DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY, NORTHEAST
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
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MEMORANDUM

6 MAY 2003

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) FOR THE INSTALLATION RESTORATION PROGRAM AT NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP) BETHPAGE, NEW YORK

The Navy would like to announce that a Restoration Advisory Board (RAB) meeting has been scheduled for **Tuesday, May 20, 2003.** This meeting is open to the general public and will be held at the Bethpage Community Center located at 103 Grumman Road in Bethpage, New York. The meeting will begin at 7:00 p.m.

Also enclosed are the minutes from Restoration Advisory Board meetings held on June 27, 2002 and January 8, 2003. The RAB minutes were paraphrased from the meeting's official transcripts. A copy of both the meeting minutes and the official transcripts will be available for review at the Navy's Information Repository located at the Bethpage Public Library. In addition, the RAB's community co-chair will also be provided with a copy of both transcripts.

The main focus of this meeting will be to discuss the status of the Navy's efforts to implement the various components of the Navy's Groundwater ROD that was recently signed in April 2003. The Navy will also discuss information relating to the Groundwater Technical Advisory Board (TAC) meeting that will be held on Thursday, May 15, 2003. This board is comprised of representatives from the Navy, Northrop Grumman, NYSDEC, NYSDOH, Nassau County Department's of Health and Public Works as well as several local water authorities. In addition, the RAB's Technical Assistance for Public Participation (TAPP) contractor, H2M Group, will present the RAB with an update relating to their review of Northrop Grumman's Drywells 20-08 and 34-07 Field Investigation and Exposure Assessment Reports.

If you need additional information, please call either Judy Lamey of Jacobs Tech NUS, Inc. at (412) 921-8817 or myself at (610) 595-0567, ext 163.

Sincerely,

JAMES L. COLTER
Remedial Project Manager
By direction of the
Commanding Officer

Enclosures: (1) Minutes from 06-27-2002 RAB Meeting
(2) Minutes from 01-08-2003 RAB Meeting
(3) Agenda for 05-20-2003 RAB Meeting

Distribution:
NAVAIR, Joe Kaminski
NYSDEC (Albany), Steve Scharf
NYSDEC (Stony Brook), Stan Farkas
NYSDOH, Becky Mitchell
USEPA Region II, Carol Stein
USEPA Region II, Carla Struble
Nassau County DOH, John Lovejoy
Nassau County DPW, Tim Kelly
Town of Oyster Bay, Hon. John Venditto
Town of Oyster Bay DPW, Tom Clark
J.A. Jones, Al Taormina
Bethpage Water District, John Molloy
Community Co-Chair, Jim McBride
Community RAB Member, Hon. Ed Mangano
Community RAB Member, Linda Mangano
Community RAB Member, Ed Resch
Community RAB Member, Charles Bevilacqua
Community RAB Member, Roy Tringali
Community RAB Member, Rosemary Styne

Agenda

Restoration Advisory Board
Naval Weapons Industrial Reserve Plant Bethpage

May 20, 2003
Bethpage Community Center, Bethpage, NY
7:00 p.m.

Welcome and Agenda Review
Joe Kaminski
Naval Air Systems Command

Review and Approval of Minutes
All Members

Groundwater ROD for Operable Unit 2
Jim Colter
Engineering Field Activity, Northeast

Technical Advisory Committee Meeting
Discuss meeting of Technical Advisory Committee held on May 15, 2003
Jim Colter
Engineering Field Activity, Northeast

TAPP Presentation on Northrop Grumman's Drywells 20-08 and 34-07 Field Investigation and Exposure Assessment Reports
Gary Miller
H2M Group

Action Item Review and Dates and Discussion Topics for Future Meetings
All Members

Closing Remarks
Joe Kaminski
Naval Air Systems Command

Presenters will be available after the program for questions.

RESTORATION ADVISORY BOARD (RAB) MEETING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT BETHPAGE
BETHPAGE COMMUNITY CENTER, BETHPAGE, NEW YORK
June 27, 2002

The sixth meeting of the RAB began at 7:00 pm. RAB members attending were: Judith Hare, Joe Kaminski, and Jim Colter from the Navy; Steve Scharf representing the New York State Department of Environmental Conservation (NYSDEC); Tim Kelly representing Nassau County Public Works; Charles Bevilacqua representing the Conservation Fund Advisory Board; Al Taormina representing J.A. Jones; community members Jim McBride, Ed Mangano, Linda Mangano, Roy Tringali, Rosemary Styne, and Edward Resch. Members absent included William Gilday representing the New York State Department of Health (NYSDOH); Bruce MacKay representing the Nassau County Department of Health; Carol Stein and Carla Struble representing U.S. EPA Region II, Stan Farkas and Nick Acampora representing New York State Department of Environmental Conservation (NYSDEC); John Molloy representing the Bethpage Water District; Rose Simon representing Defense Contract Management Command (DCMC); John Venditto, Town of Oyster Bay supervisor; and Thomas Clark.

There were also several attendees from the general public.

WELCOME AND AGENDA REVIEW

Ms. Judith Hare, the Navy Co-chair, welcomed everyone to the sixth meeting of the RAB. Ms. Hare introduced Jim Colter and stated that Mr. Colter would be presenting the Operable Unit 2 Groundwater ROD.

TECHNICAL ADVISORY COMMITTEE MEETING

Mr. Colter stated that the technical advisory committee meeting was held on June 26, 2002. The meeting was attended by representatives of all the local water districts, the New York State Department of Environmental Conservation (NYSDEC), the New York State Department of Health (NYSDOH), and members of the Nassau County

Department of Health. The meeting was held to provide an update on the Navy's progress with respect to the groundwater and implementation of a groundwater remedy.

Mr. Colter stated that Geraghty and Miller gave a presentation at the technical meeting on their groundwater model to support the design of the off-site hot spot area known as GM 38. Mr. Colter also stated that the model will also be used to assist in locating outpost monitoring wells upgradient of various local water districts.

Mr. Colter then turned the meeting over to Mike Wolfert and Doug Smolensky, from Geraghty Miller to discuss their presentation from the technical meeting. Mr. Smolensky explained that the groundwater model is a tool that helps explain how groundwater moves through aquifers. It is a computer program that solves mathematical equations that fits within the laws of physics and governs how the groundwater model moves through the aquifer system. It examines how the groundwater is moving, how fast the groundwater is moving, and perform contaminant transport simulation which would determine the concentration of the contamination as it is transported by the groundwater.

Mr. Smolensky stated that he wanted to explain the state of the groundwater system and how the contamination has been observed and mapped. He stated that the chemicals that have gotten into the groundwater system over the past 45 years have resulted in a plume that extends on-site and off-site to a lateral extent and extending to south of the Hempstead Turnpike. In additional to extending laterally, the plume extends vertically into the aquifer system down to a depth of five or six hundred feet. There is one area where concentrations in the plume are higher than other areas off-site and this area is known as the GM 38 area. This area is where remedial action will occur and the groundwater model will assist in determining what that action should be.

Mr. Smolensky stated that since the plume had already migrated off-site, there was concern that the plume could potentially migrate further south and impact local water district supply wells downgradient of the plume. The groundwater model could assist in determining where to locate outpost monitoring wells which would detect any further migration of the plume and serve as an early warning system for local water suppliers. The model attempts to predict what supply wells may be impacted and put in place a treatment system on those wells.

Mr. Smolensky explained the simulations performed for the GM 38 area. The first simulation was a no action model simulation. This assumes that no action is taken off-site. The no action scenario is considered for the purpose of having a baseline of comparison.

Mr Smolensky stated that the next step is the capture zone assessment using particle tracking. This simulation tracks a particle of water moving through the aquifer system and determines where it is transported. This allows testing of well placement and pumping rates to examine if that particle is pulled into a particular remedial well. This simulation determines what area of the groundwater plume can be captured for a given hypothetical situation.

Mr. Smolensky stated that the last step is the mass transport simulation. This simulation determines the concentration of the contaminated water that would be captured by the remedial treatment.

Based on the simulations performed by the groundwater model for the GM 38 area, Mr. Smolensky stated that the option that he is presenting is the Two Well System using two remedial or extraction wells. One well would be pumping at 600 gallons per minute and the other at 300 gallons per minute. After the water is pumped, it goes through a treatment plant, and then must be discharged. As part of these scenarios, where to discharge this water must be considered: discharging the water far from the remedial wells because it doesn't interfere with pumping, discharging to some of the DOT basins, and discharging to Nassau County storm basins. Lastly, the pumping system is evaluated for different periods of time. Many different locations are tested through numerous model simulations to determine optimum locations of the two wells.

This is a preliminary run of the model based on data that the Navy has collected over the last two years. There is also quarterly monitoring data that Northrop Grumman generates as part of the program as well.

Mr. Colter stated that the model runs are being used to predict horizontal and vertical placements of the outpost monitoring wells. The Navy plans to continue to do this over

the next several months to further narrow down locations of these monitoring wells. Tentatively, there are five locations suited for the placement of these wells based on the groundwater model. In addition to finalizing these locations based on several more runs of the model, the Navy will have to determine the location of a treatment plant and a location for where the treated water will be discharged.

OPERABLE UNIT 2 GROUNDWATER ROD

Mr. Colter stated that in mid May 2002, the Navy issued a draft Record of Decision (ROD) for OU2. Mr. Colter explained that there may have been some confusion as why the Navy submitted the document when the DEC submitted their Record of Decision for OU2 in March 2000. The Navy participated with the DEC and reviewed the plan that the DEC wanted to put into place. Because the Navy along with Northrop Grumman and Occidental Chemical are named PRPs (Potentially Responsible Party) the Navy decided to participate in the implementation of that remedy. However, when the Navy implements a plan, it is required that the Navy must issue its own ROD for any action taken on Navy property. So the ROD issued by the Navy in May 2002 reiterated the Navy plans to carry out those components of the DEC ROD. Not all components of the DEC ROD were reproduced in the Navy ROD because the Navy was aspiring to achieve a cost sharing with the other responsible parties. However, these discussions are ongoing and have not been finalized.

Due to the impending transfer of Navy property to Nassau County, the Navy wanted to address that remedial actions have been put in place for the groundwater beneath the Navy property. This is why the groundwater has been divided to on-site and off-site groundwater.

Mr. Colter stated that with on-site groundwater, there will be a site deed restriction placed in the quickclaim deed. The restriction will state that no future occupant of the property can operate an extraction system without prior consent and approval from the DEC because of Grumman's treatment system in place to address VOC contamination beneath the Navy's property. Any pumping that occurs on the Navy's property could potentially affect the operation of the treatment system. The Navy will restrict groundwater extraction as a function of the deed of transfer. Mr. Colter explained that

there is a restriction in the agreement with Nassau County and the property would be cleaned to an industrial standard and be transferred with the understanding that the property must be used for economic redevelopment and residential use would not be an option.

Mr. Colter stated that the Phase II Environmental Baseline Survey (EBS) Report outlines all areas where there is a residual compound, its concentration, extent, and depth. This provides the public, awareness of these areas and that precautionary measures must be taken before any action or work is performed in one of these areas. Another restriction in the deed is that written permission must be obtained from the DEC before any action in one of these areas is pursued.

TAPP GRANT

Mr. Colter updated the RAB on the status of their TAPP grant. The RAB requested that the grant be used to hire an independent consultant to review the PCB dry wells that were investigated and Northrop Grumman's Feasibility Study listing the options to address them. At the request of the RAB, the DEC was contacted and the name of the director of the waste reduction institute at the Stonybrook Campus was recommended to the Navy. The Navy submitted the application to it's headquarters and this project is deemed a suitable project for the TAPP grant. Mr. Colter stated that the Navy does the contracting of the independent consultant, but it is up to the RAB to communicate their expectations to the consultant that they choose.

Ms. Hare adjourned the meeting at approximately 8:45 pm.

RESTORATION ADVISORY BOARD (RAB) MEETING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT BETHPAGE
SECURITY OFFICE, BETHPAGE, NEW YORK
January 8, 2003

The eleventh meeting of the RAB began at 7:00 pm. RAB members attending were: Judith Hare, Joe Kaminski, and Jim Colter representing the Navy; Steven Scharf and Gerard Burke representing the New York State Department of Environmental Conservation (NYSDEC); Al Taormina representing J.A. Jones, Inc.; community members: Jim McBride, Roy Tringali, Rosemary Styne, and Charles Bevilacqua representing the Conservation Fund Advisory Board. Members absent included: representatives from the New York State Department of Health (NYSDOH); representatives from the Nassau County Department of Health (NCDOH); representatives from the U.S. Environmental Protection Agency; representatives from the Nassau County Department of Public Works; representatives from the Bethpage Water District; community members: Linda Mangano, John Venditto, Edward Resch, and Thomas Clark.

There were also several attendees from the general public.

SITE 1

Mr. Brayack stated that the PCBs are the major concern at Site 1. In the past, hexavalent chromium and chlorinated solvents were also a major concern, however, sampling of the wells has shown that there is no remaining problem with hexavalent chromium. The original concern with this site has always been chlorinated solvents and the hexavalent chromium issues are minor in comparison with the issues surrounding the chlorinated solvents.

Mr. Brayack stated that during the investigation of PCBs in soil, a similar investigation was performed for chromium. Chromium exists in two forms: tri beta chromium which is relatively non-toxic and hexavalent chromium which is more toxic but will degrade to the less toxic tri beta chromium under normal conditions. Mr. Brayack stated that a series of toxicity leaching characterizations based on EPA procedure were conducted. This procedure is able to distinguish the hexavalent chromium versus the total chromium.

Hexavalent chromium is water soluble whereas total chromium does not dissolve very well. The state of New York has a guidance of 50 milligrams per kilogram for a residential standard for chromium. Data for Site 1 shows results of 10 milligrams per kilogram which is non-detect based on the New York guidance. None of the soils would be considered hazardous for chromium. Where there are elevated chromium levels, it has been concluded that they are stable and are not migrating or leaching so they are not a concern because these areas coincide with the PCBs and will be excavated.

Mr. Brayack stated that cadmium was also detected at Site 1. Cadmium is well absorbed by soils and will not migrate at significant rates. Cadmium is considered insignificant at levels below 20 milligrams per kilogram. At Site 1, there were some detections greater than 1000 milligrams per kilogram and did not pass RCRA standards. However, these areas also coincide with the PCBs contamination and will be excavated with the PCBs.

Mr. Brayack stated that Site 1 has been identified as a probable source area. The chlorinated solvents have been addressed with an air sparge system which has operated for four years and removed 3500 pounds of chlorinated solvents. The next step would be to excavate the site for PCB and cadmium contamination.

SITE 2

Site 2 is the Navy recharge basin area. As part of their investigation of this site, the Navy collected samples throughout the area of Site 2. The area of the sludge drying bed was excavated as part of the Site 1 Record of Decision. Any soils exceeding 10,000 micrograms per kilogram of PCBs was excavated. However, there were stray detections of PCBs throughout other locations on the site. Some of these detections were low level and in many cases less than the residential standard, in other areas the levels exceeded both residential and industrial standards. Additional samples were collected in October 2002 and some areas were found to exceed residential standards for PCBs. As part of their ROD, the Navy placed a gravel and soil cover over the areas where there was an active roadway.

SITE 3

Site 3 is a former salvage yard where scrap metal was disposed. Northrop Grumman scraped and sifted the soils to remove any metal pieces and placed several inches of clean fill over the area. The Navy collected samples in the area and found that the site met the requirements for the Record of Decision.

GROUNDWATER ISSUE

Mr. Colter stated that the Potentially Responsible Parties (PRPs) for the groundwater contamination are the Navy, Northrop Grumman, and Occidental Chemical. Prior to 1996, the Navy and Northrop Grumman conducted separate remedial actions for soils and separate investigations for groundwater. Northrop Grumman's off site and downgradient groundwater investigations determined that the Bethpage Water District Plant 6 had been impacted and they provided the funding to address this.

In 1996, the Navy, Northrop Grumman, and Occidental Chemical developed a joint Feasibility Study to address different alternatives to address the groundwater contamination. Northrop Grumman put in place an interim remedial measure with a pump and treat system at the southern boundary of their property. In 1998, that system became operational.

Further investigations revealed that Bethpage Water District's Plant 4 was impacted and that Plant 5 would be impacted at a later time. The Navy and Northrop Grumman provided funding to place treatment systems on those wells and those systems became operational in 1998.

Because Occidental Chemical is on the National Priorities List, they are subject to the enforcement of the EPA and the Navy and Northrop Grumman are subject to the enforcement of the New York State Department of Environmental Conservation (NYSDEC).

In September 2000, the EPA issued a ROD to address the portion of the groundwater contamination associated with Occidental Chemical. In November 2000, NYSDEC developed a Proposed Remedial Action Plan based on the Feasibility Study that the Navy and Northrop Grumman submitted. In March 2001, NYSDEC issued their ROD

and since then the Navy and Northrop Grumman have been collectively implementing portions of that remedy. The two main components of this ROD was the groundwater remedial program and protection of the public water supply wells. The vinyl chloride contamination associated with the Occidental site would be treated by an air sparge system. If any volatiles migrated past Occidental's property, it would be picked up by a downgradient system constructed by Northrop Grumman.

The NYSDEC's public water supply protection program consisted of payment from Northrop Grumman to the Bethpage Water District for treatment on wells at Plants 4 and 6. Additionally, early warning wells were installed upgradient of other water districts to determine any potential impact to those districts. If an impact was determined to be probable, then a treatment plan would be developed to treat those wells.

Mr. Colter stated that the Navy's ROD for groundwater is based on the NYSDEC ROD but only includes those components that will be funded by the Navy. The Navy ROD consists of two components: groundwater on-site of Navy property and groundwater off-site of Navy property. The off-site groundwater component is further divided into two components: groundwater remediation and groundwater public supply well protection.

Mr. Colter stated that the on-site groundwater will address the 105 acre parcel that will be transferred to Nassau County. The remedy is to restrict extraction of groundwater from Navy property from any future owner without permission from the Nassau County Department of Health and/or NYSDEC. Again, as with the Occidental site, any volatile organic compound that would migrate beyond Navy property would be addressed by the Northrop Grumman system.

Mr. Colter stated that the off-site groundwater will be addressed by removal of contaminants at the GM 38 area. The Navy will do a predesign investigation then construct and operate the system. The public water supply protection program consists of a series of vertical profile borings to obtain data for input in the groundwater model and will aid in determining the best placement of early warning wells that will be installed upgradient of water district wells. Once the optimal placement of these wells is determined, the Navy will have to establish an easement with the landowner to install the

well and the Navy must set up a long term easement so that they have continued access to that well for continued sampling.

GM 38 AREA

Mr. Porsche from Geraghty & Miller stated that the GM 38 area is a hot spot that exists in an area bounded by the Bethpage Water District's Plant 4 to the north and Plant 5 to the south. The proposed remedial system is a two well system. The system was initially designed to address an area with concentrations of 1000 parts per billion or higher. However, it was determined with the placement of the wells that has been selected, the system could remove mass down to levels in excess of 100 parts per billion. Mr. Wolfert stated that the two remedial wells are proposed to pump about 1100 gallons per minute which totals about a million and a half gallons of water per day. Based on the groundwater model results, these two wells pumping at that rate would remediate the hot spot to levels of 100 parts per billion in about a seven year period.

Mr. Porsche stated that the outpost monitoring well network will be developed to monitor the plume's migration as it approached public supply wells to the south of the site. Groundwater moves very slowly at rates of approximately half a foot a day. This system is intended to provide a five year warning period and will allow for a five year design and construction period before the plume will impact public supply wells.

Mr. Porsche stated that determining which wells could potentially be impacted was based on groundwater modeling efforts. The groundwater modeling consists of two components: particle tracking and contaminant transport modeling. Particle tracking predicts the path that the plume will take over time as it moves through that aquifer. Contaminant transport modeling predicts a concentration that a given well will be impacted by. By assessing these two components, the model can predict the timeframe of the impact, the concentration at which the supply well will receive the impact, and where monitoring should occur to detect impact to the supply wells.

Mr. Porsche stated that based on the particle tracking results, it could be predicted that South Farmingdale wells 6150, 4043, 5148 and New York Water Service wells 8480 and 9338 would be impacted. Well 6150 is south of the Grumman facility and wells 4043

and 5158 are to the southeast of the facility. The New York Water Service wells are to the southwest of the facility. Particle tracking did not indicate that the Town of Hempstead, Levittown Water District would be impacted. However, the proximity of this well relative to the plume's western edge, it is thought that an outpost well should be provided for this provider as an added precautionary measure. The contaminant transport modeling predicts that well 4043 would be impacted in 11 years, 6190 which is closer to the plume's leading edge would be impacted in 4 years and wells 8480 and 9338 in 20 years. The impact on these wells is defined as a detection of volatiles above a level of half a part per billion which is still well below drinking water standards.

With regard to selecting the outpost monitoring wells, particle tracked was used to determine the appropriate distance from the supply well to offer the five year protection period. Based on the results of the modeling, four clusters of outpost monitoring wells are being recommended. There will be two or three wells associated with each well field. Each of the suppliers will have a five year warning period with the exception of South Farmingdale well 6150 which will have a four year period.

Ms. Hare adjourned the meeting at approximately 9:20 p.m.