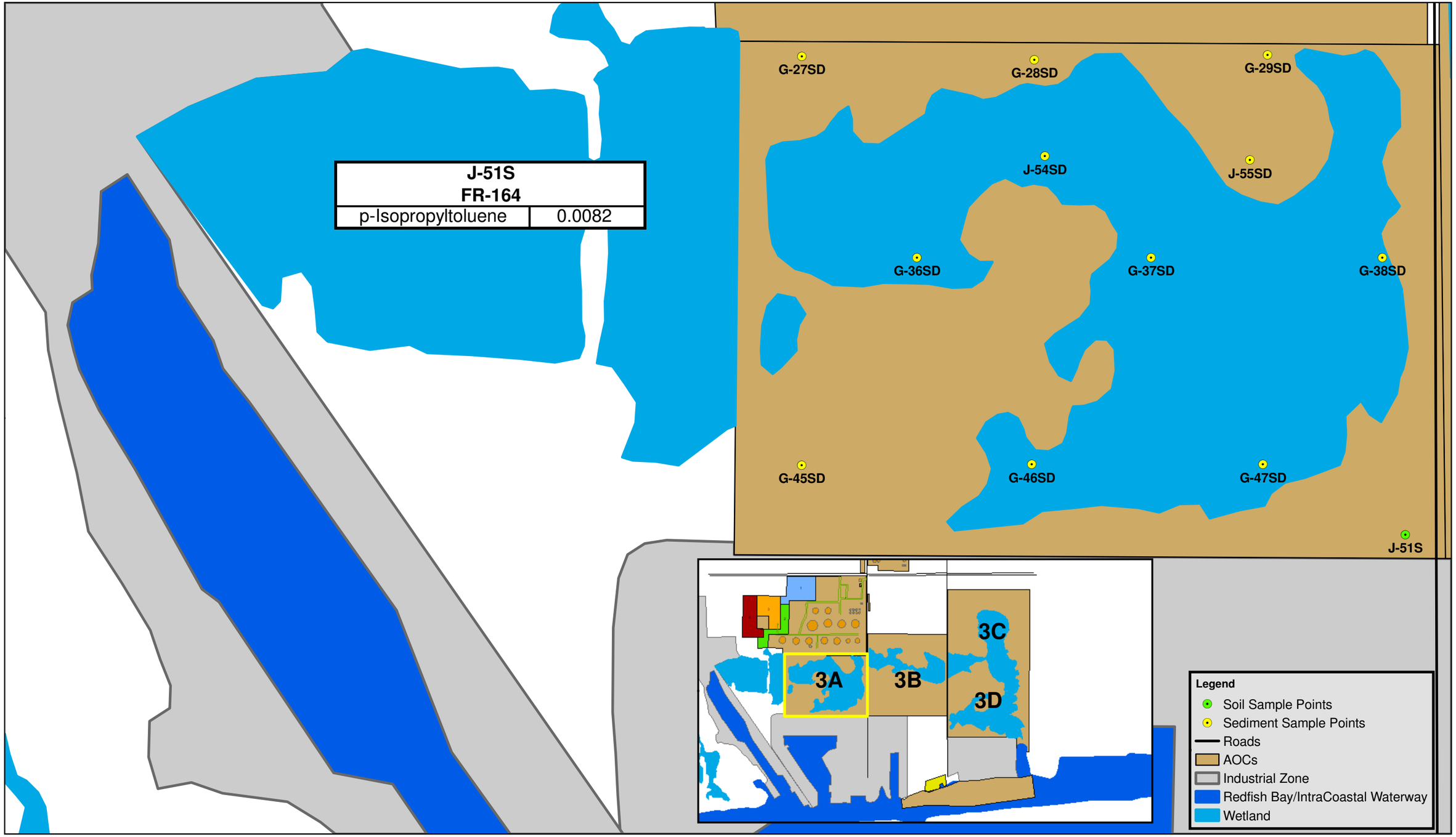
FIGURE
27C



Notes:

1. Results are posted in mg/kg

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3A
Ecological
VOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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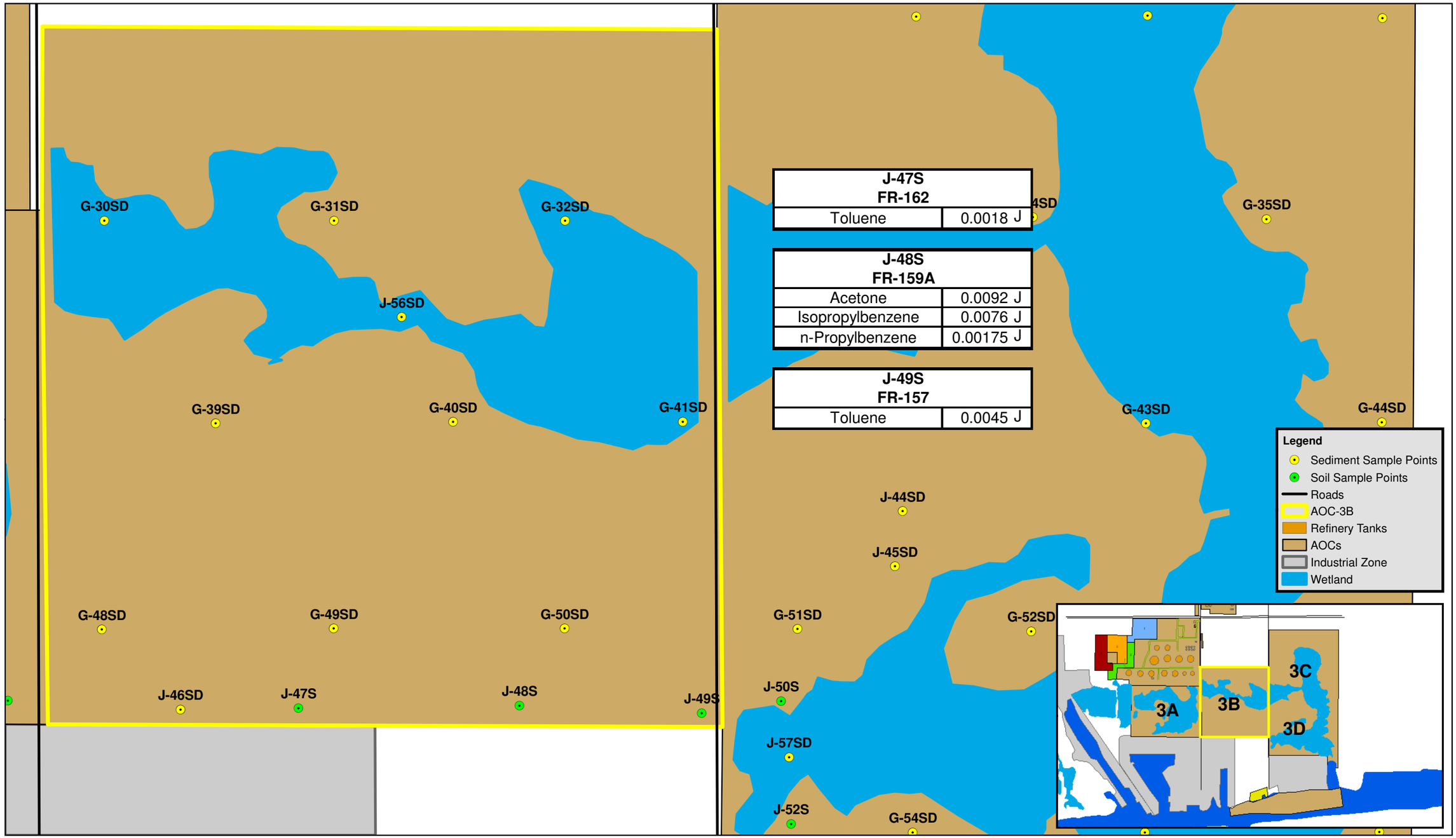
FIGURE
27D



J-47S FR-162	
Toluene	0.0018 J

J-48S FR-159A	
Acetone	0.0092 J
Isopropylbenzene	0.0076 J
n-Propylbenzene	0.00175 J

J-49S FR-157	
Toluene	0.0045 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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AOC-3B
Ecological
VOC Surface Soil Distribution Map

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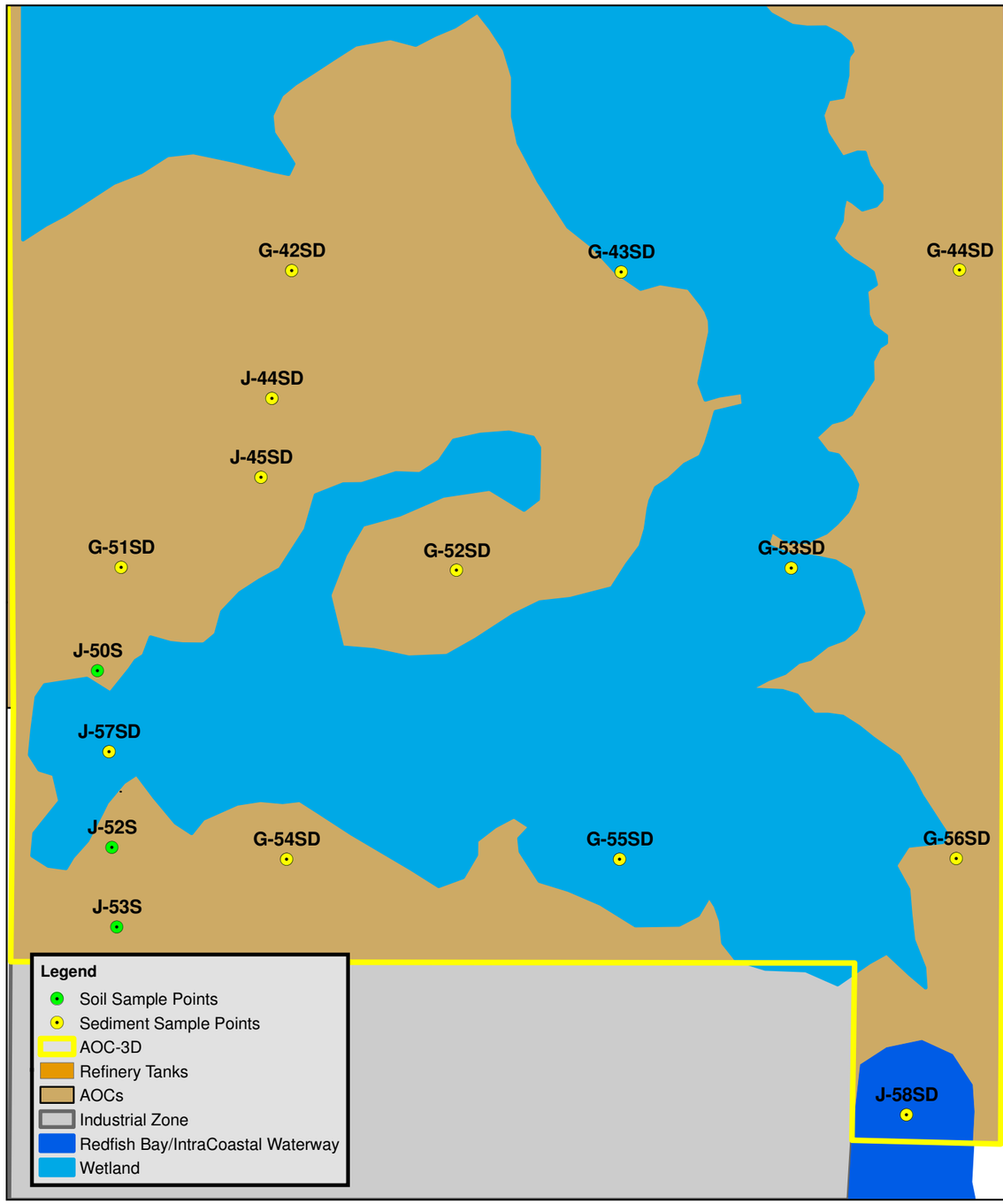
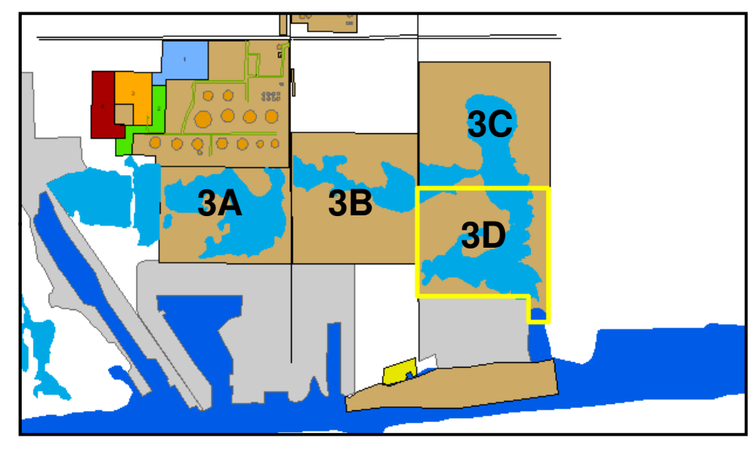
FIGURE
27E



J-50S FR-155	
Toluene	0.0021 J

J-52S FR-138	
p-Isopropyltoluene	0.0019 J

J-53S FR-136	
Methylene chloride	0.0052 J



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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AOC-3D
Ecological
VOC Surface Soil Distribution Map

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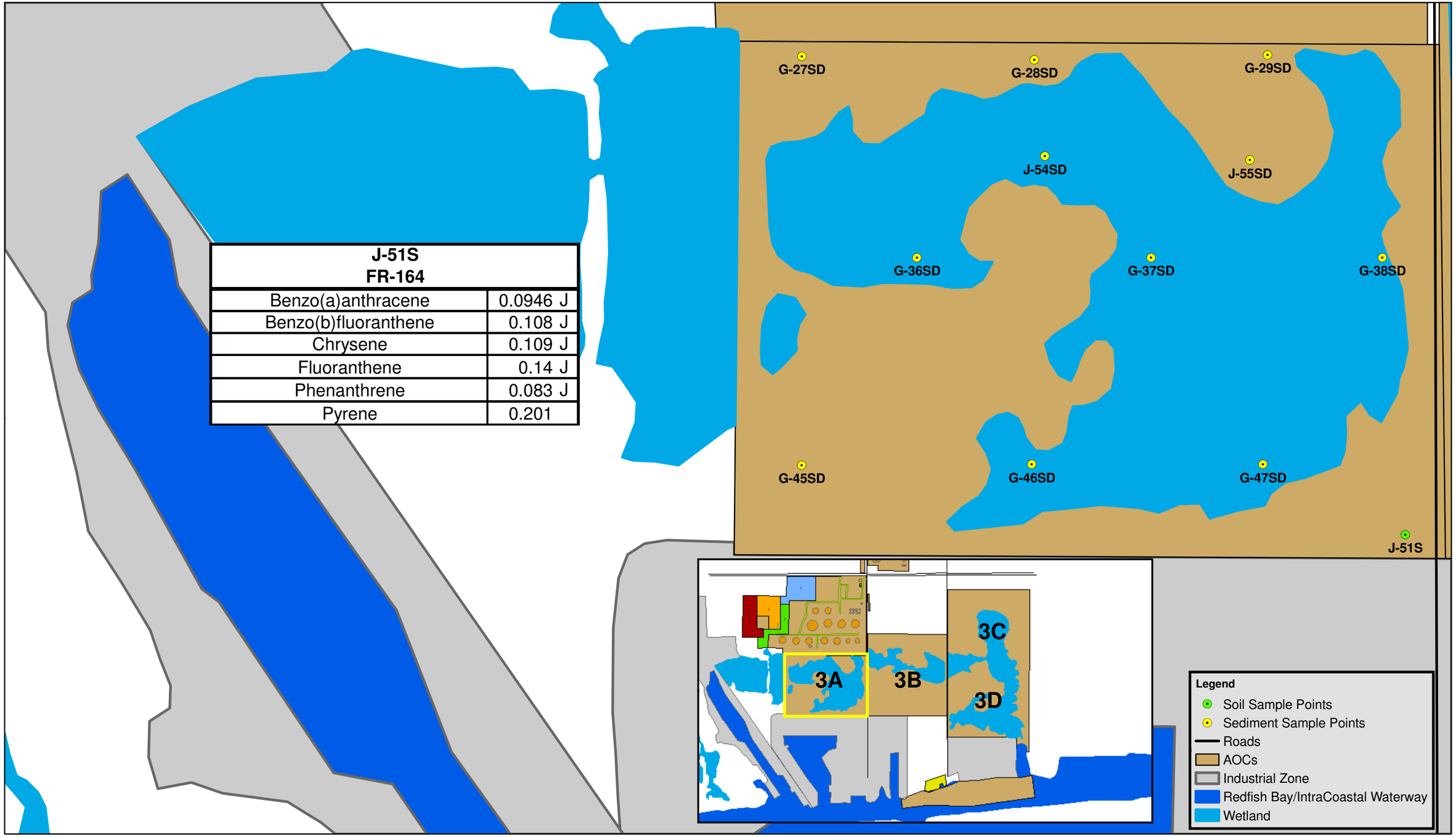
FIGURE
27F



J-51S FR-164	
Benzo(a)anthracene	0.0946 J
Benzo(b)fluoranthene	0.108 J
Chrysene	0.109 J
Fluoranthene	0.14 J
Phenanthrene	0.083 J
Pyrene	0.201

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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APPROVED BY:	

AOC-3A
Ecological
SVOC Surface Soil Distribution Map

FALCON REFINERY
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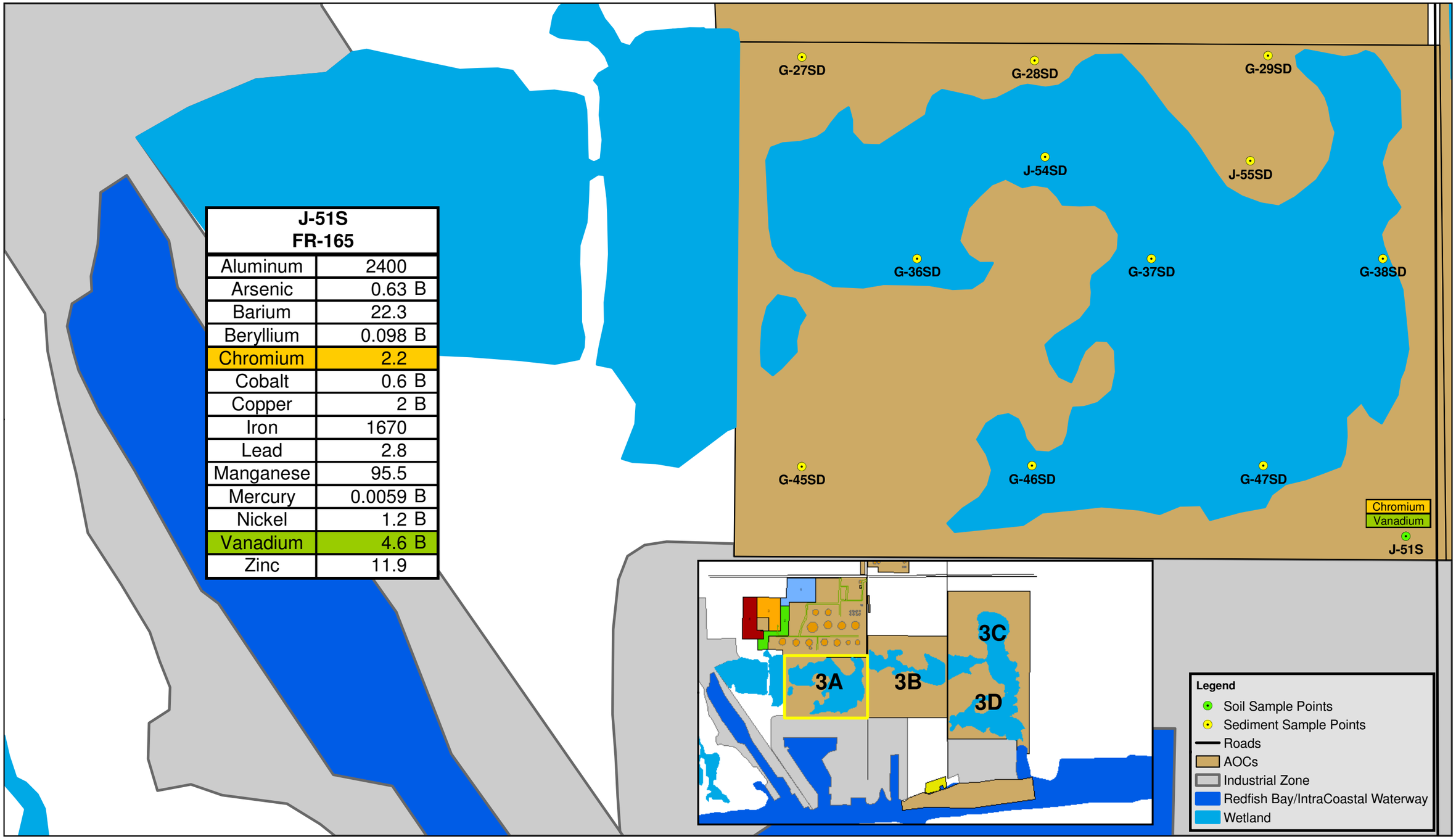
FIGURE
27G



J-51S FR-165	
Aluminum	2400
Arsenic	0.63 B
Barium	22.3
Beryllium	0.098 B
Chromium	2.2
Cobalt	0.6 B
Copper	2 B
Iron	1670
Lead	2.8
Manganese	95.5
Mercury	0.0059 B
Nickel	1.2 B
Vanadium	4.6 B
Zinc	11.9

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit

Exceeds Earthworm and Plant Limits

N

0 110 220

Feet

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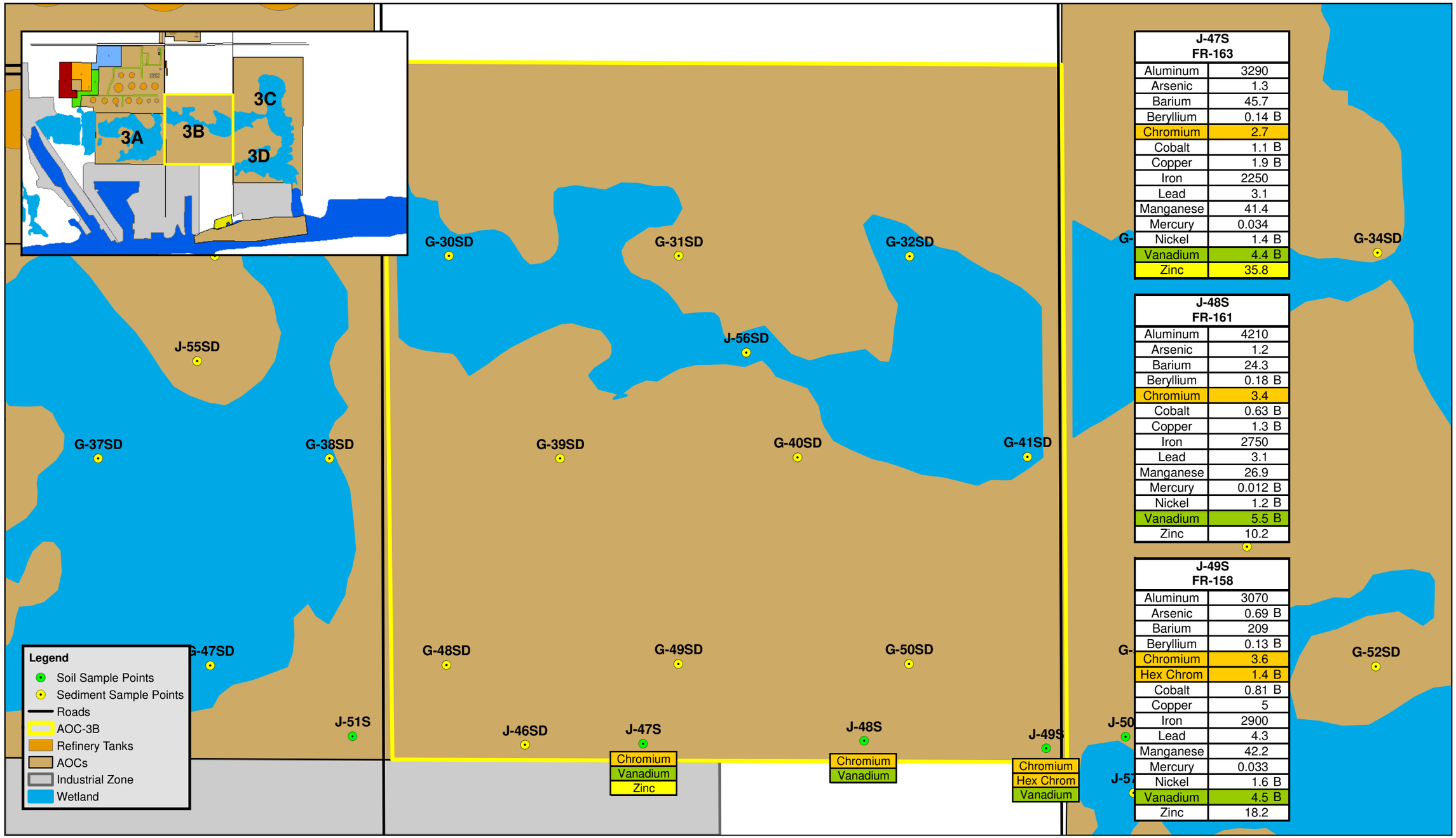
FIGURE

28A



J-47S FR-163	
Aluminum	3290
Arsenic	1.3
Barium	45.7
Beryllium	0.14 B
Chromium	2.7
Cobalt	1.1 B
Copper	1.9 B
Iron	2250
Lead	3.1
Manganese	41.4
Mercury	0.034
Nickel	1.4 B
Vanadium	4.4 B
Zinc	35.8

J-48S FR-161	
Aluminum	4210
Arsenic	1.2
Barium	24.3
Beryllium	0.18 B
Chromium	3.4
Cobalt	0.63 B
Copper	1.3 B
Iron	2750
Lead	3.1
Manganese	26.9
Mercury	0.012 B
Nickel	1.2 B
Vanadium	5.5 B
Zinc	10.2

J-49S FR-158	
Aluminum	3070
Arsenic	0.69 B
Barium	209
Beryllium	0.13 B
Chromium	3.6
Hex Chrom	1.4 B
Cobalt	0.81 B
Copper	5
Iron	2900
Lead	4.3
Manganese	42.2
Mercury	0.033
Nickel	1.6 B
Vanadium	4.5 B
Zinc	18.2

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit
Exceeds Median Background Limit
Exceeds Earthworm and Plant Limits

0 110 220
Feet

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APPROVED BY:	

AOC-3B
Ecological
Metal Subsurface Soil Distribution Map

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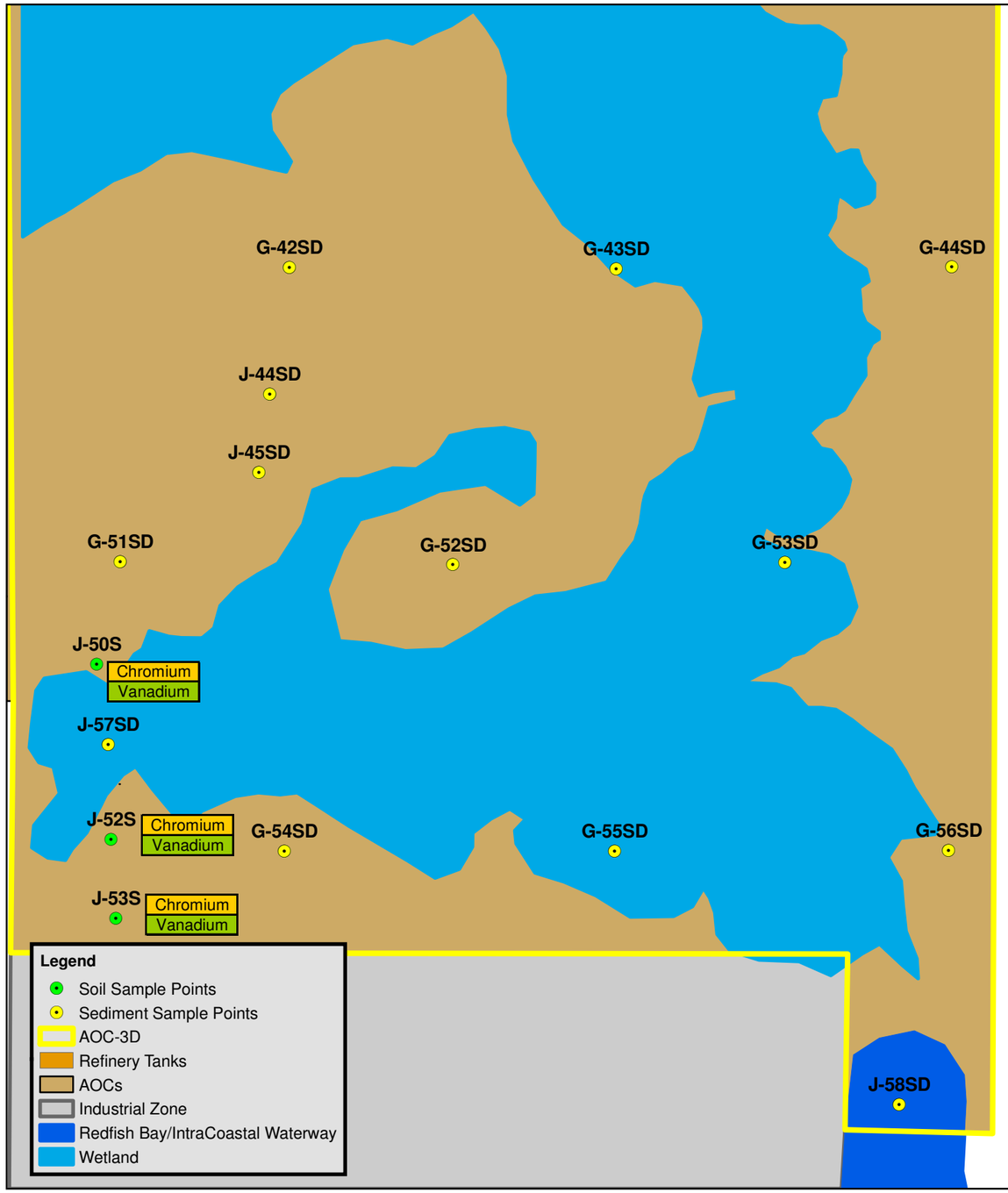
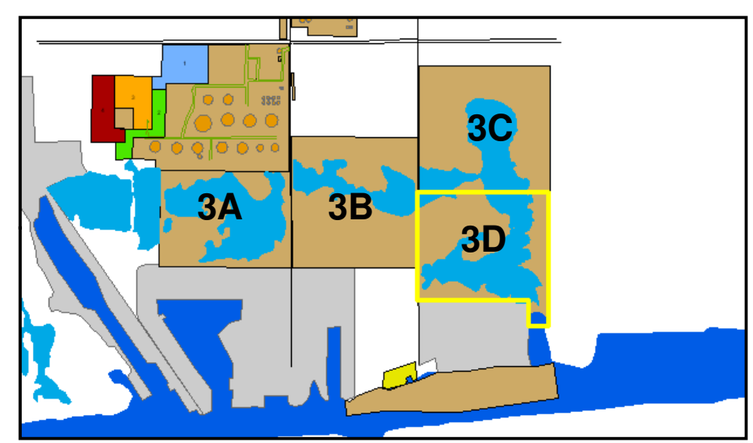
FIGURE
28B



J-50S FR-156	
Aluminum	4600
Arsenic	0.52 B
Barium	45.5
Beryllium	0.19 B
Chromium	3.2
Cobalt	1.1 B
Copper	2.6 B
Iron	3060
Lead	2.7
Manganese	76.3
Mercury	0.0065 B
Nickel	1.8 B
Vanadium	5.1 B
Zinc	13.7

J-53S FR-137	
Aluminum	4260
Arsenic	2.4
Barium	17.9 B
Beryllium	0.2 B
Chromium	3.9
Cobalt	0.88 B
Copper	2.3 B
Iron	2680
Lead	2.5
Manganese	113
Mercury	0.002 B
Nickel	2.3 B
Vanadium	7.9
Zinc	17.5

J-52S FR-139	
Aluminum	3570
Arsenic	1.1 B
Barium	21.6 B
Beryllium	0.19 B
Chromium	4
Cobalt	0.8 B
Copper	2 B
Iron	2300
Lead	2.4
Manganese	114
Mercury	0.0023 B
Nickel	1.9 B
Vanadium	5.3 B
Zinc	8.9



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit

Exceeds Earthworm and Plant Limits

N

0 110 220

Feet

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APPROVED BY:	

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FIGURE

28C

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200

Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3A
Ecological
VOC Subsurface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
Bright People. Right Solutions.
3601 Manor Road, Austin, Texas 78723
Phone: 512-926-6650 Fax: 512-926-3312
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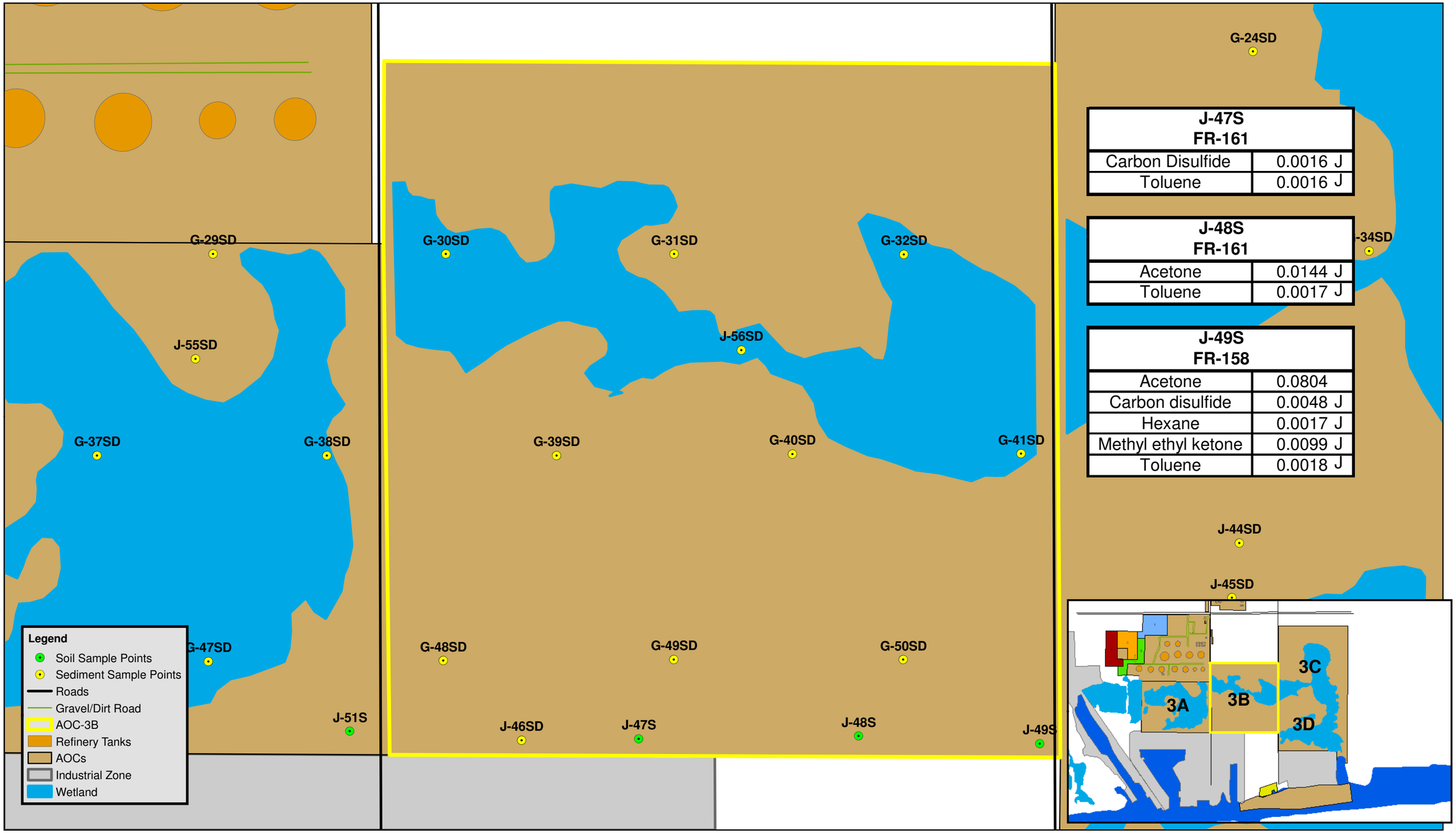
FIGURE

28D



J-47S FR-161	
Carbon Disulfide	0.0016 J
Toluene	0.0016 J

J-48S FR-161	
Acetone	0.0144 J
Toluene	0.0017 J

J-49S FR-158	
Acetone	0.0804
Carbon disulfide	0.0048 J
Hexane	0.0017 J
Methyl ethyl ketone	0.0099 J
Toluene	0.0018 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the sample detection limit (SDL) but less than the method

N

0 90 180
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3B
Ecological
VOC Subsurface Soil Distribution Map

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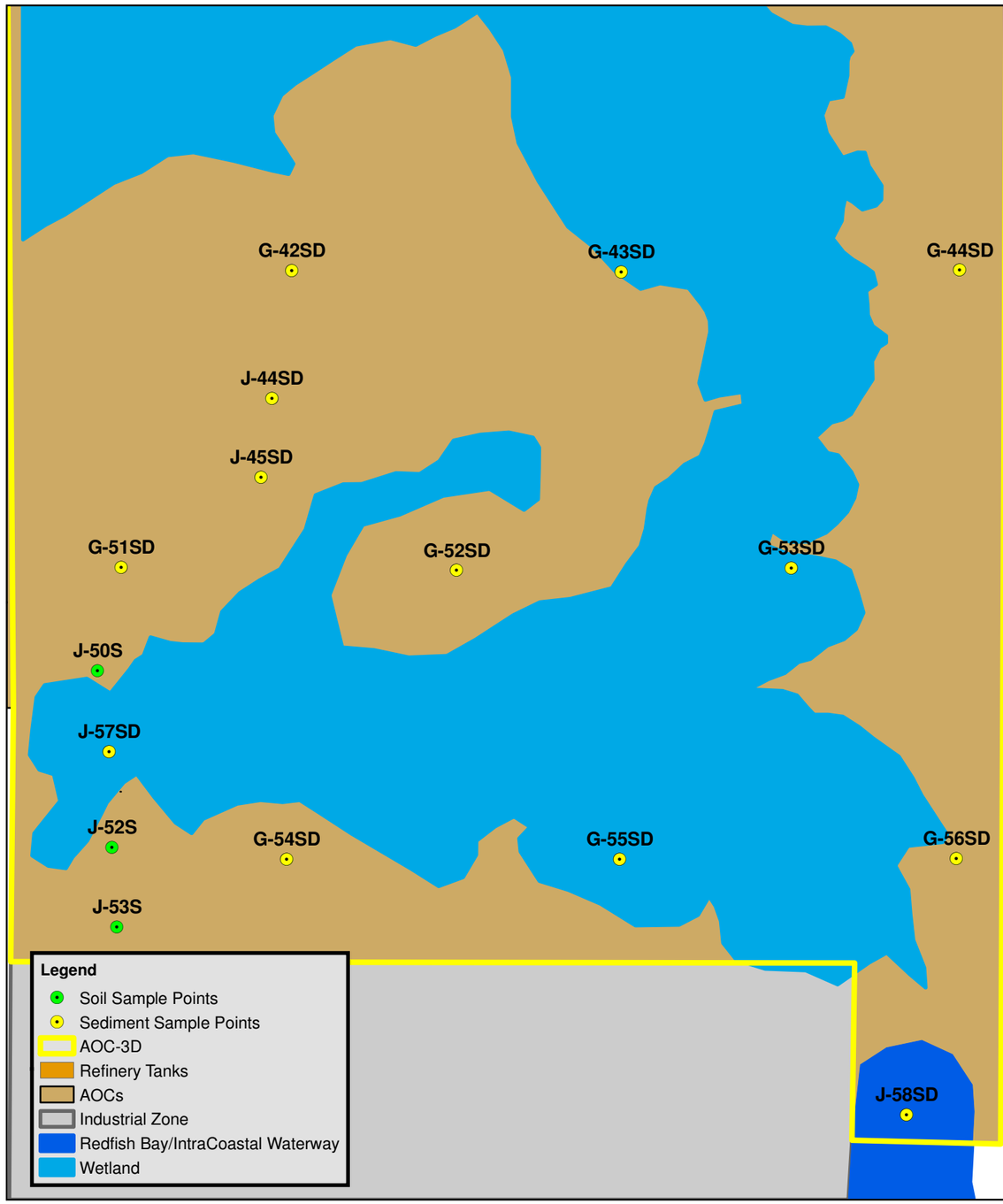
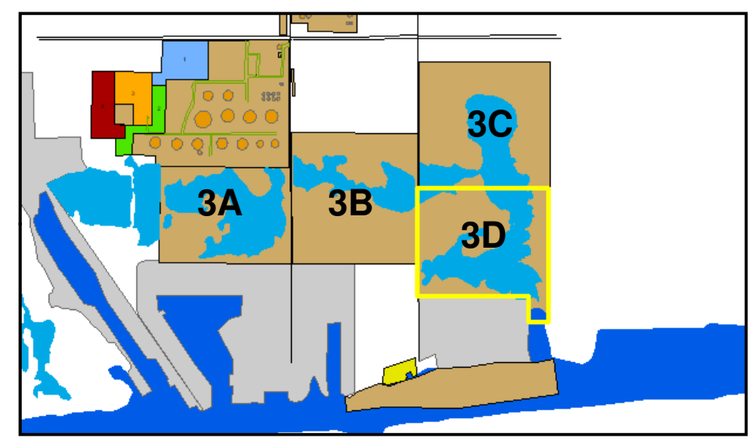
FIGURE
28E



J-50S FR-156	
Acetone	0.0164 J
Toluene	0.0017 J

J-52S FR-139	
Acetone	0.0165 J
Carbon disulfide	0.0023 J

J-53S FR-137	
Acetone	0.0094 J



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N

0 100 200
Feet

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AOC-3D
Ecological
VOC Subsurface Soil Distribution Map

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FIGURE
28F

G-27SD FR-141	
Aluminum	2390
Arsenic	1.6
Barium	514
Beryllium	0.11 B
Chromium	2.4
Cobalt	0.95 B
Copper	2.8
Iron	2260
Lead	4.2
Manganese	77
Nickel	1.3 B
Vanadium	6
Zinc	29.6

G-28SD FR-142A	
Aluminum	6165
Arsenic	1.6
Barium	118
Beryllium	0.225 B
Chromium	4.45
Cobalt	1.4 B
Copper	2.95
Iron	3990
Lead	6.7
Manganese	100.6
Mercury	0.00335 B
Nickel	2.45 B
Selenium	1.065
Vanadium	9.6
Zinc	32.25

G-29SD FR-144	
Aluminum	1490
Arsenic	1.7
Barium	63.9
Beryllium	0.064 B
Chromium	1.3
Cobalt	0.46 B
Copper	2.6 B
Iron	1190
Lead	2.4
Manganese	54.9
Nickel	0.83 B
Vanadium	3 B
Zinc	34.5

G-36SD FR-168	
Aluminum	11700
Arsenic	3.3
Barium	211
Beryllium	0.43 B
Chromium	9.2
Cobalt	2.8 B
Copper	7.7
Iron	7580
Lead	11.9
Manganese	352
Mercury	0.021 B
Nickel	5.4
Vanadium	16.1
Zinc	119

G-37SD FR-170	
Aluminum	10300
Arsenic	4.7
Barium	277
Beryllium	0.4 B
Chromium	9.4
Cobalt	2.5 B
Copper	8
Iron	6910
Lead	12.4
Manganese	270
Mercury	0.015 B
Nickel	4.9 B
Vanadium	16.8
Zinc	187

G-38SD FR-171	
Aluminum	5620
Arsenic	2.4
Barium	404
Beryllium	0.21 B
Chromium	5.7
Cobalt	1.4 B
Copper	4.2
Iron	3830
Lead	10.6
Manganese	177
Mercury	0.0085 B
Nickel	2.7 B
Selenium	0.34 B
Vanadium	8.3
Zinc	122

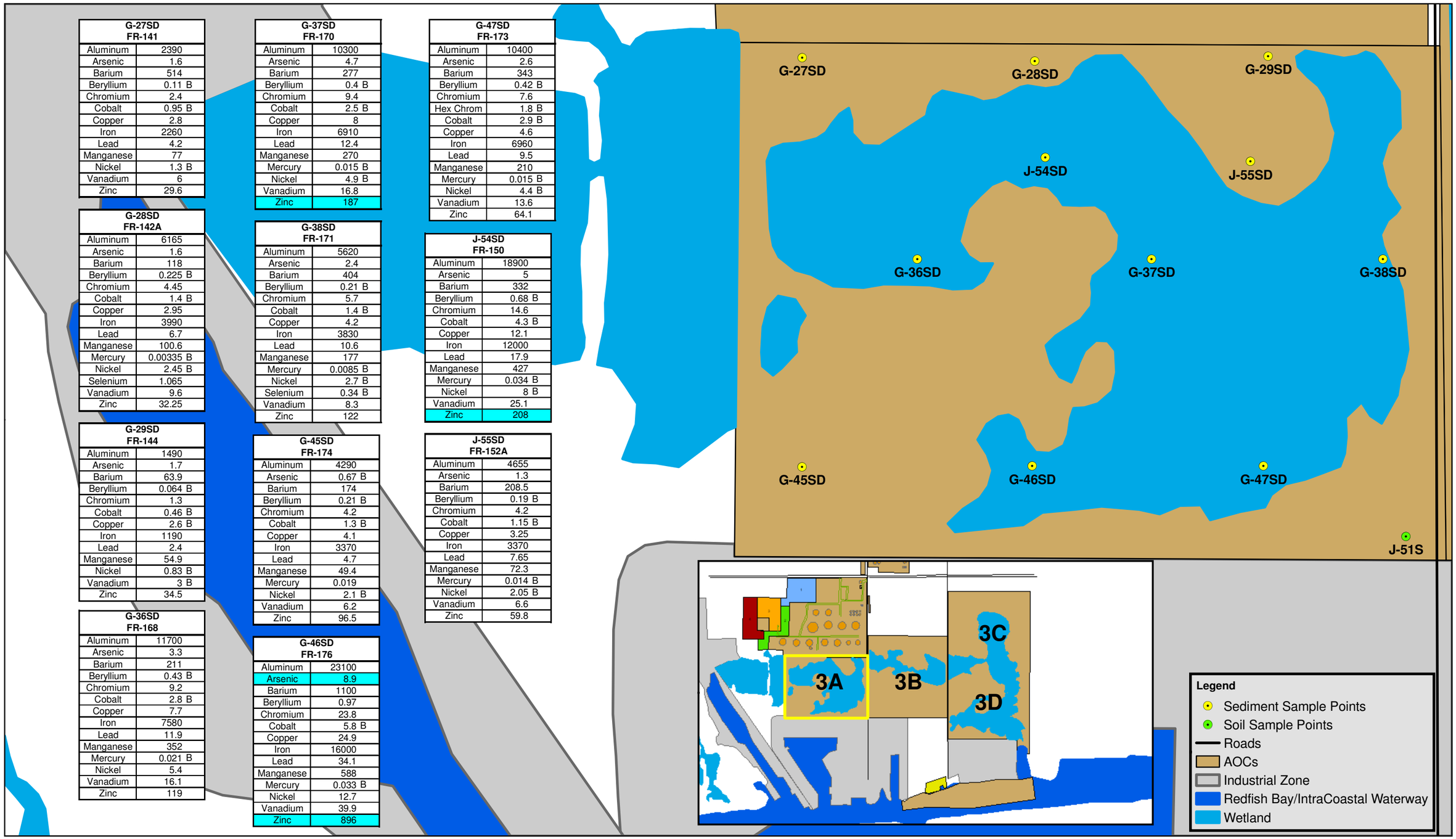
G-45SD FR-174	
Aluminum	4290
Arsenic	0.67 B
Barium	174
Beryllium	0.21 B
Chromium	4.2
Cobalt	1.3 B
Copper	4.1
Iron	3370
Lead	4.7
Manganese	49.4
Mercury	0.019
Nickel	2.1 B
Vanadium	6.2
Zinc	96.5

G-46SD FR-176	
Aluminum	23100
Arsenic	8.9
Barium	1100
Beryllium	0.97
Chromium	23.8
Cobalt	5.8 B
Copper	24.9
Iron	16000
Lead	34.1
Manganese	588
Mercury	0.033 B
Nickel	12.7
Vanadium	39.9
Zinc	896

G-47SD FR-173	
Aluminum	10400
Arsenic	2.6
Barium	343
Beryllium	0.42 B
Chromium	7.6
Hex Chrom	1.8 B
Cobalt	2.9 B
Copper	4.6
Iron	6960
Lead	9.5
Manganese	210
Mercury	0.015 B
Nickel	4.4 B
Vanadium	13.6
Zinc	64.1

J-54SD FR-150	
Aluminum	18900
Arsenic	5
Barium	332
Beryllium	0.68 B
Chromium	14.6
Cobalt	4.3 B
Copper	12.1
Iron	12000
Lead	17.9
Manganese	427
Mercury	0.034 B
Nickel	8 B
Vanadium	25.1
Zinc	208

J-55SD FR-152A	
Aluminum	4655
Arsenic	1.3
Barium	208.5
Beryllium	0.19 B
Chromium	4.2
Cobalt	1.15 B
Copper	3.25
Iron	3370
Lead	7.65
Manganese	72.3
Mercury	0.014 B
Nickel	2.05 B
Vanadium	6.6
Zinc	59.8



Notes:

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Above Sediment Marine Limit

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3A
Ecological
Metal Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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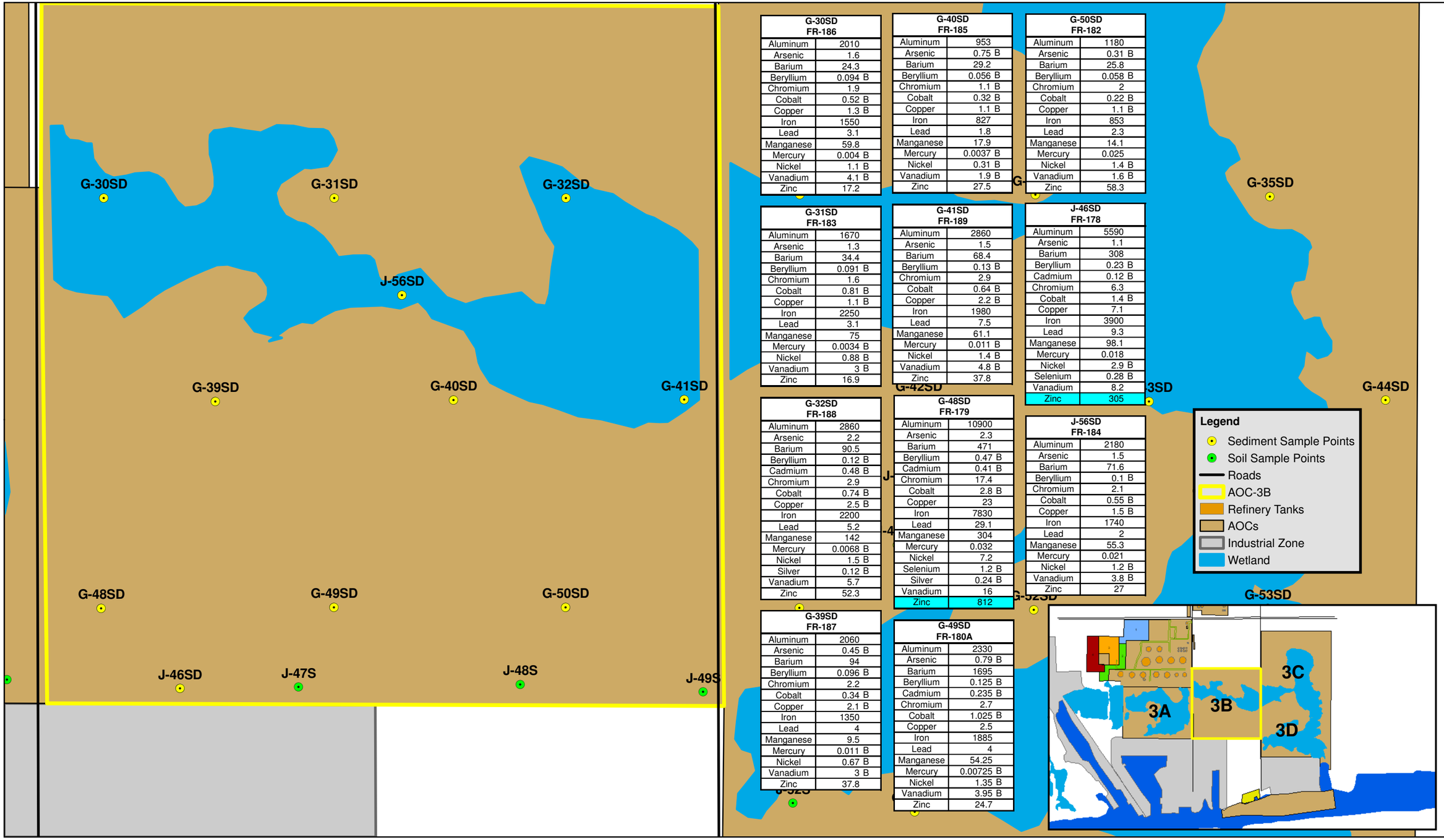
FIGURE
29A



G-30SD FR-186	
Aluminum	2010
Arsenic	1.6
Barium	24.3
Beryllium	0.094 B
Chromium	1.9
Cobalt	0.52 B
Copper	1.3 B
Iron	1550
Lead	3.1
Manganese	59.8
Mercury	0.004 B
Nickel	1.1 B
Vanadium	4.1 B
Zinc	17.2

G-40SD FR-185	
Aluminum	953
Arsenic	0.75 B
Barium	29.2
Beryllium	0.056 B
Chromium	1.1 B
Cobalt	0.32 B
Copper	1.1 B
Iron	827
Lead	1.8
Manganese	17.9
Mercury	0.0037 B
Nickel	0.31 B
Vanadium	1.9 B
Zinc	27.5

G-50SD FR-182	
Aluminum	1180
Arsenic	0.31 B
Barium	25.8
Beryllium	0.058 B
Chromium	2
Cobalt	0.22 B
Copper	1.1 B
Iron	853
Lead	2.3
Manganese	14.1
Mercury	0.025
Nickel	1.4 B
Vanadium	1.6 B
Zinc	58.3

G-31SD FR-183	
Aluminum	1670
Arsenic	1.3
Barium	34.4
Beryllium	0.091 B
Chromium	1.6
Cobalt	0.81 B
Copper	1.1 B
Iron	2250
Lead	3.1
Manganese	75
Mercury	0.0034 B
Nickel	0.88 B
Vanadium	3 B
Zinc	16.9

G-41SD FR-189	
Aluminum	2860
Arsenic	1.5
Barium	68.4
Beryllium	0.13 B
Chromium	2.9
Cobalt	0.64 B
Copper	2.2 B
Iron	1980
Lead	7.5
Manganese	61.1
Mercury	0.011 B
Nickel	1.4 B
Vanadium	4.8 B
Zinc	37.8

J-46SD FR-178	
Aluminum	5590
Arsenic	1.1
Barium	308
Beryllium	0.23 B
Cadmium	0.12 B
Chromium	6.3
Cobalt	1.4 B
Copper	7.1
Iron	3900
Lead	9.3
Manganese	98.1
Mercury	0.018
Nickel	2.9 B
Selenium	0.28 B
Vanadium	8.2
Zinc	305

G-32SD FR-188	
Aluminum	2860
Arsenic	2.2
Barium	90.5
Beryllium	0.12 B
Cadmium	0.48 B
Chromium	2.9
Cobalt	0.74 B
Copper	2.5 B
Iron	2200
Lead	5.2
Manganese	142
Mercury	0.0068 B
Nickel	1.5 B
Silver	0.12 B
Vanadium	5.7
Zinc	52.3

G-48SD FR-179	
Aluminum	10900
Arsenic	2.3
Barium	471
Beryllium	0.47 B
Cadmium	0.41 B
Chromium	17.4
Cobalt	2.8 B
Copper	23
Iron	7830
Lead	29.1
Manganese	304
Mercury	0.032
Nickel	7.2
Selenium	1.2 B
Silver	0.24 B
Vanadium	16
Zinc	812

J-56SD FR-184	
Aluminum	2180
Arsenic	1.5
Barium	71.6
Beryllium	0.1 B
Chromium	2.1
Cobalt	0.55 B
Copper	1.5 B
Iron	1740
Lead	2
Manganese	55.3
Mercury	0.021
Nickel	1.2 B
Vanadium	3.8 B
Zinc	27

G-39SD FR-187	
Aluminum	2060
Arsenic	0.45 B
Barium	94
Beryllium	0.096 B
Chromium	2.2
Cobalt	0.34 B
Copper	2.1 B
Iron	1350
Lead	4
Manganese	9.5
Mercury	0.011 B
Nickel	0.67 B
Vanadium	3 B
Zinc	37.8

G-49SD FR-180A	
Aluminum	2330
Arsenic	0.79 B
Barium	1695
Beryllium	0.125 B
Cadmium	0.235 B
Chromium	2.7
Cobalt	1.025 B
Copper	2.5
Iron	1885
Lead	4
Manganese	54.25
Mercury	0.00725 B
Nickel	1.35 B
Vanadium	3.95 B
Zinc	24.7

Notes:

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Above Sediment Marine Limit

0 110 220
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3B Ecological Metal Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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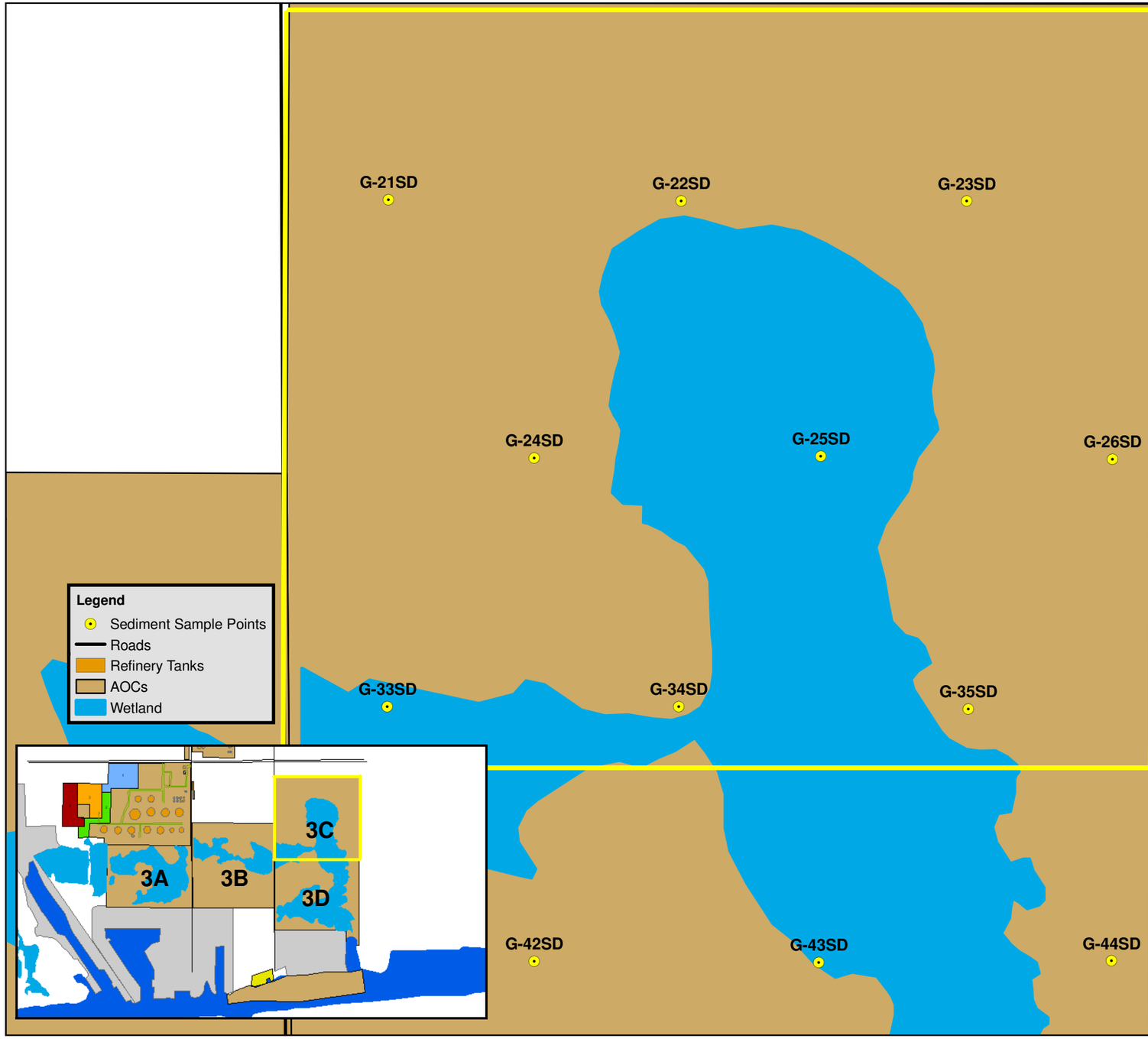
FIGURE
29B



G-21SD FR-210	
Aluminum	971
Arsenic	0.33 B
Barium	22.8
Beryllium	0.051 B
Chromium	1.2
Cobalt	0.2 B
Copper	1.1 B
Iron	676
Lead	9.1
Manganese	21.7
Mercury	0.0081 B
Nickel	0.72 B
Silver	0.093 B
Vanadium	1.2 B
Zinc	134

G-22SD FR-209	
Aluminum	34700
Arsenic	17.3
Barium	95.2 B
Beryllium	1.3 B
Cadmium	0.67 B
Chromium	29.9
Cobalt	10.4 B
Copper	57.1
Iron	23200
Lead	30.5
Manganese	171
Mercury	0.11
Nickel	23.5
Selenium	2.2 B
Silver	1.3 B
Vanadium	58.9
Zinc	611

G-23SD FR-208	
Aluminum	35900
Arsenic	6.3
Barium	310
Beryllium	1.4
Cadmium	0.32 B
Chromium	28.9
Cobalt	9
Copper	21.2
Iron	23700
Lead	18.1
Manganese	398
Mercury	0.046
Nickel	18.1
Selenium	1 B
Silver	1.1 B
Vanadium	48.2
Zinc	207

G-24SD FR-204	
Aluminum	2600
Arsenic	1.4
Barium	47.4
Beryllium	0.14 B
Chromium	2.4
Cobalt	1.1 B
Copper	3.3
Iron	2120
Lead	4.9
Manganese	79.6
Mercury	0.0021 B
Nickel	1.8 B
Vanadium	4.8 B
Zinc	53.4

G-25SD FR-205	
Aluminum	5490
Arsenic	2.4
Barium	45.1
Beryllium	0.22 B
Chromium	4.7
Cobalt	1.6 B
Copper	5.3
Iron	3870
Lead	6.2
Manganese	162
Mercury	0.0097 B
Nickel	3.1 B
Silver	0.27 B
Vanadium	8.5
Zinc	68.2

G-26SD FR-206A	
Aluminum	6525
Arsenic	2.13 B
Barium	133.15
Beryllium	0.2565 B
Cadmium	0.21 B
Chromium	7.55
Cobalt	1.72 B
Copper	15.85 B
Iron	5635
Lead	6.55
Manganese	240.85
Mercury	0.0072 B
Nickel	8.735 B
Selenium	0.445 B
Silver	0.175 B
Vanadium	10.25
Zinc	257.6

G-33SD FR-190	
Aluminum	3810
Arsenic	2.8
Barium	72.4
Beryllium	0.15 B
Chromium	3.5
Cobalt	0.93 B
Copper	4.4
Iron	2780
Lead	14
Manganese	95.9
Mercury	0.0071 B
Nickel	2.1 B
Vanadium	6.4
Zinc	91.2

G-34SD FR-191	
Aluminum	4560
Arsenic	0.86 B
Barium	7.8 B
Beryllium	0.19 B
Chromium	3.3
Cobalt	0.91 B
Copper	1.1 B
Iron	2880
Lead	2.5
Manganese	32.2
Mercury	0.0029 B
Nickel	1.3 B
Vanadium	5.1 B
Zinc	11.2

G-35SD FR-192	
Aluminum	2220
Arsenic	1.4
Barium	10.4 B
Beryllium	0.1 B
Chromium	2
Cobalt	0.57 B
Copper	1.9 B
Iron	1490
Lead	3.9
Manganese	91.5
Mercury	0.0051 B
Nickel	1.1 B
Silver	0.11 B
Vanadium	3.6 B
Zinc	40

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Above Sediment Marine Limit

N

0 100 200

Feet

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APPROVED BY:	

AOC-3C
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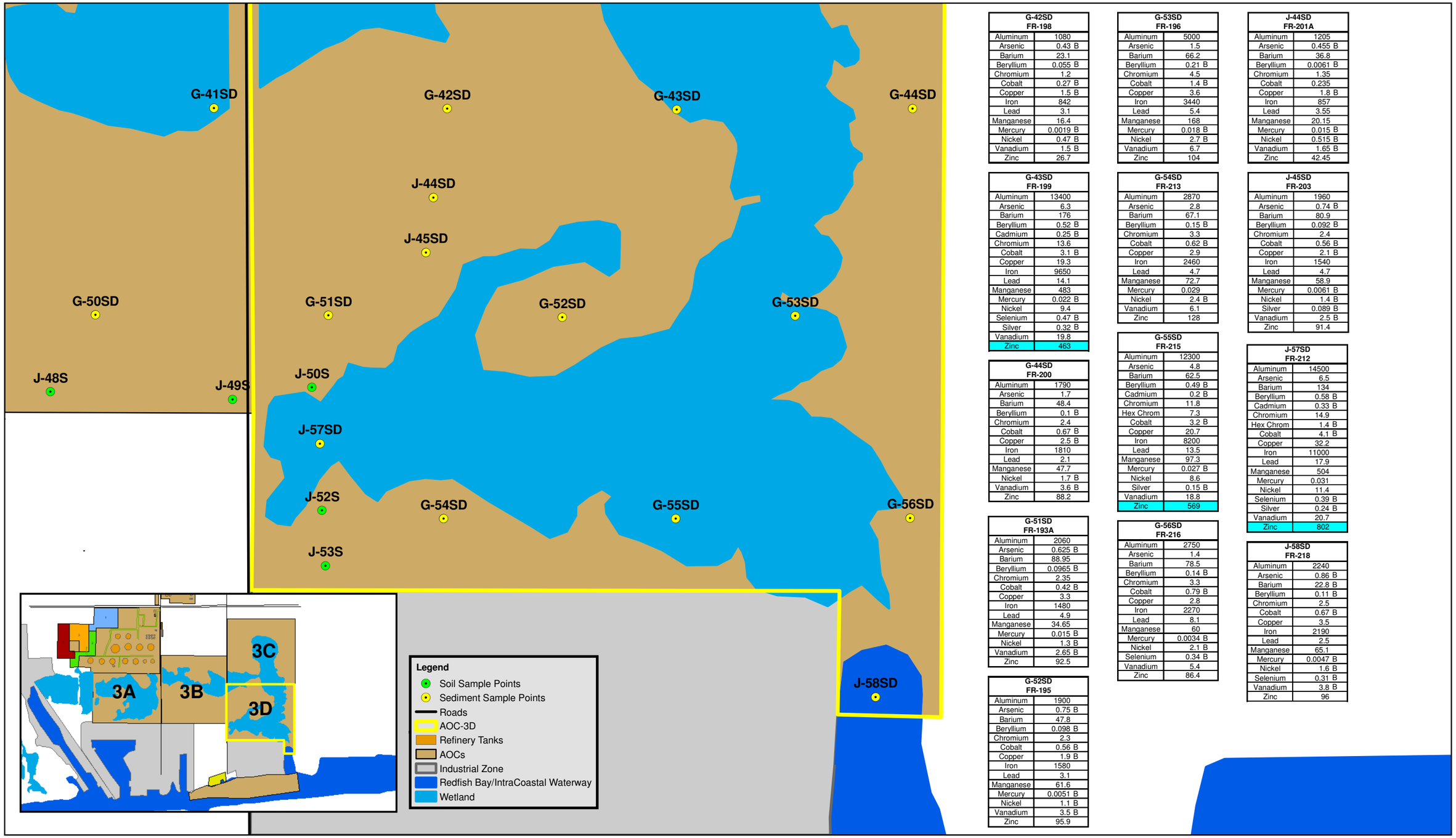
FIGURE

29C



G-42SD FR-198	
Aluminum	1080
Arsenic	0.43 B
Barium	23.1
Beryllium	0.055 B
Chromium	1.2
Cobalt	0.27 B
Copper	1.5 B
Iron	842
Lead	3.1
Manganese	16.4
Mercury	0.0019 B
Nickel	0.47 B
Vanadium	1.5 B
Zinc	26.7

G-43SD FR-199	
Aluminum	13400
Arsenic	6.3
Barium	176
Beryllium	0.52 B
Cadmium	0.25 B
Chromium	13.6
Cobalt	3.1 B
Copper	19.3
Iron	9650
Lead	14.1
Manganese	483
Mercury	0.022 B
Nickel	9.4
Selenium	0.47 B
Silver	0.32 B
Vanadium	19.8
Zinc	463

G-44SD FR-200	
Aluminum	1790
Arsenic	1.7
Barium	48.4
Beryllium	0.1 B
Chromium	2.4
Cobalt	0.67 B
Copper	2.5 B
Iron	1810
Lead	2.1
Manganese	47.7
Nickel	1.7 B
Vanadium	3.6 B
Zinc	88.2

G-51SD FR-193A	
Aluminum	2060
Arsenic	0.625 B
Barium	88.95
Beryllium	0.0965 B
Chromium	2.35
Cobalt	0.42 B
Copper	3.3
Iron	1480
Lead	4.9
Manganese	34.65
Mercury	0.015 B
Nickel	1.3 B
Vanadium	2.65 B
Zinc	92.5

G-52SD FR-195	
Aluminum	1900
Arsenic	0.75 B
Barium	47.8
Beryllium	0.098 B
Chromium	2.3
Cobalt	0.56 B
Copper	1.9 B
Iron	1580
Lead	3.1
Manganese	61.6
Mercury	0.0051 B
Nickel	1.1 B
Vanadium	3.5 B
Zinc	95.9

G-53SD FR-196	
Aluminum	5000
Arsenic	1.5
Barium	66.2
Beryllium	0.21 B
Chromium	4.5
Cobalt	1.4 B
Copper	3.6
Iron	3440
Lead	5.4
Manganese	168
Mercury	0.018 B
Nickel	2.7 B
Vanadium	6.7
Zinc	104

G-54SD FR-213	
Aluminum	2870
Arsenic	2.8
Barium	67.1
Beryllium	0.15 B
Chromium	3.3
Cobalt	0.62 B
Copper	2.9
Iron	2460
Lead	4.7
Manganese	72.7
Mercury	0.029
Nickel	2.4 B
Vanadium	6.1
Zinc	128

G-55SD FR-215	
Aluminum	12300
Arsenic	4.8
Barium	62.5
Beryllium	0.49 B
Cadmium	0.2 B
Chromium	11.8
Hex Chrom	7.3
Cobalt	3.2 B
Copper	20.7
Iron	8200
Lead	13.5
Manganese	97.3
Mercury	0.027 B
Nickel	8.6
Silver	0.15 B
Vanadium	18.8
Zinc	569

G-56SD FR-216	
Aluminum	2750
Arsenic	1.4
Barium	78.5
Beryllium	0.14 B
Chromium	3.3
Cobalt	0.79 B
Copper	2.8
Iron	2270
Lead	8.1
Manganese	60
Mercury	0.0034 B
Nickel	2.1 B
Selenium	0.34 B
Vanadium	5.4
Zinc	86.4

J-44SD FR-201A	
Aluminum	1205
Arsenic	0.455 B
Barium	36.8
Beryllium	0.0061 B
Chromium	1.35
Cobalt	0.235
Copper	1.8 B
Iron	857
Lead	3.55
Manganese	20.15
Mercury	0.015 B
Nickel	0.515 B
Vanadium	1.65 B
Zinc	42.45

J-45SD FR-203	
Aluminum	1960
Arsenic	0.74 B
Barium	80.9
Beryllium	0.092 B
Chromium	2.4
Cobalt	0.56 B
Copper	2.1 B
Iron	1540
Lead	4.7
Manganese	58.9
Mercury	0.0061 B
Nickel	1.4 B
Silver	0.089 B
Vanadium	2.5 B
Zinc	91.4

J-57SD FR-212	
Aluminum	14500
Arsenic	6.5
Barium	134
Beryllium	0.58 B
Cadmium	0.33 B
Chromium	14.9
Hex Chrom	1.4 B
Cobalt	4.1 B
Copper	32.2
Iron	11000
Lead	17.9
Manganese	504
Mercury	0.031
Nickel	11.4
Selenium	0.39 B
Silver	0.24 B
Vanadium	20.7
Zinc	802

J-58SD FR-218	
Aluminum	2240
Arsenic	0.86 B
Barium	22.8 B
Beryllium	0.11 B
Chromium	2.5
Cobalt	0.67 B
Copper	3.5
Iron	2190
Lead	2.5
Manganese	65.1
Mercury	0.0047 B
Nickel	1.6 B
Selenium	0.31 B
Vanadium	3.8 B
Zinc	96

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Above Sediment Marine Limit

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

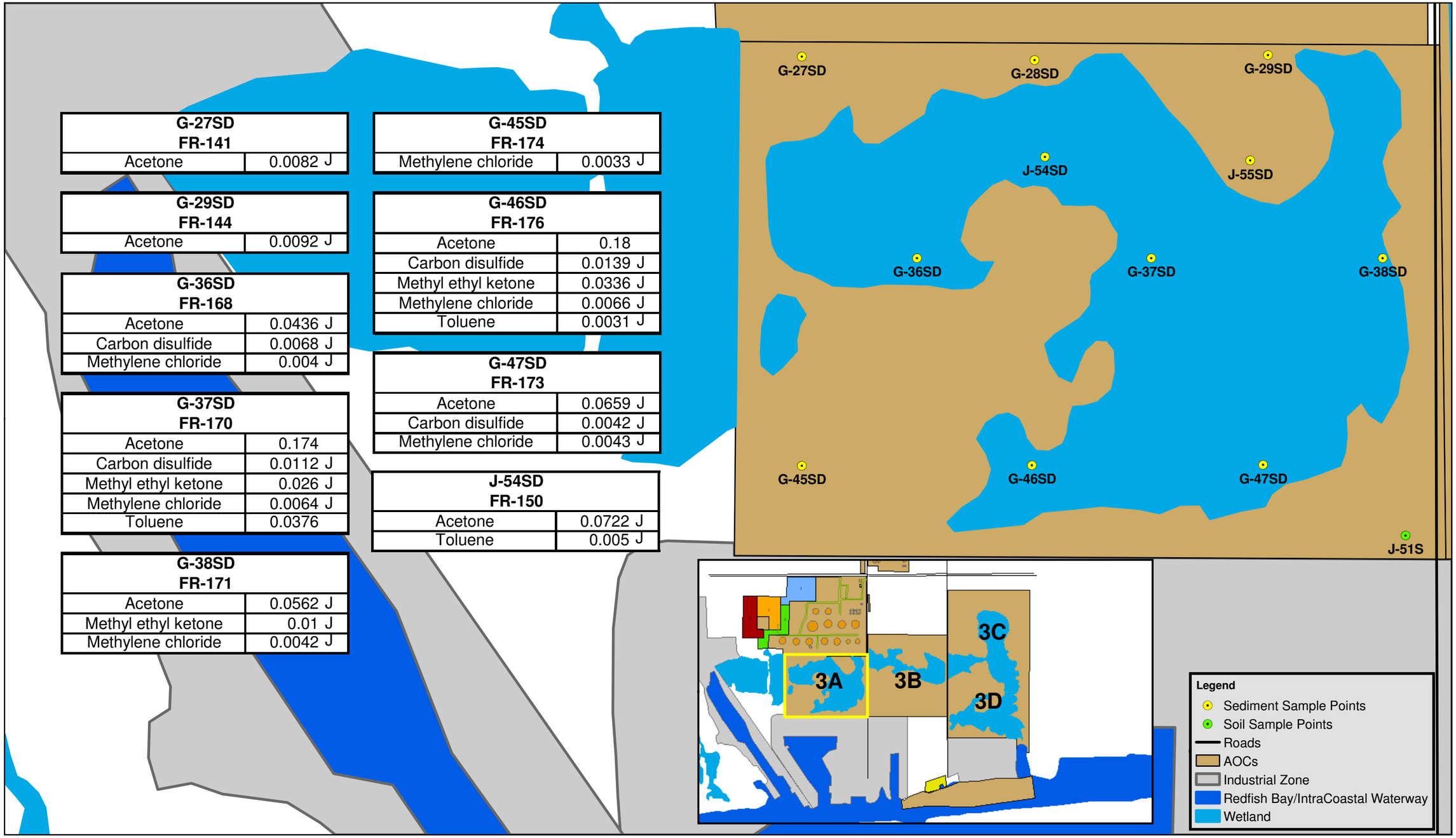
AOC-3D
Ecological
Metal Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
Bright People. Right Solutions.
3601 Manor Road, Austin, Texas 78723
Phone: 512-926-6650 Fax: 512-926-3312
www.kleinfelder.com

FIGURE
29D



G-27SD FR-141	
Acetone	0.0082 J

G-29SD FR-144	
Acetone	0.0092 J

G-36SD FR-168	
Acetone	0.0436 J
Carbon disulfide	0.0068 J
Methylene chloride	0.004 J

G-37SD FR-170	
Acetone	0.174
Carbon disulfide	0.0112 J
Methyl ethyl ketone	0.026 J
Methylene chloride	0.0064 J
Toluene	0.0376

G-38SD FR-171	
Acetone	0.0562 J
Methyl ethyl ketone	0.01 J
Methylene chloride	0.0042 J

G-45SD FR-174	
Methylene chloride	0.0033 J

G-46SD FR-176	
Acetone	0.18
Carbon disulfide	0.0139 J
Methyl ethyl ketone	0.0336 J
Methylene chloride	0.0066 J
Toluene	0.0031 J

G-47SD FR-173	
Acetone	0.0659 J
Carbon disulfide	0.0042 J
Methylene chloride	0.0043 J

J-54SD FR-150	
Acetone	0.0722 J
Toluene	0.005 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3A
Ecological
VOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

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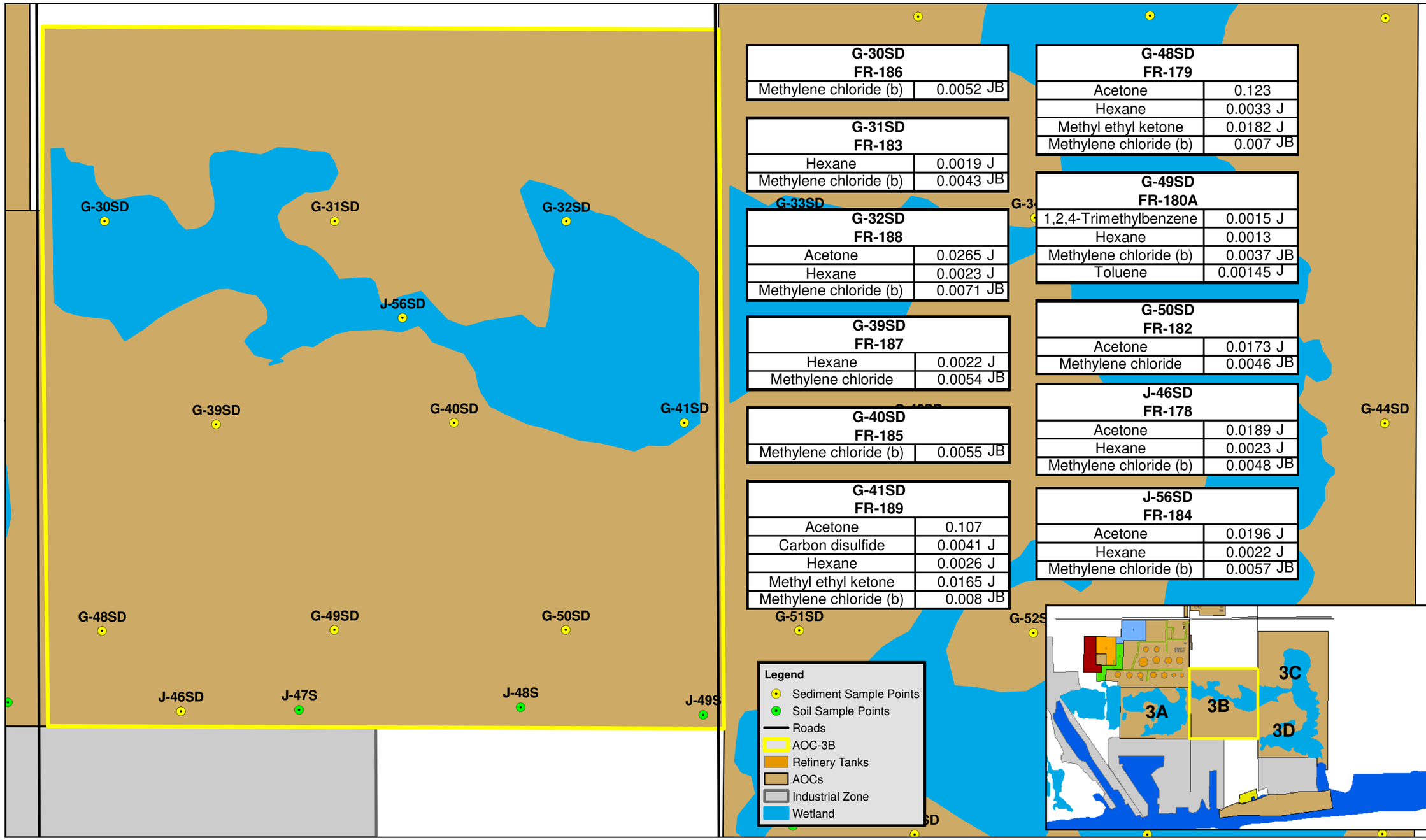
FIGURE
29E



G-30SD FR-186	
Methylene chloride (b)	0.0052 JB

G-31SD FR-183	
Hexane	0.0019 J
Methylene chloride (b)	0.0043 JB

G-32SD FR-188	
Acetone	0.0265 J
Hexane	0.0023 J
Methylene chloride (b)	0.0071 JB

G-39SD FR-187	
Hexane	0.0022 J
Methylene chloride	0.0054 JB

G-40SD FR-185	
Methylene chloride (b)	0.0055 JB

G-41SD FR-189	
Acetone	0.107
Carbon disulfide	0.0041 J
Hexane	0.0026 J
Methyl ethyl ketone	0.0165 J
Methylene chloride (b)	0.008 JB

G-48SD FR-179	
Acetone	0.123
Hexane	0.0033 J
Methyl ethyl ketone	0.0182 J
Methylene chloride (b)	0.007 JB

G-49SD FR-180A	
1,2,4-Trimethylbenzene	0.0015 J
Hexane	0.0013
Methylene chloride (b)	0.0037 JB
Toluene	0.00145 J

G-50SD FR-182	
Acetone	0.0173 J
Methylene chloride	0.0046 JB

J-46SD FR-178	
Acetone	0.0189 J
Hexane	0.0023 J
Methylene chloride (b)	0.0048 JB

J-56SD FR-184	
Acetone	0.0196 J
Hexane	0.0022 J
Methylene chloride (b)	0.0057 JB

Notes:

1. Results are posted in mg/kg
2. Qualifiers:
   - J = Concentration greater than the SDL but less than the method quantitation limit (MQL)
   - B = Analyte found in associated method blank

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3B
Ecological
VOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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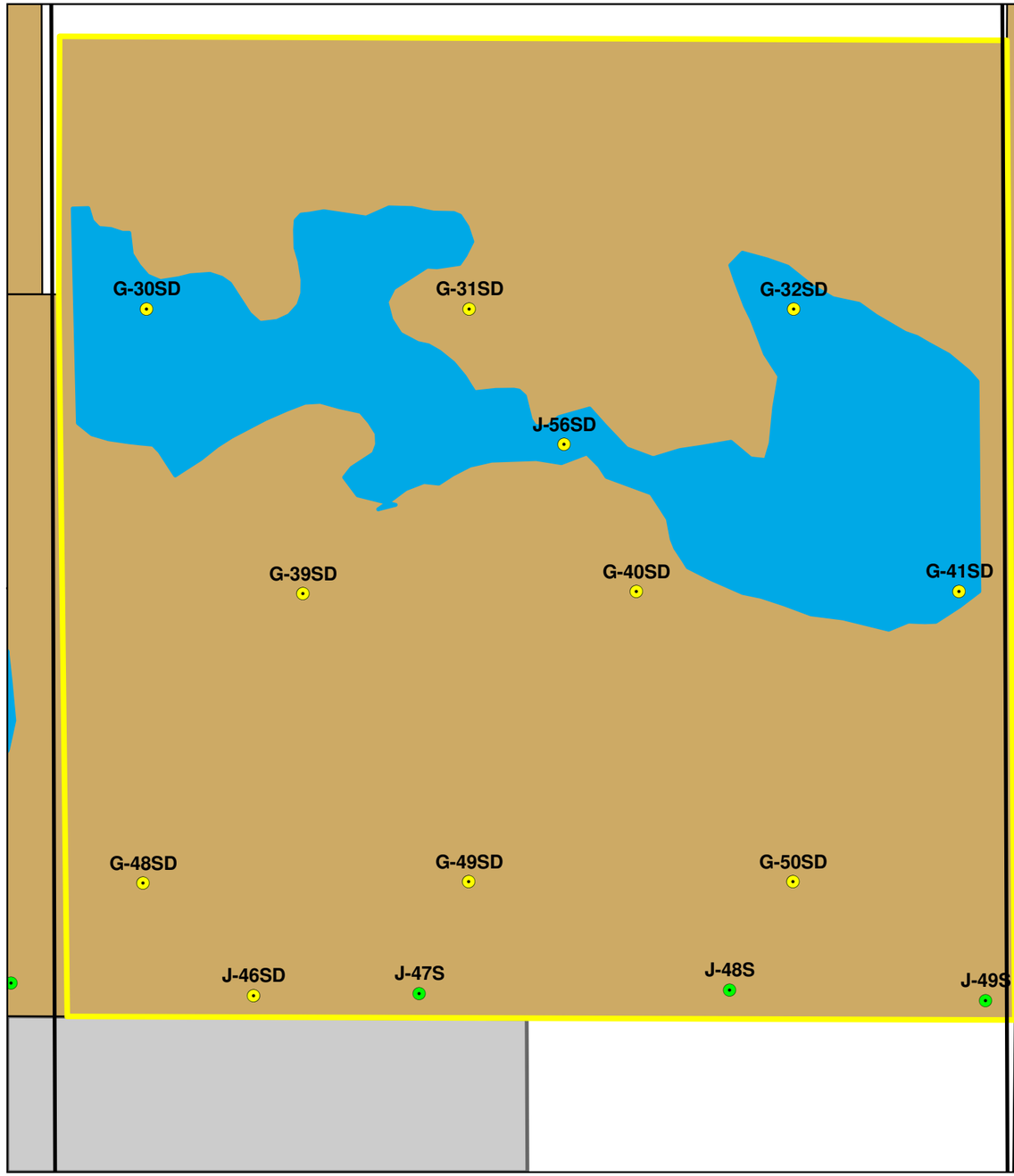
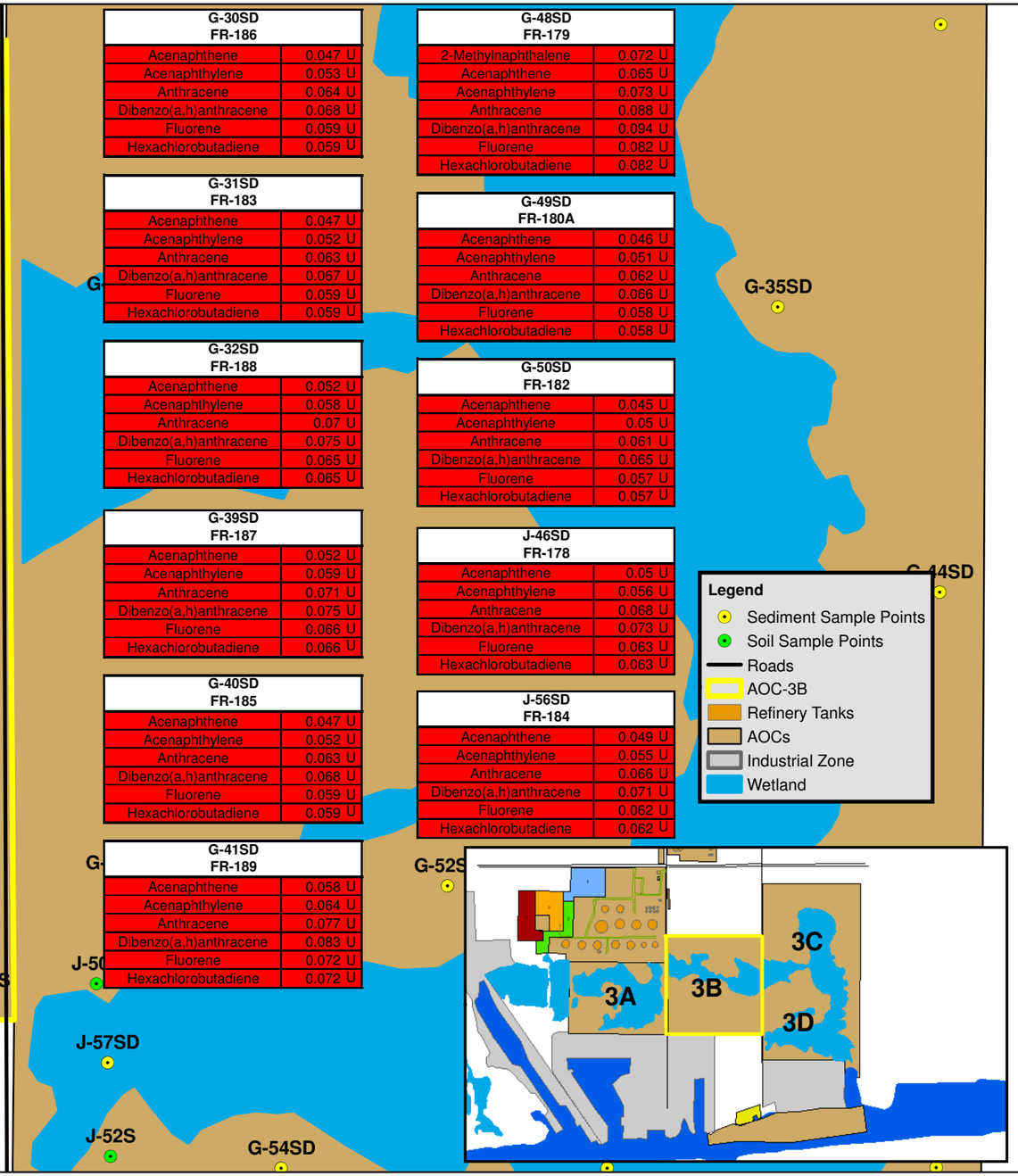
FIGURE
29F





G-30SD FR-186	
Acenaphthene	0.047 U
Acenaphthylene	0.053 U
Anthracene	0.064 U
Dibenzo(a,h)anthracene	0.068 U
Fluorene	0.059 U
Hexachlorobutadiene	0.059 U

G-31SD FR-183	
Acenaphthene	0.047 U
Acenaphthylene	0.052 U
Anthracene	0.063 U
Dibenzo(a,h)anthracene	0.067 U
Fluorene	0.059 U
Hexachlorobutadiene	0.059 U

G-32SD FR-188	
Acenaphthene	0.052 U
Acenaphthylene	0.058 U
Anthracene	0.07 U
Dibenzo(a,h)anthracene	0.075 U
Fluorene	0.065 U
Hexachlorobutadiene	0.065 U

G-39SD FR-187	
Acenaphthene	0.052 U
Acenaphthylene	0.059 U
Anthracene	0.071 U
Dibenzo(a,h)anthracene	0.075 U
Fluorene	0.066 U
Hexachlorobutadiene	0.066 U

G-40SD FR-185	
Acenaphthene	0.047 U
Acenaphthylene	0.052 U
Anthracene	0.063 U
Dibenzo(a,h)anthracene	0.068 U
Fluorene	0.059 U
Hexachlorobutadiene	0.059 U

G-41SD FR-189	
Acenaphthene	0.058 U
Acenaphthylene	0.064 U
Anthracene	0.077 U
Dibenzo(a,h)anthracene	0.083 U
Fluorene	0.072 U
Hexachlorobutadiene	0.072 U

G-48SD FR-179	
2-Methylnaphthalene	0.072 U
Acenaphthene	0.065 U
Acenaphthylene	0.073 U
Anthracene	0.088 U
Dibenzo(a,h)anthracene	0.094 U
Fluorene	0.082 U
Hexachlorobutadiene	0.082 U

G-49SD FR-180A	
Acenaphthene	0.046 U
Acenaphthylene	0.051 U
Anthracene	0.062 U
Dibenzo(a,h)anthracene	0.066 U
Fluorene	0.058 U
Hexachlorobutadiene	0.058 U

G-50SD FR-182	
Acenaphthene	0.045 U
Acenaphthylene	0.05 U
Anthracene	0.061 U
Dibenzo(a,h)anthracene	0.065 U
Fluorene	0.057 U
Hexachlorobutadiene	0.057 U

J-46SD FR-178	
Acenaphthene	0.05 U
Acenaphthylene	0.056 U
Anthracene	0.068 U
Dibenzo(a,h)anthracene	0.073 U
Fluorene	0.063 U
Hexachlorobutadiene	0.063 U

J-56SD FR-184	
Acenaphthene	0.049 U
Acenaphthylene	0.055 U
Anthracene	0.066 U
Dibenzo(a,h)anthracene	0.071 U
Fluorene	0.062 U
Hexachlorobutadiene	0.062 U

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Exceeds Sediment Marine Screening Level

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3B
Ecological
SVOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

KLEINFELDER
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3601 Manor Road, Austin, Texas 78723
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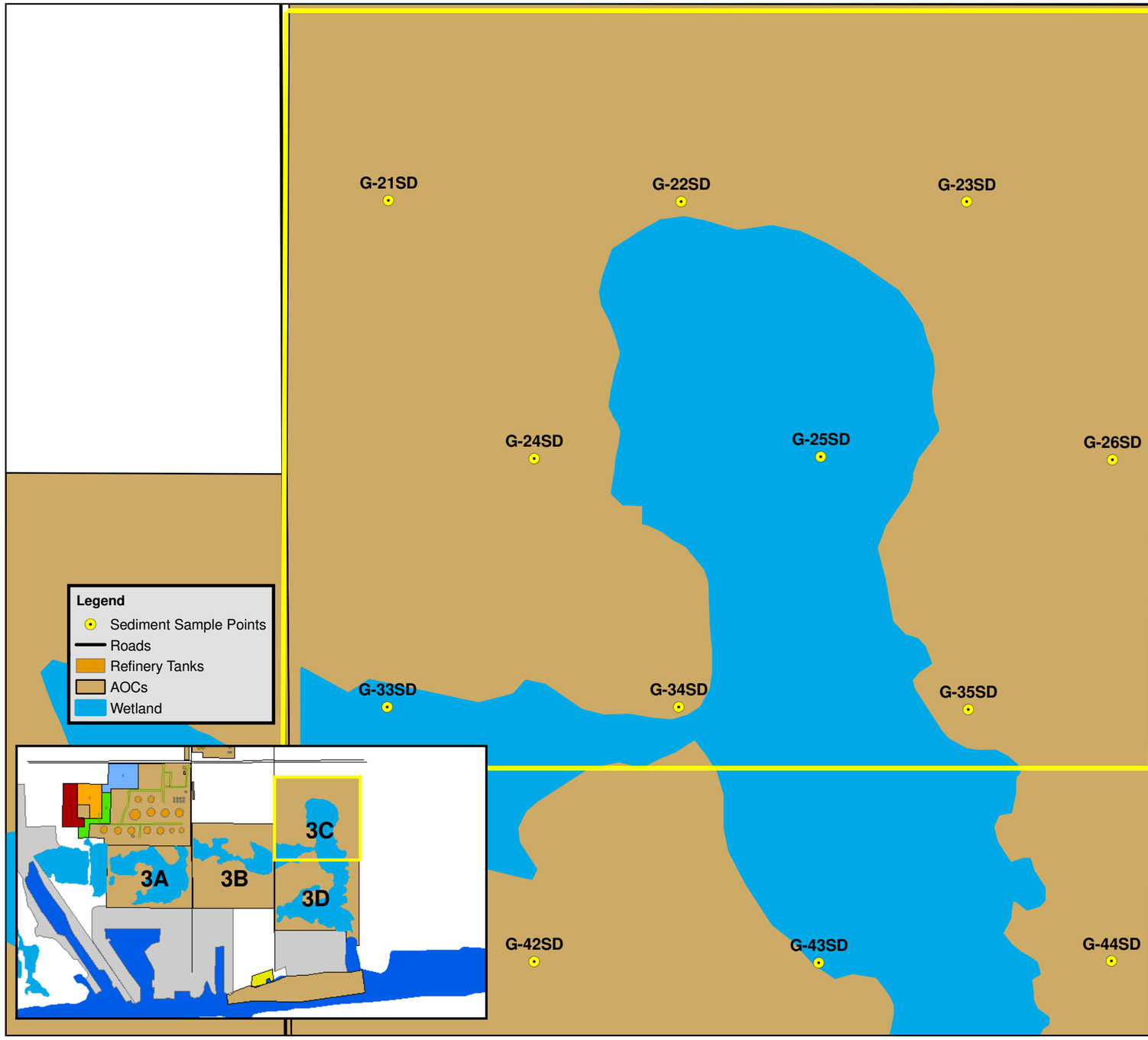
www.kleinfelder.com

FIGURE
29J



G-21SD FR-210	
Acetone	0.048 J
Methylene chloride (b)	0.0038 JB

G-22SD FR-209	
Acetone	0.668
Carbon disulfide	0.0241 J
Hexane	0.0086 J
Naphthalene	0.21 U
Methyl ethyl ketone	0.135 J
Methylene chloride (b)	0.0199 JB

G-23SD FR-208	
Methylene chloride (b)	0.0079 JB

G-24SD FR-204	
Methylene chloride	0.0058 J

G-25SD FR-205	
Acetone	0.0135 J
Methylene chloride	0.0037 J

G-26SD FR-206A	
Methylene chloride	0.0057 J

G-33SD FR-190	
Acetone	0.151
Carbon disulfide	0.0029 J
Hexane	0.0026 J
Methyl ethyl ketone	0.029 J
Methylene chloride (b)	0.0063 JB

G-34SD FR-191	
Methylene chloride (b)	0.0059 JB

G-35SD FR-192	
Methylene chloride (b)	0.0064 JB

Notes:

1. Results are posted in mg/kg
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - J = Concentration greater than the SDL but less than the method quantitation limit (MQL)
   - B = Analyte found in associated method blank

Exceeds Sediment Marine Screening Level

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3C
Ecological
VOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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3601 Manor Road, Austin, Texas 78723
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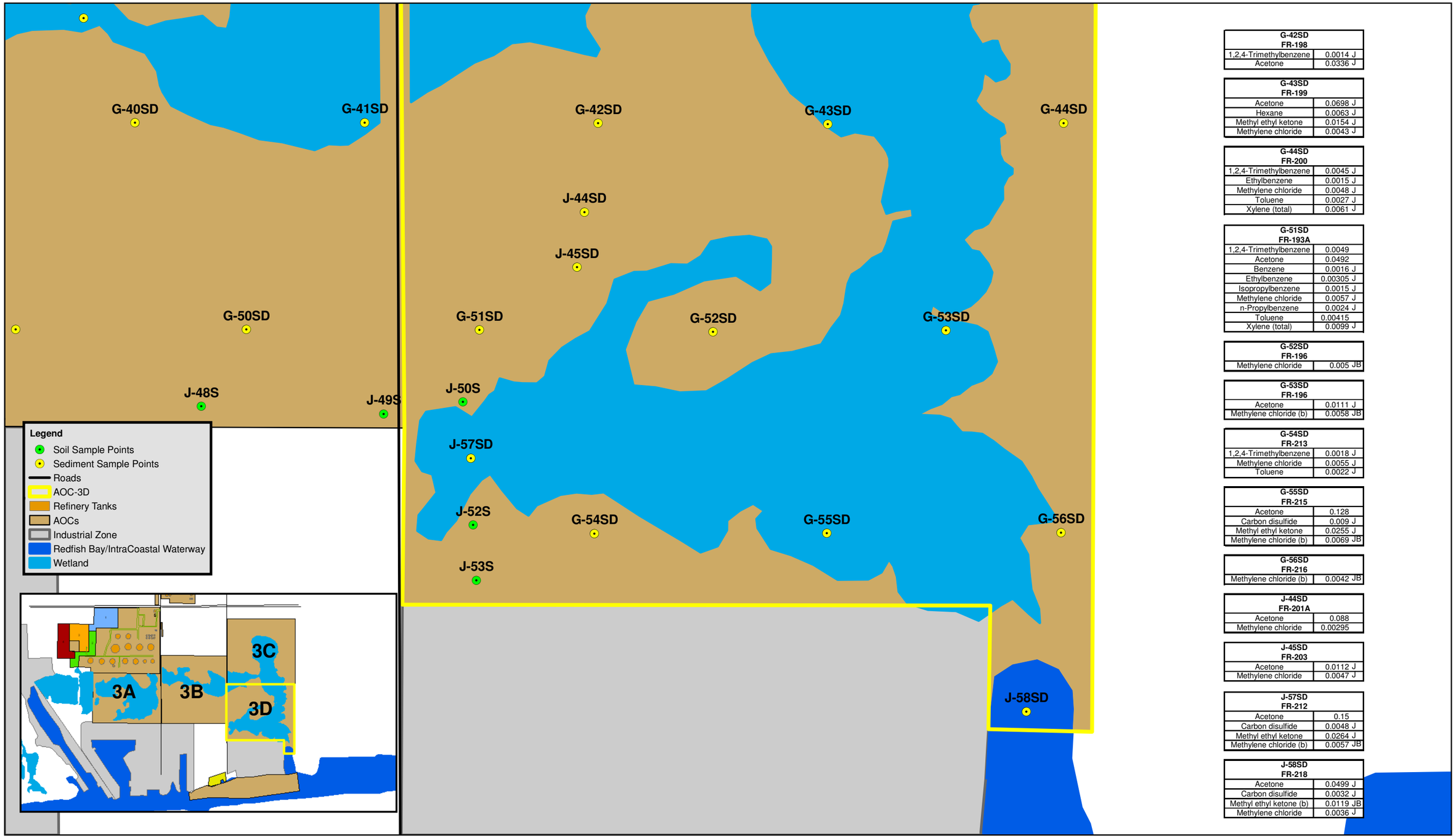
www.kleinfelder.com

FIGURE
29G



G-42SD FR-198	
1,2,4-Trimethylbenzene	0.0014 J
Acetone	0.0336 J

G-43SD FR-199	
Acetone	0.0698 J
Hexane	0.0063 J
Methyl ethyl ketone	0.0154 J
Methylene chloride	0.0043 J

G-44SD FR-200	
1,2,4-Trimethylbenzene	0.0045 J
Ethylbenzene	0.0015 J
Methylene chloride	0.0048 J
Toluene	0.0027 J
Xylene (total)	0.0061 J

G-51SD FR-193A	
1,2,4-Trimethylbenzene	0.0049
Acetone	0.0492
Benzene	0.0016 J
Ethylbenzene	0.00305 J
Isopropylbenzene	0.0015 J
Methylene chloride	0.0057 J
n-Propylbenzene	0.0024 J
Toluene	0.00415
Xylene (total)	0.0099 J

G-52SD FR-196	
Methylene chloride	0.005 JB

G-53SD FR-196	
Acetone	0.0111 J
Methylene chloride (b)	0.0058 JB

G-54SD FR-213	
1,2,4-Trimethylbenzene	0.0018 J
Methylene chloride	0.0055 J
Toluene	0.0022 J

G-55SD FR-215	
Acetone	0.128
Carbon disulfide	0.009 J
Methyl ethyl ketone	0.0255 J
Methylene chloride (b)	0.0069 JB

G-56SD FR-216	
Methylene chloride (b)	0.0042 JB

J-44SD FR-201A	
Acetone	0.088
Methylene chloride	0.00295

J-45SD FR-203	
Acetone	0.0112 J
Methylene chloride	0.0047 J

J-57SD FR-212	
Acetone	0.15
Carbon disulfide	0.0048 J
Methyl ethyl ketone	0.0264 J
Methylene chloride (b)	0.0057 JB

J-58SD FR-218	
Acetone	0.0499 J
Carbon disulfide	0.0032 J
Methyl ethyl ketone (b)	0.0119 JB
Methylene chloride	0.0036 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

B = Analyte found in associated method blank

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3D
Ecological
VOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
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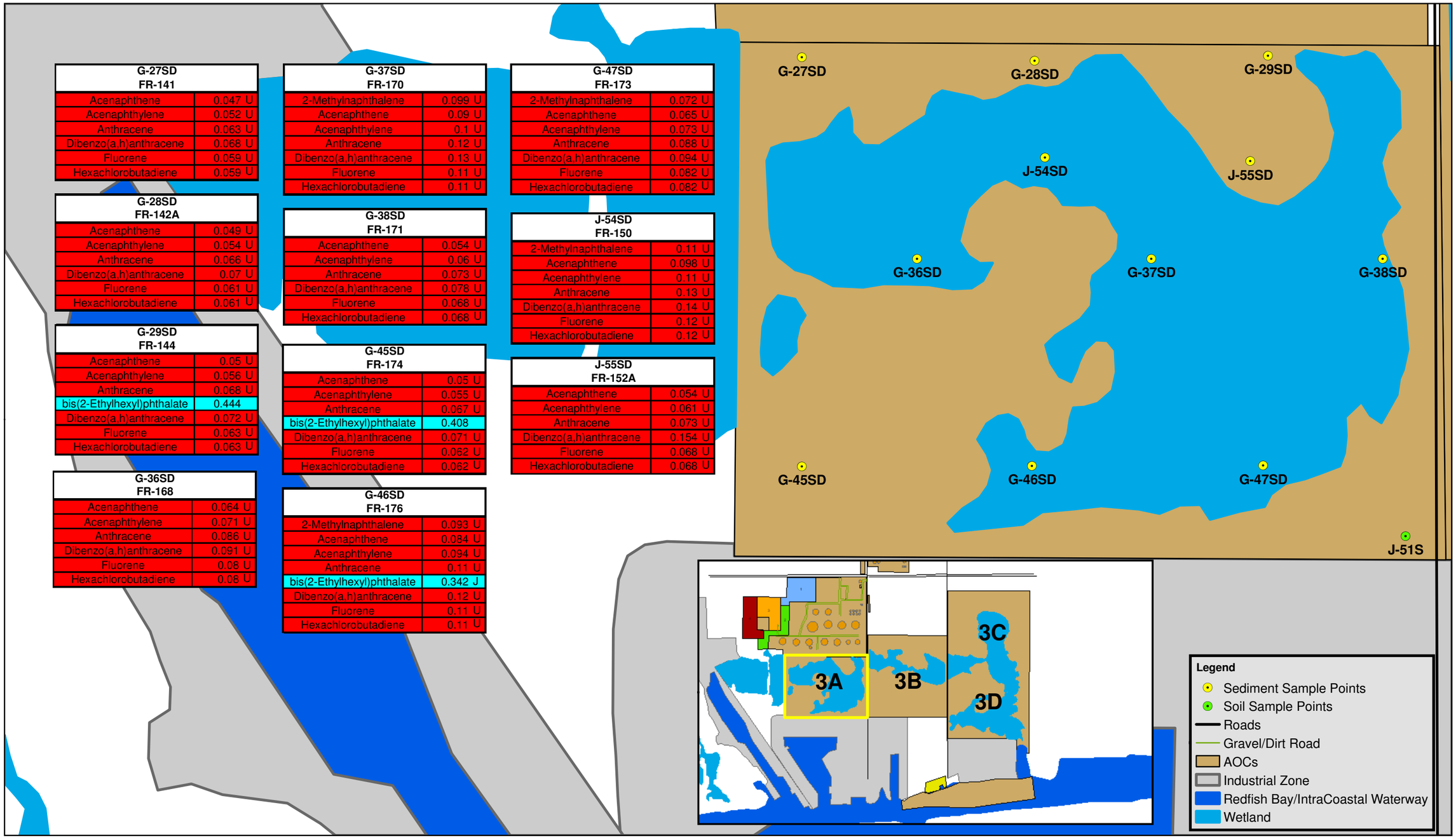
www.kleinfelder.com

FIGURE
29H



G-27SD FR-141	
Acenaphthene	0.047 U
Acenaphthylene	0.052 U
Anthracene	0.063 U
Dibenzo(a,h)anthracene	0.068 U
Fluorene	0.059 U
Hexachlorobutadiene	0.059 U

G-28SD FR-142A	
Acenaphthene	0.049 U
Acenaphthylene	0.054 U
Anthracene	0.066 U
Dibenzo(a,h)anthracene	0.07 U
Fluorene	0.061 U
Hexachlorobutadiene	0.061 U

G-29SD FR-144	
Acenaphthene	0.05 U
Acenaphthylene	0.056 U
Anthracene	0.068 U
bis(2-Ethylhexyl)phthalate	0.444
Dibenzo(a,h)anthracene	0.072 U
Fluorene	0.063 U
Hexachlorobutadiene	0.063 U

G-36SD FR-168	
Acenaphthene	0.064 U
Acenaphthylene	0.071 U
Anthracene	0.086 U
Dibenzo(a,h)anthracene	0.091 U
Fluorene	0.08 U
Hexachlorobutadiene	0.08 U

G-37SD FR-170	
2-Methylnaphthalene	0.099 U
Acenaphthene	0.09 U
Acenaphthylene	0.1 U
Anthracene	0.12 U
Dibenzo(a,h)anthracene	0.13 U
Fluorene	0.11 U
Hexachlorobutadiene	0.11 U

G-38SD FR-171	
Acenaphthene	0.054 U
Acenaphthylene	0.06 U
Anthracene	0.073 U
Dibenzo(a,h)anthracene	0.078 U
Fluorene	0.068 U
Hexachlorobutadiene	0.068 U

G-45SD FR-174	
Acenaphthene	0.05 U
Acenaphthylene	0.055 U
Anthracene	0.067 U
bis(2-Ethylhexyl)phthalate	0.408
Dibenzo(a,h)anthracene	0.071 U
Fluorene	0.062 U
Hexachlorobutadiene	0.062 U

G-46SD FR-176	
2-Methylnaphthalene	0.093 U
Acenaphthene	0.084 U
Acenaphthylene	0.094 U
Anthracene	0.11 U
bis(2-Ethylhexyl)phthalate	0.342 J
Dibenzo(a,h)anthracene	0.12 U
Fluorene	0.11 U
Hexachlorobutadiene	0.11 U

G-47SD FR-173	
2-Methylnaphthalene	0.072 U
Acenaphthene	0.065 U
Acenaphthylene	0.073 U
Anthracene	0.088 U
Dibenzo(a,h)anthracene	0.094 U
Fluorene	0.082 U
Hexachlorobutadiene	0.082 U

J-54SD FR-150	
2-Methylnaphthalene	0.11 U
Acenaphthene	0.098 U
Acenaphthylene	0.11 U
Anthracene	0.13 U
Dibenzo(a,h)anthracene	0.14 U
Fluorene	0.12 U
Hexachlorobutadiene	0.12 U

J-55SD FR-152A	
Acenaphthene	0.054 U
Acenaphthylene	0.061 U
Anthracene	0.073 U
Dibenzo(a,h)anthracene	0.154 U
Fluorene	0.068 U
Hexachlorobutadiene	0.068 U

Notes:

1. Results are posted in mg/kg
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

Above Sediment Marine Limit

Exceeds Sediment Marine Screening Level

0 110 220

Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3A
Ecological
SVOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

KLEINFELDER
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Phone: 512-926-6650 Fax: 512-926-3312
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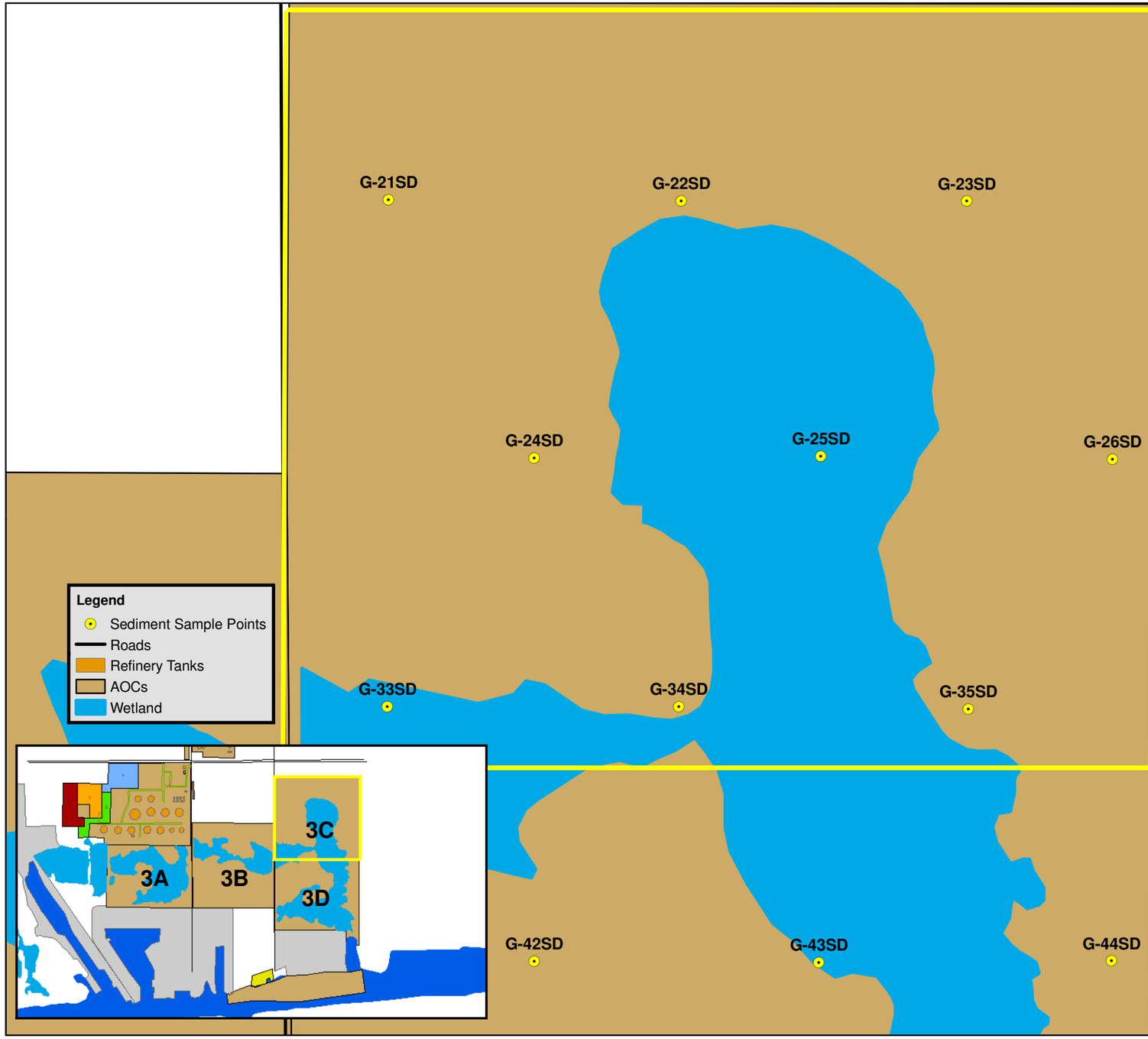
FIGURE

29I



G-21SD FR-210	
Acenaphthene	0.045 U
Acenaphthylene	0.05 U
Anthracene	0.061 U
bis(2-Ethylhexyl)phthalate	0.153 J
Dibenzo(a,h)anthracene	0.065 U
Fluorene	0.056 U
Hexachlorobutadiene	0.056 U

G-22SD FR-209	
2-Methylnaphthalene	0.23 U
Acenaphthene	0.21 U
Acenaphthylene	0.23 U
Anthracene	0.28 U
Benzo(a)anthracene	0.32 U
bis(2-Ethylhexyl)phthalate	0.43 U
Dibenzo(a,h)anthracene	0.3 U
Fluorene	0.26 U
Hexachlorobutadiene	0.26 U
Hexachloroethane	0.26 U

G-23SD FR-208	
2-Methylnaphthalene	0.082 U
Acenaphthene	0.074 U
Acenaphthylene	0.083 U
Anthracene	0.1 U
Dibenzo(a,h)anthracene	0.11 U
Fluorene	0.093 U
Hexachlorobutadiene	0.093 U

G-24SD FR-204	
Acenaphthene	0.05 U
Acenaphthylene	0.056 U
Anthracene	0.067 U
Dibenzo(a,h)anthracene	0.072 U
Fluorene	0.063 U
Hexachlorobutadiene	0.063 U

G-25SD FR-205	
Acenaphthene	0.058 U
Acenaphthylene	0.065 U
Anthracene	0.079 U
Dibenzo(a,h)anthracene	0.084 U
Fluorene	0.073 U
Hexachlorobutadiene	0.073 U

G-26SD FR-206A	
Acenaphthene	0.052 U
Acenaphthylene	0.058 U
Anthracene	0.07 U
Dibenzo(a,h)anthracene	0.075 U
Fluorene	0.065 U
Hexachlorobutadiene	0.065 U

G-33SD FR-190	
Acenaphthene	0.054 U
Acenaphthylene	0.06 U
Anthracene	0.072 U
Dibenzo(a,h)anthracene	0.077 U
Fluorene	0.067 U
Hexachlorobutadiene	0.067 U

G-34SD FR-191	
Acenaphthene	0.048 U
Acenaphthylene	0.054 U
Anthracene	0.065 U
Dibenzo(a,h)anthracene	0.07 U
Fluorene	0.061 U
Hexachlorobutadiene	0.061 U

G-35SD FR-192	
Acenaphthene	0.048 U
Acenaphthylene	0.054 U
Anthracene	0.065 U
Dibenzo(a,h)anthracene	0.07 U
Fluorene	0.061 U
Hexachlorobutadiene	0.061 U

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Exceeds Sediment Marine Screening Level

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3C
Ecological
SVOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

KLEINFELDER
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3601 Manor Road, Austin, Texas 78723
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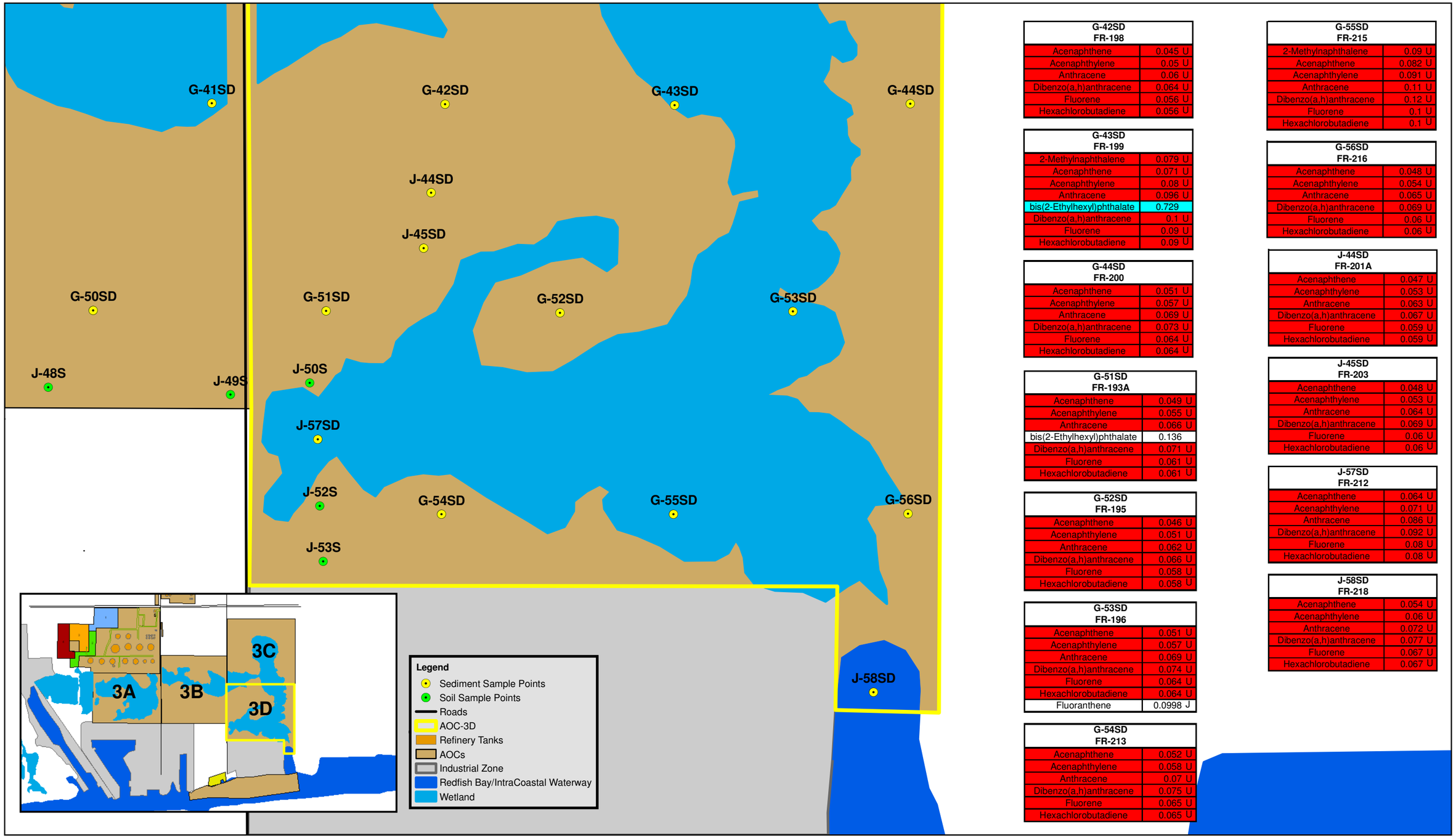
FIGURE
29K



G-42SD FR-198	
Acenaphthene	0.045 U
Acenaphthylene	0.05 U
Anthracene	0.06 U
Dibenzo(a,h)anthracene	0.064 U
Fluorene	0.056 U
Hexachlorobutadiene	0.056 U

G-43SD FR-199	
2-Methylnaphthalene	0.079 U
Acenaphthene	0.071 U
Acenaphthylene	0.08 U
Anthracene	0.096 U
bis(2-Ethylhexyl)phthalate	0.729
Dibenzo(a,h)anthracene	0.1 U
Fluorene	0.09 U
Hexachlorobutadiene	0.09 U

G-44SD FR-200	
Acenaphthene	0.051 U
Acenaphthylene	0.057 U
Anthracene	0.069 U
Dibenzo(a,h)anthracene	0.073 U
Fluorene	0.064 U
Hexachlorobutadiene	0.064 U

G-51SD FR-193A	
Acenaphthene	0.049 U
Acenaphthylene	0.055 U
Anthracene	0.066 U
bis(2-Ethylhexyl)phthalate	0.136
Dibenzo(a,h)anthracene	0.071 U
Fluorene	0.061 U
Hexachlorobutadiene	0.061 U

G-52SD FR-195	
Acenaphthene	0.046 U
Acenaphthylene	0.051 U
Anthracene	0.062 U
Dibenzo(a,h)anthracene	0.066 U
Fluorene	0.058 U
Hexachlorobutadiene	0.058 U

G-53SD FR-196	
Acenaphthene	0.051 U
Acenaphthylene	0.057 U
Anthracene	0.069 U
Dibenzo(a,h)anthracene	0.074 U
Fluorene	0.064 U
Hexachlorobutadiene	0.064 U
Fluoranthene	0.0998 J

G-54SD FR-213	
Acenaphthene	0.052 U
Acenaphthylene	0.058 U
Anthracene	0.07 U
Dibenzo(a,h)anthracene	0.075 U
Fluorene	0.065 U
Hexachlorobutadiene	0.065 U

G-55SD FR-215	
2-Methylnaphthalene	0.09 U
Acenaphthene	0.082 U
Acenaphthylene	0.091 U
Anthracene	0.11 U
Dibenzo(a,h)anthracene	0.12 U
Fluorene	0.1 U
Hexachlorobutadiene	0.1 U

G-56SD FR-216	
Acenaphthene	0.048 U
Acenaphthylene	0.054 U
Anthracene	0.065 U
Dibenzo(a,h)anthracene	0.069 U
Fluorene	0.06 U
Hexachlorobutadiene	0.06 U

J-44SD FR-201A	
Acenaphthene	0.047 U
Acenaphthylene	0.053 U
Anthracene	0.063 U
Dibenzo(a,h)anthracene	0.067 U
Fluorene	0.059 U
Hexachlorobutadiene	0.059 U

J-45SD FR-203	
Acenaphthene	0.048 U
Acenaphthylene	0.053 U
Anthracene	0.064 U
Dibenzo(a,h)anthracene	0.069 U
Fluorene	0.06 U
Hexachlorobutadiene	0.06 U

J-57SD FR-212	
Acenaphthene	0.064 U
Acenaphthylene	0.071 U
Anthracene	0.086 U
Dibenzo(a,h)anthracene	0.092 U
Fluorene	0.08 U
Hexachlorobutadiene	0.08 U

J-58SD FR-218	
Acenaphthene	0.054 U
Acenaphthylene	0.06 U
Anthracene	0.072 U
Dibenzo(a,h)anthracene	0.077 U
Fluorene	0.067 U
Hexachlorobutadiene	0.067 U

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Above Sediment Marine Limit

Exceeds Sediment Marine Screening Level

0 90 180

Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3D
Ecological
SVOC Sediment Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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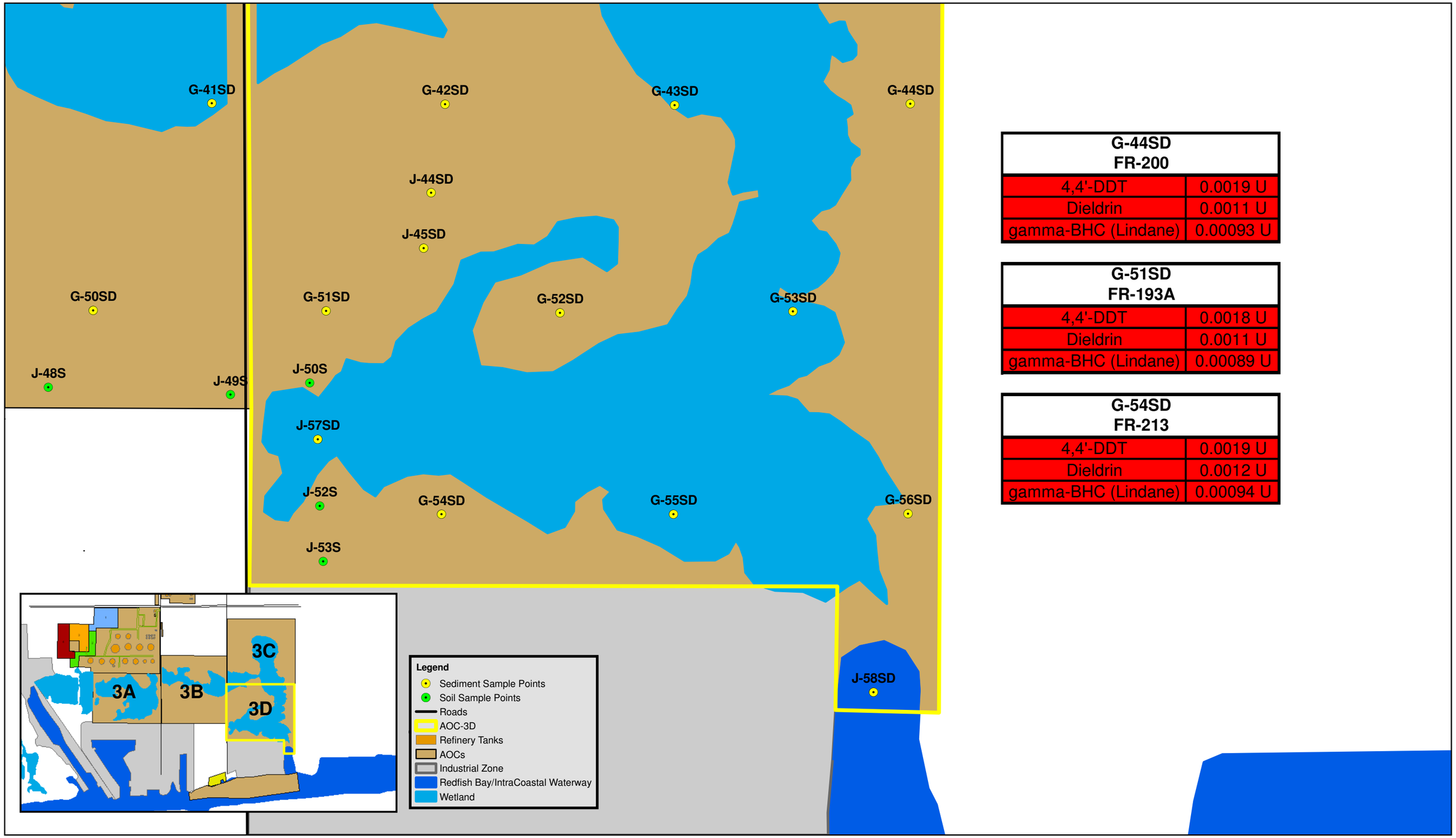
FIGURE

29L



G-44SD FR-200	
4,4'-DDT	0.0019 U
Dieldrin	0.0011 U
gamma-BHC (Lindane)	0.00093 U

G-51SD FR-193A	
4,4'-DDT	0.0018 U
Dieldrin	0.0011 U
gamma-BHC (Lindane)	0.00089 U

G-54SD FR-213	
4,4'-DDT	0.0019 U
Dieldrin	0.0012 U
gamma-BHC (Lindane)	0.00094 U

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Exceeds Sediment Marine Screening Level

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3D
Ecological
Pesticide Sediment Distribution Map

FALCON REFINERY
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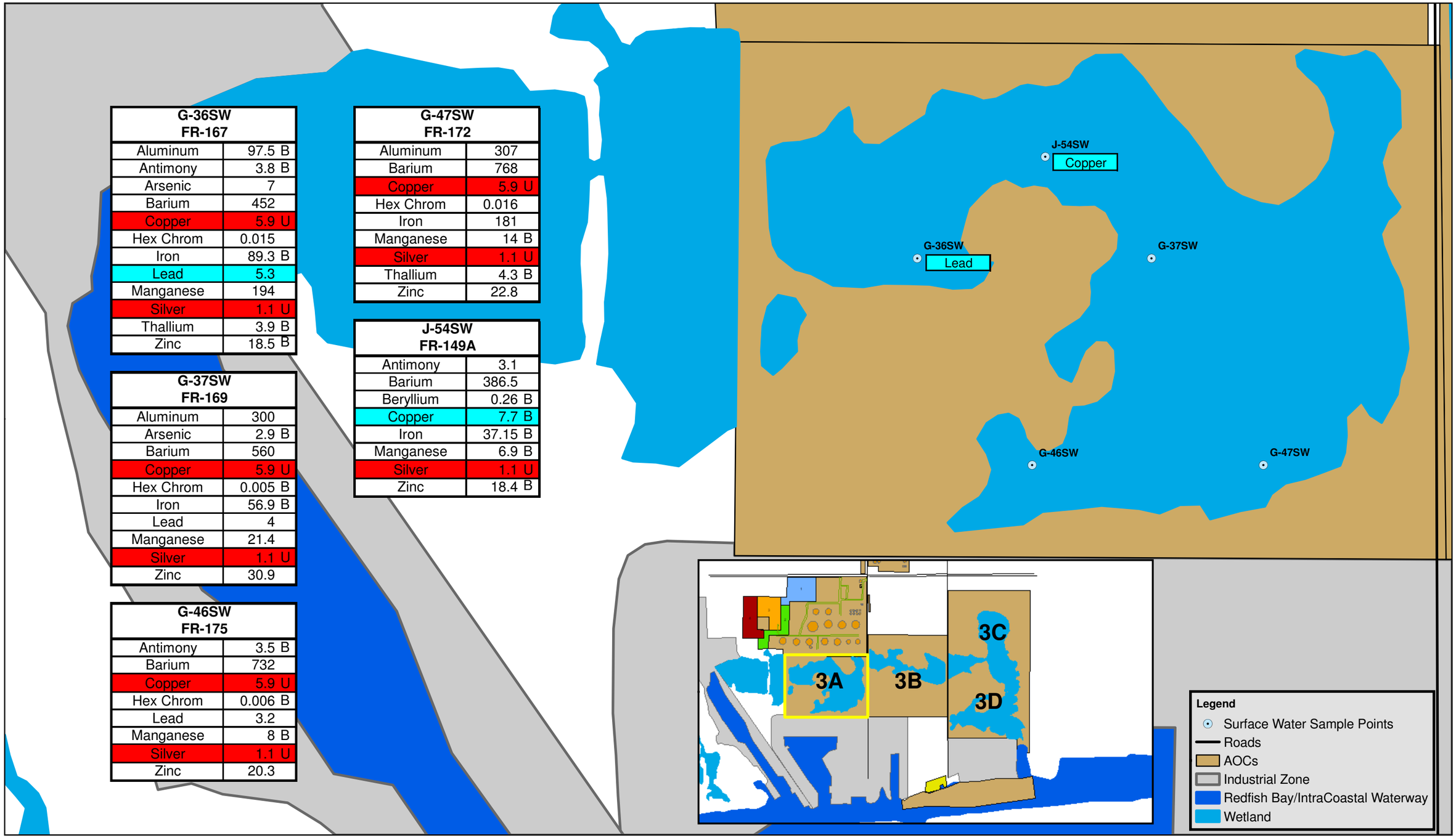
FIGURE
29M



G-36SW FR-167	
Aluminum	97.5 B
Antimony	3.8 B
Arsenic	7
Barium	452
Copper	5.9 U
Hex Chrom	0.015
Iron	89.3 B
Lead	5.3
Manganese	194
Silver	1.1 U
Thallium	3.9 B
Zinc	18.5 B

G-37SW FR-169	
Aluminum	300
Arsenic	2.9 B
Barium	560
Copper	5.9 U
Hex Chrom	0.005 B
Iron	56.9 B
Lead	4
Manganese	21.4
Silver	1.1 U
Zinc	30.9

G-46SW FR-175	
Antimony	3.5 B
Barium	732
Copper	5.9 U
Hex Chrom	0.006 B
Lead	3.2
Manganese	8 B
Silver	1.1 U
Zinc	20.3

G-47SW FR-172	
Aluminum	307
Barium	768
Copper	5.9 U
Hex Chrom	0.016
Iron	181
Manganese	14 B
Silver	1.1 U
Thallium	4.3 B
Zinc	22.8

J-54SW FR-149A	
Antimony	3.1
Barium	386.5
Beryllium	0.26 B
Copper	7.7 B
Iron	37.15 B
Manganese	6.9 B
Silver	1.1 U
Zinc	18.4 B

Notes:

1. Results are posted in µg/l
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Above Marine Limit

Exceeds Marine Screening Level

0 100 200

Feet

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APPROVED BY:	

AOC-3A
Ecological
Metal Surface Water Distribution Map

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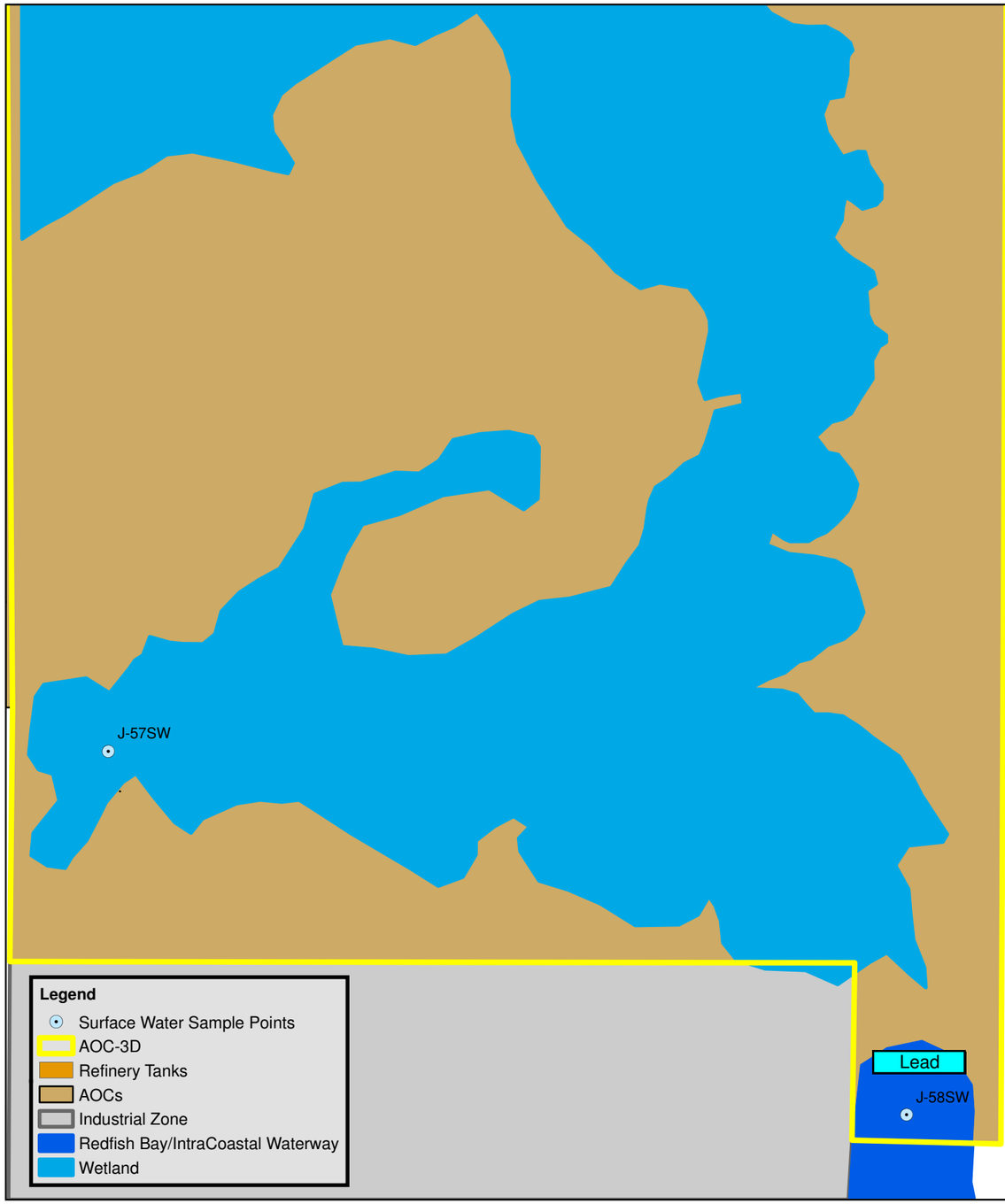
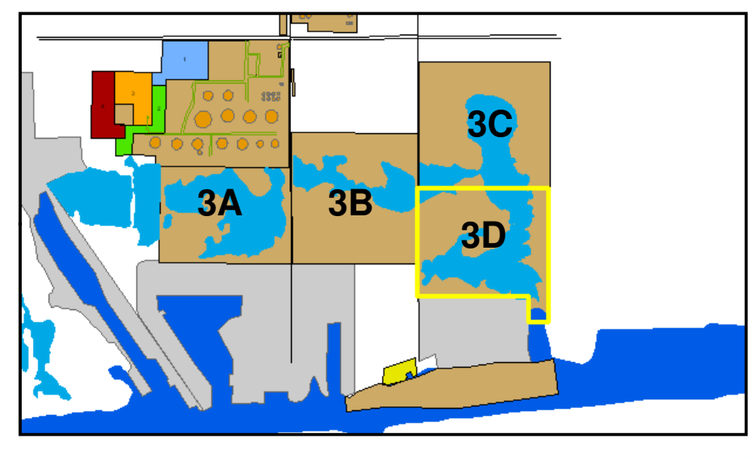
FIGURE

30A



J-57SW FR-211	
Aluminum	699
Antimony	4.1 B
Arsenic	10.6
Barium	393
Copper	5.9 U
Iron	576
Lead	4.8
Manganese	151
Nickel	3.7 B
Silver	1.1 U
Vanadium	5.1 B
Zinc	75.8

J-58SW FR-217	
Aluminum	128 B
Antimony	4.2 B
Barium	49.1 B
Copper	5.9 U
Iron	104
Lead	10.2
Manganese	14.5 B
Silver	1.1 U
Thallium	9.2 B
Vanadium	1.6 B
Zinc	21.7



Notes:

1. Results are posted in µg/l
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Above Marine Limit

Exceeds Marine Screening Level

N

0 110 220

Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3D
Ecological
Metal Surface Water Soil Distribution Map

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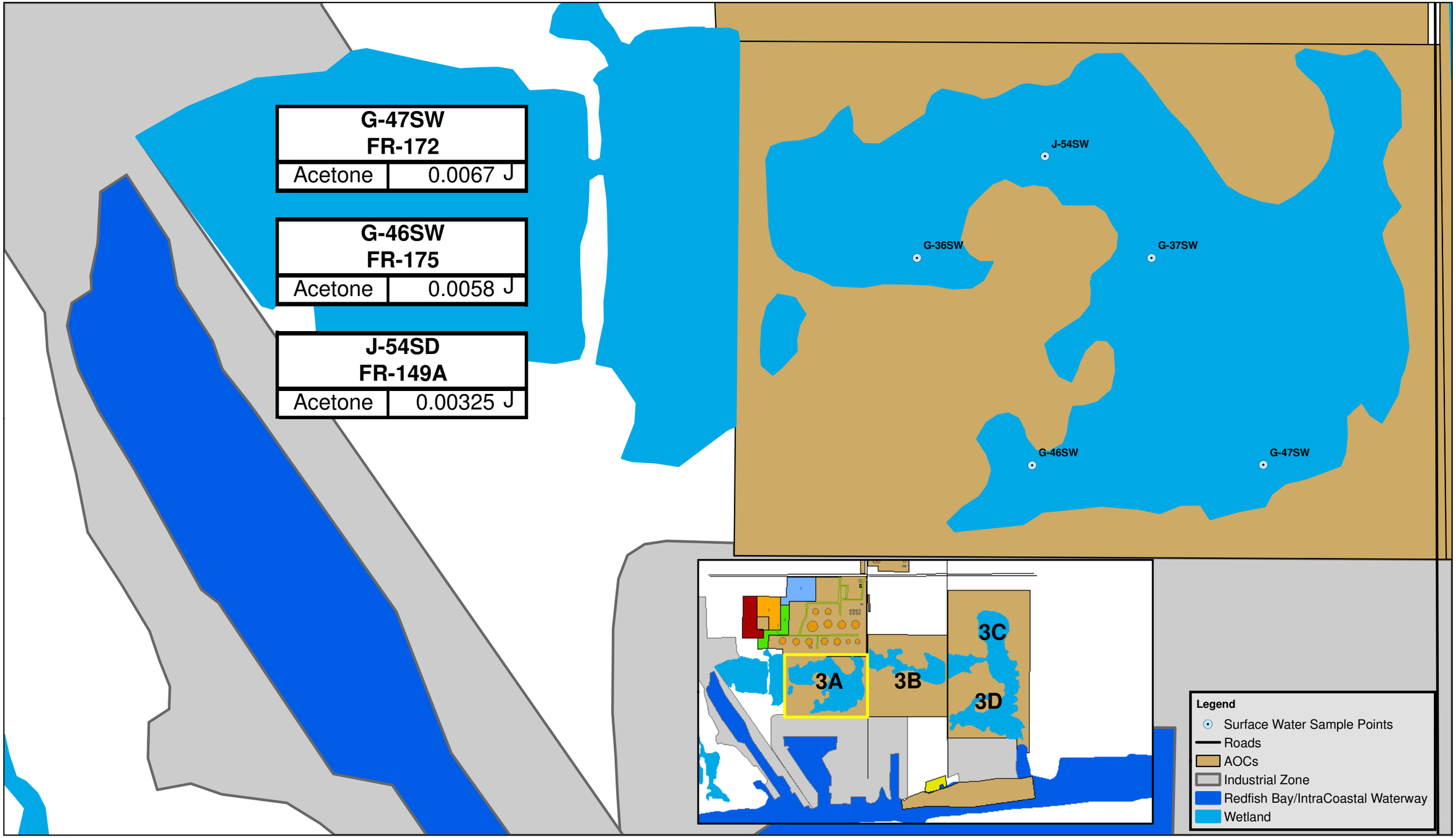
FIGURE

30B



Notes:

1. Results are posted in mg/l
2. Qualifiers:

   J = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

N

0 100 200
Feet

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Ecological
VOC Surface Water Distribution Map

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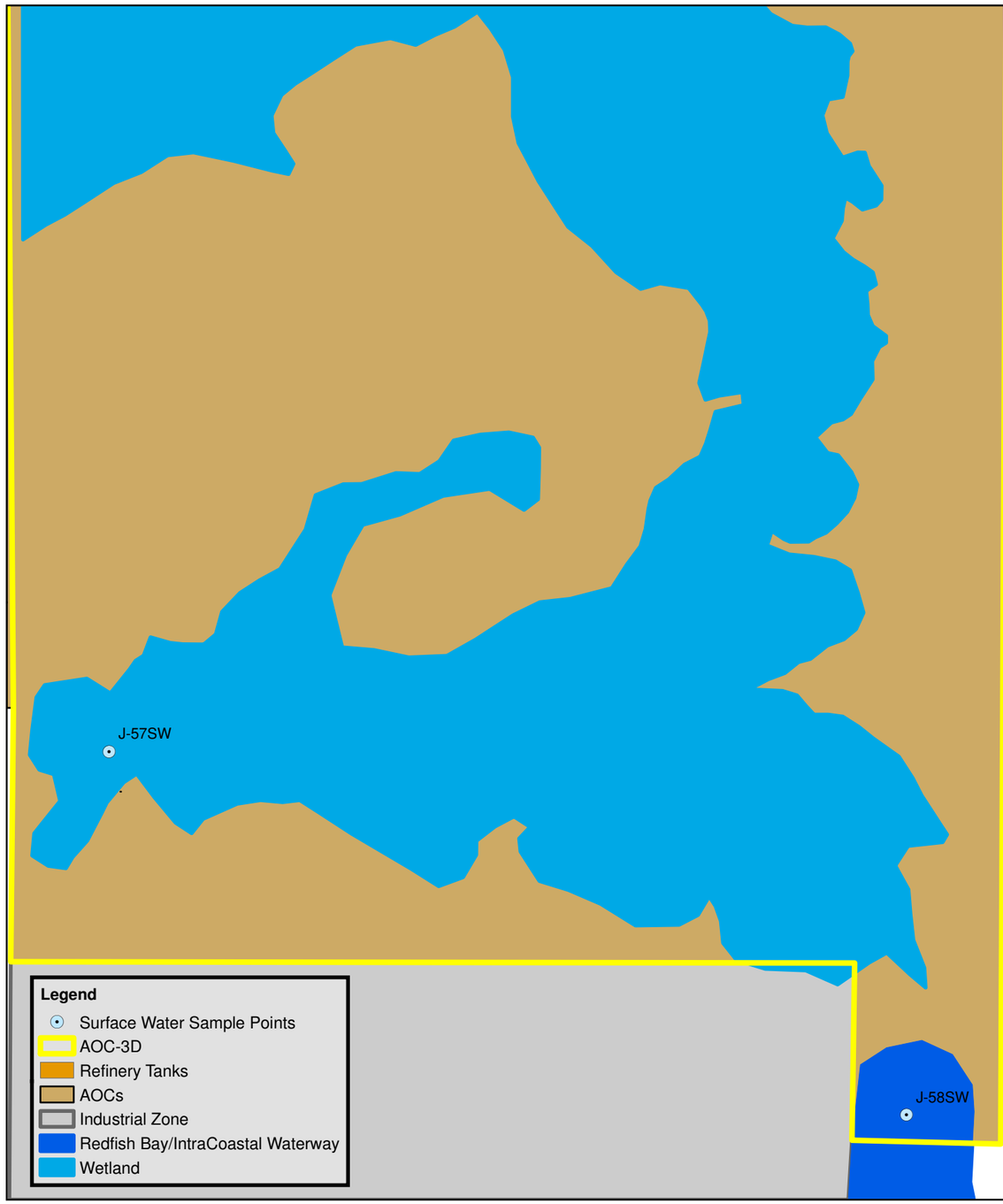
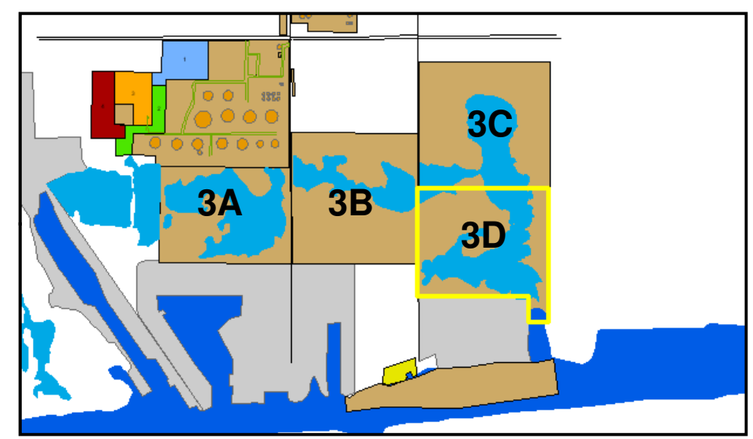
FIGURE
30C



J-57SW FR-211	
Acetone	0.0056 J



Notes:

1. Results are posted in mg/l
2. Qualifiers:

J = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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AOC-3D
Ecological
VOC Surface Water Distribution Map

FALCON REFINERY
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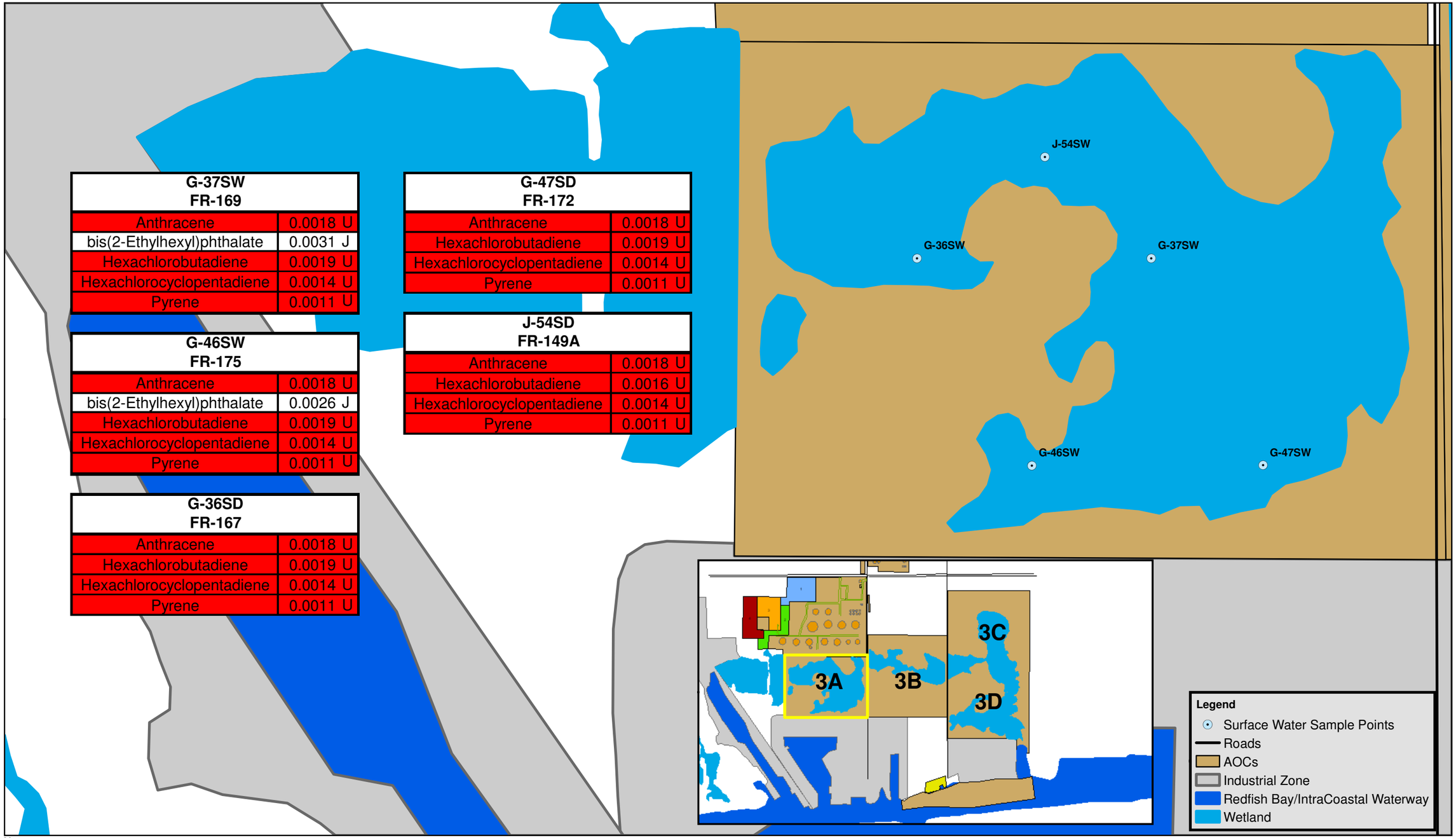
FIGURE
30D



G-37SW FR-169	
Anthracene	0.0018 U
bis(2-Ethylhexyl)phthalate	0.0031 J
Hexachlorobutadiene	0.0019 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

G-46SW FR-175	
Anthracene	0.0018 U
bis(2-Ethylhexyl)phthalate	0.0026 J
Hexachlorobutadiene	0.0019 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

G-36SD FR-167	
Anthracene	0.0018 U
Hexachlorobutadiene	0.0019 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

G-47SD FR-172	
Anthracene	0.0018 U
Hexachlorobutadiene	0.0019 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

J-54SD FR-149A	
Anthracene	0.0018 U
Hexachlorobutadiene	0.0016 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

Notes:

1. Results are posted in mg/l
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - J = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Marine Screening Level

N

0 100 200
Feet

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APPROVED BY:	

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Ecological
SVOC Surface Water Distribution Map

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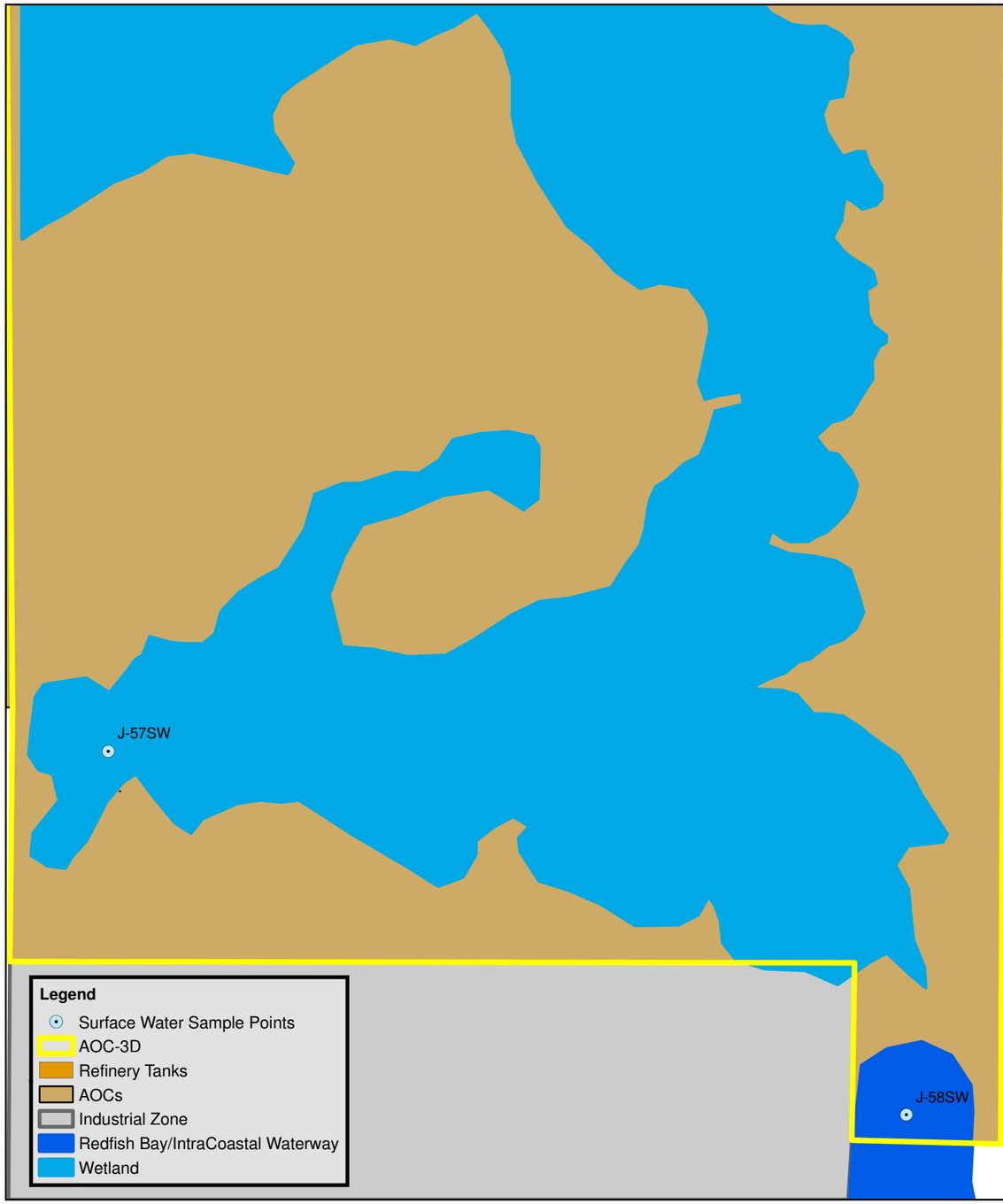
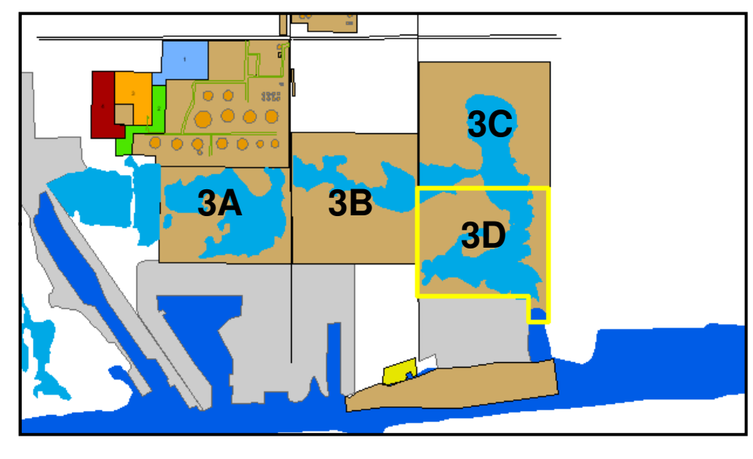
FIGURE
30E



J-57SW FR-211	
Anthracene	0.0018 U
bis(2-Ethylhexyl)phthalate	0.0026 J
Hexachlorobutadiene	0.0019 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

J-58SD FR-217	
Anthracene	0.0018 U
Hexachlorobutadiene	0.0019 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U



Notes:

1. Results are posted in mg/l
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - J = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Marine Screening Level

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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APPROVED BY:	

AOC-3D
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SVOC Surface Water Soil Distribution Map

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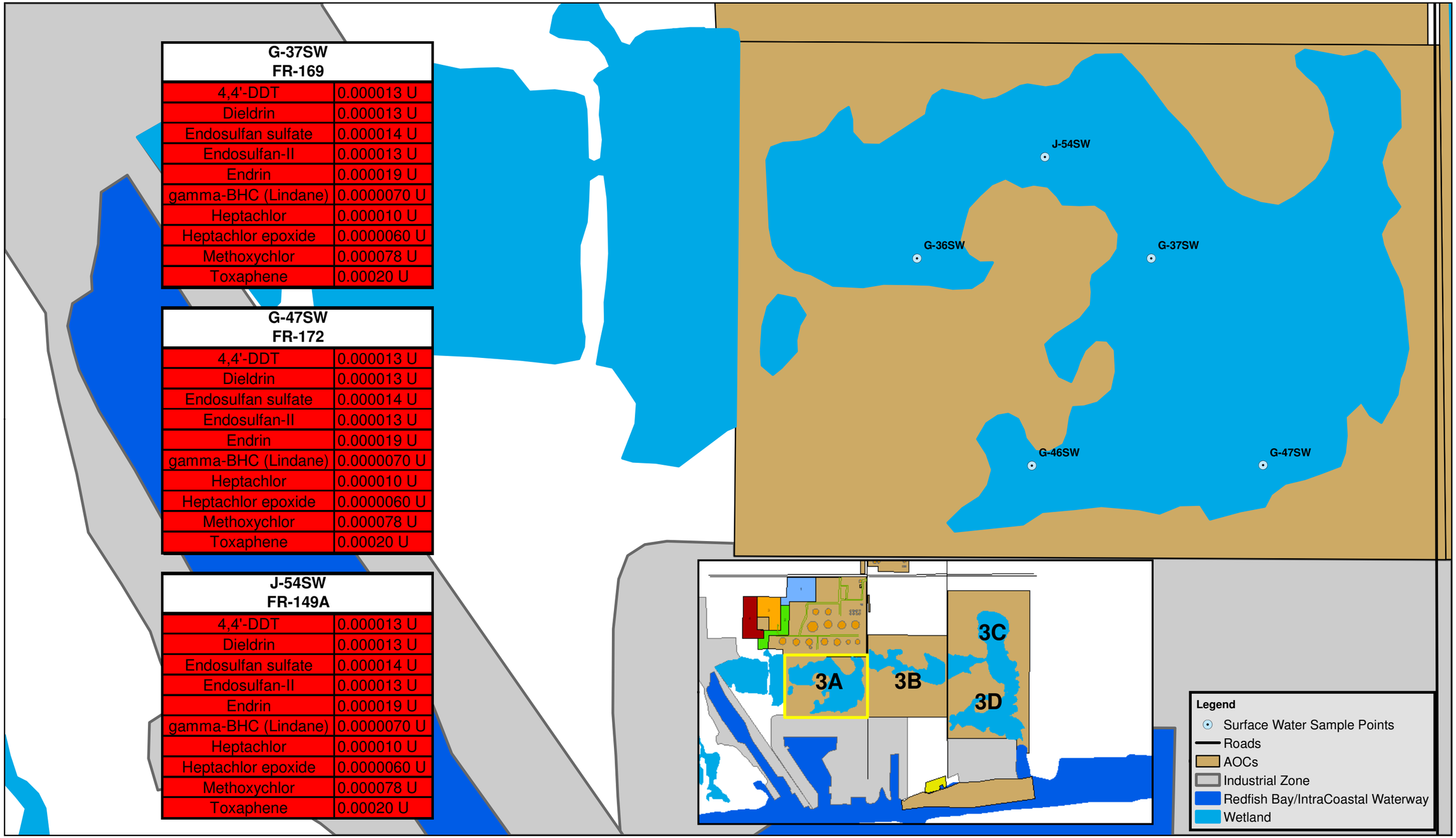
FIGURE
30F



G-37SW FR-169	
4,4'-DDT	0.000013 U
Dieldrin	0.000013 U
Endosulfan sulfate	0.000014 U
Endosulfan-II	0.000013 U
Endrin	0.000019 U
gamma-BHC (Lindane)	0.0000070 U
Heptachlor	0.000010 U
Heptachlor epoxide	0.0000060 U
Methoxychlor	0.000078 U
Toxaphene	0.00020 U

G-47SW FR-172	
4,4'-DDT	0.000013 U
Dieldrin	0.000013 U
Endosulfan sulfate	0.000014 U
Endosulfan-II	0.000013 U
Endrin	0.000019 U
gamma-BHC (Lindane)	0.0000070 U
Heptachlor	0.000010 U
Heptachlor epoxide	0.0000060 U
Methoxychlor	0.000078 U
Toxaphene	0.00020 U

J-54SW FR-149A	
4,4'-DDT	0.000013 U
Dieldrin	0.000013 U
Endosulfan sulfate	0.000014 U
Endosulfan-II	0.000013 U
Endrin	0.000019 U
gamma-BHC (Lindane)	0.0000070 U
Heptachlor	0.000010 U
Heptachlor epoxide	0.0000060 U
Methoxychlor	0.000078 U
Toxaphene	0.00020 U

Notes:

1. Results are posted in mg/l
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Exceeds Marine Screening Level

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
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AOC-3A
Ecological
Pesticide Surface Water Distribution Map

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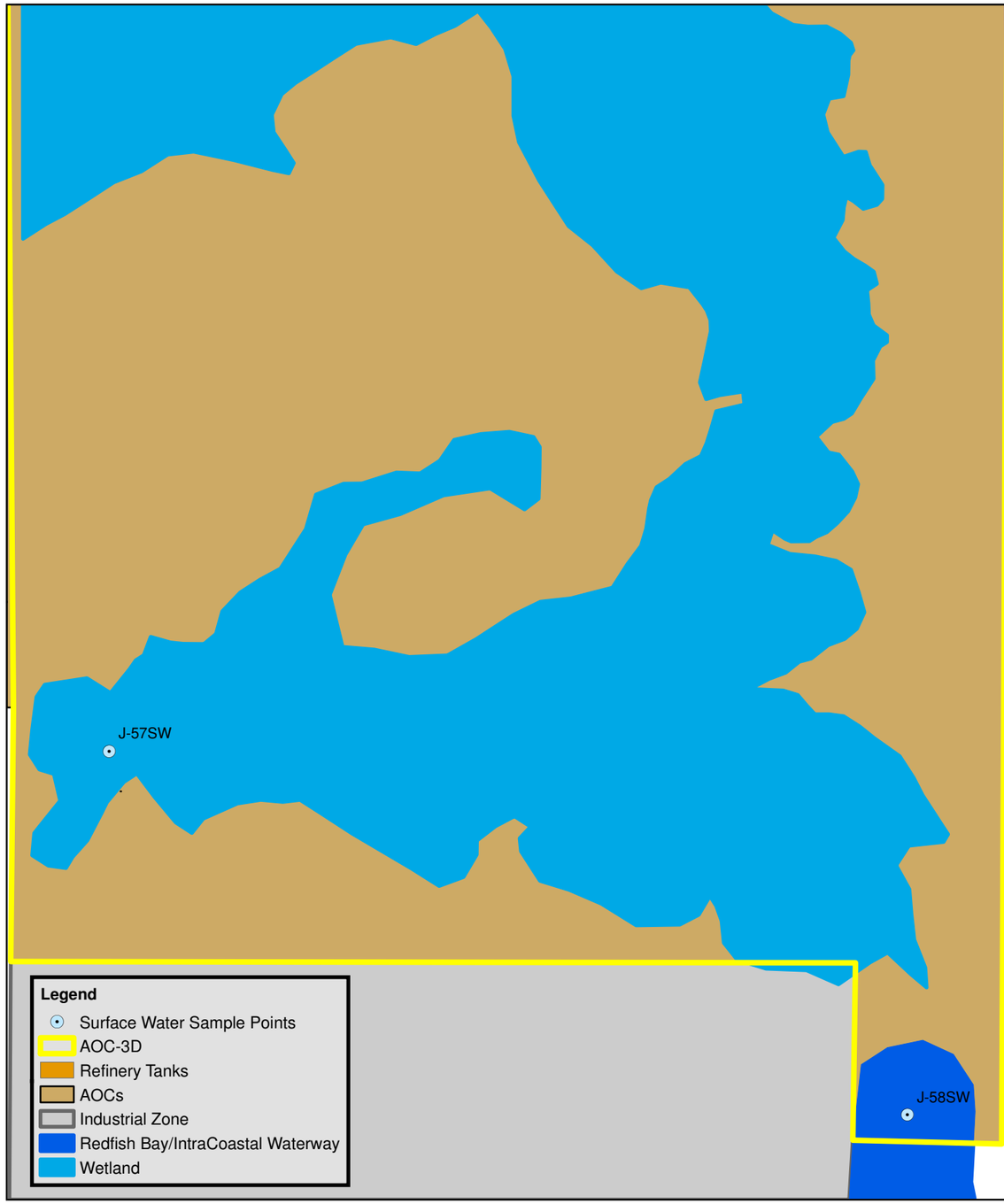
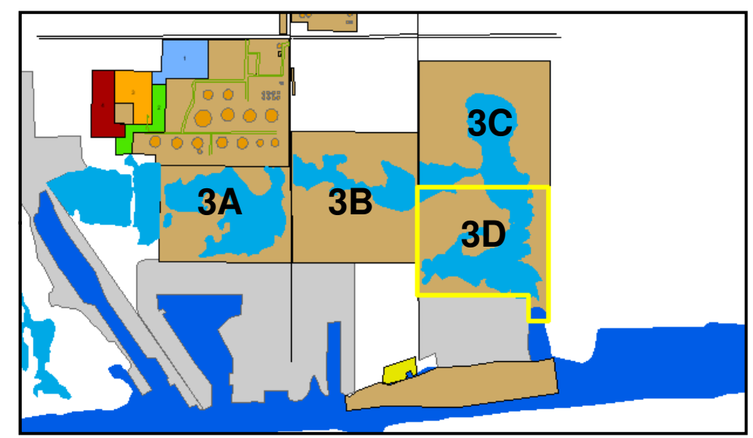
FIGURE
30G



J-57SW FR-211	
4,4'-DDT	0.000013 U
Dieldrin	0.000013 U
Endosulfan sulfate	0.000014 U
Endosulfan-II	0.000013 U
Endrin	0.000019 U
gamma-BHC (Lindane)	0.0000070 U
Heptachlor	0.000010 U
Heptachlor epoxide	0.0000060 U
Methoxychlor	0.000078 U
Toxaphene	0.00020 U

J-58SW FR-217	
4,4'-DDT	0.000013 U
Dieldrin	0.000013 U
Endosulfan sulfate	0.000014 U
Endosulfan-II	0.000013 U
Endrin	0.000019 U
gamma-BHC (Lindane)	0.0000070 U
Heptachlor	0.000010 U
Heptachlor epoxide	0.0000060 U
Methoxychlor	0.000078 U
Toxaphene	0.00020 U



Notes:

1. Results are posted in mg/l
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

Exceeds Marine Screening Level

N

0 100 200
Feet

DATE DRAWN: 7/8/08	DATE REVISED:
DRAFTED BY:	C. SEATON
CHECKED BY:	S. HALASZ
APPROVED BY:	

AOC-3D
Ecological
Pesticide Surface Water Soil Distribution Map

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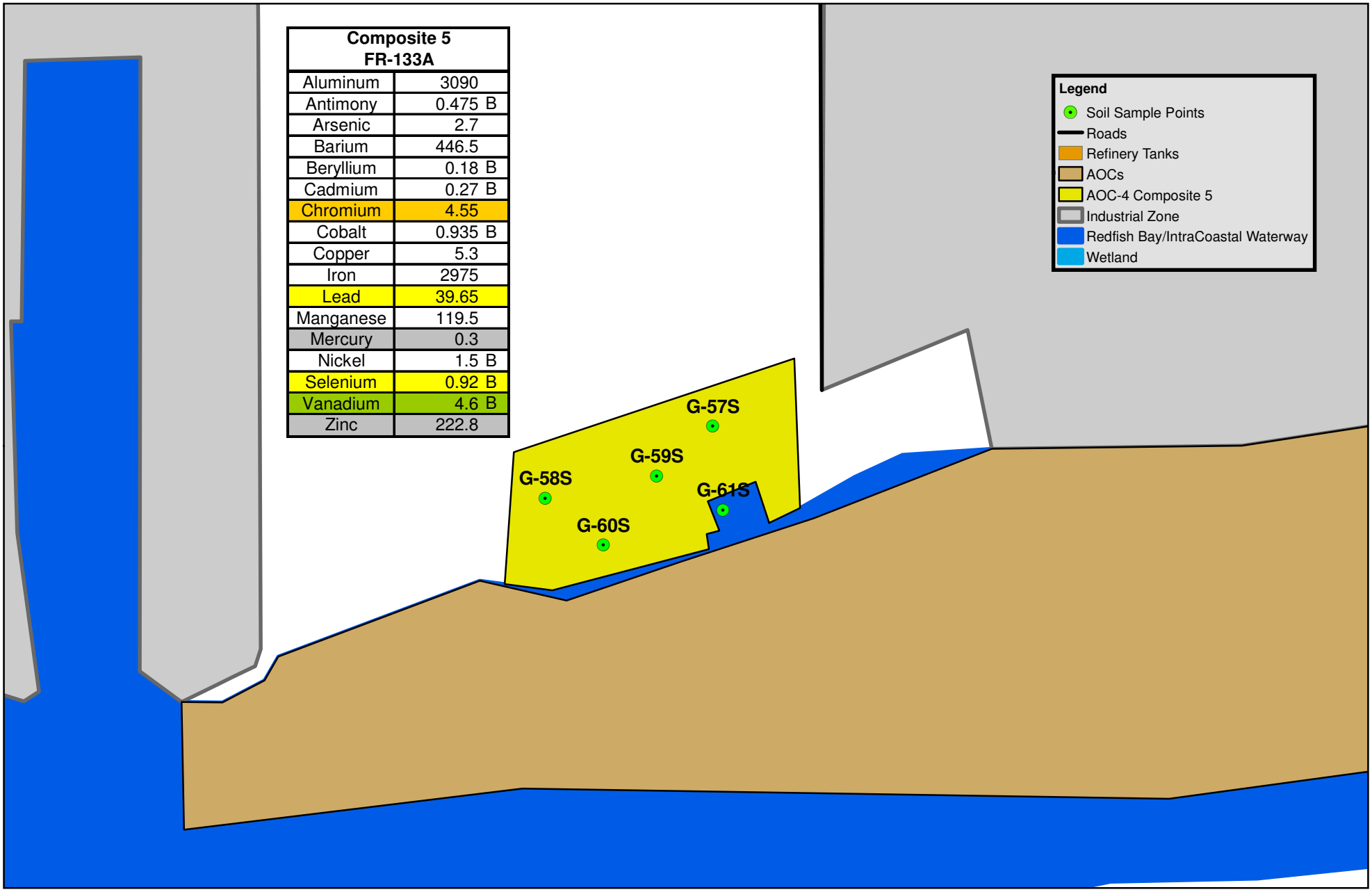
FIGURE
30H



Composite 5 FR-133A	
Aluminum	3090
Antimony	0.475 B
Arsenic	2.7
Barium	446.5
Beryllium	0.18 B
Cadmium	0.27 B
Chromium	4.55
Cobalt	0.935 B
Copper	5.3
Iron	2975
Lead	39.65
Manganese	119.5
Mercury	0.3
Nickel	1.5 B
Selenium	0.92 B
Vanadium	4.6 B
Zinc	222.8

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm, Plant, and Median Background Limits

0 50 100
Feet

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APPROVED BY:	

AOC-4
Ecological
Metal Surface Soil Distribution Map

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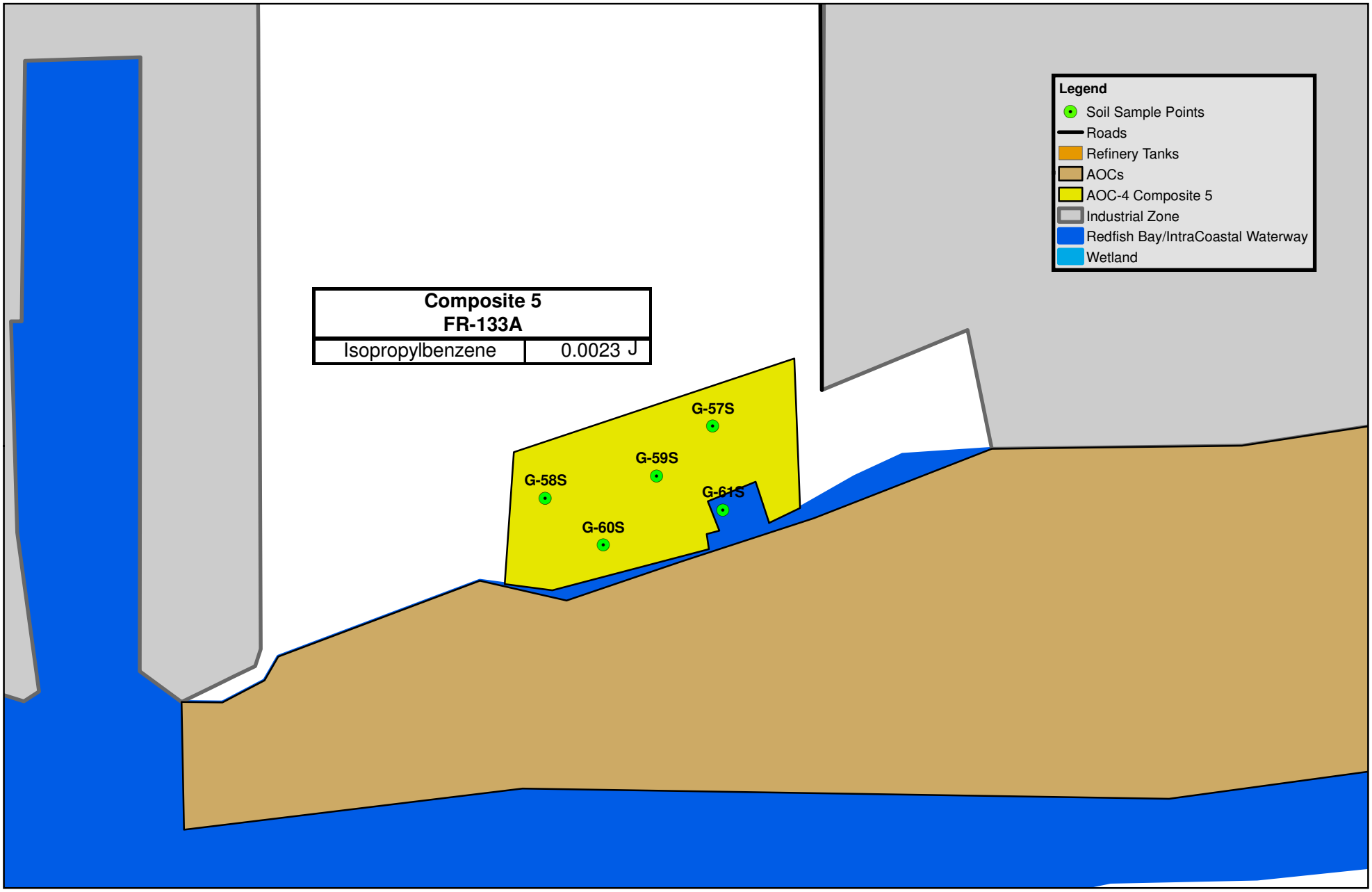
FIGURE
31A



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

DATE DRAWN: 5/7/08	DATE REVISED:
DRAFTED BY: C. SEATON	
CHECKED BY: S. HALASZ	
APPROVED BY:	

AOC-4
Ecological
VOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 FILE NAME: Falcon Refinery Base Map

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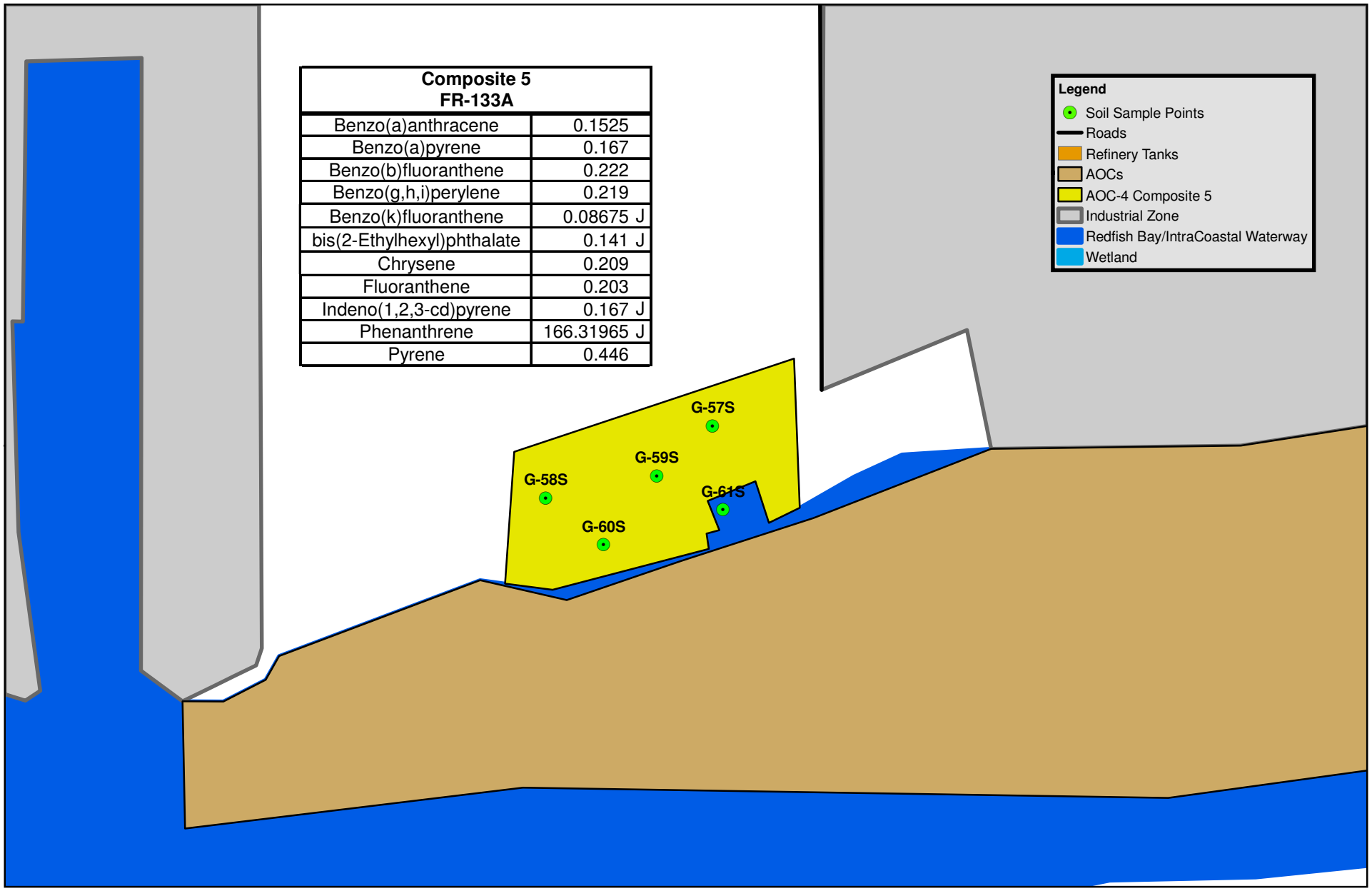
FIGURE
31B



Composite 5 FR-133A	
Benzo(a)anthracene	0.1525
Benzo(a)pyrene	0.167
Benzo(b)fluoranthene	0.222
Benzo(g,h,i)perylene	0.219
Benzo(k)fluoranthene	0.08675 J
bis(2-Ethylhexyl)phthalate	0.141 J
Chrysene	0.209
Fluoranthene	0.203
Indeno(1,2,3-cd)pyrene	0.167 J
Phenanthrene	166.31965 J
Pyrene	0.446

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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APPROVED BY:	

AOC-4
Ecological
SVOC Surface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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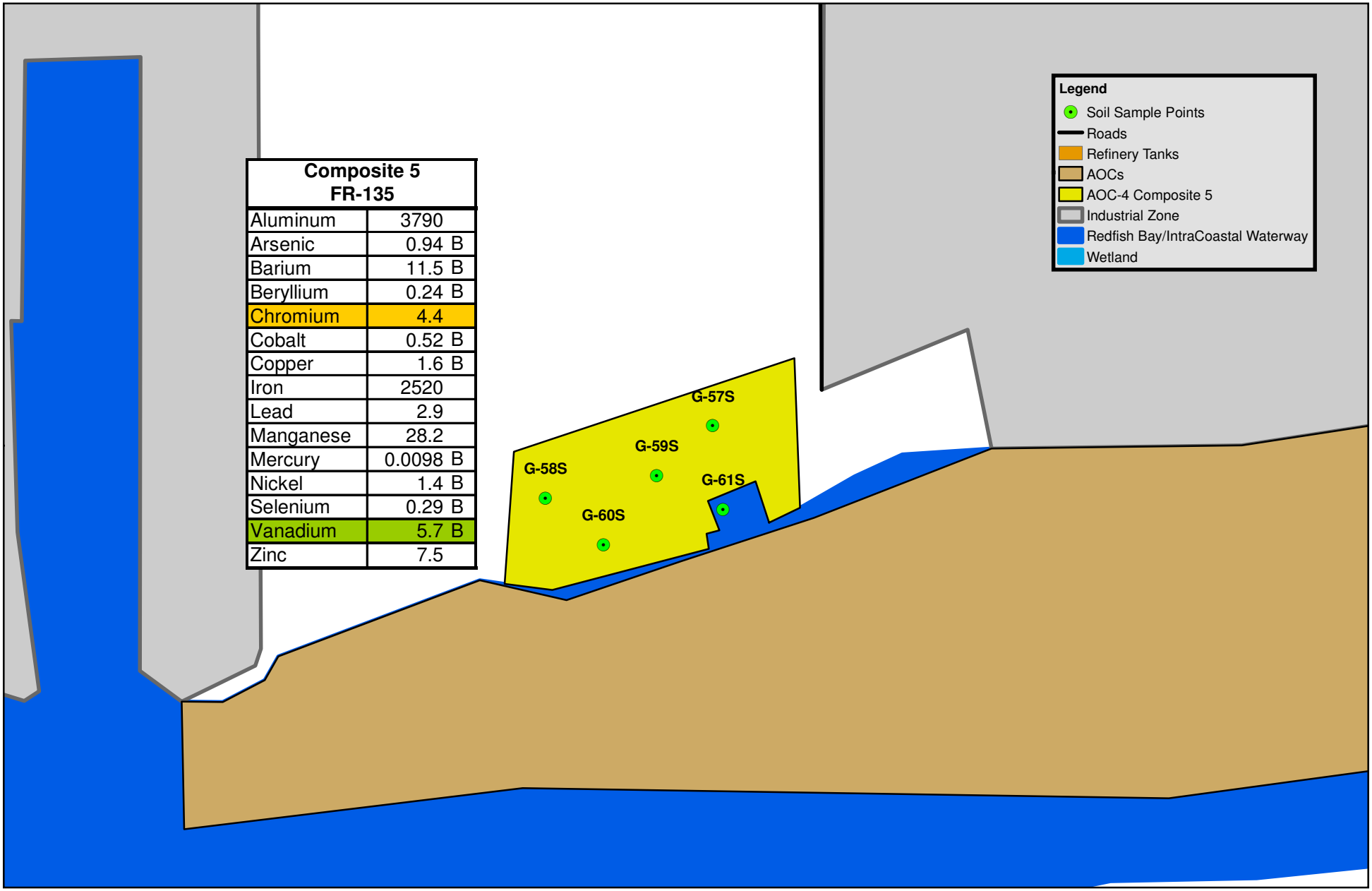
FIGURE
31C



Composite 5 FR-135	
Aluminum	3790
Arsenic	0.94 B
Barium	11.5 B
Beryllium	0.24 B
Chromium	4.4
Cobalt	0.52 B
Copper	1.6 B
Iron	2520
Lead	2.9
Manganese	28.2
Mercury	0.0098 B
Nickel	1.4 B
Selenium	0.29 B
Vanadium	5.7 B
Zinc	7.5

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit

Exceeds Earthworm and Plant Limits

0 50 100

Feet

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APPROVED BY:	

AOC-4
Ecological
Metal Subsurface Soil Distribution Map

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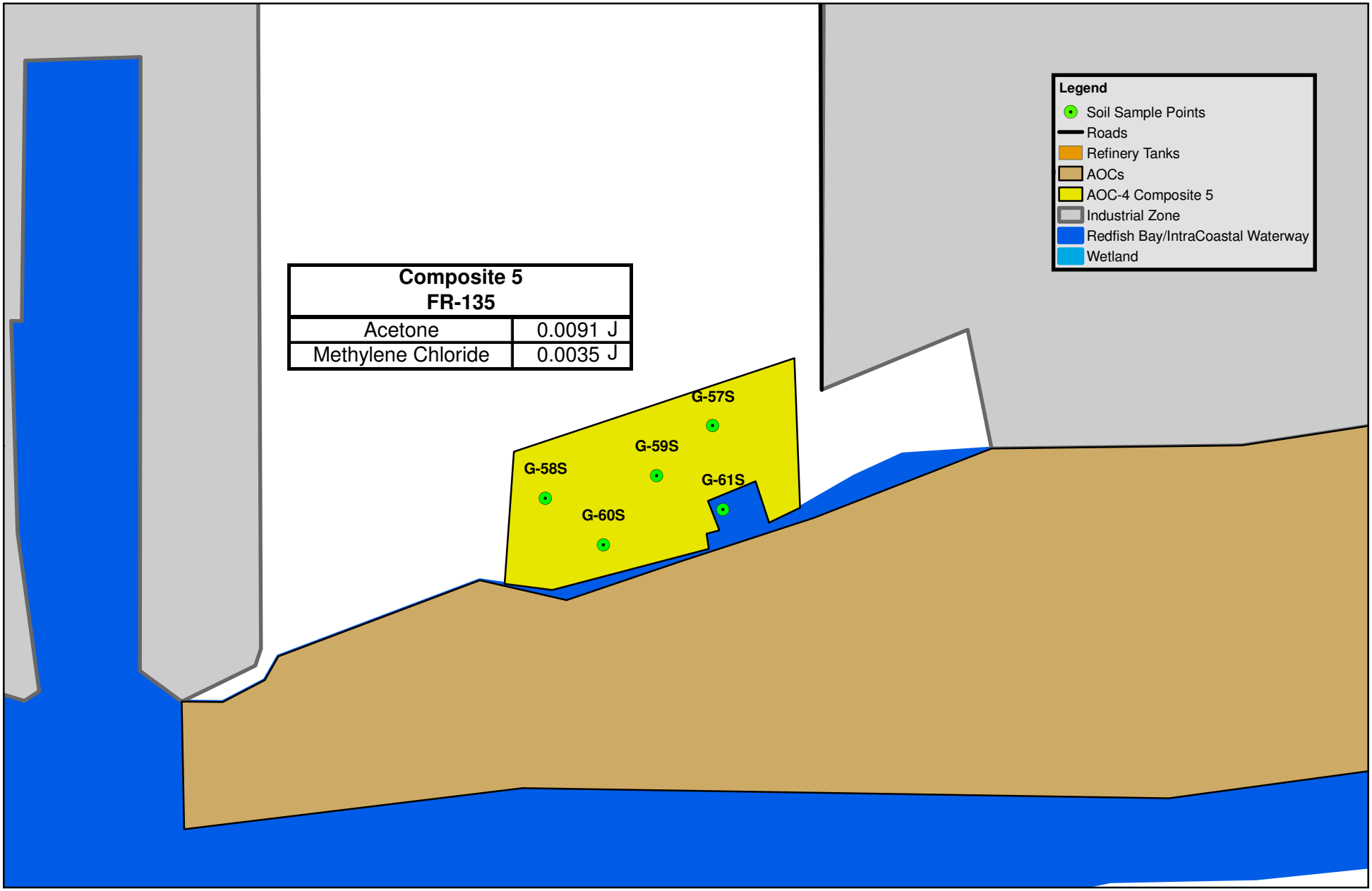
FIGURE

32A



Composite 5 FR-135	
Acetone	0.0091 J
Methylene Chloride	0.0035 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

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APPROVED BY:	

AOC-4
Ecological
VOC Subsurface Soil Distribution Map

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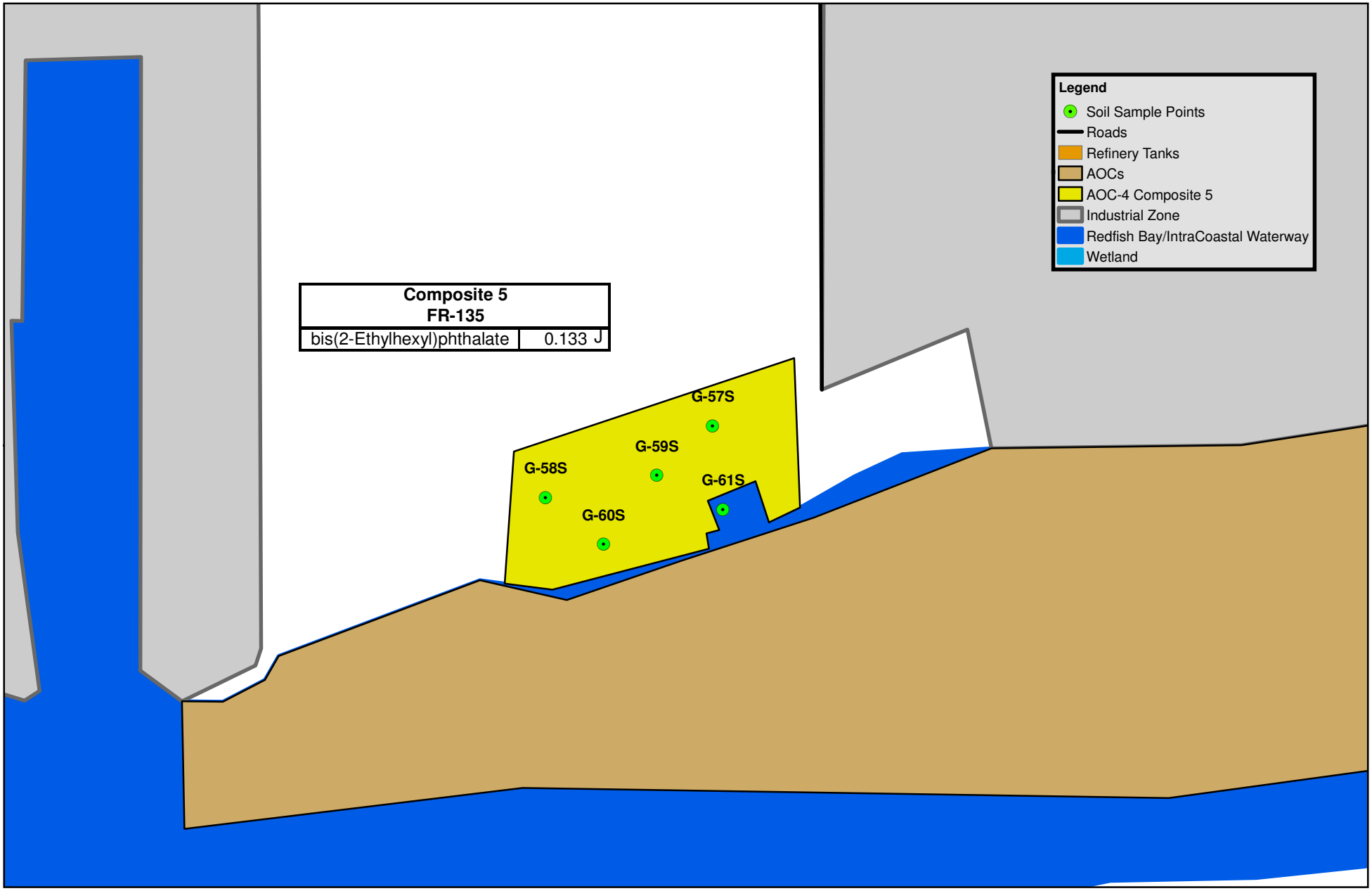
FIGURE
32B



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 50 100
Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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SVOC Subsurface Soil Distribution Map

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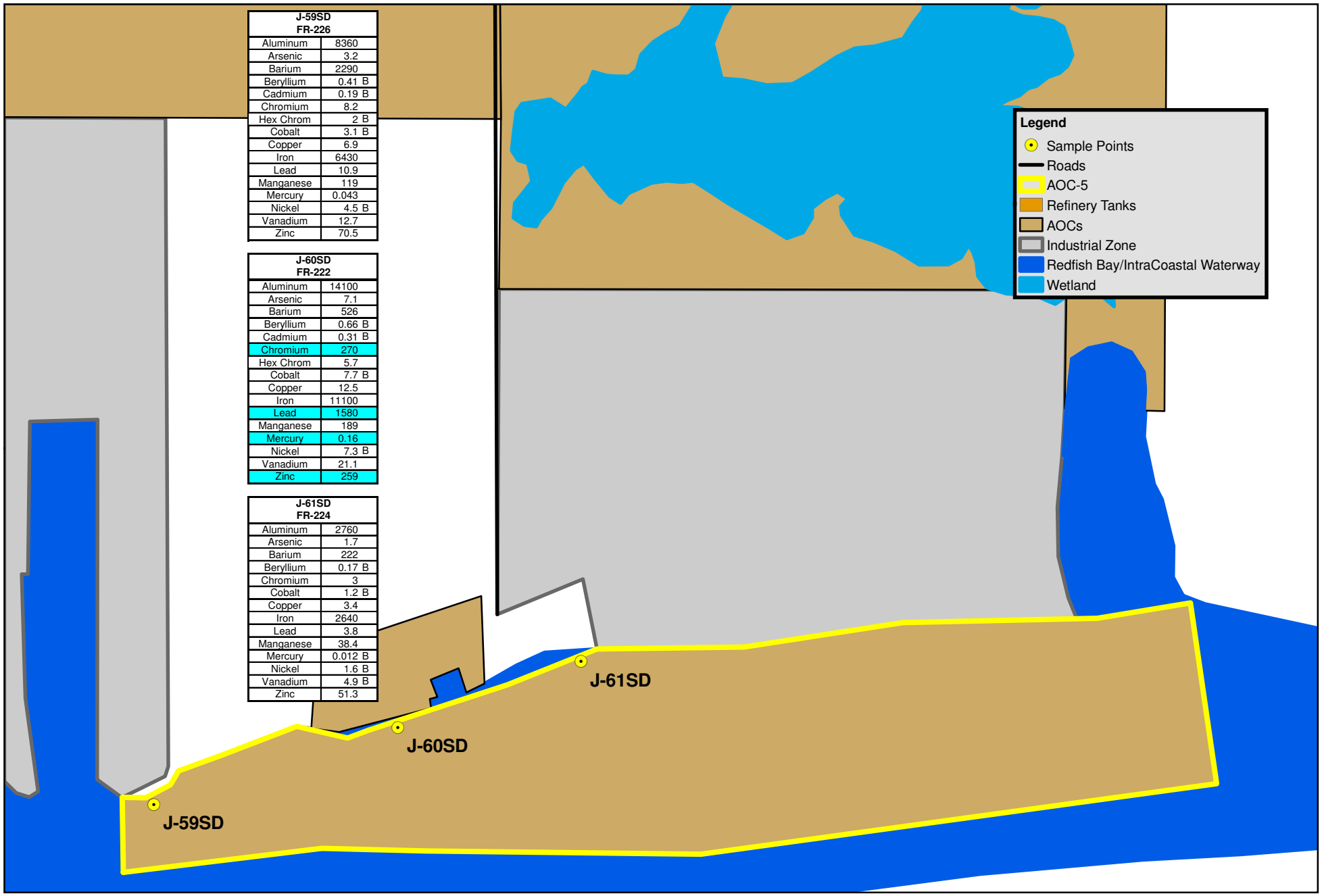
FIGURE
32C



J-59SD FR-226	
Aluminum	8360
Arsenic	3.2
Barium	2290
Beryllium	0.41 B
Cadmium	0.19 B
Chromium	8.2
Hex Chrom	2 B
Cobalt	3.1 B
Copper	6.9
Iron	6430
Lead	10.9
Manganese	119
Mercury	0.043
Nickel	4.5 B
Vanadium	12.7
Zinc	70.5

J-60SD FR-222	
Aluminum	14100
Arsenic	7.1
Barium	526
Beryllium	0.66 B
Cadmium	0.31 B
Chromium	270
Hex Chrom	5.7
Cobalt	7.7 B
Copper	12.5
Iron	11100
Lead	1580
Manganese	189
Mercury	0.16
Nickel	7.3 B
Vanadium	21.1
Zinc	259

J-61SD FR-224	
Aluminum	2760
Arsenic	1.7
Barium	222
Beryllium	0.17 B
Chromium	3
Cobalt	1.2 B
Copper	3.4
Iron	2640
Lead	3.8
Manganese	38.4
Mercury	0.012 B
Nickel	1.6 B
Vanadium	4.9 B
Zinc	51.3

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Above Sediment Marine Limit

N

0 100 200

Feet

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AOC-5
Ecological
Metal Sediment Distribution Map

FALCON REFINERY
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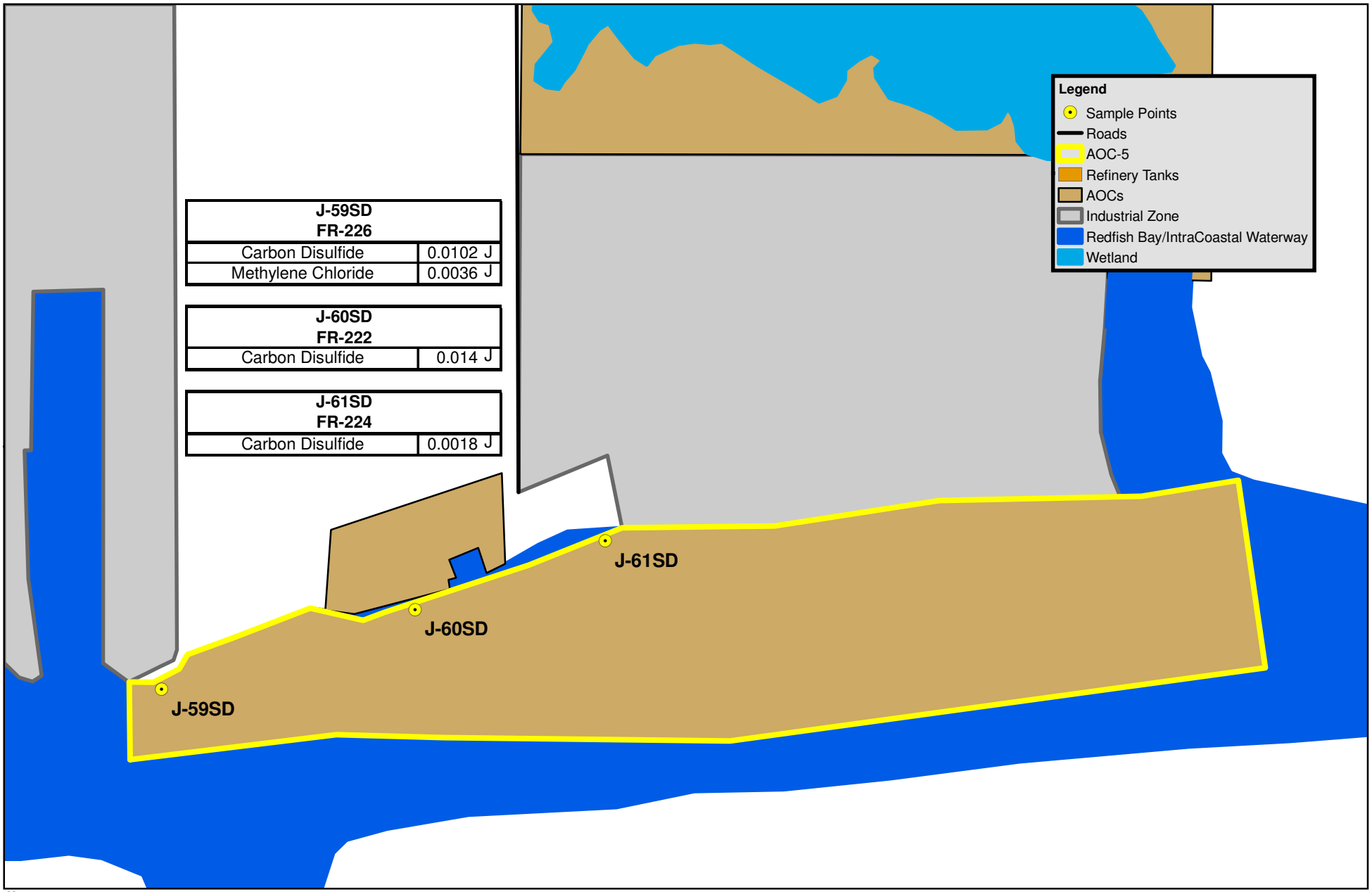
FIGURE

33A



J-59SD FR-226	
Carbon Disulfide	0.0102 J
Methylene Chloride	0.0036 J

J-60SD FR-222	
Carbon Disulfide	0.014 J

J-61SD FR-224	
Carbon Disulfide	0.0018 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 110 220
Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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APPROVED BY:	

AOC-5
Ecological
VOC Sediment Distribution Map

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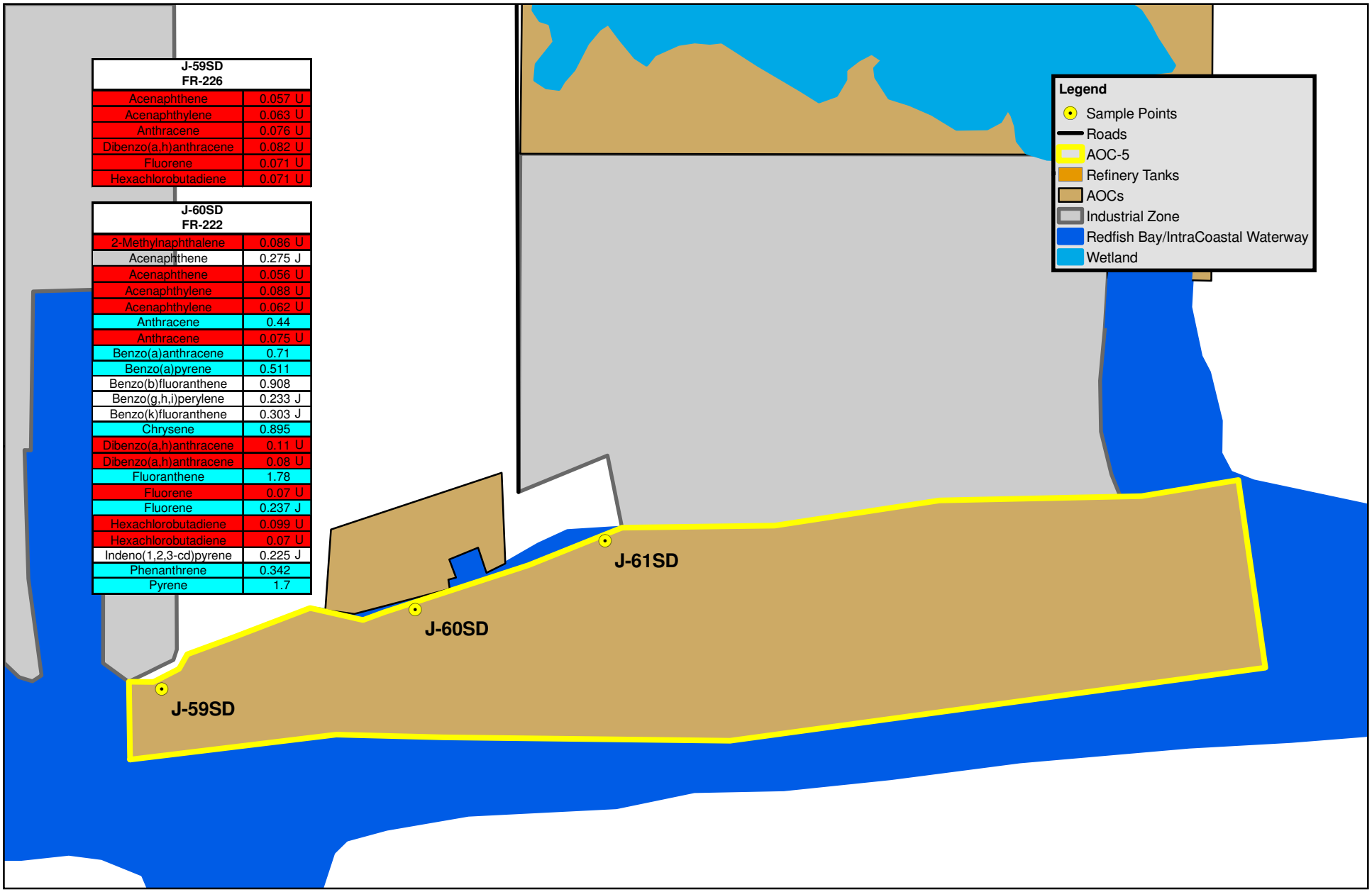
FIGURE
33B



J-59SD FR-226	
Acenaphthene	0.057 U
Acenaphthylene	0.063 U
Anthracene	0.076 U
Dibenzo(a,h)anthracene	0.082 U
Fluorene	0.071 U
Hexachlorobutadiene	0.071 U

J-60SD FR-222	
2-Methylnaphthalene	0.086 U
Acenaphthene	0.275 J
Acenaphthene	0.056 U
Acenaphthylene	0.088 U
Acenaphthylene	0.062 U
Anthracene	0.44
Anthracene	0.075 U
Benzo(a)anthracene	0.71
Benzo(a)pyrene	0.511
Benzo(b)fluoranthene	0.908
Benzo(g,h,i)perylene	0.233 J
Benzo(k)fluoranthene	0.303 J
Chrysene	0.895
Dibenzo(a,h)anthracene	0.11 U
Dibenzo(a,h)anthracene	0.08 U
Fluoranthene	1.78
Fluorene	0.07 U
Fluorene	0.237 J
Hexachlorobutadiene	0.099 U
Hexachlorobutadiene	0.07 U
Indeno(1,2,3-cd)pyrene	0.225 J
Phenanthrene	0.342
Pyrene	1.7

Notes:

1. Results are posted in mg/kg
2. Qualifiers:
   - U = Undetected at the sample detection limit (SDL)
   - J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

Above Sediment Marine Limit

Exceeds Sediment Marine Screening Level

N

0 80 160

Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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APPROVED BY:	

AOC-5
Ecological
SVOC Sediment Distribution Map

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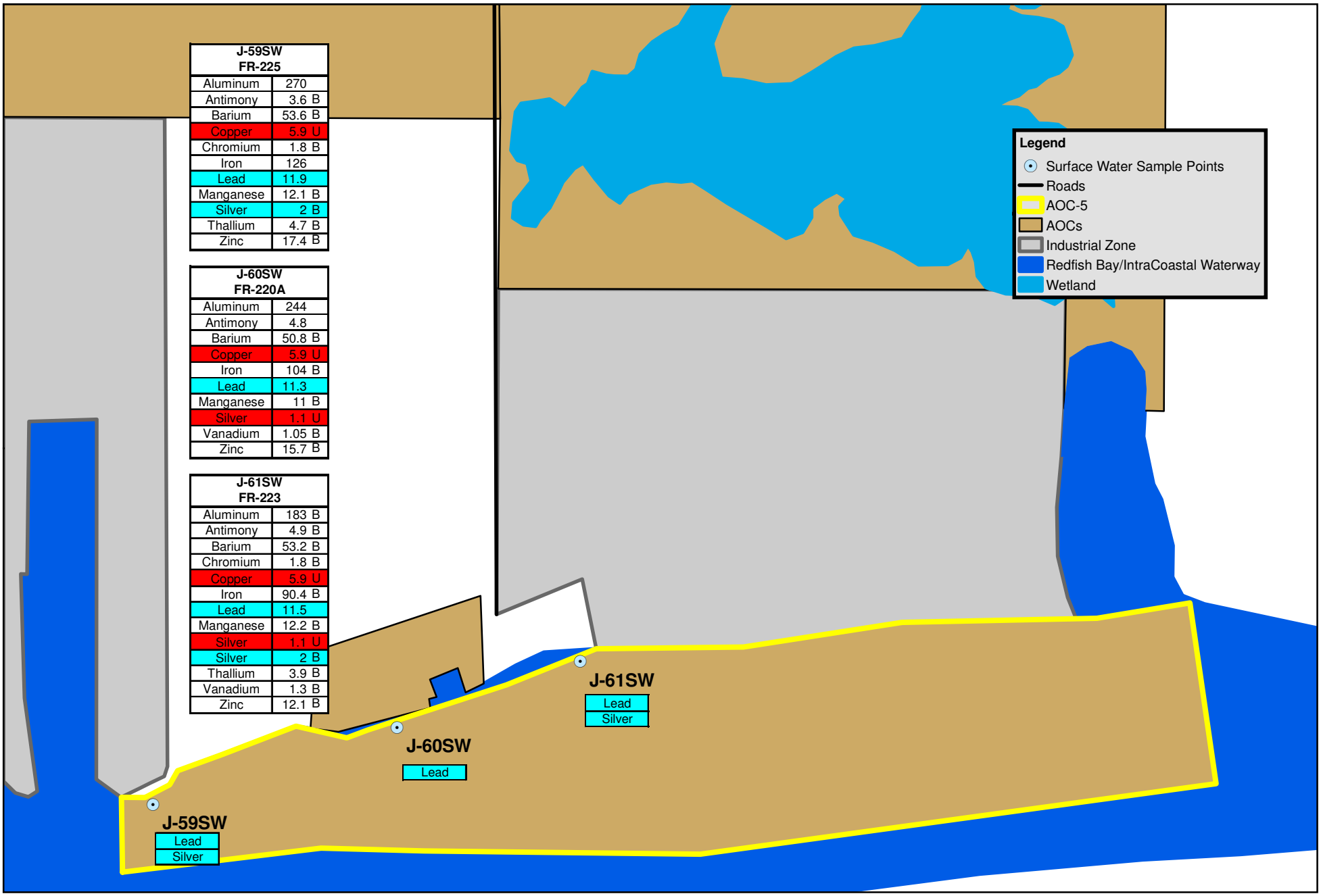
FIGURE

33C



J-59SW FR-225	
Aluminum	270
Antimony	3.6 B
Barium	53.6 B
Copper	5.9 U
Chromium	1.8 B
Iron	126
Lead	11.9
Manganese	12.1 B
Silver	2 B
Thallium	4.7 B
Zinc	17.4 B

J-60SW FR-220A	
Aluminum	244
Antimony	4.8
Barium	50.8 B
Copper	5.9 U
Iron	104 B
Lead	11.3
Manganese	11 B
Silver	1.1 U
Vanadium	1.05 B
Zinc	15.7 B

J-61SW FR-223	
Aluminum	183 B
Antimony	4.9 B
Barium	53.2 B
Chromium	1.8 B
Copper	5.9 U
Iron	90.4 B
Lead	11.5
Manganese	12.2 B
Silver	1.1 U
Silver	2 B
Thallium	3.9 B
Vanadium	1.3 B
Zinc	12.1 B

Notes:

1. Results are posted in µg/l
2. Qualifiers:

U = Undetected at the sample detection limit (SDL)

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Above Marine Limit

Exceeds Marine Screening Level

0 100 200

Feet

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DRAFTED BY: C. SEATON	
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APPROVED BY:	

AOC-5
Ecological
Metal Surface Water Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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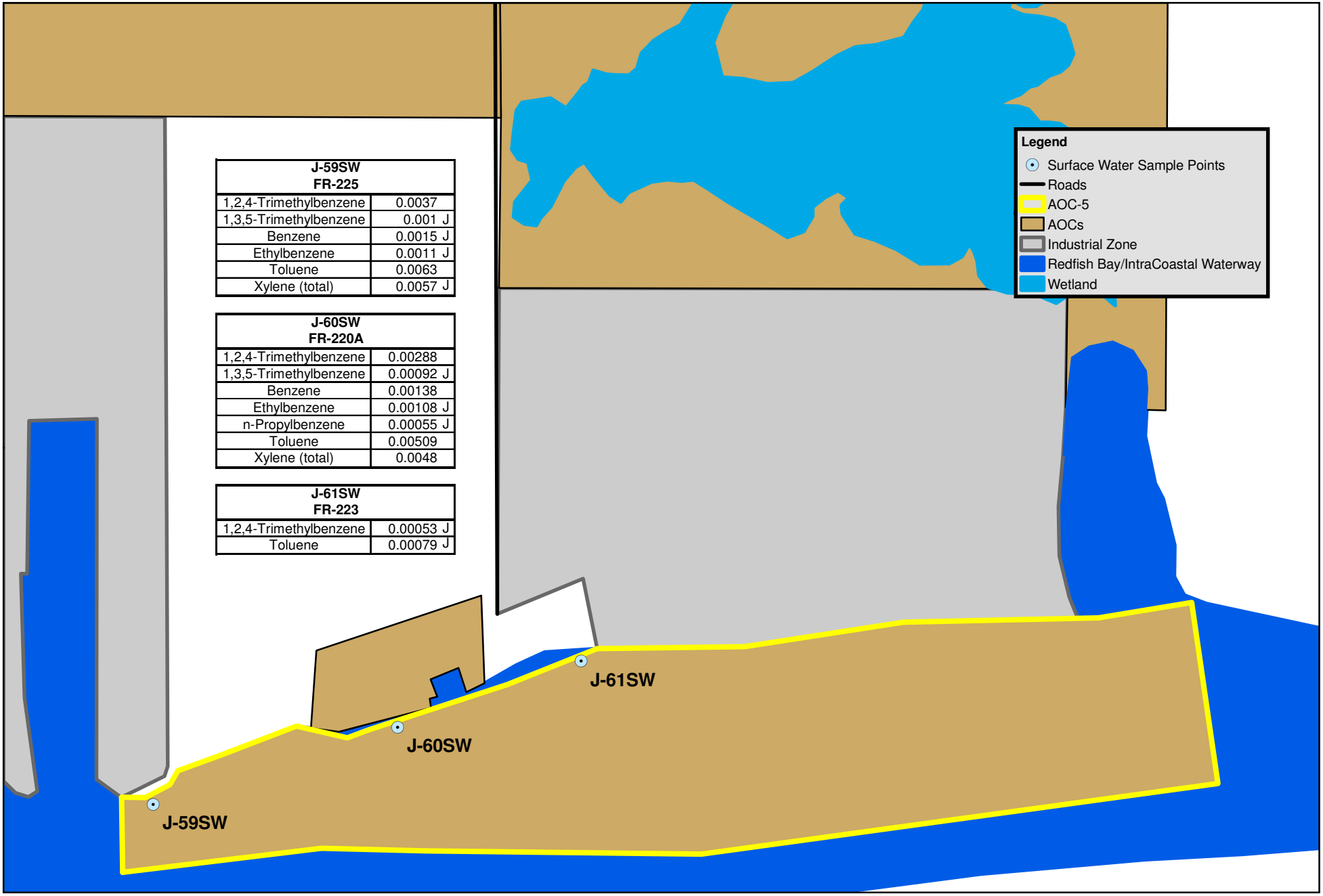
FIGURE

34A



J-59SW FR-225	
1,2,4-Trimethylbenzene	0.0037
1,3,5-Trimethylbenzene	0.001 J
Benzene	0.0015 J
Ethylbenzene	0.0011 J
Toluene	0.0063
Xylene (total)	0.0057 J

J-60SW FR-220A	
1,2,4-Trimethylbenzene	0.00288
1,3,5-Trimethylbenzene	0.00092 J
Benzene	0.00138
Ethylbenzene	0.00108 J
n-Propylbenzene	0.00055 J
Toluene	0.00509
Xylene (total)	0.0048

J-61SW FR-223	
1,2,4-Trimethylbenzene	0.00053 J
Toluene	0.00079 J

Notes:

1. Results are posted in mg/l
2. Qualifiers:

J = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

N

0 100 200
Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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CHECKED BY: S. HALASZ	
APPROVED BY:	

AOC-5
Ecological
VOC Surface Water Distribution Map

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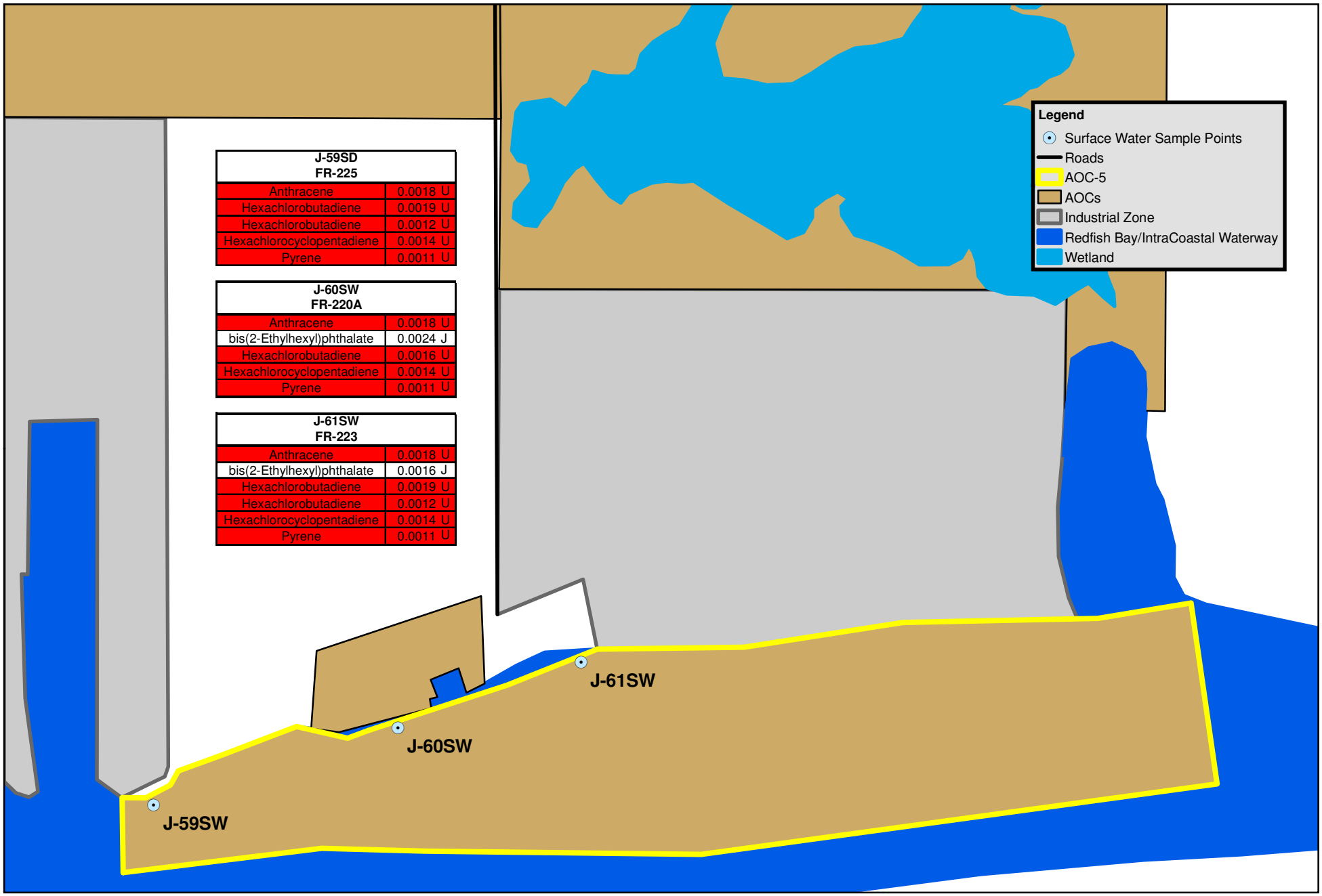
FIGURE
34B



J-59SD FR-225	
Anthracene	0.0018 U
Hexachlorobutadiene	0.0019 U
Hexachlorobutadiene	0.0012 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

J-60SW FR-220A	
Anthracene	0.0018 U
bis(2-Ethylhexyl)phthalate	0.0024 J
Hexachlorobutadiene	0.0016 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

J-61SW FR-223	
Anthracene	0.0018 U
bis(2-Ethylhexyl)phthalate	0.0016 J
Hexachlorobutadiene	0.0019 U
Hexachlorobutadiene	0.0012 U
Hexachlorocyclopentadiene	0.0014 U
Pyrene	0.0011 U

Notes:

1. Results are posted in mg/l
2. Qualifiers:

   U = Undetected at the sample detection limit (SDL)

   J = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Marine Screening Level

N

0 100 200

Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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APPROVED BY:	

AOC-5
Ecological
SVOC Surface Water Distribution Map

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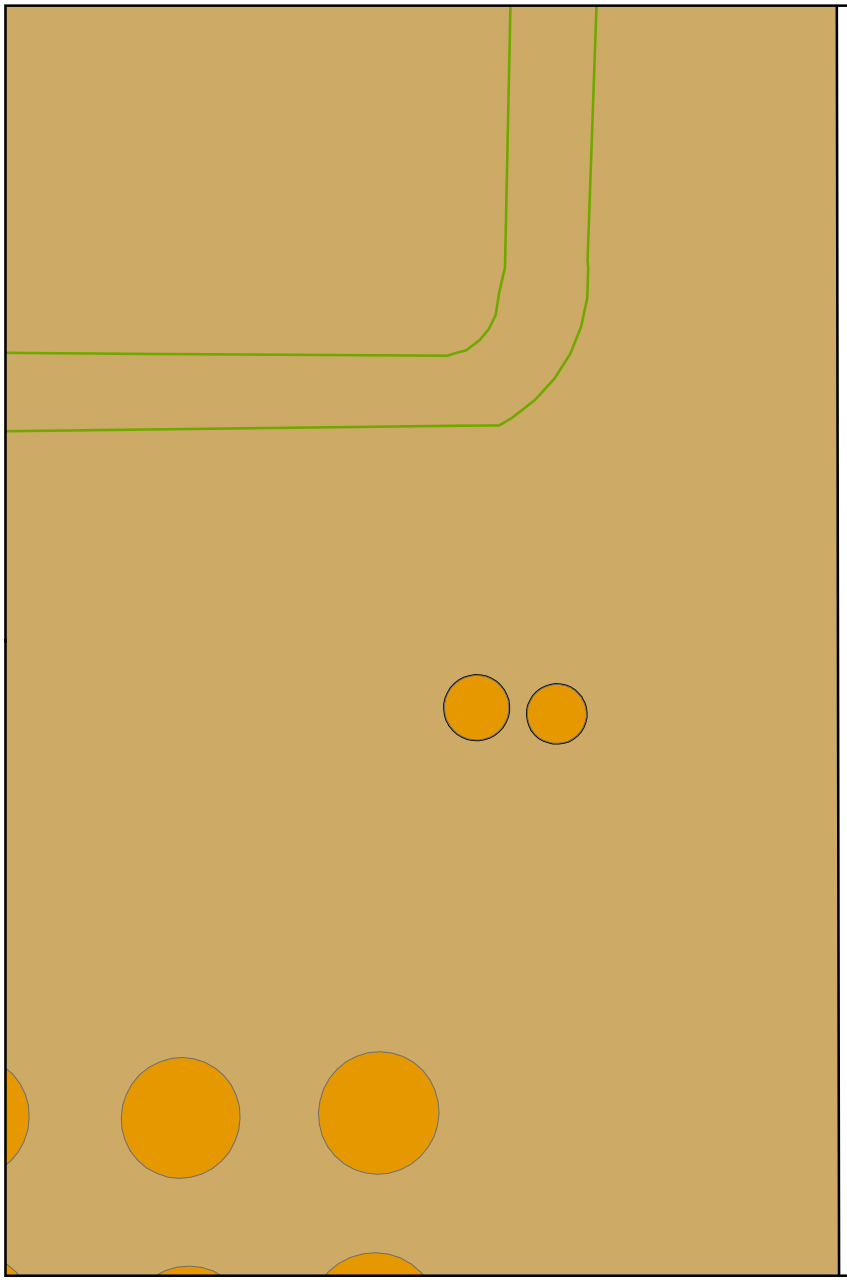
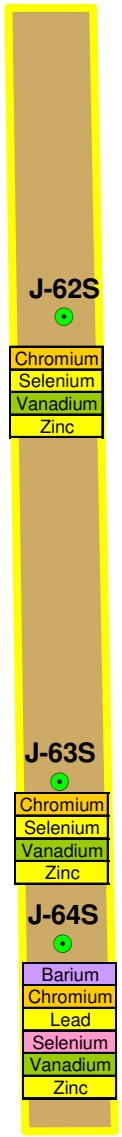
FIGURE

34C





J-62S FR-234A	
Aluminum	11750
Arsenic	1.5
Barium	259
Beryllium	0.495
Cadmium	0.17 B
Chromium	12.25
Cobalt	2.75 B
Copper	8.45
Iron	7025
Lead	8.6
Manganese	180
Mercury	0.00405 B
Nickel	6
Selenium	0.795 B
Vanadium	19.45
Zinc	71.25

J-63S FR-231	
Aluminum	9190
Arsenic	2.4
Barium	280
Beryllium	0.43 B
Cadmium	0.13 B
Chromium	10.8
Cobalt	2.4 B
Copper	9.1
Iron	6580
Lead	7.1
Manganese	133
Mercury	0.0067 B
Nickel	7.5
Selenium	0.78 B
Vanadium	32.5
Zinc	69.3

J-64S FR-228	
Aluminum	10600
Arsenic	2.8
Barium	400
Beryllium	0.45 B
Cadmium	0.16 B
Chromium	15.3
Cobalt	2.7 B
Copper	14.6
Iron	7630
Lead	16.5
Manganese	157
Mercury	0.0094 B
Nickel	7.2
Selenium	1.2
Vanadium	20.6
Zinc	111

Legend

- Soil Sample Points
- Roads
- Gravel/Dirt Road
- AOC-6
- Refinery Tanks
- AOCs

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

- Exceeds Plant Limit
- Exceeds Median Background Limit
- Exceeds Earthworm and Plant Limits
- Exceeds Earthworm and Median Background Limits
- Exceeds Plant and Median Background Limits

N

0 25 50

Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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CHECKED BY: S. HALASZ	
APPROVED BY:	

AOC-6
Ecological
Metal Surface Soil Distribution Map

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INGLESIDE, SAN PATRICIO COUNTY, TEXAS

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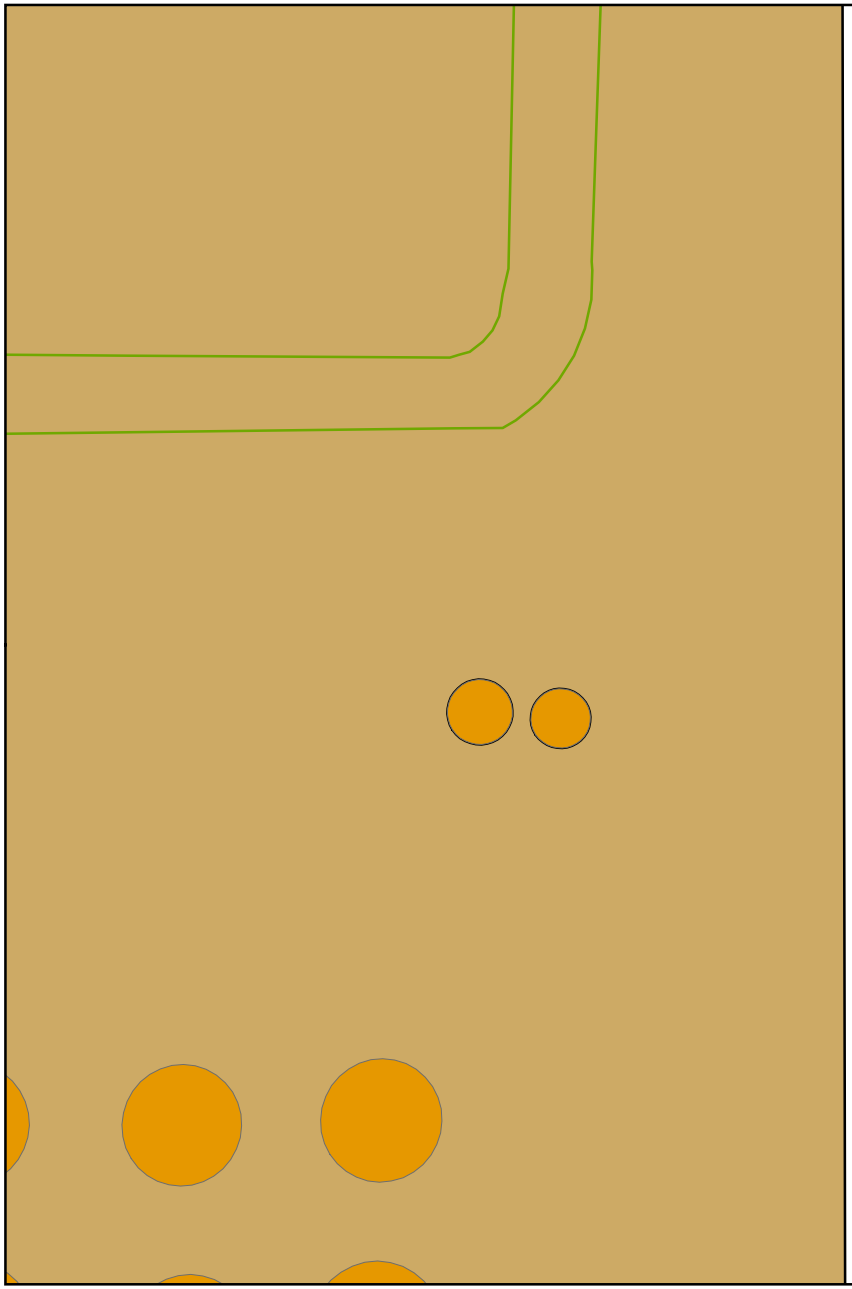
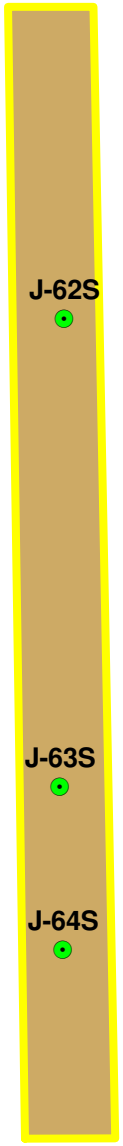
FIGURE

35A





J-62S FR-234A	
Acetone	0.0094 J
Methylene Chloride	0.00295 J

J-63S FR-231	
Methylene Chloride	0.0028 J

J-64S FR-228	
Methylene Chloride	0.003 J

Legend

- Soil Sample Points
- Roads
- Gravel/Dirt Road
- AOC-6
- Refinery Tanks
- AOCs

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 25 50
Feet

DATE DRAWN: 5/7/08	DATE REVISED:
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CHECKED BY: S. HALASZ	
APPROVED BY:	

AOC-6
Ecological
VOC Surface Soil Distribution Map

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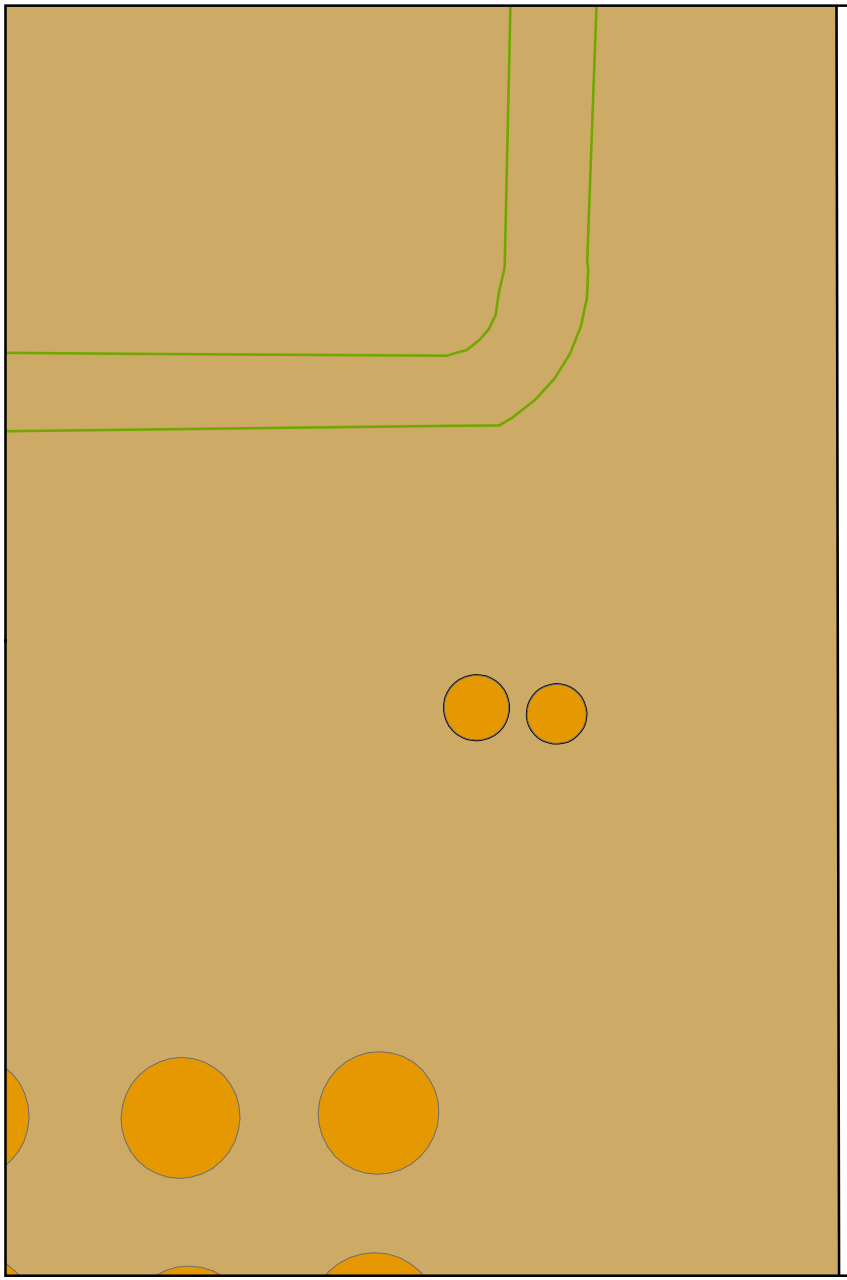
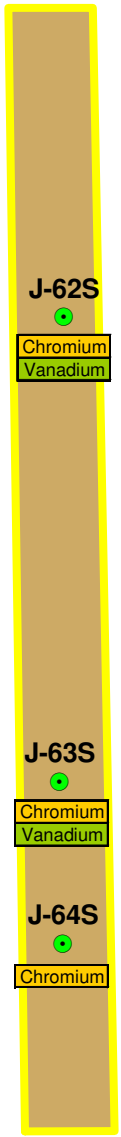
FIGURE
35B





J-62S FR-236	
Aluminum	2660
Barium	21.5 B
Beryllium	0.14 B
Chromium	2.1
Cobalt	0.2 B
Copper	1.2 B
Iron	956
Lead	2.6
Manganese	5.2
Mercury	0.025
Nickel	0.39 B
Vanadium	2.4 B
Zinc	3.7

J-63S FR-232	
Aluminum	4340
Arsenic	0.35 B
Barium	39.6
Beryllium	0.22 B
Chromium	4
Cobalt	0.3 B
Copper	1.9 B
Iron	1500
Lead	3.1
Manganese	7.5
Mercury	0.0064 B
Nickel	0.74 B
Vanadium	3.6 B
Zinc	5.8

J-64S FR-229	
Aluminum	1420
Barium	20.1 B
Beryllium	0.075 B
Chromium	2.3
Hex Chrom	1.5 B
Copper	1.5 B
Iron	737
Lead	2.1
Manganese	4.5
Mercury	0.0083 B
Nickel	0.25 B
Vanadium	1.6 B
Zinc	3

Legend

- Sample Points
- Roads
- Gravel/Dirt Road
- AOC-6
- Refinery Tanks
- AOCs

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Plant Limit

Exceeds Earthworm and Plant Limits

N

0 25 50

Feet

DATE DRAWN: 5/7/08	DATE REVISED:
DRAFTED BY: C. SEATON	
CHECKED BY: S. HALASZ	
APPROVED BY:	

AOC-6
Ecological
Metal Subsurface Soil Distribution Map

FALCON REFINERY
INGLESIDE, SAN PATRICIO COUNTY, TEXAS

PROJ NO. 59752 | FILE NAME: Falcon Refinery Base Map

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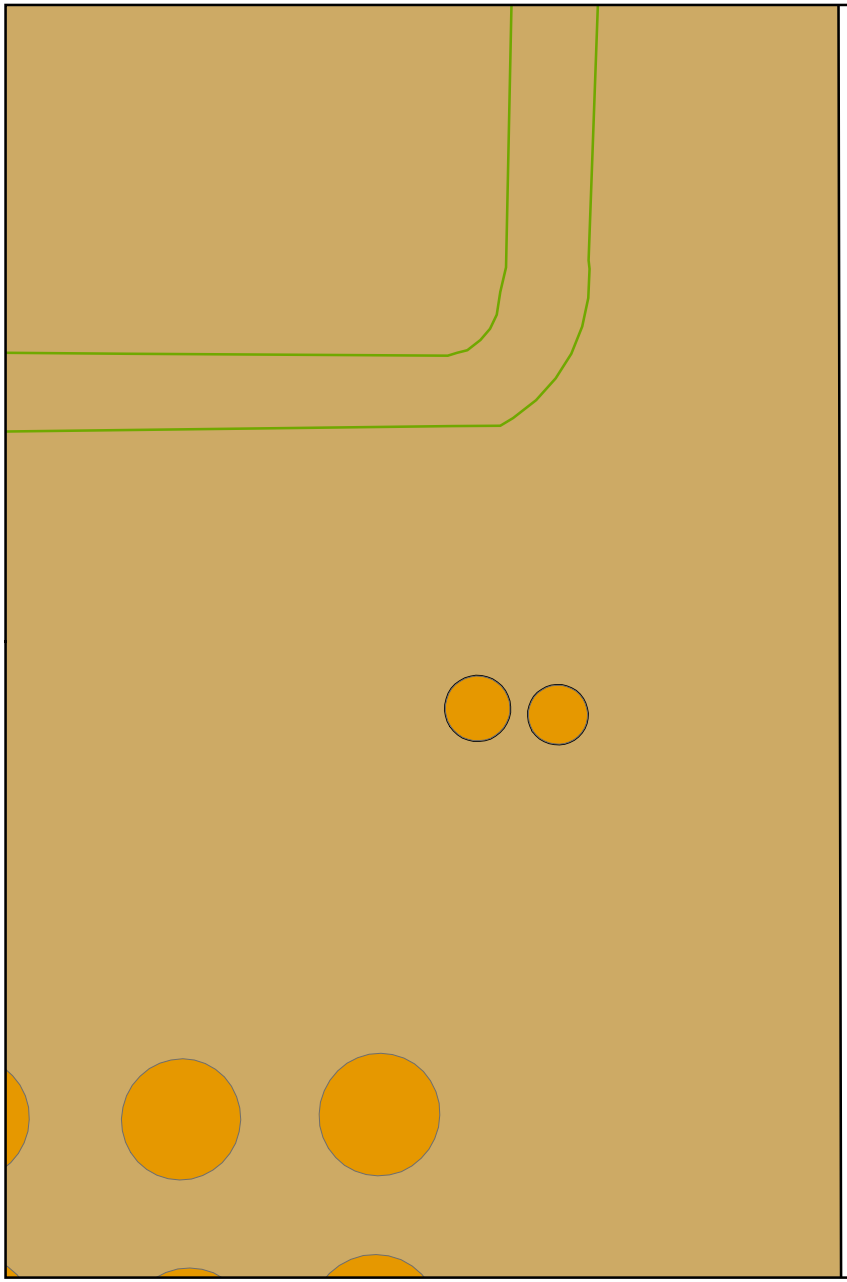
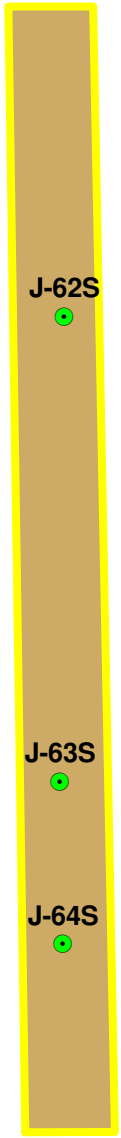
FIGURE

36A





J-62S FR-236	
Acetone	0.0669
Methylene Chloride	0.0042 J

J-63S FR-232	
Acetone	0.0661
Methylene Chloride	0.004 J

J-64S FR-229	
Acetone	0.0183 J
Methylene Chloride	0.0033 J

Legend

- Soil Sample Points
- Roads
- Gravel/Dirt Road
- AOC-6
- Refinery Tanks
- AOCs

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 25 50

Feet

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AOC-6
Ecological
VOC Subsurface Soil Distribution Map

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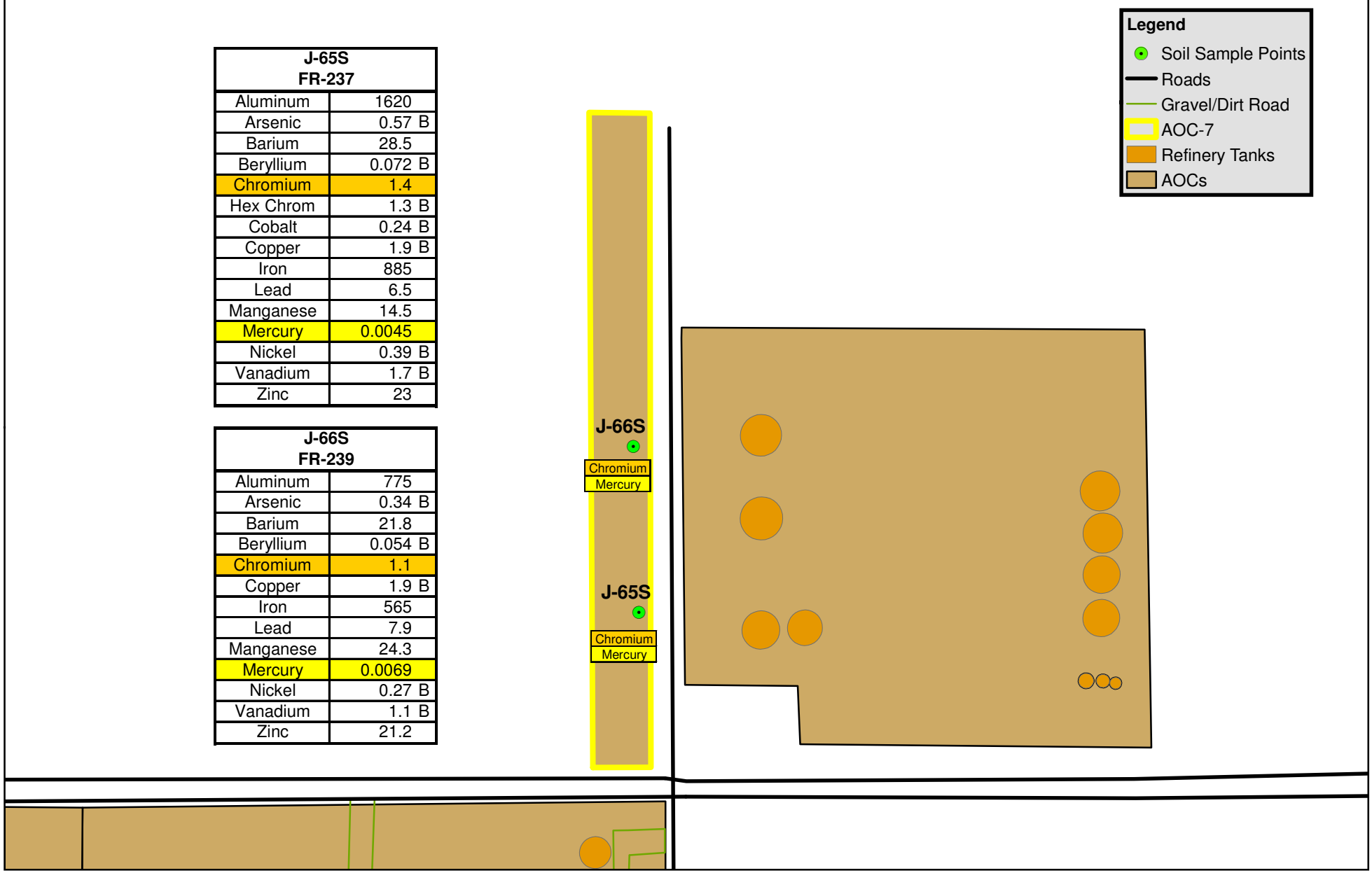
FIGURE

36B

J-65S FR-237	
Aluminum	1620
Arsenic	0.57 B
Barium	28.5
Beryllium	0.072 B
Chromium	1.4
Hex Chrom	1.3 B
Cobalt	0.24 B
Copper	1.9 B
Iron	885
Lead	6.5
Manganese	14.5
Mercury	0.0045
Nickel	0.39 B
Vanadium	1.7 B
Zinc	23

J-66S FR-239	
Aluminum	775
Arsenic	0.34 B
Barium	21.8
Beryllium	0.054 B
Chromium	1.1
Copper	1.9 B
Iron	565
Lead	7.9
Manganese	24.3
Mercury	0.0069
Nickel	0.27 B
Vanadium	1.1 B
Zinc	21.2



Notes:

1. Results are posted in mg/kg
2. Qualifiers:

B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Median Background Limit

Exceeds Earthworm and Plant Limits

N

0 80 160

Feet

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AOC-7
Ecological
Metal Surface Soil Distribution Map

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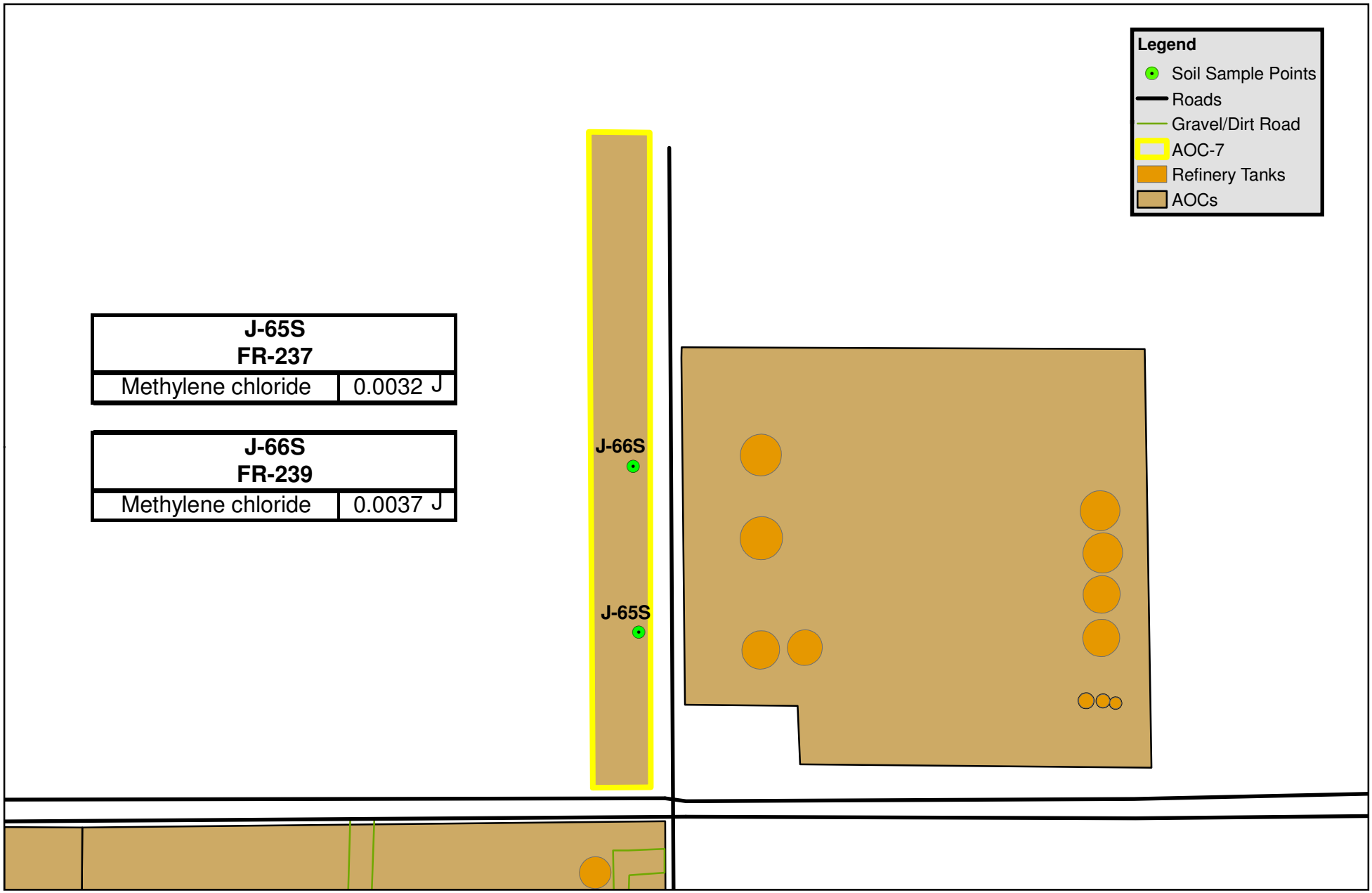
FIGURE

37A



J-65S FR-237	
Methylene chloride	0.0032 J

J-66S FR-239	
Methylene chloride	0.0037 J

Notes:

1. Results are posted in mg/kg
2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 80 160
Feet

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AOC-7
Ecological
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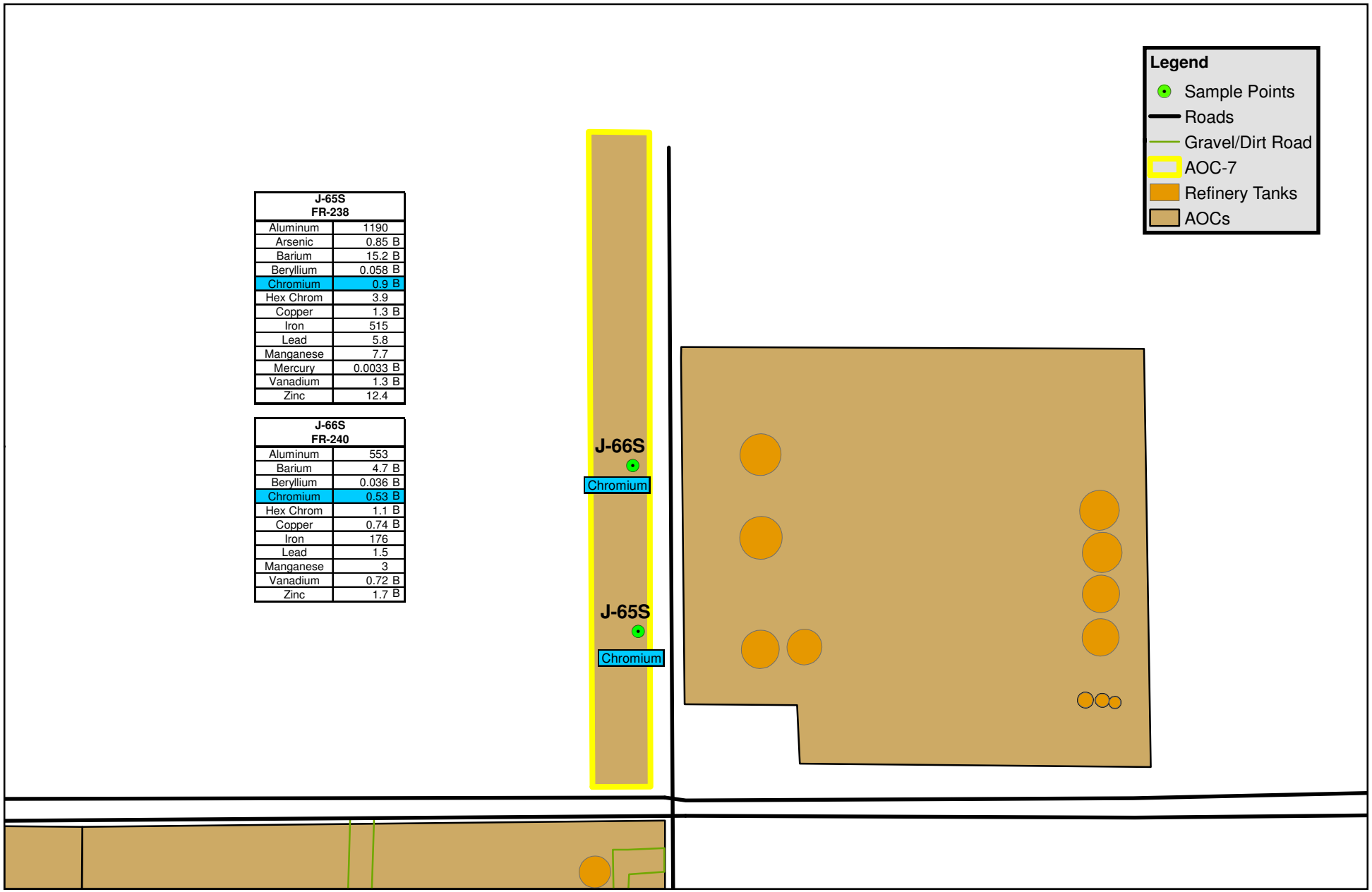
FIGURE
37B



J-65S FR-238	
Aluminum	1190
Arsenic	0.85 B
Barium	15.2 B
Beryllium	0.058 B
Chromium	0.9 B
Hex Chrom	3.9
Copper	1.3 B
Iron	515
Lead	5.8
Manganese	7.7
Mercury	0.0033 B
Vanadium	1.3 B
Zinc	12.4

J-66S FR-240	
Aluminum	553
Barium	4.7 B
Beryllium	0.036 B
Chromium	0.53 B
Hex Chrom	1.1 B
Copper	0.74 B
Iron	176
Lead	1.5
Manganese	3
Vanadium	0.72 B
Zinc	1.7 B

Notes:

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2. Qualifiers:

   B = Concentration greater than the sample detection limit (SDL) but less than the method quantitation limit (MQL)

Exceeds Earthworm Limit

N

0 90 180

Feet

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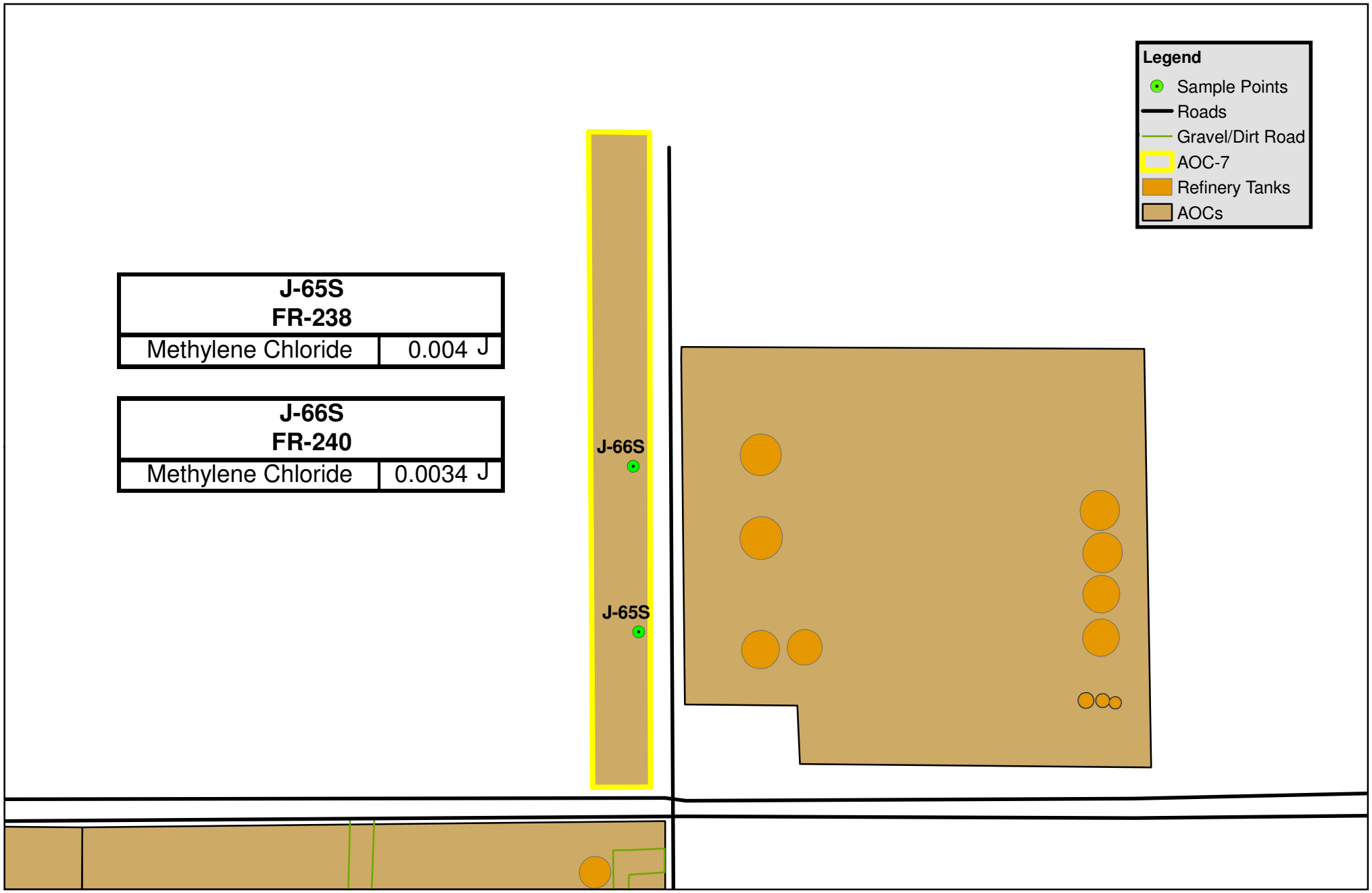
FIGURE

38A



J-65S FR-238	
Methylene Chloride	0.004 J

J-66S FR-240	
Methylene Chloride	0.0034 J

Notes:

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2. Qualifiers:

   J = Concentration greater than the SDL but less than the method quantitation limit (MQL)

N

0 80 160
Feet

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FIGURE
38B