ARCADIS
Infrastructure, environment, buildings

Hanson Aggregates – Mission Valley Rock Facility
Sunol, California
Meeting Agenda
August 10, 2010

Attendees:

Lee Cover, Hanson Aggregates
Jerry Wickham, ACEH
Scott Seyfried, ARCADIS-US
Ron Goloubow, ARCADIS-US
Fred Stanin, ARCADIS-US
Jennifer Nyman, ARCADIS-US

1. Introductions and Meeting Objectives:

2. Site History – Current Site Conditions
    a. Hydrogeology
    b. Nature and Extent of Contaminants of Concern
    c. Assessment of Rebound after Shut Down of the Air Sparging System

3. Path Forward - No Further Action Request

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Presentation to ACEH to Review Current Site Conditions and Discuss Case Closure

Objective

- Review most recent groundwater quality data.
- Clarify and obtain ACEH concurrence regarding site conditions and path forward.
- Obtain an NFA determination from ACEH with the understanding that such a determination would come with requirements for a Site Management Plan and Land Use Restrictions due to contamination allowed to be left in place.

Outline

- Site History
- Site Conditions:
  - Sources
  - Site characterization
  - Plume stability
  - Potential receptors
- Conclusions and Recommendations

Site History

- USTs removed in 1996
- Subsurface investigations from 1996 through 2007
- Routine groundwater monitoring since 1998
- AIS pilot test January-February 2008
- AIS operation in source area April 2009 – July 2010
- Conducted two rounds of groundwater monitoring following the shutdown of the AIS in Quarter 3 and Quarter 4 2010

Site Conditions

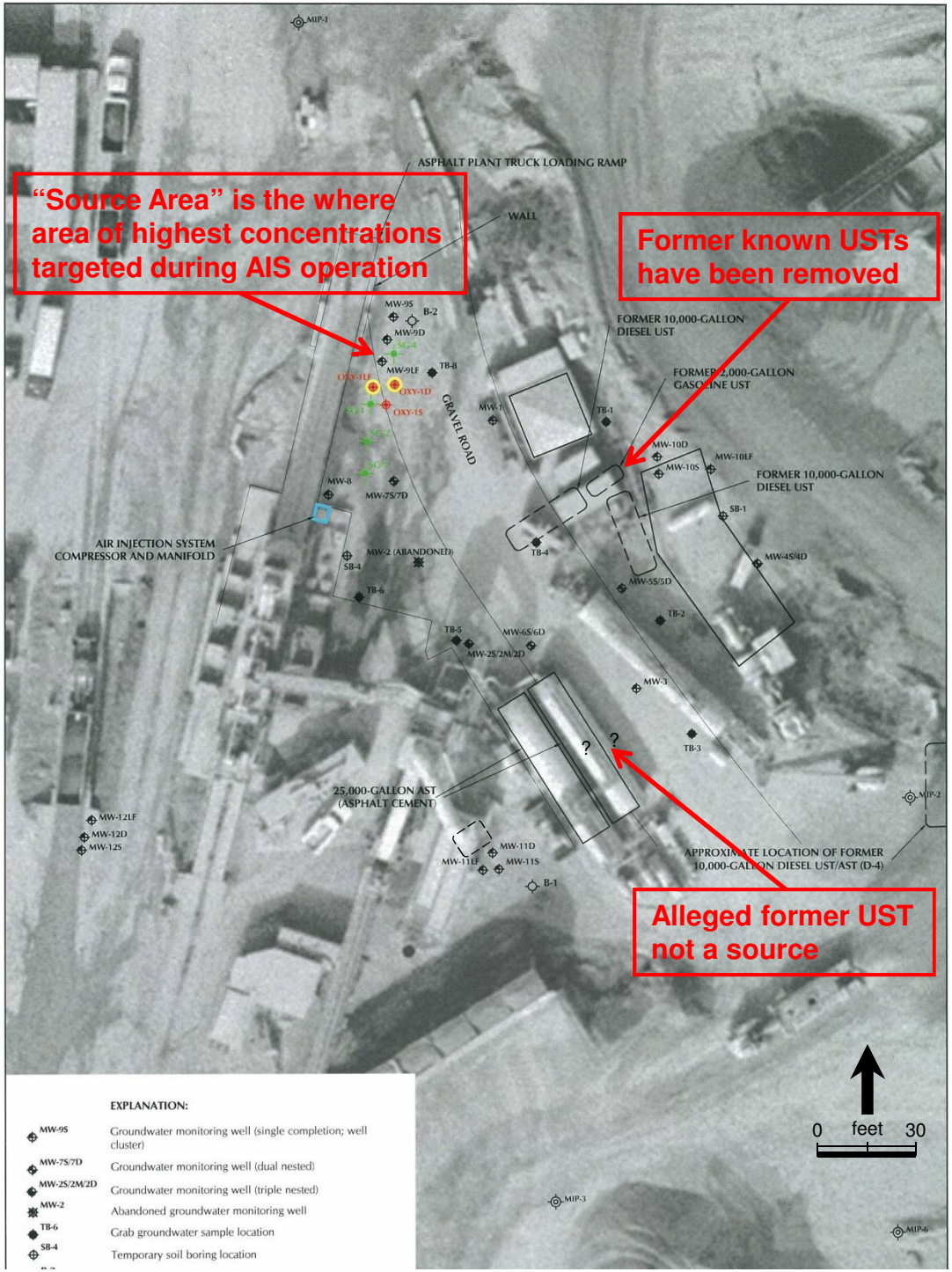
1. Primary sources have been removed.
2. Pending confirmation, apparent source area of plumes (vicinity of MW-9 has been reduced to a point that it is no longer contributing significant mass to the plume.
3. Soil and groundwater quality at the Site is adequately characterized.
4. Dissolved plume is generally stable with decreasing concentration trends for long-term trends.
5. No sensitive receptors likely to be affected by existing or future anticipated plume.

Site Conditions (cont'd)

1. Sources

- Known former USTs have been removed
- No data that alleged former UST beneath ASTs is a source
- Residual LNAPL, if present, appears to be immobile, and has responded to AIS operation in wells within the radius of influence for AIS

Sources



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Alleged Former UST Beneath ASTs is not a Source

- Data from well MW-11S do not indicate a source beneath ASTs
  - Low/ND TPH concentrations down/cross gradient
    - Groundwater from shallow wells (MW-11S and MW-3)
    - Soil from temporary soil boring (TB-3)
  - Relatively higher TPH concentrations:
    - upgradient (MW-2 and MW-6)
    - deeper (MW-11D)

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Site Conditions (cont'd)

Residual LNAPL, if present, appears immobile and has responded to AIS

- Historic evidence for residual LNAPL in the source area:
  - Sporadic odor/sheen observed during purging/sampling events
  - Measurable LNAPL detected in former well MW-2 (1999-2002)
  - Free phase observed during drilling (MW-9D)
- Field screening during drilling indicated hydrocarbons present (odor/sheen/PID; MW-1, MW-2, MW-6, MW-7, MW-9, MW-11, and OXY-1)
- Air injection effective at reducing TPH concentrations within ROI
- Results of post AIS operation groundwater monitoring indicates no rebound

2. Site is Adequately Characterized

- Good groundwater monitoring well coverage
- Long groundwater data record, since:
  - 1998 (3 wells)
  - 2005 (15 wells)
  - 2006 (26 wells)
- MIP/grab groundwater investigation characterized lateral/vertical plume extent (Feb-Mar 2007)
- ACEH concurred no additional investigation required (April 2007)

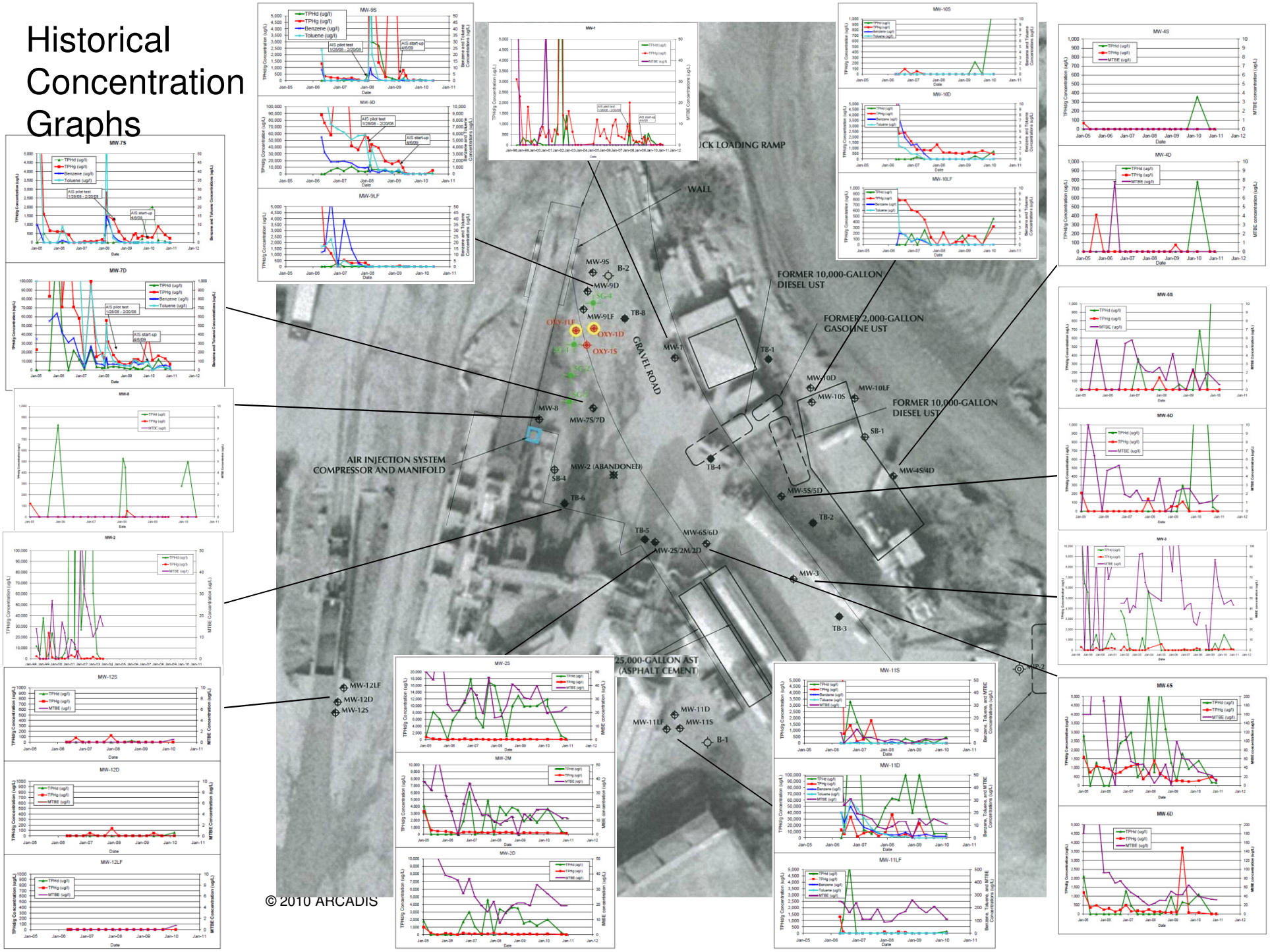
Site characterization discussion points

- Groundwater flow direction locally East-Southeast to South:
  - Varied, likely influenced by mining activities (pits, dewatering, water storage, and silting)
  - Not consistent with presumed regional flow to NW
  - Historically not consistent between shallow, deep, and Livermore Formation
- Generally have vertically downward gradients
- Characterization south and southeast of MW-11 based on analytical results of groundwater samples
- Known source area (vicinity of MW-9) not co-located with USTs

3. Dissolved plume is stable

- Isoconcentration contour maps plus concentration vs. time plots for the four primary analytes (benzene, MTBE, TPHg, and TPHd) in three zones (shallow, deep, and Livermore Fm.) used for assessment.
- Long-term concentration trends are generally decreasing or stable.
- No certain increasing trends in current data (2009 to present):
- Strongly decreasing concentration trends in air injection treatment area.
- Results of groundwater monitoring conducted 3 and 6 months after the shut down of the AIS indicates that concentrations of the fuel and fuel related compounds have not increased.

Historical Concentration Graphs



Benzene in groundwater

- Present in only 3 wells (highest detected concentration 38 ug/L in December 2010; well MW-7D).
- Strongly decreasing concentration trends in Deep Zone and Livermore Formation wells where concentrations historically highest.

MTBE in groundwater

- Present only in southern portion of site.
- In seven wells, concentration is below ESL.
- Highest concentration in Livermore Formation well (MW-11LF) – concentration trend is stable.
- In last two years, no wells where concentrations are increasing and above the ESL.
- Historic trend is decreasing/stable.

TPHg in groundwater

- Decreasing concentration trends in Deep Zone and Livermore Fm. wells where concentrations historically the highest.

TPHd in groundwater

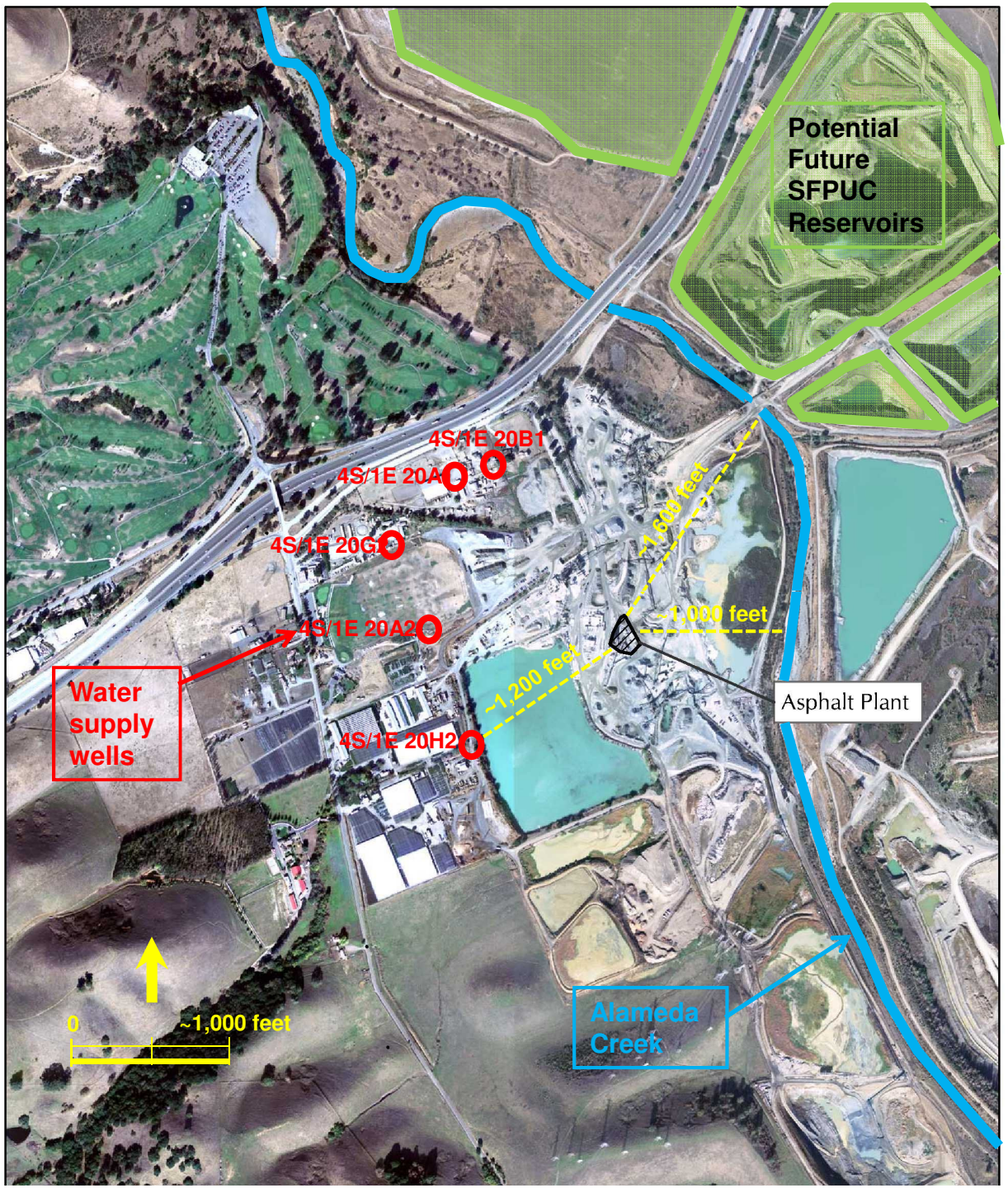
- Most widespread analyte.
- Lack of distinct concentration trends in most areas with historically highest concentrations.
- Clear downward trend in MW-9D in response to AIS operation.

4. No sensitive receptors

Potential sensitive receptors considered:

- **Water wells** (five wells with long screens [>100ft] located >1,000ft W and SW)
- **Human health** (outdoor work area with limited access)
- **Alameda Creek** (large distance allows for degradation during migration, contamination migration beneath creek, losing creek)
- **SFPUC water storage plans** (planning stage, large distance to proposed pits, degradation during migration, dilution in pits)
- **Future aggregate mining** (may require water and soil management plans)

Receptors



Conclusions

- Former known USTs have been removed.
- The soil and groundwater quality at the Site has been sufficiently characterized.
- Active remediation in the source area has been effective at significantly reducing concentrations.
- Analytical results of groundwater samples collected during post remediation rebound evaluation sampling indicates that the concentrations of TPHd, BTEX, and MtBE compounds have not increased following the shut down of the AIS.
- Site-wide concentrations are generally decreasing or stable.
- There are no significant sensitive receptors that would be affected by the impacted groundwater.

Recommendations

- Based on the analytical results of the groundwater samples collected during the two monitoring events that were conducted after the termination of AIS; a NFA determination is warranted for this Site.
- The analytical results of the groundwater samples collected over time have confirmed the historical declining/stable trends in fuel constituent concentrations.
- A Site Management Plan will be prepared since the NFA determination would allow affected soil and groundwater to be left in place.
- The Site Management Plan would be available to the public online via Geotracker.