



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

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HUNTERS POINT
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May 12, 2000

Ms. Claire Trombadore, (SFD 8-2)
Ms. Sheryl Lauth, (SFD 8-2)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Mr. Chein Kao
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Mr. Brad Job
California Regional Quality Control Board, San Francisco Bay Region
1515 Clay Street, #1400
Oakland, CA 94612

Dear BCT members:

Enclosure (1) is provided for your files regarding the early transfer cost to complete meeting for Hunters Point Shipyard held on April 25, 2000.

Should you have any questions concerning this information, please contact me at (619) 532-0913.

Sincerely,

A handwritten signature in black ink, appearing to read "R. G. Mach Jr.", written over a horizontal line.

RICHARD G. MACH JR., P.E.
BRAC Environmental Coordinator
By direction of the Commander

✓ Enclosure: (1) Final Cost To Complete Technical Assumptions, Meeting Minutes, April 25, 2000

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Copy to:

Mr. Jesse Blout
1 Dr. Carlton B. Goodlett Place, Suite 448
San Francisco, CA 94102

Ms. Rona Sandler
Ms. Elaine Warren
1 Dr. Carlton B. Goodlett Place, Suite 234
San Francisco, CA 94102

Ms. Amy Brownell
1390 Market St., Suite 910
San Francisco, CA 94102

Mr. Don Bradshaw
1900 Powell St., 12th Floor
Emeryville, CA 94608-1811

Mr. Jason Brodersen
135 Main St. Suite 1800
San Francisco, CA 94105

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Blind copy to:

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06CH.DD

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Chron file

Writer: R. Mach, 06CH.RM, 2-0913

Typist: W.B. Constantin, 06CH.WC, 2-0947

**COST TO COMPLETE TECHNICAL ASSUMPTIONS
HUNTERS POINT SHIPYARD
MEETING MINUTES
April 25, 2000**

These meeting minutes summarize discussions regarding the cost to complete and associated technical assumptions for continued cleanup activities at Hunters Point Shipyard (HPS). The meeting was held on April 25, 2000, at the Tetra Tech EM Inc. (TtEMI) office in San Francisco, California. The meeting was attended by the Base Realignment and Closure (BRAC) Cleanup Team (BCT), including the Navy, the U.S. Environmental Protection Agency (EPA), the California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB). The meeting was also attended by the City of San Francisco (City), environmental consultants for the City, and an environmental consultant for the City's developer. A list of attendees is included at the end of these minutes. These minutes discuss the key points, decisions, and action items agreed to at the meeting.

An agenda was not distributed prior to the meeting. The following comments were made regarding meeting format and objectives:

- The Navy requested that the participants state their goals for the meeting so that a mutually agreeable agenda could be developed. The Navy stated that their goal was to hear more about the City's cost numbers and assumptions and begin discussions to reach common ground on one or several of the Parcels, starting with Parcel B.
- The City stated that they intended the discussion to focus on technical assumptions and inputs into their cost model. The City's probability analysis is a comprehensive model, integrating assumptions for Parcels B, C, and D, and therefore cannot be easily broken down by an individual parcel because the variables are interdependent. They are concerned with the technical assumptions, the cost of insurance, and the uncertainties associated with these sites. The City recommended that the focus of this meeting be on the assumptions underlying the costs, in order to best utilize the regulatory agencies' resources. The City also wanted to hear a presentation of the Navy's cost assumptions.
- EPA noted that its primary objective is to listen to both the Navy and the City presentations on their cost estimates to understand the assumptions that were used to develop the estimates and to understand the differences between the Navy and the City estimates. In addition, EPA expected the Navy to clarify the differences between the Navy's current estimate of \$105M (February 2000) and their previous cost-to-complete of \$271M (November 1998). All of the BCT agencies agreed that they wanted to hear the assumptions of the City and the Navy. They further clarified that they would want to take this information back for further analysis and that they would not make determinations at this meeting.

Following general introductions, the group mutually agreed to a general agenda, which consisted of the following items:

- Treadwell & Rollo presentation of City's probabilistic cost model
- Navy presentation of their February 2000 cost-to complete compared to their November 1998 cost-to-complete
- Discussion of the assumptions

- Set milestones for next meeting

TREADWELL & ROLLO PRESENTATION

Treadwell & Rollo presented an overview of their probabilistic cost model, which results in a total cost estimate for Parcels B, C, and D of \$250M. Discussion was centered on a slide presentation, which was distributed at the meeting along with a table summarizing their cost estimate assumptions. The general topics covered during the presentations included:

- Basis and rationale for using a probabilistic approach
- Description of the methodology
- Addressing soil data uncertainties
- Addressing the risk management review process
- Total remediation cost probability distribution results
- Sensitivity analysis results
- Underlying assumptions

Details of the presentation, which were included on the slides and in handouts, will not be repeated in these minutes. Several comments and questions were raised throughout the presentation. A summary of key comments and questions are presented below.

- In response to the Navy's request for further clarification regarding the assumptions and variability analysis associated with the soil multiplication factors (MF), Treadwell & Rollo presented a detailed breakdown of how the MFs were determined, based on the lessons learned from the Parcel B experience. The presentation showed specifically how the MFs for Parcels C and D were calculated, based on the original Navy volume estimates versus the as-built size of the unfinished Parcel B excavations. The City also noted that a complete package would be distributed identifying detailed assumptions and supporting information to help further answer the Navy's question. Additionally, the City suggested that a meeting be conducted to review the probabilistic model and input parameters to the model to identify how each factor contributes to the cost to complete. The BCT concurred that it will further discuss whether such a meeting is necessary following review of the complete Treadwell & Rollo package.
- The City expressed willingness to review, as part of follow-up meetings, the input parameters of the probabilistic model with members of the BCT. The City announced it would be distributing a detailed technical appendix to the BCT to further augment the information provided at this meeting. The BCT concurred they will further discuss whether such a meeting is necessary following review of the technical appendix.
- The City acknowledged that its proposed cost-to-complete lies at the conservative edge of the probabilistic model since it considers itself to be a risk adverse entity. This is because the City is not willing to put the General Fund at risk under any scenario in which it would take on responsibility for the cleanup of HPS. The City reiterated that it does not consider existing or residual risk to be its responsibility to address.
- The Navy asked if the cost-to-complete for groundwater included an evaluation of aggressive treatment technologies to limit costs and probability of long-term treatment. Treadwell & Rollo

responded that source control/removal was included in the Parcel costs and that in general 50-years of groundwater pump and treat with operation and maintenance was assumed. Additional details will be included in the Treadwell & Rollo package.

- EPA asked the City to clarify how the “come back clause” provided under Section 120(h)(3) of CERCLA was accounted for in the City’s estimate. If previously unknown contamination is found by the City in areas thought to be clean, then Section 120(h)(3) is triggered. What are the City’s intentions under such a scenario? Will the City stop work and ask the Federal government to return to the site and cleanup the contamination as required under Section 120(h)(3) or in the essence of time, will the City complete the work and therefore includes contingency funds in its cost estimate to cover such potential problems? The City responded that it would expect the Federal government/Navy to return and address any previously unknown contamination as required under Section 120(h)(3) and that the City’s cost estimate does not include costs to address this type of scenario.
- In regards to the preferred soil alternative assumptions, Treadwell & Rollo assumed excavation and off-site disposal represented a viable alternative for Parcels B, C, and D, based on the final ROD for Parcel B. EPA noted that because the revised feasibility Study (FS) documents have not been developed it is not in a position to pre-select a remedy. However, since the public comment period on Parcel B resulted in the Navy changing its preferred alternative and selecting excavation and offsite disposal for Parcel B contaminated soil, it is not unreasonable to develop cost estimates for other Parcels using this same alternative. The RQWQCB noted that for organic contaminants, it does not recommend excavation and off-site disposal as the preferred or most viable option.
- In regards to the contingency costs for groundwater monitoring, the Navy asked if the model could identify low- and high-range costs on a parcel-by-parcel basis. Treadwell & Rollo provided the following approximate groundwater remediation and monitoring cost values for each parcel:
 - Parcel B: \$5.5M to \$10M
 - Parcel C: \$12M to \$28M
 - Parcel D: \$2M to \$12M
- The Navy noted concern that the soil and groundwater remediation costs are not broken down on a parcel-by-parcel basis. Treadwell and Rollo responded that the assumptions, which include cost ranges and associated probabilities, can be analyzed on a parcel-by-parcel basis, but that the model integrates all assumptions and generates a total cost for Parcels B through D. To conduct a parcel-specific probabilistic analysis would require revisions to the model structure. The City noted that because the focus is initially on assumptions, the structure of the model in its current form facilitates this discussion. It was also noted that the cost-to-complete prepared by the Lennar/BVHP team is presented on a parcel-by-parcel level, consistent with the Navy’s estimates, but that the Lennar/BVHP estimates may not be available for public review. EPA ask if Lennar/BVHP would consider making the estimate available for BCT review, if they thought it would be helpful; Mr. Don Bradshaw will discuss the suggestion with the City and Lennar/BVHP.
- The City noted that it is not its intention to have the Navy over-pay for cleanup. If funds remain after the remediation of Parcels B, C, and D, under the City’s current proposal, and cost savings would be applied to the remediation of Parcels E and F.

- EPA requested that the City provide groundwater assumptions per remedial unit (RU). EPA also asked for a demonstration of how the Parcel B assumptions would change as the Parcel B fieldwork begins and better data is available regarding uncertainties.

NAVY PRESENTATION

The Navy presented an overview of its cost-to-complete estimate noting distinctions between the November 1998 cost-to-complete estimate of \$77M and the February 2000 early transfer estimate of \$31.25M for Parcels B, C, and D. The Navy provided a handout identifying technical assumptions for both cost estimates. Additionally, the Navy identified specific assumptions to help clarify differences between its estimates and the Treadwell & Rollo probabilistic model, including:

- All estimated costs address remedial activities to be conducted post record of decision (ROD); current investigation, feasibility study, proposed plan, and ROD costs have already been programmed within the current Navy budgets. The City requested the Navy provide these pre-ROD costs.
- Insurance costs are not included.
- The Navy's November 1998 estimate projected soil remediation costs of \$8M. To date, approximately \$20M has been spent on remediation of Parcel B soils.
- Costs for petroleum remediation in the November 1998 estimate are based on specific cleanup levels; cost for petroleum remediation in the February 2000 estimate are based on source removals and natural attenuation and 1999 sampling results showing reduced petroleum contamination levels.
- The November 1998 estimate included utility mitigation and relocation; the February 2000 estimate does not.
- The November 1998 estimate was based on the recommendations from the feasibility studies; the February 2000 estimate is based on more recent discussions/agreements during the risk management review process. The number of excavations the Navy assumed to remain are the conservative RMR outputs from BCT meetings and are less than the number assumed by Treadwell & Rollo.
- The November 1998 estimate was based on point-by-point exceedances of 1995 EPA preliminary remediation goals (PRG) for a 1×10^{-5} industrial exposure (with an assumed excavation depth of 5 feet bgs) for Parcels C and D and 1×10^{-6} residential exposure, allowing homegrown produce, for Parcel B (with an assumed excavation depth of 10 feet bgs). The February 2000 estimate is based on cumulative exposure risk of 1×10^{-6} for industrial exposure at Parcels C and D (with a 1×10^{-6} residential exposure for mixed use areas) using 1998 PRGs (with an assumed excavation depth of 10 feet bgs, for all areas), and exceedances of the 1999 PRGs for residential exposures (with home grown produce) for Parcel B.
- The February 2000 volume estimates are based on lessons learned from the Parcel B activities. Specifically, step out volumes for Parcels C and D will be considerably less (one 5-foot step out) for industrial cleanup levels.
- Groundwater costs for each estimate are essentially unchanged.

Several comments and questions were raised throughout the presentation. A summary of key comments and questions are presented below.

- The Navy suggested that a critical next step is to identify additional information needed by all parties to allow for a comparison of the probabilistic model, the Lennar/BVHP cost estimates, and the Navy cost-to-complete estimates.
- EPA requested that the Navy provide supporting information similar in detail to the handouts distributed by Treadwell & Rollo. The Navy stated that they do not currently have their data in this format and would provide this analysis in the future.
- The Navy clarified that the February 2000 estimate is based on industrial exposure scenario for Parcels C and D, but suggests negotiation of industrial vs. residential scenario and the depth of cleanup alternatives (5 and 10 feet) on a block-by-block basis, based on contaminant volumes, levels, risk, and the practicability of meeting the approved 1997 reuse plan. The Navy stated that its current estimates for cleanup to the reuse plan would potentially increase the cost estimate by approximately \$13M.
- The City asked the Navy to clarify its estimated costs (including portions already funded) for all activities conducted prior to the (CERCLA) RODs for Parcels B, C, and D, since this represents a potentially significant cost that the City would have to assume under an early transfer scenario.
- EPA requested that the Navy's estimate should, at a minimum, address agreements that have already been reached between the Navy and the BCT, including groundwater that meets the State and/or Federal criteria for a potential drinking water source, completion of the Parcel C Dry Dock 4 sediment removal under the remedial program, and mitigation/elimination of preferential pathways for contaminated groundwater along and through storm drains to San Francisco Bay. Similarly, the RWQCB maintains that CERCLA isn't the only driver and that Navy's estimate should account for activities under the Clean Water Act and the Resource Conservation and Recovery Act (RCRA). EPA clarified that these and other environmental laws are applicable or relevant and appropriate requirements (ARARs) under CERCLA for the Hunters Point Shipyard cleanup and must be treated as such. Further, the BCT parties are signatories to the Federal Facility Agreement (FFA) for the site, which requires that ARARs be addressed, and sets forth enforcement options (dispute resolution/stipulated penalties) in the event of disagreements or Navy non-compliance with FFA requirements. The Navy agreed that CERCLA funding is intended for remediation of past waste disposal actions. The RWQCB agreed.
- DTSC feels that there are too many loose ends regarding the details for a pre-ROD transfer and suggested review of additional details before they can comment further. They are also concerned as to how exploratory excavations that may not have met final remedial goals are being addressed in these estimates. These issues will be addressed in the RMR reports.
- EPA asked if the Navy has included contingency Navy costs. The Navy responded that a set percent contingency is not included. However, the Navy noted that the February 2000 estimate assumes excavation of contaminated soils to a maximum of 10 feet as well as one five foot step out around the perimeter of each excavation area, which the Navy views as contingencies.
- The regulatory agencies noted that in calculating its February 2000 cost to complete estimate, the Navy apparently disregarded a number of key assumptions that EPA understood the Navy had previously committed to address. EPA noted that certain key assumptions are not negotiable and should be considered in order to reach a reasonable cost to complete estimate. These include the Federal and State criteria for determination of a potential drinking water source, completion of

the Dry Dock 4 removal under the Parcel C remedial program, potential indoor air threats from VOCs including vinyl chloride, and elimination/mitigation of preferential pathways of contaminated groundwater along/through storm drains to San Francisco Bay. Further, EPA is also concerned that the Navy's estimate does not account for uncertainties or contingencies other than the possibility of one 5 foot step-out around the perimeter of any given excavation. EPA further stated that the BCT must agree to these and any other relevant assumptions, in order to move forward. EPA also noted that the BCT had already rejected use of cumulative risk to determine final cleanups when the Navy proposed it for the Parcel B and does not think it is appropriate to use it in determination of a cost to complete estimate. EPA recommended that the BCT and City meet to further discuss and come to agreement on the fundamental assumptions that must be considered in the development of a cost to complete estimate. EPA concluded that once the parties agree on the assumptions, it will be possible to move forward and complete the following steps:

1. Review each IR site and its contaminants and evaluate any concerns with site conditions and the potential inability to achieve a health protective remedy in accordance with the proposed reuse plan. The City noted that it is open to discussion and suggestions in specific instances where the costs of cleaning up to unrestricted residential in R&D areas are so inordinate as to make it impracticable.
 2. Resolution of how institutional controls will be implemented, monitored, and enforced at the site or at least how they are accounted for in the Navy and City cost to complete estimates.
- EPA noted it is concerned that the Navy's next submittal not simply include added details to support the existing assumptions. EPA requested that the key assumptions be discussed prior or at the next meeting. EPA reiterated that in order to move forward and develop a reasonable cost to complete estimate, the BCT must agree on the underlying fundamental assumptions. EPA also noted that it disagrees with some of the assumptions currently presented by the Navy.
 - The City suggested that the Navy participate with the City in presenting the site data and cost estimates to potential environmental insurance carriers in order to get a "market-based" perspective on what the risks associated with the cleanup are. The Navy said that it is not prepared to make this presentation at this time, but is open to further exploring this concept at a future date.

MILESTONES FOR UPCOMING EVENTS

The Navy proposed the following events to be conducted:

- May 2: Navy issue draft meeting minutes to all participants.
- May 5: All participants submit requests for additional information and clarifications as discussed at this meeting. Requests should be forwarded to the agency to provide the information and copied to all parties.
- May 9: Comments on draft meeting minutes due to Richard Mach.
- May 11: Submittal (from each party) of information as identified by May 5, 2000 to all parties.
- May 16: Navy will distribute final meeting minutes.
- May 18: BCT meeting to discuss submittals and next steps.

The attendees agreed to the schedule above.

ACTION ITEMS/REQUEST FOR ADDITIONAL INFORMATION

According to the schedule above, additional information may be requested of any party by May 5, 2000. Following is a summary of additional information already requested.

FROM THE NAVY:

1. Provide a detailed cost breakdown of the Navy's (CERCLA) pre-ROD budget.
2. Provide assumptions and supporting information/justification for sites in a similar manner to those presented by the City.
3. Provide clarification regarding specific items not included in the cost estimates (i.e. storm drain infiltration, Dry Dock 4, utilities, etc.).

Follow-up – The Navy made statements at the subject meeting regarding groundwater determinations of beneficial use. The Navy would like to provide the following clarification. During the upcoming groundwater investigation, the Navy will update and report the beneficial uses for groundwater based in the Federal criteria of 10,000 mg/L total dissolved solids and 150 gallon per day yield.

FROM THE CITY:

1. Provide the Lennar/BVHP cost estimate with detailed assumptions consistent with the City's probabilistic cost model. The Navy and BCT requested the City's environmental consultant ask Lennar/BVPH to provide this estimate.
2. Provide the detailed assumptions of the City's cost model including assumptions, cost ranges, unit cost, costs per Parcel, costs per media (i.e. groundwater, soil, insurance, etc.).

LIST OF ATTENDEES

Organization	Name	Phone Number	E-Mail Address
Navy	Richard Mach	619.532.0913	MachRG@efdswnavfac.navy.mil
	Andy Piszkin	619.532.0948	PiszkinFA@efdswnavfac.navy.mil
	Dave DeMars	619.532.0912	DeMarsDB@efdswnavfac.navy.mil
	Marie Avery	619.532.0949	AveryMA@efdswnavfac.navy.mil
U.S. EPA	Sheryl Lauth	415.744.2387	Lauth.sheryl@epa.gov
	Claire Trombadore	415.744.2409	Trombadore.Claire@epa.gov
DTSC	Chein Kao	510.540.3822	ckao@dtsc.ca.gov
RWQCB	Brad Job	510.622.2400	lbj@rb2.swrcb.ca.gov
City of SF	Amy Brownell	415.252.3967	amy_brownell@dph.sf.ca.us
	Jesse Blout	415.554.6477	jesse_blout@ci.sf.ca.us
	Rona Sandler	415.554.4690	Rona_sandler@ci.sf.ca.us
	Elaine Warren	415.554.4614	Elaine_warren@ci.sf.ca.us
Lennar/BVHP	Don Bradshaw	510.652.4500	don.bradshaw@lfr.com
Treadwell&Rollo	Dorinda Shipman	415.955.9040	dshipman@treadwellrollo.com
	Sigrida Reinis	415.955.9040	sreinis@treadwellrollo.com
	Philip Smith	415.955.9040	pgsmith@treadwellrollo.com
Tetra Tech EM Inc. <i>CLEAN contractor</i>	Jason Brodersen	415.222.8225	broderj@ttemi.com
	Doug Bielskis	415.222.8242	bielskd@ttemi.com