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COMMONWEALTH OF PUERTO RICO / OFFICE OF THE GOVERNOR

May 2, 2002

Mr. Chris Penny
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**COMMENTS ON VARIOUS DOCUMENTS RELATED TO FORMER NASD,
VIEQUES**

Dear Mr. Penny:

Enclosed are the Commissioner of Vieques and our comments on several documents submitted to the Environmental Quality Board. The documents reviewed are:

- 1- Draft Soil, Groundwater, Surface Water, and Sediment Background Investigation Report, Former U.S. Naval Ammunition Support Detachment Vieques Island, Puerto Rico, Dated July 15, 2001
- 2- "No Further Action Determinations" AOCs B, C, P, K and L and SWMUs 10, 14, 15 Former U.S. Naval Ammunition Support Detachment Vieques, Puerto Rico.
- 3- Final Draft Site Management Plan Former NASD Facility, Vieques Island, Puerto Rico
- 4- Final Expanded Preliminary Assessment/Site Investigation, Volume I- Report, October 2000
- 5- Draft Expanded Preliminary Assessment/Site Investigation, Phase II, Key Sites, CH2M Hill, Tampa, Florida, July 2001
- 6- Green Beach
- 7- Environmental Assessment for Transfer of the U.S. Naval Ammunition Support Detachment Vieques, Puerto Rico, November, 2000

Our recommendations will be discussed on our meeting on May 7th & 8th, 2002 at our Hato Rey Offices.

Cordially,

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Technical Special Aid
Environmental Quality Board

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COMMENTS ON GREEN BEACH:

Green Beach is an area in the former NASD known as a recreation destination in a unique ecological setting. Historically, it was part of the "Western Training Area" and was used by the Navy and the Marines for amphibious landing exercises.¹ The investigation and clean-up of Green Beach and other suspected OE sites must be protective of the actual human exposures, and cannot rely solely on the illusory designation of the areas as a wildlife refuge.

EQB request that the Navy take the following actions which are discussed in more detailed comments below.

- *To the enable EQB and the public to understand and accept the findings of OE site assessments, investigations, work plans and other similar documents need to take into account actual site uses and human exposures.*
- *To provide a clear overview of the proposed management of the entire former NASD property, Green Beach, its preliminary ordnance and explosive investigation, and the actions proposed thereon must be included in the Site Management Plan.*

MAJOR COMMENTS

1) The current and potential human exposures and the environmental receptors do not appear to be factored into the site investigations and risk assessments prepared for OE and other contamination at Green Beach.² Green Beach's designation as a Conservation Zone does not alter the fact that it is now and will continue to be used and accessed by humans.

A. The risks to site workers, recreational users and trespassers do not appear to be adequately addressed. Green Beach is an inviting beach just a seven-mile boat ride from the Puerto Rican mainland which is acknowledged as a "popular anchorage spot for pleasure boats."³ It is a destination where the citizens of Puerto Rico and tourists go for water sports and beach activities compatible with its use as a wildlife refuge (i.e., fishing, wildlife observation, wildlife photography, environmental education, boating, swimming, and scuba diving). The beach is accessible by land through a security gate at the fenced entrance to NASD; however, uncontrolled access at the NASD fence is a persistent problem as is access by water.

¹ Interview of Vieques residents and Final Preliminary Ordnance and Explosive Site Assessment Report for the Green Beach Area ("OE SA"), CH2MHill, July 2001 at 2-3 and 2-5 <<http://www.vieques-navy-env.org/library/default.asp>>.

² 40 C.F.R. §300.430(d)(4).

³ *Id.* at 2-1.

We recommend that the known and reasonably expected human uses be considered when developing sample plans, analyzing data and evaluating remedial action.

- B. The risks to known wildlife and habitat exposures at and around Green Beach (including endangered and threatened sea turtles, endangered manatees and the Northwest Coast Seagrass Beds Conservation Zone) do not appear to be adequately addressed. Green Beach is an important nesting ground for sea turtles. Of the four (4) species of sea turtles federally listed as endangered or threatened known to inhabit the waters surrounding Vieques, two species – the hawksbill sea turtle (*Eretmochelys imbricata*), and leatherback sea turtle (*Dermochelys coriacea*) – have been recorded as nesting at Green Beach.⁴ Also, the Northwest Coast Seagrass Beds Conservation Zones in the Vieques Sound lie due north of Green Beach. These beds are known feeding areas for sea turtles as well as being feeding and resting areas for the West Indian Manatee, another federally listed endangered species.⁵ Manatees have also been sighted in unspecified areas along the western coast of NASD where Green Beach is located.⁶

We recommend that the known and reasonably expected wildlife and habitat exposures be considered when developing sample plans, analyzing data and evaluating remedial action.

- 2) The preliminary ordnance and explosive investigation at Green Beach and the actions proposed for that site are not addressed in the Draft Site Management Plan. The Navy conducted a preliminary investigation for ordnance and explosive waste ("OE"), including unexploded ordnance ("UXO"), and prepared the Final Preliminary Ordnance and Explosive Site Assessment Report ("OE SA") for the Green Beach Area.

We recommend that the Draft Site Management Plan incorporate the Green Beach OE SA and any other site specific investigations conducted within the former NASD property to ensure that a comprehensive management plan is developed for the entire property.

⁴ Draft Environmental Assessment for the Transfer of the Naval Ammunition Support detachment Property, August 2000, at 3-34 <<http://www.vieques-navy-env.org/library/default.asp>>.

⁵ *Id.*, at 3-33.

⁶ *Id.*

- 3) OE site assessments, investigations, work plans and other documents were not submitted to the Commonwealth regulatory agencies or the public for review and comment. Neither the Final Preliminary Ordnance and Explosive Site Assessment Report for the Green Beach Area nor any work plans prepared for this work were presented to PR EQB in draft form for its comments. Under CERCLA §120(f) PR EQB has the right to participate in "the planning and selection of remedial action, including but not limited to the review of all applicable data as it becomes available and the development of studies, reports, and action plans."⁷

We recommend that all proposed OE investigation work plans, statistical geophysical sampling approaches and final reports be submitted to PR EQB for its review and comment prior to the Navy's implementation of such plans.

ADDITIONAL COMMENTS

- 4) The Draft Site Management Plan does not address where the Green Beach OE SA deviates from the standard accepted OE investigation process. The Green Beach OE SA followed many of the standard environmental contamination cleanup procedures implemented at other Navy OE cleanup projects (i.e., Adak, Alaska) including the following: development of an Archive Search Report (ASR); development of an investigation work plan, including a reasoned statistical geophysical sampling approach; performance of field sampling including a geophysical prove-out; and the analysis field data and draw conclusions about the probability of OE contamination at the site. However, the following deviations need to be more fully addressed in the Draft Site Management Plan:

- A. The clearance depth of 1-ft. bgs appears inadequate. One foot of clearance is inadequate to ensure the protection of human health and the environment given the site's actual recreational uses (i.e., digging sand castles) and sensitive ecology (i.e., sea turtle nesting and beach erosion after storms). While PR EQB recognizes that DDESB 6055.9-STD provides a default clearance depth of 1-ft. for wildlife areas, this guidance document also encourages project managers to modify the default clearance depths based on actual site conditions and needs. See OE SA §3.1.5, page 3-5.

We recommend that the data developed from the Green Beach investigation be reinterpreted to the extent possible using a more appropriate depth.

⁷ 42 U.S.C. §9620(f).

- B. No Conceptual Site Model (CSM) was developed for Green Beach. A CSM will allow a better understanding of the suspected ordnance delivery methods and expected OE type and depth. The CSM needs to include the appropriate site-specific adjustments required to properly implement the general guidance provided in Huntsville Engineering and Support Center Document EM 1110-1-4009 (referenced in OE SA §3.1.7, page 3-7). The sampling could have been biased toward the areas most likely to be contaminated as opposed to those most easily traversed, had a CSM been prepared prior to the investigation. At this point, the CSM will illustrate whether or not the preliminary investigation is adequate.

We recommend that CSM be prepared for the entire former NASD property, including Green Beach.

- C. No description of contents of the WTA training operation films was provided. The ASR is a comprehensive list of archival materials and documents reviewed as part of the site assessment. Unless the film contents are included in the ASR, it will be presumed that the films were not reviewed. See OE SA §3.1.3.1, page 3-4.

We recommend that the ASR include a description of contents of the WTA training operation films.

- D. The geophysical prove-outs at NASD, including Green Beach, do not appear to have been conducted in strict accordance with the Huntsville Engineering and Support Center EM 1110-1-4009 document. This document is referenced in the OE SA report at §3.1.7, page 3-7. The following Green Beach procedures need to be addressed to the extent possible with respect to EM 1110-1-4009: (i) the adequacy of the number of seeded OE; (ii) the detection limits for the sensors and whether they were tested (iii) whether or not the prove-out area was constructed with the knowledge of the geophysics team; and (iv) the actual results of the prove-out (probability of detection, maximum detection depth). See OE SA §3.1.5, page 3-5.

We recommend that all geophysical prove-outs at NASD be conducted in accordance with the Huntsville Engineering and Support Center EM 1110-1-4009 document. Since the prove-out for Green Beach had already been completed, the report should address how this prove-out complied with EM 1110-1-4009, and if applicable, where it did not comply and why.

- E. The accessibility determination process used at Green Beach does not appear to be addressed in the OE SA or the Site Management Plan. A discussion of the accessibility determination process is required to better explain the judgments made with respect to the OE exposure and contamination based on terrain,

vegetation and accessibility. There is precedence for where the Navy has shared such accessibility determination information to the stakeholders for review at the successful (i.e., Adak, Alaska OE cleanup). See OE SA §3.1.7, page 3-7.

We recommend that the accessibility determination information from the Green Beach investigation be incorporated into the Site Management Plan.

- G. Invalid data appears to be used in the statistical analysis. In accordance with standard geophysics practice, useless data must be excluded in the statistical analysis. Specifically, eighty-seven anomalies (15%) were not investigated because of their proximity to a molasses tank (an area which would probably have been excluded from investigation had a CSM been developed). While it should be noted that no further investigation of these invalid data is warranted due to their proximity to a large ferrous object, these data must not be part of the statistical analysis.

We recommend that invalid data be excluded from the statistical analysis.

- H. Anomalies deeper than one-foot were not investigated. There are 72 anomalies noted as "deeper than 1.5 feet," "nothing found to 1 foot," or some variation thereof. These data seem to indicate that there are many large anomalies deeper than the investigation depth. Further investigation of these anomalies is warranted within the two blocks most concentrated with anomalies (VGB-191 through VGB-206 and VGB-214 through VGB-219). Based on the actual site use for recreation and the sensitive ecology, a determination must be made as to whether or not the other anomalies lie at a depth that puts human health and/or the environment at risk (see Comment "D" above).

We recommend that the anomalies noted at blocks VGB-191 through VGB-206 and VGB-214 through VGB-219 be investigated.

- I. No site limitations for Green Beach are included in the Draft Site Management Plan. The OE SA recommends that public access to Green Beach be limited to daytime uses between the hours of 6:00 a.m. and 6:00 p.m.¹ However, the Draft Site Management Plan for NASD does not mention the Green Beach site as an area of concern, nor this proposed access limitation. It is not clear from the either Draft Site Management Plan or the OE SA why such access limitation is required. If suspect OE contamination is to remain in place at Green Beach it is even more unclear how unlimited access during the day from the land and continuous unlimited access from the water are sufficiently protective of human

¹ *Id* at 4-1.

health and the environment.

We recommend that the Site Management Plan address any proposed access limitations to Green Beach.

K. No remedial actions proposed for Green Beach as a result of the OE SA are included in the Draft Site Management Plan. Upon the completion of thorough site investigations and risk assessments, the Draft Site Management Plan needs to identify remedial approaches and present a range of remedial options for Green Beach upon which the stakeholders and the public can comment, keeping in mind that engineering controls (i.e., removal and treatment) are preferred over non-engineered site measures.⁹ However, even where contamination is to be left in place as a last resort, the non-engineered site measures proposed must be adequate and effective in protecting people from areas of contamination. While access limitation have been achieved on some sites through the combined use of fences, posted signs, area patrols, video surveillance and the establishment a fund for ongoing operation and maintenance, such limitations would have to be proven to effectively control access to the beach from the land and the water before they could be implemented at Green Beach.

We recommend that the Site Management Plan address any proposed remedial actions for Green Beach.

5) We could not determine how Green Beach and the other Wildlife Refuges on the former NASD will be managed in compliance with the National Wildlife Refuge System Administration Act. The legislation authorizing the transfer of this property to DOI specifically designates the property as a Conservation Zone and requires that the wildlife refuge be managed under the National Wildlife Refuge System Administration Act.¹⁰ The Act states that the fundamental mission of the Refuge System is wildlife conservation and it requires that the biological integrity, diversity, and environmental health of the Refuge be maintained.¹¹ It also identifies wildlife dependent recreational uses (i.e., hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation) as priority general public uses of Wildlife Refuges that are legitimate and appropriate.¹² Wildlife conservation and the priority public uses are to receive enhanced consideration over other uses in all planning and management

⁹ 40 C.F.R. §300.430(a)(iii)(D).

¹⁰ §1508(a)(1) and (c)

¹¹ 16 U.S.C. §668dd(a)(2).

¹² 16 U.S.C. §§668ee (2) and 668dd(a)(3)(C).

¹³ *Id.*

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decisions.¹³

We recommend that the Site Management Plan address how the Wildlife Refuges, including Green Beach, will be managed in accordance with the National Wildlife Refuge System Administration Act.

- 2) We could not determine how the OE SA data for Green Beach factored in current and potential threats to human health and the environment. The National Contingency Plan ("NCP") requires remediating parties to conduct a remedial investigation/feasibility study in order to adequately characterize the site for the purpose of developing and evaluating effective environmental remedial alternatives.¹⁴ In spite of Green Beach's use designation as a wildlife refuge, the NCP requires a site-specific baseline risk assessment that characterizes both the current and potential threats to human health and the environment.¹⁵ Such threats include those to the known and reasonably foreseeable site workers, recreational users and trespassers. On sites similar to Green Beach, courts have held that the Remedial Investigation Reports were insufficient where the remediating party relied on assumptions including: (a) that the use and character of the site and the adjacent waters would never change, (b) that the security fence and warning notices will forever remain in place and in good condition, (c) security fence and warning notices were adequate to address the risk of actual or potential harm to persons working on the site, trespassers and employees, and (d) where the potential existed for soils and/or waste materials to migrate under heavy precipitation or flood conditions.¹⁶

Under the NCP, remedies must meet the dual threshold requirements of both protecting of human health and the environment and compliance with applicable rules and regulations ("ARARs").¹⁷ The NCP requires that proposed remedial alternatives, including institutional controls, be evaluated against each other using the following nine criteria: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility or volume through treatment; (5) short-term effectiveness; (6) implementability; (7) costs; (8) commonwealth acceptance; and (9) community acceptance.¹⁸ This process is

¹³ *Id.*

¹⁴ 40 C.F.R. §300.430(d)(1).

¹⁵ 40 C.F.R. § 300.430(d)(4) (emphasis added).

¹⁶ *United States v. Conservation Chemical Co.*, 619 F. Supp. 162 at 196-197 (W.D. Mo., 1985) (The court examined at length the report of a Special Master and its interpretation of RCRA and CERCLA. The Court adopted the special master's reports for the most part, reserving some issues unrelated to this matter for trial.)

¹⁷ 40 C.F.R. §300.430(e)(2). See *Ohio v. EPA*, 997 F.2d 1520, 1537 (D.C. Cir., 1993).

¹⁸ 40 C.F.R. §300.430(e)(9)(iii).

to be used as a comparative measure to select the best remedial alternative.

We recommend that the Site Management Plan include a discussion of the remedy selection process for Green Beach and how any proposed remedies meet the nine NCP criteria with respect to current and potential threats to human health and the environment.

- 8) We could not determine how reasonably anticipated future land use factors were taken into account. EPA's Office of Solid Waste and Emergency Response ("OSWER") 1995 directive "Land Use in the CERCLA Remedy Selection Process" provides guidance in developing reasonable assumptions regarding future land uses.¹⁹ This document requires that reasonably anticipated future land use take into account the following factors: environmental justice issues; proximity of the site to the flood plain, proximity of the site to critical habitats of endangered or threatened species (i.e., sea turtle nesting grounds and manatee seagrass beds) and geographic and geologic information (beach redistribution associated with storm and hurricanes).²⁰

We recommend that any remedy selected for implementation on Green Beach must comply with the OSWER directive.

SUGGESTIONS FOR FUTURE OE INVESTIGATIONS AT VIEQUES ISLAND

- 7) We suggest that it be determined whether or not Explosive Ordnance Disposal from the 1940's exist at NASD. The description of SWMU 4 states it was an EOD range from at least 1969 - 1979 and may, or may not have, been used in the 1940's. This raises the suspicion that there may be EOD ranges on NASD that were in use in the 1940s. Additional archive research and/or additional site characterization of NASD need to be conducted to locate this possible EOD area. (OE SA §2.3.1, page 2-5.)
- 8) We suggest that the apparent discrepancies between whether or not munitions were reworked at NASD be resolved. The description of SWMU 4 states that it has been found to contain material from rework of munitions. However, the EBS and Draft Site Management Plan state that no munitions rework was done on NASD. This apparent contradiction must be resolved prior to the conclusion of the NASD OE investigation. (OE SA §2.3.1, page 2-5.)
- 9) We suggest that the type and extent of operations at the Western Training Area be investigated and documented. The Green Beach OE SA documents the existence of the Western Training Area. The same historical records research described for Green Beach

¹⁹ 1995 WL 457568.

²⁰ *Id.* at 5.

in §2.6.1 needs to be conducted for the entire former NASD property and the results must be documented in a comprehensive ASR. (OE SA §2.3.2, page 2-5.)

- 11) We suggest that the "meandering path investigation" be used only where it can be documented that the OE contamination is dispersed or distributed in a homogeneous manner. The "meandering path investigation" used at Green Beach is, according to the Huntsville Engineering and Support Center EM 1110-1-4009, a method of "Probability Sampling" that is only valid for areas where the OE contamination is dispersed or distributed in a homogeneous manner. This meandering path method must not be used unless it is demonstrated through the use of a CSM that the OE contamination is expected to have a homogenous distribution. (OE SA §3.1.5, page 3-5.)
- 12) We suggest that knowledgeable field investigators trained to recognize and identify OE use consistent and unambiguous terminology when documenting site investigations. Some field investigator's notes indicate an apparent inexperience with OE identification. Others use inconsistent and ambiguous terminology (i.e., "nothing found," "no contact," "nothing found to 1 foot," "deeper than 1 foot"). In accordance with accepted industry and scientific practice, trained investigators using standardized report terminology should be used in future reports. (OE SA Appendix D.)

DRAFT

**COMMENTS ON DRAFT FINAL
SITE MANAGEMENT PLAN
FORMER NASD FACILITY,
VIEQUES ISLAND, PUERTO RICO**

EQB request that the Navy take the following actions which are discussed in more detailed comments below

- *To provide a systematic and verifiable approach for performing characterization of OE contamination at the former NASD property, Navy needs to follow the three stage management process described in the Draft Handbook on the Management of Ordnance and Explosives at Closed, Transferred, and Transferring Ranges (EPA, June 2001)*
- *Given that Navy ammo piers are often found to have OE contamination, Mosquito Pier needs to be designated an Area of Concern.*
- *In order to conduct an adequate investigation and site assessment, SWMU-4 must be extended to include the underwater portions of the 3,000-ft radius.*
- *To ensure that all contamination is properly and fully investigated, the environmental investigations and OE investigations must be conducted together.*
- *The Remedial Investigation process must be applied to the identification and removal of OE contamination at NASD.*
- *To address issues left unresolved by the Environmental Background Study, specific comments and concerns with regard to the identification and characterization of potentially OE contaminated areas must be addressed.*

Major Comments

- 1) The Draft Final Site Management Plan (DFSMP) does not discuss how ordnance and explosives will be managed. Given the importance of OE issues to the government and residents of Puerto Rico and the potential harm to human health and the environment, this issues should be addressed in the Site Management Plan.

We recommend that the three stage management process described in the *Draft Handbook on the Management of Ordnance and Explosives at Closed, Transferred, and Transferring Ranges* (EPA, June 2001) and summarized herein be followed:

Stage 1: Set Goals of the Investigation

The project team, including stakeholders, is established and the goals of the site characterization process are identified. These decision goals will be used to determine the amount of uncertainty that can be tolerated, the areas to be investigated, and the level of investigation required.

Stage 2: Establish the Objectives of the Investigation and Plan the Investigation

A. Develop a Conceptual Site Model (CSM) for the NASD to establish a working

hypothesis of the nature and extent of OE contamination and the likely pathways of exposure to current and future human and ecological receptors.

- C. Develop Preliminary Remediation Goals (PRGs). PRGs are the preliminary goals for the depth of OE clearance and are directly related to the specific media that are identified in the CSM as potential pathways for OE exposure. The PRGs for OE clearance are a function of the goal of the investigation and the reasonably anticipated land use.
- D. Perform an assessment of currently available information to determine data needs and develop an Archive Search Report (ASR). In order to establish the objectives of the investigation, it is necessary to first identify what is known or unknown about the site (i.e., SWMU 4 may, or may not have, been used as an Explosive Ordnance Disposal in the 1940's; there may be other Explosive Ordnance Disposal ranges on NASD that were in use in the 1940s; SWMU 4 has been found to contain material from rework of munitions; existence of the Western Training Area). All existing documentation on the past uses of the property needs to be reviewed and interviews of knowledgeable persons need to be conducted. The review must be documented in an ASR document which will be distributed to all stakeholders. This ASR gets updated whenever new information is discovered during the course of the project.
- E. Develop the project schedule, milestones, resources, and regulatory requirements.
- F. Identify remedial objectives to direct the geophysical investigations that will be used. Like the CSM and the PRG, the remedial objectives are a working hypothesis of what is expected to be found, the volume of contamination that must be dealt with, the media with which it is associated, and the nature of the technology that will be used to conduct the cleanup.
- G. Develop data quality objectives (DQOs) for the investigation. The DQOs determine the information that must be acquired to meet the decision goals previously identified.

Stage 3: Design, Implement, and Document the Sampling and Analysis Plan

- A. Identify the appropriate detection technologies and the sampling methods that meet the DQOs. Quality Assurance and Quality Control (QA/QC) procedures must be used to ensure that the identified DQOs are met.
- B. Implement the Sampling and Analysis Plan.
- C. Document the findings of the site investigation in a report.
- D. Develop a site response strategy. The site response strategy pulls together the information acquired during the investigation and allows the project team to make educated risk management decisions through the remedy selection process.

- 2) Mosquito Pier was not identified as an Area of Concern. Mosquito Pier was used since the early 1940's for handling ordnance. Areas around Navy ammo piers are routinely found to be heavily contaminated with ordnance that was either accidentally dropped or intentionally discarded overboard. The Navy has performed underwater ordnance

investigations and removals around ammo piers at other sites (i.e., Finger Bay Pier and Sweeper Cove in Adak, Alaska; Mare Island, California; and Jackson Park in Bremerton, Washington). (DFSMP §1.5, page 1-5.)

We recommend that, Mosquito Pier be identified as an Area of Concern for its potential OE contamination; it must be subject to investigation in accordance with standard practice, previous precedent and the EPA Draft OE Handbook.

- 3) SWMU-4 does not include that portion of the radius which extends under surface waters. The 3,000-ft. radius around SWMU-4 stops at the shoreline and does not continue into the water. (EBS page 6-3.) The potential for underwater OE contamination exists and needs to be evaluated in accordance with standard practice, previous precedent and the EPA Draft OE Handbook.

We recommend that SWMU-4 be extended to include that portion of the radius which extends under surface waters.

- 4) The environmental investigations and OE investigations appear to be bifurcated into separate tasks. To ensure that all contamination is properly and fully investigated, the environmental investigation must be conducted at the same time as the OE investigation so that sample locations can be biased towards areas of suspected contamination.

We recommend that the environmental investigations and OE investigations be conducted contemporaneously and in conjunction with one another. The following comments are directed to this goal.

- A. The Site Investigation does not discuss OE investigation nor a sampling program to detect ordnance hazards. The existing OE data needs to be reevaluated in accordance with the process outlined in the EPA Draft OE Handbook to determine if existing data gaps necessitate additional site sampling for OE contamination. (DSMP §2.2.2, page 2-4.)

We recommend that the OE archives and data be assessed to identify data gaps.

- B. OE contamination appears to precede environmental sampling. Sampling and risk screening for OE contamination must be conducted in conjunction with the environmental sampling or screening to ensure adequate delineation of contamination. A thorough OE site characterization in accordance with Chapter 7 of the EPA Draft OE Handbook and the precedent set by the Navy at Adak Island, Alaska needs to be used at the former NASD site. (DSMP Table 3-1, page 3-11 and EBS page 5-1.)

We recommend that OE contamination be investigated contemporaneously with other suspected site contaminants to ensure effective identification and removal of

all site contamination.

- 5) It appears that the RI process is not to be applied to the identification and removal of OE contamination at NASD. The EPA Draft OE Handbook describes an OE investigation and decision process that is very similar to the RI process described here and used at other Navy OE cleanup sites. (DSMP §3.3.2.2, page 3-13.)

We recommend that the identification and removal of OE contamination follow the RI process.

Additional Comments:

- 6) There are flaws within the Environmental Baseline Study (EBS) that is the source document for identifying Areas of Concern. The EBS itself does not appear to be in accordance with standard practices or the available guidance documents, including the EPA Draft OE Handbook. (DSMP §2.2.1, pages 2-3 and 2-4.)

We recommend that the following specific comments and concerns with regard to the identification and characterization of potentially OE contaminated areas be addressed:

- A. The report does not identify the qualifications of the specialty consultants. The qualifications of Program Management Company for identifying OE contaminated sites needs to be presented. Likewise, the unnamed firm specializing in the analysis of historical aerial photos must be identified, its qualifications need to be presented and the report on its analysis needs to be provided for review. (EBS page 4-23.)

We recommend that the qualifications and reports of the specialty consultants be presented in the report.

- B. No CSM was developed for the NASD property. No CSM was developed for former NASD in accordance with standard practice and the EPA Draft OE Handbook. Thus, it is not possible to determine whether the sites identified as potentially having OE contamination are comprehensive or whether other sites remain unidentified.

We recommend that a CSM for the entire NASD property be developed.

- C. It does not appear that a complete historical records and aerial photo analysis has been conducted. It appears that the Archive Search Report was not completed in accordance with standard practice and the EPA Draft OE Handbook since the only records at LANTDIV and U.S. Naval Station Roosevelt Roads were reviewed. (EBS page 1-10.) In addition, a complete historical records search,

including a complete aerial photo analysis, for the 1940's needs to be conducted to ensure that possible OE contamination from the 1940's is identified. (EBS page 4-23.)

We recommend that a complete historical records and aerial photo analysis review for the entire NASD property be conducted.

- E. The report does not identify the training activities conducted at the former NASD. While the report acknowledges that training occurred on NASD in the 1940's and 1960's - 1980's, it does not address this topic in depth. Any documentation of this training needs to be included. (EBS page 3-2.)

We recommend that the former training activities be investigated.

- E. The report does not identify the location of the possible Open Burn/Open Detonation (OB/OD) operations from the 1940's. The Navy conducted OB/OD of unserviceable munitions from the 1960's - 1980's thus it is highly likely that these operations were conducted in the 1940's as well. (EBS page 3-2). The 1940's OB/OD operations may have resulted in OE contamination that was not addressed nor identified during this investigation process.

We recommend that the location of the likely Open Burn/Open Detonation (OB/OD) operations from the 1940's be investigated.

- G. Appendix B is not available for those wishing to review the Draft SMP and its referenced documents. A copy of Appendix B, which list of the records reviewed, was not made available with the EBS and cannot be obtained through the Navy's on-line library (EBS page 4-1). Under CERCLA §120(f) all applicable data, studies and reports must be made available for PR EQB review.

We recommend that a copy of Appendix B available on the website and in the repositories.

- H. The OE site investigation must be performed by persons technically knowledgeable of OE issues. (EBS page 4-5 and IAW the EPA Draft OE Handbook). The site personnel conducting site reconnaissance of the NASD were not knowledgeable about OE and UXO. All OE discovered by laypersons not familiar with OE identification must be identified and documented so this information can be used for risk analysis. (EBS page 6-25.)

We recommend that the OE site investigation be performed by persons technically knowledgeable of OE issues.

- I. The report does not identify the investigation goals. Investigation goals including the determination of the nature, extent and location of OE contamination in

accordance with the EPA Draft OE Handbook must be developed before OE investigations can proceed. (EBS page 4-5.)

We recommend that complete investigation goals be developed.

- K. ~~It appears that no geophysical equipment was used during the site reconnaissance. The lack of appropriate detection equipment makes the identification of subsurface OE contamination unlikely. In accordance with standard practice and the EPA Draft OE Handbook an appropriate geophysics program must be conducted for a complete investigation. (EBS page 4-6.)~~**

We recommend that an appropriate geophysics program for the investigation of former NASD be implemented.

- L. ~~It appears that the expert opinion gleaned from the original aerial photo analysis were given less weight than the opinions of laypersons. The aerial photos experts identified "trenches", "debris" and "scars" on the former NASD property, however, a number of these suspected areas were attributed from aerial photos by local interviewees to cattle grazing activity. It is unlikely that laypersons unskilled in aerial photo analysis can accurately attribute the cause of these trenches, debris and scars to something as common as cattle grazing. (EBS pages 4-23 and 4-24.)~~**

We recommend that the relative importance of the opinion of laypersons interviewed be evaluated against the expert opinions from the aerial photo analysis.

**EVALUATION OF "NO FURTHER ACTION DETERMINATIONS"
AOCs B, C, F, K, AND L AND SWMUs 10, 14, AND 15
FORMER U.S. NAVAL AMMUNITION SUPPORT DETACHMENT
VIEQUES, PUERTO RICO**

Overview

The Navy conducted Preliminary Assessments/Site Investigations (PA/SI) of eight sites at the Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. Based on these PA/SIs, TRC understands that the Navy plans to recommend No Further Action (NFA) at AOCs B, C, F, K, and L and SWMUs 10, 14, and 15. TRC reviewed the following documents to evaluate the anticipated Navy NFA recommendations.

- Final Expanded Preliminary Assessment/Site Investigation, Volume I - Report, CH2MHill, Tampa, Florida, October 2000
- Draft Expanded Preliminary Assessment/Site Investigation, Phase II, Seven Sites, CH2MHill, Tampa, Florida, July 2001

Additional information was also obtained for these sites from the following document.

- Phase II RCRA Facility Assessment of the Naval Ammunition Facility, A.T. Kearney, Alexandria Virginia, October 1988.

TRC's comments are organized below into major comments pertaining to the entire review, then by each separate AOC/SWMU within the two source reports.

Major Comments

1. The NFA recommendations made by the Navy at the eight locations can not be fully evaluated without detailed information regarding past activities at these sites. The Navy has used Vieques Island since the early 1940s, yet the site descriptions provided in the PA/SIs summarize current conditions with only a brief reference to former use. The PA/SIs did not present or reference any studies of archives, records, reference sources or interviews conducted to document past site activities. This information is essential to evaluate whether the site surveying and testing performed by the Navy is adequate, especially with regard to munitions handling and storage. Since munitions were stored and disposed on the western portion of the island, it is vital to provide additional discussion of past site use.
2. Additional geophysical survey data is necessary at each site prior to concluding that NFA is appropriate. Because of the long history of military use of Vieques Island, it is likely that unknown trenched waste disposal areas as well as surface and subsurface munitions storage and disposal areas are present that might not be identified by an archive search.

3. **The NFA recommendations planned by the Navy are not acceptable without additional information/investigation at AOC B, AOC C, AOC F, AOC K, AOC L, SWMU 10, SWMU 14, and SWMU 15. The additional information/investigation necessary is identified in comments regarding each AOC or SWMU in the next section of this report.**
4. **Munitions utilization records for the Island need to be evaluated to identify the chemical composition of munitions historically stored at the Naval Ammunition Support Detachment. The chemical composition data must then be evaluated to determine appropriate chemical analytes for investigation of possible munition disposal sites.**
5. **The Navy plans to make NFA recommendations at these eight sites prior to completing a Preliminary Risk Evaluation (PRE). While the Navy does recommend that PREs be completed for each site, the NFA decisions should not be finalized until after the PREs are completed. The PREs need to consider ecological benchmarks in addition to human health.**
6. **Since the Draft Soil, Ground Water, Surface Water, and Sediment Background Investigation Report was not completed at the time of the PA/SIs for AOCs C and F and for SWMUs 10, 14, and 15, the Navy used other data to evaluate chemical concentrations relative to "background." Prior to moving forward with NFA recommendations for these sites, the Navy needs to evaluate the laboratory test results against the newly derived background values.**
7. **The Navy used the EPA Region III risk criteria for screening chemical concentrations at AOCs C and F and SWMUs 10, 14 and 15. However, after those PA/SIs were completed, EPA replaced the Region III the screening criteria with Region IX Preliminary Remediation Goals (PRG). The NFA recommendations for these sites need to be screened against the PRGs.**
8. **The Navy should provide results of closure surveys of all drainage structures at SWMU 14, AOC C, AOC F and AOC B in which the integrity of the structures is surveyed for cracks or breaks. Based on the findings of this survey, additional soil and ground water samples may be required at areas of questionable integrity to verify that there have been no impacts to the environment.**
9. **The Navy filtered ground water samples prior to analysis for dissolved metals. Filtration is no longer accepted by EPA for use in risk assessments (Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Ground-water Sampling Procedures, EPA/540/S-95/504 and U.S. Environmental Protection Agency Region II Ground Water Sampling Procedure Low Stress (Low Flow) Purging And Sampling). Future groundwater sampling should conform to EPA guidance.**

***Comments on Final Expanded Preliminary Assessment/Site Investigation, Volume I –
Report, October 2000***

SWMU 10 – Waste Paint and Solvents Disposal Site

Site Summary: SWMU 10 is an area located outside the Paint Locker, Building 4001, where waste paints and solvents were allegedly spilled. This area may have been in use since the mid-1970s.

PA/SI Investigation Summary: Ten surface and ten subsurface soil samples were collected from evenly-spaced locations around the perimeter of the building. Samples were analyzed for VOCs, SVOCs, pesticides/PCBs, and inorganic compounds.

Soil testing results indicated concentrations of aluminum, arsenic, iron, lead, and thallium present above residential PRGs or leachability criteria. The Navy suggests that these concentrations are below background but the data were not compared to the NASD background values because the background study was conducted after the PA/SI. Concentrations of VOCs, SVOCs, and pesticides/PCBs were below residential PRGs and leachability criteria.

General Comment

- The Navy did not obtain any ground water samples at this site. Due to the nature of possible waste disposal at this site, ground water sampling is mandatory.

Page Specific Comment

Page 7-3, ¶5: The Navy rationale for determining whether metals are present at background concentrations is not acceptable. The metals results need to be compared to the NASD background values.

SWMU 14 – Wash Rack

Site Summary: The area is a concrete driveway, approximately 20-feet long and 10-feet wide with 4-inch curbs, located near the Transportation Shop. The area was used primarily for cleaning Navy vehicles since the late 1970s. Facility personnel have indicated that degreasing solvents were occasionally used in this area to facilitate cleaning. A swale (not illustrated in Figures 8-1 through 8-4) is reportedly located along the end of the driveway and reportedly received discharge of runoff from the driveway. The swale discharges to the Atlantic Ocean.

PA/SI Investigation Summary: Two monitoring wells (one upgradient, one downgradient) were installed and sampled for VOCs, SVOCs, pesticides/PCBs, and inorganic compounds. Fourteen surface soil and 14 subsurface soil samples were collected. Three soil samples were collected from the oil/water separator located

approximately 5-10 feet west of the driveway. Field screening of soil samples indicated organic vapor concentrations up to 60.7 ppm.

The Final Expanded PA/SI reports that aluminum, antimony, iron manganese, and vanadium were detected above MCLs and/or RBCs in the total (unfiltered) ground water samples from the various wells (i.e., not in each well). Results from the dissolved (filtered) samples indicated antimony and manganese were detected above MCLs and/or RBCs. The report suggests that since dissolved metal concentrations were fairly similar, the detections are likely indicative of background conditions. The investigation description does not indicate whether the samples were turbid or not. The report does not provide turbidity values or whether low-flow sampling techniques were employed. Elevated turbidity might result in the concentrations above the criteria for the detected compounds. Dieldrin was detected in the upgradient well at a concentration slightly above the RBC (0.01 ug/L versus 0.04 ug/L).

The results from the surface soil samples indicate concentrations of aluminum, arsenic, iron, lead, thallium, and vanadium above residential PRGs or leachability criteria. The report suggests that these concentrations are likely indicative of background levels, although some of the concentrations exceed NASD background values presented in Table 8-2. Concentrations of any VOCs, SVOCs, and Pesticides/PCBs were below residential PRGs or leachability criteria.

The results from the three samples from the oil/water separator were not presented as the report suggests that the samples are not considered media.

Page Specific Comments

Page 8-1, ¶4: An investigation of the swale that received runoff water from the driveway needs to be conducted.

Page 8-3, ¶3: Despite OVM readings as high as 60.7 ppm, the Navy asserts that these data indicate "no release of organic chemicals had occurred at this site." Since the report does not indicate where this elevated OVM reading occurred and whether a soil sample was obtained from this location for laboratory testing, additional information is needed prior to moving forward with the NFA recommendation.

Page 8-4, ¶6: The results from the subsurface soil samples indicate that arsenic was the only inorganic compound detected above leachability criteria. The report suggests that the presence of arsenic is below background, but since the NASD background values were not established at the time of this PA/SI, these data need to be screened against the new background values. Concentrations of VOCs, SVOCs, and pesticides/PCBs were below residential PRGs or leachability criteria.

Page 8-5, ¶1: The Navy did not screen the sediment results against any soil or sediment criteria because these samples "are not considered media samples." While it is not clear

what this statement means, the Navy needs to present these data (they are not included in the report) and properly screen these samples prior to making an NFA recommendation.

SWMU 15 – Waste Transportation Vehicle

Site Summary: A Navy truck was parked near the Transportation Shop for four months. The truck contained numerous drums of a waste labeled as a caustic D002 (corrosive waste). The report indicates that the drums allegedly contained napalm from the NSRR. In addition to the drums, the truck also contained overpack drums that the report indicates may suggest that the materials managed may have leaked or have emanated from a leaking drum. The report indicates that stressed vegetation was observed at SWMU 15, apparently from heavy vehicular traffic.

PA/SI Investigation Summary: One monitoring well was installed reportedly downgradient of the truck and sampled. Sixteen surface soils (0 –0.5 feet deep) were collected on a grid in the immediate area of vehicle parking lot.

Three soil samples were collected from the oil/water separator located approximately 5-10 feet west of the driveway. Field screening of soil samples yielded OVM detection up to 60.7 ppm. These detections were considered by the report to be consistent with no release of organic compounds.

The Final Expanded PA/SI reports that aluminum, antimony, iron manganese, and vanadium were detected above MCLs and/or RBCs in the total (unfiltered) ground water samples from the various wells (i.e., not in each well). Results from the dissolved (filtered) samples indicated only manganese was detected above MCLs and/or RBCs. The report suggests that since dissolved metal concentrations were fairly similar, the detections are likely indicative of background conditions. The investigation description does not indicate whether the samples were turbid or not. The report does not provide turbidity values or whether low-flow sampling techniques were employed. Elevated turbidity might result in the concentrations above the criteria for the detected compounds. The report indicates that VOCs, SVOCs, pesticides, and PCBs were with either not detected or detected at concentrations below applicable criteria. The results of these detections are not presented in Table 9-1.

The results from the surface soil samples indicate concentrations of aluminum, arsenic, chromium, iron, lead, thallium, and vanadium above residential PRGs or leachability criteria. The report suggests that these concentrations are likely indicative of background levels as the concentrations were fairly similar, although concentrations of iron and lead exceeded background values presented in Table 9-2. Concentrations of any VOCs, SVOCs, and Pesticides/PCBs were below residential PRGs or leachability criteria.

General Comments

- The location of the truck must be presented to evaluate the appropriateness of the soil and ground water sample locations.

AOC C- Drainage Ditch in the Vicinity of Transportation Shop Area

Site Summary: Two drainage ditches near the transportation shop are utilized to manage stormwater runoff from the area. The ditches ultimately discharge to the Atlantic Ocean. Oily sheens in one ditch were observed during the 1988 RCRA Facility Assessment. A septic tank that receives discharge from a sink in the transportation shop is also part of the AOC.

PA/SI Investigation Summary: The PA/SI included installation and sampling of one monitoring well, collection and analysis of 15 surface soil samples, 20 subsurface soil samples, and two sediment samples for VOCs, SVOCs, Pesticides/PCBs, and inorganic compounds.

The PA/SI indicated that aluminum, iron, manganese, and vanadium were detected above Maximum Contaminant Levels (MCL) and/or Risk Based Criteria (RBC) in the unfiltered ground water sample.

The results from the soil and subsurface soil samples indicate concentrations of aluminum, arsenic, iron, thallium, vanadium, and manganese above RBCs and/or leachability criteria. The report suggests that these concentrations are likely indicative of background levels based on the similarity of concentrations but these data were not compared to the NASD background values developed after the PA/SI was completed.

Page-Specific Comments

ck } Page 10-3, ¶1: The Navy indicates that they installed one monitoring well down-gradient of the septic tank. However, with only one monitoring well, it is not possible to know which way ground water flows, and whether the well is indeed down-gradient. Furthermore, it is not known where the leach field is, and whether the well was placed down-gradient of this potential release area. Additional information is needed to verify that this well is down-gradient of the source/release area prior to recommending NFA for this site.

? } Page 10-5, ¶1: The Navy did not screen the sediment results against any soil or sediment criteria because these samples "are not considered media samples." While it is not clear what this statement means, the Navy needs to present these data (they are not included in the report) and properly screen these samples prior to making an NFA recommendation.

AOC F - UIC Septic System

Site Summary: AOC F consists of a 1,500-gallon Underground Injection Control (UIC) septic tank system located near the Enlisted Men's Club. Soil samples from a July 1997 investigation indicated that several metals were present above screening criteria.

PA/SI Investigation Summary: Five monitoring wells were installed and sampled and 20 subsurface soil samples collected and analyzed during the expanded PA/SI. All samples were analyzed for VOCs, SVOCs, pesticide/PCBs, and inorganic compounds.

The PA/SI indicated that aluminum, antimony, iron, manganese, and vanadium were detected above MCLs and/or RBCs in the unfiltered ground water samples. Results for these compounds except manganese in the filtered samples were below criteria.

The results from the subsurface soil samples indicate concentrations of arsenic, chromium, and manganese above leachability criteria. The report suggests that these concentrations are likely indicative of background levels.

Page Specific Comments

Page 12-2, ¶6: It is not clear whether there is a leaching field associated with this septic tank and whether the wells were placed to examine releases from an associated leaching field. If a leaching field is present, the Navy needs to indicate whether the sampling points are adequate, or if additional sampling points are needed.

Figure 12-1: Soil sampling needs to be performed to evaluate whether there were releases from the concrete pad.

Comments on Draft Expanded Preliminary Assessment/Site Investigation, Phase II, Seven Sites, CH2MHill, Tampa, Florida, July 2001

AOC B – Wastewater Treatment Plant

Site Summary: The PA/SI indicates that since 1983, wastewater treatment plant effluent was drained into "...four wastewater lagoons with no discharge point...." The PA/SI indicates that the April 2000 Environmental Baseline Survey concluded that dumping of hazardous waste in the past is suspected.

PA/SI Investigation Summary: Four surface and subsurface soil samples were collected from the center of each lagoon and analyzed for VOCs, SVOCs, pesticides/PCBs, and inorganic compounds. Aluminum, manganese, lead, and vanadium were detected at concentrations above residential PRGs, but below NASD background levels in surface soils. Pesticides/PCBs, SVOCs, and VOCs were not detected above screening criteria in surface soil. Subsurface soil samples contained no contaminants above PRGs or background.

Page Specific Comments

Page 3-1, ¶4: The site description needs to indicate whether the lagoons are lined.

Page 3-6: No ground water data are available to assess ground water quality impacts. Samples need to be collected from a minimum of two water table ground water monitoring wells and analyzed for the full suite of parameters.

AOC K - Water Well at Public Works

Site Summary: AOC K consists of the area around a water supply well used from approximately 1941 to 1979. The well is currently not in use. The construction details of the well are not presented in the PA/SI report.

During a USGS study in 1996 of 14 water supply wells in the NASD area, benzene was detected in the AOC K water supply well at a concentration of 21 ug/L (versus the MCL of 5 ug/L).

PA/SI Investigation Summary: Five ground water monitoring wells were installed and samples analyzed for VOCs, SVOCs, pesticides, and PCBs. The PA/SI report indicated that aluminum, barium, iron, manganese, thallium, and vanadium were detected above MCLs and/or RBCs in the unfiltered ground water samples.

Page Specific Comment

Page 7-1, ¶5: The construction details of the former water well need to be provided to evaluate these wells as suitable monitoring points.

AOC L - Septic Vault

Site Summary: AOC L is a partially above-ground concrete vault, with separate compartments, located near the Main Operations Area. The original use is unknown, however the structure has been used since 1940 for the treatment and disposal of the installation's sewage. No associated drainage fields were identified. The depth of the vault is not indicated.

PA/SI Investigation Summary: Four surface and four subsurface soil samples were collected from the sides of the structure. Samples were analyzed for VOCs, SVOCs and pesticides/PCBs. The results from the surface soil samples indicate concentrations of aluminum, arsenic, iron, and manganese above residential PRGs but below NASD background values. The results from the four subsurface soil samples for inorganic compounds were less than the criteria to which they were compared.

General Comment

- Samples from a minimum of two ground water monitoring wells need to be collected and analyzed for the full suite of analytes. These results are necessary to evaluate the ground water quality impacts from the site.

Page Specific Comment

Page 8-2, ¶5: It is not clear whether the subsurface soil samples at this site were obtained below the discharge depth of the vault. Data should be provided to indicate the depth of the subsurface samples. If they were not collected below the discharge depth of the vault, deeper samples should be obtained prior to recommending NFA for this site.

DRAFT

**DRAFT SOIL, GROUNDWATER, SURFACE WATER, AND
SEDIMENT BACKGROUND INVESTIGATION REPORT,
FORMER U.S. NAVAL AMMUNITION SUPPORT
DETACHMENT, VIEQUES ISLAND, PUERTO RICO,
DATED JUNE 15, 2001,**

EQB request that the Navy take the following actions which are discussed in the more detailed comments below

- *In order to conduct ecological risk assessment, filtered surface water samples must be collected and analyzed as part of the Background Investigation.*
- *To provide a clear summary of the conclusions, the actual background values for each media need to be presented.*
- *In the absence of non-organic data for the background samples, sample location information must be provided.*
- *Risk Assessment studies must incorporate those concentrations below background level but above applicable Preliminary Remediation Goals.*

MAJOR COMMENTS

- 1) Surface water samples for inorganic parameters do not appear to have been taken in compliance with EPA requirements because they were not filtered. The surface water background inorganic samples were not filtered in accordance with EPA 822-Z-99-001, April 1999, National Recommended Water Quality Criteria - Correction. Thus, background concentrations developed for surface water are not usable for establishing background screening levels for ecological risk purposes. Moreover, the background values that were determined using total metal concentrations exceed established criteria (based on dissolved concentrations) used to evaluate toxic effects of aquatic wildlife.

We recommend that new-background surface water samples be collected and filtered to establish a dissolved background concentration—and that all future surface water samples to be tested for inorganic parameters be filtered.

ADDITIONAL COMMENTS

- 2) The report does not identify actual background concentrations. The report contains a statistical analyses of all of the background sample contaminant concentrations and summary tables, but there is no summary of which values are intended to be used for determining "background" concentrations. Although Appendix E includes a rationale for how background values will be selected, the actual background concentrations are not identified in the report. Including the background concentrations determined by the investigation is important for clear understanding of what the baseline is.

We recommend that the report be revised to include the actual background concentrations.

- 3) We could not determine whether representative samples were taken because the report does not provide sample location information or sample analysis for non-inorganic parameters. No detailed information was presented (e.g., maps, physical description of location, photos, etc.)

DRAFT

regarding any of the background sampling locations to establish whether or not the areas sampled were contaminated. Furthermore, none of the samples were analyzed for non-inorganic parameters, making it impossible to determine whether or not the background samples were collected from uncontaminated areas. If the samples were not collected in remote areas, but rather from road sides and other areas impacted by site operations, they might not be truly representative of background conditions.

We recommend that the Navy confirm that representative samples were taken, and to revise the report to including sample location information or sample analysis for non-inorganic parameters.

- 5) We could not determine if inorganic chemicals are present at unacceptable risk levels. Several of the soil background values exceed the Region IX Residential and or Industrial Preliminary Remediation Goals (PRG). PRGs are used to help identify contaminants of concern for a risk assessment; therefore, any concentrations above the PRG must be included in the Risk Assessment. The following background concentrations must be included in the Risk Assessment: surface soil background concentrations for aluminum, iron, manganese, thallium and vanadium that exceeded the residential PRG; surface soil background concentrations for aluminum and iron that exceeded the industrial PRG; subsurface soil background concentrations for aluminum, arsenic, iron, manganese and vanadium that exceeded the residential PRG; the subsurface soil background concentrations for aluminum and iron that exceeded the industrial PRG and the ground water background concentrations for antimony, barium, iron, manganese, thallium, vanadium and zinc that exceeded the PRG.

The Risk Assessment must also note that the maximum reporting limits for antimony, arsenic, and thallium for soil and antimony for ground water exceeded the Region IX PRGs. Based on the elevated reporting limits for these constituents in the respective media, it is not possible to determine if these constituents are present at concentrations that might result in unacceptable risk levels.

We recommend that inorganic chemicals present at concentrations below the associated background concentration but above the Preliminary Remediation Goals be included in the Risk Assessment.

Technical evaluation on the items discussed by the US Navy representatives at their presentation to the community of Vieques on March 12, 2002, the March 13, 2002 TRC meeting, including the field visit conducted prior to the meeting, and the evaluation of the document entitled Environmental Assessment for Transfer of the Naval Ammunition Support Detachment Property, Vieques, Puerto Rico, (NASD) November 2000

**Prepared for the Office of the Commissioner of Vieques and Culebra
by
Eng. Rafael Cruz Perez, PE
Environmental Engineering Consultant**

April 24, 2002

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Technical evaluation on the items discussed by the US Navy representatives at their presentation to the community of Vieques on March 12, 2002, the March 13, 2002 TRC meeting, including the field visit conducted prior to the meeting, and the evaluation of the document entitled Environmental Assessment for Transfer of the Naval Ammunition Support Detachment Property, Vieques, Puerto Rico, (NASD) November 2000

The following is our technical evaluation on the items discussed at the US Navy representatives presentation to the community on March 12, 2002, the March 13, 2002 TRC meeting, including the field visit conducted prior to the meeting, and the evaluation of the document entitled Environmental Assessment for Transfer of the Naval Ammunition Support Detachment Property, Vieques, Puerto Rico, (NASD) November 2000.

Our comments are limited to those elements related to our field of expertise, and do not cover other aspects not related to the ones indicated. The report does not include detailed comments on analytical or sampling procedures, since those are to be covered in detail by the regulatory agencies. Should you have any comments or doubts about the above information, please direct your comments or doubts in writing to Dr. Juan Fernández, Commissioner, Vieques y Culebra, Fernández Juncos 635, San Juan, Puerto Rico 00907.

During the field trip to the affected areas conducted by the Naval Facilities Engineering Command officials represented by Mr. Christopher T. Penny, Vieques Remedial Action Manager and the CH2M HILL technical personnel, all of our questions and doubts were answered.

We are going to initiate our report with the discussion of several items that were presented during the visit and at the meeting that are relevant to the discussion of the individual sites. These comments are limited to the general concept of the meetings and reports indicated, and should not be interpreted as a refusal or endorsement by the Government of the Commonwealth of Puerto Rico of the data presented.

Other Potential Contaminated Sites

It is not possible from the documentation presented to clearly determine the procedure or sources investigated to determine potential contaminated sites at the facility. A more complete explanation of the procedures must be outlined, and rationale for accepting or discarding the different sites discussed. Among the areas of concern that we believe should be discussed are:

- Mosquito and Punta Arenas Piers loading and unloading areas

what experience

The USN has utilized both piers in the past for loading and unloading ordnance. Experience elsewhere has indicated the potential of this type of sites to be contaminated with ordnance and other related contaminants released to the environment during loading and unloading operations.

- Abandoned military airstrip

what document

There was an active military airstrip located in the immediate area south of Punta Caballo and west of the Vieques civilian airport. The airstrip was utilized for loading and unloading operations by military personnel at least until the early 1950's.

• Loading and unloading areas at the abandoned ammunition bunkers

Experience at other sites has indicated that loading and unloading areas are prime suspects in the contamination of the soil and underground waters. This contamination results from the chronic leaking of lubricants, fuel and fluids from the transporting vehicles as well as the discarding of waste or damaged material in the areas immediate to the loading and unloading area.

why a source?

• Monte Pirata and Cerro el Buey quarries

At both these sectors extensive quarrying operations were conducted for the extraction of material for the construction of the breakwater at Puerto mosquito. There were several quarries.

where?

• Other Open Burn/Open detonation areas

Local people recall that the activities of detonating or open burning ammunition and/or other unidentified waste were conducted at several other sites not included in the investigation.

In addition to the above, the Navy has identified the following potential environmental problems:

• Above Ground tanks

At least ten above ground storage tanks have been identified as being located at the property. About five of these are to be permanently removed by the Navy, and the others will remain in use by the Navy or other federal agencies.

• Kitchen grease trap

A kitchen grease trap to be removed by the Navy. No further action is required.

• Asbestos containing materials

Asbestos containing material is present at several structures. This material is considered by the Navy as Non-friable material, thus, not subject to regulatory action. Prior to the occupation of any of these buildings, an asbestos containing material survey and abatement project must be conducted in accordance to the PREQB Regulation for the Control of Asbestos Containing Abatement Activities.

not under IR

• PCB containing units

In accordance to the CH2M HILL, all PCB containing equipment was removed from site. Only some fluorescent lamps ballast have a possibility of containing PCB's. it must be noted that on the visit of March 13, 2002, some transformers were observed that did not have the federally required Non-PCB decal.

where?

• Lead paints

Since all of the Navy structures on site were constructed before 1978, they have to be assumed to contain lead-based paint. Lead from paint, paint chips and dust can pose health hazards if not managed properly. It must be noted, that the structures at the site were built (1960-61) before 1980, the cut-off date when lead based paints (LBP) were eliminated from the market, thus, lead based paints, such as enamels, lacquers, varnishes or floor paints, are expected to be on site. Prior to the occupation of any of these buildings, a lead survey and abatement project must be conducted in accordance to the PREQB Regulation for the Control of Lead Based Paint Abatement Activities.

Background Samples

As indicated on the background determination report, the purpose of the investigation was to provide site-specific soil analytical data to be used to provide background data for the remediation activities. It was indicated by CH2M HILL and US Navy representatives that surface samples were taken at the initial zero (0) to six (6) inches below the ground level.

It is our professional opinion that based on the standard methodology utilized by geotechnical investigators and the scientific community on conducting this type of study, and due to a poor selection of sampling methodologies, lack of target concentration and the amount and area distribution of samples, there are not sufficient sampling points to establish a statistically significant values with the analytical precision and the required type, to establish a valid profile and potential representation of contamination level of the area evaluated nor of background conditions. The methodology used for the selection of sampling points did not follow accepted methodology and was subject to extreme bias in the selection, and thus, there is no relationship with the stated purpose and objective of the study.

why {

For a soil contamination study for an area this size, in order to establish a representative profile of the background, accepted practice in the geotechnical field indicates that at least three soil samples are required per one hundred acres. The sampling points must be selected utilizing a random system that will eliminate all bias from the process. It is also necessary that, the professional conducting the study evaluate the subsurface physical conditions, soil permeability, potential direction of movement for pollutants and others. The type or types of activities conducted in the area must also be evaluated to establish potential paths of movement in the different medias for the contaminants. It is not evidenced from the report if any of the above-indicated methodologies were used in the project.

?

The most unusual aspect of the collected data is that it is indicated that the soil samples were taken at depths ranging from zero (0) to six (6) inches. Samples at this depth are classified as surface samples. This situation presents a major and significant technical error, resulting in a suspect methodology biased to favor obtaining results lower than what should be found in the area. We have to be aware that over a year had elapsed between the last exercise and the sampling period. Due to that delay, no sampling was required to determine that no explosive compounds were present, since only the most persistent compounds would remain on the surface of the soil after such an extended period of time, due to the effect of weathering, leaching and particle transport. Without a need for any sampling, a person with minimal experience in the field could have predicted that no residues of the explosive compounds would

no also surface samples

be present on the surface layers of the soil. As to the food chain, it must be noted that only a few grasses and very small plants will have their root system in the initial six (6) inches of the soil profile, thus, whether there were explosive residues or not on that surface stratum is totally irrelevant to the food chain system of the area.

The behavior of soil contaminants in soils is very ^{done} simple and well known by the scientific community, and any type of sampling must be strictly conducted using a series of some basic principles, well-established on the USEPA and ASTM soil sampling standard methodologies. Contaminants in the soil are rapidly transported from the surface to deeper strata by different mechanisms, and this transport is highly dependant on the degree of fracture, permeability and porosity of the underlying soil. Thus, in order to establish the purpose, objective and scope of work indicated in this study, a complete profile of the soil must be made, analyzing samples at several depths, down to the lowest area that can be perturbed by the activities taking place in the area of the survey, the bedrock surface or the water table, whichever is deeper. In this particular case, it must be noted that the perturbed area resulting from a military explosive device can reach several meters in depth, even down to the bedrock in some cases, depending on the explosive used, velocity of the projectile at the point of impact, angle of impact and the soil conditions at the point of impact. When all of these factors are considered together, it is mandatory that samples must be taken at a multiplicity of points at different depths.

We are very much aware of the extreme hazards present in the studied area to a soil sampling team taking samples of the lower strata due to the unexploded ammunition that could be found in the underlying layers, however under such limitations, any responsible and competent professional should clearly indicate in his report the presence of this limitation, and adjust, if possible, the results obtained within that limitation using acceptable modeling methodologies.

X Thus, and based on all of the limitations listed above, the results of this background determination should be classified under the most liberal interpretation of accepted scientific and regulatory methods, as suspect and useless. The study is not able to prove or demonstrate valid analytical data that could be used for a background determination. Nor it is able to demonstrate that the surface area contains or do not contain explosive compounds.

It must be noted that in studies conducted by the US Navy on or about 1978¹²³⁴⁵⁶, it was clearly determined that movement of explosive residues in Vieques are distributed through the

¹ Defendants answers to the first portion of the first set of interrogatories submitted by the DON plaintiffs- intervenors. Carlos Romero Barceló, Governor of Puerto Rico vs. Harold Brown, Secretary of Defense et. al.

² Demilitarization of Conventional Munitions; State of the art study, by N. I. Shapira, J. Patterson, J. Brown, K. Noll, American Defense Preparedness Association (undated)

³ Environmental Dispersion of the Products of Explosions of Conventional Ordnance at Vieques Island; George A. Young, 1978, Explosives Chemistry Branch, Naval Surface Weapons Center.

whole surface area of the island. It is strongly recommended that a testing protocol for background determination be discussed with the PREQB and USEPA prior to a next round of testing.

SWMU-04

This site is under the supervision and protection of the Fish and Wildlife Service, and consists of an extensive area utilized in the past for the destruction of discarded explosives, ammunition, propellants and pyrotechnics. The disposition was by means of individual explosions, or by the use of pits where the materials were burned. This site was utilized for those purposes from the 1940's to the 1980's. The site consists of a large mound bordered by an intermittent stream to the south, the sea to the west and a mangrove forest and lagoon to the south and east. The combustion process was not a controlled process, thus, many of these materials were not burned, and a significant quantity of the ordnance remained active. In addition, many of the chemical residues or leachate from the residual metals could have migrated into adjacent land, creeks or mangrove forest. Although the report indicates that there was no active ordnance found on site, it was indicated that in fact active rounds were found and destroyed. CH2M HILL is conducting at this moment a deactivation program of those materials for safety purposes only. Actual clean up of the site will not occur until the area is safe and secured and a clean up protocol is developed. This process may take about eight months.

In order to conduct the deactivation program, the site has been denuded of all vegetation, except for those trees of a trunk diameter of over 4 inches. The site presents a major hazard to the environment, since there are no protective measures taken on the site for erosion control. In the coming eight months, we will be affected by the main rainy season of the area and the hurricane season; thus, the erosion control measures are urgently required.

CH2M HILL defines the affected area as of a radius of 4,000 feet; however, no evaluation of adjacent areas affected by the potential migration of residuals has been conducted.

This site is a high environmental risk area, and even after cleanup, will still present a high risk to any civilian activity. In addition, there is a significant potential of ordnance and related

⁴ Vieques Litigation Support: Explosives Analyses of Water and Soil Samples Taken on Vieques Island, Puerto Rico, May 11 through May 16, 1978; by John C. Hoffbomer and Donald J. Glover, Explosives Chemistry Branch, Naval Surface Weapons Center.

⁵ Water Quality Survey, Navy, Puerto Rico, 77-021-001. File #USNP 1; C. L. Strattor, May 31, 1978.

⁶ Explosion Products Content of Water and Soil Samples taken on Vieques Island, Puerto Rico, May 11 through May 16, 1978, by Ming G. Lal, Explosives Chemistry Branch, Naval Surface Weapons Center.

contaminants to the immediate coastal area. Any investigation of the site must include both the immediate coastal area as well as the neighboring streams of water or runoff areas of the site.

We were unpleasantly surprised by the passive attitude taken by the Fish and Wildlife Service on this situation under their direct control.

SWMU-05

At this site, on or about 1975, some 7,000 lbs. of drone fuel were disposed. The fuel consisted of about 5,275 pounds of red nitric acid and 1,775 pounds of amino fuels. Due to the long interval since 1975 to now, and the bio degradation of the amino fuels and the corrosive nature of the nitric acid, we can reasonably assume that there are no significant residues of this fuel in the area. We concur with the No Further Action (NFA) determination by CH2M HILL.

SWMU-06

This area consists of an abandoned solid waste disposal area, dispersed through a mangrove forest and adjacent lands. The solid waste has been identified as domestic and office garbage, maintenance waste, hazardous waste, lubricants, petroleum products, metallic residues, solvents, paints and others. The area is located in a coastal mangrove with direct access to the coastal area. Due to the location of these dumps or concentrations of solid waste, there is a major potential that these materials, leachate and other contaminants could reach the coastal area. It is our opinion that the designated impact zone of these activities limited in the project to a distance of 50 to 100 feet from the disposal sites identified, is under the best of circumstances inadequate. Scientific knowledge of similar types of situations elsewhere has shown a potential movement of contaminants to a distance of miles from the source. There is no indication in the proposed plan, neither to scientifically evaluate this situation nor to correct it. To do a proper evaluation and remedial action of this site could be very expensive, and the site, being located at an environmentally sensitive area, deserves special attention and care. We were unpleasantly surprised by the passive attitude taken by the Fish and Wildlife Service on this situation under their direct control.

Based on the above, it is recommended that at the site, as a minimum, an extensive soil-sampling program should be conducted, including underground water. Sampling and testing, as a minimum, should include as follows:

1. Borings to be conducted using as a basis some of the data obtained on the prior structural soil study and definition of hot areas.
2. Samples taken at the first six inches and at every two feet core at each boring from ground surface to at least thirty (30) feet deep. This depth was selected due to the characteristic of the contaminants to concentrate in the upper layers of clayey soils. However, should the soils upon sampling prove to be alluvial soils, drilling and sampling should be continued until bedrock or water table is reached, whichever is shallower.

Each sample should be tested for PCB's, TPH, BTEX, full RCRA and the criteria included in the PREQB Soil Injection guidelines. In addition, testing for total metals should be included. The QA/QC activities implemented in this sampling and testing program must be within accepted practices, so that they can provide a solid base for assessing the accuracy and precision of the measurements. The methods used to calculate accuracy and precision must be within the criteria found on Appendix A, Volume 1 of EPA-600/9-76-005 and the PREQB Soil Injection guidelines.

SWMU-07

This sector consists of an open dump disposal site located at the banks and streambed of an intermittent creek. Solid waste identified at the site consists of domestic and office garbage, maintenance waste, hazardous waste, lubricants, petroleum products, metallic residues, solvents, paints, vehicle parts and other unclassified materials. The site extends over an area of 5 to 10 acres, with possible secondary deposits near the area. The site has been delimited for study purposes as the actual deposit of material and the contiguous area. This delimitation is very limited in scope, since due to the presence of the creek; this material could have been transported all the way to the coastal zone. As part of the clean up activities, this site should include a geomagnetic survey all the way to the coast. The clean up should also include the collection of any visible material on the surface of the creek bed stream.

SWMU-10

This area consisted of the disposal area for a paint shop located on building 4001. Liquid waste, including solvents, degreasers, paints, oil, lubricants and related waste. These materials were disposed in the immediate area of the shed. Since this site is located in a developed area and over a cut and fill sector of the site, we believe that the presence of contaminants in the area as a result of these activities is minimal, and that the exploration for these materials could cause more environmental damage than the presence of the materials could cause. We concur with the No Further Action (NFA) determination by CH2M HILL, subject to the correct application of valid background data, and with the recommendation, that should any of these materials be found at the site in the future, they should be removed and disposed in accordance to the applicable regulations.

SWMU-14

This site consists of a concrete pad utilized as a vehicle wash area near building 2016. The site is suspect of being impacted by wash waters, lubricants, oil, petroleum products, commercial cleaning agents, degreasers and solvents. This area has some peculiar location difficulties, due to the fact that although it was located over a cut and fill sector, there is a small depression or storm water ditch, that allowed these materials to reach surface waters. In addition, this site is located upstream of site AOC E. We strongly disagree with the No Further Action (NFA) determination by CH2M HILL, and we believe that the total Hacienda Arcadia sector and affected sites surrounding site SWMU-14 should be thoroughly studied, in particular for groundwater's and soils contamination (See SWMU-6 proposed methodology).

SWMU-15

At this site, a vehicle loaded with over packs containing a component of NAPALM fuel was parked for an extended period of time. The material was identified as a corrosive material. There are no reliable records indicating for how long this vehicle was parked at this site. There is a possibility that some of this material eventually leaked into the ground. Since this site is located in a developed area and over a cut and fill sector of the site, we believe that the presence of contaminants in the area as a results of this action is minimal, and that the exploration for this material could cause more environmental damage than the presence of the materials could cause. We concur with the No Further Action (NFA) determination by CH2M HILL, with the recommendation, that should any of this material be found at the site in the future, it should be removed and disposed in accordance to the applicable regulations, and that the total Hacienda Arcadia sector and affected sites surrounding site SWMU-15 should be thoroughly studied, including groundwater's and soils (See SWMU-6 proposed methodology).

AOC-B

This site consists of a secondary activated sludge treatment plant to a lagoon for evaporation. There are unconfirmed indications that some hazardous materials could have been discharged into this treatment system. Due to the type of treatment received, and the dilution offered by the system, we believe that the presence of hazardous materials at this site would be below the acceptable maximum values. Since this site is located in a developed area and over a cut and fill sector of the site, we believe that the presence of contaminants in the area as a results of this action is minimal, and that the exploration for this material could cause more environmental damage than the presence of the materials could cause. We concur with the No Further Action (NFA) determination by CH2M HILL, with the recommendation, that should any of this material be found at the site in the future, it should be removed and disposed in accordance to the applicable regulations. In addition the total Hacienda Arcadia sector and affected sites surrounding site AOC-B should be thoroughly studied, including groundwaters and soils (See SWMU-6 proposed methodology).

AOC-C

This site consists of two drainage ditches bordering the transportation shop close to building 2016. A sheen was observed at these ditches, for which reason, the presence or chronic release of oil or lubricants to the surface soils is suspected. This condition is to be expected, and experience at other sites has indicated the presence of pockets or lenses of material, that by capillary action, gradually release the material to the surface. Although this site is located in a developed area and over a cut and fill sector of the site, and we believe that the presence of contaminants in the area as a results of this action is minimal, we disagree with the No Further Action (NFA) determination by CH2M HILL, and in order to avoid the continuance of a chronic release, a general clean up of the site surface soils should be conducted. Should any of this material be found at the site in the future, it should be removed and disposed in accordance to the applicable regulations. In addition, the total Hacienda Arcadia sector and affected sites surrounding site AOC-C should be thoroughly studied, including groundwaters and soils (See SWMU-6 proposed methodology).

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AOC-E

At this site, subsoll contamination with petroleum products and residues has been identified in the underground waters. The contamination is located at a point under and close to an above ground waste oil tank near building 2016. Even though there was no visible leak or failure of the tank, this material was identified at concentrations over 100 ppm. In accordance with the report, there was a 550-gallon underground waste oil storage tank at this site, which was replaced by an above ground 500-gallon storage tank somewhere around 1996. Testing of the soil shows significant inconsistencies in the resulting data, since plume movement and location are not consistent with the presence of the tanks. Testing data is more consistent with the presence of other sources, such as other underground tanks or other sources of contamination. Further intensive testing of this site is needed, including potential sources surrounding this location (See SWMU-6 proposed methodology).

AOC-F

This unit consists of an abandoned sanitary waste septic tank close to building 2045. The tank is built of reinforced concrete and has a capacity of 1,500 gallons. There is recorded evidence that the tank overflowed on several occasions. Due to the age of the tank, the type of soil around the area and the material contained, we concur with the No Further Action (NFA) determination by CH2M HILL, with the recommendation, that should any of this material be found at the site in the future, it should be removed and disposed in accordance to the applicable regulations.

AOC-H

This unit consists of a concrete building and oil tank that were used as a power plant section up to the early 40's. In accordance to earlier maps, this building could have been used in the past as a railroad maintenance shop. Although there is no evidence of tank releases, the Navy utilized this building and the surrounding area as a fire training station. Due to the closeness of this unit to a creek and wetland, there is a significant possibility that some of the fuels used for fire training would have reached the creek and the wetland. Any evaluation of the area should include plume definition, creek and wetland sediments and remedial action be conducted (See SWMU-6 proposed methodology).

AOC-I

This unit consists of a diesel fuel tank utilized at an asphalt concrete batching plant. Although normally this type of activity does not entail mayor site contamination problems, the operational record of this type of units is at best, sloppy. A thorough study of the site should be conducted, including subsoll exploration down to bedrock (See SWMU-6 proposed methodology).

AOC-J

This area was utilized between 1960(5) until 1973 for the disposition of construction materials that included hazardous and not hazardous solid waste. In the CH2M HILL

document, it is indicated that some of this waste was disposed at the municipal solid waste dump. This situation presents two potential scenarios that is necessary to evaluate very carefully. First, the presence of a hazardous waste site at the military installation, and second, the possibility that these materials have contaminated the municipal solid waste site with hazardous waste. It must be noted, that there are significant discrepancies between the final document issued by CH2M HILL on November 2000, and the summary of the said report. This is an extremely serious situation that requires a prompt action by the regulatory agencies, both at the local, commonwealth and federal levels.

AOC-K

This unit is an abandoned potable water well that was plugged with concrete by the Navy. The use of this well was terminated somewhere in 1979. The well showed positive values for the presence of benzene. We do not concur with the NFA determination, due to the statistically unreliable amount and type of samples taken, the similar composition found at other nearby locations and the relative location of this site to site AOC-F, that indicates a significant possibility of widespread underground water contamination. As a minimum, a thorough analytical evaluation of the site groundwater should be conducted (See SWMU-6 proposed methodology).

AOC-L

This unit consists of an abandoned sanitary waste septic tank. The tank is built of reinforced concrete. Due to the age of the tank, the type of soil around the area and the material contained, we concur with the No Further Action (NFA) determination by CH2M HILL, with the recommendation, that should any of this material be found at the site in the future, it should be removed and disposed in accordance to the applicable regulations.

AOC-R

This site consists of a transportation shop. Experience at other sites has indicated the presence of pockets or lenses of material that by capillary action, gradually release the material to the surface. We believe that the presence of contaminants in the area as a result of this action is minimal, a general clean up of the site surface soils should be conducted and further evaluation conducted. Should any contaminants be found at the site in the future, it should be removed and disposed in accordance to the applicable regulations.

PI-28 y PI-29

These two items include the immediate area to the photographic laboratories; since there is a suspicion that disposal of photographic chemicals was on the grounds near the said facilities. Due to the toxic characteristics of photographic chemicals, as a minimum a thorough study of the site should be conducted, including subsoil exploration down to bedrock (See SWMU-6 proposed methodology).

PA/SI Investigation Summary: Five monitoring wells were installed and sampled and 20 subsurface soil samples collected and analyzed during the expanded PA/SI. All samples were analyzed for VOCs, SVOCs, pesticide/PCBs, and inorganic compounds.

The PA/SI indicated that aluminum, antimony, iron, manganese, and vanadium were detected above MCLs and/or RBCs in the unfiltered ground water samples. Results for these compounds except manganese in the filtered samples were below criteria.

The results from the subsurface soil samples indicate concentrations of arsenic, chromium, and manganese above leachability criteria. The report suggests that these concentrations are likely indicative of background levels.

Page Specific Comments

Page 12-2, ¶6: It is not clear whether there is a leaching field associated with this septic tank and whether the wells were placed to examine releases from an associated leaching field. If a leaching field is present, the Navy needs to indicate whether the sampling points are adequate, or if additional sampling points are needed.

Figure 12-1: Soil sampling needs to be performed to evaluate whether there were releases from the concrete pad.

Comments on Draft Expanded Preliminary Assessment/Site Investigation, Phase II, Seven Sites, CH2MHill, Tampa, Florida, July 2001

AOC B - Wastewater Treatment Plant

Site Summary: The PA/SI indicates that since 1983, wastewater treatment plant effluent was drained into "...four wastewater lagoons with no discharge point..." The PA/SI indicates that the April 2000 Environmental Baseline Survey concluded that dumping of hazardous waste in the past is suspected.

PA/SI Investigation Summary: Four surface and subsurface soil samples were collected from the center of each lagoon and analyzed for VOCs, SVOCs, pesticides/PCBs, and inorganic compounds. Aluminum, manganese, lead, and vanadium were detected at concentrations above residential PRGs, but below NASD background levels in surface soils. Pesticides/PCBs, SVOCs, and VOCs were not detected above screening criteria in surface soil. Subsurface soil samples contained no contaminants above PRGs or background.

Page Specific Comments

Page 3-1, ¶4: The site description needs to indicate whether the lagoons are lined.

Page 3-6: No ground water data are available to assess ground water quality impacts. Samples need to be collected from a minimum of two water table ground water monitoring wells and analyzed for the full suite of parameters.

AOC K - Water Well at Public Works

Site Summary: AOC K consists of the area around a water supply well used from approximately 1941 to 1979. The well is currently not in use. The construction details of the well are not presented in the PA/SI report.

During a USGS study in 1996 of 14 water supply wells in the NASD area, benzene was detected in the AOC K water supply well at a concentration of 21 ug/L (versus the MCL of 5 ug/L).

PA/SI Investigation Summary: Five ground water monitoring wells were installed and samples analyzed for VOCs, SVOCs, pesticides, and PCBs. The PA/SI report indicated that aluminum, barium, iron, manganese, thallium, and vanadium were detected above MCLs and/or RBCs in the unfiltered ground water samples.

Page Specific Comment

Page 7-1, ¶5: The construction details of the former water well need to be provided to evaluate these wells as suitable monitoring points.

AOC L - Septic Vault

Site Summary: AOC L is a partially above-ground concrete vault, with separate compartments, located near the Main Operations Area. The original use is unknown, however the structure has been used since 1940 for the treatment and disposal of the installation's sewage. No associated drainage fields were identified. The depth of the vault is not indicated.

PA/SI Investigation Summary: Four surface and four subsurface soil samples were collected from the sides of the structure. Samples were analyzed for VOCs, SVOCs and pesticides/PCBs. The results from the surface soil samples indicate concentrations of aluminum, arsenic, iron, and manganese above residential PRGs but below NASD background values. The results from the four subsurface soil samples for inorganic compounds were less than the criteria to which they were compared.

General Comment

- Samples from a minimum of two ground water monitoring wells need to be collected and analyzed for the full suite of analytes. These results are necessary to evaluate the ground water quality impacts from the site.

Page Specific Comment

Page 8-2, ¶5: It is not clear whether the subsurface soil samples at this site were obtained below the discharge depth of the vault. Data should be provided to indicate the depth of the subsurface samples. If they were not collected below the discharge depth of the vault, deeper samples should be obtained prior to recommending NFA for this site.