FINAL
NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD
MEETING SUMMARY

www.navybracpmo.org
Building 1, Suite 140, Community Conference Center
Alameda Point
Alameda, California

March 2, 2006

The following participants attended the meeting:

Co-Chairs:	
Thomas Macchiarella	Base Realignment and Closure (BRAC) Program Management Office (PMO) West, BRAC Environmental Coordinator (BEC), Navy Co-chair
George Humphreys	Restoration Advisory Board (RAB) Community Co-chair
Attendees:	
Doug Biggs	Alameda Point Collaborative (APC) Representative
Neil Coe	RAB
Anna-Marie Cook	U.S. Environmental Protection Agency (EPA)
Tommie Jean Damrel	Tetra Tech EM Inc. (Tetra Tech)
Douglas DeHaan	RAB
Robert De Luca	RAB Alternate for Ardella Dailey
Tony Dover	RAB
Carolyn Geisler	Tetra Tech
Jamie Hamm	Sullivan International Group (Sullivan)
Linda Henry	Brown and Caldwell
Lisa Houlihan	U.S. Coast Guard (USCG)
Judy Huang	Regional Water Quality Control Board (Water Board)
Craig Hunter	Tetra Tech
Elizabeth Johnson	City of Alameda
John Kaiser	Water Board
Joan Konrad	RAB
James D. Leach	RAB
Dot Lofstrom	Department of Toxic Substances Control (DTSC)
Darlene McCray	CDM

John McGuire	Shaw Environmental and Infrastructure Inc. (Shaw)
Karnig Ohannessian	BRAC Environmental Program Coordinator
Christy Smith	U.S. Fish and Wildlife Service (USFWS)
Dale Smith	RAB/Sierra Club/Audubon Society
Jim Sweeney	RAB
Robert Terbeg	CDM
Michael John Torrey	RAB/Housing Authority of the City

The meeting agenda is provided in Attachment A.

MEETING SUMMARY

I. Approval of Minutes

Mr. Humphreys called the meeting to order at 6:30 p.m.

Mr. Humphreys asked for comments on the minutes from the RAB meeting held on February 2, 2006. Ms. Smith and Mr. Humphreys provided the following comments:

Ms. Smith's comments

- Page 4 of 9, first full paragraph, last sentence, the word "type" will be deleted.
- Page 4 of 9, second paragraph, last sentence, a comma will be added after the word "constituent."
- Page 4 of 9, fourth paragraph, fourth sentence, Ms. Smith asked that Travis Williamson (Bechtel) be contacted to clarify this sentence. After consulting with Mr. Williamson, the last three sentences of the paragraph should be rewritten as follows: "However, clam survival was below the threshold criteria in both control samples and clam and worm survival was at 0 percent for one sediment sampling location in the South Pond (SED16). The reason for the low clam control survival is not known. The sediment sample from SED16 had the highest initial porewater salinity of any sediment sample that was evaluated during the testing. While porewater salinity adjustments were made prior to the testing, it is hypothesized that the high level of porewater salinity in SED16 affected clam and worm survival for the sample."
- Page 5 of 9, first paragraph, third full sentence; "able to be" will be deleted from the sentence and the sentence will read, "One fish was observed near the culvert but could not be caught for analysis."
- Page 8 of 9, first paragraph, sentences seven and eight will be revised to read, "Of those 3 million points identified during the survey, roughly 900,000 of the anomalies were some form of radium-226. Approximately 200,000 of these anomalies were radium-226 at levels above background concentrations."
- Page 8 of 9, second paragraph, first sentence, "he" will be changed to "she."

Mr. Humphreys' comments

- Page 6 of 9, Section IV, second paragraph, second sentence, "(in Area 1B)" will be added after "disposal pit."

- Page 7 of 9, first paragraph, second sentence, the word "also" will be added after the word "would" in the sentence.
- Page 7 of 9, second paragraph, last sentence will be revised to include an "is" after the word "survey."
- Page 7 of 9, third paragraph, third sentence, the word "principle" will be changed to "principal."

The minutes were approved as amended.

II. Co-Chair Announcements

Mr. Humphreys distributed a list of reports and correspondence received by the RAB during February 2006 (Attachment B-1). Mr. Humphreys noted that he was contacted by a professor from St. Mary's College, whose students would like to interview members of the RAB. He did not have specific information on how the interviews would take place, but a set of questions would be forwarded in advance. Mr. Humphreys noted that some RAB members had already indicated that they would be willing to be interviewed but wanted to know if more members would volunteer. He distributed a sign-in sheet that he will use to update the contact information for RAB members.

Mr. Macchiarella noted that several public meetings on proposed plans (PP) are scheduled during March. The Site 17 PP was held on March 1, 2006, and the public meeting for the Operable Unit (OU)-5 groundwater PP will be held on March 15, 2006. The OU-5 PP will be sent out to the public by about March 10, 2006. In April, there will be public meetings for OU-1 and Sites 14 and 28. Sites 14 and 28 will be presented together during one public meeting. Additionally, the new Alameda Point newsletter has been sent out and will be posted in the local newspaper. Mr. Macchiarella also mentioned that he would provide Mr. Humphreys with information on the technical assistance for public participation (TAPP) grant that Mr. Humphreys requested during the February RAB meeting.

III. CERCLA Risk Assessment Overview Presentation

Dr. Linda Henry presented an overview of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) risk assessment process. Dr. Henry, who has been working at Alameda Point for 5 years, encouraged the RAB to call her if questions remained after the presentation. The presentation is included as Attachment B-2.

Dr. Henry said that a health risk assessment is one tool used at each Installation Restoration (IR) site when making decisions on whether contact with chemicals in soil or groundwater should be reduced to protect the long-term health of residents or workers. The presentation explains health risk and does not focus on a specific area of Alameda Point.

A health risk assessment estimates the likelihood that exposure to chemicals will result in an adverse health effect over a lifetime; however, the results of health risk assessments do not predict actual health effects. Risk assessments describe hypothetical cancer risks and not real-world health effects. She described the differences between actual and hypothetical risks at Alameda Point.

Risk assessments are designed to protect people who live and work at Alameda Point over a long period such as 30 years. The risk assessments conducted so far at Alameda Point have not found evidence that residents have been exposed currently or in the past to conditions that require immediate action to protect their health. Most residents of Alameda Point want to know if they are safe from chemicals found on the

base, and she believes that they are. Nothing so far has raised an immediate concern about public health at the base.

Risk is not based on actual health effects because there are not enough studies to show any actual health effects at low levels to support risk assessment, so another method of evaluation was needed. EPA developed a method that calculates a hypothetical risk based on the current state of science

The EPA Risk Assessment Guidance for Superfund (RAGS) Human Health Evaluation Manual is the basic guidance used throughout the United States to make decisions on cleanup goals for sites. States make some changes but the approach is the same overall. The State of California has developed its own toxicity values but uses the same calculations as other states.

The risk method involves multiplying the data — which includes the concentrations of chemicals in soil, air, or water —by the exposure. The exposure is the amount of a chemical people might take in (dose) multiplied by the toxicity value. The toxicity value is the relationship between the dose and the health effects. This equation then yields a risk value, which is the potential for an increased incidence of cancer or noncancer health effects.

Risk for each chemical is calculated for each route people could come into contact with chemicals (exposure pathways). The exposure pathway for soil includes: ingestion, inhalation of vapors and dust, contact with skin, and ingestion of homegrown produce. The exposure pathway for groundwater includes vapors in indoor air and drinking groundwater.

The assessment also considers reasonable maximum exposure limits for cancer risk. Noncancer risk typically uses only a child as the receptor. For residents, exposure is assumed to occur 350 days a year, 24 hours a day for 30 years. A child of 0 to 6 years of age is added to exposure as an adult for 24 years to equal a total of 30 years. A commercial/industrial worker is exposed as an adult for 25 years. The assessment assumes that the concentrations of the chemical in soil, air, or water remain constant for the entire period. Use of these assumptions in the risk assessment generally results in higher estimates of risks to human health than the use of actual conditions. Mr. Leach asked about impacts to fetal development. Dr. Henry responded that this noncancer risk is estimated in the noncancer assessment.

In estimating a noncancer risk, a safe level of exposure is estimated from noncancer effects on laboratory animals. If exposure is likely to be below this level, then it is unlikely that there will be adverse health effects over a lifetime. A hazard index (HI) equal to or less than 1 is an acceptable level of risk for the chemical in that case. However, exposure to lead is not based on this model; instead a separate model has been developed for lead and is based on actual studies on children. High levels of lead in children can cause neurological impairment.

Carcinogenic risk is expressed as the probability of an increased incidence of cancer. For the majority of chemicals, the cancer toxicity is estimated based on frequency of tumors in laboratory animals exposed to very high doses. Toxicity for a few chemicals is based on high doses to people. EPA's protocol is protective to people; if a chemical causes cancer in an animal then it is assumed to cause cancer in humans.

Slide 12 of the presentation is a table illustrating the method EPA uses to estimate cancer toxicity. The x-axis is labeled with the exposure in milligrams of chemical per kilogram of body weight per day. The graph is set on a logarithmic scale, which increases by orders of magnitude. The y-axis is labeled with the frequency of occurrence. Once a certain dose of a chemical is proven to cause cancer in laboratory animals, EPA sets the limit for the chemical below the dose to be more conservative.

The probability that any person will contract some form of cancer during a lifetime is 30 percent (0.30) or about 1 in 3 people. Therefore, if the cancer risk for a hypothetical IR site is 0.00001 (or written another way, 10^{-5}), then the total probability of contracting a cancer increases to 0.30001 for and individual who is exposed at the site for 30 years. This calculation results from using 0.30 as the baseline and adding to it the 0.00001 probability of risk from living on the hypothetical IR Site.

Dr. Henry also believes that this approach is sufficiently protective. EPA designed the method to assure that any toxicity or exposure will not be underestimated. The EPA guidance states that any actual risk will be lower than was calculated and could be zero. In addition, the EPA regulations specify a risk management range of 0.0001 (10^{-4}) to 0.000001 (10^{-6}); the preferred starting point for cleanup goals is 10^{-6}. According to the EPA guidance, "Our risk estimates are designed to ensure that risks are not underestimated….In past guidelines, we have explicitly stated that the true cancer potency could be as low as zero. (*U.S. EPA, Examination of EPA Risk Assessment Principles and Practices 2004*)." Dr. Henry encouraged the RAB to read this document, which answers many common questions.

Preliminary remediation goals (PRGs) are concentrations for individual chemicals in soil, water, or air that are used in a quick evaluation of likely concerns before a full risk assessment is undertaken. PRGs are based on reasonable maximum values; therefore, the use of PRGs tends to result in overestimates of actual risks at most sites. A PRG is a slightly different application of the same risk assessment tools. However, PRGs do not describe the risk in detail and are generally used as a screening tool.

The cancer risk for some background levels of arsenic in soil in California is above acceptable levels from EPA and California EPA (DTSC). Still, there is no evidence from health studies that background levels of arsenic in soil result in any adverse health effects, although this evidence does not consider arsenic in groundwater. Mr. Humphreys noted that in Bangladesh, high levels of arsenic in alluvial soil resulting in high levels of arsenic in groundwater have caused many cancer deaths. Therefore, cleanup levels are set at naturally occurring levels of arsenic because cleanup to below background is not possible.

Other considerations in a risk assessment include whether the site has been adequately characterized, whether all areas of the site that could be affected by chemicals have been sampled, whether the high risk is restricted to a single sample or the chemical is widespread, and other factors based on professional judgment. The numbers in a risk assessment are only as good as the data used in the assessment. If the result for one sample is driving the risk, then it is not reasonable to assume that the risks are site wide.

In summary, health risk assessments are one tool to make decisions on whether cleanup is needed and how to set cleanup goals at IR sites. Risk assessment results do not predict actual health effects or cases of cancer and include multiple layers of protectiveness so that public health is protected.

Mr. Humphreys asked how actual information on health effects such as cancer clusters was considered in the risk assessment. Dr. Henry said that cancer clusters were evaluated with different tools such as epidemiological studies. Dr. Henry said risk assessment was not an appropriate tool to evaluate cancer "clusters." Dr. Henry said that studies show that the incidence of cancer can be linked to genetics, diet, and smoking and correlation to environmental levels of exposure is much lower and largely due to air pollution.

Mr. Humphreys noted that the cancer risk potential for every chemical may not be well understood. Dr. Henry responded that there is uncertainty which is why risk assessment is designed to be overly protective of human health. Mr. Humphreys said he knew of an accident is Seveso, Italy, where the release of dioxin like herbicide killed nearly every dog without apparent effects on humans. He asked if the opposite could occur, where animals are not affected but humans could be sensitive to certain chemicals. Dr. Henry responded that there is always uncertainty about the differences about human and

animal physiology which is considered in the development of risk assessment information. Also, new studies are evaluated and incorporated into risk assessment continuously.

Mr. Dover asked where disagreements or differences would arise when two risk assessors are arriving at different values for the same site. Ms. Henry responded that most of the disagreement is in the data used in the assessment and not in the calculations. Mr. Leach is worried about the effects of trace amounts of chemicals triggering sex changes in fetuses at about 6 weeks after conception. Mr. Leach also noted that a book called *Our Stolen Future*, presented three independent researchers who found that too much estrogen in a women's body can change the sex of a baby at approximately 6 weeks after conception. The book also noted that there are some chemicals, such as dioxins, which mimic estrogen in the body.

IV. Presentation on the Navy Budget Process Summary

Mr. Macchiarella introduced Mr. Ohannessian to present the Navy's BRAC environmental program budget process. Mr. Ohannessian said the presentation will cover identifying installation needs, establishing budgets, the budget process, Alameda Point and the overall BRAC Program, the RAB roles in the BRAC budget, and conclusions. A copy of the presentation is included as Attachment B-3.

The needs of an installation are first agreed on and documented in the federal facilities agreement (FFA). The BRAC Cleanup Team (BCT) then works with the community to develop and annually update the schedule for the base — in this case, Alameda Point — also known as the Site Management Plan (SMP). Individual projects are then funded based on the schedule. Regulatory support needs also are identified and funding provided based on these requirements. The Navy has various agreements with EPA, California EPA, and other regulatory agencies.

The remedial project managers develop "cost to completion" and "schedule to completion" for each of their sites. The budgets are planned several years in advance, and the sources of funding include appropriations from Congress, land sale revenues, and other revenues. The majority of the Navy's BRAC cleanup budget currently is from land sales.

Three terms involved in the BRAC budget process include; (1) the President's Budget (PresBud), which is sent to Congress for review and approval each January; (2) the Future Years Defense Plan (FYDP), which is the budget for the next 5 years after the President's Budget; (3) the Program Objectives Memorandum (POM), which is the process for reviewing and adjusting FYDP requirements. The budget for fiscal year (FY) 2006 has already been approved and the FY2007 budget is currently being reviewed by Congress. In the summer of 2006, the Navy's POM will review and adjust the objectives for the next 5 years (FY2008 through FY2012).

Slide 6 of the presentation illustrates the approximate dollar amount spent at Navy BRAC bases across the U.S from program inception through FY2005. Alameda Point has spent $206.1 million to date. The Navy has spent approximately $2.6 billion on environmental restoration work at BRAC bases. This sum does not include approximately $600 million that has been spent on environmental compliance at the bases.

The nationwide Navy BRAC budget for FY2006 is $303 million, with $50 million at Alameda Point. In FY2007, the proposed BRAC budget is $335 million, with $81 million at Alameda Point. The total cost to complete the nationwide BRAC is $1.01 billion FY2006 and out; of that, Alameda is $190.8 million to complete. All needs at Alameda Point are currently being funded and the Navy anticipates that the program will continue to be fully funded. However, Mr. Ohannessian notes that FY2007 amounts have not yet been finalized. He also notes that these sums do not include BRAC 2005 bases.

If funding is limited, then the Navy will work with the regulatory agencies and the community to prioritize the work. Agency and public comments can influence project completion because schedules drive the funding profile. If project schedules are delayed, then the money could be used at another base that needs the money immediately. Therefore, it is important to meet execution goals; the Navy, RAB, and regulators must work together to accomplish these goals.

Mr. Biggs asked about the amount of the cleanup that is paid by land sales. Mr. Ohannessian responded that although he did not know the exact number for past expenditures, current land sales funds are expected to continue to cover the Navy BRAC cleanup nationwide through FY2008. He added that he does not know how much additional land sale revenue will be obtained from potential future sales. Ms. Smith asked if the Navy pays the regulators to review the documents. Mr. Ohannessian confirmed that the agencies are paid on a regular basis.

V. BCT Activities

Ms. Lofstrom provided an update on the BCT activities for February. Ms. Lofstrom replaced Ms. Liao as Alameda Point's DTSC representative. Ms. Lofstrom said that the public meeting for the Site 17 PP held March 1, 2006, was the most significant event of the month. Four community members attended and submitted comments on the Proposed Plan. These community members talked with the regulators about their concerns and gained additional knowledge about the site. Some community members were concerned about eating fish from the bay, and some of the regulators answered questions about the types of chemicals found in San Francisco Bay.

The BCT also met on all the current PPs and has suggested a change to the SMP that would allow for an extra week in the schedule for printing. The current schedule is limiting the amount of regulator review to allow the document to be produced and mailed to the public on schedule. The BCT also discussed DTSC concerns that the PPs are too complicated for the average citizen to understand. DTSC would like the Navy to also produce a fact sheet along with the PP. In the future, the Navy might produce a short fact sheet that would be mailed to the public, and the full PP would be mailed only to interested parties. The general fact sheet will reference the PP for additional information. The BCT also reviewed the Site 35 risk assessment.

VI. Community and RAB Comment Period

Mr. Leach commented that he had received a response to the Navy on the draft remedial investigation at IR Site 2 from Mr. Humphreys. He commented that the response was non-judgmental and helpful and that he would like to compliment Mr. Humphreys on his thoroughness, restraint, and knowledge.

Ms. Konrad asked what the Navy does with the comments that they receive on documents, such as the IR Site 2 remedial investigation. Mr. Humphreys replied that the responses to comments are included in the final version of the report; however, the responses are sometimes vague. He said that he reviewed comments from the regulatory agencies for this report and there is not much overlapping of comments between the RAB members and the different agencies. One overlapping comment was the exposure period for the site worker.

The meeting was adjourned at 7:45 p.m.

ATTACHMENT A

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING AGENDA
March 2, 2006

(One Page)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

MARCH 2, 2006, 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	**CERCLA Risk Assessment Overview**	**Dr. Linda Henry Brown & Caldwell**
7:30 – 8:00	**Navy Budget Process Summary**	**Mr. Karnig Ohannessian Navy BRAC PMO**
8:00 – 8:05	**BCT Activities**	**Ms. Dot Lofstrom DTSC**
8:05 – 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 Received during February 2006, George Humphreys, RAB Community Co-Chair, March 2, 2006 (2 pages).

B-2 CERCLA Risk Assessment Overview, presented by Linda Henry, PhD, (Brown and Caldwell). March 2, 2006 (10 pages).

B-3 BRAC Environmental Program Budget Execution Process, presented by Karnig Ohannessian, Navy. March 2, 2006 (5 pages).

ATTACHMENT B-1

RESTORATION ADVISORY BOARD REPORTS RECEIVED DURING FEBRUARY 2006

(One Page)

Restoration Advisory Board
Reports and Correspondence
Received During February 2006

Reports

1. Feb. 6, 2006, "Draft Final Site Inspection Report, Transfer Parcel PBC 1A, Alameda Point, Alameda, California", from Thomas L. Macchiarella, Department of the Navy to Ms. Anna-Marie Cook, U.S. EPA. Region 9.

2. Feb. 6, 2006, "Draft Final Site Inspection Report, Transfer EDC 3, Alameda Point, Alameda, California", from Thomas L. Macchiarella, Department of the Navy to Ms. Anna-Marie Cook, U. S. EPA, Region 9.

3. Feb. 13, 2006, "Final Feasibility Study Report, Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California", from Thomas L. Macchiarella, Department of the Navy to Mr. Mark Ripperda, U. S. EPA Region 9; Ms. Marcia Liao, Department of Toxic Substances Control; and Ms. Judy Huang, Regional Water Quality Control Board.

4. Feb. 28, 2006, " Final Field Activity Reports, Full Scale In-Situ Chemical Oxidation Removal Actions at Sites 16 North and 16 South, Alameda Point, Alameda, California", From Thomas L. Macchiarella , Department of the Navy, to Anna-Marie Cook, U. S. EPA, Region IX.

5. Feb. 24, 2006, Replacement Pages, "Final Field Summary Report, Full-Scale In-Situ Chemical Oxidation Removal Action at Installation Restoration Site 16 North, Alameda Point, Alameda, California".

Correspondence

1. Jan. 31, 2006, "Final Remedial Investigation, IR Site 34, Alameda Point, Alameda, California", from Marcia Liao, Department of Toxic Substances Control to Mr. Thomas L. Macchiarella, Department of the Navy.

2. Feb. 10, 2006, " RE: December 8, 2005, Draft Remedial Investigation Report IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California", from Samantha Murray, Conservation Director, Golden Gate Audubon Society to Andrew Baughman, Department of the Navy.

3. Feb. 15, 2006, "Draft Proposed Plan, IR Site 25, Alameda Point, Alameda, California", from Marcia Liao, PhD, Department of Toxic Substances Control, to Mr. Thomas L. Macciarella, Department of the Navy.

ATTACHMENT B-2

CERCLA RISK ASSESSMENT OVERVIEW

(Ten Pages)

BRAC
PMO WEST

CERCLA Risk Assessment Overview

Linda Henry, Ph.D.
Brown and Caldwell
March 2, 2006
925-210-2362

Health Risk at Alameda Point

BRAC
PMO WEST

- At each IR site, a health risk assessment is one tool to use when making decisions on whether contact with chemicals in soil or groundwater needs to be reduced to protect long term, lifetime health of residents
- The purpose of this presentation is to explain what a health risk assessment is and does not focus on a particular area of Alameda Point

Health Risk Assessment

BRAC PMO WEST

- Estimates the likelihood that exposure to different chemicals will result in an adverse health effect over a lifetime
- The results of a health risk assessment do not predict actual health effects

Decisions for the Future

BRAC PMO WEST

- Risk assessments are designed to protect people who live and work at Alameda Point over a long period--30 years
- The risk assessments done so far have not found evidence that residents are currently or have been exposed in the past to conditions that require immediate action to protect their health

Why isn't risk based on actual health effects data?

BRAC PMO WEST

- There are not enough studies showing any actual health effects at low levels to support risk assessment so another method of evaluation is needed
- U.S. EPA developed a method that calculates a hypothetical risk based on the science we have today

U.S. EPA Risk Assessment Guidance

BRAC PMO WEST

United States Environmental Protection Agency EPA/540/1-89/002

Risk Assessment Guidance for Superfund (RAGS) Human Health Evaluation Manual

The basic guidance used throughout the United States to make decisions on cleanup goals for sites. States make some changes but everyone uses the same overall approach.

Risk Method

BRAC PMO WEST

DATA		EXPOSURE		TOXICITY		RISK
Concentration of chemical in soil, air or water	X	How much chemical people might take in (dose)	X	The relationship between dose and health effects	=	Potential for increased incidence of cancer or non-cancer health effects

Health Effects

BRAC PMO WEST

- Risk for each chemical is calculated for each of the ways that people could come into contact with chemicals (exposure pathways)
  - Soil: ingestion, inhalation of vapors and dust and skin contact, and ingestion of homegrown produce
  - Groundwater: vapors in indoor air and drinking water

Reasonable Maximum Exposure

BRAC PMO WEST

- For residents, exposure is assumed to occur 350 days a year, 24 hours a day for 30 years---a child from 0 to 6 years of age is added to exposure as an adult for 24 years to equal a total of 30 years
- Commercial/industrial exposure is for an adult for 25 years
- The concentration of the chemical in the soil, air or water is assumed to stay constant for whole period

Noncancer Risk

BRAC PMO WEST

- A safe level of exposure is estimated from noncancer effects on lab animals such as increased liver activity
- If exposure is likely to be below this level, then it is unlikely that there will be adverse health effects over a lifetime
- Hazard Index (HI) equal to or less than 1 is acceptable

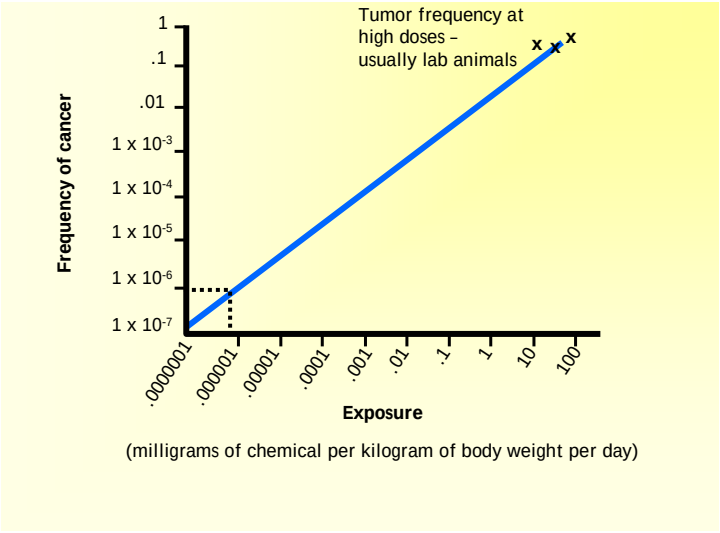
Cancer Risk

BRAC PMO WEST

- Carcinogenic risk is a probability of increased incidence of cancer
- For the majority of chemicals, the cancer toxicity to people is based on frequency of tumors in laboratory animals exposed to very high doses
- Toxicity for a few chemicals is based on very high doses to people

U.S.EPA's Method to Estimate Cancer Toxicity

BRAC PMO WEST



What does Cancer Risk mean to me?

BRAC PMO WEST

- The probability that any person will get some form of cancer during their lifetime is 0.3 or 1 in 3 people
- Example: The cancer risk for an IR site is 1×10^{-5} (0.00001), then an individual's probability increases to 0.30001 if they are exposed for 30 years
- 0.3 baseline + 0.00001 from living at the IR Site = 0.30001 total

Is this risk approach sufficiently protective?

BRAC PMO WEST

- Yes, U.S. EPA designed the method to assure that any toxicity or exposure will not be underestimated
- U.S. EPA guidance states that any actual risk will be lower than that calculated and could be zero
- U.S. EPA regulations specify a risk management range of 10^{-4} to 10^{-6} with 10^{-6} as the preferred starting point for cleanup goals

U.S. EPA Guidance

BRAC PMO WEST

"Our risk estimates are designed to ensure that risks are not underestimated…… In past guidelines, we have explicitly stated that the true cancer potency could be as low as zero. (U.S.EPA, *Examination of EPA Risk Assessment Principles and Practices* 2004)"

What is a PRG?

BRAC PMO WEST

- Preliminary remediation goals are concentrations for individual chemicals in soil, water or air that are used to do a quick evaluation of likely concerns before conducting a full risk assessment
- PRGs are also "reasonable maximum values" in their protectiveness and assure that any actual risk will likely be lower

Other Considerations

BRAC PMO WEST

- Example – some background levels of arsenic in soil in California have cancer risk that is above acceptable risk levels from U.S.EPA and Cal/EPA
- Yet there is no evidence from health studies that background levels of arsenic in soil results in any adverse health effects
- So cleanup levels are set at naturally-occurring levels of arsenic because cleanup below background is not possible

Other Considerations

BRAC PMO WEST

- Is the site adequately characterized? Have all areas of the site that could have chemicals in soil or groundwater from past Navy activities been sampled?
- Is any high risk restricted to a single sample or is the chemical wide-spread?
- What does common sense tell us?

Summary

BRAC
PMO WEST

- Health risk assessments are one tool to make decisions on whether cleanup is needed and how to set cleanup goals at IR Sites
- Risk assessment results do not predict actual health effects or cases of cancer
- Risk assessment has multiple layers of protectiveness so that public health is protected

ATTACHMENT B-3

BRAC ENVIRONMENTAL PROGRAM BUDGET EXECUTION PROCESSES

(Five Pages)

BRAC PMO WEST

Base Realignment and Closure Environmental Program Budget Execution Processes

2 March 2006

Karnig Ohannessian, PE
BRAC Environmental Program Coordinator

BRAC PMO WEST

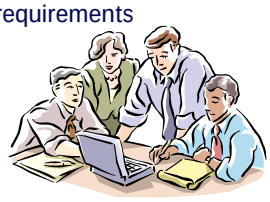
Outline

I. Identifying Installation Needs
II. Establishing Budgets
III. Budget Process
IV. Alameda and the Overall BRAC Program
V. BCT and RAB Roles in BRAC Budget
VI. Conclusions

Identifying Installation Needs

BRAC PMO WEST

- Identify installation needs
  - Needs are agreed upon and documented in the FFA
  - Work with BCT and the community to develop a schedule annually
    - E.g., Alameda Site Management Plan (SMP) - schedule and milestones based on funding availability
  - Individual projects are identified based on the schedule
    - E.g., Site 17 remedial design FY06, Site 17 remedial action FY07
- Identify regulatory support needs
  - Cooperative Agreement or DSMOA
  - Provide funding to support agencies based on requirements
  - Includes state and federal agencies



3

Establishing Budgets

BRAC PMO WEST

- Projects by site
- Cost to completion
- Schedule to completion
- Budgets
  - Planned years in advance
- Sources of funding
  - Appropriations
  - Land sale revenues
  - Other

4

Budget Process

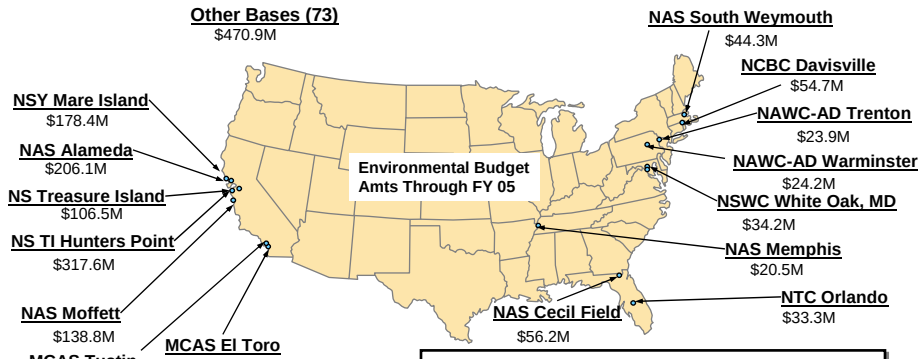
BRAC PMO WEST

- Terms
  - **Budget** - the President's Budget (PresBud) sent to Congress for review/approval each January
  - **FYDP** - Future Years Defense Plan (the next 5 years after the President's Budget)
  - **POM** - Program Objectives Memorandum (process for reviewing FYDP requirements and making adjustments)
- Current Budget Process
  - FY2006 - appropriated and being expended
  - FY2007 - Congress reviewing President's Budget (submitted Jan 06)
  - Summer 2006 - POM 2008 (review and adjust FY2008 - FY2012 FYDP)
  - September 2006 - FY07 budget authorized/appropriated by Congress
  - November 2006 - Submit FY08 budget to DOD/OMB
  - January 2007 - Submit FY08 budget to Congress

5

BRAC II - IV
Cleanup Obligations Through FY2005

BRAC PMO WEST



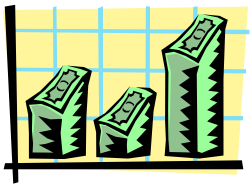
OCONUS
NAF Adak, AK $239.7M
NAS Agana, Guam $62.3M
NS Roosevelt Road, Puerto Rico $24.7M

	Program Inception thru FY05 ($ Million)
Total Environmental Projects--Above Bases	$1,751.6
Total Environmental Projects – Balance of Program	$ 470.9
Total Environmental Salary and Support and Program Mgmt (DSMOA, ATSDR, EPA)	$ 346.7

BRAC II - IV Program FY2006 & FY2007

BRAC PMO WEST

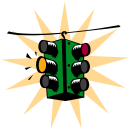
- Total program: $303M in FY06 and $335M in FY07*
- Alameda CA NAS: $50M in FY06 and $81M in FY07*
- Total program cost to complete FY2006+: $1.01 billion
- Alameda cost to complete FY2006+: $190.8 million
- All needs at Alameda are currently being funded
- Anticipate Program to continue to be fully funded
- *FY07 amounts have not yet been officially established



7

BCT and RAB Roles in BRAC Budget

BRAC PMO WEST



- If funding is limited, we all work together to prioritize
- If there is enough funding, can execute that year's needs
- Schedule with regulatory agencies and the RAB to review projects
- Agency and public comments can influence project completions
  - Important to collaborate so that Navy documents achieve consensus
- Schedules drive funding profile
  - When funds are received
  - Based on execution tracking
- If there are delays, funding may be used to cover needs elsewhere
- Important to stay on track to meet execution goals
- Very important for us to work together

8

Conclusions

BRAC PMO WEST

- Funding needs are jointly identified
- Budgets based on identified needs
- Long planning process
- Work together if things don't go as planned
- We cannot get everything accomplished if we don't work together

9

Questions?

BRAC PMO WEST

10