

**MINUTES  
RESTORATION ADVISORY BOARD  
NAVY AREA-WIDE**

A Restoration Advisory Board (RAB) meeting for the Navy Area-Wide Installation Restoration (IR) sites was held on Wednesday, May 31, 2000 at the Hyatt Regency Ballroom C at 7:00 pm. Enclosure (1) is a list of attendees for the meeting and the preceding public tour. Copies of the minutes from the February 9, 2000 were made available for distribution to all interested persons.

Lieutenant Commander Craig Prather, Regional Environmental Programs Officer welcomed everyone as well as the Guam Environmental Protection Agency's (GEPA) representatives, Lance Richman, Van Eflin, and Mike Gawel, Community Co-Chair. Mr. Roy Tsutsui was the RAB Facilitator. Mike Gawel introduced key speakers, Helen Lam and Cowan Azuma. Ms. Lam and Mr. Azuma are Remedial Project Managers from the Navy's Pacific Division, Naval Facilities Engineering Command (PACDIV) in Hawaii.

1. Mr. Cowan Azuma presented an overview on the Navy's cleanup progress at various Installation Restoration (IR) sites. There were no changes since the last update on February 9, 2000. In addition, there are eight additional IR sites, which will be addressed in the coming years. Enclosure (2) is a handout summarizing the environmental cleanup status of the sites.
2. Mr. Van Eflin, GEPA Biologist, presented an underwater video on what was found in the nearshore water in the vicinity of the Orote Landfill Seawall and the environmental cleanup. The following questions and answers were addressed:

- Q1. How does the removal of the metal compare to the purposeful sinking of the ship to provide a habitat?**
- A. There is a difference between habitats and the effect of metals to the environment. Corals are extremely sensitive. A lot of these metals were loose and able to be picked up by hand and put in a basket. Therefore it is removable and it moves around with the waves. Whenever it moves, it causes friction and therefore it creates a very bad habitat for coral growth to grow on. Removing the loose metal debris removes the destruction that constantly occurs by constant movement of the metal parts. Now that it's gone, the harder surface can have a habitat.

We also noticed that a lot of the materials look new and we did not see a lot of oxidation occur. The steel blade looks like it was put there just a couple of days ago. A lot of it has to do with the wave energy. A lot of the materials were put in there for quite some time. Through the oxidation process, usually the iron is discharged and reduced and filming over the metallic material itself and the coral will come along and land on the interface between the metals and the corals. In this case, the interface never occurs.

3. Ms. Helen Lam presented an update on the Orote Landfill cover (enclosure (3)). The final design for the landfill cover was released in January 2000. Construction of the landfill cap

started in February 2000. Ms. Lam's presentation entails the ongoing construction activities for the seawall and the landfill cap. Photographs of the Orote Landfill tour were available for public viewing.

**Q1. In Vance Eflin's presentation, he talked about monitoring of the debris area. He talked about biological monitoring related to the results of the proposed site cleanup and also concern of the leachate in the marine water. Do you know if there is any proposed monitoring or a monitoring plan in the future to monitor the leachate in the salt water as well as biological aspect?**

A. We have conducted two rounds of ecological risk assessment previously, one during the remedial investigation and another during the removal site evaluation. Because we did not take any fish tissue samples at that time, there is some data gap. As a result, the regulators have requested that we complete the data gap for the ecological risk assessment. We are currently preparing the sampling plan which will show what samples we plan to collect in the marine environment to complete the data gap for the ecological risk assessment. Based on that result, we will determine whether we need to continue monitoring, or if there is no risk, then we don't have to monitor.

**Q2. How do you sample to get the results?**

A. We have divers who go out there and collect the algae and fish. The divers are marine biologists.

4. Roy Tsutsui provided an introductory on COMNAVMARIANAS' latest technology on the website as a means to provide information to the public about the environmental cleanup action. Mr. Cowan Azuma elaborated by stating it is only a proposal that is being looked into for ways to provide easy access of the Environmental Restoration Program to the public. The intent is to make it available on the Internet so anyone from the public can have access to the website. There are three types of programs: public information, administrative record and IR sites. The other public involvement is about the RAB, what it is and their responsibilities. In addition, there will be a listing of co-chairs and point of contacts. RAB meeting minutes will also be available and updates of upcoming events, i.e. the next RAB meeting. Comments and questions are as follows:

**C1. Delete the "blinking" thing on the home page, it can be annoying.**

**C2. Delete the use of the slide show; use thumbnails instead. It may take a long time to download the information.**

**C3. Rethink the use of the picture on the home page. It may take a long time to download the information.**

**C4. Add a tab (link) to GEPA's website when it is on line.**

**C5. Put the date on the webpage to indicate when the page was last updated.**

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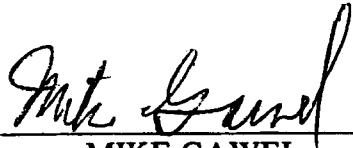
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- A. We did not have a comment section. If you have questions, there is a list of point of contacts along with e-mail addresses.
- Q2. Is there a plan to include a counter to tell how often the website is visited?**
- A. We can look into that.
- Q3. What kind of timeframe are we looking at to make this happen?**
- A. We need to iron out some issues prior to presenting it up on the web page. We will provide an update at the next RAB meeting.

5. Mike Gawel did the closing remarks by thanking Lieutenant Commander Prather for all his support and contribution to the RAB. This is Lieutenant Commander Prather's last RAB meeting as he ends his two-year tour on Guam. The next RAB meeting will be scheduled for August 30. The meeting adjourned at 8:20 p.m.

Approved by:

  
Mike Gawel  
MIKE GAWEL  
Community Co-Chairperson

  
R.T. Tsutsui LT, CEC, USN  
ROY TSUTSUI For  
Regional Environmental Manager

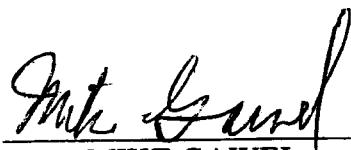
**ATTENDEES**

Navy Area-Wide Restoration Advisory Board  
May 31, 2000 (7:00 P.M.-9:00 P.M.)

NAME	COMPANY	CONTACT NO.	EMAIL
Joseph Gallo	COMNAVMARIANAS	339-7055	<a href="mailto:n4531@guam.navy.mil">n4531@guam.navy.mil</a>
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Annalisa Cooper			[REDACTED]
Matthew Hoover			[REDACTED]
Mariamicaella Lopez			[REDACTED]
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Troy Imamura	COMNAVMARIANAS	339-3116	<a href="mailto:n454@guam.navy.mil">n454@guam.navy.mil</a>
Mike Gavel	RAB Co-Chair	[REDACTED]	
Alice Hadley	Public	[REDACTED]	<a href="mailto:ahadley@gam10.med.navy.mil">ahadley@gam10.med.navy.mil</a>
Michael Kamaka			[REDACTED]
Veronica B. Ogo	USN PWC	339-8203	<a href="mailto:ogov@pwcquam.navy.mil">ogov@pwcquam.navy.mil</a>
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Dr. Seey			[REDACTED]
Lance Richman	Guam EPA	[REDACTED]	
Micheline Barazin			[REDACTED]
Eric E. Wetzstein	Ogden	[REDACTED]	<a href="mailto:ewetzstein@oees.com">ewetzstein@oees.com</a>
Lawrence Lansdale	Ogden	[REDACTED]	<a href="mailto:llansdale@oees.com">llansdale@oees.com</a>
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Mark Kawakami	IT Corporation	564-3715 Ext 234	<a href="mailto:mkawakami@theitgroup.com">mkawakami@theitgroup.com</a>
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Mark Anthony Hoover	COMNAVMARIANAS	339-8181	<a href="mailto:n453@guam.navy.mil">n453@guam.navy.mil</a>
Helen Lam	PACDIV	(808) 474-8911	<a href="mailto:lamhs@efdpac.navfac.navy.mil">lamhs@efdpac.navfac.navy.mil</a>
Cowan Azuma	PACDIV	(808) 474-8911	<a href="mailto:azumach@efdpac.navfac.navy.mil">azumach@efdpac.navfac.navy.mil</a>

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MIKE GAWEL  
Community Co-Chairperson

  
\_\_\_\_\_  
ROY TSUTSUI \_\_\_\_\_  
Regional Environmental Manager

Navy Installation Restoration (IR) Sites Quarterly Updates

Site Name	Description	Site Information	IR Document	Future Activities
Lower Sasa Fuel Burning Pond, COMNAVMAR (formerly FISC Guam)	The Lower Sasa Fuel Burning Pond was used from early 1959 to 1970 as a collection pond and burn pit for waste petroleum, oil and lubricants generated from various Navy activities. The pond received waste from an oil/water separator which developed mechanical problems allowing oily waste water to drain into the holding pond. Water at the bottom of the pond was drained into the adjacent wetlands via drainage channel and the remaining petroleum residue was then burned.	Surface water and groundwater, surface soil and subsurface soil, sediment and biological tissue samples were collected and analyzed to determine the extent of contamination. Total extractable petroleum hydrocarbons (such as gasoline, diesel, kerosene, and lubricant oil) as well as oil, grease, metals, polynuclear aromatic hydrocarbons (PAH) and pesticides were detected on this site. The contaminants were primarily detected in the sediment samples taken from the drainage channel and mouth of the channel. The results of the human health risk assessment concluded that the site does not pose a risk to humans. However, the ecological risk assessment identified significant risk to ecological receptors due to the PAHs and mercury found within and at the mouth of the drainage channel!	Final Engineering Evaluation/Cost Analysis (EE/CA) Report (Dec 1997)	An Action Memorandum will be signed to document the selected alternative.
Area Behind the Fenceline, COMNAVMAR (formerly SRF Guam)	The Area Behind the Fenceline site was used as a disposal area as early as 1954 when spent sandblast grit and harbor dredge spoils were deposited. Other potential sources of contamination include creosote logs, underground storage tanks (USTs) and scrap metal debris. Disposal activities ended after a fence was installed in 1973.	Based on the comments from the regulators, the EE/CA recommended alternative 3 instead of alternative 4.	Final Action Memorandum (Aug 1998)	Amend the Screening Ecological Risk Assessment

Site Name	Description	Site Information	IR Document	Future Activities
Building 3009, PWC Guam	Building 3009 was used as an electrical transformer repair shop from 1950 to 1977. Electrical transformers were overhauled there which involved the cleaning and repairing of parts and the recycling of transformer oils. Four storage tanks were located beside the building with two filtering systems; one for mineral oil and the other for PCB oil. In 1977, the PCB filter system and piping were removed due to leakage from the PCB storage tank.	<p>does not pose a risk to humans. However, the ecological risk assessment identified a significant risk to ecological receptors at the sandblast grit peninsula and the loop road disposal area. These two areas also act as a source of contamination to the adjacent wetlands via surface water migration which poses significant risks to ecological receptors in the wetlands.</p> <p>Soil samples taken around the building and along a portion of the nearby drainage ditch identified significant polychlorinated biphenyls (PCB) contamination. A Removal Action was performed using the Base Catalyzed Decomposition Process (BCDP) due to the high levels of PCB detected at the site. A Remedial Investigation (RI) will be conducted to further characterize this site.</p> <p>Additional soil samples were taken in Nov 1998 to determine the extent of 2 hot spots.</p>	Final Remedial Verification Report (Dec 1998).	<p>A Remedial Investigation (RI) is scheduled for FY 2001</p> <p>Draft Remedial Investigation (RI) Report (Jul 1995)</p> <p>Final Field Sampling Plan and Quality Assurance Project Plan Addenda (May 1999)</p> <p>Incorporate results from the additional groundwater sampling into the Final RI report.</p>
Carpentry Shop Dip Tank, PWC Guam	The Carpentry Shop Dip Tank Site was used continuously from 1953 to 1972 and sporadically until 1979 to preserve wood. Pentachlorophenol (PCP) and other preservatives including metal salt solutions (containing arsenic, chromium, copper, and zinc); aromatic-based oil and methylene chloride (possibly as a carrier for PCP) were the wood preservative used. The dip tank consisted of a below-grade vault made of steel reinforced concrete. Wood was dipped in a wood preservative solution and allowed to drip dry. Drippings landed on an adjacent concrete slab that drained to the dip tank or a large unpaved ditch via a concrete gutter. The dip tank vault was left in place and backfilled level with the ground surface, the drying rack and above ground storage tank were removed in 1979.	Groundwater, sediment and surface and subsurface soil samples were collected and analyzed to determine the extent of contamination. Volatile organic compounds (VOCs), pentachlorophenol (PCP), polynuclear aromatic hydrocarbons (PAHs), dioxins, fuel hydrocarbons and elevated concentrations of arsenic, chromium, copper, and zinc were detected on this site. The contaminants were primarily detected in surface sediment, surface and subsurface soil and groundwater samples. The preliminary results of the human health risk and ecological risk assessments indicate that the site does not pose a significant risk to humans nor to the environment.		The first round of groundwater sampling was conducted in July 1999. The second round of groundwater sampling was conducted in February 2000.

Site Name	Description	Site Information	IR Document	Future Activities
South Finegayan CB Landfill, PWC Guam	<p>The Construction Battalion (CB) Landfill site was used from 1944 to 1959 as a disposal area for wastes from the CB maintenance shop operated in the area.</p> <p>Scrap metal, waste oil, and solvents, lead-based paints, tires and equipment parts were disposed at the site. The wastes observed in the landfill include concrete and metallic construction debris, glass bottles, tires, and vehicle parts, pipes, domestic wastes, and burned liquid and solid wastes.</p> <p>Additionally, the pesticide DDT was heavily applied to the site.</p>	<p>Groundwater and surface and subsurface soil samples were collected and analyzed to determine the extent of contamination. DDT, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), fuel hydrocarbons, and volatile organic compounds (VOCs); as well as elevated concentrations of antimony, arsenic, lead, mercury, and zinc were detected in the soil samples.</p> <p>Ground water samples contained elevated concentrations of some metals and low levels of VOCs and semi-volatile organic compounds which are common laboratory contaminants. The results of the human health risk and ecological risk assessments determined that a significant risk exists to humans and the environment via contact with surface soil at the site.</p>	<p>Final Design (Jan 1998)</p> <p>Final Draft Remedial Verification Report (RVR) (Jul 1999)</p>	<p>Maintenance and groundwater monitoring will continue to ensure cap integrity.</p> <p>Final General Site Work Plan for Groundwater Monitoring Program (Apr 1999)</p> <p>Based on the comments on the RI Report from the regulators in 1997, additional groundwater sampling is required.</p> <p>Additional groundwater sampling is planned for 2000.</p>
Dry Cleaning Shop (DCS) Site, COMNAVMAR (formerly NAVACTS)	<p>The DCS Site was in operation from 1952 to 1975 and processed the laundry and dry cleaning for all Naval facilities. Eight underground storage tanks (USTs) were located onsite which contained stoddard solvents (dry cleaning solvents), fuel oils (for use in the cleaner boilers), and brine storage (possibly for water softening treatment). The investigation was initiated because solvents were believed to have leaked from USTs or dumped on the ground as sludge. The solvents may then move to the groundwater.</p>	<p>The installation of a geosynthetic landfill cap was completed in June 1998 and the baseline groundwater sampling was conducted in May 1999. A dye trace study and the first quarter groundwater sampling was conducted in July 1999.</p>	<p>Final Remedial Investigation (RI) Report (Feb 1996)</p>	<p>The result of the baseline human health risk assessment and preliminary ecological risk assessment showed that current contaminant levels at the site do not pose a significant risk to humans nor the environment.</p>

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Orote Landfill, COMNAVFMAR (formerly NAVACTS)	<p>The Orote Landfill occupies approximately 9.4 acres of land. It was used for the disposal of residential, industrial, and construction wastes from approximately 1944 to 1969. The face of the cliff that surrounds the landfill was reportedly the most active disposal area. Flammable material was burned, and the ashes were buried on the cliff above the nearby cove.</p> <p>Nonflammable materials were either buried behind the cliff or bulldozed over the cliff onto the beach. The beach previously contained a large amount of rusted metal and other debris.</p>	<p>Surface and subsurface soil samples, groundwater and seawater samples, and marine tissue samples were collected to determine the nature and extent of contamination at the Orote Landfill.</p> <p>Soil within the site boundaries have elevated concentrations of PCBs, pesticides, TFHs, PAHs, VOCs, and metals. Low levels of dioxins were detected in soil samples collected within the landfill, but concentrations do not appear to be significantly elevated above samples taken outside the landfill.</p> <p>The Human Health Risk Assessment (HHRA) concluded that site-related contamination does not appear to pose a significant carcinogenic risk to human health. However, site related contamination does present a non-carcinogenic hazard to human health. The modes of exposure are primarily through ingestion of soil, direct contact with soil and ingestion of organisms from the site.</p>	<p>Final Engineering Evaluation/ Cost Analysis (EE/CA) (Feb 1999)</p> <p>Final 100% Seawall Design (March 1999)</p> <p>Approved Action Memorandum (April 1999)</p> <p>Final Site Work Plan for Seawall Construction (April 1999)</p>	<p>In addition to the installation of a landfill cap, a seawall was designed to prevent erosion of landfill material into the ocean.</p> <p>Construction of the seawall started in March 1999 and is scheduled for completion in July 2000.</p>
USS Proteus Fire Fighting Training Area Site, COMNAVFMAR	<p>The USS Proteus Site was the site of a former fire fighting training pit and two underground fuel tanks. Fire fighting training exercises were performed at USS Proteus from 1965 to 1969. In these</p>	<p>In addition, Screening Ecological Risk Assessment (SERAA) was conducted under the Removal Site Evaluation (RSE). The RSE concluded that although the groundwater may be slightly impacted by the landfill, the risk to sea life from groundwater at the site is not significant based on a detailed risk assessment.</p> <p>Construction of the seawall started in March 1999 and is scheduled for completion in July 2000. Construction of the landfill cap started in February 2000 and is scheduled for completion in July 2000.</p>	<p>A Revegetation Pilot Test was started in Sep 1999 and will be completed in August 2000.</p> <p>Final Revegetation Plan (April 1999)</p> <p>Final Pilot Test Work Plan (Aug 1999)</p> <p>Final Landfill Cap Design Package (Jan 2000)</p>	<p>Construction of landfill cap started in Feb 2000 and is scheduled for completion in July 2000.</p>

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Dry Cleaning Shop (DCS) Site, COMNAVMAR (formerly NAVACTS)	<p>The DCS Site was in operation from 1952 to 1975 and processed the laundry and dry cleaning for all Naval facilities. Eight underground storage tanks (USTs) were located onsite which contained stoddard solvents (dry cleaning solvents), fuel oils (for use in the cleaner boilers), and brine storage (possibly for water softening treatment). The investigation was initiated because solvents were believed to have leaked from USTs or dumped on the ground as sludge. The solvents may then move to the groundwater.</p>	<p>Soil, wetland sediment, and groundwater samples were collected and analyzed to determine the extent of contamination. Tissue samples from organisms present near the site were also collected.</p>	<p>Final General Site Work Plan for Groundwater Monitoring Program (Apr 1999)</p>	<p>Based on the comments on the RI Report from the regulators in 1997, additional groundwater sampling is required.</p> <p>Additional groundwater sampling is planned for 2000.</p>

Site Name (formerly NAVACTS)	Description exercises, 55-gallon drums or pontoons were cut in half, filled with diesel fuel and gasoline (supplied by the underground fuel tanks) and then ignited.	Site Information Two primary areas had elevated levels of contamination: (1) the USTS area consisting of a gasoline and a diesel tank, the contents of which were pumped out in April 1994, and (2) a fire fighting training burn pit area consisting of wire mesh and charred soils. Although no evidence of fuel leakage from the USTS was detected, elevated PAHs were detected around the vent pipes above the USTS. The contamination above the USTS was thought to be the result of spillage or overfilling. The burn pit area had elevated levels of TFHs and VOCs. No significant groundwater contamination was found at the Proteus Site.	IR Document (Sep 1999)	Future Activities After the Action Memorandum is finalized to document the selected alternative, a Work Plan will be prepared for the actual cleanup. The cleanup is planned to start in 2000.
NEX Garage Septic Tank Site, COMNAVVMAR (formerly NAVACTS)	The septic tank is a subsurface structure, made of concrete. The septic tank was connected to a waste oil underground storage tank (UST) via an underground pipeline. The waste oil UST was removed in 1987. Another pipeline connected to this septic tank ran out to Agat Bay. From 1955 to 1975, waste oils, automotive fluids, and cleaning solvents which were generated at the NEX Garage Septic Tank Site were disposed of in the waste oil UST.	Soil, groundwater, pipeline sediment, septic tank, marine sediment and biological tissues were collected and analyzed to determine the extent of contamination. Soil and sediment bioassay were also conducted.	Final Engineering Evaluation/Cost Analysis (EE/CA) (Mar 1998)	The study concluded that there was no existing threat to human health and environment. The Engineering Evaluation/Evaluation/Cost Analysis (EE/CA) recommended the removal of the septic tank and the oily sludge in the septic tank, cleaning and removing the pipeline between Route 2 and the NEX Garage, and cleaning, capping and closing in place the pipeline between Route 2 and Agat Bay.

# Seawall and Landfill Cover Construction

## Orote Landfill Site COMNAV MARIANAS Guam



Fact Sheet No. 8

May 2000

This fact sheet describes the ongoing cleanup of contamination at U.S. Naval Forces Marianas (COMNAV MARIANAS) Guam under the Installation Restoration (IR) Program. This is one in a series of informational flyers that will be issued periodically throughout the cleanup process.

### INTRODUCTION

This fact sheet provides updated information regarding construction activities at the Orote Landfill Site, COMNAV MARIANAS Guam. Construction of the seawall began in March 1999 and will continue until July 2000. The February 2000 fact sheet discussed the seawall construction and final landfill cover design; this fact sheet discusses ongoing construction activities for the seawall and the beginning of construction activities for the landfill.

A liner was included as part of the design for the seawall to prevent waves from coming into contact with landfill materials. A cover being placed over the landfill area has a liner that overlaps the liner beneath the seawall; this forms a continuous low permeability cap over the landfill materials. These liners will protect humans and animals from coming into contact with the landfill wastes and will limit the amount of rainfall that can move through the waste, possibly carrying contamination to the groundwater.

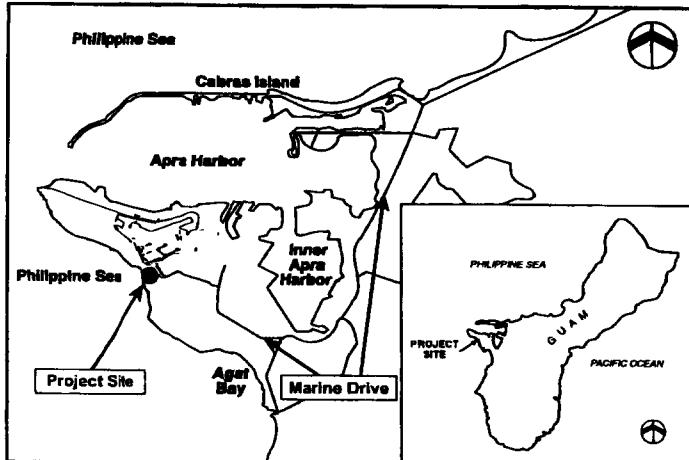


Figure 1. Location map

### BACKGROUND

The Orote Landfill Site occupies approximately 9.4 acres of land within COMNAV MARIANAS on the southern portion of the Orote Peninsula (Figures 1 and 2). The Orote Landfill was used for disposal of residential, industrial, and construction wastes from approximately 1944 to 1969. The face of the cliff that surrounds the landfill was reportedly the most active disposal area. Flammable material was burned, and the ashes were buried on the cliff above the nearby cove. Nonflammable material was either buried behind the cliff or bulldozed over the cliff onto the beach. The beach contained a large amount of rusted metal and other debris. Erosion of the landfill cliff had been observed as a source of the debris on the beach.

### SEAWALL AND LANDFILL COVER

The unprotected cliff at the Orote Landfill Site was eroding into the sea, and exposed landfill material was being transported to the Philippine Sea. The cliff needed to be stabilized before a landfill cap could be applied over the site and to prevent further erosion of landfill waste to the sea.

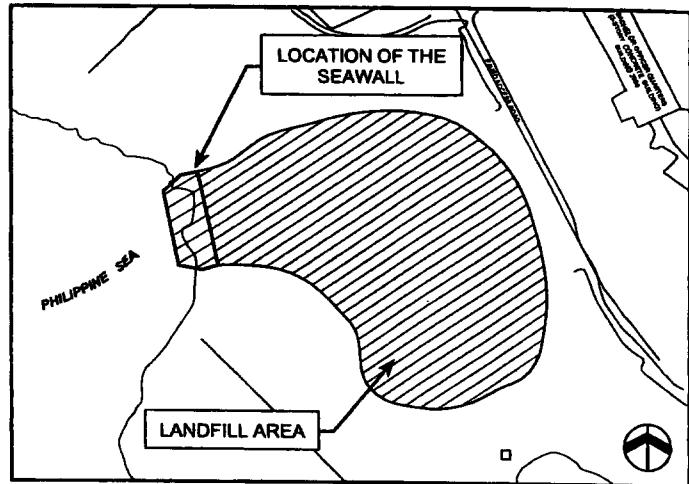


Figure 2. Map of site showing the approximate boundary of the landfill cover and location of seawall

### SEAWALL CONSTRUCTION ACTIVITIES

Construction activities on the seawall began in March 1999. Currently, the seawall is approximately 90% completed. Activities completed to date include casting the 24-ton and 9-ton concrete cubes, placing the cubes on the slope, casting the toe wall itself, and installing the liner and gravel layers on the slope. Figure 3 shows the wall as it currently exists. Installation of rock anchors and restoration of the site are expected to be completed in July 2000.

### LANDFILL COVER CONSTRUCTION ACTIVITIES

The landfill cover construction activities began in February 2000. The landfill was consolidated from 9.4 acres to 6 acres. The cover includes a low permeability liner and a vegetative layer designed to accommodate native plants and trees (Figures 4 and 5). Activities completed to date include building the foundation layer and excavating an infiltration basin. A pilot test concerning the vegetative layer is currently underway in cooperation with the University of Guam. The pilot test will assess whether tree root damage will occur to the liner. Construction on the cover is expected to be completed by July 2000.

## COMMUNITY INVOLVEMENT

This fact sheet is part of the Community Relations Program for the RI, RSE, and cleanup activities at the Orote Landfill Site. This effort is intended to provide information regarding planned or ongoing activities at each site.

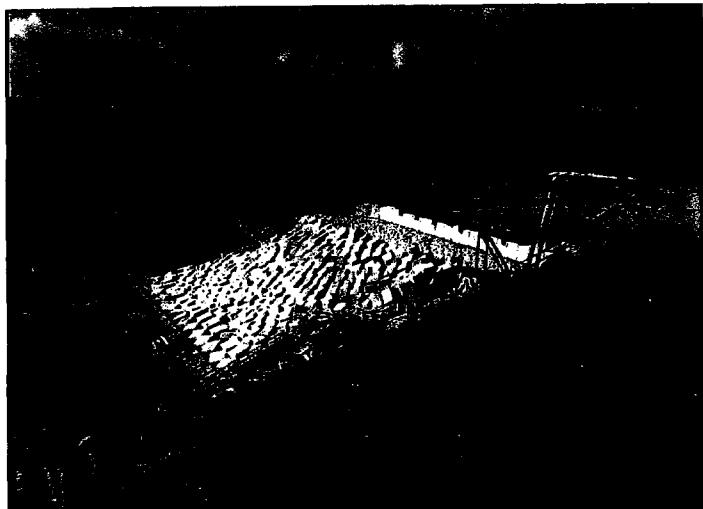


Figure 3. The nearly completed seawall

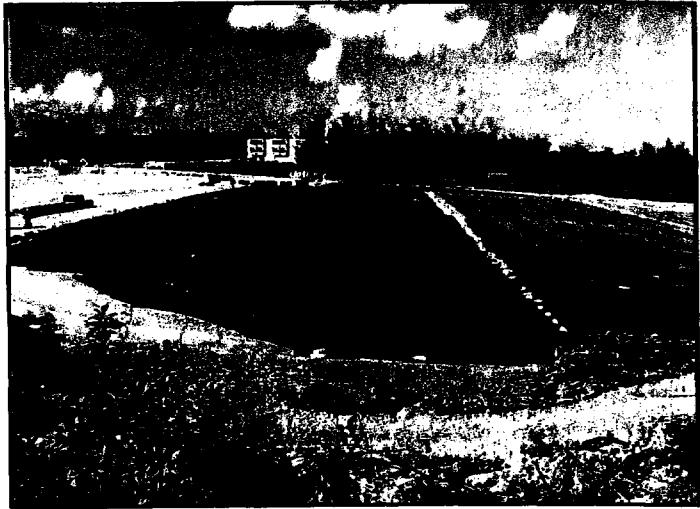


Figure 4. Installation of the landfill cover liner materials

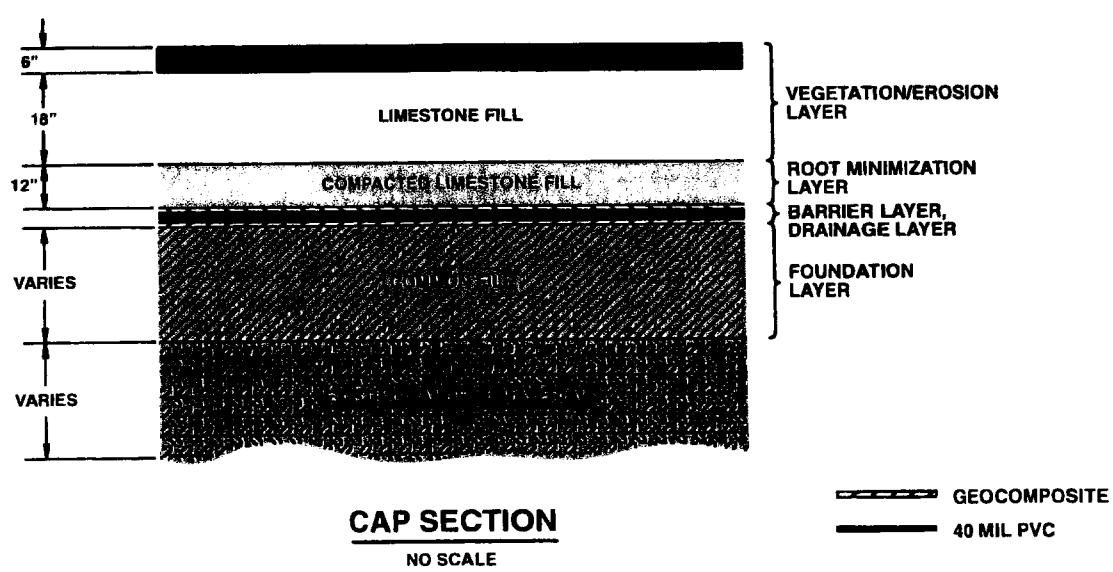


Figure 5. Cross section of landfill cover

## FOR MORE INFORMATION

For any questions, please contact the U.S. Naval Forces Marianas (COMNAVMARIANAS) at (671) 339-5027. The complete 100% Seawall Design, 100% Landfill Cover Design, and Pilot Study Work Plan are currently available at the information repository located at Nieves M. Flores Memorial Library at Hagatna.