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Phone (201) 798-4800
Fax (201) 798-4975

THE SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS
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Naval Shipyard Base Realignment and Closure: The Environmental Remediation Effort

Rodney K. Pieper (V), Mare Island Naval Shipyard, U.S.A.

ABSTRACT

Mare Island Naval Shipyard was placed on the "Fast Track" toward military base closure as of October 1993. All ship projects will end by April 1995. The base will close in April 1996.

This paper discusses (1) the cooperative efforts of the federal, state and local authorities, and the shipyard, to quickly turnover the yard for effective civilian reuse; and (2) the shipyard effort to train and utilize the existing workforce as a major element in the environmental remediation effort--to both prepare the facility for reuse and to prepare the workforce for reemployment

BACKGROUND

The shipyard is located 25 nautical miles northeast of the City of San Francisco in the North Bay subregion of the San Francisco Bay Area. Established in 1854, it is a designated National Historic Landmark. The shipyard's recent mission has been as a major repair and overhaul yard. It was included in the latest round of base closures due to Department of Defense (DoD) downsizing.

When closed a workforce of 9,000 civilians would lose their shipyard jobs. The City of Vallejo, California - the shipyard's entire 5,500 acres lie within the incorporated limits of Vallejo - would lose a major economic driving force. The Navy has estimated the environmental cleanup costs alone to exceed $430 million.

NOMENCLATURE/ACRONYMS

BCP	BRAC Cleanup Plan
BEC	Base Environmental Coordinator
BRAC	Base Realignment and Closure
CEQA	California Environmental Quality Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
EBS	Environmental Baseline Survey
DoD	Department of Defense
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
LAN	Local Area Network
NEPA	National Environmental Policy Act
OEA	Office of Economic Adjustment U.S. Department of Defense
OHP	Office of Historic Preservation
PCB	Polychlorinated Biphenyl
PETE	Partnership for Environmental Technology Education
RAB	Restoration Advisory Board
UCD	University of California at Davis
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WESTDIV	Western Division, Naval Facilities Command

PRESIDENT CLINTON'S FIVE-PART COMMUNITY REINVESTMENT PROGRAM

In an effort to promote a smooth transition from military to non-military utilization of closing military bases and facilities, and to lessen the negative impact on communities located near closing facilities, the Federal administration has developed a plan of action called the "President's Five-Part Community Reinvestment Program".

The components of this program include:

1. Base Transition Coordinators,
2. Larger Economic Adjustment Planning Grants,
3. Easy Access to Transition and Redevelopment Help,
4. Job Centered Property Disposal, and
5. Fast-Track C1eanup.

Each of these elements is being implemented at the shipyard as an integral part of the facility's overall cleanup, closure and reuse strategy. A more detailed explanation of the implementation of the Five-Part Program follows.

Base Transition Coordinator.

At the center of the Five-Part Program is the Base Transition Coordinator. It is the Coordinator's job to:

L assist the community and installation in quickly reinvesting base closure properties into other uses,

2. cut through red tape to facilitate rapid redevelopment and creation of new jobs, and

3. remove impediments to facilitate a smooth transition to economic development and reinvestment.

Larger Economic Adjustment Planning Grants.

In an effort to "jump-start" the process, the Federal Government has implemented a seven-day turnover policy for approving grants to communities affected by base closures. The amounts awarded for planning grants have been increased in size allowing an average of $1.0 million per community, with the community's total awarded over a five-year period.

The City of Vallejo has successfully pursued several State and Federal grants, including Office of Economic Adjustment (OEA) grants of $618,000 in 1993 and $680,000 in 1994.

Easy Access To Transition and Redevelopment. Help.

The emphasis for this component of the Five-Part Program is on pooling Federal resources to give affected communities easier access to Federal assistance with a positive "can-do" attitude among Federal agencies. The cooperative effort between the City of Vallejo and the shipyard to develop a local community Reuse Plan for the closing of the Naval Base is typical of this cooperative redevelopment effort. The Reuse Plan, completed in July 1994, will be incorporated into a combined Environmental Impact Statement (EIS) developed under Federal guidelines and Environmental Impact Report (EIR), under State guidelines, to facilitate turnover and reuse of the military facility by the civilian community. The level of cooperation exhibited by this transition effort between local and Federal agencies will serve as a model for future actions of a similar nature.

Job Centered Property Disposal.

Under this component of the program, low or no cost transfers have been authorized from Federal to local community ownership in an effort to encourage local economic and job development. To promote this end, interim leasing of Federally owned property is encouraged during the closure process. This leasing program will allow local communities to utilize property sources prior to actual base closure to increase the job base and provide for economic growth. Examples include the leasing of properties such as office buildings, educational and training facilities, and recreational facilities.

Cooperative efforts to turn a potential economic disaster into an asset for the community have included

1. early invitation for community involvement in the shipyard reuse screening process,

2. shipyard support of the City of Vallejo's Mare Island Futures Project to develop and implement an expeditious reuse process,

3. shipyard and community research to identify historically significant naval base properties in compliance with the National Historical Preservation Act, and

4. political and legislative support at the Federal, State and local levels.

Fast-Track Cleanup.

One of the most crucial elements in the transition process is the quick and effective environmental cleanup of closing facilities. The importance of ensuring the protection of human health, and the return of the natural environment to its pristine (as allowed by state-of-the-art technology) condition, cannot be overstated.

The mandate of the Fast-Track Cleanup process is expanded below.

Make clean parcels available for reuse. Through implementation of remediation and cleanup efforts, closing facilities are under direction to make lands designated for turnover to local communities safe to human health and the natural environment. Efforts to achieve these goals are underway under the direction of the Base Environmental Coordinator (BEC).

Speed the National Environmental Policy Act (NEPA) process. NEPA is the basic national chanter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out policy. Under Federal law, NEPA provides guidelines for the development of an Environmental Impact Statement (EIS). The primary purpose of the EIS is to serve as an action-forcing device to insure that the policies and goals defined in NEPA are infused into the ongoing programs and actions of the Federal Government. The EIS provides full and fair discussion of significant environmental impacts and informs decision makers and the public of the reasonable alternatives which would avoid or minimize environmentally related adverse impacts, or enhance the quality of the human

environment The NEPA evaluation for base closure and reuse must be completed within 12 months of receipt of the community reuse plan. Portions of the EIS are currently being written by the shipyard's Base Realignment and Closure (BRAC) Environmental Technical Division.

Establish cleanup teams at every base. The shipyard's Base Cleanup Team consists of the BEC, a representative of the U.S. Environmental Protection Agency (EPA), and a representative of the California Department of Toxic Substance Control (DTSC).

To increase public participation in its cleanup programs, DoD policy calls for Restoration Advisory Boards (RABS) to be formed at closing installations. The shipyard RAB includes the Base Cleanup Team members and 21 additional participants from the shipyard, the regulatory community, the City of Vallejo, and local citizens. The RAB holds frequent public meetings to increase community understanding and support for cleanup efforts, to comment on the soundness of government decisions, and to ensure cleanups are responsive to community needs.

BRAC ENVIRONMENTAL TECHNICAL DIVISION

The Base Environmental Coordinator (BEC) has responsibility for oversight and implementation of a large portion of the environmental cleanup at the shipyard. The BRAC Environmental Technical Division was formed to assist the BEC, and to provide environmental management "on-the-job-training" for shipyard workers displaced from their regular assignments. The new division performs work projects under contact with the Western Division (WESTDIV), Naval Facilities Command. WESTDIV is the agency responsible for administering environmental cleanup programs for the Navy in the geographical area that includes the shipyard.

A brief historical overview of the events leading to the formulation of BRAC Environmental Technical Division follows.

Workforce Analysis. When the decision to close the shipyard became law, one important action facing base officials was the development of an aggressive and effective outplacement program. Data was collected from employees with respect to eligibility for retirement, employment history, and future career desires. Further data was collected on what employment opportunities existed in government and private industry and what state and Federal programs were candidates for providing training opportunities to facilitate the transition of shipyard employees to private sector employment

This investigation identified that 80 percent of Mare Island's work force would be eligible for an immediate annuity if the closure process were to extend through 1999 rather than the 1996 deadline established for yard closure by the Navy. It concluded that several hundred employees would the involuntary separation upon closure unless work could be found requiring their services through 1999. Studies indicated that outplacement efforts could place essentially all these employees by 1999, or at least enable the majority of remaining employees to be eligible for an immediate annuity.

An analysis of scheduled ship repair and base closure work showed that most of the available work force could remain employed through April, 1996, the operational closure date for the base.

With this knowledge in hand, shipyard management looked for potential work assignments that would fill the employment needs of several hundred employees beyond April, 1996. The field of environmental cleanup was identified as a potential source of employment for both white-collar and blue-collar workers.

At that time, the perception of managers and regulators associated with environmental remediation was that the shipyard work force possessed excellent ship repair skills, but that these skills were not transferable to the field of environmental remediation.

In some ways, this perception was accurate. In other ways, it was not. Shipyard workers lacked training and experience in environmental disciplines, but possessed the ability to be retrained for successful transition to the field of environmental remediation.

Training. The University of California, Davis (UCD) was approached and readily accepted the challenge to provide timely and specific environmental training for the shipyard workforce. UCD is currently the accepted leader in the field of Environmental Engineering Education in the California university system. A partnership was formed between UCD and Mare Island. Through arrangements with UCD, and UCD Extension (a separate department in the university), on-site environmental training was brought to the yard.

A compressed schedule of environmental courses (taught 8:00 am to 5:00 pm Monday through Friday) was developed for the yard's ship-system engineers, in addition to continuing after-hours courses. The course curriculum was selected for engineers with a Bachelor of Science degree from an accredited school of engineering. The courses selected by UCD were from the standard UCD Civil and Environmental Engineering curriculum, and were presented by UCD faculty on base, or through video tapes under the

guidance of a doctoral candidate teaching assistant. Engineers entering the program had au average often years of experience working in their respective fields.

Engineering students in this program were evaluated by the same. academic standards as on-campus students, performed similar homework assignments, and were required to pass the same written examinations as engineering students attending on-campus classes. Upon completion of this compressed schedule (Session "A" began on 5 January 1994 and concluded on 25 March 1994), and after completing an additional nine units, students would earn a "Certificate of Environmental Engineering", an industry recognized certificate issued by UCD. An option also exists for students in this program to continue to completion of a Masters Degree in Environmental Engineering.

Management subsequently focused on the non-engineer work force. The California Post-Secondary Educational System readily joined the training effort by implementing a nationally recognized training course in Environmental Technology endorsed by the U.S. Department of Energy and the U.S. Environmental Protection Agency.

The Partnership for Environmental Technology Education (PETE) program was implemented through the community college system. This program was specifically designed to provide environmental training to technicians working in the field and consists of six core courses leading to either an Environmental Technology certificate or Associate of Science degree. Students completing the AS degree have the option of continuing at State University to complete a four-year Bachelor of Science degree in Environmental Applied Engineering.

During the initial stages of this program, technicians and production employees will be trained in small groups, with each group attending different courses. Work groups will be established to take advantage of the collective knowledge of these employees. Environmental Technology Training Certificates will be completed by these employees upon completion of the after-hours training program.

Special training has been offered in Occupational Safety and Health, asbestos, lead, field sampling, and trenching. Land survey teams have been trained in preparation for large-scale ordnance surveys and plotting of magnetic anomalies.

The shipyard contracted the Idaho National Engineering Laboratory to deliver presentations on technical and project management for engineers working in the Installation Restoration Program. Follow-up visits will enhance an on-going information exchange.

Capabilities. The successes of the University of California and the California Community College System environmental training programs, and the achievements of the shipyard employees participating in these programs, were related to the Commanding Officer of WESTDIV and his staff. In light of Mare Island's newly demonstrated capabilities in the field of environmental engineering and remediation, it became clear that shipyard employees could be considered as a viable alternative for executing base closure cleauup activities.

WESTDIV made the decision to consider the shipyard as the contractor of choice for the expanded environmental work related to shipyard closure. WESTDIV was already working with an area-wide Comprehensive Long-Term Environmental Action Navy (CLEAN) contractor, but the additional work and accelerated schedules related to shipyard closure were beyond the capacity of that contract. Shipyard employees could accomplish closure projects and could work in partnership with the CLEAN contractor at on-going remediation sites. Proposals were requested for accomplishing environmental engineering and field work. In response to this newly appointed responsibility, the shipyard formed the BRAC Environmental Technical Division, currently working under contract with WESTDIV.

BRAC Environmental Technical Division has successfully completed several projects, with several more under way and in the preparation phase. Approximately 60 engineers have completed the basic classes and are continuing their education through UCD. Field technician training has begun. The after-hours environmental training programs have maintained steady participation.

ACCOMPLISHMENTS

The following is a brief summary of results of the yard's environmental efforts.

Cooperation Among Agencies.

The "fast-track" policy of the President's Five-Part Plan has implemented a level of cooperation between Federal, state, and local agencies and officials that can serve as a model for future such projects. Comprehensive training programs have been organized and implemented in weeks instead of months as a result of cooperation and fast-tracking efforts of the University of California, the California Community College System and the shipyard. Contract agreements have been reached between Western Division, Naval Facilities Engineering Command and

the shipyard in a relatively short time. Representatives from WESTDIV, U.S. Environmental Protection Agency, California Environmental Protection Agency, the Restoration Advisory Board, and the BRAC Environmental Technical Division are currently working out of the same office, providing immediate access to specialized expertise, the ability to identify common concerns and objectives, and the immediate resolution of problems and conflicts.

As a result of this increased level of cooperation between agencies, there have been successes in the effort to streamline paperwork. Emphasis is on producing concise and factual documents that meet both technical requirements, and are easily understood by all involved agencies. Guidelines for document preparation provide that 1) unnecessary embellishment and verbiage are to be eliminated; 2) documents are to reflect agreed upon understandings, thereby eliminating surprises to cooperating agencies; and 2) documents should reflect openness, timeliness, accuracy, and completeness. As a result of these methods, a typical Approval Memo was reduced from fifteen to two pages. A Health and Safety Plan was issued as an addendum of an existing document, thereby saving approximately $20,000 that might have been spent developing an entirely new document.

Environmental Baseline Survey and BRAC Cleanup Plan.

BRAC Environmental Technical Division was contracted by WESTDIV to complete an Environmental Baseline Survey (EBS). The EBS is a basewide assessment and summary of the environmental condition of all properties, and identification of those properties available for immediate transfer. The EBS identifies all known and suspected areas where hazardous materials and/or petroleum products have been handled, stored, disposed of, or released within the boundaries of the shipyard and adjacent areas. When the EBS was issued and the success of that project was evident, WESTDIV representatives approached BRAC Environmental Technical Division with a request to prepare the BRAC cleanup Plan (BCP) - a plan and schedule for remediation - for the closing facility. BRAC Environmental Technical Division accepted this mandate and completed the BCP on schedule and within budget in March 1994.

Underground Storage Tank Project.

The BRAC Environmental underground storage tank (UST) project is tasked to find and identify shipyard UST's (most of which have contained hazardous materials), to remove leaking or abandoned tanks from their existing locations, and to remediate the surrounding environments. All in-service UST's will be reviewed for current regulatory compliance prior to base turnover. The engineers and technicians working on this project have gained valuable skills associated with remediation and removal of UST's, and have become knowledgeable in Federal, state and local laws and regulations associated with UST's.

The field of UST removal and remediation is a very specialized area of environmental engineering, and of great value in today's environmental job market. Working under Federal, state, and local laws and regulations has prepared these employees for employment in a field that is drawing a great deal of interest at these levels.

Soil Remediation Project.

Soil remediation has provided a fertile ground for agency cooperation and the development of new technologies for environmental remediation and cleanup. The project manager for this project is currently working closely with UC Davis in an effort to develop new and innovative technologies to be used in a soil remediation pilot project, as well as in full scale studies. Some examples of new technologies being discussed include Enhanced Vapor Extraction, Volatile Organic Compound (VOC) Control Systems, Biofilters, and Electronic Beam Hazardous Waste Treatment Systems. The project goal is to establish an on-site soil treatment facility under the Corrective Action Management Unit concept allowed by the Resource Conservation and Recovery Act regulations. The facility would operate throughout the entire shipyard long-term remediation and would have the capability to treat soils for chlorinated hydrocarbons, heavy metals, and petroleum products, as well as other contamination on the island.

Site Remediation Projects.

The BRAC Environmental Technical Division currently has numerous site remediation projects in various stages of completion. This work includes removal of soils contaminated with fuel products and toxic metals, unexploded ordnance removal, landfill remediation, removal of PCB contaminants, removal of pesticide and herbicide contaminants, and removal of solvent contaminants.

An example of one such site remediation project currently underway involves the removal of all unexploded ordnance. The Navy CLEAN Contractor,

WESTDIV, and the shipyard met late in 1993 to discuss the shipyard unexploded ordnance (UXO) problem. The decision was made at that time to take a different approach to the BRAC cleanup of UXO. The participants felt that a plan should be adopted that emphasized action (fast-track) instead of falling prey to the "study" mindset that has historically bogged down projects of this type. A relationship was formulated that would best utilize the available skills, time, and funding. It was decided that available resources would be shared among agencies (information, skills, etc.), and that environmental regulators would be kept involved in the planning process to apply their knowledge and experience in formulating an effective fast-track remediation and cleanup effort. As a result, a positive UXO remediation cleanup plan has evolved in a short period of time that effectively utilizes the resources and contributions of the Navy, the CLEAN contractor, and the environmental regulators.

An innovative site remediation proposal under consideration involves an investigation of the feasibility for using contaminated sand and/or soil from one site as a constituent in the remediation process at another site. The EPA's "presumptive remedy" to control handfill moisture intrusion and subsequent leaching of contaminants into underlying aquifers is to install a "cap" to seal the landfill. Subsurface "vertical cutoff walls" are also often used in conjunction with the cap to control lateral migration of the contamination plume. Typical cap and wall materials consist of concrete/bentonite and soil/bentonite mixtures. A number of sites exist on the shipyard that are contaminated with spent sand blasting materials that contain toxic metals. Studies are being conducted to determine if an acceptable method can be developed to solidify and stabilize these materials for use in landfill caps and vertical cutoff walls. If the method proves both feasible and cost effective, it would provide an innovative and holistic method of remediating two or more unrelated sites with a single process.

Asbestos Surveys and Abatement.

DoD policy is that property will not be disposed of through the BRAC process unless it has been determined that any asbestos present is not a threat to human health. Abatement work will be performed as necessary for asbestos that is damaged friable, and accessible.

The shipyard's current asbestos survey and abatement program began in 1989. It evolved from an organization primarily experienced in removal of shipboard asbestos.

working primarily with Naval Facility Engineering Commands, the shipyard asbestos teams are working on or have completed surveys and abatement for a total of about 2300 buildings comprisimg over 28 million square feet. On the shipyard about 1000 buildings require surveys and potential abatement for asbestos prior to closure.

In addition to providing a valuable source of projects to keep shipyard workers employed, the training and experience gained by asbestos program engineers and technicians has developed skills that will help these employees find employment upon leaving the yard.

Polychlorinated Biphenyls (PCBs).

Polychlorinated Biphenyls (PCBs) have been available for industrial use since about 1931. Unfortunately these chemicals were found to be hazardous to human health and the environment after their widespread use. In 1976, Congress enacted the Toxic Substance Control Act (TSCA) which directed U.S. Environmental Protection Agency to control the manufacture, processing, distribution, use, disposal and labeling of PCBS.

PCB contaminated transformers have been identified and are scheduled for removal prior to base closure.

The BRAC Environmental Technical Division is currently working on two PCB related projects: 1) a survey of mechanical machinery for possible contamination with plans for subsequent decontamination removal and/or disposal; and 2) an investigation of potentially PCB contaminated sites requiring possible remediation. Both projects have required extensive investigation and sampling. As a result, Mare Island employees have gained valuable experience in this highly specialized contemporary field of Environmental Engineering.

Historical Survey Project.

The historical significance of shipyard buildings is a major issue regarding ownership transfer agreements, base reuse, and potentially in evaluation of environmental remediation alternatives. BRAC Environmental has formed a team of 16 employees from various technical and production groups to survey and provide documentation for all buildings having possible historic significance. These survey personnel have received instruction and training in historical survey techniques from a UC Davis professor who is a state historical expert and landscape architect. In the course of performing the Mare Island historical survey,

the BRAC Environmental Historical Survey Section has computer-automated required state forms used for documentation of historic sites, buildings and artifacts, thereby reducing the time and cost associated with compliance with state requirements. BRAC Environmental has worked in close cooperation with the State Office of Historical Preservation (OHP), which has helped to accelerate the compliance process in keeping with the BRAC Environmental fast-track philosophy.

BRAC Environmental Management Automated Information Systems.

The BRAC Environmental Management Division has placed a high priority on providing state-of-the art information processing tools with which to work. Project managers and planners, using high powered personal computers, are utilizing the latest in word processing, database and spreadsheet tools to plan, manage and track their projects. All are connected to a Local Area Network (LAN) which permits the electronic exchange of information and use of peripheral resources.

Federal and State Environmental regulations are being made available over the LAN to instantly provide important reference and resource information to all personnel.

A Geographic Information System is being implemented to permit both subsurface and airborne contaminants to be tracked and managed, and to predict future conditions of contaminated areas based on sophisticated plume modeling techniques.

Finally, a document management system is being developed which will contain the complete text of all environmental documents and will permit the user to query by site, document type, contaminant, keyword or any combination of these to obtain required information.

SUMMARY

In an effort to implement the Presidents Five-part Plan, the shipyard's BRAC Environmental Technical Division has designated retrainingand employment of its environmental workers as a primary goal of its charter. The rewards in this endeavor are many. Employees who complete academic course work in the BRAC Environmental training program to gain valuable on-the-job experience in the island's cleanup program. As a result, these employees develop very marketable skills for today's job market Approximately 25% of the shipyard's environmental staff have been placed in jobs outside the yard since closure was announced. Outplacement is expected to remain at a high level. Environmental training is a continuous process.

The shipyard has not yet required any forced layoffs due to base closure. None are predicted until the end in April, 1996. The ability to transition shipyard workers from production work to the environmental cleanup has resulted in a cohesive team effort on new projects. Morale in the face of closure is high. Base cleanup is on or ahead of schedule.