

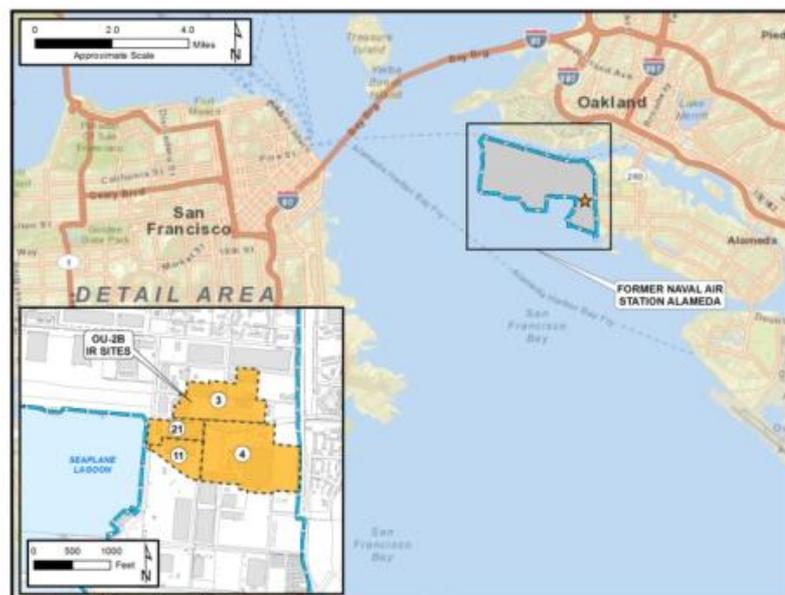


Welcome



Pre-Design Investigation for Operable Unit 2B

Installation Restoration Sites 3, 4, 11 and 21
Former Naval Air Station Alameda



Restoration Advisory Board (RAB) Meeting
August 3, 2013

Phil Nicolay P.G. – ARCADIS U.S., Inc.



Presentation Outline



- **Objective**
- **Background**
- **Target Areas for Pre-Design Investigation**
 - Soil Remedial Action Areas
 - Site-Wide Groundwater
- **Schedule**
- **Q&A**



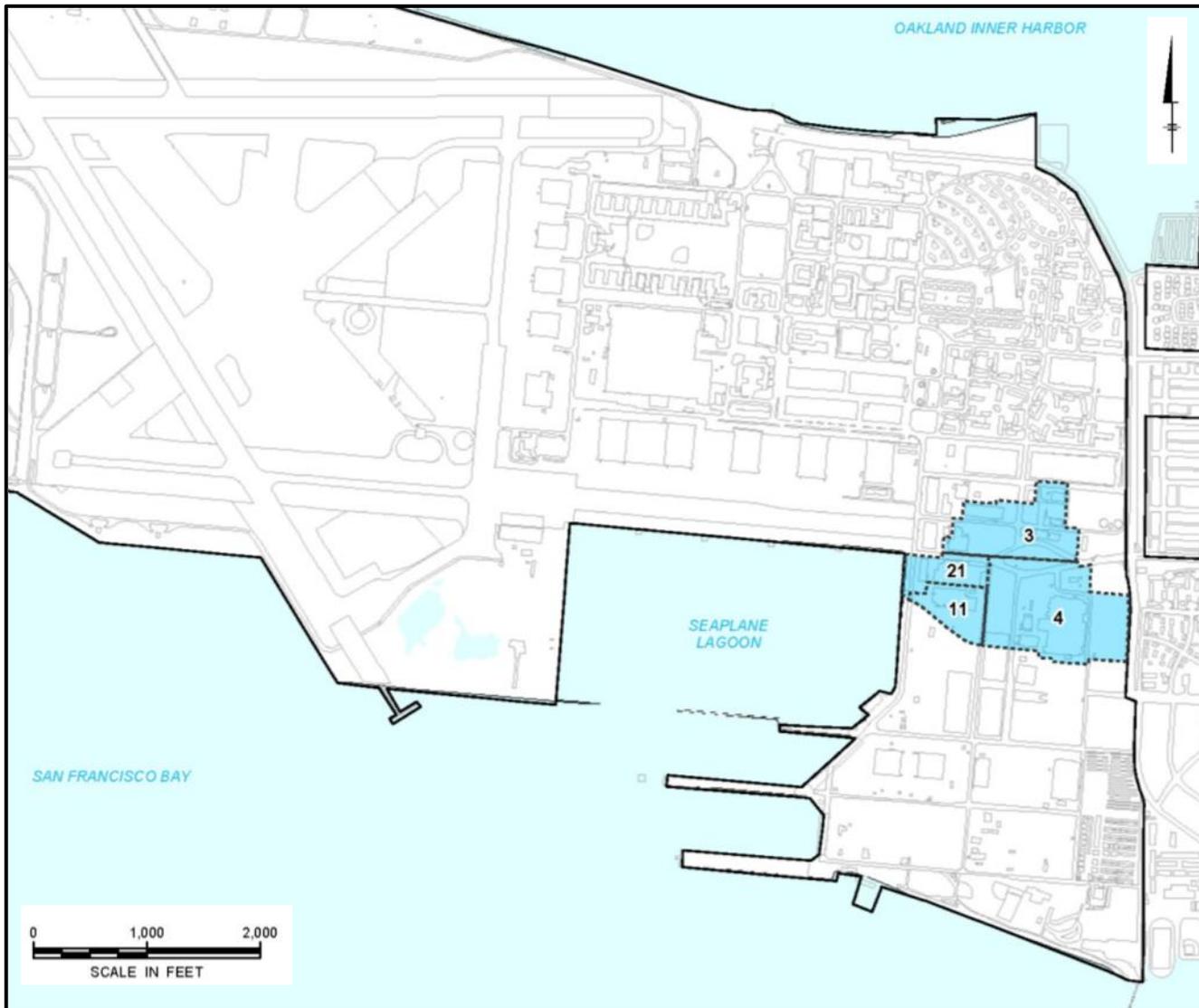
Objective of Pre-Design Investigation



- **To gather additional field and analytical data to support development and optimization of the remedial design for soil and groundwater at OU-2B.**
 - Further define the lateral and vertical extents of chemicals of concern (COCs) in soil; and
 - Collect current groundwater data to support preparation of the remedial design.



Background: OU-2B Location



Source: OTIE 2011



Background: Preferred Remedial Alternatives



- **Soil Remedial Alternative S-3a:** Excavation and disposal of impacted soil for unrestricted (residential) reuse except at localized areas of IR Sites 3 and 4 containing elevated levels of cobalt and hexavalent chromium, respectively.
- **Soil Remedial Alternative S-2:** Institutional controls (ICs), following implementation of S-3a, to prevent residential use at IR Sites 3 and 4 in the areas of elevated cobalt and hexavalent chromium concentrations in soil.
- **Groundwater Remedial Alternative GM-3b:** Hot spots and shallow groundwater treatment using in-situ thermal treatment, in-situ bioremediation, monitoring, and ICs to address potential vapor intrusion risk posed by volatile organic compounds (VOCs) in shallow groundwater.



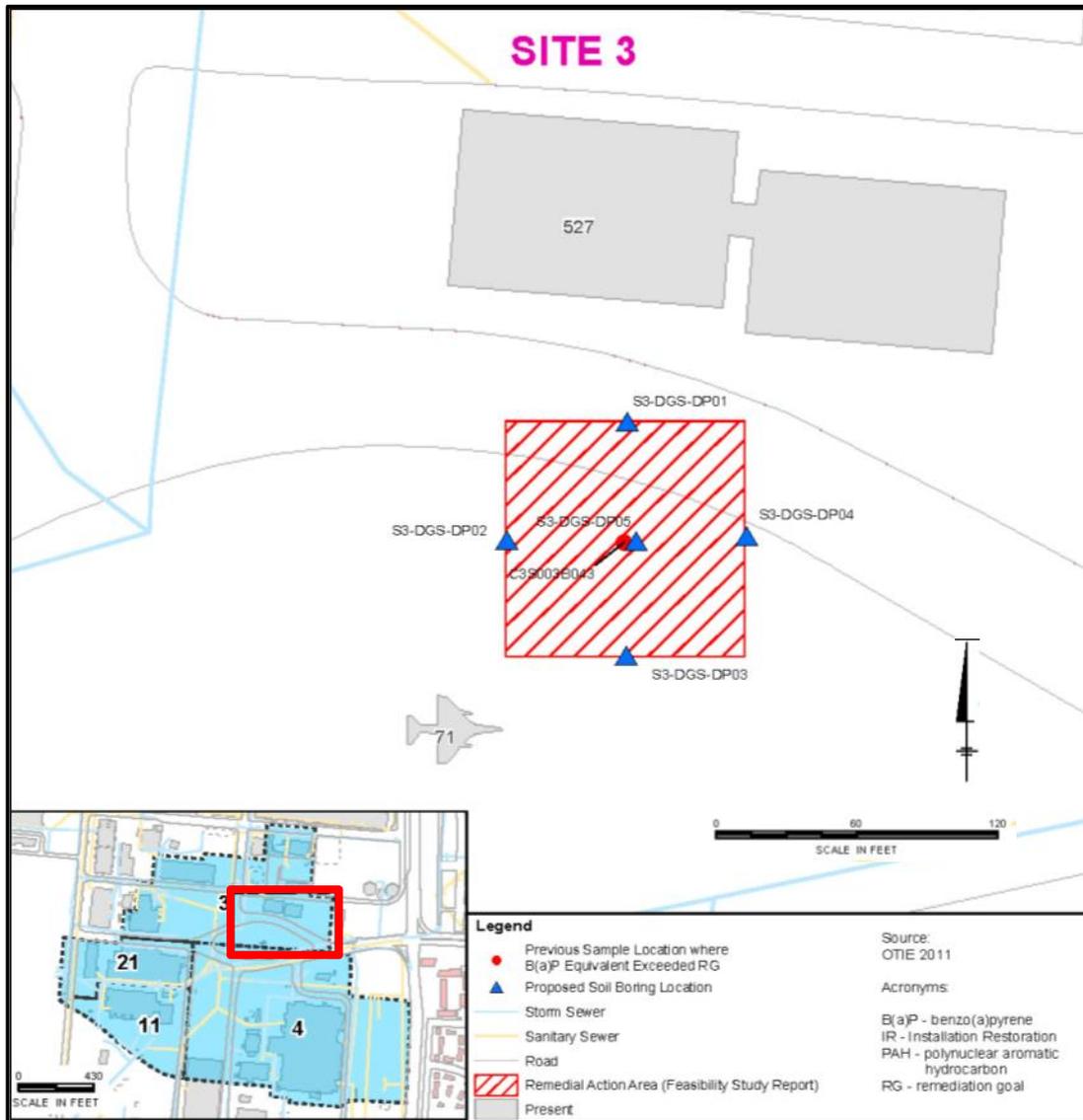
Target Areas for Pre-Design Investigation



- **Soil remedial action areas that are not considered “well-defined”, i.e.:**
 - Remediation area driven by elevated COC concentrations at a single “exceedance” location, defined as a soil sample location with COC concentrations exceeding the remediation goals (RGs).
 - Extent of remediation area not “bounded” in one or more directions (including vertically)
- **Site-wide groundwater**



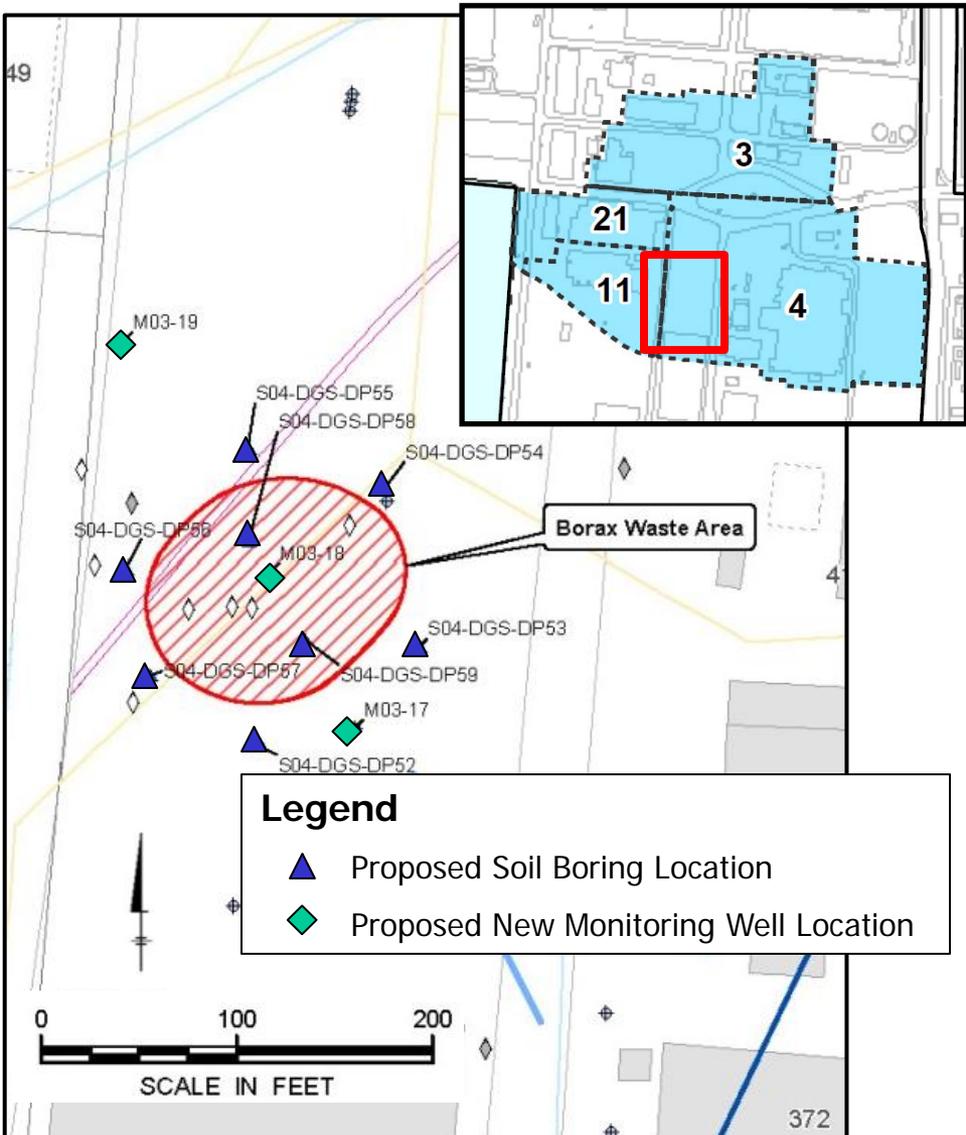
Southern IR Site 3 PAH Remedial Action Area



Remedial action area defined by one exceedance location where PAHs were detected above the RG of 0.62 mg/kg in soil from 0 to 4 feet bgs



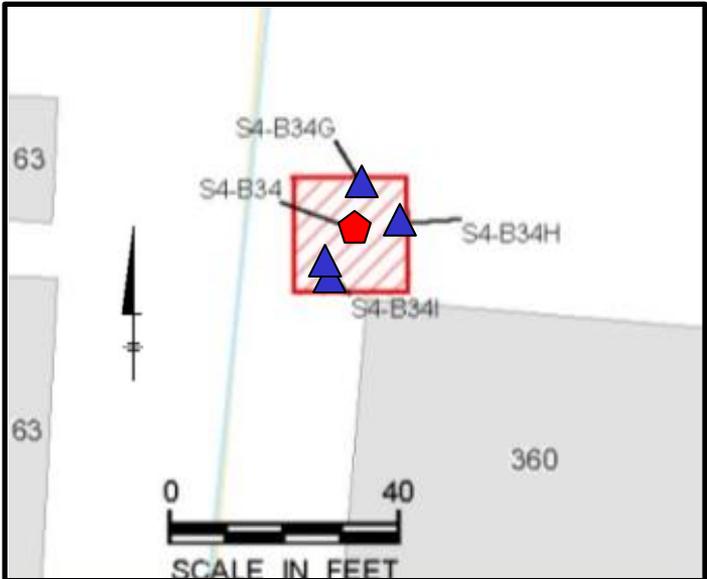
IR Site 4 Borax Waste Area



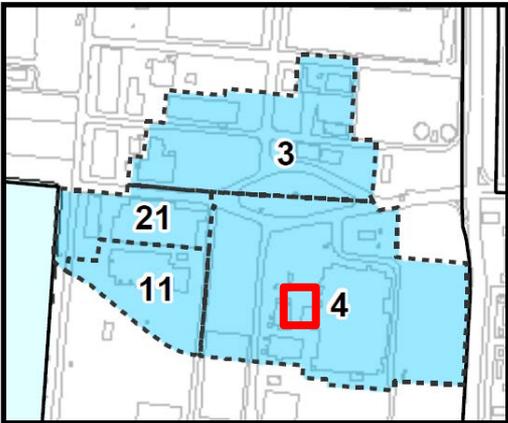
- Remedial action area approximately defined by elevated concentrations of arsenic in shallow groundwater (limited soil data)
- Elevated concentrations of arsenic/antimony anticipated to coincide with location of bentonite layer (from borax ore production) that has previously been encountered at ~2 to 10 feet



S4-B34 Lead Exceedance Area



Remedial action area defined by one exceedance location where lead was detected above the RG of 208 mg/kg in soil samples collected from 1-1.5 feet bgs and 5.5-6 feet bgs

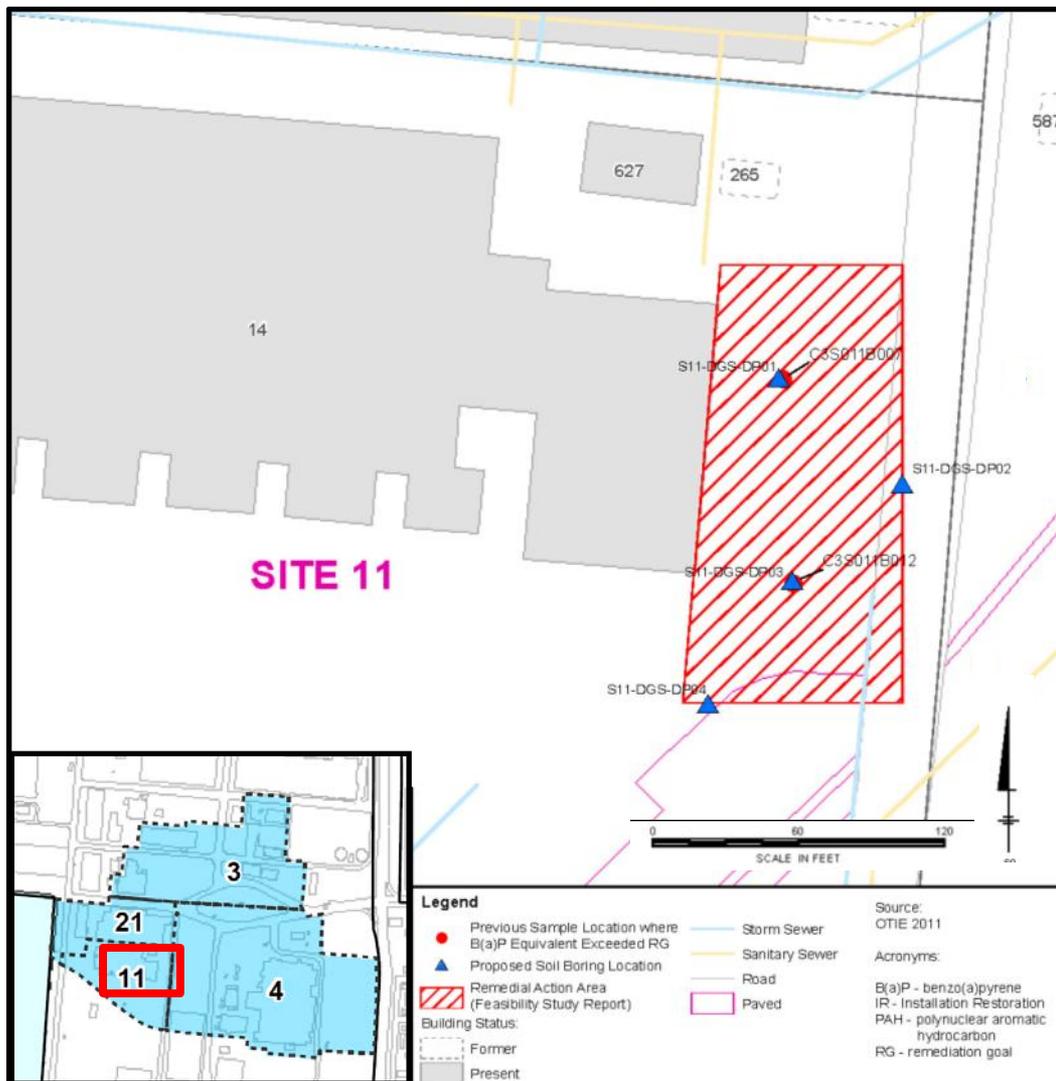


Legend

- Previous Sample Location where Lead Exceeded RG
- Proposed Soil Boring Location



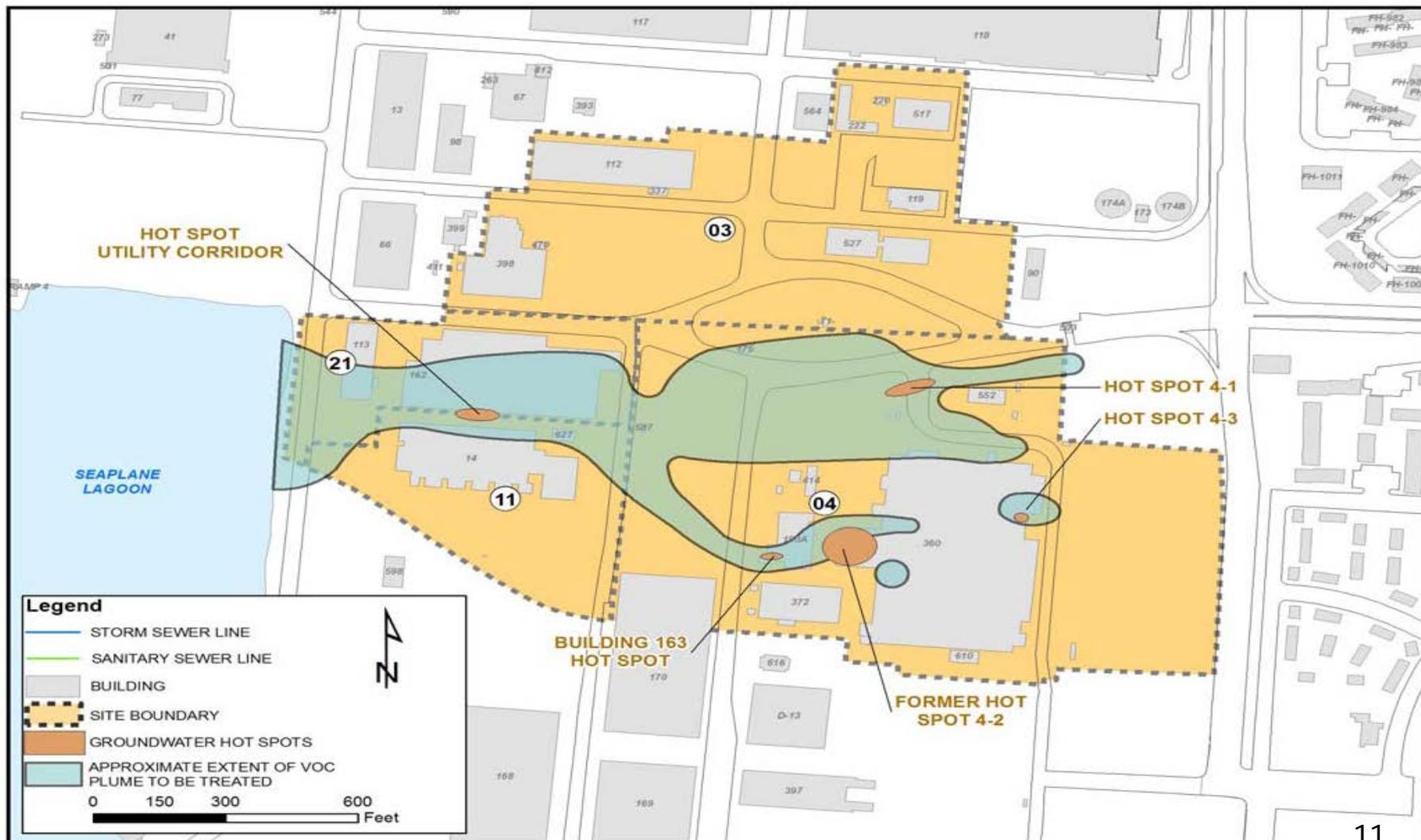
Eastern IR Site 11 PAH Remedial Action Area



Remedial action area defined by two surface soil exceedance locations where PAHs were detected above the RG of 0.62 mg/kg



Site-Wide Groundwater





Groundwater: Injection Test/Tracer Study



- **Objective:** Determine site-specific parameters to aid in design of bioremediation remedy
- **Location:** Near Building 163 in the former zero-valent iron treatability study area
- **Procedure:** Tracer solution will be injected into existing monitoring wells while monitoring for breakthrough at nearby monitoring wells



Schedule



- **Pre-Design Field Work:** August to September 2013
- **Preliminary Remedial Design:** Scheduled for review in December 2013
- **Start of Soil Remediation:** Summer 2014
- **Start of Groundwater Remediation:** 2015



Questions?

