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IR Site 26 – Western Hangar Zone Draft Remedial Investigation Report Summary

May 6, 2003



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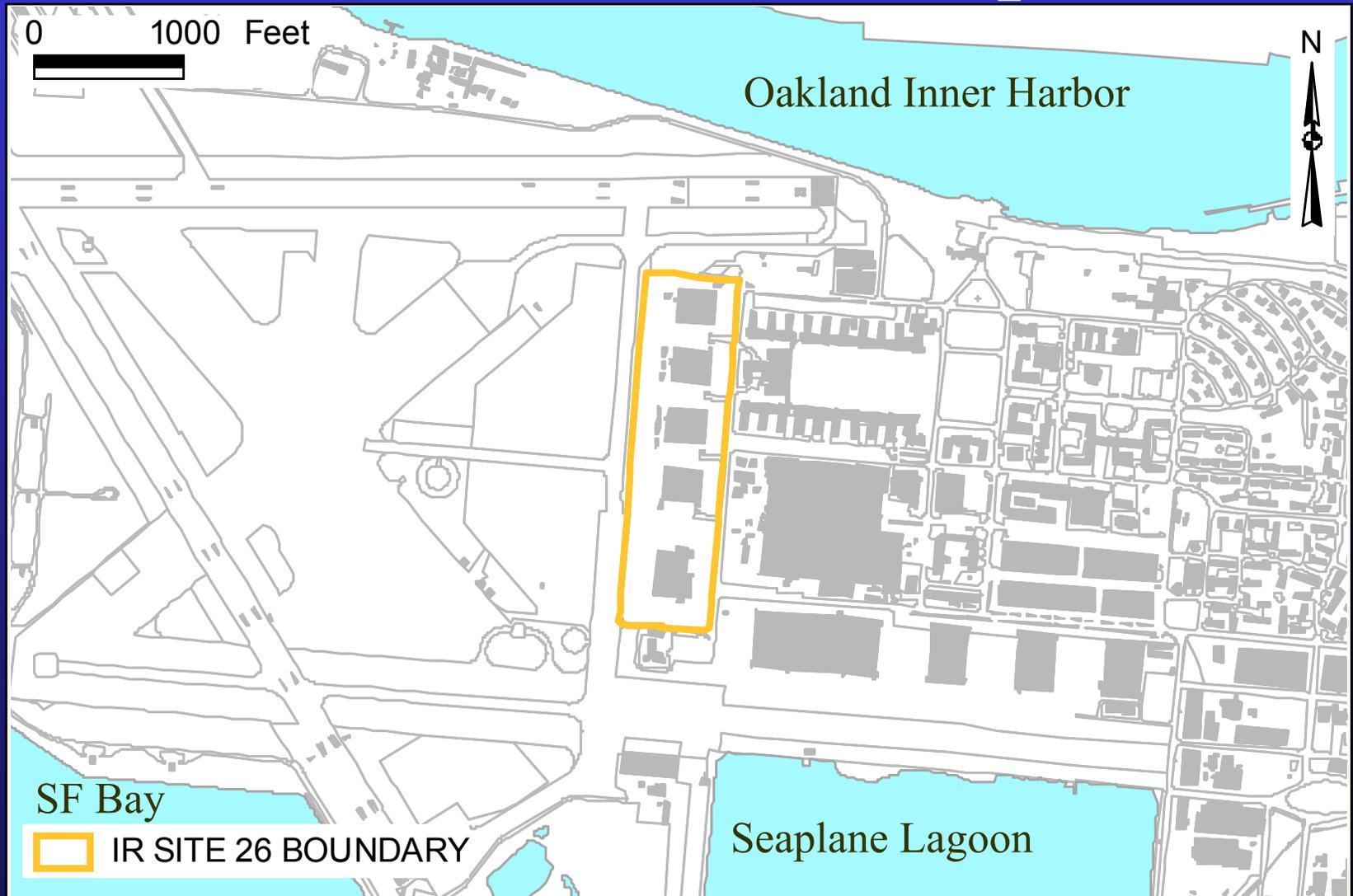
Topics

- Background
- Remedial Investigation (RI) Scope & Findings
- Risk Assessment Findings
 - Human Health Risk Assessment
 - Screening-level Ecological Risk Assessment
- Recommendations



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Site Location Map

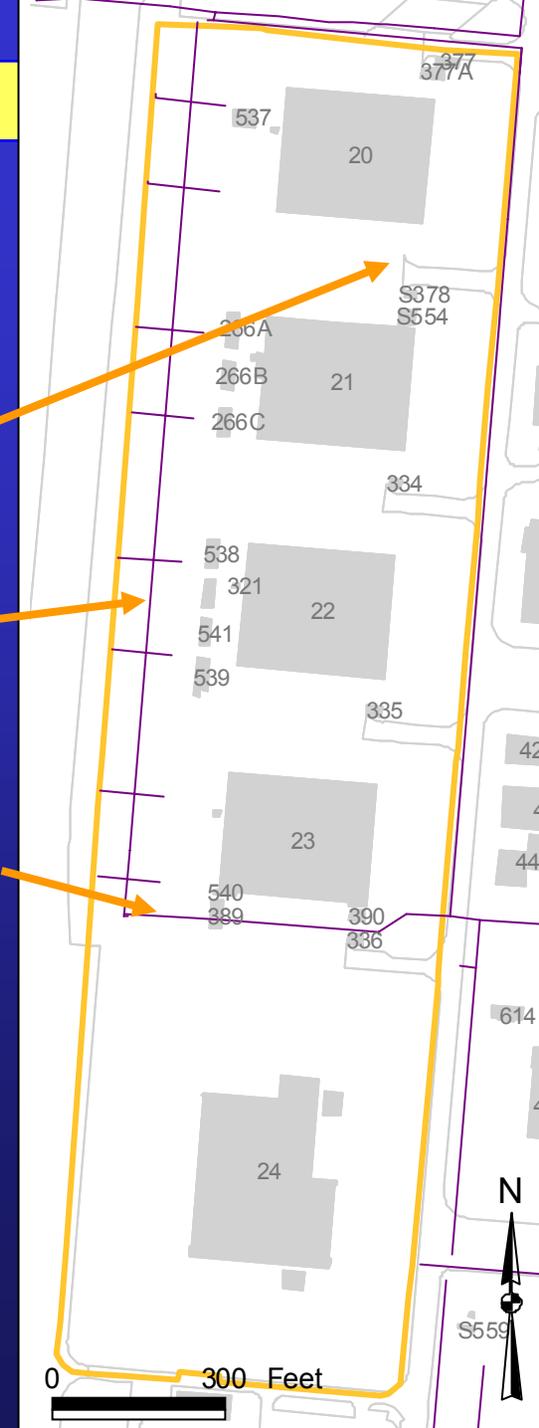




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Background

- Site activities included aircraft parking, washdown
- Former fuel lines
- Previous releases documented in IAS and during fuel line removal





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Scope of RI

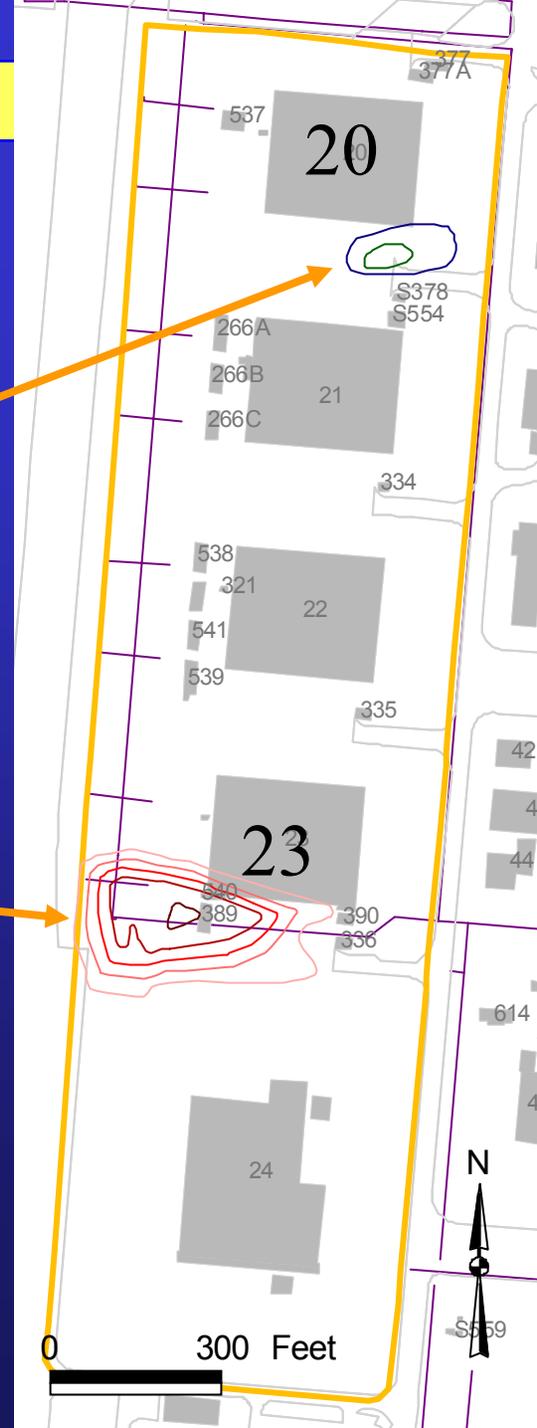
- Field activities
 - Soil samples
 - Soil gas samples
 - Grab groundwater samples
 - Install & sample 5 groundwater wells
 - Aquifer testing
- Human-health & screening-level ecological risk evaluations



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Specific Areas

- **Building 20 Area**
 - VOC Plume
 - Former wash down area
- **Building 23 Area**
 - Benzene Plume (result of petroleum spill)
 - Area of former fuel releases





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RI Findings

- Soil
 - Samples collected across the site:
 - SVOCs (including PAHs), pesticides, PCBs, in soil less than residential PRGs
 - Arsenic and cadmium in soil greater than residential soil PRGs but less than basewide background
 - Bldg 20 area
 - Soil gas did not suggest soil sources
 - Bldg 23 area
 - Residual fuel-related chemicals in soil



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RI Findings (continued)

- **Groundwater**

- Arsenic in groundwater greater than MCL & background
- VOCs at Bldg 20 greater than MCLs – mostly solvents (all degrade to VC except benzene)
 - **1,1-dichloroethane**
 - 8 detects of 44 samples; max 190 ppb; 3 detects greater than MCL of 5 ppb
 - **Cis-1,2-dichloroethene**
 - 11 detects of 48 samples; max 530 ppb; 3 detects greater than MCL of 6 ppb
 - **Trichloroethene**
 - 9 detects of 48 samples; max 51 ppb; 2 detects greater than MCL of 5 ppb
 - **Vinyl chloride**
 - 10 detects of 48 samples; max 18 ppb; 8 detects greater than MCL of 5 ppb
 - **Benzene**
 - 3 detects of 48 samples; max 1.1 ppb; 1 detects greater than MCL of 1 ppb



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RI Findings (continued)

- Groundwater

- Arsenic in groundwater greater than MCL & background

- MCL for arsenic is of 15 ppb
- Site 26 concentrations: 4.3 – 71.5 ppb



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RI Findings (continued)

• Groundwater

– VOCs at Bldg 23 greater than MCLs – fuel related

- BTEX (fuel components)

- Benzene

- » 26 detects of 74 samples; max 21,000 ppb; 22 detects greater than MCL of 1 ppb

- Toluene

- » 13 detects of 74 samples; max 3,560 ppb; 9 detects greater than MCL of 150 ppb

- Ethylbenzene

- » 25 detects of 74 samples; max 930 ppb; 3 detects greater than MCL of 700 ppb

- Xylenes

- » 26 detects of 74 samples; max 2,780 ppb; 2 detects greater than MCL of 1,800 ppb

- 1,2-dibromomethane (fuel additive)

- » 1 detect of 30 samples; max 0.32 ppb greater than MCL of 0.05 ppb

- 1,2-dichloromethane (fuel additive)

- » 3 detects of 73 samples; max 160 ppb; all 3 detects greater than MCL of 0.5 ppb



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Human Health Risk Assessment

Evaluated risk for:

- Future resident
- Office worker
- Construction worker

Evaluated risk associated with exposure to chemicals in:

- Soil
- Groundwater (drinking/showering)
 - being considered for dedesignation as a municipal supply by the RWQCB
- Air



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Human Health Risk Assessment Results

- **Future resident & industrial worker**
 - With use of groundwater: unacceptable
 - Without use of groundwater: acceptable
- **Construction worker**
 - Acceptable (doesn't drink the groundwater)



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Screening-Level Ecological Risk Assessment (ERA)

- Impact from chemicals in groundwater to marine receptors is insignificant



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Screening-Level ERA (continued)

- Terrestrial receptors evaluated:
 - California ground squirrel
 - Represents small, mostly herbivorous mammals that are primarily food for other animals
 - Alameda song sparrow
 - Represents small birds that feed on a combination of invertebrates and plants
 - American robin
 - Represents small birds that feed mostly on terrestrial invertebrates
 - Red-tailed hawk
 - Represents avian predators that feed on small mammals



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Screening-Level ERA (continued)

- Impact of chemicals to terrestrial receptors is insignificant
- No further action recommended for ecological risk



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RI Recommendations

1. Proceed with CERCLA process (focused FS and ROD) to address contaminants at Building 20
Address contaminants at Building 23 under petroleum program and remove from CERCLA process
 - In progress
2. Proceed with CERCLA process (focused FS and ROD) to address contaminants at Building 20
 - Early concurrence from EPA, RWQCB & DTSC



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Tentative Project Schedule

- Reports on OU-6 FFA schedule
 - Draft RI Report submitted mid February 2003
 - Draft Final RI Report due June 15, 2003
 - Final RI Report due July 15, 2003
 - Draft FS Report for review August 15, 2002



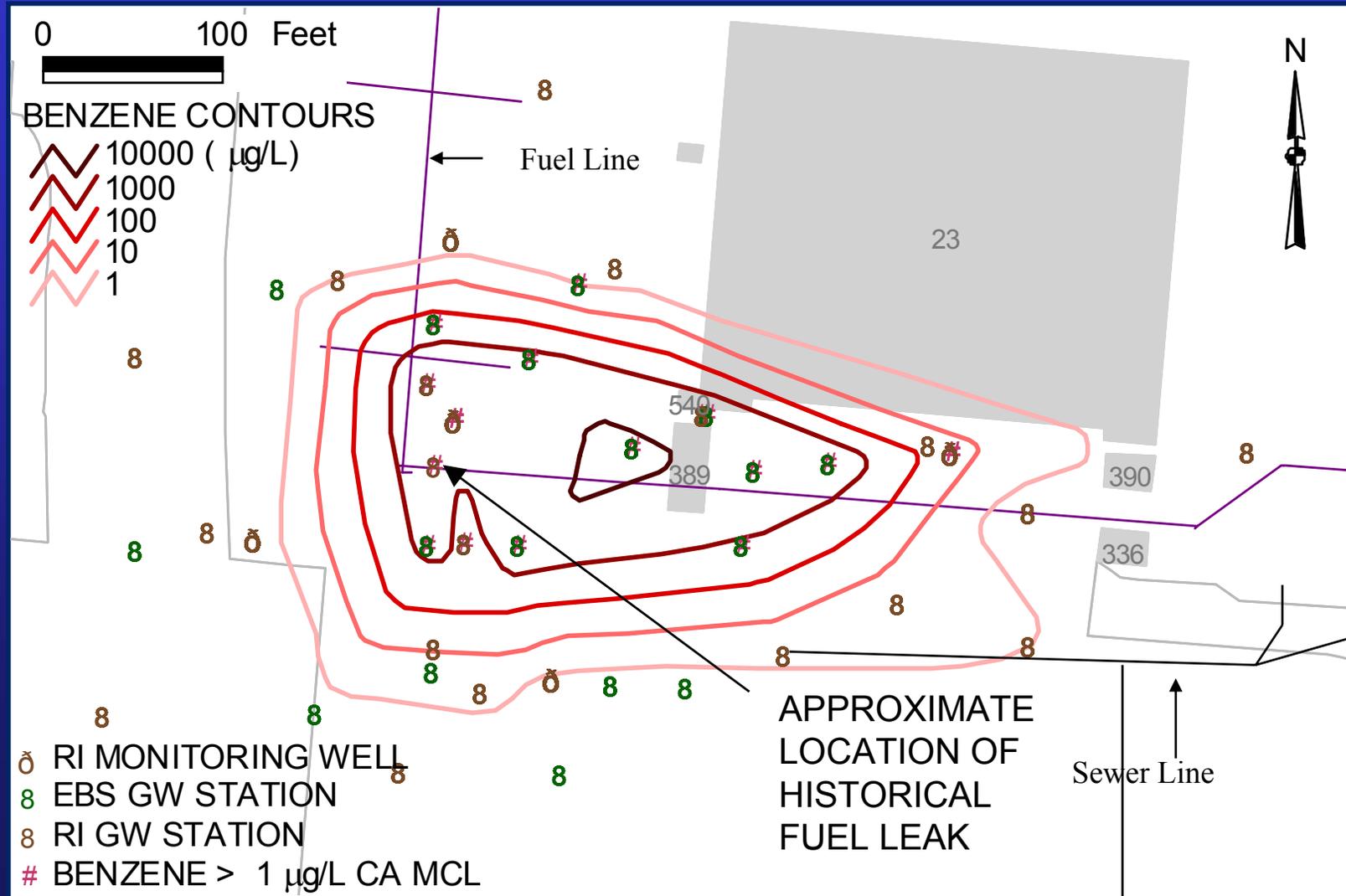
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The end



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Building 23 Groundwater





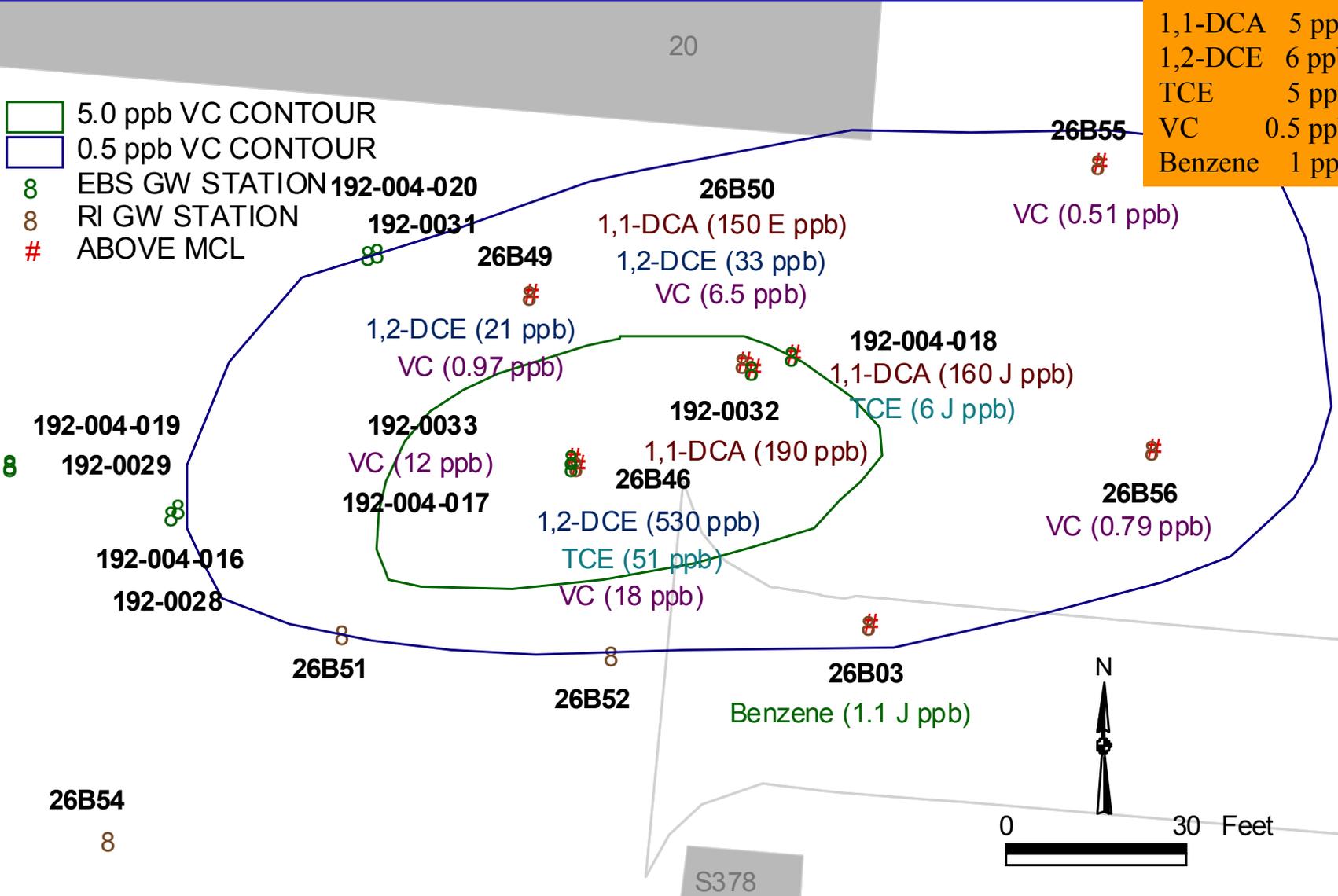
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Building 20 Groundwater

MCLs	
1,1-DCA	5 ppb
1,2-DCE	6 ppb
TCE	5 ppb
VC	0.5 ppb
Benzene	1 ppb

- 5.0 ppb VC CONTOUR
- 0.5 ppb VC CONTOUR

- 8 EBS GW STATION 192-004-020
- 8 RI GW STATION
- # ABOVE MCL





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Screening-Level ERA Results

- No further action is recommended for ecological risk
 - Although the HQ for copper in IR Site 26 soil samples was above 1 (at 1.1), NFA is recommended because:
 - the HQ is almost the same as the HQ for background copper (at 0.98) concentrations in soil &
 - the assumptions used to calculate the HQ are conservative and tend to overestimate risk
 - Although the HQs for cyanide in soil for two different birds were 1.3 & 2.1 (Song Sparrow & American Robin, respectively), NFA is recommended because:
 - of the low detection frequency (2 detections in 20) &
 - the conservative assumptions used to calculate the HQ



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Human Health Risk Assessment Results

- Future Resident w/GW Use for drinking & showering
 - Not acceptable in either area (both areas: 2×10^{-3} cancer, HI 38)
- Office Worker w/GW Use for drinking
 - Not acceptable in either area (both areas: 5×10^{-4} cancer, HI 4)
- Construction Worker (doesn't drink groundwater)
 - Acceptable in both areas (Bldg 20: 6×10^{-8} cancer, HI 0.03) (Bldg 23: 1×10^{-6} cancer, HI 0.1)
- Future Resident w/out GW Use
 - Acceptable (Bldg 20) or w/in risk management range (Bldg 23) (Bldg 20: 1×10^{-6} cancer, HI 0.5) (Bldg 23: 1×10^{-5} cancer, HI 0.7)
- Office Worker w/out GW Use
 - Acceptable in both areas (Bldg 20: 1×10^{-7} cancer, HI 0.008) (Bldg 23: 3×10^{-7} cancer, HI 0.01)