FINAL
NAVAL AIR STATION ALAMEDA
Restoration Advisory Board (RAB) Meeting Minutes

May 9, 2013

www.bracpmo.navy.mil
950 West Mall Square, Alameda City Hall West
Room 140, Community Conference Room
Alameda Point
Alameda, California

The following participants attended the meeting:

Co-Chairs:

Derek Robinson	Base Realignment and Closure (BRAC) Program Management Office (PMO) West, BRAC Environmental Coordinator (BEC), Navy Co-chair
Dale Smith	Restoration Advisory Board (RAB) Community Co-chair

RAB Members

Richard Bangert; Susan Galleymore; Carol Gottstein, M.D.; Daniel Hoy; George Humphreys; James Leach; Skip McIntosh; Bert Morgan; Kurt Peterson; Bill Smith; Jane Sullwold; Jim Sweeney; Michael John Torrey

Community Members/ Public Attendees

Steve Bachofer; Irene Dieter; Steve Farley; Gretchen Lipow; Bob Sullwold

Navy

Jacques Lord, Contracted Remedial Project Manager, BRAC PMO-West

Regulatory Agencies

James Fyfe, California EPA Department of Toxic Substances Control (DTSC)
Chris Lichens, United States Environmental Protection Agency (EPA)
John West, San Francisco Bay Regional Water Quality Control Board (Water Board)

City of Alameda

Tony Daysog, Councilmember
Peter Russell, Russell Resources/City of Alameda (City)

Contractors

John McGuire, CB&I
John McMillan, CB&I
Betty Schmucker, Trevet
Pete Stang, Trevet

The meeting agenda, Calendar, and Upcoming Deliverables are provided as Attachment A.

MEETING SUMMARY

I. Welcome and Introductions

Derek Robinson (RAB Navy Co-chair) called the May 2013 former Naval Air Station Alameda (Alameda Point [AP]) RAB meeting to order. He welcomed everyone and asked for introductions.

II. Community and RAB Comment Period

Skip McIntosh (RAB Member) noted the wrong date for the RAB meeting was listed in the newspaper and that the Navy's web site says "the first second Thursday," which is confusing. Mr. Robinson acknowledged that some people showed up for the RAB meeting on May 2, although RAB meetings are held on the second Thursday. Susan Galleymore (RAB Member) said she sent the notice to the newspaper and to the Alameda Patch Website about the May 15 Operable Unit (OU) 2B public meeting.

George Humphreys (RAB Member) presented a brief comment letter for inclusion in the minutes (Attachment B). The comments address the OU-5/Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex (FISCA) Installation Restoration (IR)-02 groundwater presentation given at the March 14, 2013, RAB meeting. Ms. Galleymore asked if there will be any action taken on Mr. Humphreys' letter, noting concerns about follow-up after seismic events. Mr. Robinson said the Navy and regulatory agencies will consider the issues raised in Mr. Humphreys' letter, and the letter will be included in the Navy's Administrative Record as part of the meeting minutes. He said the Navy takes community concerns seriously and they will be discussed internally. Bill Smith (RAB Member) said the RAB needs to take the issues back to the community and also ensure the City is aware of them. Dale Smith (RAB Co-chair) said Mr. Humphreys' letter was prepared in response to the March presentation out of concern that the language was simple and understandable, and she expressed concern for the effectiveness of the technology at OU-2B and other AP sites. Ms. Galleymore said she reviewed a liquefaction map and noted that a lot of AP is subject to liquefaction. She wanted this awareness raised to the City's level. Mr. Robinson said if experts had seen mixing during seismic events, this would definitely have raised a flag. The pre-treatment and post-treatment groundwater conditions are similar, although oxygen did increase and it will decrease over time, as Mr. Humphreys noted in his comments. Low contaminant concentrations were reported at the groundwater interface, which is where vapor intrusion could be a concern. The Navy will look at this going forward.

Ms. D. Smith said she tried to get a document concerning the effects of the 1989 Loma Prieta earthquake on Alameda and has not gotten it; however, she has one for Naval Station Treasure Island (TI). She said major post-quake issues were reported at TI. Mr. Robinson said he does not have such a document for AP. Mr. Humphreys said the 1989 quake may have affected contaminants on the Marsh Crust. The Navy began its testing on AP post-1989; however, if the Navy had begun testing pre-1989, different conditions may have been found. The area along Tinker Avenue is particularly unstable and the ground under the former warehouses there has settled.

III. OU 2B Proposed Plan

Mr. Robinson explained the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements and how the Proposed Plan fits into that framework. The Proposed Plan public meeting will be held May 15. Mr. Robinson introduced Pete Stang (Trevet) to present a summary of the Proposed Plan for OU-2B (Attachment C).

During review of Slide 8, Ms. D. Smith asked what color is represented by the AP background level: pink, blue, or yellow. Mr. Robinson said the appropriate background values for the area are being used for PAHs; however, he did not know what color was assigned to each level so could not answer that question. Further, the colors pertain to metals, not PAHs. Mr. Humphreys asked what the background numerical value is and whether it was based on the Marsh Crust or elsewhere on AP. Mr. Stang responded with information shown on Table 1 (Page 13 of the Proposed Plan), where the remediation goal for PAHs is 0.62 milligrams per kilogram (mg/kg) of soil. Mr. Humphreys said 0.62 mg/kg was agreed upon for Site 25 and corresponded to 10^{-5} cancer risk; Mr. Robinson concurred. Mr. B. Smith asked if background is the established cleanup level. Ms. Galleymore said that all of AP background is contaminated and background is not a good term. John West (Water Board) explained that background values are risk based and evaluated by a toxicologist. Mr. Stang explained that cleanup levels are based on the acceptable residential levels. Michael John Torrey (RAB Member) asked what the cleanup level is. Mr. Stang explained that PAH contamination existed on AP before the Navy took the property, and the Navy has worked with agencies to develop a valid number based on significant evaluation, which is 0.62 mg/kg. Mr. Robinson said the goal is to reach PAH levels of 0.62 mg/kg of soil, which has been the agreed-upon PAH cleanup level for sites elsewhere on AP. Ms. D. Smith said true background might be much lower than 0.62 mg/kg. Mr. B. Smith said he objected to the use of "background" or "ambient," as risk should not be used to establish background. Mr. Robinson said risk is evaluated along with background, and cleanup levels are consistent with background but also evaluated for risk.

During review of Slide 9, Ms. D. Smith said that unrestricted use would not be achieved by the Alternative S-2. Mr. Stang said Sites 11 and 21 would be available for unrestricted reuse; Sites 3 and 4 would require institutional controls (ICs) for two building footprints. Mr. Humphreys noted that the costs for excavation for cobalt under two of the alternatives would reduce the costs by about half. Mr. Stang said the reduction would actually be about $1.6 million. Mr. Humphreys said that $400,000 would be needed for 30 years of ICs and asked how ICs would be maintained beyond 30 years. Mr. Stang explained that CERCLA guidance uses 30 years as the costing basis for comparative purposes, not for remedy design. Further, it does not mean that at year 31 everything stops. Mr. Humphreys said if the funds were invested, the money would be there beyond 30 years. However, this is not done; it is not realistic to discount future costs and there may be no money to cover future monitoring. Ms. D. Smith expressed concern that hexavalent chromium would mobilize over time, as happened in Berkeley. Ms. Sullwold asked if Alternative S-2 would be selected, along with part of S-3a to address cobalt, which then reduces some of the cost. Mr. Stang said that is how the OU-2B Feasibility Study (FS) and the Proposed Plan are presented.

During review of Slide 12, Ms. D. Smith noted that pilot studies are not unique to AP and are commonly performed at other bases, such as Hunters Point. She said the FS showed that the pilot tests experienced rebound, one as early as one month after stopping the pilot test. The area

under treatment is large and complex. She also said the bottom of the plume is not reached in many places. Richard Bangert (RAB Member) asked how ICs and continued monitoring will affect commercial development. Mr. Stang said ICs are layered on top of each other to address the issues. The deed will reflect the ICs, which is one layer. The City's building/ development department will know there are ICs. The entity buying or leasing the property will know there are ICs. Finally, the CERCLA Five-Year Review will evaluate whether the remedy, including ICs, continues to be protective of human health and the environment. Mr. Bangert asked if any of the proposed ICs could create problems for development. Mr. Robinson said that ICs are a challenge for future land use, and future development must work around soil ICs and the groundwater plume until remediation goals are met. Ms. D. Smith noted the plume is only being addressed to 30 feet and digging deeper for pilings to address liquefaction is a possibility. Mr. Robinson agreed that excavations deeper than 30 feet would have to account for potential contamination. Mr. Robinson said if digging goes deeper, the developer will address those costs.

Jim Leach (RAB Member) asked if there is a more objective way to state evaluation as "good" or "fair," and said he does not think ICs are effective. Mr. Stang explained how ICs work in deed restrictions and reiterated the "layering" of ICs discussed earlier. Mr. Stang said "good" and "fair," etc., are how the comparative criteria are evaluated. Mr. B. Smith said he likes Alternative S-3a except for the carve-out for cobalt, and asked if the remedial action objectives took ecological risk into account. Mr. Robinson said yes, ecological risks were evaluated in the OU-2B FS and elsewhere before developing remedial action objectives and the Proposed Plan alternatives. Mr. Humphreys said with groundwater Alternative GM-4, residential standards could be reached in 26 years, as opposed to the 35 years stated in the original FS. Alternative GM-4 appears to do a better job. He then indicated that the alternative does not describe all of the technical requirements for the alternatives. Mr. Stang agreed with Mr. Humphreys' assessment that Alternative GM-4 is not well written (too much use of "and/or,") and stated that ICs in addition to cleanup would be in place until residential standards are reached. Mr. Robinson said the plan is to treat to commercial standards, then implement ICs until residential standards are reached. Ms. D. Smith was concerned about the level of residential use, restricted or unrestricted. Mr. Leach said in order to build, a soils report is needed and drilling is part of that. If ICs are in place, the soils driller may not know that and will proceed, so this needs to be considered.

Tony Daysog (Alameda City Councilmember) said the City is working with the Metropolitan Transportation Commission on the OU-2B area as a development "catalyst area." The City is concerned about mixed use commercial/residential in the area. He asked about the vision and how it "syncs" with the Navy's data. He wondered why the remedy only goes to 30 feet deep and not 60 feet. If the remedy only goes to 30 feet, that may or may not be deep enough, depending on future building foundations. Mr. Stang said the preferred remedy with long-term monitoring and ICs does not preclude future residential use of the area. Mr. Robinson said engineering design questions will need to be addressed in the future by the City's developer. Any future developer will be made aware of the conditions and the potential development costs evaluated as necessary.

Bob Sullwold (Public Member) commented that ICs affect the use of Buildings 360 (Site 4) and 395 (Site 3), and that if he had a client wanting to buy the property, the buildings basically should remain commercial unless some additional work is done to allow residential use. Further, groundwater ICs would affect the use of the property and limit use to commercial. Mr. Robinson

agreed with that synopsis but said that vapor intrusion engineering could allow residential use. Mr. Robinson summarized by saying the City is receiving hundreds of acres of free property, of which a very small portion needs restrictions. His recommendation would be to keep the very small area for commercial and use the unrestricted areas for residential.

IV. OU-2B: Six-Phase Heating of Groundwater

Mr. Robinson introduced John McGuire (CB&I) to discuss in situ thermal treatment of chlorinated solvents in groundwater at OU-2B using six-phase heating (Attachment D).

During review of Slide 4, Kurt Peterson (RAB Member) asked how far from Seaplane Lagoon the plume and six-phase heating area was located. Mr. McGuire said 400 feet.

During review of Slide 8, Mr. Humphreys asked about the level of salinity of the groundwater being treated. Mr. Robinson said the salinity was close to that of seawater.

During review of Slide 12, Mr. Sullwold asked how degrees Centigrade (ºC) compare to degrees Fahrenheit (ºF). Mr. McGuire said that the boiling point in ºF is 212, which converts to 100ºC.

During review of Slide 14, Mr. Humphreys asked about the depth of the groundwater plume, considering the treatment went to 30 feet bgs. Mr. McGuire said the treatability study scope of work was to address the shallow portion of the plume, which is 30 feet bgs.

During review of Slide 15, Mr. Bangert asked about the treatment threshold. Mr. McGuire said the target was below 1 milligram per liter (mg/L) and a lot of mass was removed (from greater than 30 mg/L to less than 10 mg/L). Asymptotic conditions were reached. Mr. Bangert asked if the treatment reached the remediation goals. Mr. McGuire said the six-phase heating was conducted as a treatability study to feed into the overall OU-2B plan, and the hot spot was reduced. Ms. Galleymore asked if this technology will be used at another hot spot. Mr. McGuire said there are limitations where six-phase heating can be used; e.g., utilities and underground wiring. A Strategic Environmental Research and Development Program (SERDP) treatment study was conducted for in situ bioremediation and it is working well. A report presenting the results is in process now.

V. Co-Chair Announcements

Ms. D. Smith said she has scheduled a meeting with Jennifer Ott of the City on June 11 at 6 PM to review the environmental overlay on the proposed development. The meeting is scheduled in Building 1, Room 140. She will send out a notice.

Ms. D. Smith said she found some information from former Naval Station Treasure Island (TI) about "radiological material shipped from TI to Alameda Point."

Ms. D. Smith said she had a previous handout from Dot Lofstrom (DTSC) about how to use the DTSC EnviroStor Web site (http://www.envirostor.dtsc.ca.gov/public/). A tutorial is also provided on the Web site. Ms. D. Smith gave the information to Ms. Galleymore.

Ms. D. Smith announced that the OU-2B Proposed Plan public meeting will be held on May 15 at the Alameda Free Library.

Ms. D. Smith said the RAB prepared a comment letter on the IR Site 1 Proposed Plan for the Burn Area. She will scan the letter and send it for inclusion in the RAB packet (Attachment E).

VI. Future Meeting Agenda Items

Mr. Robinson announced that the upcoming annual site tour will be for RAB members only this year. Navy vans will be used instead of a large bus. Ms. D. Smith asked if the July 11 RAB meeting would be cancelled. Mr. Robinson suggested holding the RAB meeting a little earlier (possible 6 PM or even 4 PM) and then follow it with the site tour while it remains light later. Another option would be to hold the tour first followed by the RAB meeting. Richard Bangert asked if the tour would be held on Thursday or moved to another day. Mr. Robinson asked RAB members to give their suggestions and preferences to Ms. D. Smith to forward to him for consideration.

At 8:45 Mr. Robinson asked the RAB to vote to extend the meeting to 9:15 PM. Ms. Sullwold moved the meeting be extended and Michael John Torrey (RAB Member) seconded. The motion carried.

Mr. Robinson asked the RAB members what sites they would like to see on the tour. Site 1 Burn Area, Site 2, Building 5, and Building 400 were all suggested. A windshield tour of OU-2B and OU-2A is also possible, meaning the RAB members would stay on the bus for those two areas.

VII. Approval of March 14, 2013, RAB Meeting Minutes/Review Action Items

Mr. Robinson asked for comments on the draft March 14, 2013, RAB meeting minutes. Ms. D. Smith made the following comments:

- Globally, change "web" to *W*eb"
- Page 2 of 7, third paragraph under **II.**, change "… a public meeting held earlier today…" to "…a public meeting held earlier *that day*…"
- Page 3 of 7, third paragraph under item **III.**, first sentence: Change "…what happens when benzene and naphthalene reach the water level" to "…what happens when benzene and naphthalene reach *the top of* the water *table*."
- Page 4 of 7, first full paragraph: In the second sentence, change "redevelopers" to "developers" and in the last sentence change "developer" to "developers."
- Page 4 of 7, third paragraph under **IV.**, second sentence: Change "Mr. Abkemeier said yes, and the survey will go through the ventilation ducts and out." to "Mr. Abkemeier said yes*;* the survey will go through*out* the ventilation ducts."
- Page 4 of 7, middle of third paragraph under **IV.** , add the sentence: "Ms. Smith asked if window ledges will be remediated."
- Page 4 of 7, third paragraph under **IV.**, prior to last sentence, add: "Ms. Smith said Building 400 is occupied."
- Page 5 of 7, fourth paragraph, add a sentence to the end that says: "Mr. Bangert noted a third lupine was removed in the tarmac area."
- Page 5 of 7: Ms. Smith will provide a revised paragraph via email to replace the 6th paragraph. Change the last sentence of the 6th paragraph from "She also requested copies for the RAB of the Finding of Suitability to Transfer (FOST) and requested an extension

of the comment period…" to "She also *had* requested copies of the Finding of Suitability to Transfer (FOST) and *had* requested an extension of the comment period…"

Mr. Humphreys made the following comments:

- Page 2 of 7, second paragraph under **II.**, next to last sentence: Change "Mr. Humphreys asked why BCDC would not let the sediment remain at TI, as there was a skeet range at Alameda Point with lead (e.g., Site 29)." to "Mr. Humphreys asked why BCDC *required* the sediment *to be removed* at TI, *whereas* a skeet range at Alameda Point with lead (e.g., Site 29) *was allowed to remain in place*."
- Page 3 of 7, third paragraph under **III.**, third sentence: change "Mr. Humphreys asked how cracks in the subsurface were overcome for biosparging" to "Mr. Humphreys asked how *channels* in the *Marsh Crust* were *reached* for biosparging."
- Page 3 of 7, fourth paragraph, last sentence: change "Mr. Humphreys noted that as soon as the biosparge injections stop,…" to "Mr. Humphreys noted that about *two years after* the biosparge injections stop,…"

Ms. Galleymore made the following comments:

- Page 4 of 7, first paragraph under **V.**, first two sentences: delete the portion of the sentences that say "Ms. Galleymore expressed interest in RAB technical assistance and asked if funding is available to help RAB members understand the technical information. She said it would be helpful to have a simple explanation of the contamination and added that the public needs to know about risk and safety." so the sentences read: "Ms. Galleymore expressed interest in RAB technical assistance and asked if funding is available to have a simple explanation of the contamination and added that the public needs to know about risk and safety."

The minutes were approved with the preceding changes incorporated.

Action Items 2 through 8 from the March minutes were completed. Mr. Robinson said he will resend the e-link to EnviroStor to Mr. McIntosh (Action Item 5). Mr. Robinson said he looked into Action Item 4 and that an ecological risk assessment was conducted at TI. The reason the material containing lead was removed was because at TI, ducks had access to it but this is not the case at AP. Mr. Robinson said he looked into Action Item 6 and has information he can send to Ms. Galleymore about remaining TAPP funding. He suggested that interested RAB members form a subcommittee to pursue this.

Mr. Robinson said Jacques Lord (Navy) was present to show some slides of the vegetated areas at Site 2. However, as time was short, Mr. Robinson will send out the slides via email (Attachment F).

The next RAB meeting will be held on July 11, 2013. Information on the site tour and RAB meeting will be sent out. The meeting was adjourned at 9:25 PM.

Action Items:	Previous Item #/ Action Item Status/ Action Item Due Date:	Initiated by:	Responsible Person:
1. Request for Presentations:	Pending	RAB	Mr. Robinson
a. Site 1 Radiological RD/RA work plan			
b. Basewide Radiological Contamination	Pending	Mr. Humphries	Mr. Robinson
c. IR Site 1 Groundwater Plume			
d. OU-2A Tarry Refinery Waste and Rail Cars			
e. OU-2B Six-Phase Heating	Complete		
f. OU-2B University Study			
g. FOST process	Pending	Ms. Tran	Mr. Robinson
2. Navy to provide status update for Building 5 in OU-2C where radium paint was spilled	Complete	Ms. D. Smith	Navy
3. Navy to provide radium-226 screening-level value (in drinking water) to Mr. Torrey	Complete	Mr. Torrey	Ms. Sabedra
4. Navy to check into the status of Site 29 (Skeet Range)	Complete	RAB	Mr. Robinson
5. Navy to provide RAB with e-link to DTSC EnviroStor Web site	Complete	RAB	Mr. Robinson
6. Navy to check on availability of remaining TAPP funds	Ongoing	Ms. Galleymore	Mr. Robinson
7. Navy to look into video-conferencing capabilities at the various Alameda locations	Ongoing	RAB	Mr. Robinson
8. Navy to send request to City (J. Ott) to coordinate with D. Smith about a presentation on the City's Draft EIR	Complete	Ms. Galleymore	Mr. Robinson

ATTACHMENTS

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING ATTACHMENTS

A. Naval Air Station Alameda Restoration Advisory Board Meeting Agenda, May 9, 2013 (1 page); 2013 Calendar and Upcoming Deliverables (2 pages)

B. George Humphreys' Comment Letter on OU 5/FISCA IR-02 Groundwater Presentation (1 page)

C. Proposed Plan for Operable Unit (OU-) 2B (12 slides)

D. In Situ Thermal Treatment of Chlorinated Solvents at OU-2B (14 slides)

E. RAB Comment Letter, IR Site 1 Proposed Plan for the Burn Area

F. IR Site 2 RA (8 slides)

Attachment A (3 pages)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

MAY 9, 2013, 6:30 PM

ALAMEDA POINT – 950 WEST MALL SQUARE, ALAMEDA CITY HALL WEST SUITE 140/COMMUNITY CONFERENCE ROOM

(FROM PARKING LOT ON W. MIDWAY AVENUE, ENTER THROUGH MIDDLE WING)

TIME	SUBJECT	PRESENTER
6:30 – 6:40	Welcome and Introductions	Community and RAB
6:40 – 7:00	Community and RAB Comment Period*	Community and RAB
7:00 – 7:30	OU-2B Proposed Plan	Pete Stang
7:30 – 7:55	OU-2B: 6-Phase Heating of Groundwater	John McGuire
7:55 – 8:15	Co-Chair Announcements	Co-Chairs
8:15 – 8:30	Future Meeting Agenda Items	RAB
8:30 – 8:45	Approval of Minutes	RAB
8:45	RAB Meeting Adjournment	

* If there is time at the end of the agenda, additional comments will be taken.

January	**Feb**	**Mar**
Thursday, January 10 – RAB Meeting, 6:30 – 9 PM, Building 1, Alameda Point **RAB Co-Chair Vote**		**Thursday, March 14** – RAB Meeting: 6:30-9:00 pm, Building 1, Alameda Point
April	**May**	**June**
	Thursday, May 9 – RAB Meeting: 6:30-9:00 pm, Building 1, Alameda Point **Wednesday, May 15** – Proposed Plan Meeting for OU-2B, 6:30-8 PM, Alameda Free Library	
July	**August**	**September**
Thursday, July 11 – RAB Meeting: 6:30-9:00 pm, Building 1, Alameda Point RAB Site Tour – date/time TBD		**Thursday, September 12** – RAB Meeting: 6:30-9:00 pm, Building 1, Alameda Point Co-chair and Vice Co-chair Nominations
October	**November**	**December**
	Thursday, November 14 – RAB Meeting: 6:30-9:00 pm, Building 1, Alameda Point Co-chair and Vice Co-chair Election	

Upcoming Deliverables, May 2013
Alameda Point, Alameda, CA

Site	Upcoming Document	Transmittal Date
EDC-12	Draft Final Addendum to Final Site Inspection Report	5/17/2013
EDC-17	Draft Final Addendum to Final Site Inspection Report	5/17/2013
Site 1	Draft Work Plan for Remedial Design and Remedial Action for Soil of IR Site 1	7/23/2013
OU-2C	Draft Record of Decision	8/9/2013

Attachment B (1 page)

George B. Humphreys
May 6, 2013

Comments on OU-5/FISCA IR-02 Groundwater Presentation

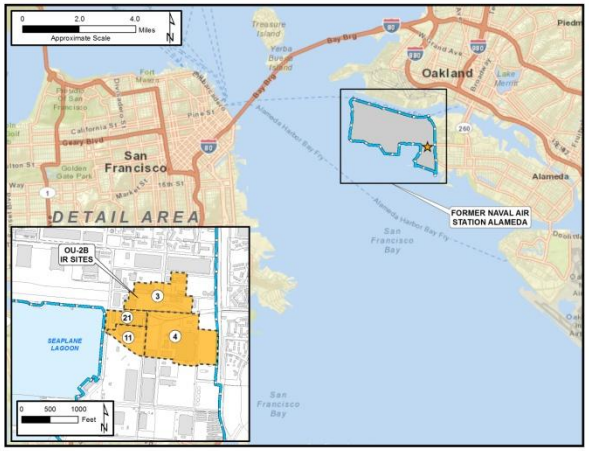
The thrust of Mr. Dudus' presentation at the March 14, 2013 RAB meeting was that soil vapor concentrations are low because of low to non-detectable benzene and naphthalene concentrations at the top of the water table. This ostensibly results from aerobic (presence of oxygen) conditions at the soil groundwater interface (see page 7 of presentation). This raises several issues:

1. The original conditions in the subsoil were anaerobic (lack of oxygen). Experience with landfills indicates that conditions in landfills go from aerobic to anaerobic about two years after closure (this is when methane gas production starts). Similarly, it is reasonable to expect that after the cessation of biosparging with air, conditions would return to anaerobic after about two years. Any diffusion of air from the atmosphere into the ground will be counteracted by gases and vapors rising to the surface. Thus, oxygen-rich conditions should not prevail and cannot be depended on to maintain low concentrations of benzene and naphthalene at the interface between groundwater and soil gas.
2. Soil liquefaction during a major earthquake may result in agitation of the groundwater, with deep, higher-concentration groundwater being mixed with lower concentration groundwater at the soil/groundwater interface.
3. Soil gas concentrations and vapor concentrations within buildings should be measured about two years after the cessation of air injection. They also should be checked after major seismic events.

Welcome

Proposed Plan for Operable Unit (OU) 2B

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



Restoration Advisory Board (RAB) Meeting

May 9, 2013

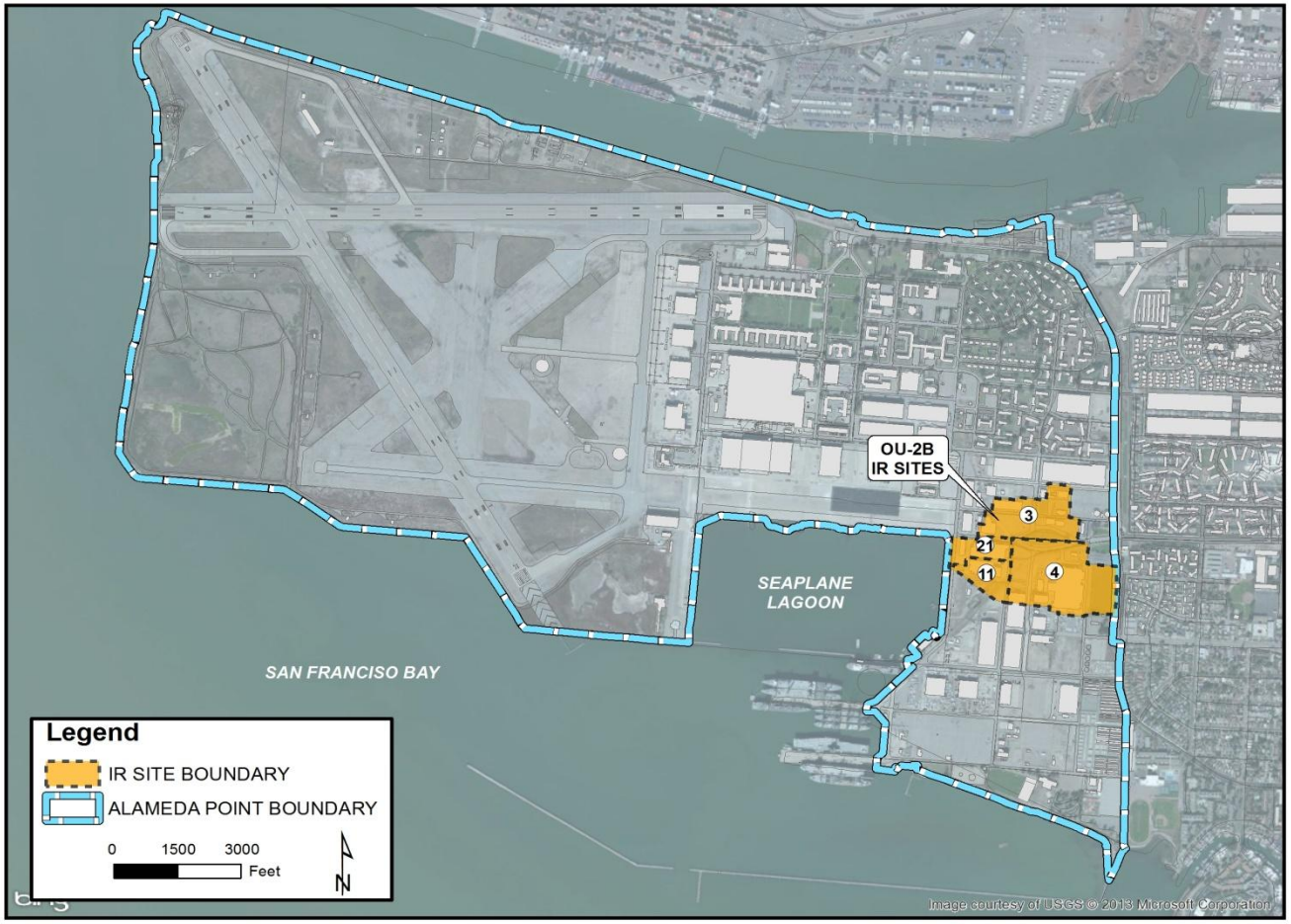
Peter M. Stang, PG - Trevet, Inc.

Attachment C (12 pages)

Presentation Outline

- Background
- Alternatives for site-specific soil and OU-2B-wide groundwater
- Comparison of Alternatives
- Providing Comments

Background


OU-2B
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11
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LAGOON
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ALAMEDA POINT BOUNDARY
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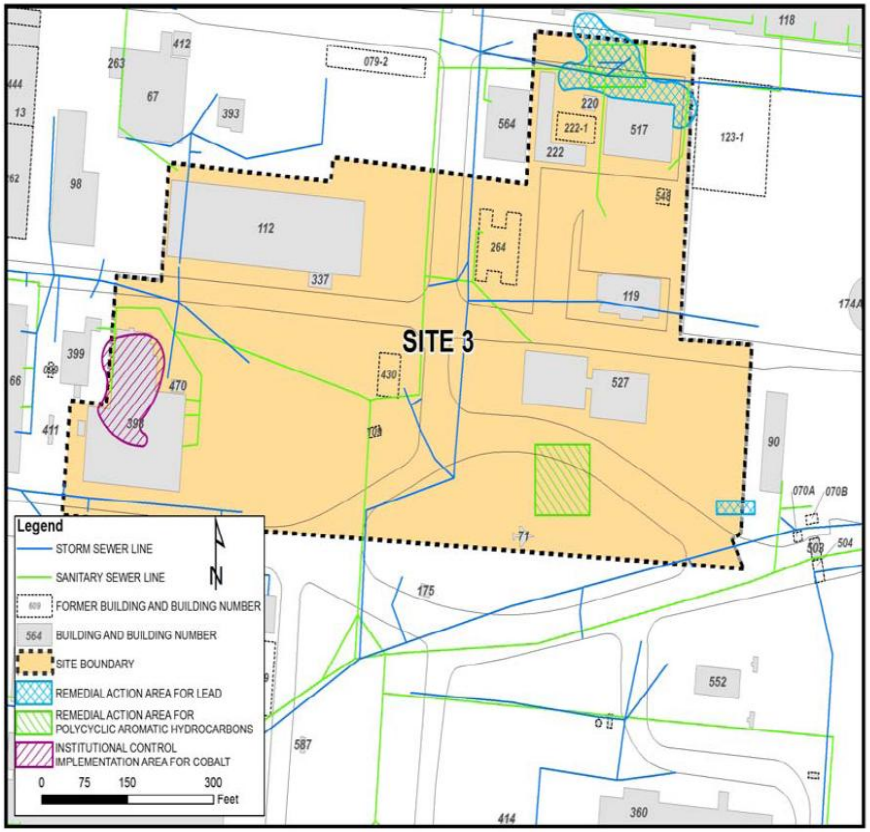
Image courtesy of USGS © 2013 Microsoft Corporation

Sites 3 & 4


SITE 3
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STORM SEWER LINE
SANITARY SEWER LINE
FORMER BUILDING AND BUILDING NUMBER
BUILDING AND BUILDING NUMBER
SITE BOUNDARY
REMEDIAL ACTION AREA FOR LEAD
REMEDIAL ACTION AREA FOR POLYCYCLIC AROMATIC HYDROCARBONS
INSTITUTIONAL CONTROL IMPLEMENTATION AREA FOR COBALT
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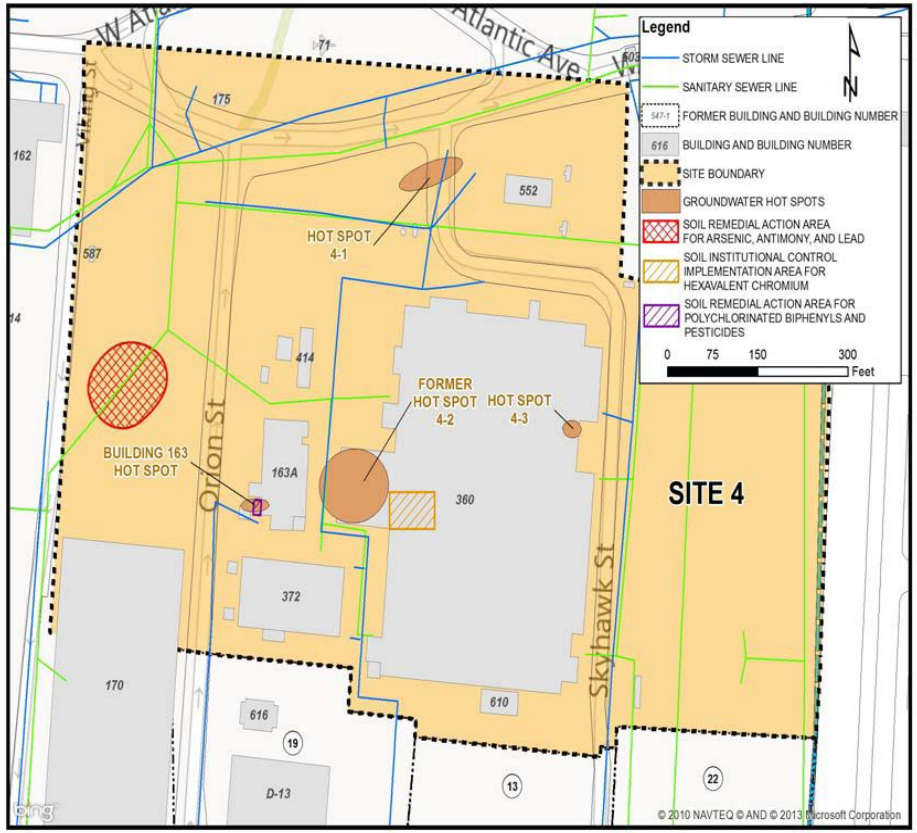
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Skyhawk St
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FORMER HOT SPOT 4-2
HOT SPOT 4-3
BUILDING 163 HOT SPOT
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STORM SEWER LINE
SANITARY SEWER LINE
FORMER BUILDING AND BUILDING NUMBER
BUILDING AND BUILDING NUMBER
SITE BOUNDARY
GROUNDWATER HOT SPOTS
SOIL REMEDIAL ACTION AREA FOR ARSENIC, ANTIMONY, AND LEAD
SOIL INSTITUTIONAL CONTROL IMPLEMENTATION AREA FOR HEXAVALENT CHROMIUM
SOIL REMEDIAL ACTION AREA FOR POLYCHLORINATED BIPHENYLS AND PESTICIDES
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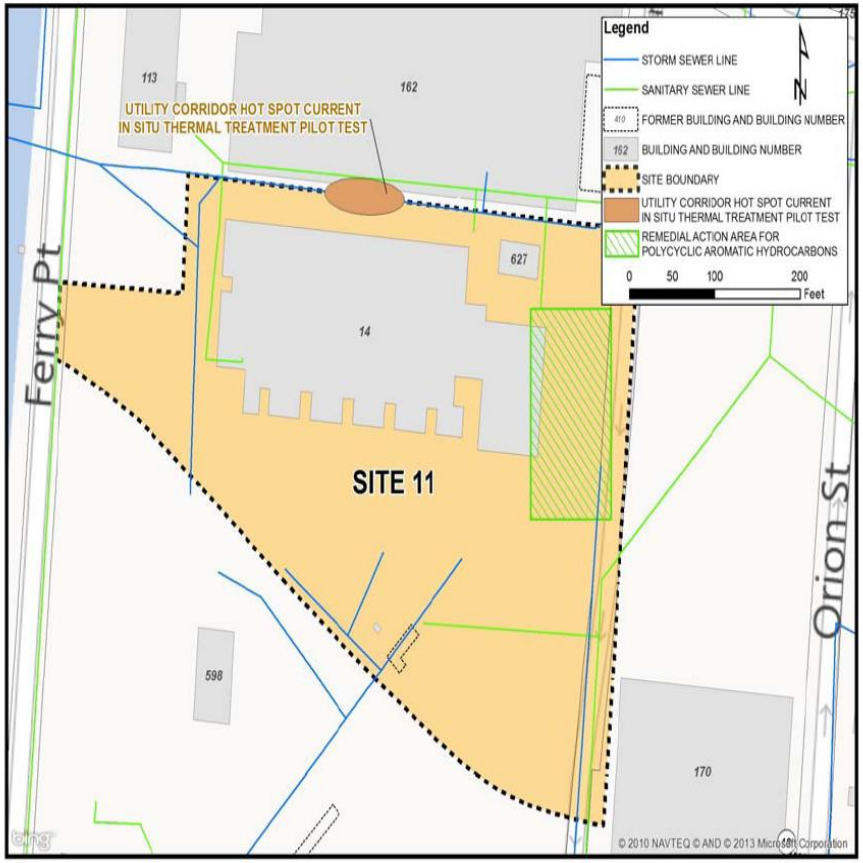
Sites 11 & 21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Legend
STORM SEWER LINE
SANITARY SEWER LINE
FORMER BUILDING AND BUILDING NUMBER
BUILDING AND BUILDING NUMBER
SITE BOUNDARY
UTILITY CORRIDOR HOT SPOT CURRENT IN SITU THERMAL TREATMENT PILOT TEST
0 50 100 200 Feet
W Atlantic Ave
Viking St
SITE 21
Ferry Pt
66
395
470
411
398
113
162
349
587
627
14
UTILITY CORRIDOR HOT SPOT CURRENT IN SITU THERMAL TREATMENT PILOT TEST
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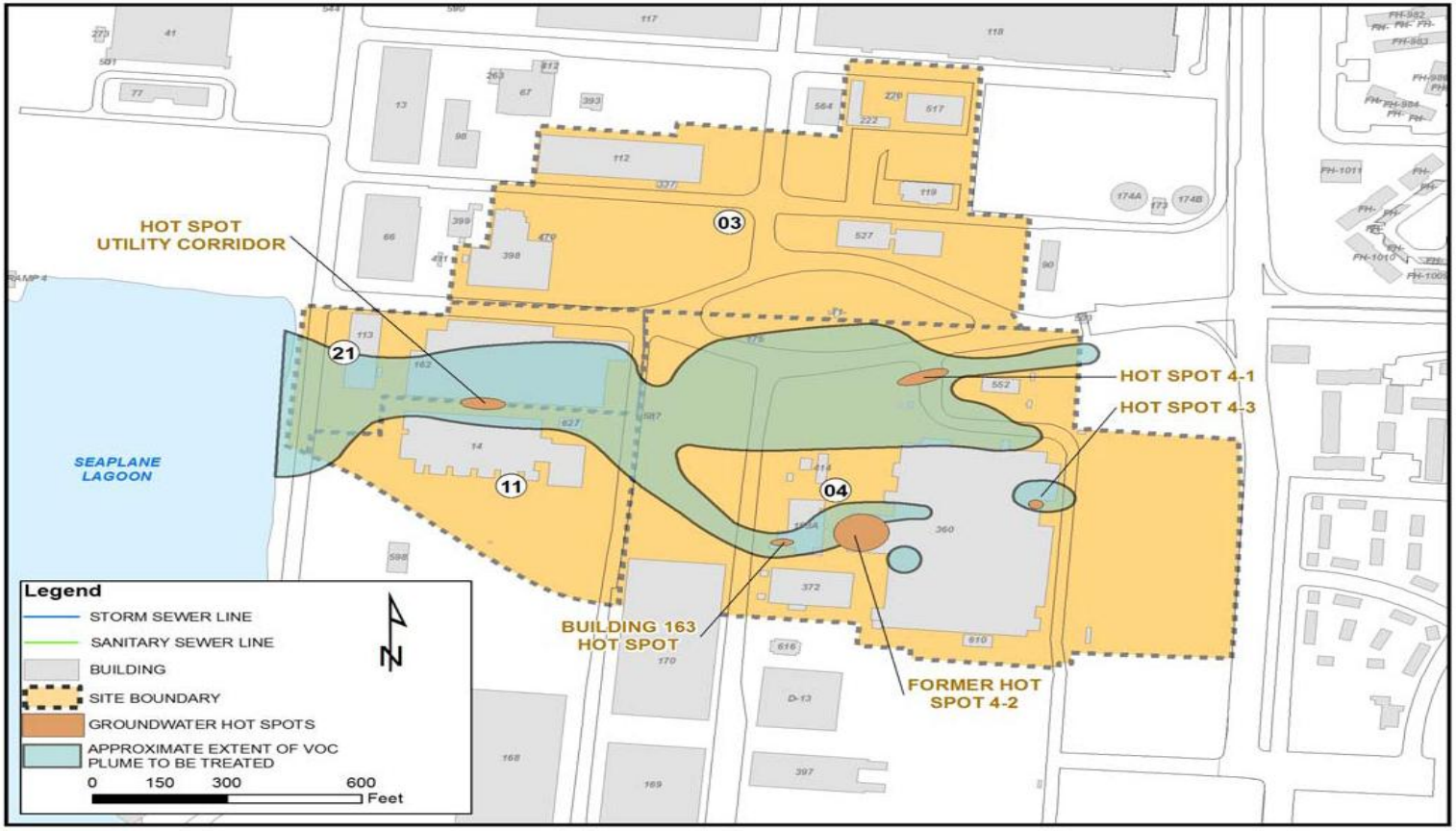
Groundwater Investigations



Extent of Operable Unit 2B Volatile Organic Compound (VOC) Groundwater Plume

Risk Assessment Results

- Chemicals of Concern requiring action are:
  - Polycyclic aromatic hydrocarbons (PAHs), cobalt, and lead in soil (Site 3)
  - Pesticides, polychlorinated biphenyls (PCBs), hexavalent chromium, arsenic, antimony, lead, and heptachlor epoxide in soil (Site 4)
  - PAHs in soil (Site 11)
  - Volatile Organic Compounds (VOCs) in groundwater (OU-2B plume)

Remedial Action Objectives

- **Reduce the risks associated with PAHs in soil to levels consistent with the Alameda Point background levels**
- **Reduce the potential for exposure to contaminants in soil that would result in unacceptable risks to future receptors**
- **Reduce the risk from two VOCs: trichloroethene (TCE) and vinyl chloride associated with vapor intrusion through cleanup of groundwater**

Remedial Action Alternatives: Soil

- **Alternative S-2:** Institutional Controls (ICs) for Hexavalent Chromium and Cobalt
  - Long-term effectiveness and permanence – Fair
  - Short-term effectiveness – Good
  - Implementability – Fair to Good
  - Cost – Good ($0.39 million)
- **Alternative S-3a**: Excavation and Offsite Disposal of Impacted Soil (Residential reuse)
  - Long-term effectiveness and permanence – Good
  - Short-term effectiveness – Fair
  - Implementability – Fair
  - Cost – Fair ($7.32 million)
- **Alternative S-3b:** Excavation and Offsite Disposal of Soil with ICs for Site 4 (Hexavalent Chromium) (Commercial reuse)
  - Long-term effectiveness and permanence – Fair to Good
  - Short-term effectiveness – Fair to Good
  - Implementability – Poor to Fair
  - Cost – Fair to Good ($1.07 million)

Remedial Action Alternatives: Groundwater

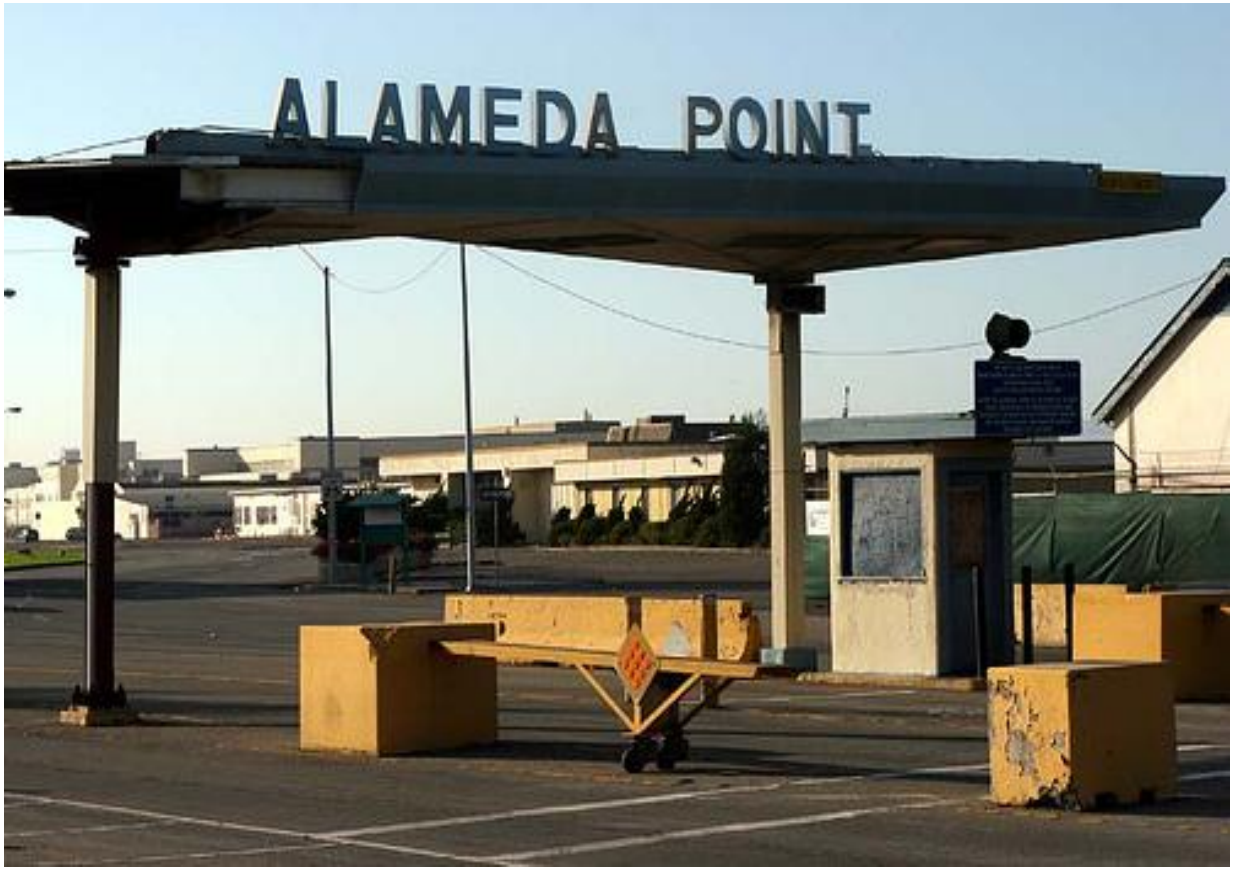
- **Alternative GM-2:** In Situ Thermal Treatment (ISTT) of Hot Spots, Control and Treatment at Seaplane Lagoon using a Permeable Reactive Barrier (PRB), Monitored Natural Attenuation, and ICs
  - Long-term effectiveness and permanence – Fair
  - Short-term effectiveness – Poor
  - Implementability – Fair
  - Cost – Fair ($14.42 million)
- **Alternative GM-3a: ISTT** of Hot Spots; Shallow Groundwater Treatment using In Situ Chemical Oxidation, Monitoring, and ICs
  - Long-term effectiveness and permanence – Good
  - Short-term effectiveness – Poor to Fair
  - Implementability – Fair to Good
  - Cost – Poor to Fair ($14.79 million)
- **Alternative GM-3b:** Hot Spots and Shallow Groundwater Treatment using ISTT, In Situ Bioremediation, Monitoring, and ICs
  - Long-term effectiveness and permanence – Good
  - Short-term effectiveness – Poor to Fair
  - Implementability – Fair to Good
  - Cost – Good ($12.42 million)
- **Alternative G-4:** Treatment of the Entire Plume using Groundwater Recirculation with PRBs & ICs
  - Long-term effectiveness and permanence – Good
  - Short-term effectiveness – Fair
  - Implementability – Poor
  - Cost – Poor ($16.75 million)

Community Participation in Remedy Selection

- **Public Comment Period: April 30 to May 31, 2013**
- **Public Meeting: May 15, 2013, 6:30 to 8:00 PM at the Alameda Free Library, 1550 Oak Street**
- **Offer comments: in writing, by fax, by e-mail, or at the public meeting**
- **Comments should be sent to:**

Derek Robinson, BRAC Environmental Coordinator
Department of the Navy
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
derek.j.robinson1@navy.mil
fax: (619) 532-0995

Questions?



Alameda Point

In Situ Thermal Treatment of Chlorinated Solvents at OU-2B

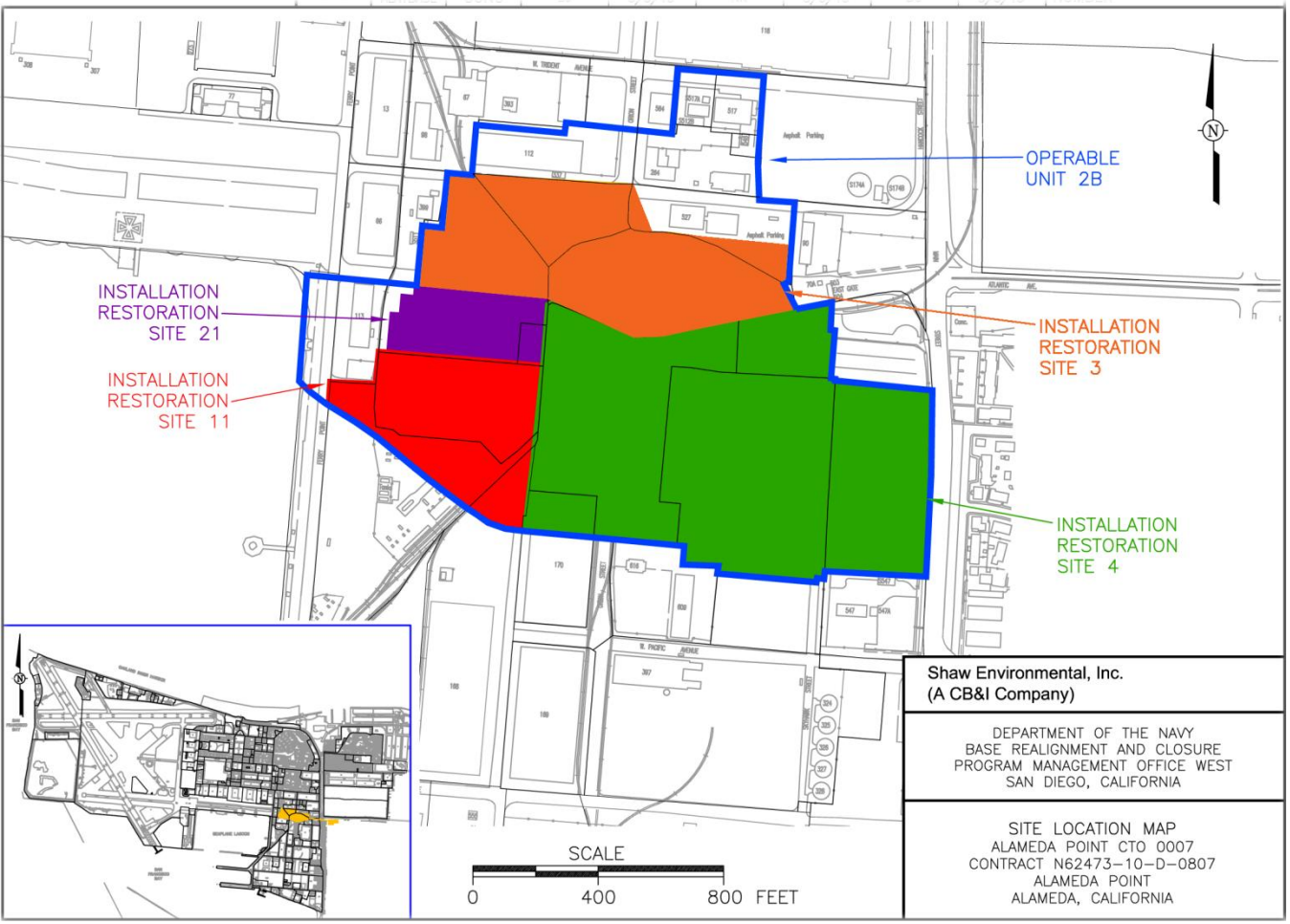
Presented by
John McGuire PMP
CB&I Project Manager

Restoration Advisory Board (RAB) Meeting
May 9, 2013

Attachment D (14 pages)

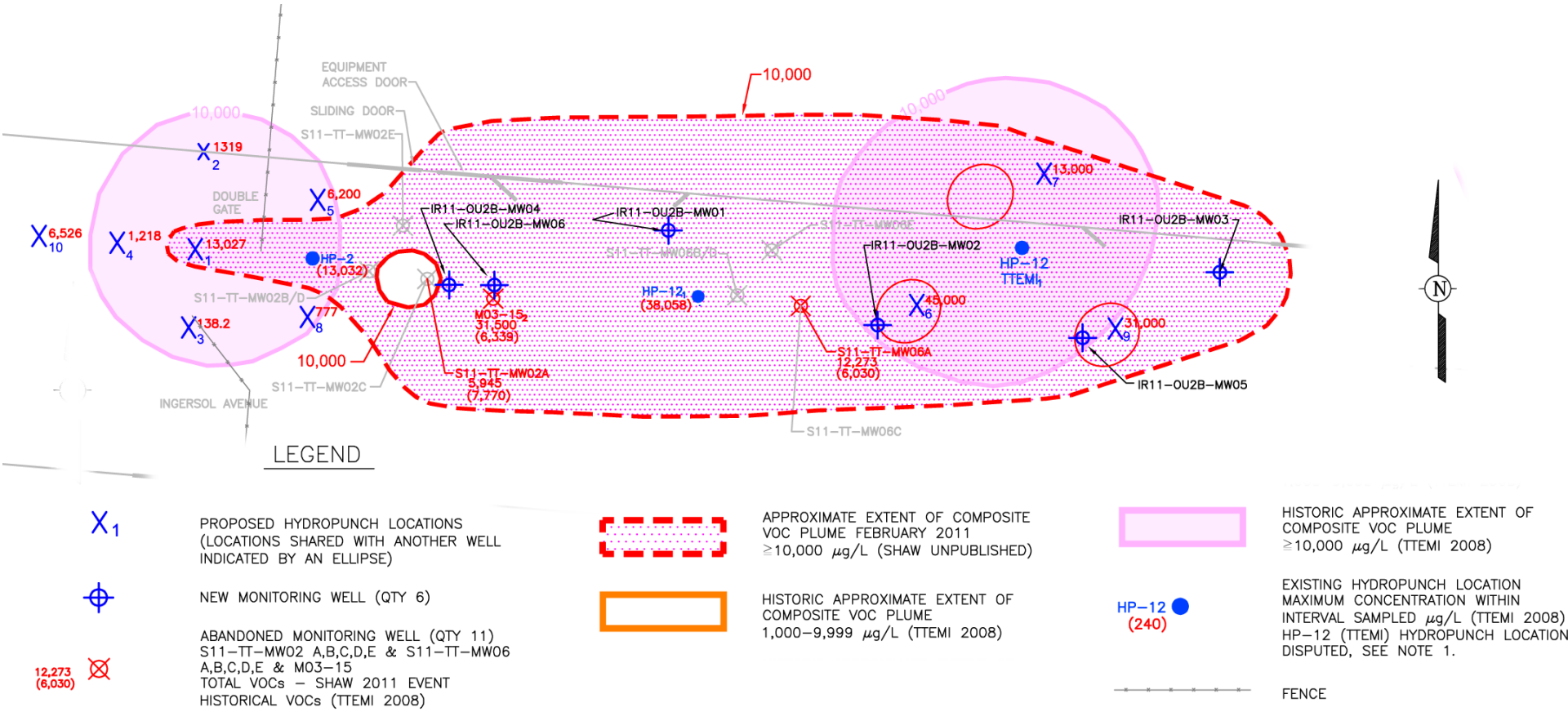
In Situ Thermal Treatment Through Six-Phase Heating

Operable Unit 2B



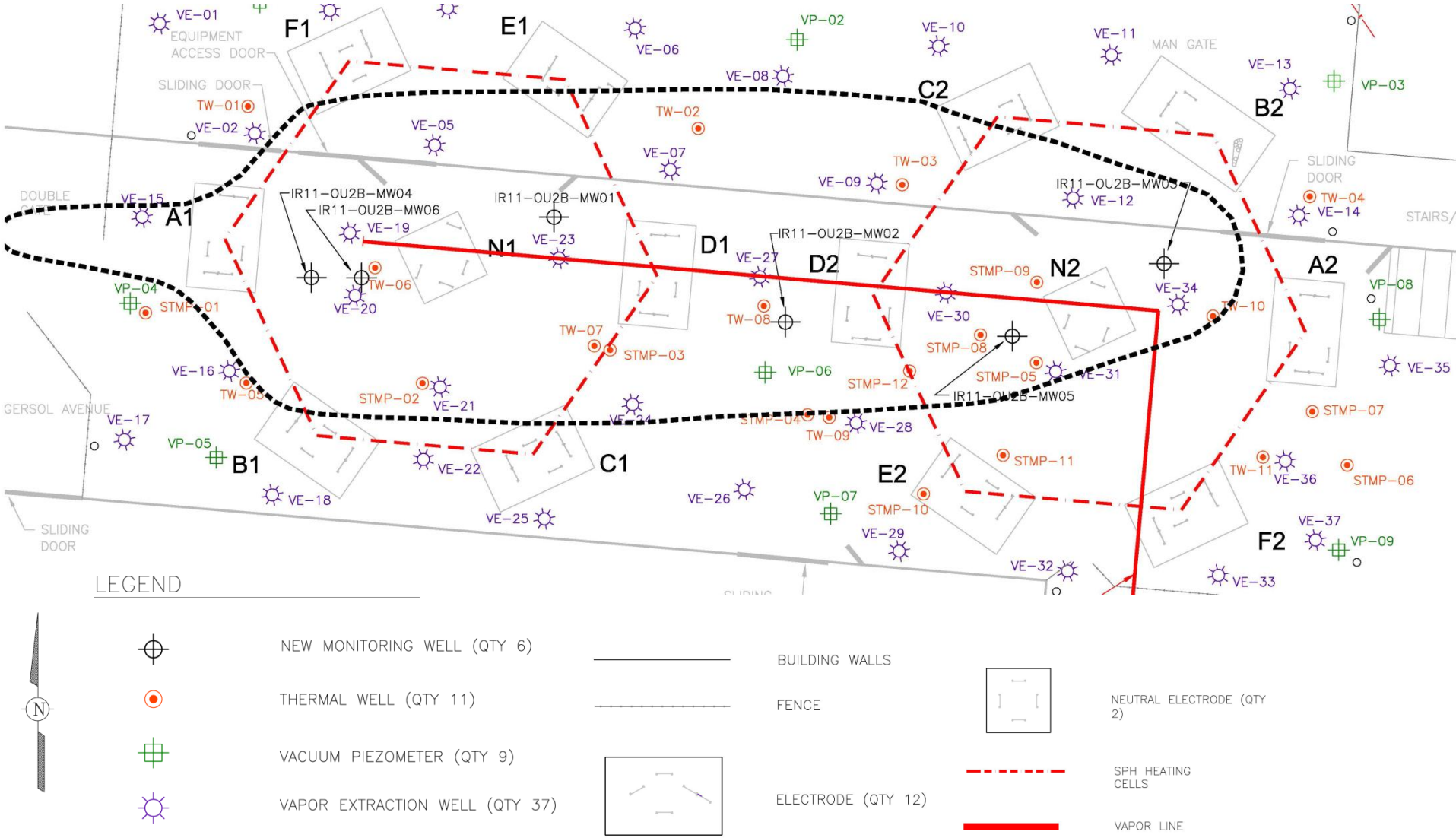
- OU-2B area contains Sites 3, 4, 11, and 21
- Site 11:
  Building 14 – aircraft maintenance
- Site 21:
  Building 162 – ship and aircraft maintenance

Plume

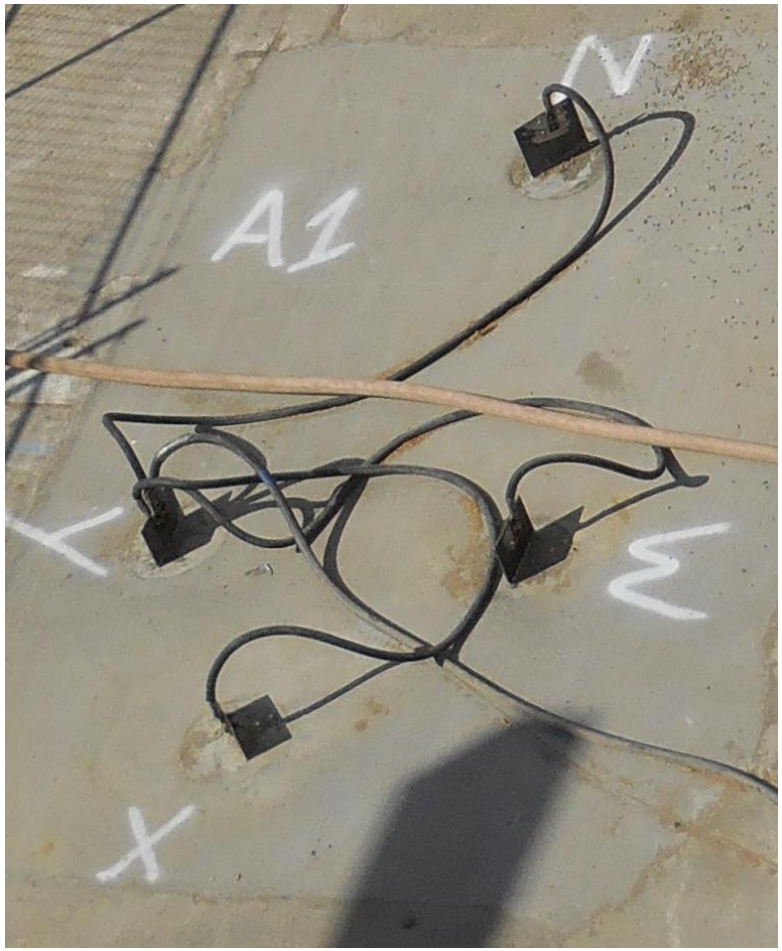


- Treatment Size: 6500 ft^2 by 30ft bgs
- Study objective: Reduce CVOC concentration below 1 mg/L
- Average CVOC concentration prior to treatment : 30.5 mg/L

Field Layout

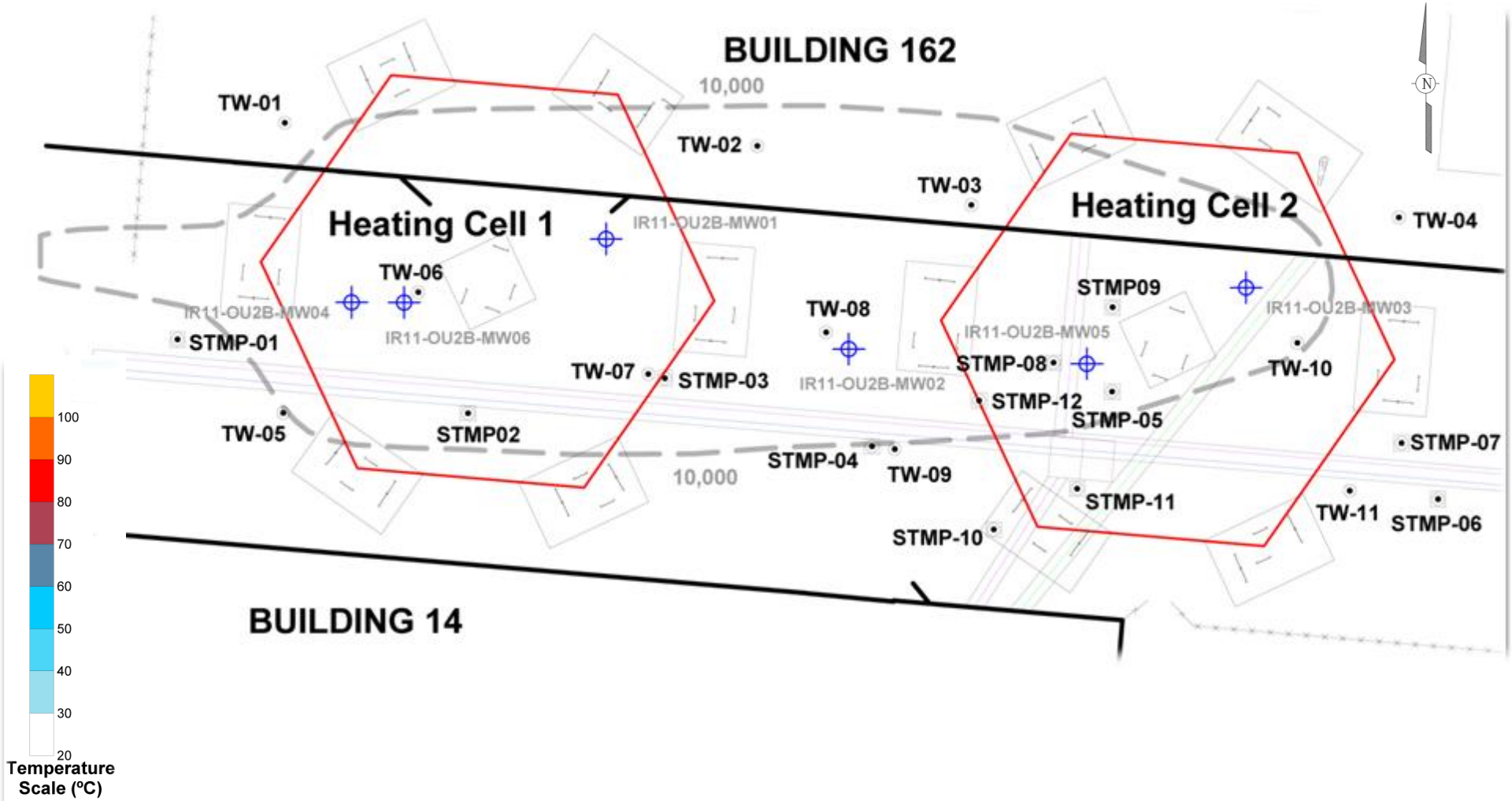


Sheet Pile Installation

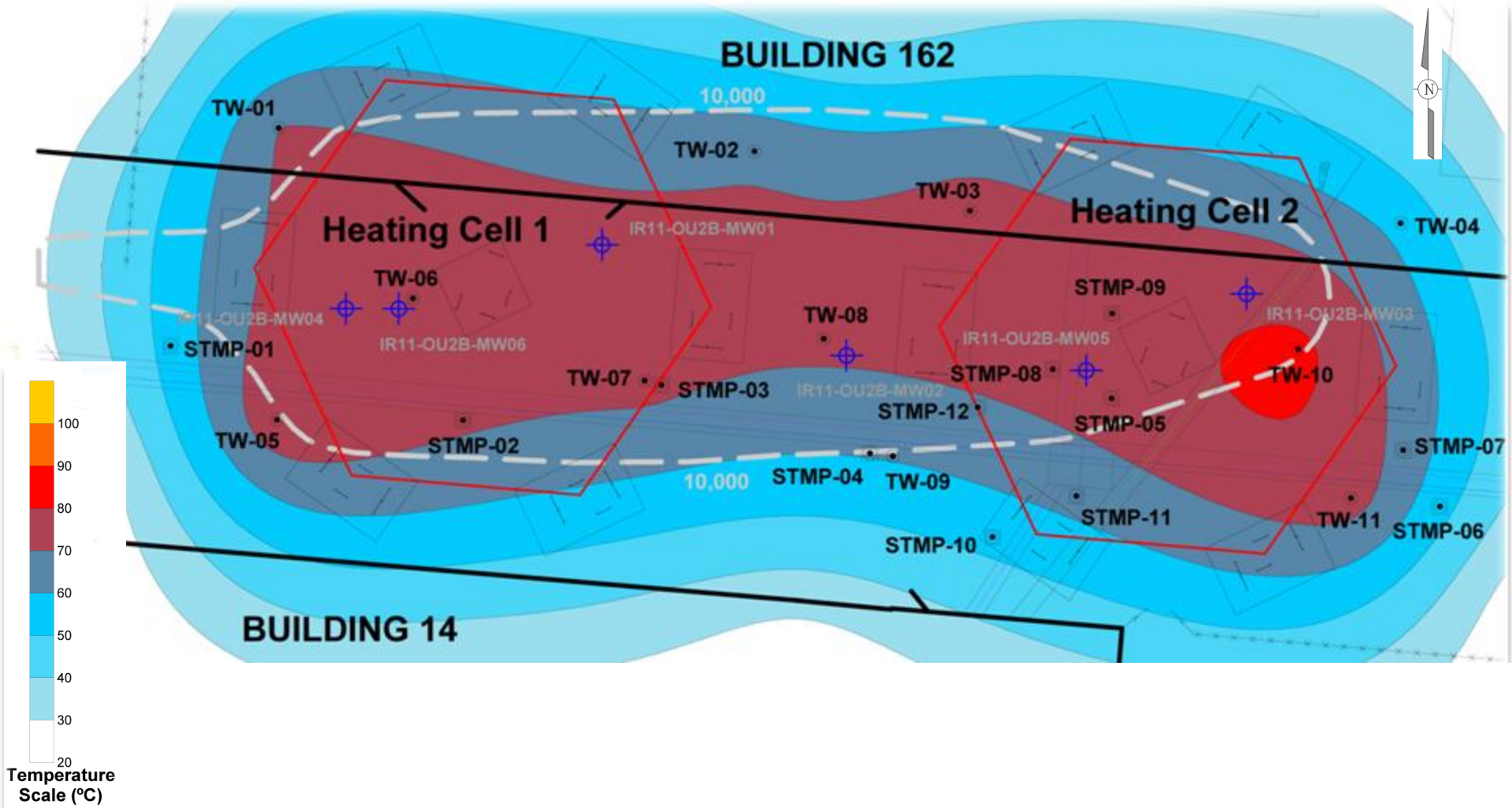


Vapor Extraction and Treatment

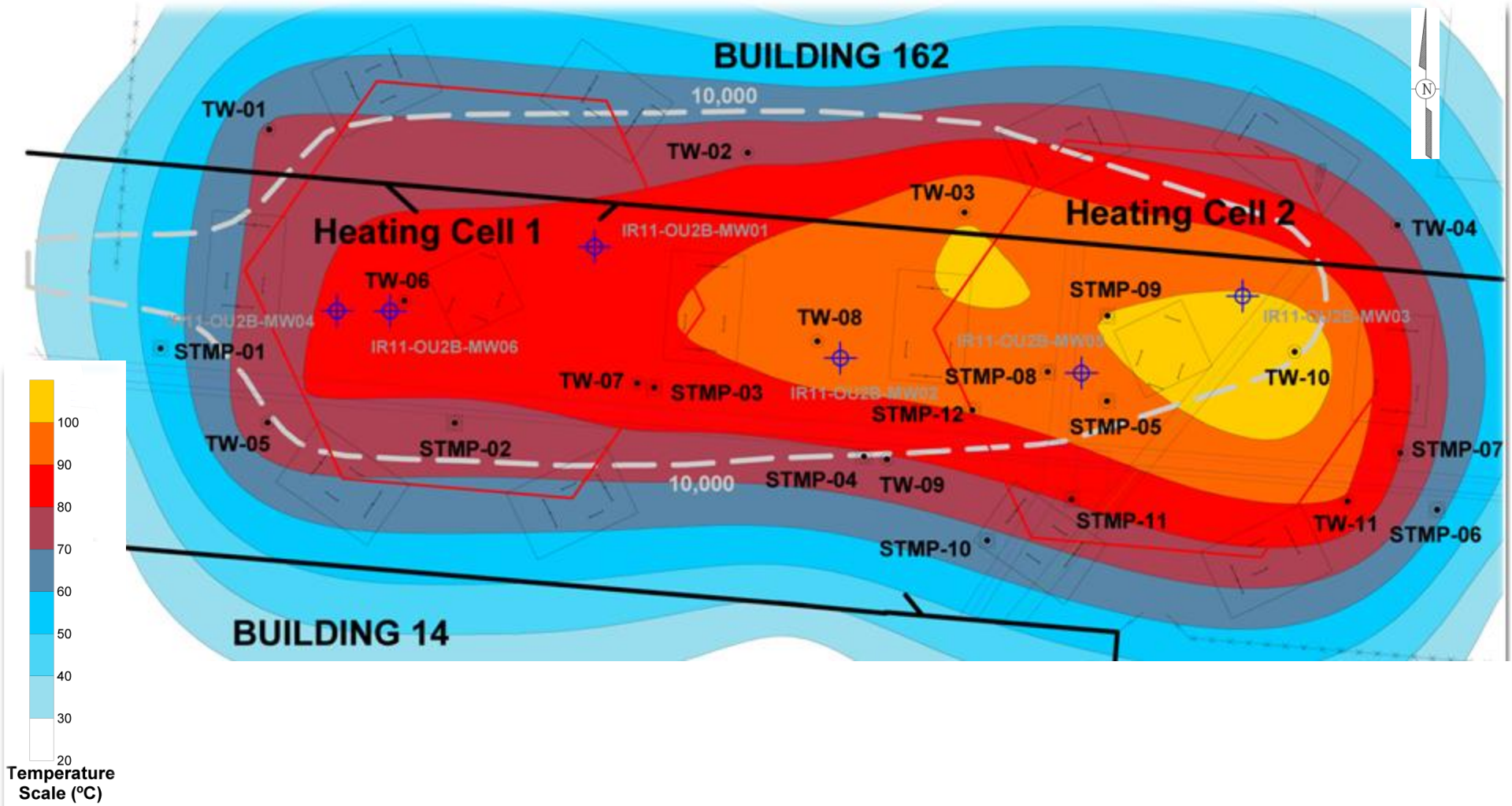
Thermal Treatment Baseline



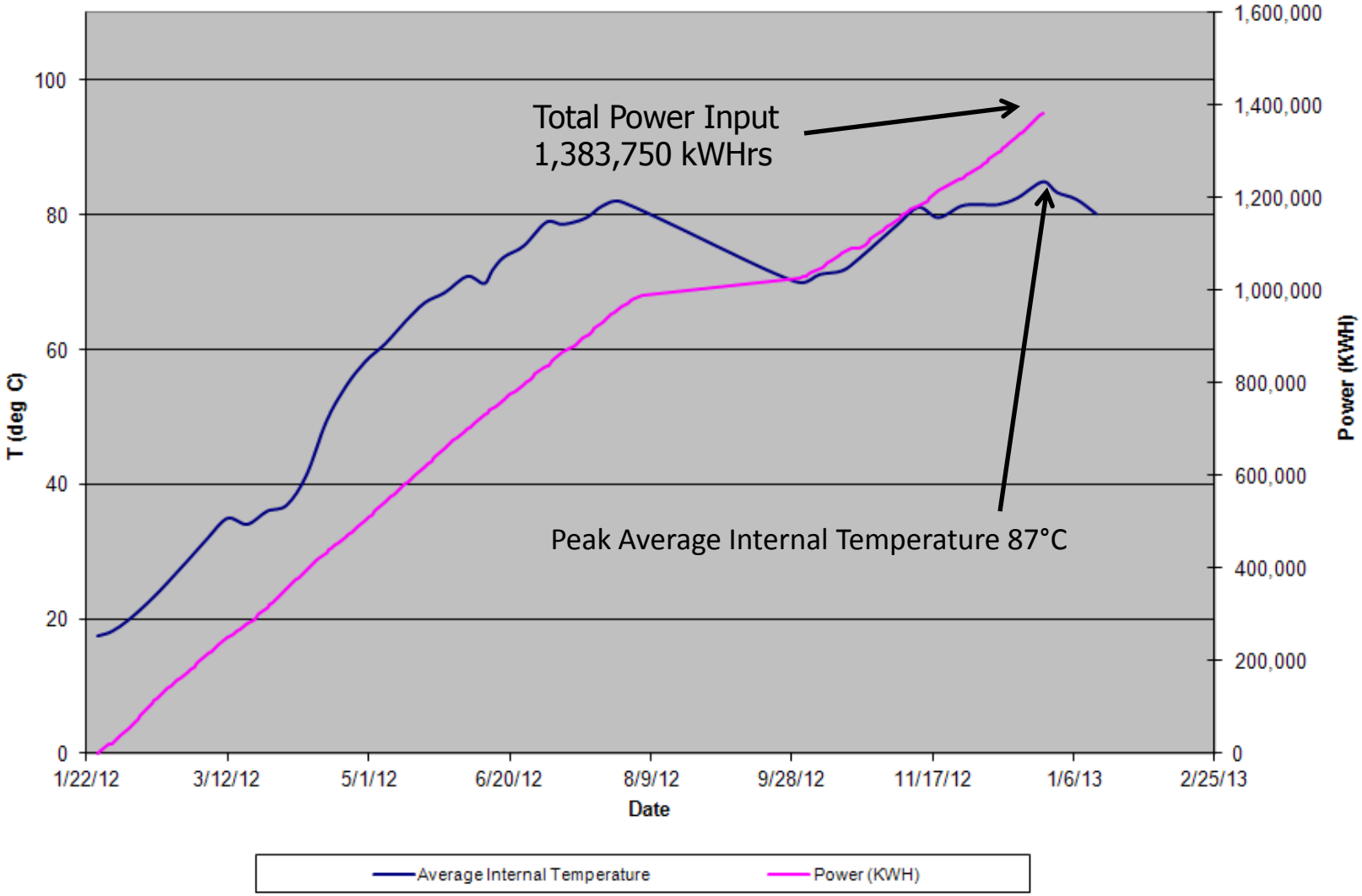
Thermal Treatment Week 28



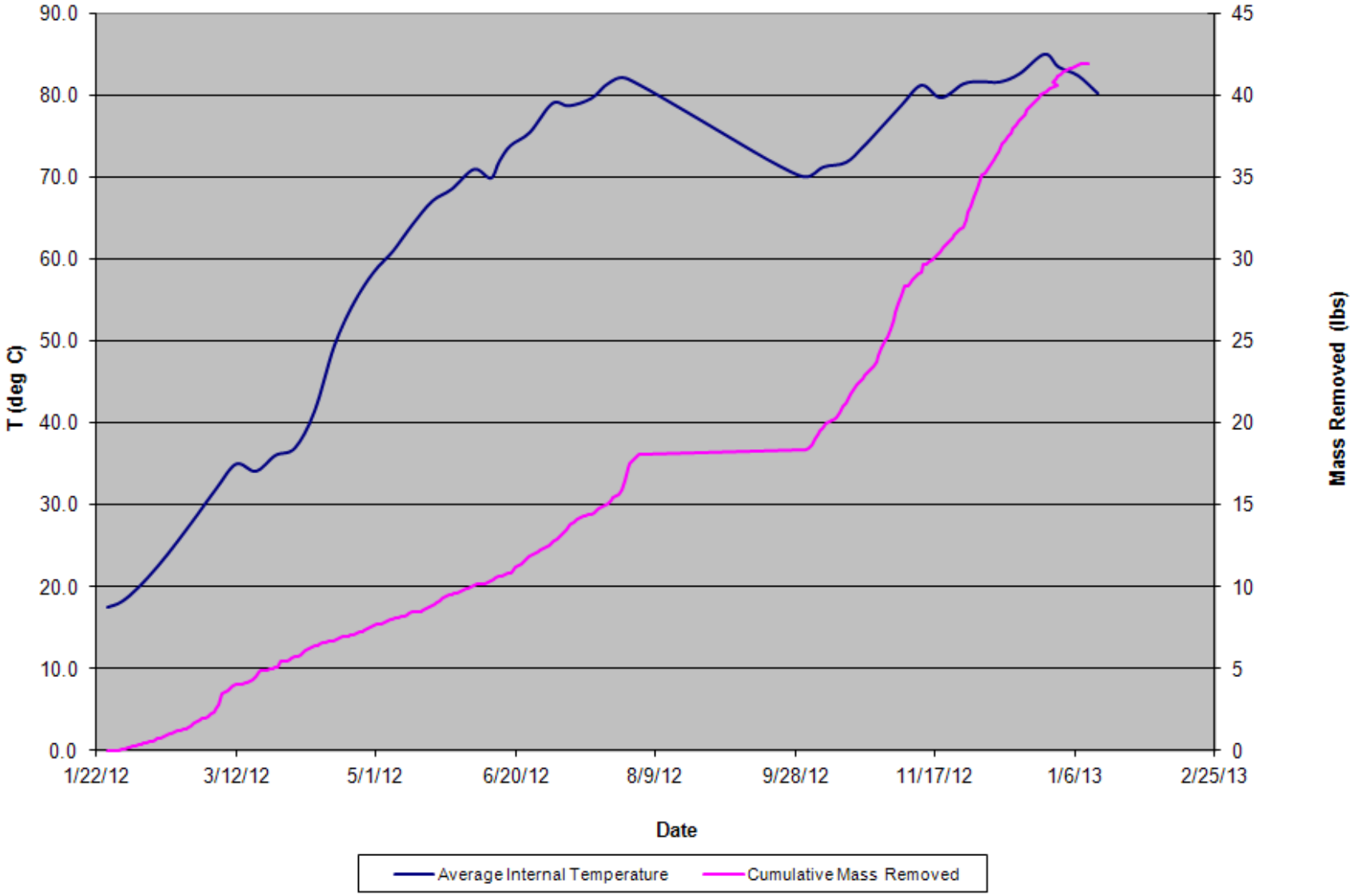
Final Heating Results Week 41



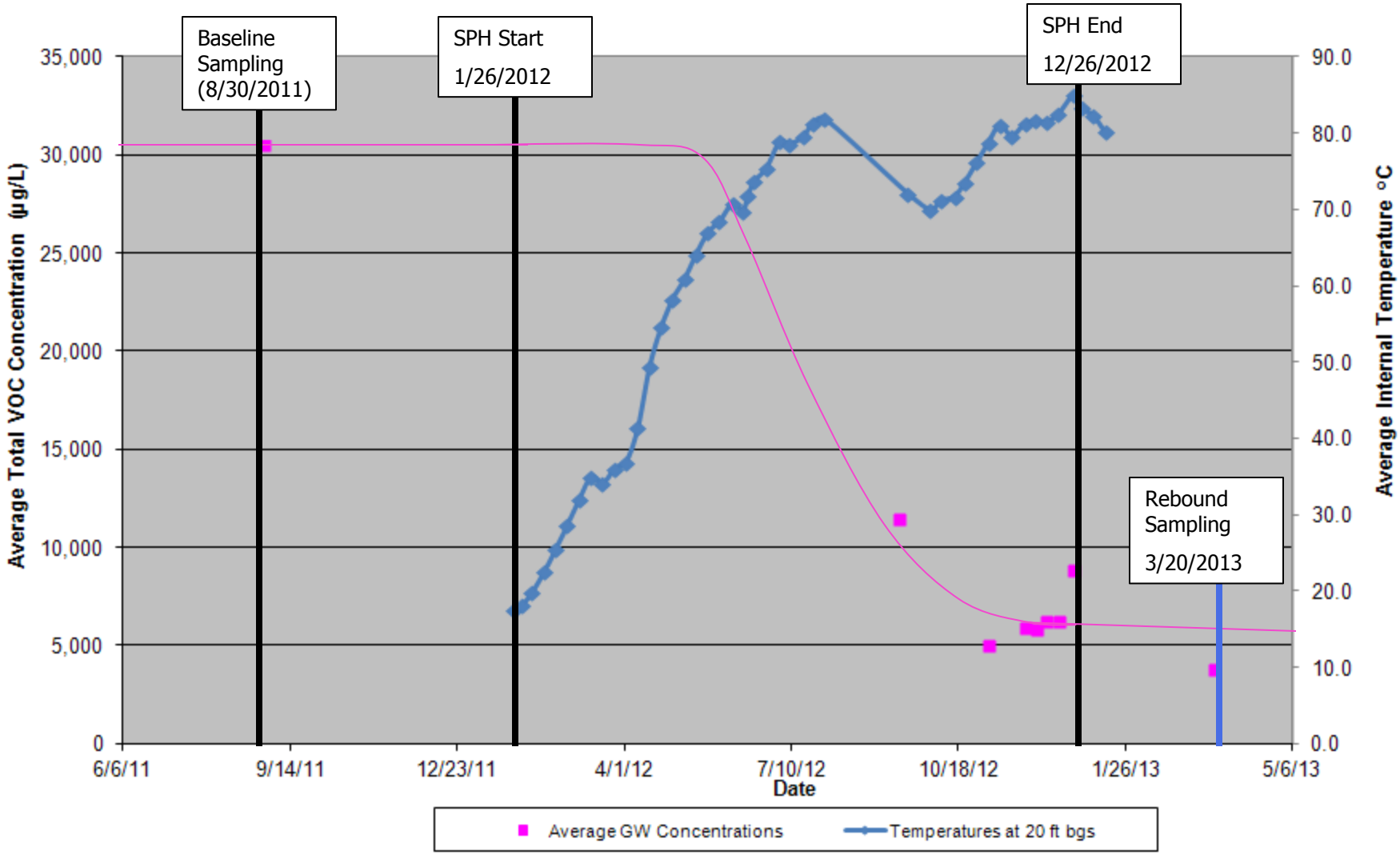
Average Internal Temperature & Power Input



Mass Removal



Reduction in CVOCs



Future

- Proposed Plan Meeting: May 15, 2013
- Public Comment Period for Proposed Plan Ends: May 31, 2013
- Issue OU-2B Record of Decision: Scheduled for December 2013
- Remedial Design/Remedial Action (RA): 2014/2015 Start of RA

Attachment E (4 pages)

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD

Mr. Derek Robinson
Department of the Navy
Base Realignment and Closure, Program Management Office West
1455 Frazee Road
San Diego 92108

April 24, 2013

Re: IR Site 1 Proposed Plan for the Burn Area

Dear Mr. Robinson,

Thank you for the opportunity to comment on the above document.

The discussion period provided before the public meeting on the proposed plan proved very helpful to the RAB. It is unfortunate that such a meeting did not occur last year when the focused feasibility study was issued in August or September. We were able to elicit the following important information.

- The expected life of the waste isolation bulkhead (WIB) is 100 years or less, most certainly less if a major seismic event occurs.
- The cost estimate for the Navy's preferred alternative BA-1 does not include provision for replacing the WIB. The Navy may be expecting to transfer responsibility for the long-term maintenance of the site to a new owner, such as the City or East Bay Regional Park District.
- No provision is made for a rodent barrier.
- The thickness of the soil cover was estimated as being three to four feet.
- The interlocking sheet piling comprising the WIB will be driven 15 feet into the Merritt Sand below mean sea level and rise ten feet above mean sea level.
- The WIB will pose an obstacle to groundwater flow and cause the groundwater to "mound" up behind the bulkhead.
- Loss of seasonal wetlands due to construction of the burn area cover will be mitigated by new seasonal wetlands elsewhere in site 1.
- The Navy's consultants were unable to provide any specific examples of interlocking sheet pile barriers, such as the one proposed, that have withstood a severe seismic event.
- The row of buried barges extends into the burn area but will not interfere with installation of the WIB because the barges lie farther to the east.
- A radioactive hot spot was found in the burn area during the time critical removal action. This hot spot extended to a depth of 5 to 8 feet and might constitute what was previously referred to as a "radium disposal pit" within the burn area.
- The primary reason why the excavation and removal alternative has increased in cost relative to "containment" is that the volume of material has increased (depth is now 30 feet versus the 10 feet assumed in the original feasibility study). Also, radioactively contaminated materials would have to be trucked hundreds of miles to Utah.
- The entire area of contamination that lies south of the WIB will be excavated and moved into the portion of the burn area away from the shoreline.

This is a significant document about a very serious source of contaminant to the environment and requires close scrutiny. After consideration the RAB has concluded that the Alternative BA-1, preferred by the Navy, is unacceptable for the following reasons.

Contaminant Release

The burn area of Site 1 is an especially critical area because of its proximity to the Bay. The Navy has maintained for the last ten years that no leakage from the dump enters the Bay. The document clearly indicates that contaminants adhered to soil and in the presence of bay water are now leaching into the Bay. Tidal influence has been calculated to impact between the first 100 to 200 feet. The State Office of Human and Environmental Risk (HERO) states that the naphthalene standards protective of aquatic life are not met by BA-1. Trench T-13 showed a petroleum sheen indicating free product. The Navy maintains that chemicals found in the groundwater that exceed protective levels are not a problem because they add insignificant amounts to the Bay by virtue of attenuation and dispersal. It is acknowledged that the WIB will cause groundwater mounding that will be diverted around the ends of the bulkhead. Although it contains dissolved radiological materials, metals and total petroleum hydrocarbons, according to the groundwater sampling performed, the water will not be treated. Because the original plan was to construct a cap there was no environmental risk assessment performed. The document sampling table 2.3 indicates there is a potential risk. If examined as a component of total loading to the Bay that includes OU 2B, Sites 2, 28 and 34, as well as Hunters Point, Treasure Island and commercial sites around the Bay, cumulative contamination of the Bay may be significant. Therefore, a risk assessment should be required.

S1-4A was overwhelmingly preferred by the RAB community members and the regulators. One possible reason, other than cost, that this alternative was rejected by the Navy is that it identified wetlands that would need mitigation. As no biological survey has ever been performed, it cannot be assumed there would be no harm done to the environment by bulldozing the area. If the Navy's preferred alternative moves forward, a biological survey should be performed. If the survey reaches the same conclusion as was found at site 34, onsite mitigation would be preferable to off-site mitigation and could restore the Northwest Territories to a higher quality open space.

Cost Analysis

The cost comparison is invalid as no provision was made for replacing the barrier after it has deteriorated or lost its effectiveness. If the Navy is able to transfer responsibility for the long-term maintenance of the site, is the Navy or the new owner responsible for the cost of replacing the WIB at the appropriate time?

The half-life of radium-226 is 1,620 years and toxic metals, such as cadmium, hexavalent chromium, zinc and lead, will remain in the soil indefinitely unless washed into the bay. If one accepts the consultant's estimate of 100 years for the barrier's life, it would have to be replaced 16 times over a 1,600-year period. The estimated original cost of the barrier is approximately $5 million. Thus, if the Navy were to provide an upfront fund of $80 million (16 times $5 million), that might be adequate to provide for replacement of the barrier in 100-year intervals for the next 1,600 years. This would be in addition to the $13.1 million estimate in the proposed plan, bringing the total cost closer to $100 million. This assumes that the money could be invested to match the future inflation rate. For example, $5 million in present costs would translate to $250 million after 100 years at an assumed inflation rate of 4 percent per annum. After 200 years the future cost would be $12.7 billion, etc. However, future replacement costs probably would be higher than the original cost because the deteriorated sheet piling would have to be removed before the new wall could be installed, making it a more complicated procedure. At the public meeting the Navy did not commit definitively to the repair or maintenance indefinitely. The cost analysis is calculated for 30 years only. Based on these longevity calculations, during the life of the bulkhead, it will need cyclic maintenance (anode replacement) four times at a cost of $300,000 per replacement before needing replacement, for a total cost of $1,200,000 in current dollars. If the maintenance were to be borne by the City or a future property owner, this is a significant cost that was not factored into the cost analysis.

The original plan required sloping the western edge of the site back to establish a stable angle of repose should a seismic event occur. The preferred alternative does not include sloping and the focused feasibility study acknowledges that the WIB is likely to deform during a seismic event. Because the waste is not removed, the threat to the environment is not lessened. These issues should reduce the long-term effectiveness of the preferred alternative to low.

It is unclear how S1-4A has a low rating for the reduction of toxicity, mobility or volume when the near-shore material would be removed.

All in all the comparative analyses of alternatives is flawed and skewed to the Navy's preferred alternative.

Liquefaction and Seismic Risks

The alternative BA-1 is not protective of the environment. A severe seismic event is likely to damage and breach the WIB because it is anchored in sand that is subject to liquefaction. Liquefaction and resulting sand boils also would likely bring contaminants to the surface. Leaving the toxic waste in the ground over an area of highest risk for liquefaction (See the ABAG liquefaction risk maps for the bay area) AND at a location in close proximity to the active earthquake fault (Hayward Fault, highest risk for earthquakes in the near future (see USGS and ABAG seismic risk maps) has significant risks that were NOT addressed.

The contractor representatives disclosed the substrate beneath the waste and fill is the Bay Mud, a relatively impermeable barrier above the water saturated, confined Merritt Sand). This is a perfect scenario for liquefaction induced subsidence and eruption of "Sand Volcanos" where sand and water erupt through the confining mud and flow to the surface entraining any contaminants encountered along the way and leaving pathways for liquids to migrate back to contaminate the aquifer after the subsidence related sand- and water- venting has ceased (it took weeks for the sand volcanos to cease flows of sand and groundwater, triggered by the Loma Prieta Earthquake under similar physical conditions at the Port of Richmond).

Liquefaction with the accompanying subsidence will potentially lower the surface of areas of the western portion of the former NAS Alameda subjecting near surface sediments to new erosional conditions.

In addition, the WIB is to be anchored in the Merritt Sand, the very sediment most likely to act as a liquid during a seismic event, rendering the bulkhead at serious risk of failure, allowing access of groundwater and sea water to the interior of the waste dump.

With respect to the near shore environment, particularly the contaminated sediments at the Skeet Range, the current bay shoreline is a sloping surface armored by scrap concrete and similar solid debris. This shoreline serves to dissipate and disperse wave energy. The replacement, a vertical wall of metal plates will have the opposite effect, reflecting wave energy back and potentially disturbing and remixing the shallow contaminants incorporated into the near shore sediments in the Skeet Range areas.

We were told by BEC Derek Robinson at the March 2013 RAB meeting that the Treasure Island Skeet Range sediments are too toxic to leave in place and the Regional Water Quality Control Board requires them to be removed. It is reasonable to expect that a similar requirement may be applied to the Alameda Skeet Range contamination. How would the presence of this disruptive WIB limit the potential removal of contaminated skeet range sediments? Removing support from the toe of the structure seems to be an act likely to reduce the WIB stability, an alleged stability already questionable as the result of the significant seismic risk in this area and the liquefaction potential of the local sediments.

Global Warming and Sea Level Rise

At a July 25, 2011 presentation to City Council, Ms. Barbara Hawkins, City Engineer with the Public Works Department, described the 2008 Storm Drain Master Plan's 18" sea level rise analysis. Focusing on how an 18" sea level rise would impact the storm drain system in Alameda, Ms. Hawkins presented maps that indicated sea-level rise would not only flood the shoreline but that water would likely back up through the storm drains to be deposited into the city's downtown. Surely a significant seismic event that breeched the WIB would release the contaminants the Navy's proposed plan leaves in place? Would these contaminants not also back up through storm drains and be deposited into the city's core? Even without a seismic event, with sea-level rise expected to reach at least 50 inches by the end of this century, contamination in bay waters around the island will be increasingly problematic.

The preferred alternative does not provide restoration or a permanent solution. At best, it will provide temporary containment only. There are so many deficiencies that had we been given adequate time, this letter would have been much longer. Not having been given an opportunity to review and comment on the draft, the proposed plan feels more like a fait d'accompli. We believe the Navy is resorting to artificial standards to circumvent regulations. This proposed

solution (BA-1) is an enormous waste of time and money. It will not effectively resolve the issues caused by the dump. In addition that solution will burden the City, financially, environmentally and socially, and future property owners in perpetuity.

Again, thank you for the opportunity to comment on this document.

Yours

Dale Smith, Community Co-Chair

George Humphreys, Vice Co-Chair

Susan Galleymore

Daniel Hoy

James Leach

Skip McIntosh

Bert Morgan

Kurt Peterson

Bill Smith

Jim Sweeney

Michael John Torrey

CC: Ms. Xuan-Mai Tran, US EPA
Mr. Christopher Lichens, US EPA
Mr. James Fyfe, DTSC
Mr. John West, RWCB
Mr. Peter Russell, Russell Resources
Ms. Jennifer Ott, City of Alamdea

IR Site 2 RA

Attachment F (8 slides)

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CAT

03/19/2013 14:30

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