FINAL
NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD
MEETING SUMMARY

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Building 1, Suite 140, Community Conference Center
Alameda Point
Alameda, California

March 6, 2008

The following participants attended the meeting:

Co-Chairs:

George Humphreys	Restoration Advisory Board (RAB) Community Co-chair
Thomas Macchiarella	Base Realignment and Closure (BRAC) Program Management Office (PMO) West, BRAC Environmental Coordinator (BEC), Navy Co-chair

Attendees:

Jim Barse	Community Member
Anna-Marie Cook	U.S. Environmental Protection Agency (EPA)
Tommie Jean Damrel	Tetra Tech EM Inc.
Doug Delong	BRAC PMO West, Compliance Manager
Janet Gibson	Community Member
Linda Henry, PhD	Brown and Caldwell
Fred Hoffman	RAB
Michelle Hurst	BRAC PMO West, Remedial Project Manager (RPM)
John Kaiser	San Francisco Bay Regional Water Quality Control Board (Water Board)
Joan Konrad	RAB
John Kowalczyk	BRAC PMO West, Lead RPM
James Leach	RAB
Gretchen Lipow	Community Member
Dot Lofstrom	California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC)
Nick Loizeaux	IRIS Environmental
Patrick Lynch	Community Member

Gary Maier	Earth Tech, Inc.
Frank Matarrese	Alameda City Council
Donald McHugh	Richard Brady and Associates (RBA)
John McMillan	Shaw Environmental, Inc.
Mary Parker	BRAC PMO West, RPM
Peter Russell	Russell Resources/Alameda Reuse and Redevelopment Authority (ARRA)
Timothy Shields	RBA
Bill Smith	Community Member
Dale Smith	RAB/Sierra Club/Audubon Society
Jean Sweeney	RAB
Jim Sweeney	RAB
Michael John Torrey	RAB
Xuan-Mai Tran	EPA
John West	Water Board
Jessica Woloshun	Sullivan International Group, Inc. (Sullivan)

The meeting agenda is provided in Attachment A.

MEETING SUMMARY

I. Approval of Previous RAB Meeting Minutes

Mr. Humphreys called the meeting to order at 6:32 p.m.

Mr. Humphreys provided the following comments:

- On the list of attendance, "Bill Smith as a RAB member" will be revised to "Bill Smith as a Community Member."
- Page 3 of 9, second paragraph, the spelling of Neil Cole was changed to Neil Coe.
- Page 7 of 9, second paragraph, second sentence, "A community member…" will be revised to, "Bill Smith…"
- Page 9 of 9, the last paragraph will be revised to read, "Mr. Humphreys noted that the January presentation on IR Site 34 stated that ecological impacts on wildlife were not considered because the site would be used as a golf course, which would not be used

for wildlife. Mr. Humphreys said that the future golf course at IR Site 34 will be managed for wildlife and native plants. He said in a City of Alameda Environmental Impact Report, a statement was made that confirmed the future golf course will include 87 acres of secondary rough planted to native grasses that will provide suitable habitat for burrowing owls and also included a statement indicating that 6.5 acres will be provided for each single or paired resident birds either off or on site. In addition, a letter from the Golden Gate Audubon Society, paragraph 6-D, stated that 87 acres will be managed for wildlife and that off-site habitat replacement would have to be approved by the California Department of Fish and Game. Mr. Torrey expressed concern for the exclusion of skunks, rabbits, and raccoons in the site management plan. Ms. Smith referred to a document that listed the grasses that would be planted at the golf course, some of which she said were not indigenous."

Ms Lofstrom provided the following comment:

- Page 3 of 9, fourth paragraph, "Ms. Lofstrom announced that the public comment period and public meeting for the Alameda Landing Draft Remedial Action Plan (RAP) was scheduled for 6:30 p.m. on Tuesday, February 26, 2008," will be revised to, "Ms. Lofstrom announced that the public comment period commenced and public meeting for the Alameda Landing Draft Remedial Action Plan (RAP) was scheduled for 6:30 p.m. on Tuesday, February 26, 2008."

Ms. Smith provided the following comment:

- Page 3 of 9, third paragraph, "Mr. Macchiarella announced two upcoming presentations to the RAB on Proposed Plans [precursor to a Record of Decision (ROD)] for Installation Restoration (IR) Site 20 and IR Site 31, which were are scheduled…" will be revised to, "Mr. Macchiarella announced two upcoming presentations to the RAB on Proposed Plans [precursor to a Record of Decision (ROD)] for Installation Restoration (IR) Site 20 and IR Site 31, which are scheduled…"

The minutes were approved as modified.

II. Co-Chair Announcements

Mr. Humphreys announced that RAB member Kurt Peterson was excused.

Mr. Humphreys announced that the members of the RAB focus group met on March 1, 2008, to discuss the alternatives for remediation described in the Draft Feasibility Study (FS) for Installation Restoration (IR) Site 24. He said the focus group decided to endorse Alternative 5, dredging, and read from the letter documenting the meeting and decision, which was signed by nine RAB members.

Mr. Humphreys said that the RAB requested a presentation on the Alameda Landing Draft Remedial Action Plan (RAP). In addition, he said that the RAB requested a tour of IR Sites 1, 2 and 33. Mr. Macchiarella responded that he was scheduling the tour. However there were several factors to consider, including when the tour should take place (possibly on a Saturday, as requested by Mr. Humphreys), environmental conditions such as mud on the site, and the possible security and health and safety issues that might arise because of the ongoing work at the site. He said Mr. Derek Robinson (Navy) is the project manager for IR Site 1 and Ms. Frances Fadullon (Navy) is the project manager for IR Site 2, who will work with him to schedule the tour. Mr. Humphreys said the RAB wanted the tour to include the runway wetlands at IR Site 33. In addition to IR Site 2, Ms. Smith said that the RAB would also like to travel through the coastal refuge area, but the tour should occur as soon as possible and by the end of March, because IR Site 2 and the coastal refuge area will be closed because of avian migration. Mr. Macchiarella said he would consult with Navy biologists and confirm that the tour would not disrupt the avian migration closure at IR Site 2 and the coastal refuge area. Mr. Macchiarella clarified that IR Site 33 is called the Runway Wetlands.

Mr. Macchiarella reminded the RAB that the official public meeting on IR Sites 20 and 31 was scheduled for March 12, 2008.

Mr. Macchiarella announced two additions to the agenda. (1) Ms. Lofstrom and Mr. Nick Loizeaux (IRIS Environmental) were scheduled to present the Alameda Landing Draft RAP for Former Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex (FISCA). (2) After the IR Sites 20 and 31 presentations, Ms. Parker was scheduled to address a question posed by Mr. Lynch during a previous RAB meeting about pentachlorophenol.

Mr. Macchiarella announced his replacement as the Navy co-chair is Mr. Patrick Brooks.

Mr. Humphreys distributed his list of documents and correspondence received during February 2008, which is presented as Attachment B-1.

III. Presentation on Site 13 Tarry Refinery Waste (TRW) Results

Ms. Hurst (Navy) introduced the IR Site 13 presentation and Donald McHugh and Timothy Shields from Richard Brady and Associates (RBA). The presentation is included as Attachment B-2.

Mr. Shields discussed the technology used in the investigation, which was developed by the Department of Defense and is called laser induced florescence (LIF). He said it used a low-powered ultraviolet laser, similar to the lasers used in eye surgery. A schematic shown on Slide 3 summarizes the LIF process. He said the low-powered laser was fired down a fiber optic line, through a hardened probe and out a transparent sapphire window. If fuels are in the soil, the ultraviolet laser caused the fuels to fluoresce, much like a black light. He said the return fluorescence was carried up another fiber to a detector and displayed in real time on a computer. He said that, as the probe was in motion, the laser fired a burst of about 20 low-powered shots

and reported a point at about every couple of inches as it was hydraulically pushed down through the ground. Mr. Hoffman asked about the data. Mr. Shields said the remainder of the presentation clarified the data. Mr. Shields said the units were in terms of counts (the number of counts the detector recorded at a given time), which were roughly related to fuel concentrations; therefore, the more counts, the higher the concentrations of fuel. He said the data showed a picture of the mass, or plume, of petroleum hydrocarbons. Mr. McHugh also showed a picture of the laser on Slide 4. Ms. Sweeney asked how it was powered, and Mr. Shields said it was electric.

Mr. McHugh explained how the data from LIF were interpreted (Slide 5). He said the intensity was recorded, and when petroleum was detected with the laser, the wavelength shifted to correspond with the fuel. He said the data were generally collected from the surface to 15 feet at about every inch as the probe descended. He said that, in general, the petroleum fluorescence at impacted locations was recorded at depths of approximately 3 to 8 feet. Mr. Hoffman asked if LIF detected other compounds. Mr. McHugh said other naturally occurring materials fluoresce, including caliche (calcium carbonate) found in desert environments; however, none were encountered at Alameda Point. Ms. Sweeney said that she understood that some tarry waste extended to 10 feet below ground surface (bgs). Mr. McHugh replied that the analysis was typically conducted to a depth of 15 feet. Mr. Shields further explained that the Sampling and Analysis Plan called for advancing the probe 5 feet below the deepest detection of fluorescence and the goal was to record 5 feet of non-elevated fluorescence below petroleum fluorescence, and that at some locations this was deeper than 15 feet. Mr. McHugh said there were varying intensities and wavelengths for each of the recording points. He said the higher wavelengths typically represent heavier hydrocarbons, and the data were used to target areas of concern for further chemical analysis. Ms. Sweeney said that there was a gasoline plume and a leaking oil tank and asked if the gasoline and oil were light fuels; a heavier fuel would be tar. As a result, lighter fuels were assumed in an area where low wavelength was recorded. Mr. Shields said that what was expected from the varying intensities and wavelengths was generally corroborated by the laboratory analysis of samples. He said during the initial real-time analysis, the varying intensities were linked to lighter to heavier hydrocarbons, but the actual test from the laboratory was a definitive indication of lighter to heavier hydrocarbons because the laboratory used the instruments to detect specific compounds, such as benzene.

Mr. Hoffman asked if this site was near a soccer field. Mr. Macchiarella said the soccer field was northeast of the main fenced area at the site.

Mr. Shields said that the intensities were consistent, there were no major outliers, and the data was compared with sample analysis from the laboratory.

Mr. McHugh described the history of the site and showed a historical picture of the refinery from approximately 1890 (Slide 8). He showed the area where the suspected oil waste was disposed of on site and in the surrounding tidal areas (Slide 9). He said the entire refinery was moved to Richmond, California, in 1903. Ms. Sweeney asked if Chevron purchased the site, and Mr. McHugh said that the Pacific Coast Oil Works eventually became Chevron. Ms. Sweeney asked why Chevron was not liable for cleanup. Mr. Macchiarella responded that there were issues at

Alameda about whether the Navy caused the need for remediation, but the Navy's current position is that it is not worth the resources to seek out other responsible parties for these areas, which included this site. He said this contamination occurred before the Navy became involved at Alameda, but the Navy is responding under CERCLA.

Mr. McHugh showed a map of the TRW or oil at the surface of the site (Slide 13). He said soil and TRW matrix samples were collected for analysis in a fixed laboratory to confirm the LIF results. Ms. Sweeney asked about the dots on the map (Slide 13), and Mr. McHugh said that the dots represented all of the LIF pushes for the project. Mr. Hoffman asked if groundwater was encountered and Mr. McHugh said that groundwater was encountered in some places. He said the purpose of the investigation was to map the extent and volume of TRW. He continued that some of the TRW was encountered at or below the groundwater table. Mr. Hoffman asked if the laser worked under water and Mr. McHugh confirmed that it does.

Mr. McHugh said that the green dots represented background fluorescence from surficial material or asphalt and the red dots represented detections of petroleum (Slide 15). He said the green dots showed that there was no indication of petroleum throughout the 0- to 15-foot interval and the red dots showed fluorescence with varying intensities in that interval.

Mr. McHugh showed an outline of the historical structures of the refinery in the late 1800s overlain on Slide 15 (Slide 16). Mr. Humphreys asked if it was possible that the ground sloped underwater and the TRW that would be at a deeper elevation than the 15-foot sampling depth. Mr. McHugh said that he did not believe that scenario was the case because it appeared to be extremely shallow in that area according to the charts and topographic maps. He said that in the 1800s, a rail line was constructed in the inner channel to load ships and a long pier was built; therefore, it was extremely shallow in that area.

Mr. Shields said that a computer software program was used to create a visual characterization of the LIF data. He explained that a 3-dimentional (3D) grid was constructed and the computer used a simple mathematical inverse distance weighted interpolation to calculate fluorescence values at the intersections of the nodes on the cell. The program then drew an isosurface to create contours in 3D. He said an isosurface is a surface of equal fluorescence intensity. He added that the program created a visual depiction of the mass of petroleum hydrocarbons as it might appear underground and that this technology was helpful to plan further sample locations during real-time analysis in the field. Ms. Sweeney asked what the green section represented, and Mr. Shields responded that the green interpolated higher levels of fluorescence. Mr. Shields said a cross-section of the diagram showed the different colors representing the varying intensities of fluorescence (Slide 20).

Mr. Shields explained how the sample locations were chosen to verify the effectiveness of LIF (Slide 22) and the analytical program for the soil and TRW samples (Slide 24). He said there was not a test for TRW, and that TRW was quantified against a diesel standard. He said as he reviewed the laboratory results and noticed that some volatile compounds and other materials were not reported; these substances were manufactured after the refinery was closed and were not in use at the time the refinery was in operation. Mr. Lynch said that an underground storage

tank stored benzene at the facility. Mr. Shields said it was his understanding that benzene was not in production during the time before the refinery closed. Mr. Lynch said it was called "benzine," but was the same material and was manufactured as a distillate in this facility. He said he could provide literature about the facility, which listed benzene as one of its products. Mr. Shields said there was a known benzene plume in groundwater that was being investigated on a separate contract and that his goal is to separate the TRW so a remedy can be proposed to clean it up. Mr. McHugh said some aboveground storage tanks were used for dry bulk storage, but never for liquid storage. Mr. McHugh said the benzene levels were high and in the subsequent report a recommendation will be added to further investigate the benzene contamination.

Mr. Hoffman asked about the multiple contractors on the site. Mr. Macchiarella said that the Navy had assigned RBA and another contractor for the Operable Unit (OU)-2A data gaps investigation. Mr. Macchiarella said that this presentation was intended to help better understand TRW.

Mr. Shields summarized the presentation and stated that 182 pushes were used to delineate the horizontal and vertical extent of the TRW and that the LIF data were used to refine the conceptual site model (Slide 26). Furthermore, 16 soil and TRW samples were collected to evaluate the LIF data and characterize the TRW. He said the 3D software was used and delineated two separate areas: one in the eastern area with benzene, and the second in the western area with TRW. Ms. Sweeney asked if the TRW had an odor, and Mr. McHugh responded that it smelled like asphalt. Mr. Shields said that the TRW was estimated at approximately 8,570 cubic yards (from the 3D interpolation data) and none of the samples indicated a low pH at the site. Ms. Smith asked about the significance of pH, and Mr. McHugh said that it was thought that an acid refining process may have been used at the refinery in the 1800s to distill kerosene and heavy fuel oil. Mr. Humphreys asked about the frequency of the laser, and Mr. Shields responded the frequency was 308 nanometers.

IV. Presentation on Sites 20 and 31 Proposed Plans (Oakland Inner Harbor and Marina Village Housing)

Mary Parker (Navy) introduced the IR Sites 20 and 31 Proposed Plans and reminded the RAB that the public meeting was scheduled for March 12, 2008. She said the fact-sheet format Proposed Plan for IR Site 20 was mailed for receipt by approximately February 19, 2008, and the Proposed Plan for IR Site 31 was mailed between 1 and 2 weeks before the March 6, 2008 RAB meeting. Mr. Torrey commented that he received the IR Site 31 Proposed Plan on March 5, 2008.

Ms. Parker discussed the location and history of IR Site 20 (Slides 4 through 6). She said that results of this remedial investigation (RI) were discussed in detail during the April 2007 RAB meeting. Ms. Parker said that the Proposed Plan included no further action at IR Site 20 and the regulatory agencies concurred with the proposed remedy. She described the results for sediment and said they were comparable to ecological screening benchmark values and ambient concentrations at reference locations throughout San Francisco Bay (Slide 7). She said that

human health and ecological risk assessments were performed (Slide 7). Ms. Parker showed a chart with the comparison of IR Site 20 sediment to ambient conditions in the San Francisco Bay; the results showed little risk (Slide 8). She said the average concentrations in sediment at IR Site 20 were lower than the San Francisco Bay average ambient concentrations. She described the definition of a human health risk assessment and explained the human health pathways analyzed (Slide 9). She said the results showed no unacceptable human health risk at IR Site 20. Ms. Parker described the ecological risk assessment (Slide 10) and said the results again showed there was no unacceptable ecological risk. She said the ecological risk assessment considered mammals, birds, fish, and benthic invertebrates such as worms and clams. She showed the table that summarized the human health and ecological risk assessments (Slide 11). Ms. Parker said that, based on the risk assessments performed, no further action was warranted at IR Site 20. She said the regulatory agencies (Slide 12) concurred with this recommendation and that no land use restrictions, environmental monitoring, or other cleanup actions are required.

Mr. Lynch said there was a bay-wide advisory against the consumption of fish and asked if IR Site 20 posed no risk from fish consumption. Ms. Parker said that the risk was less than 10^{-6} or comparable to ambient conditions for all the receptors to fish. Mr. Lynch said that all fish caught in the San Francisco Bay contained a toxic level of contaminants, such as polychlorinated biphenyls (PCB). Dr. Henry said that the risk assessment examined the risk at IR Site 20 only. Mr. Lynch said that the concentrations at IR Site 20 were compared with bay-wide ambient concentration levels and the ambient level of PCBs in fish was toxic. He said that PCBs should be removed from the biosphere and placed in containers, so people do not ultimately consume them in their food. He said this was a good opportunity to make progress, but instead concludes that this site was no more contaminated than anywhere else in the San Francisco Bay. Ms. Parker said that an initial step in the risk assessment also compared IR Site 20 concentrations with conservative screening levels. For total PCBs, the IR Site 20 remedial investigation sample concentrations were lower than the screening level (effects range-median (ERM) ecological screening levels) in both the RI surface sediment locations and in the deepest RI core samples (collected from 25-50 cm below the surface).. Mr. Lynch stated that there were no higher PCB concentrations in the San Francisco Bay than in sediments around U.S. Naval facilities.

Ms. Smith asked about the depth of sampling at IR Site 20, and Ms. Parker responded that the deepest samples were collected at 50 centimeters below surface. Mr. Torrey asked about the animals that were considered in the ecological risk assessment. Ms. Parker said the detailed ecological risk assessments for animals included birds, fish, and benthic invertebrates and the qualitative assessment included mammals. The risk assessment concluded that there was little risk based on the quantitative assessment for the receptors. She said the Navy provided the RAB with a full description of the data and details of the risk assessment in April 2007.

Mr. Humphreys asked if IR Site 20 was the location for the dog park, and Mr. Macchiarella said that the dog park was located on shore at IR Site 28, which was directly adjacent to IR Site 20 (located off shore and below water). Mr. Humphreys mentioned a question he asked during a previous meeting about a dog that hypothetically picked up contaminated soil along with a tennis ball. Mr. Humphreys said he believed the response was that dogs were not a part of the natural environment. Ms. Parker responded that the human health risk assessment examined any

incidental ingestion of sediment, as well as dermal contact with sediment and ingestion of fish and shellfish. When considered from an ecological point of view, the risk is also acceptable.

Ms. Smith commented that when she first moved to the bay area, pregnant women were advised to eat fish caught in the bay area only twice a month and now, to be safe, cannot eat the fish at all. She said she did not know how the fish at the site could not be contaminated. Dr. Henry said that the assessment considered only the contribution of the chemicals in the sediment to the fish and not whether all the fish in the bay area are safe. Dr. Henry said the investigation explained that if fish had contact only with sediment at IR Site 20 there was no unacceptable risk. Dr. Henry said that there is no doubt that fish in the San Francisco Bay contain elevated levels of contaminants; however, the risk assessment concluded that the risk based on IR Site 20 sediment was a low risk, so the site does not pose a threat to contaminate fish further.

Mr. Torrey asked about the conclusion of mercury concentrations. Ms. Parker said that the human health and ecological risk assessments both concluded that risks related to mercury were acceptable.

Mrs. Sweeney asked why IR Site 20 became an IR site, and Ms. Cook responded that IR Sites 20 and 28 were previously combined as one IR site. Ms. Cook said that it was then decided to consider the onshore area (IR Site 28) separately from offshore (IR Site 20).

Dr. Henry introduced IR Site 31, the Marina Village housing (Slide 14), and showed the location map (Slide 15). She described the background (Slide 16) and said it was a 25-acre residential use property and the groundwater on the site was being cleaned up separately. She said the purpose of this investigation was mainly soil, although vapor intrusion for groundwater also was considered. Dr. Henry discussed the past, present, and future uses at IR Site 31 (Slide 17). She summarized the IR Site 31 soil investigation (Slide 18) and said that the remedial investigation recommended no action for soil; there was no evidence of a release related to Navy activities at the site. Dr. Henry said there was no unacceptable risk to human and ecological receptors at IR Site 31 (Slide 19). She said the cancer risk for soil at IR Site 31 was analyzed for three receptors: current residents, future residents, and construction workers. Mr. Humphreys asked why the site cancer risk for future residents was higher than for current residents, and Dr. Henry said the current resident receptor was analyzed with only the data for surface soil; the future resident receptor was analyzed using data from the surface soil to the groundwater table. She said there was no apparent pattern to the shallow soil versus subsurface soil and the difference was not significant in risk assessment terms. She said the difference could have been attributed to statistical variations in the data.

Mr. Humphreys said he thought the difference may have been attributed to a vapor barrier. Dr. Henry said there were vapor barriers, but all the risks analyzed were assumed without vapor barriers. Mr. Lynch said there was no evidence of vapor barriers and asked if there was documentation of vapor barriers. Dr. Henry said she was aware of U.S. Coast Guard air sampling and had reviewed the sampling extensively; her opinion differed with Mr. Lynch's conclusions. She said that these risks assumed there were no vapor barrier and conservative decisions were made as if there was no vapor barrier.

Mr. Lynch asked about the risk from groundwater. Dr. Henry said that, as she mentioned earlier in the presentation, EPA requested shallow groundwater sampling to assess vapor intrusion, and a worst-case-scenario used the maximum concentration of vapors in shallow groundwater samples and assumed that the maximum concentration was present throughout the site; Dr. Henry reiterated that the groundwater was being remediated. She believed that this assumption was conservative.

Dr. Henry discussed the proposed remedy for soil at IR Site 31(Slide 21). She noted that the results of the risk assessments showed that site conditions are protective of human health and the environment. She said that, based on risk assessment results, no action was warranted for soil at IR Site 31 and the regulatory agencies (Slide 19) concurred with the decision. She said no land use restrictions, environmental monitoring, or other cleanup actions were required for soil at IR Site 31.

Ms. Sweeney asked Mr. Lynch about his concern for vapors and what housing he may have been describing. Mr. Lynch said that he was referring to vapors in general, in all the housing at IR Site 31. Ms. Sweeney asked if the housing contained high levels of benzene, and Mr. Lynch said that he would not desire to live in one of those houses based on the data. Dr. Henry said she was familiar with the housing studies and asked Mr. Lynch about the data he had mentioned. Mr. Lynch said it was most likely in a 1993 report prepared by Woodward & Clyde. Dr. Henry asked if the report he referred to was for the Coast Guard housing study. Mr. Lynch said that it was Navy housing at the time and the Coast Guard was not involved. Dr. Henry suggested that Mr. Lynch was probably referring to the same study she was aware of (in housing areas including the Marina Village housing) and said that the U.S. Coast Guard study showed that the levels of benzene were consistent with background levels. She said that when the study examined crawl space and indoor air, the results for the samples in the crawl space were statistically lower than the indoor air samples; which indicated that the source of benzene was not groundwater, but probably from automobiles. Mr. Lynch said that the source of benzene did not matter; instead, the concern was that residents were exposed to this contamination and exposure to benzene should be reduced. Dr. Henry said that the Coast Guard conducted extensive sampling of indoor and outdoor air throughout the area; for example, in crawl spaces, basements, and throughout the Marina Village. She said that the Coast Guard concluded that the level of benzene in the indoor air and outdoor air was comparable. She said that homes were sampled in both the crawl space and indoors, which showed that the concentrations of benzene in the home was higher than in the crawl space; indicating the source of benzene was not the ground, but the ambient air outside the house. Dr. Henry said that the samples from this study were compared with the Bay Area ambient levels. Mr. Macchiarella mentioned that the Bay Area Air Quality Board would have information, including the Bay Area ambient air concentrations of benzene. Dr. Henry said that ambient benzene concentrations were consistently decreasing within the last 5 years.

Mr. Matarrese reminded the RAB that the public comment period would be closed before the next RAB meeting; therefore, the RAB should agree on or disagree with the proposed plans. Ms. Parker said that the public meeting was scheduled for March 12, 2008; the public comment period for IR Site 20 ends on March 20, 2008, and the public comment period for IR Site 31 ends on April 2, 2008. Mr. Matarrese asked if the RAB had any objections with the conclusions of

the Proposed Plans. Mr. Macchiarella asked the RAB members if they felt comfortable with making an immediate decision. Mr. Humphreys asked for RAB comments on IR Sites 20 and 31. Ms. Smith said that she did not approve of the shallow sampling at IR Site 20 and would prefer deeper sampling, and Mr. Torrey concurred with Ms. Smith. Ms. Sweeney said that she agreed with the Proposed Plan because she believed that the proposed remedy for groundwater would suffice to clean the contamination at IR Site 31. Mr. Humphreys recalled a previous remedial action at IR Site 31 that involved placing a 4-foot layer of fill over contaminated soil for protection. Dr. Henry said that there was no contamination from 8 feet bgs to the water table and that her investigation included soils and vapors. Mr. Smith asked about the remedial action for groundwater at IR Site 31. Mr. Macchiarella responded that the remedial action is scheduled to commence in September 2008. Ms. Parker said that the remediation should last for 2 or more years. Mr. Humphreys asked if the RAB was in favor of the proposed plan for no action at IR Sites 20 and 31. Mr. Humphreys announced that the majority of the RAB supported the conclusions for both IR Sites 20 and 31, with one vote opposed.

V. Results for Pentachlorophenol at Parcel 182

Ms. Parker presented the Navy's response to a concern raised by Mr. Lynch in a previous RAB meeting. Mr. Lynch's concern involved missing data for pentachlorophenol at Parcel 182 in a report, which he did not specify (Attachment B-4). Ms. Parker described the location of Parcel 182, which was the Estuary Park within IR Site 25, as presented on Figure 182-1 of Attachment B-4. She said the samples in question were sample 182-0011 and samples 182-0010, 182-0012, and 182-0024, which were collected in the same borehole. She said the handout included a table of the analytical results for pentachlorophenol in soil at Parcel 182 from the Final Environmental Baseline Survey in 2001 (Table 1 of Attachment B-4). Ms. Parker said that pentachlorophenol was not detected in any of the samples and the screening level EPA residential preliminary remediation goal (PRG) was 3,000 micrograms per kilogram (µg/kg). She said there were non-detects at low concentrations for all samples. Mr. Hoffman asked if the samples in the table were from the same boring, and Ms. Parker responded that not all were collocated, which was indicated in the last column, "Other Samples within Same Borehole." She said that the table included samples collected around the samples from the same boring, which were all non-detects; therefore, further analysis of pentachlorophenol was not necessary. Ms. Parker said that typically a non-detect sample result was rejected based on surrogate sample percent recovery or laboratory control spike percent recovery less than 10 percent, matrix spike/matrix spike duplicate percent recovery, or other technical factors. Ms. Parker said, in addition, six other samples in this area collected at a similar depth were non-detect for pentachlorophenol. Mr. Hoffman asked if there was a reason for the rejection. Ms. Parker said that the reason for rejecting an analysis would be based on the quality control recoveries she previously mentioned. Ms. Parker said that she discussed the issue with a chemist, and the chemist said that rejections were typically for non-detect data and based on quality control samples.

Mr. Lynch said that sample 182-0011 was rejected as labeled in Table 1, although it was previously reported at a concentration of 200 parts per million (ppm) of pentachlorophenol. He said that every reason that has been presented about why a sample could be rejected would affect an entire batch of samples, so only one result would not be rejected. He said every result for

pentachlorophenol in that batch of analytical samples would be rejected. Mr. Lynch said the quality control standards were for a batch of samples. He said he read the original report and that someone went back into the report and removed the data and all reference to the sample from the data tables. Mr. Lynch said that all rejections should have been included in the report.

Ms. Parker said that she had reviewed the reports she referenced (Attachment B-4), and had not seen a report with sample 186-0011 at a value of 200 ppm. Mr. Macchiarella said that even with the single detection that Mr. Lynch indicated, other pentachlorophenol data around the site show non-detects.

Ms. Parker described the uses of pentachlorophenol (Attachment B-4). Mr. Parker included the responsiveness summary for the Proposed Plan for Site 25 Soil dated August 2006 (Attachment B-4), which included the comment (with a response from the Navy) by Mr. Lynch regarding pentachlorophenol at Parcel 182.

Ms. Sweeney asked when the data were collected and if there were any removal actions. Ms. Parker said that the pentachlorophenol data were collected in 1995 and that a removal action in 2001 throughout the entire area removed soil down to 4 feet in the playground and down to 2 feet in the other areas. Mr. Macchiarella added that a larger data set (with several hundred data points) for the area surrounding FISCA showed non-detects for pentachlorophenol, which further indicates that there was no risk from pentachlorophenol.

Mr. Lynch said that a piece of data was purged from the data set and requested the data validation report. Mr. Macchiarella asked Mr. Lynch if he could recall and locate the report he was describing, and Mr. Lynch said that since the Information Repository at Alameda Point does not provide a copy machine; he relied on hand writing the data for his reference. Mr. Lynch said that he was certain that he read that data. Mr. Humphreys asked about the source of his research, and Mr. Lynch said it in was the environmental baseline survey (EBS) documents, and most likely an older version.

Ms. Cook said that Mr. Lynch may have seen an earlier version of the EBS, which was revised. She said that under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), it was a legal requirement for all BRAC and Superfund sites that all documentation be retained in the administrative record. She said, by law, all documentation must be kept in the administrative record. She said that the data in question, probably from 1994 or 1995, legally could not have been deleted. She said the earlier versions of these documents may have been shipped to a warehouse. She said that it may also be in the main Alameda Point Information Repository. Mr. Humphreys asked if the Navy should have this documentation in San Diego, California, and Ms. Cook said that the Navy should have these records. She added that extra effort may be needed to find this documentation, which may have been shipped to an off-site storage facility. Ms. Cook said that the document Mr. Lynch referenced may have been an unofficial “data dump” and Ms. Parker said that the document could have been an unvalidated data report. Mr. Hoffman suggested that if the data were rejected, they would not be in a final report, and the data validation report should be recovered from the Navy records and Mr. Lynch should locate the original data he saw. Mr. Macchiarella said that the document may have

contained unvalidated data; the Navy sometimes sent these documents to the agencies and specified that the next version would include validated data. Mr. Macchiarella said the document may be changed after data validation and is why he asked Mr. Lynch if he recalled the date of the document. Mr. Macchiarella said that the EBS data and data validation are immense and it would take numerous boxes to store the documents. Therefore, much effort would be required to locate the documentation. Mr. Lynch said that the search may have been easier if the Navy addressed the issue when he first commented about the missing sample data 10 years ago.

VI. Alameda Landing (Former FISCA) Development Draft Remedial Action Plan

Ms. Lofstrom introduced the presentation on the Alameda Landing (former FISCA) development draft remedial action plan (Attachment B-5). Ms. Lofstrom said that the document was prepared by the consultant working for the developer and the fact sheet was written by DTSC, which summarized the work in the remedial action plan. She said that the Navy was not involved; therefore, the RAB was not involved. She said that DTSC prepared the presentation as a courtesy to the RAB. Ms. Lofstrom introduced Nick Loizeaux, IRIS Environmental (IRIS), who gave a presentation to the FISCA RAB in January 2007. At that point, the Navy was completing a draft feasibility study (FS). She said the Navy's plan was to prepare a Proposed Plan and a subsequent Record of Decision (ROD), which was the normal CERCLA remediation documentation process. She said that during the January 2007 FISCA RAB meeting, Mr. Loizeaux discussed additional sampling that the developer was interested in funding, so that rather than restrictions on residential use, it could be remediated and opened for residential use. Ms. Lofstrom said Mr. Loizeaux attended the September 2007 FISCA RAB meeting. The soil gas investigation was being completed, and additional analytical results had been evaluated and compiled into a report: the remedial action plan. She said the remedial action plan had been submitted to DTSC, which included additional human health risk assessments and an additional FS, and the public comment period was scheduled to end on March 7, 2008. She said the additional sampling and study were actions by the developer because the Navy's focus was on industrial and commercial goals and the developer was interested in a higher-level residential goal. In December 2007 and January 2008, the developer and DTSC entered into a voluntary cleanup agreement (VCA), which outlined the steps that were included in the remedial action plan. She said the VCA details the steps that the developer intended to take to remediate the property. The VCA was scheduled to be presented to the Alameda Point RAB by Mr. Loizeaux. She said at the same time, to avoid the Navy completing a ROD that prohibited residential use, while developer prepared a remedial action plan to remediate the site for residential use, a decision was made by all the parties concerned that one decision document would be better. Ms. Lofstrom said the DTSC released the Navy from further obligation under the Federal Facility Site Remediation Agreement (FFSRA) so there would be only one decision document.

Mr. Loizeaux introduced the developer's Draft Remedial Action Plan for Alameda Landing Development (Attachment B-5). Mr. Loizeaux introduced himself, principal geologist for IRIS, and said his client was a company called Palmtree Acquisition Corporation. He described the location of the site (Slide 3) and divided the site into Areas A, B, B1, and C. He said the remedial action plan analyzed various uses of the property; it was a mixed-use redevelopment, including residential and commercial uses. He announced that the Remedial Action Plan was available for public view at the Alameda Public Library and at the DTSC office in Berkeley,

California. He said the fact sheet was attached to the February Alameda Point RAB meeting minutes and also was mailed to approximately 2,100 parties. He said the public meeting occurred on February 26, 2008, and the presentation from that meeting was included as Attachment B-5.

Mr. Loizeaux said that a considerable amount of data had been collected on this site and his first assignment was to consolidate these data. In addition, he said IRIS collected supplemental data as a result of the data gaps analysis. As a result, it was concluded to collect soil gas samples. He said IRIS divided the site into four subareas based on environmental conditions (Slide 16) and conducted a human health risk assessment for each subarea. He said the wharf (Area A) along the Oakland/Alameda estuary was elevated above grade with about 3 to 4 feet of air space under the wharf, which was an interest from a risk assessment standpoint because there was no pathway for direct exposure. Mr. Loizeaux said Area B was the largest and is intended for both residential and commercial use. He said the smallest subset, Area B1, was a 4-acre residential parcel, and Area C overlays the known benzene and naphthalene plume. He said IRIS delineated the 1 part per billion (ppb) limit of the plume, added a 100-foot buffer zone, and called it Area C because unique management challenges were projected. Mr. Loizeaux described the health risk assessment and the chemicals of concern in each subarea (Slide 17). He said the investigation in Area C focused on the risk in soil because the Navy had undertaken a remedial program for the benzene and naphthalene plume. He said a separate remedial action plan will evaluate soil gas in the future for Area C with an associated public comment period.

Mr. Hoffman asked if this area was under CERCLA. Mr. Macchiarella clarified that the Naval Air Station Alameda (Alameda Point) was on the National Priorities List (NPL) and that FISCA is not on the NPL; however the Navy's remediation program was identical to the CERCLA process. Mrs. Sweeney asked who owned the land, and Mr. Loizeaux said the City of Alameda owned the property.

Mr. Loizeaux discussed the remedies proposed in the FS, which was accessible to the public. He said the wharf in Area A was intended for commercial use and as a daycare center. He said the chemicals of concern were polycyclic aromatic hydrocarbons (PAH) in underlying soils, but there were no viable exposure pathways for soil and soil gas because future structures were planned to be located on the elevated wharf. He said the remedy included management measures to ensure the prevention of contact with soil and to maintain airspace beneath the wharf, with the addition of annual inspections of the airspace; therefore, the development can proceed as intended.

Mr. Hoffman asked if the wharf would remain, and Mr. Loizeaux said the most of the wharf would remain; however, there was still uncertainty about whether portions will need to be rehabilitated or potentially shortened about 10 feet from its current extent. Mr. Loizeaux said that the wharf was an old feature and was deteriorating in some areas, which may be rehabilitated. Ms. Konrad said that she was informed that the wharf would be removed up to the land. Mr. Loizeaux responded that he was unaware of that plan, but a portion of the wharf will be provided for the future boat taxi.

Mr. Loizeaux discussed the intended residential use areas in Area B and Area C (Slide 20). He said the chemicals of concern in Area B were PAHs in soil, and in Area C were primarily PAHs and PCBs, metals, and pesticides in soils. He said the preferred remedy was to provide at least 4 feet of clean soils beneath residential structures by either soil excavation or was not recommended for remediation. He explained that surcharging was the accelerated compression of underlying sediments to provide a firmer surface for future structures. He said the northern tip of Alameda was underlain by extensive Bay Mud deposits. By bringing in clean soil on top of future residential areas, the contaminated soils will be lowered to a depth below 4 feet, resulting in a 4-foot cap. The remedy was intended to provide a 4-foot buffer between future houses and chemicals at concentrations above thresholds of concern in soil. He said the management measures in these areas include restrictions on soil disturbance below 4 feet; for example, deed restrictions and a soil management plan. He said the soil management plan was an associated document with a complete description of the restrictions, which was accessible to the public.

Mr. Leach asked if home utilities would be constructed below 4 feet, and Mr. Loizeaux responded that he did not believe individual site utilities would go below 4 feet, but the infrastructure would probably extend below 4 feet, which would become a construction worker management issue. Mr. Leach said the city had not enforced deed restrictions on part of the land underlying the Marsh Crust. Mr. Loizeaux said the Marsh Crust ordinance was in full effect and was an integral component of the site management plan, land use conveyance, and deed restrictions for FISCA. He said the work he was aware of that occurred in the last year at FISCA, including a storm water sewer outfall project, complied with the ordinance.

Mr. Loizeaux discussed Area B1 (Slide 21) and said that it was not recommended to surcharge since there were no PAHs in soil. However, he said 1,3-butadiene was detected in soil gas, which was a short-chain carbon compound associated with the breakdown of either petroleum hydrocarbons or rubber. He said the extent of contamination was not laterally extensive, but was detected above the threshold of concern. Mr. Loizeaux said the preferred remedy was to use the vapor mitigation system of constructing sub-slab vapor barriers below all the homes on the 4-acre site, which was a conservative measure.

Mr. Loizeaux discussed the remedy of the intended commercial zones of Area B and C (Slide 22). He said the preferred remedy was cover requirements; therefore, buildings, sidewalks, and parking lots will act as a 1-foot cap. He said clean soil will be imported to areas where there will be landscaping.

Mr. Loizeaux said that this investigation was focused on a per-building basis; for example, if the client wanted to construct 30 commercial buildings, samples will be collected in the locations of the 30 buildings. DTSC requested that the risk assessment and sample process must be completed for the new building location if any of the buildings were proposed to be relocated. Mr. Torrey asked which buildings would be moved, and Mr. Loizeaux responded that more than half of the buildings would be demolished and some rehabilitated.

Mrs. Sweeney asked if the source of vapors was PAHs and PCBs. Mr. Loizeaux responded that a key concern in the past was PAHs that contributed as a volatile phase. He said that more than

100 soil gas samples were collected and PAHs may have been detected only once; therefore, PAHs do not appear in the vapor phase at most of FISCA. He said that vapors were a concern only in two areas: Area B1 and Area C. He said that at Area B1, 1,3-butadiene was detected and isolated pockets of hydrocarbon were detected, which were inferred to be a breakdown product of hydrocarbons or rubber. He said the concentrations had been delineated and were detected just above threshold levels.

Mr. Humphreys asked about the 1-foot soil cover in Area A. Mr. Loizeaux said that the 1-foot soil cover was not unique to Area A because it was intended for all commercial areas with landscaping. He said a layer of a marker fabric will be under the 1-foot buffer of clean soil, which will be used to determine if there was any erosion of the top one layer of clean soil, as designated by the site management plan.

Mrs. Sweeney asked if the remediation at Area C would proceed after the Navy's remediation, and Mr. Loizeaux said it will not. Remediation of soil and assessing soil gas risks will continue, and the work will acknowledge that the Navy will conduct 2 years of cleanup effort and that the preferred remedy will most likely include a vapor barrier system for the homes.

Ms. Konrad asked about the leakage from the John Berry property since there was contamination around Area B1. Mr. Loizeaux said he believed it was a Water Board site and the sampling did not detect constituents above thresholds of concern that might be related to the John Barry property. He was unaware of any significant impact Area B1 from the John Barry property. Mr. Loizeaux showed the point where 1,3-butadiene in soil gas was detected on the map (Slide 22) and said that the conservative decision made was to provide a vapor barrier system for all of the homes in Area B1. Mr. Smith asked about the stability of the vapor barrier system in the event of an earthquake, and Mr. Loizeaux responded the vapor barrier system for each home will contain an impermeable layer and a gravel layer that allows vapors to dissipate, without any mechanical components that would be at seismic risk. He said the vapor barrier was a flexible (and not rigid) layer. Mr. Loizeaux said there were seismic contingencies in the site management plan, and site inspections were to be conducted after a major seismic event to verify that all remedies maintain their integrity. He said annual inspections were scheduled, regardless of seismic events.

Ms. Konrad again asked about the leakage from fuel storage tanks on the John Barry property, adjacent to FISCA. Mr. Loizeaux said there was leakage; however, there were no adverse risks from the leakage. He said the leakage did not migrate into FISCA and went into the Navy's IR Site 04 and IR Site 06 investigation and remediation; the area was intended to be a parking lot.

Mr. Humphreys asked the RAB for approval of the Alameda Landing Development Draft Remediation Plan. Ms. Lofstrom said the developer was anxious to start on the development and had provided DTSC everything requested in regards to remediation and the site management plan. Mr. Humphreys said the first soils were more contaminated than the excavated soils when the Navy imported soil in the IR Site 25 area, and suggested sampling and analysis of all the foreign soil imported. Ms. Lofstrom responded that the developer had written that contingency into the plan. Ms. Lofstrom said there were numerous restrictions and the sampling that

occurred was extensive. Mr. Humphreys said he did not believe the 1-foot buffer of clean soil was adequate, and Ms. Lofstrom responded that the risk is posed to the landscape worker; there are detailed provisions in the site management plan, and continued inspections will be conducted to ensure the provisions are followed. Mrs. Sweeney mentioned one event when a utility company refused to work when it faced regulations connected to the work and asked if DTSC had made the work easier. Ms. Lofstrom responded that there are many regulations to follow and the site management plan is overly conservative; therefore, the work is not easier for the developer.

Mr. Humphreys suggested extending the public comment period to March 31, 2008. Ms. Lofstrom said she did not see a compelling reason to extend the public comment period at that time, which was scheduled to expire on March 7, 2008. Ms. Lofstrom said she would extend the comment period if she was provided a compelling reason by 5:00 p.m. March 7, 2008. Mr. Humphreys said the compelling reason was that the Alameda Point RAB would not be able to assemble comments by March 7, 2008, and Ms. Lofstrom responded that it would be a compelling reason if this were an Alameda Point RAB project. Mr. Humphreys requested an extension of the public comment period to March 31, 2008. Ms. Lofstrom said that the FISCA work had been removed from Navy obligation and the RAB is not involved. Ms. Lofstrom said there was no reason to delay the developer. Mr. Humphreys said most of the RAB did not receive the fact sheet in the mail, and Ms. Lofstrom responded that all addresses were verified. Ms. Lofstrom said she announced the public comment period in January and February 2008. Mr. Humphreys said the plan was not listed in the newspaper. Ms. Lofstrom said there was an announcement in the *Alameda Journal* and an Oakland newspaper. Mr. Russell said the Proposed Plan was available at the public meeting on February 26, 2008, and at least half of the RAB members attended. Mr. Humphreys said that the public comment period was supposed to be 30 days, and Ms. Lofstrom responded that she announced the public comment period on February 7, 2008, and brought copies of the plan. She said it was a good plan, which was protective, and there was no reason to stall the project at that point. She said the plan was not complex: the intention was to cover exposed contaminated soil or excavate and construct vapor barriers. She said the complication lies in the site management plan with its restrictions.

Ms. Sweeney said that the RAB was given a presentation on the OU 5/IR02 groundwater remediation, near the FISCA site, about a year ago and there was little reporting. She said the information is new to many and she had concerns that she would like to address; for example, ventilation is planned on the wharf where a daycare center is proposed, but she is concerned about the risks if the wharf is shortened. Also on the John Barry property, she asked whether there is any risk that the plume will change directions, grow, or spread out. Ms. Lofstrom said that she would extend the comment period until March 14, 2008, which is a sufficient amount of time because the fact sheet is short, all the documents are accessible, and the developer posted all documents on the internet. Ms. Lofstrom said the website is on the fact sheet and offered assistance for locating the documents for review.

VII. Community and RAB Comment Period

There were no further comments.

VIII. RAB Meeting Adjournment

The meeting was adjourned at 9:49 p.m.

ATTACHMENT A

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING AGENDA
March 6, 2008

(One Page)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

MARCH 6, 2008, 6:30 PM

ALAMEDA POINT – BUILDING 1 – SUITE 140
COMMUNITY CONFERENCE ROOM
(FROM PARKING LOT ON W MIDWAY AVE, ENTER THROUGH MIDDLE WING)

TIME	SUBJECT	PRESENTER
6:30 - 6:45	Approval of Minutes	Mr. George Humphreys
6:45 - 7:00	Co-Chair Announcements	Co-Chairs
7:00 – 7:30	Presentation on Site 13 Tarry Refinery Waste (TRW) Results	Ms. Michelle Hurst & Mr. Don McHugh
7:30 – 8:00	Presentation on Sites 20 and 31 Proposed Plans (Oakland Inner Harbor & Marina Village Housing)	Ms. Mary Parker & Dr. Linda Henry
8:00 – 8:10	BCT Update	Ms. Dot Lofstrom
8:10 – 8:30	Community & RAB Comment Period	Community & RAB
8:30	RAB Meeting Adjournment	

ATTACHMENT B

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING HANDOUT MATERIALS

B-1 List of Reports and Correspondence Received during February 2008, distributed by Mr. George Humphreys, RAB Community Co-Chair (1 page)

B-2 SCAPS LIF Tarry Refinery Waste Investigation (15 pages)

B-3 Proposed Plans for IR Site 20 and IR Site 31 Presentation (11 pages)

B-4 Soil Analytical Results for Pentachlorophenol at Parcel 182 Presentation (9 pages)

B-5 Alameda Landing Development Draft Remedial Action Plan Presentation (10 pages)

ATTACHMENT B-1

List of Reports and Correspondence Received during January 2008

(1 page)

Restoration Advisory Board
Reports and Correspondence Received
During February 2008

Reports:

1. February 5, 2008,"Technical Memoranda for CAA 3, 5 B West, and C, at Alameda Point, Alameda, California", prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.
2. February 8, 2008, "Final, Project Plans, Petroleum Site Investigation AOC 23 G, Alameda Point, Alameda, California", prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.
3. February 14, 2008, "Final, Addenda to Final Project Plans, Alameda Point, Alameda, California", prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.

Correspondence:

1. February 21, 2008, "Draft Remedial Investigation Addendum for IR Site 30, Alameda Point", letter from Ms. Anna-Marie Cook, EPA Region IX to Mr. Thomas Macchiarella, BRAC Program Management Office West.

ATTACHMENT B-2

SCAPS LIF Tarry Refinery Waste Investigation

(15 pages)

SCAPS Laser Induced Fluorescence Tarry Refinery Waste Investigation OU-2A SITES 9, 13, 22, AND 23

Site Characterization and Analysis Penetrometer System

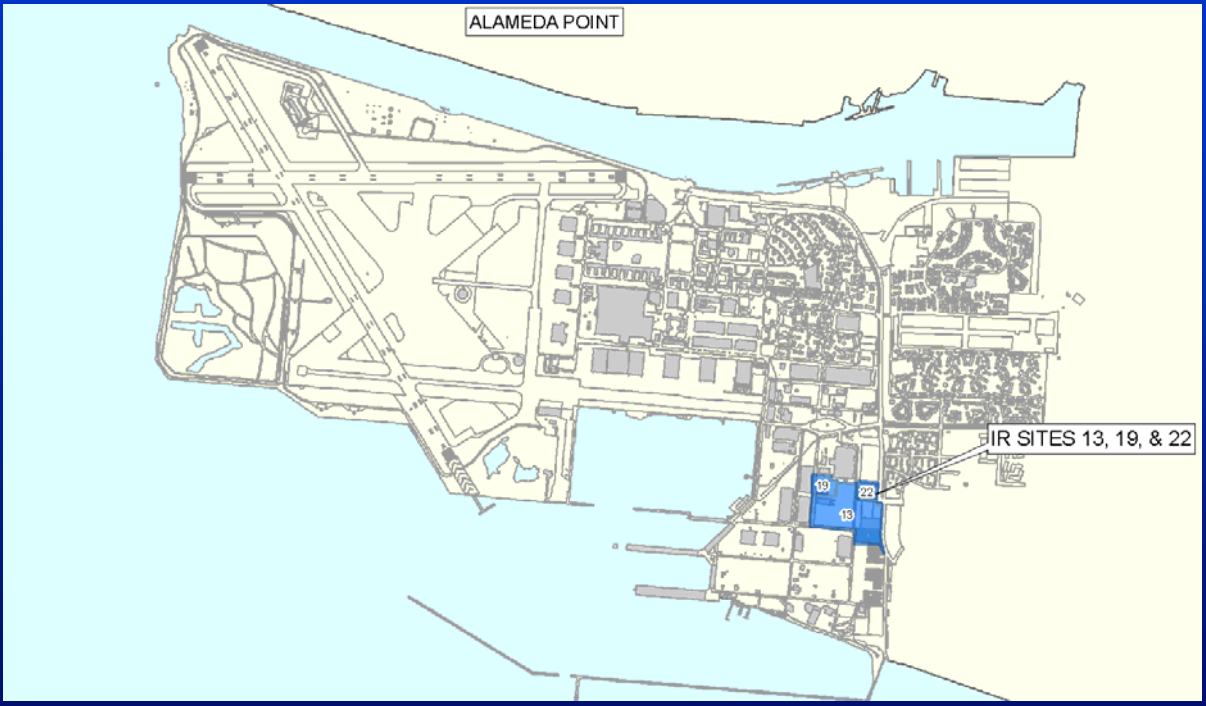
S•C•A•P•S

Restoration Advisory Board Meeting
Alameda Point, California
March 6, 2008

Richard Brady & Associates
Engineering and Construction

Timothy Shields and Donald McHugh
(858) 496-0500

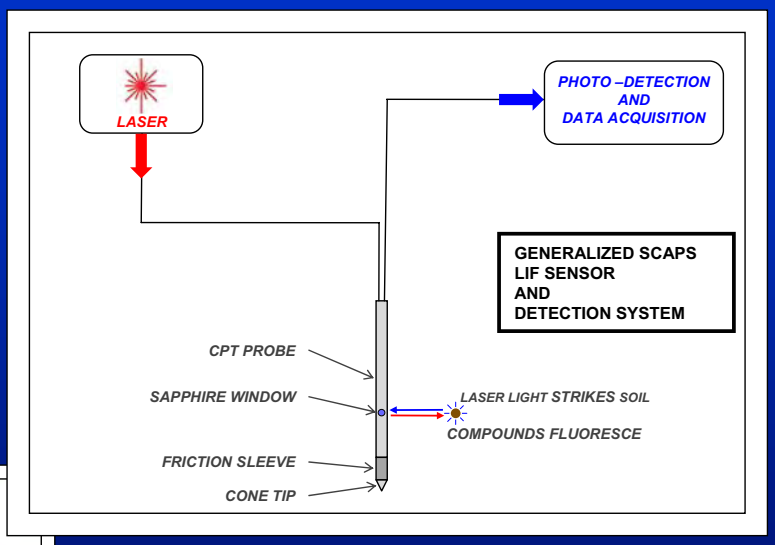
Site Location

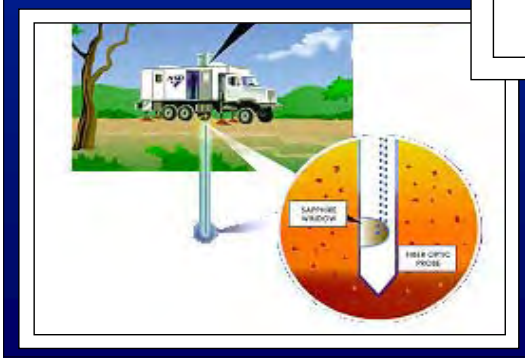


Petroleum Hydrocarbon Assessment

Using SCAPS Laser-Induced Fluorescence

- Laser Source: Ultraviolet (308 nm) Xenon Chloride Eximer laser
- Excites 2-ring and greater Polynuclear Aromatic Hydrocarbons (PAHs)





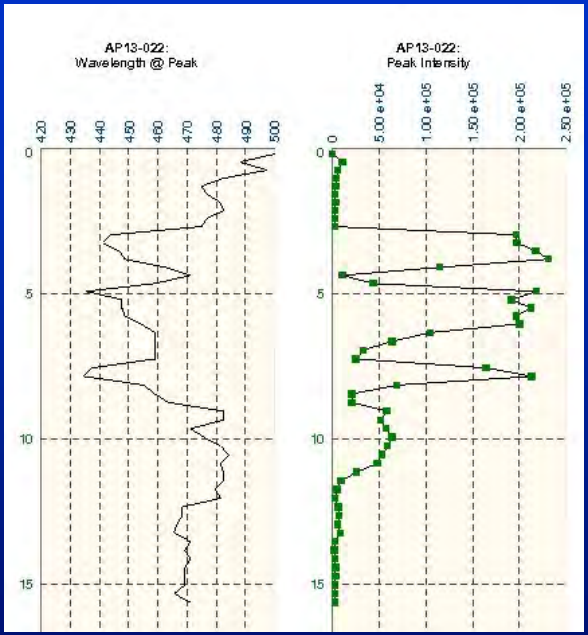
- LIF generally detects fuel concentrations greater than 100 ppm

XeCl Laser Ultraviolet Light Source

LIF Data Interpretation

Factors to Evaluate Petroleum Detection by LIF

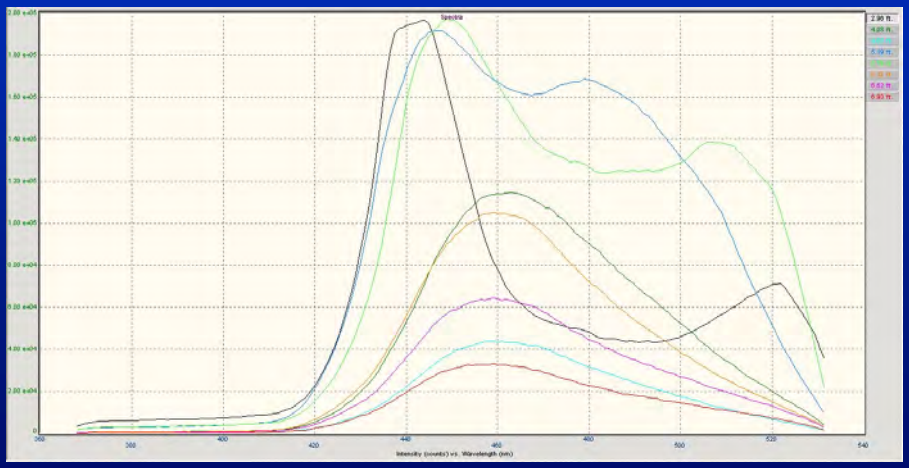
- Increase in Fluorescence Intensity
- Corresponding Change in Fluorescence Wavelength

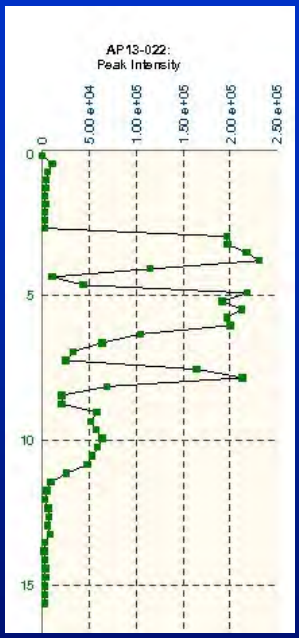


LIF Data Interpretation

Continued

- Spectral Curve Shape Consistent with Petroleum



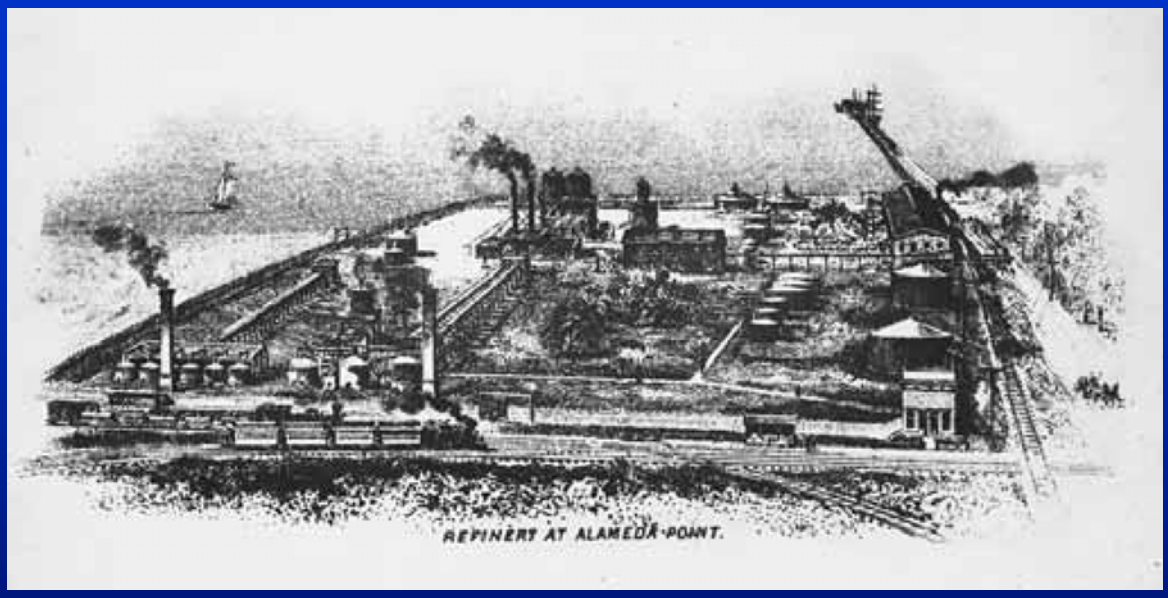


LIF Data Interpretation

Continued

- Significant Thickness of Interval
- Spatial Location Consistent with Expected Migration Patterns
- Comparison with Sample Analysis

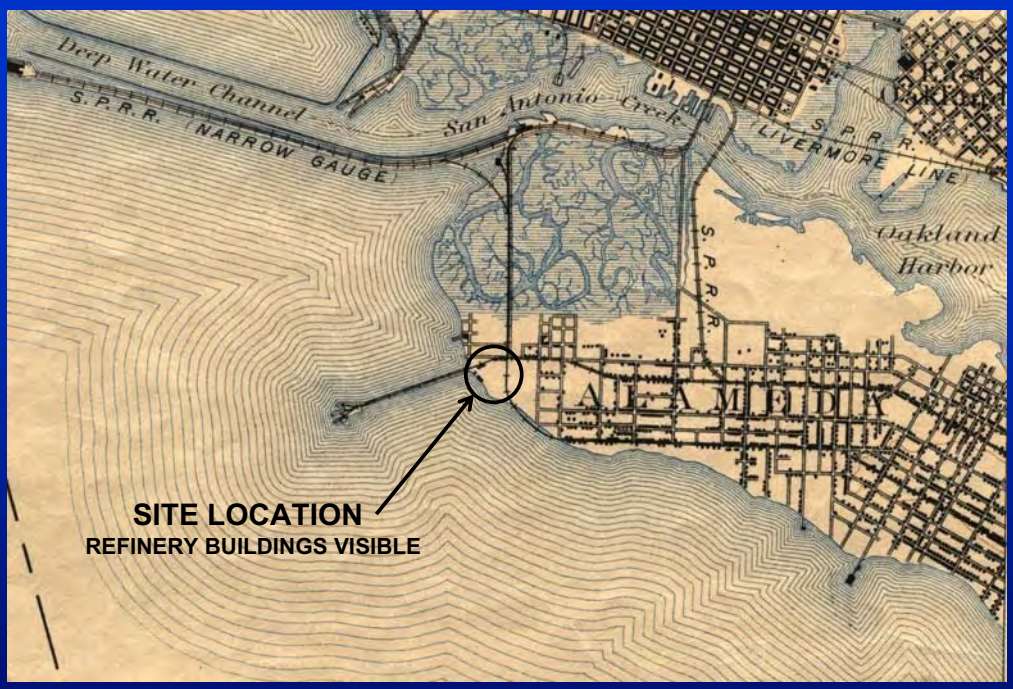
Former Oil Refinery Site History



VIEW LOOKING WEST CIRCA 1890

- Former Pacific Coast Oil Works Company Refinery in Operation from 1879 to 1903
- Distilled Crude Oil to Kerosene and Fuel Oil

ALAMEDA POINT - 1895



USGS MAP

- Refinery Wastes Disposed of On-Site and Surrounding Former Tidal Lands

ALAMEDA POINT - 1915

USGS MAP

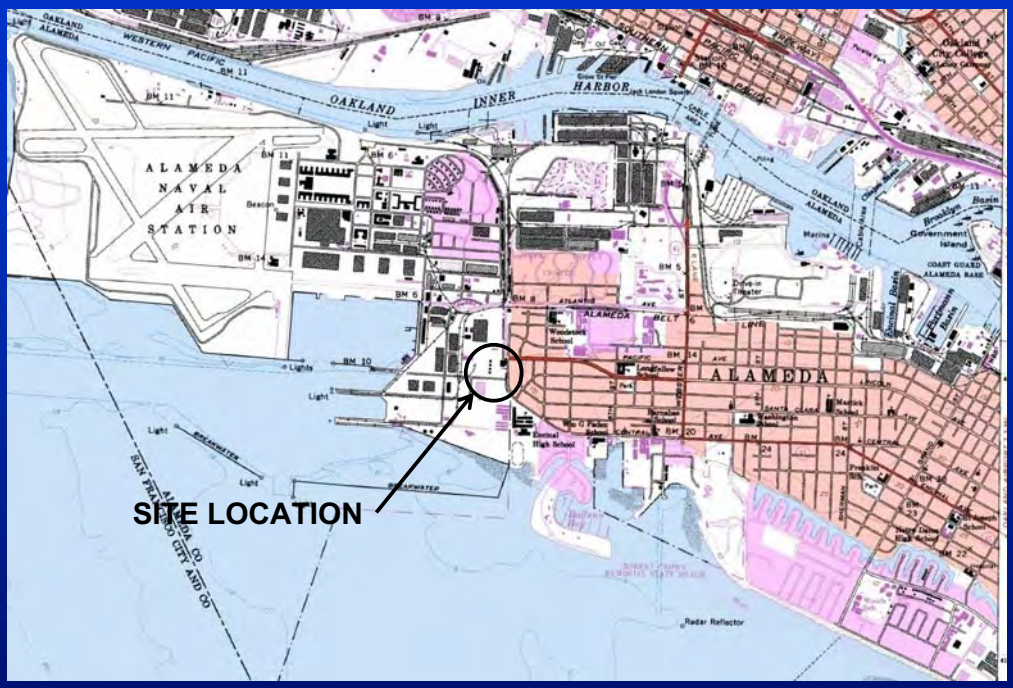
- Refinery Occupied IR Sites 13, 19, 22, and 23

ALAMEDA POINT - 1942

USGS MAP

- 13 Previous Investigations and 5 Removal Actions

ALAMEDA POINT - 1980



USGS MAP

- SCAPS LIF to Refine Conceptual Site Model and Optimize the Feasibility Study

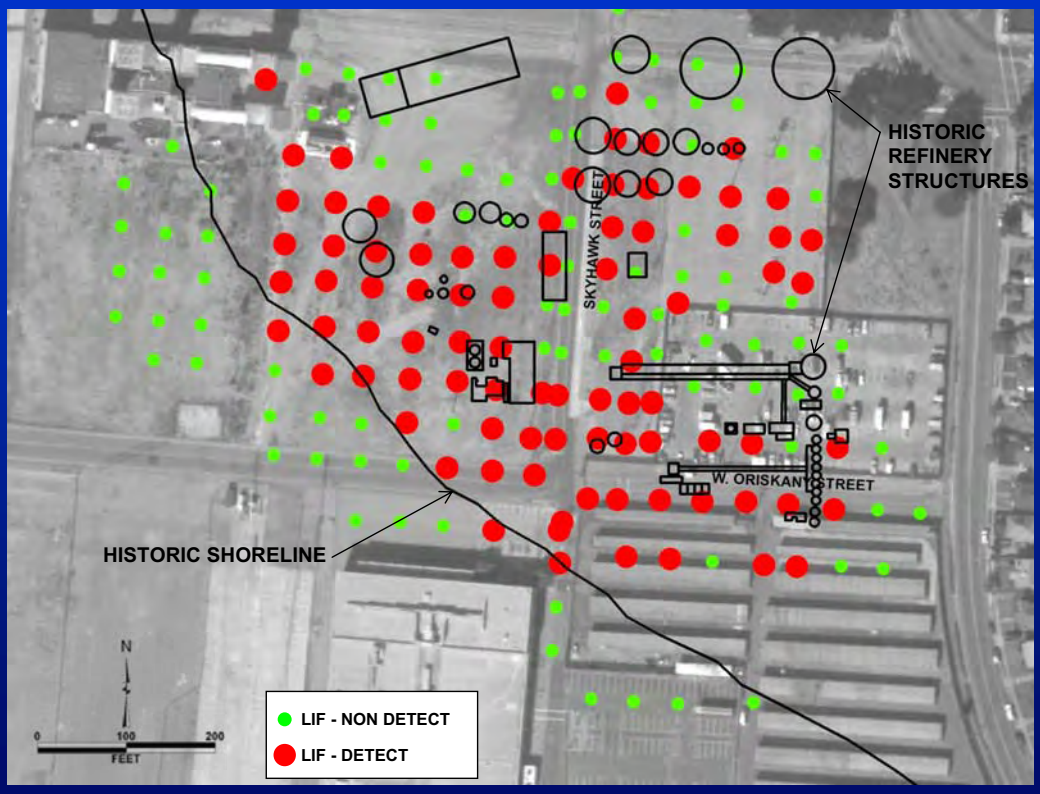
TRW or OIL at Surface

Field Activities

- Subsurface Utility Clearance/Boring Permits
- 182 SCAPS LIF Pushes Covering 9.3 Acres
- 10,521 LIF Measurements
- 16 Soil and TRW Samples Collected and Analyzed
- All Investigative Points Destroyed by Tremie Grouting

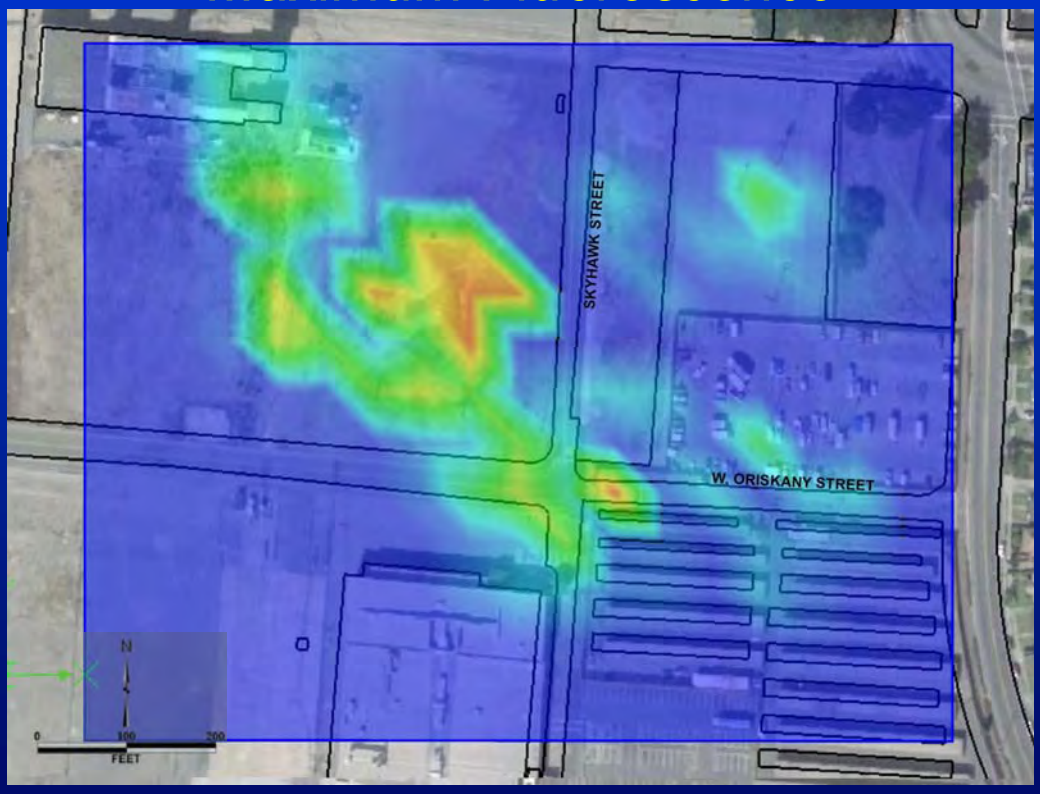
LIF RESULTS

LIF RESULTS

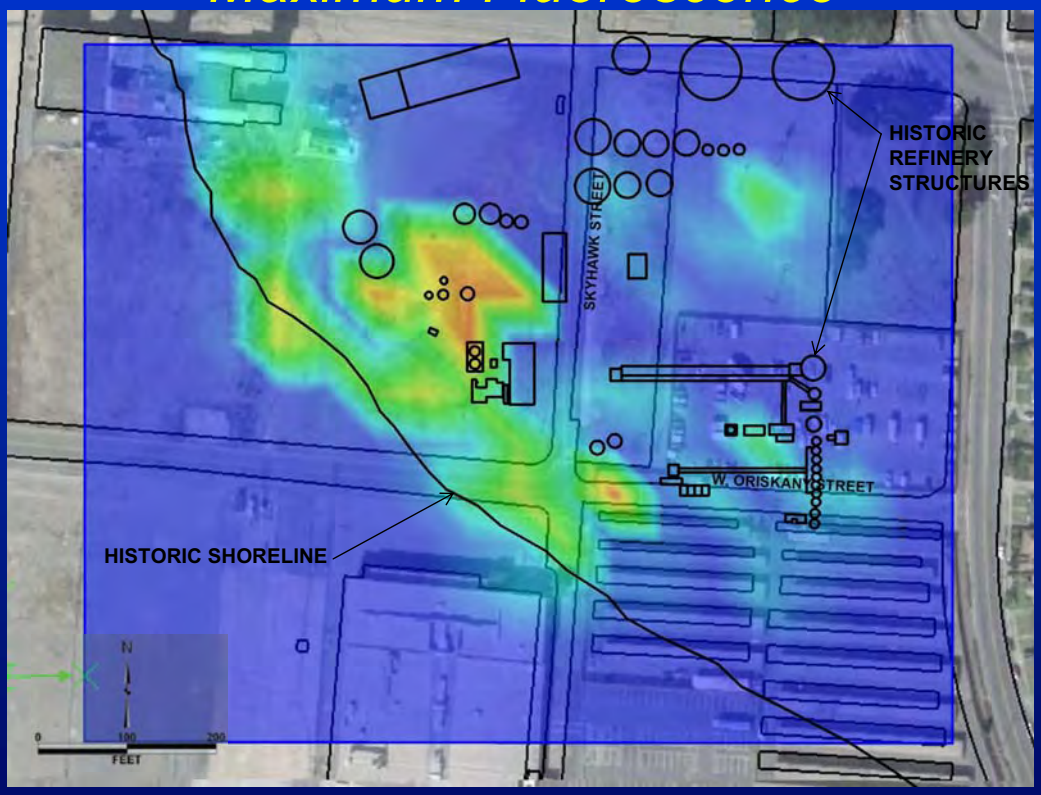


3-Dimensional Modeling

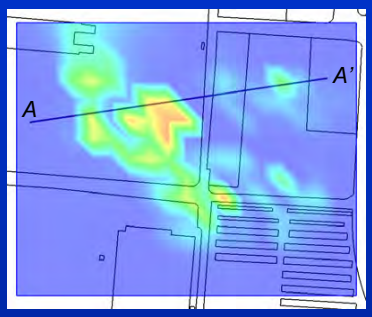
Modeled Interpolation of Maximum Fluorescence

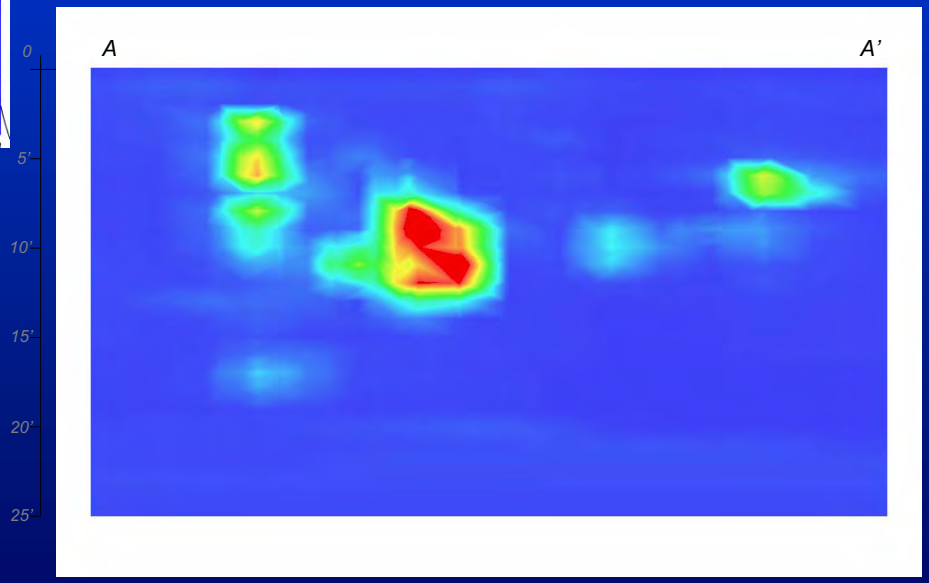


Modeled Interpolation of Maximum Fluorescence

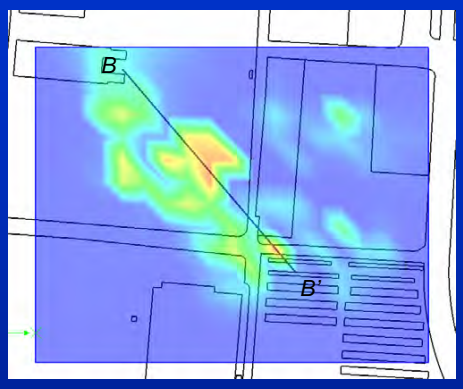


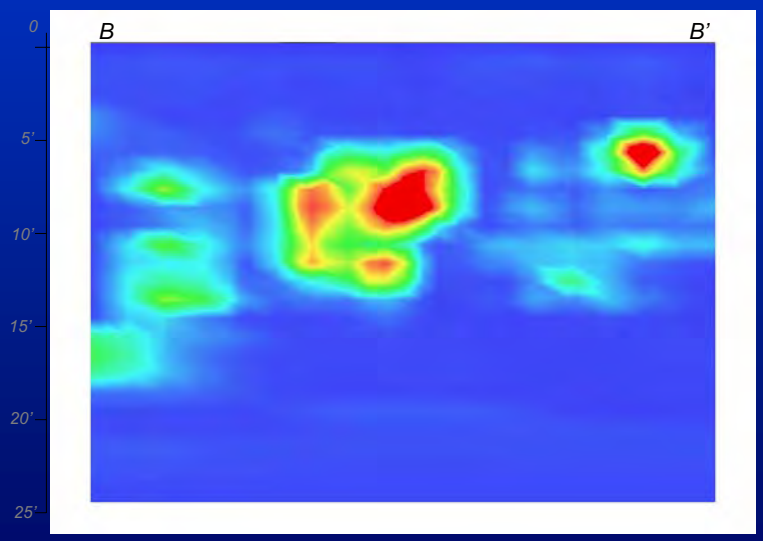
Cross Section A-A'





Cross Section B-B'

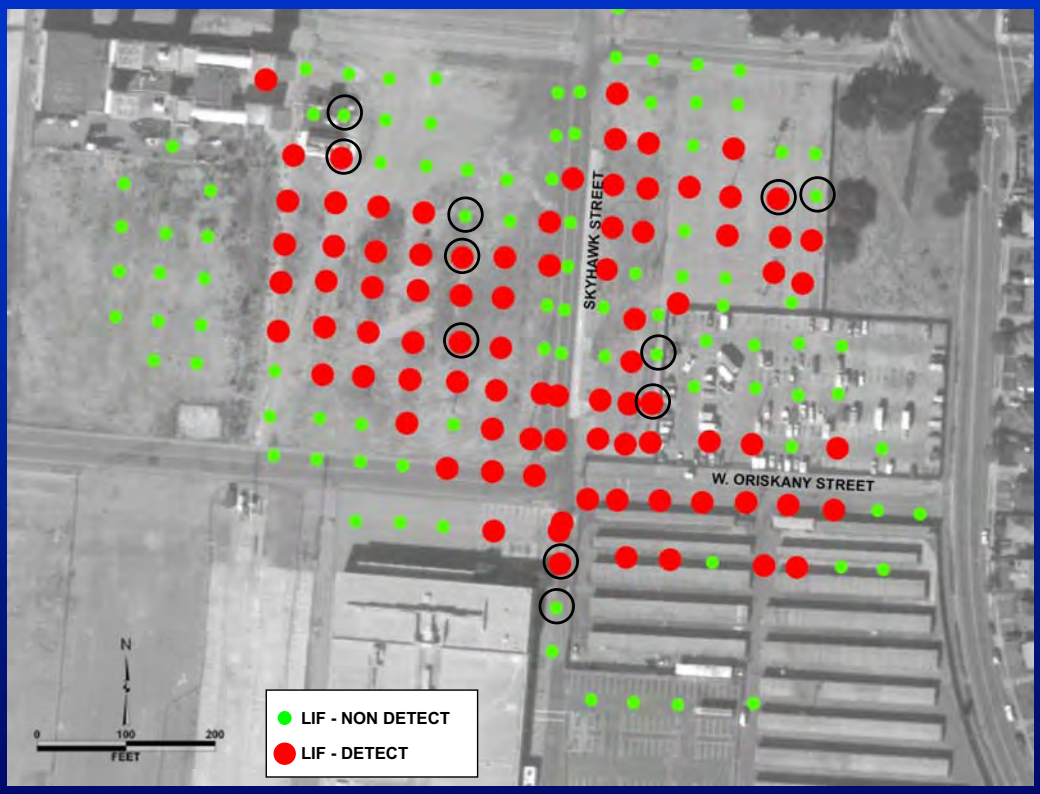




SCAPS Soil Sampling

- Soil sample locations were collaboratively chosen during a planning meeting.
- Soil samples were collected for laboratory analysis
- Results were compared to LIF and CPT Data

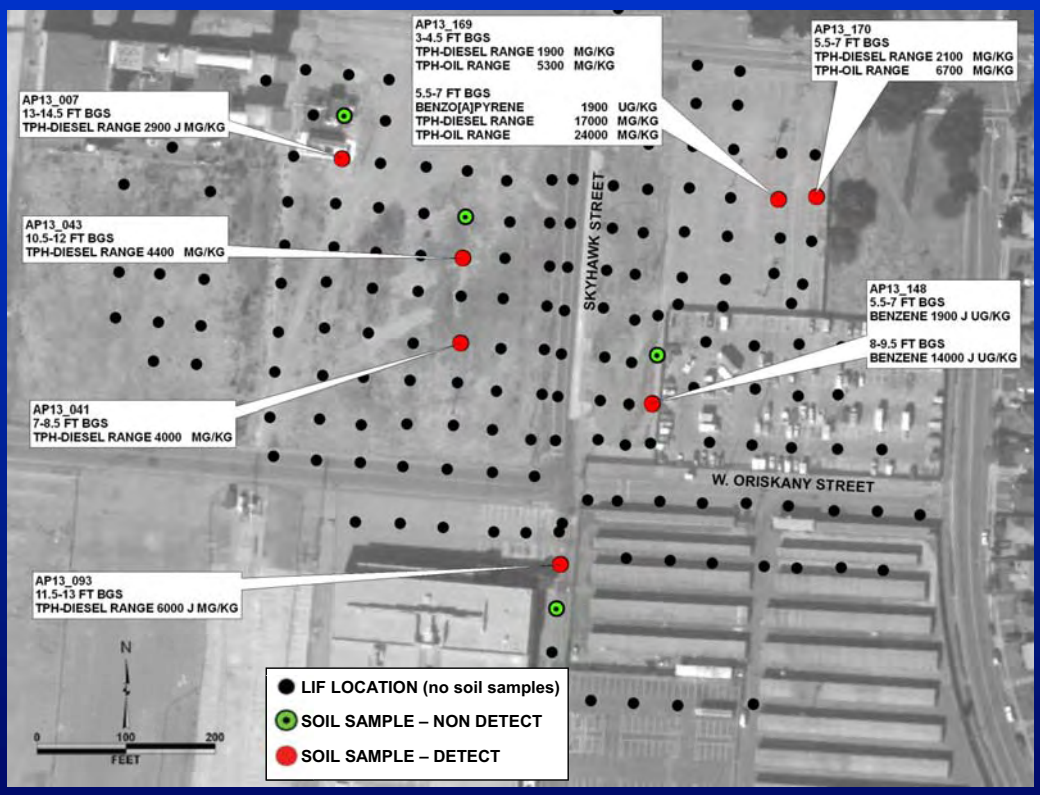
Soil Sample Locations



Analytical Program

- TPH extractables
- VOCs
- SVOC/PAHs
- Metals
- Alkalinity
- Nitrite/Nitrate/Sulfate
- pH
- Moisture and Density

Laboratory Results Above Residential Screening Criteria

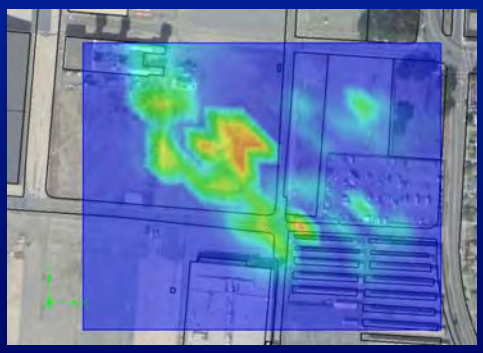


TRW Investigation Results

- 182 SCAPS LIF Push Locations to Delineate the Horizontal and Vertical Extent of Tarry Refinery Waste (TRW) in the Vicinity of the Former Oil Refinery (IR Site 13)
- LIF Data was used to Refine the Conceptual Site Model and Optimize the Upcoming Feasibility Study
- 16 Soil and/or TRW Matrix Samples were Collected for Laboratory Analysis to Evaluate LIF Data Effectiveness and Characterize the TRW

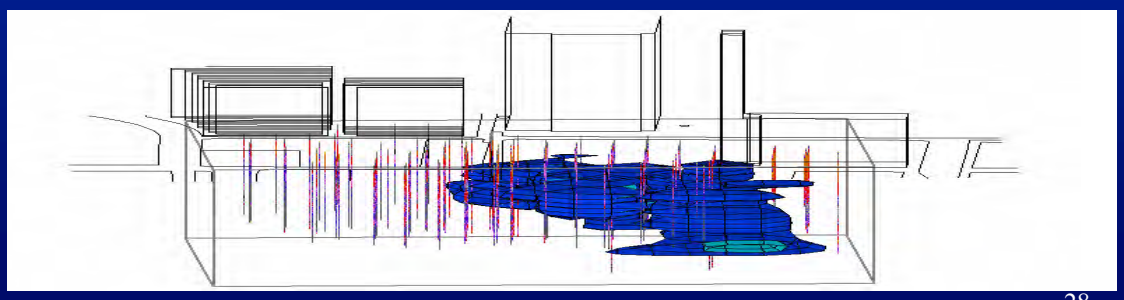
TRW Investigation Results (continued)

- 3-dimensional Visualization Software was used to Refine the Conceptual Site Model while the SCAPS was in the Field
- Separate areas of petroleum impacts
- The western area is inferred to represent the TRW
- The TRW contains less volatile fraction than eastern area

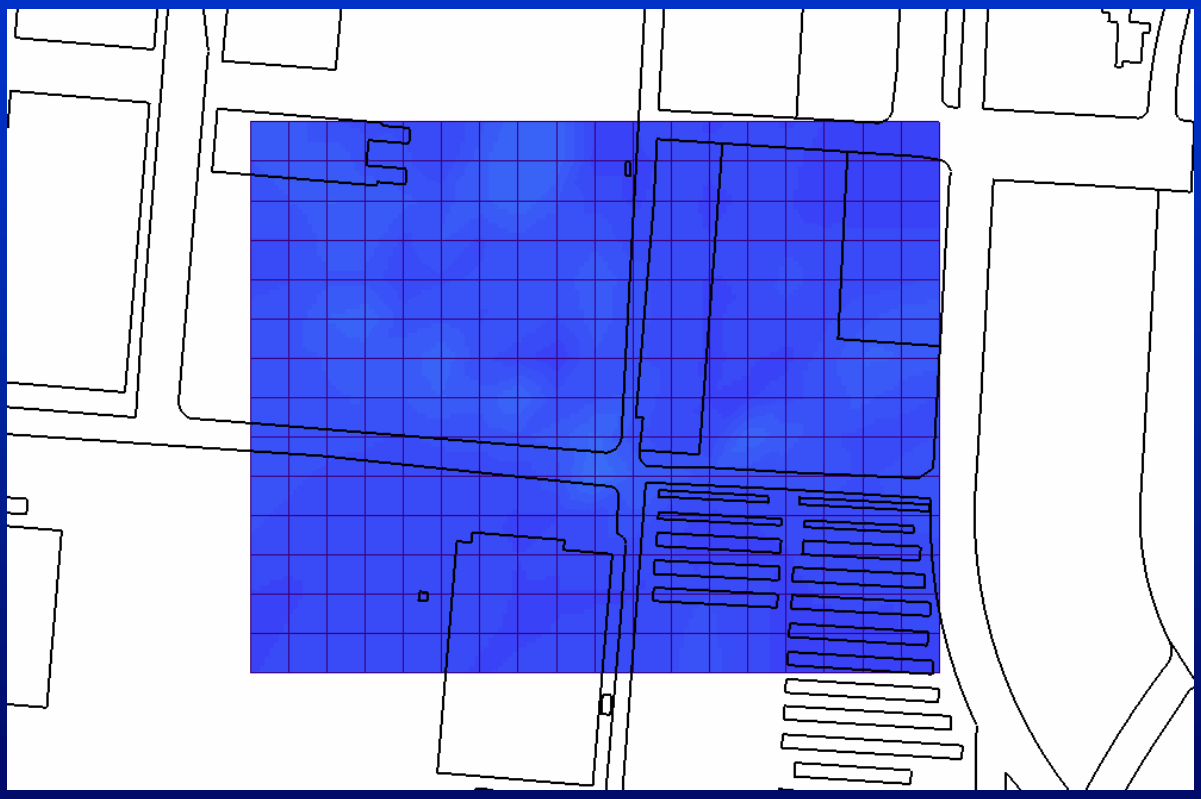


TRW Investigation Results (continued)

- The eastern area contains elevated benzene and does not represent TRW
- The eastern area is being investigated under separate concurrent contract
- An estimated 8,570 cubic yards of TRW exist at the site
- Low pH was not reported in soil or TRW samples



Questions?



ATTACHMENT B-3

Proposed Plans for IR Site 20 and IR Site 31 Presentation

(11 pages)

Proposed Plans for Installation Restoration Site 20 (Oakland Inner Harbor) and Site 31 (Marina Village Housing) Alameda Point

Restoration Advisory Board Meeting
March 06, 2008

Mary Parker
Navy Project Manager

Linda Henry, PhD
Brown and Caldwell

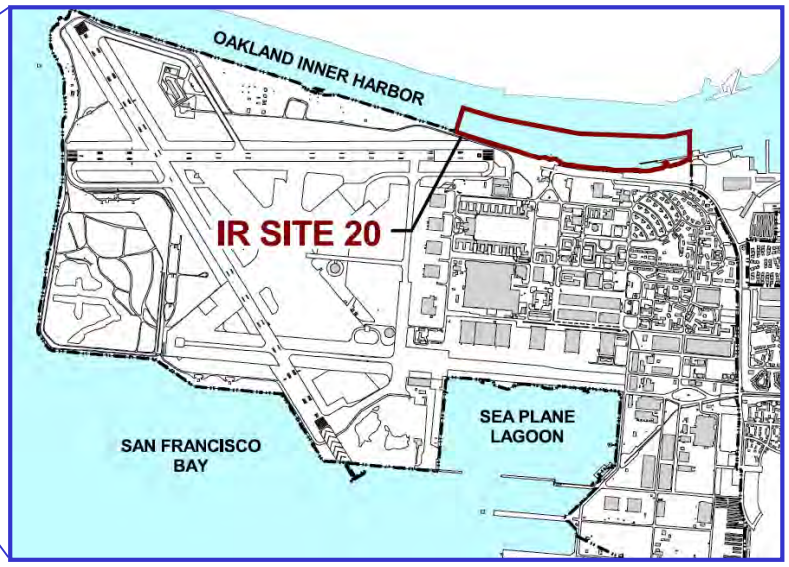
Topics

- Purpose
- Background Information
- Remedial Investigation (RI) Summary
- Human Health and Ecological Risk Assessments
- Proposed Remedy
- Community Involvement

Purpose

- Summarize investigations and risk assessments
- Present the Navy's recommendation
- Provide an opportunity for the public to provide input on the proposed remedy.
- Inform the public that the federal and state regulatory agencies are working with the Navy and agree with the proposed remedy.

Site 20 – Oakland Inner Harbor

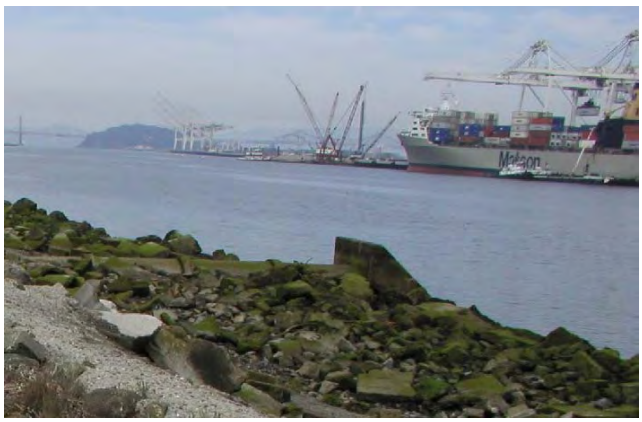


Background Information for Site 20

- Located along southern shore of Oakland Inner Harbor
- Approximately 4,000 feet of shoreline; 26 acres
- Oakland-Alameda Ferry docks within Site 20

Site 20 - Uses and History

- Current and future uses - major industrial waterway
- Limited recreational use
- Several phases of investigation from 1993 – 2005
- Four storm drain outfalls at site, all lines were cleaned out in 1997



Site 20
Remedial Investigation Summary

- Sediment analyzed for metals, pesticides, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs)
- Results were comparable to ecological screening benchmark values and ambient concentrations at reference locations throughout San Francisco Bay
- Human health and ecological risk assessments performed

Comparison of Site 20 Sediment to Ambient Conditions in S.F Bay

Chemical Name	Site 20 Average Concentration (ppm)	S.F. Bay Ambient Concentration (ppm)
Arsenic	5.9	15.3
Lead	40.1	43.2
4,4'-DDD	0.0057	None
4,4'-DDE	0.0025	None
4,4'-DDT	0.0213	None
Total PCBs	0.157	0.2

ppm = parts per million

Site 20
Human Health Risk Assessment

- *Definition of Risk: The likelihood or probability that a hazardous substance, when released to the environment, will cause adverse effects to exposed human or ecological receptors.*
- Human health risk pathways included:
  - dermal contact with sediment
  - ingestion of fish and shellfish
  - incidental ingestion of sediment
- No unacceptable human health risk at Site 20

Site 20
Ecological Risk Assessment

- Ecological risk assessment considered mammals, birds, fish and benthic invertebrates (worms, clams, etc.)
- Birds included least tern, surf scoter, double-crested cormorant
- No unacceptable ecological risk

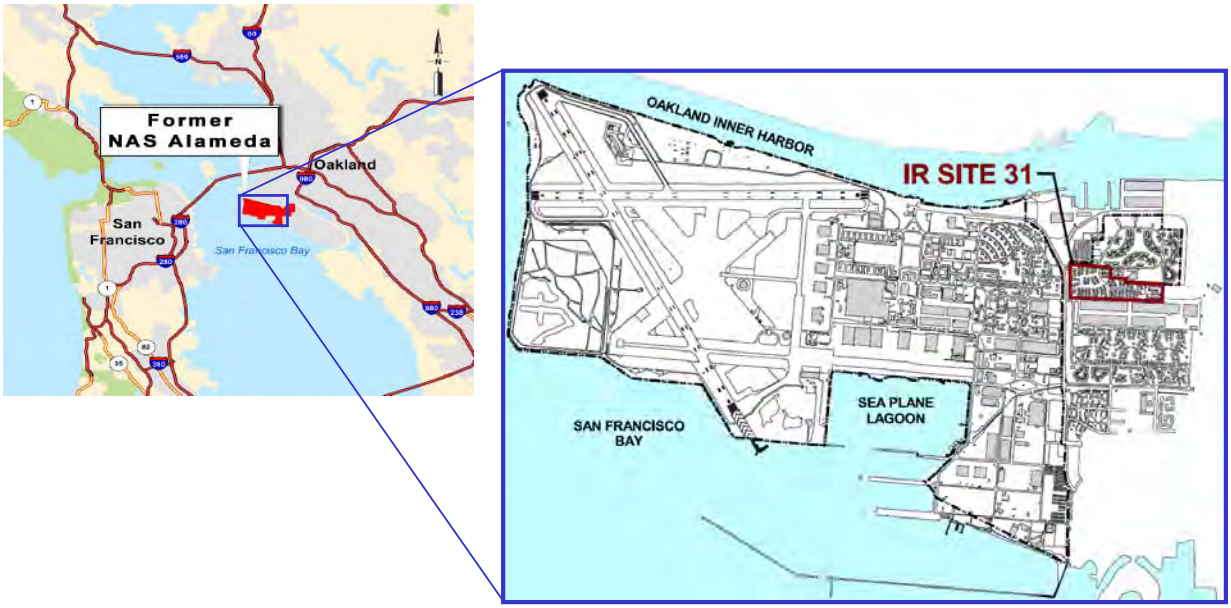
Site 20
Summary of Human Health and Ecological Risk Assessments

Risk Assessment Endpoint	Conclusion
Human Health Risk: Direct contact, shellfish ingestion, fish ingestion	No Unacceptable Risk: • Cancer risks either below 10^{-6} or comparable to ambient conditions • Noncancer HQs below 1 or comparable to ambient conditions
Ecological Risk: Benthic invertebrate community	No Unacceptable Risk: • Little or no toxicity observed in bioassays
Ecological Risk: Fish community	No Unacceptable Risk: • Fish tissue concentrations (modeled) did not exceed protective toxicity reference values
Ecological Risk: Avian community (Least Tern, Surf Scoter, Double-Crested Cormorant)	No Unacceptable Risk: • Low toxicity • Risks comparable to ambient conditions

Site 20 Sediment – Proposed Remedy

- Based on risk assessment results, No Further Action is warranted for Site 20
- Regulatory agencies concur with this recommendation
  - U.S. Environmental Protection Agency (EPA)
  - California Department of Toxic Substances Control
  - Regional Water Quality Control Board
- No land-use restrictions, environmental monitoring, or other cleanup actions are required

Site 31 Soil – Marina Village Housing



Site 31 Location Map

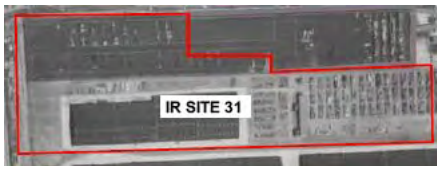
Background Information for Site 31

- 25-acre residential-use property
- Groundwater underlying site being cleaned up separately
- Site constructed of fill placed by 1927
- Marina Village Coast Guard Housing completed by 1993

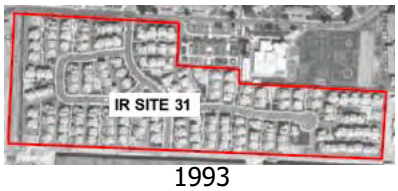
Site 31 – Past, Present and Future Uses

- Located in northwestern corner of former San Francisco Bay Airdrome property; airfield constructed in 1929 and closed in 1941
- Housing in northwestern portion of site by 1947
- Two warehouse buildings present on southwest portion of the site by 1953, and houses removed by 1959
- From 1959 through 1985, site used for warehousing and storage
- Site redeveloped to current residential between 1985 and 1993
- Present and future uses – medium density residential

1947



1959



1993

Site 31 Soil Investigation Summary

- Numerous investigations conducted at Site 31 between 1987 and 2005
- 126 soil samples collected during 2005 RI were analyzed for metals, volatile organic compounds, semivolatile organic compounds, pesticides, and polychlorinated biphenyls (PCBs)
- Total of over 775 soil samples collected at Site 31
- RI Report recommended no action for soil
- No evidence of a release related to Navy activities at the site

Human Health and Ecological Risk Assessments

- In-depth statistical analysis showed that arsenic, cadmium, chromium and vanadium were ambient
- Ambient metals not included in “incremental risk”
- No unacceptable risk to ecological or human receptors

Cancer Risk for Soil at Site 31

Exposure Scenario	Total Risk (including ambient metals)	Site Cancer Risk (Incremental)
Current Resident	6×10^{-5}	7×10^{-6}
Future Resident	6×10^{-5}	1×10^{-5}
Construction Worker	2×10^{-6}	1×10^{-6}

Site 31 Soil – Proposed Remedy

- Results of risk assessments show that site conditions are protective of human health and the environment
- Based on risk assessment results, No Action is warranted for soil at Site 31
- Regulatory agencies concur with this recommendation
  - U.S. EPA
  - California Department of Toxic Substances Control
  - Regional Water Quality Control Board
- No land-use restrictions, environmental monitoring, or other cleanup actions are required for soil at Site 31

Community Involvement

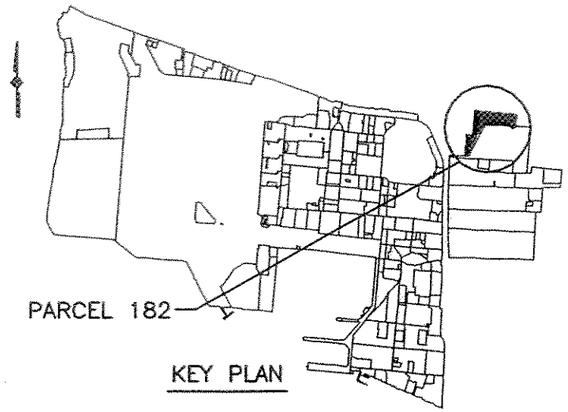
- Public Meeting – March 12, 2008
- End of Site 20 Comment Period – March 20, 2008
- End of Site 31 Comment Period – April 2, 2008
- Monthly RAB meetings first Thursday of each month
- Information Repository – Room 240 in this building

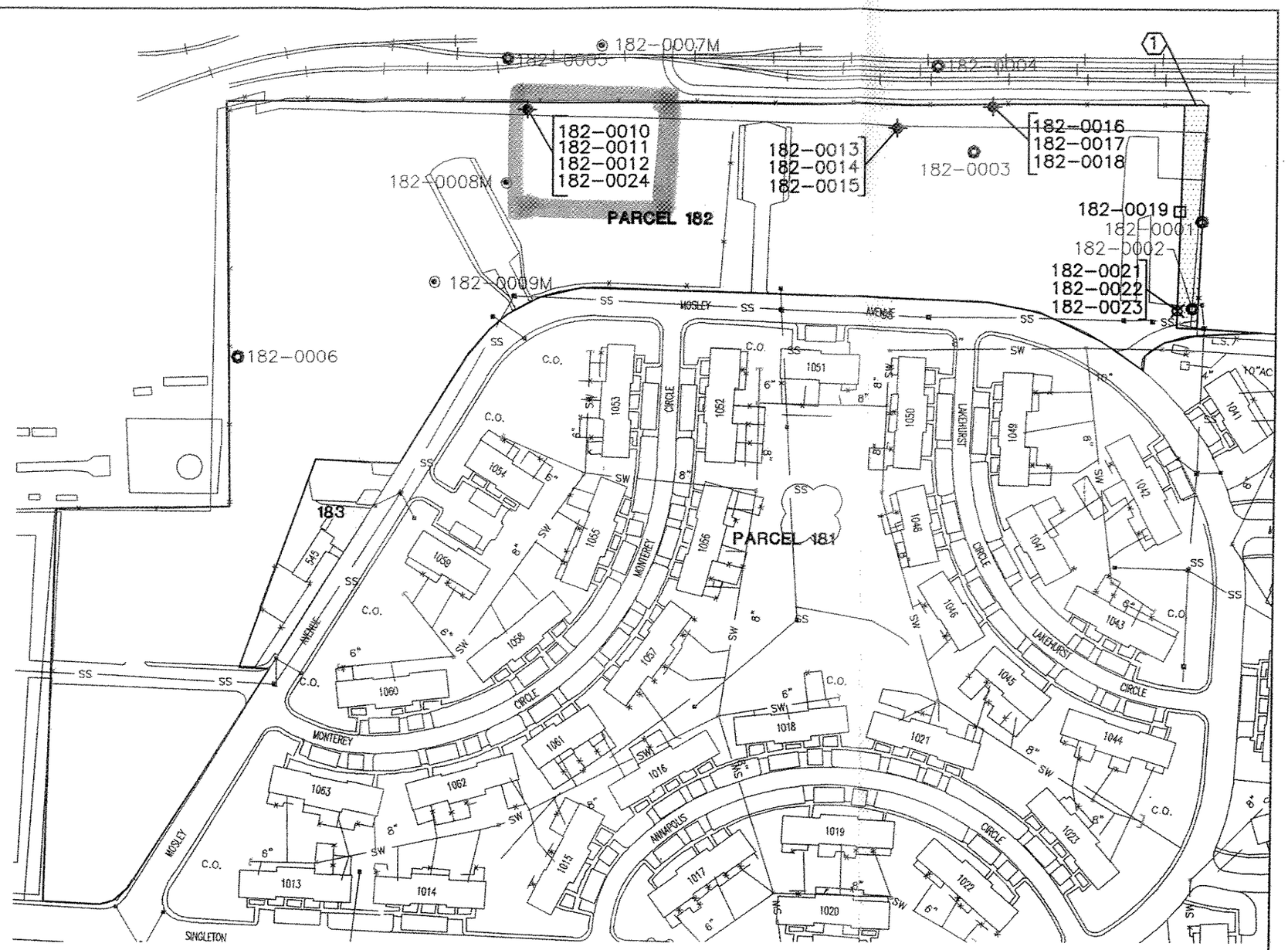
QUESTIONS

ATTACHMENT B-4

Soil Analytical Results for Pentachlorophenol at Parcel 182 Presentation

(9 pages)





GENERAL LEGEND

- PARCEL OUTLINE
- 000-0000(M) CONFIRMATION & SCREENING SAMPLE TAKEN
- 2B
  - HYDROPUNCH SAMPLING LOCATION
  - HYDROPUNCH AND SURFACE SAMPLING LOCATIONS
  - SURFACE AND SUBSURFACE SOIL AND HYDROPUNCH SAMPLING LOCATIONS
  - SURFACE SOIL SAMPLING LOCATION
  - SURFACE AND SUBSURFACE SOIL SAMPLING LOCATIONS
  - SUBSURFACE SOIL SAMPLING LOCATION
  - SUBSURFACE SOIL AND HYDROPUNCH SAMPLING LOCATIONS
- 2A
  - SUBSURFACE SOIL SAMPLE
  - SURFACE SOIL SAMPLE
  - SOIL GAS SAMPLE
- (1) PHASE 2A TARGET AREA
- FUEL LINES ABANDONED
- FUEL LINES IN USE
- (10) SANITARY SEWER MANHOLE NO.
- SW — SANITARY SEWER LINE
- INDUSTRIAL WASTE MANHOLE & NO.
- IW — INDUSTRIAL WASTE LINE
- 12A-1 STORM DRAIN MANHOLE & NO.
- CATCH BASIN
- SS — STORM SEWER LINE
- C.I. — CAST IRON
- RC — REINFORCED CONCRETE

1. ALL SANITARY SEWERS ARE VITRIFIED CLAY PIPE UNLESS NOTED OTHERWISE.

NOTE: PARCEL BOUNDARIES ARE APPROXIMATE.

SCALE
0 150 300 FEET

FIGURE 182-1

SAMPLE LOCATION MAP
PARCEL 182
EBS PHASE 2A AND 2B
PREPARED FOR
ALAMEDA POINT
ALAMEDA, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

REV	DATE	BY	CHKD	APPR	DESCRIPTION
2	5-12-00	BJ			PHASE 2A REV IV
1	12-10-98	TRS			PHASE 2, REV III

DRAWN BY: BJ 8-23-96
CHECKED BY / APPROVED BY
DRAWING NUMBER 762325-B379

A2B182SM(AN105) XREF: ZONE16(AN33)

TABLE 1

SOIL ANALYTICAL RESULTS FOR PENTACHLOROPHENOL, PARCEL 182[1]

Sample Number	Depth of Soil Sample (in feet bgs)	Validated Analytical Result (µg/kg)	Other Samples within Same Borehole [2]
Pentachlorophenol [3]			
182-0004 [4]	0.5 – 1.0	ND: 1100 U	No
182-005 [4]	0.5 – 1.0	ND: 940 U	No
182-0010	0.5 – 1.0	ND: 900 UJ	Yes: 10, 11, 24
182-0024	1.0 – 1.5	ND: 920 UJ	Yes: 10, 11, 24
182-0011	7.0 – 7.5	Rejected	Yes: 10, 11, 24
182-0013	0.5 – 1.0	ND: 9200 UJ	Yes: 13, 14, 15
182-0014	6.5 – 7.0	ND: 850 UJ	Yes: 13, 14, 15
182-0015	6.0 - 10	ND: 25 U	Yes: 13, 14, 15
182-0016	0.5 – 1.0	ND: 1000 UJ	Yes: 16, 17, 18
182-0017	6.5 – 7.0	ND: 1200 UJ	Yes: 16, 17, 18
182-0018	5.0 – 9.0	ND: 25 U	Yes: 16, 17, 18
182-0019	7.5 – 8.0	ND: 960 UJ	No
182-0021	7.5 – 8.0	ND: 1000 UJ	No

Notes:

[1] Data from Final Environmental Baseline Survey (IT, 2001); Parcel 182 is Estuary Park, within IR Site 25

[2] Sample numbers identified by last 2 digits of the sample number, for brevity; e.g. 182-0010 specified as 10

[3] Pentachlorophenol was not detected in any samples. For reference, the screening level U. S. EPA residential PRG for pentachlorophenol is 3,000 ug/kg.

[4] Sample located to the north of Site 25 boundary, on the Alameda Annex

Abbreviations and Acronyms:

bgs – Below ground surface
ND – Not detected
µg/kg – Micrograms per kilogram; equivalent to parts per billion
U – Not detected. The analyte was not detected above the quantitation limit.
UJ - Not detected. The analyte was not detected above the quantitation limit. However, the quantitation limit is approximate.

PENTACHLOROPHENOL USES

Pentachlorophenol is still used commercially for thermally or pressure treating wood products (poles, fences, docks, flooring, etc per below). Here is a link from the EPA website (as of April 2007) as to the uses of pentachlorophenol:
http://www.epa.gov/pesticides/factsheets/chemicals/pentachlorophenol.htm#2

Click on question #2 in the website that states:

2. "What is pentachlorophenol and what are its uses? Pentachlorophenol (PCP) was one of the most widely used biocides in the U.S. prior to regulatory actions to cancel and restrict certain non-wood preservative uses of pentachlorophenol in 1987. It now has no registered residential uses. Its commercial uses include: utility poles, fences, shingles, walkways, building components, piers, docks and porches, and flooring and laminated beams. Additionally, there are agricultural uses (which are sometimes referred to as "outdoor residential"), i.e., wood protection treatment to buildings/products, and fencerows/hedgerows. Prior to 1987, pentachlorophenol was registered for use as a herbicide, defoliant, mossicide, and as a disinfectant, but now all these uses are cancelled."

The Agency has received and granted requests from the registrants of pesticide products containing pentachlorophenol to terminate certain uses of their products. All non-pressure and non-thermal treatment uses (i.e., spray uses) will be deleted from the registrants' labels. Spray uses for these products were also deleted, effective December 31, 2004. This action leaves only pressure and thermal treatments of pentachlorophenol. The non-pressure/non-thermal treatments in general lead to higher applicator exposures than other uses. In other words, you are not allowed to spray pentachlorophenol, and only pressure and thermal (heat) treatment uses are allowed.

In Canada, pentachlorophenol is used primarily to treat wood poles, piles, bridge timbers, exterior laminated timbers, bridge decking, and fence posts.

FINAL

RECORD OF DECISION
SITE 25 SOIL

ALAMEDA POINT
ALAMEDA, CALIFORNIA

September 2007

Prepared for:

Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Prepared under:

Naval Facilities Engineering Command, Southwest
Contract Number N62473-06-D-2201
Contract Task Order No. 0011

RESPONSIVENESS SUMMARY FOR THE PROPOSED PLAN FOR SITE 25 SOIL DATED AUGUST 2006 ALAMEDA, CALIFORNIA

Number	Comment	Response
Comments from Patrick Lynch, Community Member, from Public Meeting Transcript, dated September 12, 2006		
1	I had two questions about specific soil samples that were collected from the Estuary Park portion of Site 25. One of them is labeled sample 182-4, and it was essentially the sample that led to further sampling and identified this as an IR site. It was collected outside the northern boundary that is shown on the figure in the proposed plan. And this sample, again, was taken over twelve years ago. And I'm just wondering what action has been taken by, either the Navy or one of the other regulatory agencies involved in this cleanup, to address that contamination in that area since it is not being addressed by this proposed plan. The other sample I have an issue with -- and I've raised it numerous times and I've never received a response, was sample 182-11. And this particular sample was originally reported in a draft report as containing a concentration of a -- I believe 200 parts per million of pentachlorophenol. Now, the final version of that environmental baseline survey says that a particular sample result for pentachlorophenol, in that one particular sample, 182-11, was rejected. Normally when a sample result is rejected, it is maintained in a data table; it is given a flag showing that it's rejected; and an explanation of what quality assurance or quality control criteria was not met is provided. In this case, the data was simply	Sample 182-0004 (collected in November 1994 at 0.5-1.0' bgs) was located just north of the Site 25 boundary, and PAH concentrations ranged from <0.1 to 3.5 mg/kg. Soil samples were collected in the vicinity of this sample during the PA/SI for FISCA. For comparison, nearby surface soil sample 10-S-0035 collected in 2000 at 0-0.5' bgs for the PA/SI had similar but lower PAH concentrations, which ranged from nondetect to <1.0 mg/kg. Since sample 182-0004 is located in FISCA, it is addressed by the *Draft Focused Feasibility Study of Remedial Action Alternatives, Base-wide PAH Soils, FISCA* dated May 2006. Regarding sample 182-0011, Section 2.0 Data Quality/Data Validation of the *Environmental Baseline Survey, Data Evaluation Summaries – Final, Volume IX*, dated January 2001 states "EBS Phase 2B analysis of pentachlorophenol in sample 182-0011 was rejected." Although the EBS analytical data were analyzed, reviewed, and validated pursuant to the project Quality Assurance Project Plan, no additional quality control/quality assurance information on the rationale for rejection of this one analyte was provided. However, a number of other samples were collected in the vicinity of sample 182-0011 during the EBS and analyzed for pentachlorophenol. Samples 182-0010 and 182-0024 were collected from the same boring as sample 182-0011 at depths of 0.5-1.0' bgs and 1.0-1.5' bgs, respectively. Pentachlorophenol was not detected in these samples. Review of the analytical results for all 14 soil samples collected in Parcel 182 (including samples

PARCEL EVALUATION DATA SUMMARY
PHASE 2B SAMPLING
ZONE 16: THE HOUSING ZONE
PARCEL 182
NAS ALAMEDA
ALAMEDA, CALIFORNIA

CONTRACT NO. N62474-93-D-2151
DELIVERY ORDER NO. 0034

Submitted to:

Engineering Field Activities, West
Naval Facilities Engineering Command
900 Commodore Drive, Building B208
San Bruno, California 94066-2402

Submitted by:

IT Corporation
4585 Pacheco Boulevard
Martinez, California 94553

December 1998

1.5 Field Variations from Sampling Plans

The groundwater conditions varied throughout Parcel 182. Modifications to the sampling plan were implemented in the field and based upon the availability of groundwater. Sample 182-0020 was not collected due to the lack of available groundwater at the target depth. The SVOC and TPH-EXT analytical parameters were not collected for samples 182-0012, 182-0022, and 182-0023 due to the low yields. The SVOC analytical parameter was not collected for sample 182-0018.

2.0 Data Quality/Data Validation

The fixed-base laboratory analytical data collected from this parcel are acceptable as reported except as noted below. The CLP analytical data was reviewed and validated in accordance with U.S. EPA Level III protocols.

All data have been collected, analyzed, checked, and prepared in accordance with IT's acceptance of the PRC modification to the Quality Assurance Project Plan (QAPjP). The QAPjP for the EBS PEP sampling and analysis has been adopted from the ongoing base wide Installation Restoration (IR) program. This QAPjP was originally written by Canonie Environmental (January 1990), and has generally been supplanted by Section 3 of a Work Plan Addendum (Addendum) prepared by PRC Environmental Management, Inc. (PRC) and Montgomery Watson (1993).

Phase 2B analysis for pentachlorophenol from the SVOC test panel in sample 182-0011 was rejected. No resampling is suggested for this compound because a remedial action for the elevated concentrations of SVOCs in this vicinity has been recommended.

3.0 Parcel Evaluation & Investigation Findings

This section presents a summary of field sampling and the resulting analytical data for Phase 2B EBS sampling in Parcel 182. A complete listing of samples and target analytes is presented in Table 182-1. A list of detected analytes is presented in Table 182-2. Appendix A contains an ITEMS database printout of validated analytical results from the fixed-base laboratory. Appendix B contains a list of data qualifiers and data validation codes used with this data. Figures 182-2 and 182-3 depict the Phase 2A and 2B analytical results for SVOC concentrations

ALAMEDA NAS, DO34
Zone 16 Laboratory Detected Parameters
Table 182-2
Phase 2B

Report Date: 12/24/98

Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Result	Unit of Measure	Qlfr	Detect Limit
182-0010	CLP SVOC	CLP SVOC	BENZO(A)ANTHRACENE	REG	TRG	230	UG/KG	J	370
			BENZO(A)PYRENE		TRG	280	UG/KG	J	370
			BENZO(B)FLUORANTHENE		TRG	280	UG/KG	J	370
			BENZO(G,H,I)PERYLENE		TRG	220	UG/KG	J	370
			BENZO(K)FLUORANTHENE		TRG	78	UG/KG	J	370
			CHRYSENE		TRG	230	UG/KG	J	370
			INDENO(1,2,3-CD)PYRENE		TRG	200	UG/KG	J	370
182-0011	CLP SVOC	CLP SVOC	ACENAPHTHENE	REG	TRG	4300	UG/KG	J	3800
			ACENAPHTHYLENE		TRG	15000	UG/KG	J	3800
			ANTHRACENE		TRG	29000	UG/KG	J	3800
			BENZO(A)ANTHRACENE		TRG	100000	UG/KG	D	3800
			BENZO(A)PYRENE		TRG	130000	UG/KG	D	3800
			BENZO(B)FLUORANTHENE		TRG	110000	UG/KG	D	3800
			BENZO(G,H,I)PERYLENE		TRG	79000	UG/KG	D	3800
			BENZO(K)FLUORANTHENE		TRG	21000	UG/KG	J	3800
			CARBAZOLE		TRG	1100	UG/KG	J	3800
			CHRYSENE		TRG	99000	UG/KG	D	3800
			DIBENZ(A,H)ANTHRACENE		TRG	8300	UG/KG	J	3800
			FLUORANTHENE		TRG	290000	UG/KG	D	3800
			FLUORENE		TRG	1200	UG/KG	J	3800
			INDENO(1,2,3-CD)PYRENE		TRG	77000	UG/KG	D	3800
			NAPHTHALENE		TRG	880	UG/KG	J	3800
			PHENANTHRENE		TRG	200000	UG/KG	D	3800
			PYRENE		TRG	360000	UG/KG	D	3800
182-0013	CLP SVOC	CLP SVOC	ACENAPHTHENE	REG	TRG	460	UG/KG	J	3800
			ACENAPHTHYLENE		TRG	2200	UG/KG	J	3800
			ANTHRACENE		TRG	2100	UG/KG	J	3800
			BENZO(A)ANTHRACENE		TRG	17000	UG/KG	J	3800
			BENZO(A)PYRENE		TRG	27000	UG/KG	J	3800
			BENZO(B)FLUORANTHENE		TRG	27000	UG/KG	J	3800
			BENZO(G,H,I)PERYLENE		TRG	20000	UG/KG	J	3800
			BENZO(K)FLUORANTHENE		TRG	6800	UG/KG	J	3800
			DIBENZ(A,H)ANTHRACENE		TRG	3300	UG/KG	J	3800
			FLUORANTHENE		TRG	53000	UG/KG	DJ	3800
			NAPHTHALENE		TRG	520	UG/KG	J	3800
			PHENANTHRENE		TRG	17000	UG/KG	J	3800
			PYRENE		TRG	65000	UG/KG	DJ	3800
182-0014	CLP SVOC	CLP SVOC	BENZO(A)ANTHRACENE	REG	TRG	55	UG/KG	J	350
			BENZO(A)PYRENE		TRG	170	UG/KG	J	350
			BENZO(B)FLUORANTHENE		TRG	140	UG/KG	J	350
			BENZO(G,H,I)PERYLENE		TRG	470	UG/KG	J	350
			BENZO(K)FLUORANTHENE		TRG	44	UG/KG	J	350
			CHRYSENE		TRG	54	UG/KG	J	350
			FLUORANTHENE		TRG	160	UG/KG	J	350
			INDENO(1,2,3-CD)PYRENE		TRG	140	UG/KG	J	350
			PYRENE		TRG	250	UG/KG	J	350
182-0015	CLP SVOC	CLP SVOC	ACENAPHTHENE	REG	TRG	1	UG/L	J	10
			FLUORANTHENE		TRG	7	UG/L	J	10
			NAPHTHALENE		TRG	1	UG/L	J	10
			PYRENE		TRG	16	UG/L		10

B: Value greater than instrument detect limit, but less than contract required quantitation limit.
E: Exceeded instrument calibration.
J: Estimated value.
Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

ALAMEDA NAS, DO34
Table 182 - 3
Analyte Detection Synopsis

Report Date: 12/24/98
Page: 6

Sample Number	Compound Name	CAS Number	Sample Matrix	Result	Unit of Measure	Detect Limit	Qlfr	Start Depth	End Depth	PRG	PRG Desc	PRG Units	Backgrd Area	Backgrd Conc	Backgrd Units	RBCA	RBCA DESC	RBCA Units
182-0004	NICKEL	7440-02-0	SOIL	65.80	MG/KG	1.9		.5	1.0	150.0000	nc	(MG/KG)	PINK	49.70	MG/KG	NA	NA	NA
182-0004	PHENANTHRENE	85-01-8		1,700.00	UG/KG	430.0		.5	1.0	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0013	PHENANTHRENE	85-01-8		17,000.00	UG/KG	3,800.0	J	.5	1.0	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0011	PHENANTHRENE	85-01-8		200,000.00	UG/KG	3,800.0	D	7.0	7.5	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0019	PHENANTHRENE	85-01-8		240.00	UG/KG	400.0	J	7.5	8.0	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0016	PHENANTHRENE	85-01-8		25,000.00	UG/KG	410.0	DJ	.5	1.0	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0002	POTASSIUM	7440-09-7		1,200.00	MG/KG	71.2	J	.1	.6	NA	NA	NA	PINK	1,523.00	MG/KG	NA	NA	NA
182-0005	POTASSIUM	7440-09-7		208.00	MG/KG	71.2	B	.5	1.0	NA	NA	NA	PINK	1,523.00	MG/KG	NA	NA	NA
182-0004	POTASSIUM	7440-09-7		2,660.00	MG/KG	71.2		.5	1.0	NA	NA	NA	PINK	1,523.00	MG/KG	NA	NA	NA
182-0001	POTASSIUM	7440-09-7		360.00	MG/KG	71.2	BJ	.8	1.2	NA	NA	NA	PINK	1,523.00	MG/KG	NA	NA	NA
182-0014	PYRENE	129-00-0		250.00	UG/KG	350.0	J	6.5	7.0	100.0000	sat	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0004	PYRENE	129-00-0		3,500.00	UG/KG	430.0	J	.5	1.0	100.0000	sat	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0011	PYRENE	129-00-0		360,000.00	UG/KG	3,800.0	D	7.0	7.5	100.0000	sat	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0019	PYRENE	129-00-0		460.00	UG/KG	400.0	J	7.5	8.0	100.0000	sat	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0016	PYRENE	129-00-0		54,000.00	UG/KG	410.0	DJ	.5	1.0	100.0000	sat	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0013	PYRENE	129-00-0		65,000.00	UG/KG	3,800.0	DJ	.5	1.0	100.0000	sat	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0002	SELENIUM	7782-49-2		.65	MG/KG	.6	B	.1	.6	383.4032	nc	(MG/KG)	PINK	NA	NA	NA	NA	NA
182-0001	SODIUM	7440-23-5		2,730.00	MG/KG	2.3		.8	1.2	NA	NA	NA	PINK	1,251.00	MG/KG	NA	NA	NA
182-0005	SODIUM	7440-23-5		3,850.00	MG/KG	2.3		.5	1.0	NA	NA	NA	PINK	1,251.00	MG/KG	NA	NA	NA
182-0004	SODIUM	7440-23-5		429.00	MG/KG	2.3	B	.5	1.0	NA	NA	NA	PINK	1,251.00	MG/KG	NA	NA	NA
182-0002	SODIUM	7440-23-5		435.00	MG/KG	2.3	B	.1	.6	NA	NA	NA	PINK	1,251.00	MG/KG	NA	NA	NA
182-0004	TPHC AS MOTOR OIL	IT-003		160.00	MG/KG	26.0	YJ	.5	1.0	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0002	TPHC AS MOTOR OIL	IT-003		370.00	MG/KG	110.0	YJ	.1	.6	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0001	TPHC AS MOTOR OIL	IT-003		60.00	MG/KG	22.0	YJ	.8	1.2	NA	NA	NA	PINK	NA	NA	NA	NA	NA
182-0001	VANADIUM	7440-62-2		27.80	MG/KG	1.4		.8	1.2	536.7644	nc	(MG/KG)	PINK	44.60	MG/KG	NA	NA	NA
182-0005	VANADIUM	7440-62-2		32.00	MG/KG	1.4		.5	1.0	536.7644	nc	(MG/KG)	PINK	44.60	MG/KG	NA	NA	NA
182-0002	VANADIUM	7440-62-2		36.30	MG/KG	1.4		.1	.6	536.7644	nc	(MG/KG)	PINK	44.60	MG/KG	NA	NA	NA
182-0004	VANADIUM	7440-62-2		54.40	MG/KG	1.4		.5	1.0	536.7644	nc	(MG/KG)	PINK	44.60	MG/KG	NA	NA	NA
182-0004	ZINC	7440-66-6		111.00	MG/KG	.8	EJ	.5	1.0	23,003.6725	nc	(MG/KG)	PINK	61.50	MG/KG	NA	NA	NA

ca: Chemical concentration based on a carcinogenic risk of 1E-06.
nc: Chemical concentration based on a non-carcinogenic hazard index of 1.0.
sat: Chemical concentration based on saturated conditions in the soil.

B: Value greater than instrument detect limit, but less than contract required quantitation limit.
E: Exceeded instrument calibration.
J: Estimated value.
Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

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ATTACHMENT B-5

Alameda Landing Development Draft RAP Presentation

(10 pages)

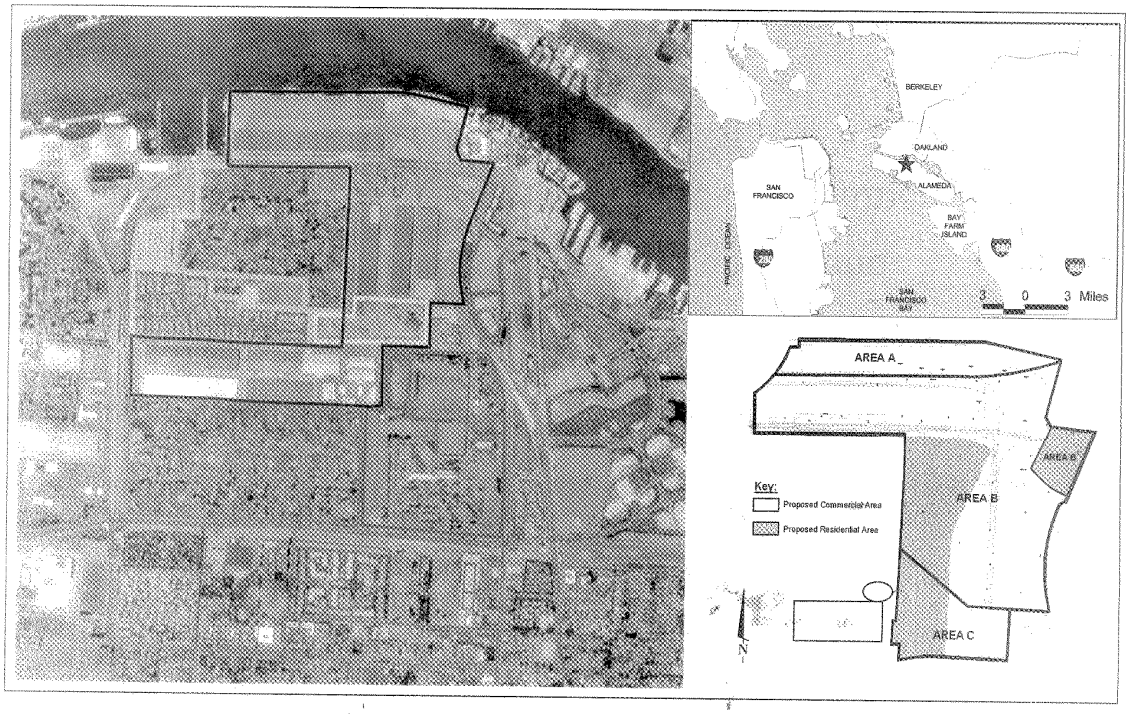
Public Meeting

Alameda Landing (former FISCA) Development

DRAFT Remedial Action Plan

February 26, 2008

FISCA and Surrounding Area



FISCA & Alameda Landing

- Former "Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex"
- City/Developer project now known as "Alameda Landing"
- Developer is Palmtree Acquisition Corp.

Recent FISCA History

- 1987 - Navy conducts Preliminary Assessment/Site Investigation under CERCLA *
- Eight Installation Restoration (IR) sites identified (seven within Alameda Landing)

*CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act (Superfund Act, 1980)

IR-01

- Former Warehouse area
  - Not within Alameda Landing
  - No action, residential use okay
  - IR-01 is now the northern part of Bayport Residential Area

IR-02

- Screening lot and scrap yard
  - PCBs*, lead, and cadmium identified as contaminants in soil
  - Remedial actions completed
  - Western 1/3 released for residential
  - Restricted from residential use in eastern 2/3

*PCBs: polychlorinated biphenyls

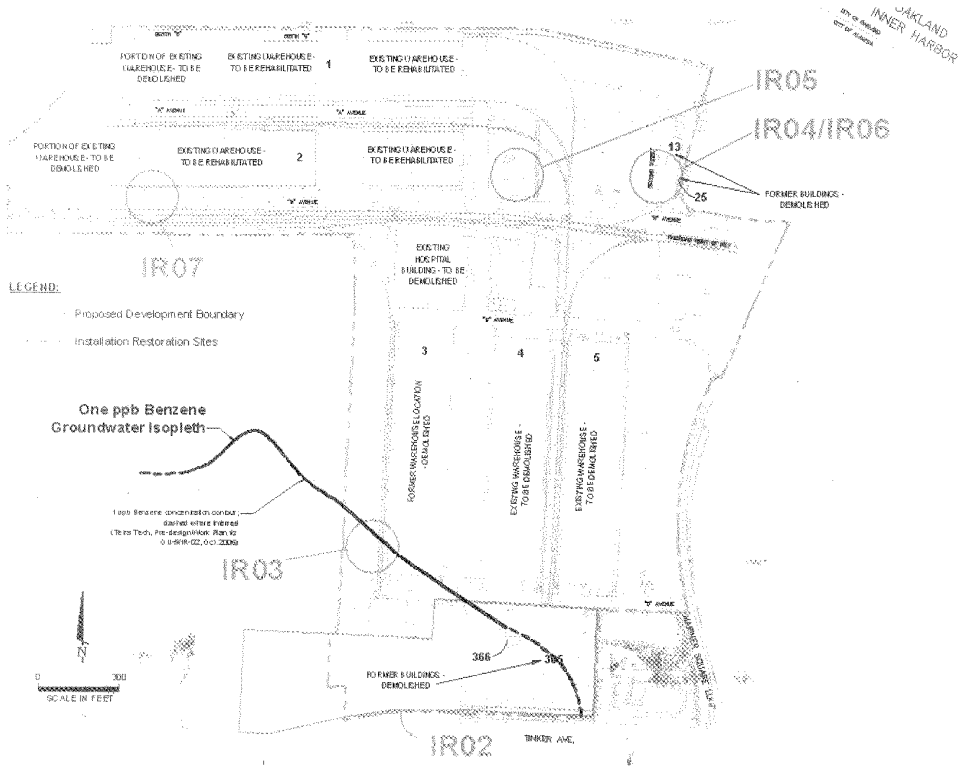
IR-03 and IR-04/IR-06

- IR-03 – Former Auto Maintenance Rack
  - no further action
- IR-04/IR-06 – Former Spray Paint Booth and Former Storage Area
  - Investigated petroleum hydrocarbons in groundwater
  - Limited groundwater remediation
  - Water Board closed IR-04/IR-06 in 2004

IR-05, IR-07, and IR-08

- IR-05 – Former underground storage tank and fuel dispensing system
  - Closed by Water Board in 2001
- IR-07 – Diesel Fuel Spill Area
  - Navy recommends no action
- IR-08 – Former Storm Drain System
  - Removal action in 1998
  - Navy recommends no further action

Benzene-Naphthalene Plume



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Resource Conservation and Recovery Act (RCRA)

- The boundary for RCRA permitted facility extends "fenceline to fenceline" (entire FISCA)
- All of FISCA subject to RCRA "corrective action" requirements
- Proposed RCRA boundary modification
- "Corrective Action Complete" determination

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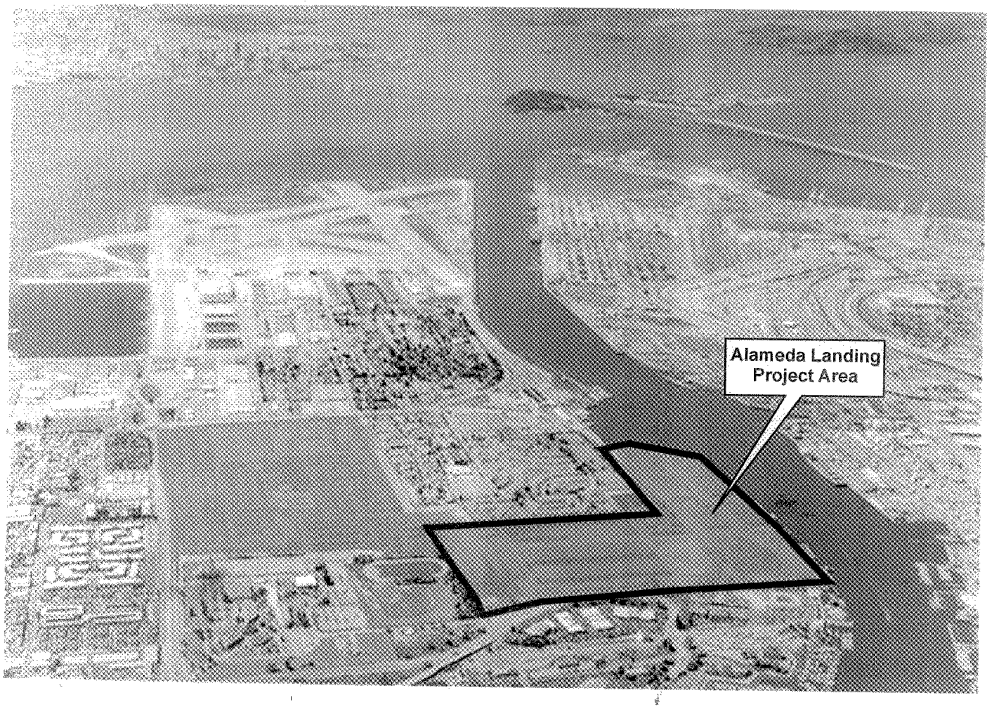
Site Status as of Fall 2006

- Navy targeted industrial/commercial re-use for Alameda Landing portion of FISCA
- City/Developer interested in residential/mixed use development
- Additional site characterization required for residential use

Site Location



Hydrogeology

- Depth to groundwater: 5 to 9 feet
- Flow direction: variable, but generally west-northwest towards Oakland Inner Harbor
- Deeper aquifer in Merritt Sand: separated from shallow groundwater in fill by the relatively impervious Bay Mud
- Groundwater is not a source of drinking water

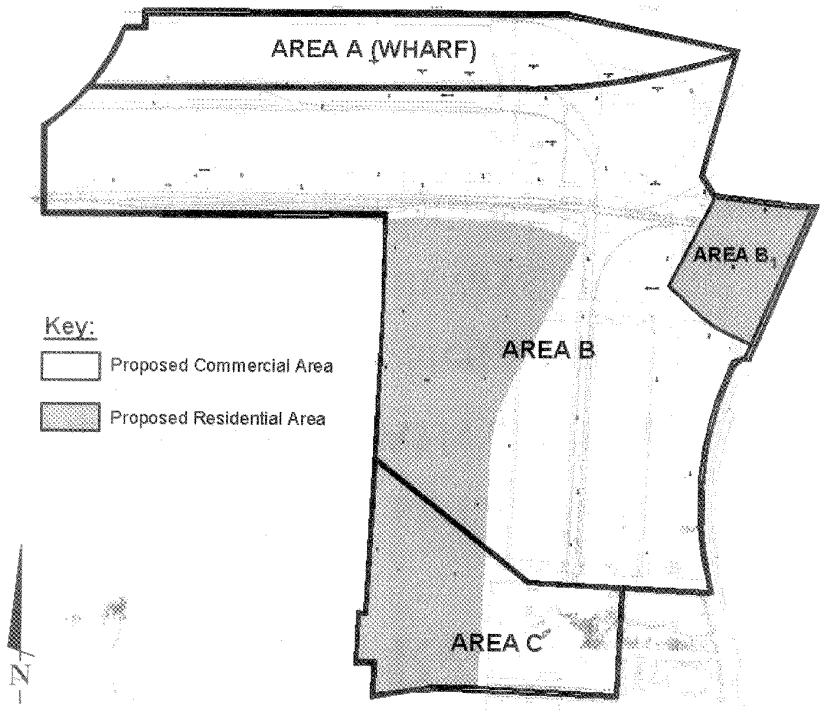
Environmental Data Assessment

- Divided the site into four subareas based on environmental conditions:
  - Area A (Wharf area) day-care and commercial
  - Area B residential and commercial
  - Area B_1 residential
  - Area C residential and commercial
- Conducted Human Health Risk Assessment
  - Differing exposure scenarios based on specific land use
  - Identified chemicals of concern (COCs) for each subarea

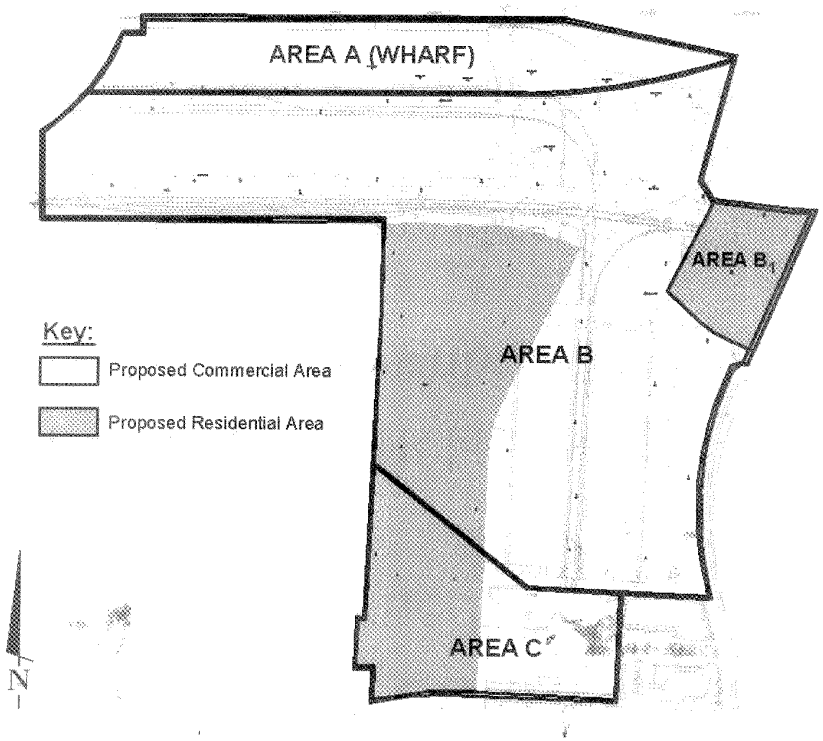
Health Risk Assessment

- Area A: Polycyclic aromatic hydrocarbons (PAHs) in fill soils beneath the elevated wharf structure
- Area B: PAHs in fill soils
- Area B_1: Limited extent of 1,3-butadiene in soil gas
- Area C: Primarily PAHs and polycyclic biphenyls (PCBs) in fill soils, but also nickel, lead, and pesticides
  - Area C evaluation only considers soil
  - Separate RAP will evaluate soil gas

Site Development Plan



Site Development Plan



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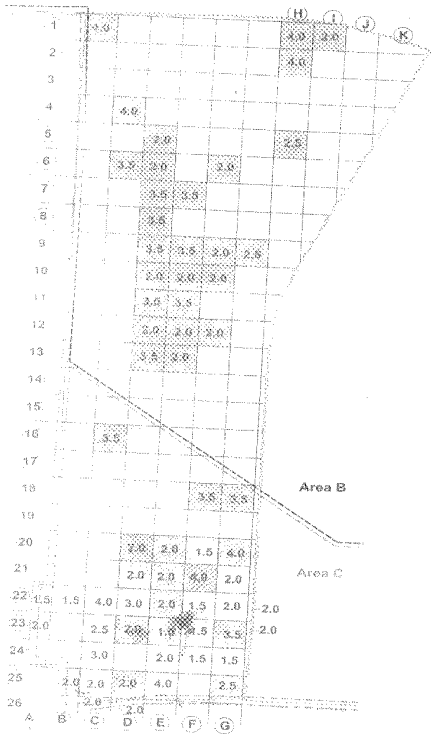
Areas B and C Residential Remedy



AREAS IDENTIFIED FOR SOIL MANAGEMENT:

2.0 Depth Requiring Soil Management (ft)

PAH only

PCB only

PAH and PCB

PAH and Nickel

PCB and Pesticides

PCB and Lead

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Area B_1 Residential Remedy

- COC is 1,3-butadiene in soil gas
- Preferred remedy to use vapor mitigation systems
- Land-use restrictions prohibiting soil disturbance below 4 feet
- Annual inspections and monitoring of vapor mitigation systems

Areas B and C Commercial Remedy

- Area B COCs are PAHs in soils
- Area C COCs are primarily PAHs and PCBs in soils
- Commercial use only
- Cover requirements
- Covered area inspections
- Additional assessment should buildings "move"