



**ANDERSEN AFB
GUAM**

**ADMINISTRATIVE RECORD
COVER SHEET**

AR File Number 595



595 1
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 36TH AIR BASE WING (PACAF)
UNIT 14003, APO AP 96543-4003

File:
G.I. 17-5-2

595

NOV 18 2002

MEMORANDUM FOR SEE DISTRIBUTION LIST

FROM: 36 MSG/CC

SUBJECT: Meeting Minutes for Restoration Advisory Board (RAB) Meeting, 12 Sep 02

1. The Andersen Air Force Base RAB meeting minutes for 12 September 2002 are forwarded for your review at Attachment 1. Also attached with the meeting minutes is the RAB member distribution list (Attachment 2).
2. We look forward to continued communication with you. Should you have any questions, please contact Mr. Gregg Ikehara at 366-4692.

//signed...bbs 18 Nov 02//
BRYANT B. STRETT, Colonel, USAF
Installation Co-Chairperson
Restoration Advisory Board

Attachments:

1. RAB Meeting Minutes
2. Distribution List



DEPARTMENT OF THE AIR FORCE
 HEADQUARTERS, 36TH AIR BASE WING (PACAF)
 UNIT 14003, APO AP 96543-4003

NOV 18 2002

MEMORANDUM FOR SEE DISTRIBUTION LIST

FROM: 36 ABW/CV

SUBJECT: Restoration Advisory Board (RAB) Meeting Minutes, 12 Sep 02

Board Members:

Colonel Bryant Streett (AAFB) – Acting Installation Co-Chairperson
 Senator Joanne Brown – RAB Member
 Mr. John Jocson – RAB Member
 Ms. Mauryn Q. McDonald – RAB Member
 Ms. Lucrina Concepcion – RAB Member
 Ms. Nadia Wood – RAB Member
 Mr. Mike Gawel – RAB Member
 Ms. Carmen Sian-Denton – RAB Member
 Ms. Julie Duwel – RAB Member

Support and Public Attendees:

Mr. Gregg Ikehara - AAFB
 Mr. Jess Torres – AAFB
 Mr. Danny Agar - AAFB
 Ms. Yvette Bordallo – AAFB

Public Attendees:

Lt Colonel Bruce Arnold – 36 CES/CC
 Lt Colonel Tonya Hagmaier – 36 ABW/JA
 Lt Kim Melchor – 36 ABW/PA
 Lt Sarah Small – 36 ABW/PA
 Mr. Andrew Cross – 36 CES/CD
 Ms. Joan Poland – 36 CES/CEV
 Mr. Mike Cruz – GEPA
 Mr. Toraj Ghofrani – EA Engineering
 Mr. Gary Denton – WERI
 Mr. Paul Dusenbury – Booz-Allen Hamilton
 Ms. Julie Dusenbury
 Mr. Jesus Castor Torres – Team Real Access
 Mr. Virg Penafiel – Team Real Access
 Mr. Jesus Cruz Torres – Team Real Access
 Ms. Linda Tatreau – GWHS
 Ms. Son Pham – GWHS
 Mr. Chris Delfin – GWHS
 Mr Michael Pascua – GWHS

Ms. Jackie Ladrado – GWHS
Ms. Laura Cruz – GWHS
Ms. Melanie Tedtaotao – GWHS

1. Introduction: The RAB meeting began at 6:40 p.m. with Mr. Gregg Ikehara introducing Colonel Bryant Streett, who was sitting in for Colonel Thomas Finnegan. He thanked Mr. John Jocson and his associates for hosting the RAB meeting.
2. Review of Previous Minutes: Mr. Ikehara requested for the members to review the previous RAB minutes (28 February 2002), and with no discrepancies noted in the previous meeting minutes, it was approved.
3. RAB Member Inductions: Mr. Ikehara continued with the inductions of Ms. Nadia Wood and Ms. Lucrina Concepcion as RAB members. Ms. Duwel motioned for their acceptance, with Mr. Gawel seconding the motion. With no objections from other board members, Ms. Wood and Ms. Concepcion were welcomed. Mr. Ikehara presented a pie chart on the status of all forty IRP sites. Seven sites are being investigated, eleven sites are pending cleanup, and twenty-two sites have been completed. He also provided a site phase summary for each site cleanup. Mr. Ikehara then continued with a brief agenda overview and the introduction of Mr. Agar.
4. Fieldwork Update/ Presentation:
 - a. Review of IRP progress

Mr. Agar's presentation included pictures of sites with ongoing investigation or remedial action and sites pending remedial action. The presentation focused on the history and present status of the sites.

Landfills 08, 18 and the Fire Training Area 2 are sites currently under study.

Landfill 08 is located east of the Explosive Ordnance Disposal building near the Munitions Storage Area, and is approximately 8 acres in size. In 1998 through 2000, all asphalt drums, asphalt contaminated soil and other debris were removed from this site and transported to Waste Pile 1 and AAFB sanitary landfill. Confirmation surface samples detected Polycyclic Aromatic Hydrocarbon (PAHs) and inorganic metals exceeding the USEPA Region 9 Preliminary Remediation Goals (PRGs) and Background Threshold Values (BTVs). An investigation to delineate the contamination and evaluate potential risk to human health and the environment was completed. The Air Force Draft Engineering Evaluation/Cost Analysis (EE/CA) document will be completed 30 September 2002.

Landfill 18 is located at the bottom of the cliff facing Tarague Beach. It is approximately 5.5 acres in size and consists of loose gravel; large boulders intermixed with debris, and overgrown vegetation. Forty-three samples were collected during the preliminary investigation.

This area has expanded due to the discovery of approximately 1000 deteriorated drums, a conveyer belt with metal buckets, and an old asphalt-batching tank. The investigation into the additional area will continue in FY 2003. During clearing of vegetation for a firebreak around the 9100 facility, the munitions storage area personnel discovered deteriorated drum piles adjacent to Landfill 18. Instead of investigating the area separately, the Air Force decided to combine the area with the Landfill 18 study in order to expedite the investigation and cleanup process and because of its close proximity to Landfill 18. Colonel Streett asked what had the area of Landfill 18 included before? Mr. Agar indicated on the aerial view map that originally Landfill 18 was located to the north of the new site. MSA personnel discovered the drums during vegetation clearing for a firebreak, and the AF decided to include the drum cleanup with the Landfill 18 project in order to expedite the cleanup. Mr. Gary Denton asked what was contained in the drums that were located at Landfill 18. Mr. Agar indicated that it was asphalt, which was located near the old asphalt batching plant. Mr. Ikehara emphasized that the Landfill 08 was located adjacent to the area where the drums were found. The asphalt could be related to the runway or road construction. Senator Brown asked that since the drums were adjacent to the asphalt facility, were there just empty drums? Mr. Ikehara replied, it was speculation based on what has been observed at the site, although some of the drums were partially filled with asphalt. ***Senator Brown requested that the archived photos of the site be presented at the next RAB meeting.***

The Fire Training Area 2 (FTA 2) is approximately 8 acres in size and is situated at the western side of the flight line. During a previous investigation, fifty-five whole active soil gas samples, three passive soil gas samples, forty-two surface samples, and four subsurface soil samples were collected. By request of the Regulators, two additional boreholes were constructed in the Burn Pit to determine subsurface contamination. No Chemicals of Concern (COCs) were identified in the subsurface samples collected at the Burn Pit Area. The FTA 2 EE/CA document is at the Air Force review stage. Senator Brown asked what contaminants were being investigated at FTA 2, and if it was resulting from the drums that were located at the Landfill 08. Mr. Agar explained that the AF knew what the contaminants were from previous studies conducted. There was a UST situated there and the AF suspected that there was a leakage, which was composed of different organic compounds.

At the UST area four boreholes were constructed to determine the lateral extent of contamination. Tests indicated that the three boreholes outside the plume were clean. A Vapor Extraction System (VES) was implemented in 1998 for short-term operation. The test concluded that the VES did adequately remove Volatile Organic Compounds (VOCs). In 2002, four additional boreholes were installed to define the lateral extent in the vadose zone. Three boreholes were located outside the plume. A fourth borehole was located inside the plume and was used as an air injection point during bioventing respiration test. The bioventing respiration test concluded that there is strong potential for biodegradation.

The existing VES system will be converted to a bioventing system. The vapor extraction system only removes the lighter VOCs by mechanically removing the contaminants from the

COPC plume using the bio-venting process. The VOC contaminants are broken down by bacterial action with the right conditions of oxygen, moisture, etc. At the conclusion of the bio-venting operation, two boreholes will be installed to verify groundwater quality, vadose zone contamination, and complete cleanup.

The respiration test involved injecting air and helium into the borehole and was monitored for oxygen (O₂), carbon dioxide (CO₂), helium (He) and VOCs. Helium is a stable gas and diffuses faster than oxygen. Bioactivity is indicated by decrease in O₂ and increase in CO₂ production.

The PCB Storage Area, Landfill 02, and Landfill 14 are sites currently being cleaned up.

The PCBSA is located northwest of Landfill 14 and adjacent to Bldg. 20011. It is composed of a fenced-in concrete pad. Soil contaminated with polychlorinated biphenyls (PCB) were removed and confirmed clean in two areas. Over-excavation in one area is ongoing. The cleanup is expected to be completed by the end of September 2002. Mr. Denton asked if the PCB contaminated soil from the PCB Storage Area above 50 ppm is taken to the landfill. Mr. Agar clarified that the contaminated soil above 50 ppm is transported to permitted disposal facility off-island, and contaminated soil below 50 ppm is disposed of at the AAFB landfill. He emphasized that it was not disposed of at the Ordot Landfill. Mr. Denton also inquired about surface water runoff. Mr. Ikehara commented that the PCB Storage Area was a concrete pad where transformers were set and weathered over time. There was a release into the low-lying area. The area is well defined and was isolated based on the activities, i.e., storage compound, concrete pad. The soil needed to be removed beneath and adjacent to the concrete slab. Mr. Mike Gawel asked if the soil was limestone. Mr. Ikehara stated that the soil being excavated is a thin layer of topsoil, mixed with either native or fill material. In either case, it would need to be excavated due to the PCB contamination.

Landfill 02 is adjacent to the Andersen Air Force active landfill. It is approximately 69 acres and consists of 22 trenches. The construction of the final twelve-inch cover will begin next quarter.

Landfill 14 is located adjacent to the skeet range, and the access road to the Civil Engineering Laydown Yard borders the southern side of the site. It is approximately 33 acres in size. Five areas, excavated for PAHs, were confirmed cleaned and then backfilled. One area is undergoing over-excavation for removal of PAH-contaminated soil. Solid debris (metal, concrete, and tires) was removed from three areas. Removal of Asbestos-Containing Material (ACM) is ongoing. The northeast Waste Pile cleanup is scheduled to be completed by the end of the calendar year. Mr. Mike Cruz asked how far down did we excavate to verify for the PAHs at Landfill 14. Mr. Agar explained that it goes by 1-foot incremental segments and reconfirmed for left over PAHS in the area. The excavation will continue for confirmation. Colonel Streett then asked what was the deepest depth excavated. Mr. Ikehara replied, that it ranged from 6 feet to 10 feet.

5. Groundwater Presentation:

Mr. Ikehara began by presenting the Spring 2002 Groundwater sampling results. The results graphed indicated the TCE analytical data for wells IRP 31, IRP 3, IRP 39, and IRP 51. He explained the scenario with the sampling of shallow monitoring wells at the top of the fresh water lens and deep monitoring wells that sample at the bottom of the fresh water lens. Using the diagram of the cross-section of the island, he explained the difference between the two types of wells and the potential land use activities that can affect the ground water quality in the lens especially the typical type of activities associated with the Base, such as airfield operations, landfills, storage and disposal of fuel, underground injection control (UIC) dry wells, etc. The nature of the limestone plateau of northern Guam governs how contamination from these activities can potentially migrate down to the lens at or near sea level. Colonel Streett asked Mr. Ikehara to explain what a dry well is. Mr. Ikehara explained that in heavily concreted areas such as runways; generate a lot of runoff as a result of rain. We need a quick way of disposing of the runoff to avoid flooding on base. We have approximately 103 dry wells to keep water from ponding and disrupting aircraft operations. It does help the ground in absorbing the water patches. Mr. Ikehara continued to say that even if we did not have the dry wells, northern Guam which consists of limestone is quickly drained, highly porous and offers avenues that allow the water to get into the substrate, but lots of times, it is not fast enough for us, so for safety purposes we need the dry wells to take care of that. Mr. Gawel inquired whether the sampling conducted at wells IRP 3, IRP 39 and IRP 51 were shallow wells. Mr. Ikehara clarified which wells were shallow or deep. He stated the AF has been noticing that it is not only in the lower portion of the freshwater lens in MARBO, but also in the upper portion on the Mainbase this may indicate that there is a source nearby, either primary or secondary. In the case of MARBO, we still have not identified a source.

He continued to discuss the MARBO plume and the Base Maintenance area plume and how we could further identify the sources for these effects that we are seeing by doing further studies on identified Areas of Concern (AOCs). The MARBO problem could be a result of off-base sources such as the GPA power plant and the DPW waste transfer station.

Discussion ensued as to how contamination, such as the TCE, that is graphically depicted in the slide can eventually reach the water table by direct or indirect routes. He explained that there are primary and secondary sources for the symptoms or dissolved concentrations that we are observing. A primary source may be a leaking tank or a UIC well. A secondary source may be an older release that has percolated down to a subsurface location, only to be entrained in a downward flow later. Substances such as TCE can be very recalcitrant or persistent in nature and can be stuck in the rock matrix, until it is reached by recharge waters allowing it to migrate downward to the water table. Mr. Denton asked if there was any TCE being used on base in 1998. J. Poland replied, that to her knowledge, TCE had been banned from AAFB before then Mr. Ikehara commented that there may be a subsurface secondary source within the area that is related to a primary source that has not yet been identified. Colonel Streett asked for

clarification on the above statement. J. Poland explained that the AF was conducting investigation work several years ago, and a storage tank with TCE was discovered adjacent to the aircraft maintenance compound. Mr. Jess Castor Torres asked what TCE was. Mr. Ikehara explained that it is a chlorinated compound and is resistant to weathering and degradation. It has the potential to mobilize quickly. It is a cancer-causing compound. Senator Brown asked if there had been any TCE tracking conducted on-base back then. Mr. Ikehara stated that there was some data available, but the sampling methods previously used were different. For the sake of comparison, now we use pumping methods that do not allow the sample to aerate, which would be a truer representation of the volatile content in the groundwater. Three additional questions were also raised. First, whether there were any dry wells located nearby to IRP 31, and secondly, is there any TCE historical data available. Mr. Ikehara replied, there was no need for UIC wells in the area nearby to IRP 31. Ms. Joan Poland stated that a TCE records search was conducted, and unfortunately, no records were available. Lastly, was there an industrial area where there may have been a wash down facility close by? Mr. Ikehara said that was a possibility along with other related activities, all of which is being researched.

The next groundwater sampling round representing the rainy season will begin at the end of September and continue through the month of October.

6. Urunao Presentation:

Mr. Torres began his slide presentation by informing the group that he would provide Urunao background information, investigation results, cleanup alternatives, the preferred cleanup alternative, and the cleanup schedule, followed by an open discussion. He mentioned that Draft RI/FS report has been provided to the regulatory agencies and the landowners.

After showing an aerial slide of Dumpsites 1 and 2, he stated that an Environmental Impact Statement (EIS) was prepared in 1988, which proposed five cleanup options:

- Option 1 – Placing a crane at the top of the cliff to remove the big solid waste and ordnance.
- Option 2 – Utilizing a helicopter to remove larger solid waste and ordnance.
- Option 3 – Removing only the ordnance by helicopter.
- Option 4 – Real property acquisition with institutional control.
- Option 5 – No action.

In 1988, the Record of Decision (ROD) was issued to purchase the property and implement institutional control by fencing in the property. When public hearings were held, the landowners indicated their choice for the complete cleanup. In 1997, an Environmental Baseline Survey (EBS) was conducted to evaluate the potential presence of hazardous wastes at the dumpsites. A site inventory was done at both sites. Surface and subsurface soil sampling to distinguish the different contaminants, and a groundwater sample to determine if any contaminants have in fact entered the groundwater were collected and analyzed. The soil was tested and revealed

contamination in the soil, but there was no remediation selected at the time. The Air Force then assigned this site as a Category 6. (Category 6 is assigned to sites where action has either not yet been selected or has not yet been implemented.)

The Air Force is currently in the Feasibility Study stage of the Environmental Cleanup Process. The Air Force would like to finalize the reports and proceed on to the ROD. Once the ROD is approved, the cleanup actions can then be initiated. In 2001, additional surface soil, subsurface soil, and groundwater seep samples were collected and analyzed during the RI/FS field investigation.

Both dumpsites consisted of aircraft parts/tires, sheet metal pipes, sanitary trash, containers, deteriorated ordnance and explosives (OE), and an incinerated area where OE and surficial solid wastes were burned with napalm. Soil at the dumpsites is scarce and subsequently, the soil sample locations were limited to areas where sufficient soil was available for sampling. There is a map available in the report that shows where all the debris was found. There is approximately 26,000 CY of solid waste, including 1000 rubber tires, 1500 small bomblets, and 50 target identification bombs that are located at Dumpsite 1. At Dumpsite 2, approximately 15,000 CY of solid waste, including 1800 rubber tires and four small incendiary candles were located.

Based on the human and ecological risk assessment results, antimony, arsenic, barium cadmium, dioxin, lead, and manganese were determined to be Constituents of Concerns (COCs) at Dumpsite 1. Similarly, benzo(a)pyrene, Arochlor-1254, PCBs, antimony, lead, and manganese were detected or present at Dumpsite 2. Freshwater seep samples were collected from Falcona Beach (about 1000 ft. away) at the lowest low tide to determine if any contaminants were present in the groundwater. Sample results revealed that it contained high salinity, with little to no chemicals detected from the Dumpsites.

Originally there were 34 alternatives, but most of the cleanup alternatives were not feasible for treating the COCs or reducing the safety risk associated with OE materials. AAFB eliminated alternatives that did not work with metals, porous limestone, and steep slopes, and any alternatives that would be hindered by the solid waste and ordnance. By the process of elimination, the three alternatives remained:

Alternative 1: Excavation & Offsite Disposal	Cost: Under \$12M
Alternative 2: Property Acquisition & Institutional Ctrl	Cost: Over \$12M
Alternative 3: No Action	Cost: No Cost

The preferred alternative is Alternative 1. The surface clearance of OE and solid waste debris will start from the bottom of each site and will proceed towards the top of the cliff. The materials would then be moved down the slope over previously cleared ground. Senator Brown asked who constructed the access road. Mr. Ikehara informed her that he had spoken with Senator Larry Kasperbauer, who indicated, that the road was built with private funds. She also asked how much it would cost to acquire the property. Mr. Torres indicated that it would cost a

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little bit over \$12M. And is the most serious concern the OE? Yes the OE is the most serious concern.

The Air Force is currently in the RI/FS phase. The Draft RI/FS report is undergoing review, comments will be incorporated then it will be forwarded to the regulatory agencies. Once the document is Final, the Air Force will go out to the public with a Proposed Plan (PP) for review, and a public meeting will then be scheduled to solicit comments for the proposed cleanup plan. Once all the comments are incorporated, a ROD will be made available to state the cleanup actions. This is expected to begin in January 2004 and will take about a year to get the complete approval from the regulatory agencies and the AF Explosive Safety Board. The cleanup would begin in March FY 2006 based on the funding availability at this time. The cleanup should then be completed by March FY 2007. Mr. Jess C. Torres asked if there were any historical/cultural artifacts that would be affected at the sites? Mr. Ikehara answered that there are artifacts in the near coastal area but not on the slope where the dumps are located. Colonel Streett then asked Mr. Torres how much funding was available this year and to also explain the funding procedure. For Andersen, \$3M ERA was available in FY02. Funds are issued to the AF HQ level, and then passed on to major commands based on prioritization criteria and need. The major commands use cost to complete and schedule to complete projections to issue funds to the Base.

7. Other RAB Meeting Issues: The next RAB meeting is scheduled for 05 December 2002. Senator Joanne Brown graciously offered to host our last RAB of the year at the Guam Legislative Session Hall in Hagatna. With no other business at hand, the meeting was adjourned at 7:50 p.m.

APPROVED/~~DISAPPROVED~~

//signed...BBS 18 Nov 02//

BRYANT B. STREETT, Colonel, USAF
Installation Co-Chair, Restoration Advisory Board


FRED CASTRO
Community Co-Chair, Restoration Advisory Board

18 Nov 02
DATE

20 Nov 02
DATE

DISTRIBUTION LIST

Colonel Thomas P. Finnegan
Senator Joanne M. Salas Brown
Mayor Robert Lizama
Mr. Fred Castro
Mr. Jim D. Iglesias
Ms. Carmen Sian-Denton
Mr. Edward C. Artero
Mr. John Jocson
Ms. Maureen Q. McDonald
Mr. Michael J. Gawel
Mr. Jerry Flores
Mr. Francis L.G. Damian
Ms. Julianne T. Duwel
Ms. Lucrina Concepcion
Ms. Nadia Wood
Ms. Joanne Tarkong
Mr. Mark Ripperda
Mr. Mike Cruz
Mr. Walter Leon Guerrero



595 11 File: 17-5-2
G.I.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 36TH AIR BASE WING (PACAF)
UNIT 14003, APO AP 96543-4003

25 Feb 03


MEMORANDUM FOR SEE DISTRIBUTION LIST

FROM: 36 ABW/CV

SUBJECT: Meeting Minutes for Restoration Advisory Board (RAB) Meeting, 05 Dec 02

1. The Andersen Air Force Base RAB meeting minutes for 05 December 2002 are forwarded for your review as Attachment 1. Also attached with the meeting minutes is the RAB member distribution list (Atch 2).
2. We look forward to continued communication with you. Should you have any questions, please contact Mr. Gregg Ikehara at 366-4692.

E-Signed by 36ABW/CV
VERIFY authenticity with ApproveIt



THOMAS P. FINNEGAN, Colonel, USAF
Installation Co-Chairperson
Restoration Advisory Board

Attachments:

1. RAB Meeting Minutes
2. Distribution List

**ANDERSEN AIR FORCE BASE
RESTORATION ADVISORY BOARD (RAB)
MEETING MINUTES
05 December 2002**

Board Members:

Colonel Thomas Finnegan (AAFB) – Installation Co-Chairperson
Mr. Fred Castro – Community Co-Chairperson
Mr. Francis Damian – RAB Member
Ms. Carmen Sian-Denton – RAB Member

Support Staff Attendees:

Mr. Gregg Ikehara - AAFB
Mr. Jess Torres – AAFB
Mr. Danny Agar - AAFB

Public Attendees:

Colonel Bryant Street – 36 MSG/CC
Lt Colonel Gary Arnold – 36 CES/CC
Lt Colonel Tonya Hagmaier – 36 ABW/JA
Senator Larry Kasperbauer – Representing Carmen Kasperbauer
Mr. Andrew Cross – 36 CES/CD
Ms. Joan Poland – 36 CES/CEV
Mr. Tom Sheldon – 36 ABW/JA
Mr. Victor Wuerch – GEPA
Mr. Toraj Ghofrani – EA Engineering
Ms. Catherine Flores McCollum – Landowner (Ritidian Families)
Mr. Antonio A. Sablan – Landowner (Urunao Families)
Mr. Ed Benavente

1. Introduction

Mr. Gregg Ikehara began the RAB meeting at 6:30 p.m. with the introductions of both the Installation and Community Co-chairs, Colonel Thomas Finnegan and Mr. Fred Castro, respectively. He thanked Senator Joanne Brown and her staff for graciously hosting the RAB meeting.

2. Review of Previous Minutes

Mr. Ikehara indicated that due in part to no quorum being available, the meeting minutes for the previous RAB minutes (12 September 2002) were not approved.

1. IRP Sites Status

Mr. Ikehara presented a pie chart on the status of all forty IRP sites. Five sites are being investigated, ten sites are pending cleanup, and twenty-five sites have been completed. He also provided a site phase summary for each site cleanup. Mr. Ikehara then continued with a brief agenda overview and the introduction of Mr. Agar.

4. Fieldwork Update/ Presentation

a. Review of IRP progress

Mr. Agar's presentation included pictures of sites with ongoing investigation or remedial action and sites pending remedial action. The presentation focused on the history and present status of the sites.

Landfill 18 is located at the bottom of the cliff facing Tarague Beach. During clearing of vegetation for a firebreak around the Bldg. 9100 facility, the munitions storage area personnel discovered deteriorated asphaltic drum piles adjacent to Landfill 18. Instead of investigating the area separately, the Air Force decided to combine the area with the Landfill 18 study in order to expedite the investigation and cleanup process and because of its close proximity to Landfill 18. This site has now expanded from 2 acres to 4 acres. The investigation of the new area will begin on 09 December 2002.

The Landfill 02 and Landfill 14 sites are currently being cleaned up.

Landfill 02 is adjacent to the Andersen Air Force active landfill. It is approximately 69 acres and consists of 22 trenches. The construction of the final twelve-inch cover will begin the first week of December. Mr. Fred Castro asked when the twelve-inch cover would be completed. Mr. Agar responded that it should be completed within 4 to 5 months.

Landfill 14 is located adjacent to the skeet range, and the access road to the Civil Engineering Laydown Yard, which borders the southern side of the site. The Remedial Action began in September 1999. In October 1999 through January 2000, confirmation samples collected were identified with PAH and Lead contamination. The contaminated soil was widespread and additional excavation was necessary to complete the cleanup. Cleanup continued into 2002, which consisted of the hotspots identified. The Air Force is currently awaiting an estimate to complete the cleanup of additional hotspots confirmed contaminated.

Mr. Agar explained that an Area of Interest (AOI) was an area that was not investigated during the past environmental investigation effort, and an Area of Concern (AOC) was an area that was identified during the past environmental investigation effort that included sampling and analysis. For FY2004, the Air Force has programmed twenty-eight areas to be investigated. Ten of the AOIs were identified and reported by EA Engineering in November 2000. There were only fifteen AOCs identified during the

Environmental Baseline Survey that required further investigation. Three additional areas were identified in 2002. Mr. Fred Castro asked at what point do the regulatory agencies get involved with the process. Mr. Ikehara responded that the investigation for AOI's and AOC's is driven by the regulatory agencies. Mr. Agar clarified for Mr. Ed Benavente the location of AOC-67. Mr. Agar explained that this site was located on Marine Drive by the old Australian Cable building. There are seven Underground Storage Tanks (USTs) that will be removed at this site. Once the removal is completed, the subsurface investigation will then be initiated. Mr. Wuerch asked if the removal was being conducted under the CERCLA IRP. Ms. Poland stated that all the Tumon Tank remediation would be accomplished under Compliance. Mr. Benavente commented that there was an area he has observed consisting of rusted 55-gallon drums where a caustic acid smell emanates from. Ms. Poland asked Mr. Benavente for directions to the location, and the Air Force will consider it an AOI if on AF property.

The following is a list of the Areas of Interest. AOI-1 thru AOI-5 are located at the Munitions Storage Area, and AOI-6 thru AOI-10 are located on Northwest Field.

AOI-1 Is a trench approximately 400 x 60 x 3 ft. deep, consisting of Ordnance Explosive Waste (OEW), Unexploded Ordnance (UXO), deteriorated drums, and miscellaneous buried materials.

AOI-2 A cliffline dumpsite which consists of OEW, UXO, batteries, empty drums, tires, wires, concrete slabs, auto parts, and other metal debris.

AOI-3 A waste pile consisting of OEW, scrap metal, and deteriorated drums.

AOI-4 A quarry waste pile consisting of OEW, UXO, empty CAIS canisters, deteriorated tracked vehicle, and scrap metal.

AOI-5 MSA coral dump site consisting of scrap metal, OEW, UXO, auto parts, aircraft engine parts, corrugated sheet metals, deteriorated drums, and scrap metals.

AOI-6 An asphalt Dump Site consisting of approximately 100 to 300 deteriorated drums and asphalt on ground surface.

AOI-7 An asphalt Drum Area consisting of OEW and an oil separator, scrap metal, asphalt drums, trenches, oil/water separator, building foundations, vehicle parts, glass bottles, and light fixtures.

AOI-8 An abandoned sewage sinkhole/sewage disposal area consisting of sheet metal, transite pipe, engine parts, and electric transformer.

AOI-9 A quarry cliffline dump site consisting of scrap metal and construction debris.

AOI-10 A waste pile consisting of scrap metal, toilet, transite pipe, asphalt mound, auto frame, and mechanical debris.

The following is a list of the Areas of Concern:

AOC-54, AOC-56, AOC-65, AOC-69, AOC-83 All will require further soil remediation or removal action in Lead-impacted areas.

AOC-55, AOC-80, AOC-85, AOC-91, AOC-93, AOC-99 All will require further soil remediation or removal action in a few Constituents of Concern (COC)-impacted areas. (COCs include Aluminum, Beryllium, Total Chromium, Manganese).

AOC-67 Will require further soil investigation to be completed after proper removal and disposal of UST

AOC-68 Will require further soil investigation to be completed after proper removal and disposal of all seven USTs.

AOC-84 Will require further soil remediation or removal action in the Manganese- impacted areas

AOC-94 Will require further investigation to characterize the existence of UXO contamination or its potential for a release into the environment.

AOC-105 Bldg. 18006 will need to be investigated to determine if the building is a source of TCE contamination.

AOC-106 Area outside of Landfill 14 is suspect to contain Lead-impacted soil.

AOC-107 Skeet Area is suspected to contain PAH-impacted soil.

Mr. Castro requested clarification on the type of contamination at Landfill 18. Mr. Agar responded that it was soil contaminants and that samples were collected. Mr. Agar stated that any soil deemed hazardous is shipped off-island to a certified disposal facility, while non-hazardous soil is disposed of at the Andersen Air Force Base Landfill. He also emphasized that all plans are approved by the regulatory agencies. Mr. Francis Damian asked the depth of the soil investigation conducted at Landfill 18. Mr. Agar explained that the depth varied between 3 to 5 feet. After excavation is completed, confirmation samples are collected and verified, then continually monitored through.

Mr. Victor Wuerch inquired on the projected use of Andy South for Urban Warfare training by the Marines. Ms. Joan Poland responded that the Air Force is coordinating closely with the Marines, and in no way will the training impact any of the monitoring wells.

Mr. Sablan wanted verification whether there was another dumpsite by the double reef area. Mr. Agar stated that was part of the Navy property and will not be addressed by the Air Force.

5. Urunao Presentation

Mr. Jess Torres began his presentation by mentioning that copies of the Urunao Final RI/FS documents were available at both Information Repositories. The public comment period for the Urunao RI/FS is 06 February through 08 March 2003. The Air Force has forwarded the Urunao Proposed Plan to the regulatory agencies for their review, and has since received comments from EPA Region IX. Mr. Torres informed the members that a public hearing on the Urunao Dumpsites would be held on 20 February 2003 at the Hilton Hotel. He encouraged all affected landowners to attend. The Record of Decision (ROD) will be finalized in December 2003. The design for the cleanup will begin in January 2004, with funding for the cleanup becoming available in 2006. Mr. Castro asked Mr. Torres to characterize each FY funding. Mr. Torres stated that funding for FY03 through FY06 was \$1.2M, \$6M, \$6M, \$20M, respectively. There are cleanup projects that have been slated for FYs 03, 04, and 05. Mr. Torres mentioned that the Urunao funding cleanup exceeded the amount that was initially budgeted. He also

confirmed that it would take approximately \$10M to cleanup the Urunao site. Ms. Poland explained that Urunao is a very unique site, due in part to the unexploded ordnance (UXO) and solid waste that are present. According to Ms. Poland, the price is higher because of logistics rather than contamination. She provided a breakdown of costs, stating that half a million was budgeted for soil contamination, \$1M for UXOs, and \$8M for solid waste and sorting of the solid waste. Colonel Finnegan asked how much was spent to devise the plan for cleanup. Ms. Poland stated it was \$2M to \$3M. Mr. Benavente then asked if the cleanup priority was based on the degree of contaminants. Mr. Torres commented that all high priority site cleanups are to be completed by 2007, with lower cleanup priorities projected by 2011. Mr. Castro requested clarification on the POM process. Ms. Poland explained that the process was a budget process. Colonel Finnegan asked if the figures in the POM would be available. Mr. Torres stated that the budget will be available. Mr. Castro recalled that with the Harmon Cliffline issue, a case was established to accelerate the cleanup at this site. Mr. Ikehara responded that sites are placed in a ranking and with the Harmon Cliffline it was not a high priority level, and because of the need to excess the property, and the desires of the RAB, the Air Force was able to make it a priority. The Harmon site is currently at the Record of Decision (ROD) stage, and is considered a No Action ROD. He did indicate that ROD approval is completed by both regulatory agencies and the Air Force. Ms. Poland emphasized that the Urunao site was also on an accelerated track, and with assistance from Congressman Underwood, documentation funding was established. Mr. Castro asked if the AAFB IRP has received any acknowledgement in regards to meeting its goals and objectives that could be useful in lobbying for funding. Mr. Ikehara replied that AAFB has not received any recognition. **Mr. Castro requested for an IRP cleanup status report at the next RAB meeting.** Ms. Catherine McCollum addressed concerns that there is some type of contaminant entering the ocean because she has noticed that the coral has turned brown, and secondly, that there has been a chlorine odor present noticed by family members. Ms. Poland assured her that sampling was conducted down gradient in the water and results confirmed negative.

Mr. Castro asked Mr. Tom Sheldon if the landowners would have the opportunity to file a claim, and if so, where would they file. **Lt. Colonel Hagmaier responded that she could send claim forms to Mr. Sablan and that all claims would be sent to the Judge Advocate office.** Mr. Wuerch asked if it was time critical. Ms. Poland said that a time critical removal action is outside the cost limit that was initially considered. Unfortunately, there are additional steps that would be required and may delay the process more. Once the ROD is finalized, the Air Force will be ready to proceed.

Mr. Torres displayed a slide for the proposed cleanup. He explained that UXO teams will be entering to survey hundred by hundred foot grids, and once the grids are completed, another team will be removing the UXOs that are located. Once the vegetation is cleared, they will look for subsurface UXOs, and then excavate. There are contingencies in place to improve the road for the transferring of contaminated waste. Mr. Ikehara emphasized that safety is a major concern. Ms. Poland stated that comments should be forwarded to the address provided. Senator Kasperbauer commented that the removal be conducted through NCTAMS rather than through Urunao. Mr. Castro asked

if an Environmental Investigation Assessment (EIA) was conducted. Mr. Tom Sheldon clarified that it was legally exempt from NEPA because the RI/FS has been determined to be a substitute under the NEPA.

6. Groundwater Presentation

Mr. Ikehara stated that the Groundwater sampling was conducted and the Air Force is currently awaiting data sampling results. The Air Force objective is to revamp the Groundwater Well Monitoring Plan to determine which wells will no longer require continued sampling and implement the reduction in the sample frequency. The Air Force will be discussing these issues with both the GEPA and EPA Region IX Project Managers.

7. Other RAB Meeting Issues

The next RAB meeting is scheduled three months after the Urunao Public Meeting. Otherwise, the Urunao meeting would be in place of the next quarterly RAB meeting.

With no other business at hand, the meeting was adjourned at 8:20 p.m.

APPROVED/DISAPPROVED


THOMAS P. FINNEGAN, Coldncl, USAF
Installation Co-Chair, Restoration Advisory Board

26 FEB 03
DATE


FRED CASTRO
Community Co-Chair, Restoration Advisory Board

10 Mar 03
DATE

DISTRIBUTION LIST

Colonel Thomas P. Finnegan
Senator Joanne M. Salas Brown
Mayor Robert Lizama
Mr. Fred Castro
Mr. Jim D. Iglesias
Ms. Carmen Sian-Denton
Mr. Edward C. Artero
Mr. John Jocson
Ms. Maureen Q. McDonald
Mr. Michael J. Gawel
Mr. Jerry Flores
Mr. Francis L.G. Damian
Ms. Julianne T. Duwel
Ms. Lucrina Concepcion
Ms. Nadia Wood
Ms. Joanne Tarkong
Mr. Mark Ripperda
Mr. Mike Cruz
Mr. Walter Leon Guerrero

**ANDERSEN AFB, GUAM
REMEDIAL PROJECT MANAGERS (RPM)
MEETING MINUTES
21 February 2002**

Attendees:

AAFB:	Gregg Ikehara, Jess Torres, Danny Agar, Yvette Lynn Bordallo
USEPA:	Mark Ripperda
GEPA:	Walter Leon Guerrero, Victor Wuerch
UNITEC:	Jim Rosacker, John Floden
URS:	Mike Knight
IT:	Pat Ono, Chris Arnsfield
EA:	Joel Lazzeri, Toraj Ghofrani
FWENC:	Mike Bone

General Topics

- G. Ikehara began the meeting by informing the group that Mr. Todd Quillen, Tech Law Representative, did not arrive on 20 February, and would not be attending. Mr. M. Ripperda, USEPA representative joined us via teleconference.
- G. Ikehara proceeded by outlining the agenda, beginning with the previous RPM meeting minutes. With no objections, the previous RPM meeting minutes dated 23 August 2001 were approved.
- G. Ikehara addressed the NFRAP signature pages for Landfills 06 and 22, Waste Pile 4, and Fire Training Area 1. He informed M. Ripperda that since USEPA and the Air Force have signed, he has provided the signature pages to W. Leon Guerrero for GEPA signature. Obtaining GEPA signature will enable the sites to be closed out.

MARBO Operable Unit

- G. Ikehara stated that there was one site that still required further cleanup, which has been programmed for FY02. C. Arnsfield briefed the group regarding the Waste Pile 6 Lead and Soil problems. He provided a site status, which he stated was included in the interim RVR that was provided to the Air Force. According to C. Arnsfield, there were eight remedial areas, with seven areas completed. The last remedial site still requiring cleanup consists of an estimated 9000 CY of soil contaminated with Lead and 10 boxes of batteries/battery casings.

Harmon Operable Unit

- G. Ikehara addressed the manganese BTVs issue. J. Lazzeri has discussed the issue with J. Rosacker and they have decided to redo the memo, providing more backup information. J. Lazzeri mentioned that the proposed BTV of 7,100 mg/kg for manganese is within the published ranges, according to literature available in

Guam. The BTV database included coarse grain versus fine grain, sloped versus flat areas. J. Lazzeri indicated that some of the BTV data sets are related to limestone rock samples that really should not be classified as soil samples. J. Lazzeri also added that the proposed BTV of 7,100 mg/kg is similar to BTV of 6,000 mg/kg as referenced in the NAS (Tiyan) BTV study. V. Wuerch expressed concern about choosing one BTV for manganese for all grain size soil and that even limestone bedrock can be turned into a fine grain soil during a quarry activity. M. Ripperda expressed concern about how the BTV number for manganese was selected based on the upper inflection point. M. Ripperda suggested that J. Lazzeri discuss the technical detail issues with Ms. Gisella Spreizer, the Tech Law statistician who supports M. Ripperda's project. A meeting was scheduled for 12 March 2002 at 0900 (Guam time). W. Leon Guerrero commented that GEPA would like to be present for the discussion. *M. Ripperda suggested that once the technical discussion is completed, the BTV memo be resubmitted with additional support materials.*

Main Base Operable Unit

Study Sites

- M. Knight mentioned there were no comments received from USEPA and were still waiting on comments from GEPA for the *Landfill 13* Agency Draft. GEPA representatives stated they had no comments. With no objection, the Agency Draft could now be finalized. M. Knight provided Final coversheets to all.
- M. Knight explained that *Landfill 18* had site issues regarding the Constituents of Concern (COCs) associated with arsenic, manganese, and benzo(a)pyrene. Initially, a No Further Response Action Planned (NFRAP) was anticipated, but the COCs were still above the RGOs after the human health risk assessment. Resampling was conducted last month with 15 surface and 8 subsurface soil samples being collected. He continued to say that there was no inorganic data available yet, only PAH analytical results. Areas outside of the hotspots were clean down gradient of the site. There were some areas with benzo(a)pyrene concentrations above the Industrial PRGs. Other surface samples were collected below the cliffline. The samples collected along the cliffline contained benzo(a)pyrene above the residential PRGs up gradient of sample S065. Down gradient samples S062, S063, and S064 results were below action levels for PAHs and VOCs. These are preliminary sample results, which will be included in the EE/CA. A groundwater sample was collected on 20 February from Tarague Well 4, which is down gradient from the site and would be tested for all parameters. The preliminary draft will be sent out next month. V. Wuerch commented to M. Ripperda that he take note of the variability of soil type, which illustrates the dilemma of defining background soil here on Guam. *G. Ikehara informed M. Ripperda that a copy of the slide presentation and associated information would be forwarded to him.*

- M. Knight commented that copies of the *Landfill 19* Agency Draft EE/CA were sent out. M. Ripperda confirmed he received his copy. M. Knight explained that this site was located along the eastern edge of the limestone plateau. The upper and lower portions both consisted of waste debris and fill material. During the site inventory only inert surface and subsurface debris was identified. The majority of the debris is intermixed with fill material. The surface soil COCs included Arsenic, Copper, Cyanide, Lead, and Dioxins. The subsurface soil COCs included Aluminum, Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, and Aroclor 1254 and 1260. Due to limited site access below the cliffline remedial activities are only considered feasible above the cliffline. The Air Force has selected the Surface and Subsurface Soil Removal alternative. The implementation of institutional controls for below the cliffline is due to the impracticability of soil remediation that could cause damage to the ecological habitat. G. Ikehara informed the group that a site tour would be available, if desired.
- M. Bone stated that the *Landfill 17* EE/CA Air Force draft was submitted in February, with comments due in March. This particular site involves six different locations. J. Lazzeri provided a site synopsis. He explained that the dumpsite was located along the cliffline and represented where the material was dumped off the cliff. There is one site that was used as a backstop for the firing range that constitutes a problem. Area A represents the Wildlife Refuge, and a distinction must be determined at this site because of the areas that are native forest and modified vegetation. The problem is the remedial action may impact the habitat of rare species. This site is situated along the cliffline and is comprised of soil, solid asphalt/concrete rubble, coral boulders, drums, aircraft parts, electrical parts, construction debris, and sanitary trash. Most of the samples collected contained fill material. There were several exceedences of metals, primarily with Lead. Area B is situated along the cliffline and borders with grassy plateau. Arsenic, PAHs, and pesticides are problems. The EE/CA will require cleanup of PAHs and pesticides. Area C is located eastward of Area B. Both sites consist of soil and limestone boulders and sanitary trash. Area C also contains drums, aircraft parts, electrical parts, bullets/casings, construction debris, and sanitary trash. This area is proposed for a NFRAP. EA would like to locate the areas that are not limestone forest and prospective cleanup areas. Cleanup would only occur within the area that is stated in the proposal. W. Leon Guerrero asked if there was a substantial amount of pesticides in the areas that were not proposed for cleanup due to the natural limestone forest. J. Lazzeri stated that whether it is pesticides or lead, that is the proposal. When the cleanup is completed, soil is removed to the point where a residual risk assessment is conducted. This site was proposed as a NFRAP subsite. Area D is similar to Area C. The samples collected here were below action levels, and would also be proposed as a NFRAP. Area E is located along the steep hillside and is comprised of soil and limestone boulders, waste debris, and sanitary trash. A low impact cleanup would be required at this site. Area F is located east of Area E. This site contains large amounts of debris piled at the base of the cliff. Including, drums, nickel-cadmium batteries, aircraft

parts, mechanical and office equipment, construction debris, and sanitary trash. There were nickel and cadmium exceedances observed at this site. The site would only require a small cleanup for the nickel and cadmium. No solid waste removal would be recommended at this site because of the proximity to the fruitbat habitat. J. Lazzeri informed W. Leon Guerrero that the Wildlife Refuge contact person was Mr. Mark Defley. M. Ripperda agreed that if it is an ecologically sensitive area, he preferred to leave the habitat alone, but if the contaminant is at levels damaging to the target species, then it would be worthwhile to remove the contaminant. *M. Bone informed M. Ripperda that a copy of the power point presentation would be provided to him.*

- M. Bone stated that the *Landfill 20* AF draft was near completion and would be submitted 28 February 2002. T. Ghofrani presented a slide show on the site. The site consists of two distinct surface areas of limestone fill and brownish clay fill. The site contained some deteriorated drums, metal debris, pipes, and asbestos piping, all related to the Sewage Treatment Plant structure. Trenching through the brownish clay soil revealed nothing but wood poles and metal piping. He proceeded to show the wastewater process flow diagram. A slide presentation of the site showed an excavation near a Parshall Flume and the upper portion of the Imhoff tank. The Imhoff tank is made of one-foot thick reinforced concrete and cannot be penetrated using an excavator. The top portion of the Imhoff tank tapers down and the excavator bucket was unable to reach below 15-feet of the tank. The sludge drying bed was trenched and found to contain a foot of limestone crushed coral on top, two inches of sandy gravel fill, and another two inches of sandy gravel fill before the limestone bedrock is encountered. Surface and subsurface samples were collected from the dry sludge bed and the Imhoff tanks. The surface sample results revealed PAHs, pesticides, PCB, chromium, iron, and mercury were all detected. Once the human health and ecological risk assessments are completed, the report will be sent out for regulatory review. W. Leon Guerrero asked if soil beneath the piping adjoining the Imhoff tank to the drying beds were sampled. T. Ghofrani responded no, but the drying sludge bed and the piping are recommended for removal based on samples collected from the drying sludge bed.

Cleanup Sites

- P. Ono provided a status on the following sites. He began by explaining that the original *Landfill 02* project completed the sub-grade layer, leaving the 12-inch containment layer that will need to be laid and removal of asbestos waste to be completed. The projected cleanup will be initiated during the next cycle of Andersen cleanups in FY02.
- He then proceeded on to the *Landfill 07* status. He mentioned that soil was removed from two adjacent housing units in the Capehart Housing area, which was completed two months ago. The landscaping of the site was subcontracted

out and would begin in March 2002. The agency draft RVR was submitted on 28 January 2002 and is currently in the 60-day review period.

- He stated that follow-on work consisting of removal of hotspots would be initiated in approximately two months at the **PCB Storage Area**. This will follow the Landfill 21 and Chemical Storage Area 4 project that is ongoing at the present time.
- **Landfill 14** cleanup will run concurrent with PCBSA. The cleanup will require removal of hotspots, sampling, and delineation of areas. C. Arnsfield displayed a survey map and explained that there were Lead and PAH issues. Previously, there were silicone drums that were removed and confirmation results were clean. Confirmation samples were collected at this site. IT Corporation is defining the limits of contamination at Hotspots 1, 3-5 for PAHs, and Hotspots 7, 9, and 10 for PAHs and metals. The Northeast Waste Pile contains metals. C. Arnsfield addressed the issue of the high levels of PAHs adjacent to the skeet range. He commented that soil samples collected had pieces of skeet in it. Pure skeet samples resulted in 730,000 ppb benzo(a)pyrene. IT Corporation has proposed not to cleanup the areas that are impacted by skeet. The area impacted by skeet was surveyed. The area not impacted by skeet will be excavated. Once the delineation of hotspots is completed, construction activities will be initiated. G. Ikehara commented that the skeet range is still actively used. A separate funding source would be located to accomplish skeet related cleanup.

Reports

- G. Ikehara reported that the proposed "Soil Cover" cleanup remedy at **Landfill 10** was not approved by a HQ PACAF peer review. An action memorandum for the selected remedy will be prepared. Fencing will be erected to prevent any intrusion and institutional controls will be implemented. During his discussion with M. Ripperda, it was noted that the EE/CA does recommend the initial selected soil cover remedy and that an amendment be prepared to reflect the selected remedy.

Northwest Field Operable Unit

- M. Knight reported that copies of the **Ritidian Point Dump Site** EE/CA were available at the Information Repositories. He noted that GEPA comments were received after the report was finalized. G. Ikehara confirmed that the Air Force sent a letter to GEPA with URS responses. M. Knight mentioned that surface and subsurface sample locations that were hot would be cleaned up in the upper part of the site, where most of the contamination was. There is no cleanup for over the cliffside. He looked to find where a seep sample could be collected. The nearest location to collect a seep sample is located below the Governors' new house, which is cross gradient from the site with a road readily accessible if a water sample is warranted. V. Wuerch asked if it was private access. G. Ikehara

mentioned that he had spoken with Senator Larry Kasperbauer, who informed him that the road was constructed with private funds. V. Wuerch commented that although the road itself was built with private funds, and utilities run through, it should be public access. V. Wuerch stated that GEPA representatives would like to confer with M. Ripperda on this issue. M. Knight then proposed the procedure for sample collection. He assured the group that the well would be developed properly and that a representative sample would be collected and analyzed for constituents. He then emphasized that URS needed to complete it by 30 July 2002 when their period of performance expires. M. Ripperda indicated that he would like to discuss with GEPA representatives. V. Wuerch informed M. Ripperda that he felt it beneficial to characterize groundwater down gradient from the site, since the local residents will probably request for the installation of shallow wells. *W. Leon Guerrero will research who owns the property and inform G. Ikehara. M. Knight stated that he would provide a project work plan to the regulators.*

- P. Ono stated that **Landfill 21** cleanup work has been ongoing for four months now. The main phase consisted of the in-situ treatment using TSP for Lead contaminated soil, which was completed about a month ago. Approximately, 6,500 CY of treated soil was hauled to the Landfill, and completed on 20 February 2002. Additional hauling of soil from the temporary storage area and excavation of high Lead impacted areas will be initiated. C. Arnsfield presented a survey map that showed areas with Lead and PAHs. He indicated that Hotspot 1 contained Lead, Hotspot 2 contained Lead treated with TSP and then was removed. There was an area located that contained buried drums/burned materials. IT Corporation is currently awaiting confirmation results. C. Arnsfield commented that the handout he provided was a sequence of events that have occurred at this site that would be included in the Landfill 21 RVR appendix.
- P. Ono clarified that the **Chemical Storage Area 4** project was under the same Delivery Order as Landfill 21. The excavation work and hauling of debris should be completed in the next two weeks. The overall completion for the CSA 4 and Landfill 21 sites should take three to four weeks to complete. The crew will then proceed with the PCBSA and Landfill 14 projects.

Urunao Operable Unit

- M. Bone mentioned that the RI/FS AF draft is currently under Air Force review. As soon as comments are received, the report will be finalized and sent out to the regulatory agencies for review. T. Ghofrani provided a site synopsis on the slides presented. Basically, Dumpsite 1 consists of incendiary bomblets, target identification bombs, tires, airplane parts, engine parts, and other metallic debris. T. Ghofrani emphasized the quantity of soil at these sites was limited because the sites are on bare limestone bedrock. Surface and subsurface samples have been collected. Based on the risk assessment, cleanup standards have been established for COCs (Manganese, Arsenic, Cadmium, Antimony, Lead, Barium, and

Dioxin). At Dumpsite 1, UXOs are mixed with debris. Dumpsite 2 has similar debris with the exception of incendiary bomblets. Dumpsite 2 COCs include PCBs, Manganese, Barium, Lead, and Antimony. With the access road now available at the bottom of the dumpsites, the complete removal alternative has become a more viable option. W. Leon Guerrero asked if the complete removal is the total removal of COC-impacted areas and other metal debris. T. Ghofrani explained that the first phase would be the removal of the UXOs, followed by removal of all other debris. M. Bone stated that due to the proximity and location, the debris itself would need to be rendered clean prior to removal. He emphasized the preference to clean from the bottom up. G. Ikehara reiterated that the cleanup would be a full cleanup, so institutional controls do not have to be implemented since the sites are located on private properties. M. Bone said that from a safety standpoint, the best way to deal with incendiary bomblets is to burn them in a controlled environment at the site, using a steel contained box. T. Ghofrani indicated that most of the incendiary bomblets are deteriorated and decades old, and could be burned safely at the site. M. Bone then clarified for W. Leon Guerrero that UXO would have to be rendered safe by the EOD first, and then would be transported to the Andersen AFB landfill. G. Ikehara said that a ROD would be reached prior to the cleanup, since the cleanup will be complex and it would be funded by several sources. G. Ikehara stated that the earliest funding availability will be FY06. G. Ikehara commented that with the road access available, the potential for liabilities may result with people trespassing. W. Leon Guerrero asked what measures would be implemented at the site. G. Ikehara assured him that signs would be posted, and should the landowners concur, fencing will be erected. G. Ikehara has spoken with Mr. Anthony Artero and has expressed concerns involving the liability. Mr. Artero informed G. Ikehara that he has written a letter to the Base Commander. V. Wuerch then asked if groundwater has been evaluated for this site. G. Ikehara replied, samples from the seep locations have been collected to characterize the groundwater from those sites. J. Torres stated that after the Urunao RI/FS document is reviewed, a Proposed Plan would be presented to the landowners on the cleanup alternatives, followed by a Public Hearing by October 2002, and the remedial design phase by April 2003. W. Leon Guerrero mentioned that GEPA representatives would like to be present at the landowner meeting. W. Leon Guerrero recollected that the burns came from controlled burns of napalm at Urunao, and inquired whether it was the same practice as Ritidian Point. J. Lazzeri responded that no historical information was available for the Ritidian site.

Groundwater Operable Unit

- M. Bone indicated that Round 14 groundwater sampling would begin in April. In addition to regular sampling, diffusion bags will also be installed in five wells impacted by TCE and PCE. The Round 13 (Fall 2001) Groundwater report will be out before the end of February. J. Lazzeri presented the Fall 2001 groundwater results as follows. Groundwater analytical results at the MARBO Annex were consistent with previous groundwater data. TCE was detected in groundwater

samples collected from wells IRP-31, GPA-1, and MW-2 at concentrations exceeding the MCL of 5 μ g/L. Similarly, PCE was detected in the groundwater sample collected from well IRP-29 at a concentration exceeding the MCL of 5 μ g/L. At Northwest Field, groundwater samples were collected from wells IRP-43 and USGS-56 and the results were consistent with the previous groundwater data, indicating that none of the detected analytes exceeded the MCLs. At Main Base, the groundwater sample results were also consistent with previous groundwater data. TCE was detected above the MCL in groundwater samples collected from wells IRP-3, IRP-39, IRP-51, and USGS-150. PCE was detected in groundwater samples collected from wells IRP-3 and IRP-39 at concentrations exceeding the MCL for PCE. V. Wuerch inquired about the termination of the water supply production at MW-2 well. G. Ikehara replied that MW-2 production was abandoned in 1998, but that MW-1, -3, -5, -9 are still under Air Force water supply production. V. Wuerch noted that considering the relationship between the deep and shallow groundwater contamination further investigation was warranted. Furthermore, V. Wuerch and M. Ripperda inquired about the Air Force supporting GEPA's effort in sampling 3-groundwater monitoring wells for TCE. V. Wuerch explained that GEPA is interested in finding the source of the TCE in Tumon Bay. The three GEPA wells are located downgradient from MARBO and would help in modeling the fate and transport of the TCE in groundwater. G. Ikehara expressed concern about the long term monitoring responsibilities for these GEPA wells. However, V. Wuerch and M. Ripperda suggested swapping the monitoring of the three GEPA wells, with the three existing wells that have had no contamination based on the last 13 rounds of groundwater sampling. The Air Force, GEPA, and USEPA decided that, for Round 14 only, two GEPA wells would be sampled. IRP wells 33 and 34 will not be sampled, as a tradeoff for sampling the GEPA wells. *V. Wuerch stated that GEPA would provide the access and well construction information for the three GEPA wells.*

Next Meeting

- The RPM meeting is tentatively scheduled for 09 May 2002 in Honolulu.

**ANDERSEN AFB, GUAM
REMEDIAL PROJECT MANAGERS (RPM)
MEETING MINUTES
09 April 2003**

Attendees:

HQ PACAF:	Martin Pankove, John Sullivan
AAFB:	Gregg Ikehara, Jess Torres, Danny Agar, Joan Poland
USEPA:	Mark Ripperda
GEPA:	Victor Wuerch, Walter Leon Guerrero
UNITEC:	Jim Rosacker
EA Engineering:	Joel Lazzeri, Toraj Ghofrani, Jeff Morrell
Booz-Allen:	Paul Dusenbury
Shaw Group:	Chris Arnsfield

General Topics

- The meeting began with attendee introductions and the approval of the 21 November 2002 RPM meeting minutes. With no discrepancies noted, the minutes were approved and finalized.
- G. Ikehara stated that the AF is pursuing funding to initiate an earlier cleanup at the Urunao Dump Sites. The cleanup is currently slated for FY06. He explained the difficulty in funding an earlier cleanup, and that it would also depend on budget programming at other bases. He assured GEPA representatives that the AF will continue to pursue this issue.
- G. Ikehara mentioned that there are currently twenty-eight Areas of Concern (AOCs). There are also some sites that are included that have not been investigated, which are called Areas of Interest (AOIs). The AOCs that were not identified in the FFA will have investigative work initiated in FY04. The process includes determining contamination, pathways and receptors, which can then be converted to an IRP site. W. Leon Guerrero asked if it included Solid Waste Management Units (SWMUs). G. Ikehara confirmed that all SWMUs were transferred to the Compliance section. W. Leon Guerrero stated Mr. Mike O'Mallan was the GEPA SWMU POC, and Mr. Laddie Mumper was the AF POC. J. Sullivan commented that if there is a fairly small site which is easy to cleanup, PACAF would allow the bases to conduct an IRA/(RA) AOC. This would constitute an immediate cleanup rather than having to fund for an RI/FS, and an Action Memorandum would then need to be prepared to this effect. J. Torres asked if there was a protocol the AF would have to follow under CERCLA, should an AOC be located. M. Ripperda stated that it should be included in the PA/SI and eventually included into the Base-wide ROD.

- W. Leon Guerrero proposed re-implementing the monthly conference calls. M. Ripperda suggested that prior to any small cleanups, the AF contact GEPA first. J. Torres stated that creating an OU for the AOCs would not delay any deadlines for either the NWF OU or the Mainbase OU. M. Ripperda expressed his approval at the AF establishing an OU just for AOCs. G. Ikehara explained that information is not available for the AF to base the AOCs in ranking, but did indicate that an OU for the AOCs would be created, in addition to, the amendments made at the last RPM meeting.

MARBO Operable Unit

- G. Ikehara commented that the MARBO ROD was up for the five-year review. J. Lazzeri provided an update, mentioning that EA Engineering was granted the contract on 21 March. EA has conducted some background research into a document dated June 2001, that indicated that the first remedial action did not leave a complete further action. There were two activities that could qualify, the MARBO Laundry (mobilization 1999), which was a full removal, and the Waste Pile 07 (mobilization was 15-16 March 1999). J. Lazzeri provided a project schedule, and stated that EA Engineering would prepare an internal AF draft by mid July, with the Final document ready by January/February 2004. He stated that a brief description of the removal action for each OU IRP site would be provided. He placed emphasis on the Groundwater as a major concern. V. Wuerch addressed the unresolved issue of the Tumon Maui well, stating GEPA was not satisfied with the remediation. G. Ikehara mentioned that in conjunction with the MARBO five-year review, a Remedial Process Optimization (RPO) would be conducted. The RPO team will arrive in a couple of months to review cleanup alternatives that have been deployed, and how to improve or make them more effective. There is a site visit scheduled this week, and according to the guidelines a site visit would have to be conducted prior to the official signature of the 5-year ROD review. Other requirements are the interviews to discuss the success of the remedy, and lastly, the public notification, which will be addressed at the next RAB meeting to be held in July. J. Sullivan commented that the Navy be invited, since they will be responsible for one issue at MARBO. G. Ikehara informed W. Leon Guerrero that the Marines would be responsible for the asbestos and the lead based paint in the dorms, while the AF still takes responsibility for the groundwater, IRP sites, and AOC issues. ***A draft 5-year MARBO ROD review will be prepared and submitted by EA Engineering.***
- C. Arnsfield stated that cleanup would begin at Waste Pile 06 later this month. A workplan was prepared and the 60-day comment period ended on 28 March 2003. He explained that a thorough walk through of the jungle was conducted to locate all the batteries, and the site was defined prior to entering. The scope of work will include the removal, transportation, and disposal of batteries (lead-acid, battery casings and alkaline, associated soil which is contaminated with lead). All hazardous soil will be treated with TSP on-island. Shaw anticipates transporting

the soil beginning in May. He emphasized that this would be the final cleanup at this site. W. Leon Guerrero asked what is being done about security and curbing any illegal dumping. G. Ikehara mentioned the AF would restrict access along the road. So until the official transfer goes to the Marines, AF Base Security will still patrol the area. C. Arnsfield confirmed that a Security Guard is on-site during the ongoing remedial process.

Harmon ROD

- G. Ikehara said that GEPA was awaiting the AF response on the UXO issues. According to W. Leon Guerrero the ROD has been signed and is currently awaiting the AF response on the UXO issue to be released. G. Ikehara stated that he did elevate the issue to PACAF, but will pursue an alternate route through the Squadron Commander level. J. Sullivan commented that the only time UXO clearances are conducted is when there is an actual UXO site. As for the historic WWII clearances, they are not conducted. It was also clarified that the EOD would still be available to respond to any situations that may arise. W. Leon Guerrero commented that Navy policy states that when UXO is located and there is an EOD team and funding available they will remove the UXO.

Main Base Operable Unit

Cleanup Sites

- C. Arnsfield stated that the remedial action at Landfill 02 would be completed this month. It included the removal of 80 CY of non-friable asbestos, which will be disposed of at the Mainbase Landfill. The construction of the twelve-inch containment layer (second lift) has been initiated and will be completed next week. The RVR will be submitted to the AF later this month with draft copies being sent to the regulators in June 2003. C. Arnsfield did mention that Shaw would be receiving an add-on project for the maintenance and erosion control, to include mowing vegetation, and erosion control to hinder future erosion.
- The Landfill 14 remedial action has been conducted on two time periods. It was halted in December 2002 due to the depletion of funds. According to C. Arnsfield, Shaw has removed the quantities required in the scope of work, and did not locate additional quantities. There were a total of ten hotspots and two drum areas. All the work has been completed, except for Hotspots 7, 9, 10 and the NE WP. The scope of work for these sites includes the removal of Lead, PAH, antimony, contaminated soil, and additional debris. Shaw anticipates additional funding to complete the remediation. G. Ikehara said that an AOC was instituted outside of the Landfill 14 area, and will be elevated to site status to continue the cleanup. An Interim Landfill 14 RVR will be finalized, upon the final stage of cleanup. The primary constituents are lead and PAHs. C. Arnsfield confirmed that that the lead contaminated soil would be treated with TSP. Testing conducted

on the remaining soil and found to be non-hazardous will not require treatment. TSP does not address the contaminated PAHs. To determine, analytes are run SVOCS for PAHs and TCLP for lead. Lead is the problem contaminant at Landfill 14. Soil is treated, stockpiled and then retested to ensure it is <5 mg/l. All the contaminated soil is then transported off-island. The AF will proceed with a prior year funds request and continue with the cleanup. The skeet area is an active area that is being utilized. The previous targets had problems with PAHs, due in part to the pigeons that were being used. The shooting club has since converted to using a bio-degradable pigeon. There is no tentative date scheduled for this site and it is not an AOC, it will become a SWMU, and then be investigated.

- C. Arnsfield stated that Shaw was initially expected to do slope stabilization and soil cover at Landfill 10, but during a peer review it was determined that the contamination could be left in place because of the location, and the difficulties in accessing the site. Shaw will erect a 500-foot long fence to prevent trespassers from entering the site. The Landfill 10 project will be awarded at the end of the month.

Reports

- G. Ikehara said that initially a CSA 1 NFRAP document was prepared in March 2000, and the problem with not finalizing the document involved the removal of eighty airplane batteries. The AF would like to consider closing out this site now that all the batteries have been removed and disposed of.
- G. Ikehara indicated that the Action Memorandas for the remedial work to be conducted next year, at Ritidian Point, followed by Landfills 13, 19, and 20 have been prepared for regulatory concurrence. A peer review waiver will be submitted for Landfill 13, 19, and 20. *D. Agar provided W. Leon Guerrero with list of AOCs.*
- T. Ghofrani explained the difficulty in the operation and maintenance of the VES equipment at Fire Training Area 2. Due to the humidity in the Guam air, the moisture caused the blower to rust and eventually fail. He explained the rationale of converting it from VES to bio-venting. VES takes the contamination from the soil and places it into the atmosphere, whereas bio-venting is a direct destructive reduction of concentrations of select contaminants. EA Engineering is optimizing the bio-vent system. It is another evidence that bio-venting is utilizing more of the areas to bio-degrade the contaminants. Bio-venting has many advantages. It can degrade the chlorinated contaminants compared to the VES system. W. Leon Guerrero asked why the VOCs have not decreased since the initial operation. J. Rosacker answered that it was not a typical plume, which contained a significant amount of VOCs. Adjustments were made because of the increasing amount of air coming out and also switching the wells to maximize removal. T. Ghofrani then said, in terms of emission, it would be expected to go from 40 lbs/hr to 1 – 2

lbs /hr, which would be a typical reduction. But in this case, it still remained high even though when the flow rate increased, the concentration increased. Reduction of a couple of pounds would typically occur in a month or two. W. Leon Guerrero expressed concerns he had regarding whether the tanker was intact, and that through information provided in the drilling logs, the original FTA Burn Pit was not contaminated. He then asked where did the plume and contamination come from. G. Ikehara stated that it was related to the above ground storage tank or pipe work associated, because the amount was enormous. It is from the UST. T. Ghofrani mentioned that a massive volume on the ground and a rough estimate was conducted, indicating that may have occurred during filling of the tank, in addition, to years of leakage. It was asked why a risk assessment was conducted at the depth. T. Ghofrani responded, that with the burn pit we wanted to separate the surface soils from the burn pit, and with the risk assessment there would be closure and separate it from the UST. The plume is not posing a risk to the groundwater. T. Ghofrani emphasized that we do not want to impact the groundwater. V. Wuerch referenced water quality standards, and said that values in the water quality standards are the same as drinking water quality standards, and if you degrade the aquifer quality above water quality, then it will invoke the water quality standards. M. Ripperda indicated that he would review the toxicology report. T. Ghofrani stated that the bio-venting process is in the optimization stage, and would take at least a year and five different stages to get to the point of degradation. It can then be determined how long it will take and how long to operate. How clean is clean going to be, not based on a PRG, it would be based on either confirmatory boring and/or modeling and at that point, the concentrations that do not pose a risk to groundwater. G. Ikehara confirmed that there were two monitoring wells (one shallow and one deep) located at the site. There have been discussions regarding the cavity below the plume, and how it obstructs the downward migration of the material, and because there were microbes discovered around the 300-foot depth. Before closure of the site, there will be a need to do a boring more down gradient to depth of one or two wells installed (in the future), one would be deep enough to collect a groundwater sample. J. Lazzeri reported that IRP 41 confirmed a TCE hit of 8 and non-detectable, while IRP 4 was j-valued, with a 0.4, 0.6, 0.1, and slight concentration of 0.7 of PCE all detected during round three. ***J. Lazzeri requested concurrence from the regulators indicating that EA has addressed all comments.*** EA did not agree with the section that was not germane to the risk assessment. G. Ikehara said the key factor in the case of the soil vapor extraction, that it is only venting and not a preferred method of removal if we are not capturing, unlike the microbial action where the contamination is eaten in place, which would be the preferred choice. ***M. Ripperda will review and forward his response to EA Engineering.***

- There are a total of seven wells, four of which are air injection wells (FTA 3, 4, 5, and 9), and three monitoring wells (FTA 6, 7, and 8), where no air is injected into these wells. FTA 3, 4, and 5 are the original wells from the VES system. The four remaining wells are used for the bio-vent and monitoring.

- G. Ikehara informed the group that URS was not able to attend this RPM meeting due to funding. He reported that Landfill 18 was near completion, until URS discovered an adjacent area, an old asphalt batching area, located directly across from Landfill 08, and was added on to the Landfill 18 project. It is suspected that the whole area was utilized around the same time. According to J. Kronen, there were one thousand drum carcasses, and the main contamination is PAHs associated with asphalt and surface contamination. The remediation cleanup is set for 2006. *URS will compile data and provide to G. Ikehara.*
- G. Ikehara mentioned that no comments were received from the regulatory agencies for the Landfill 08 EE/CA. The EE/CA has been finalized.

Northwest Field Operable Unit

- The Action Memorandum for the Ritidian Dump Sites was passed out to the regulators. The scope of work at this site is significantly smaller than that of Urunao. The cleanup will be conducted on the topside, along the AF property line. W. Leon Guerrero understood that a risk assessment was done, and asked if tissue sampling was conducted on pigs and deers. J. Lazzeri responded by saying that tissue sampling was conducted several years ago on pigs, deers, coconut crabs, mangos, and papayas. M. Ripperda confirmed that one of the USEPA toxicologists had reviewed a data report that was received. J. Lazzeri stated that it was conducted under Armstrong Laboratories. *J. Lazzeri will provide a copy of the tissue sampling report to GEPA if needed.*
- M. Ripperda asked if separate signature pages for each regulatory agency would be easier. G. Ikehara informed him that although one signature page is provided, it usually is faxed to all agencies and PACAF, and once the signature pages are received, they are incorporated into the document.

Urunao Operable Unit

- G. Ikehara mentioned that the RAB/Urunao Public Meeting would be held tomorrow evening at the Hilton Hotel. J. Torres will be the presenter and Dr. Gary Denton has been hired to be the Moderator. J. Torres stated that copies of the Urunao Proposed Plan were mailed to family members. G. Ikehara said that the meeting would be videotaped and recorded, then provided to the JA office for the Court Reporter to transcribe. J. Lazzeri said that he observed at other meetings, one person writing down the questions on an easel board as they were asked. M. Ripperda recommended some changes on the presentation slides, emphasizing that more effort should be put on the physical aspects, and less on environmental documentation.

- W. Leon Guerrero said the families expressed concerns on the clean up date, the UXOs, and the evacuation of the area during the cleanup. G. Ikehara said there is a possibility of expediting the cleanup to 2005. The ROD still needs to be signed in order to obtain the \$12M funding required for the cleanup. G. Ikehara assured all that the AF is still pursuing alternate means to expedite the cleanup. W. Leon Guerrero commented that there is a plan to build a bungalow resort, but is held up by environmental issues pertaining to wastewater. *W. Leon Guerrero will provide a copy of the plan to G. Ikehara.* G. Ikehara commented that part of the plan for Urunao is that the AF would take care of part of the road. It will not be paved, but it would be improved. According to W. Leon Guerrero, the GEPA Chief Planner has said that the oil base would be sprayed soon. G. Ikehara emphasized that execution of the cleanup, and the importance of removal of all the contamination. He feels it is important to garner a consensus between all regulatory agencies prior to the execution.
- W. Leon Guerrero indicated that some of the landowners were upset with the AF meeting minutes, claiming that the AF did not quote them properly. G. Ikehara did mention that the RAB minutes were not generally sent out for public review. W. Leon Guerrero recommended that the minutes be forwarded to the landowners for review prior to finalizing. M. Ripperda also suggested that draft meeting minutes are distributed one week prior to the next meeting for review.

Groundwater Operable Unit

Groundwater Monitoring Plan

- G. Ikehara stated that Andersen AFB is in the process of reviewing and updating the Groundwater Long Term Monitoring Plan (LTMP), the result of which will be used for the upcoming 5-year Review of MARBO Record of Decision (ROD). J. Lazzeri continued that numerous groundwater monitoring data have been collected for the past 8 years (16 rounds of groundwater sampling), and the majority of the data is repetitive and provides no additional understanding of groundwater quality and dynamics. Many of the wells are no longer downgradient from a source because the cleanup has been completed at many of the IRP sites (sources). Many of the wells have never had any detected analytes, or the detected analytes were below MCLs during the past 16 rounds of sampling. Also, no variation has been noted between the wet and dry season sampling. So the Air Force would like to propose for a reduction and removal of many of the monitoring wells, sampling frequency, and the list of analytes from the LTMP. M. Ripperda suggested that the Air Force should write a separate memo for the groundwater in Main Base, MARBO, and Landfill and propose the changes along with background information and justifications so that the USEPA and GEPA could review and comment on those memos. J. Lazzeri stated that once the USEPA and GEPA approved the groundwater memos, those memos would then be referenced in the updating of the LTMP

- GEPA proposed to the AF that they sample and analyze the GEPA monitoring wells.
- V. Wuerch stated it was apparent that MARBO groundwater does exit into Tumon Bay. The system needs to be checked into. He also stated the GEPA, WERI, and USGS would be conducting a modeling study, which will be initiated this year and expand into the next fiscal year. They will monitor the five existing monitoring wells and install rain gauges. In addition, new drilling will be included later on.

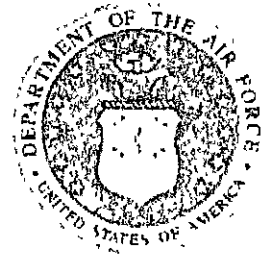
Next Meeting

- The next RPM meeting is tentatively scheduled for 10 July 2003 in Honolulu.

FINAL

Proposed Plan

Urunao Operable Unit Andersen Air Force Base, Guam



March 2003

Andersen Air Force Base (AFB) announces the preferred remedial alternative of *Excavation and Offsite Disposal* to clean up Urunao Dumpsites 1 and 2 and protect the underlying groundwater. Dumpsites 1 and 2 are located on private property west of Andersen AFB's Northwest Field in Guam. Both dumpsites are located on a steep slope along the cliffline boundary of Andersen AFB. The records search for Urunao Dumpsites 1 and 2 provided little available information regarding previous land use and waste disposal practices at these properties. During and shortly after WW II, the general Urunao Dumpsite area was referred to as an over-the-cliff dump (Photo 1). Based on accounts by former United States Air Force (USAF) personnel, waste was dumped at the top of Dumpsites 1 and 2, pushed over the cliff, and covered with fill material or burned using napalm. There are no documents that describe waste disposal practices, duration, volume, or the types of disposed materials.

The USAF is recommending the *Excavation and Offsite Disposal* alternative for Urunao Dumpsites 1 and 2 to expedite the funding of the cleanup and the restoration of the site. Currently, funding for the remedial design is

scheduled for fiscal year 2004 and funding for the cleanup is scheduled for the fiscal year 2006. If funding is obtained earlier than anticipated, the Air Force will attempt to accelerate the cleanup. Based on comments received for

Information Repositories

The Urunao Dumpsites 1 and 2 Remedial Investigation/Feasibility Study Report and other pertinent documents are available at the following locations:

- **University of Guam (UOG)**
Federal Documents Department
 RFK Library, UOG Station
 Mangilao, Guam 96923
 Phone: (671) 735-2321
 Hours: Monday through Friday: 8:00 a.m.–5:00 p.m.
 Contact: Walfrid C. Benavente
- **Nieves M. Flores Memorial Library**
 254 Martyr Street
 Agaña, Guam 96910
 Phone: (671) 475-4751, 4752, 4753 or 4754
 Hours: M, W, F: 9:30 a.m.–6:00 p.m.
 Tu, Th: 9:30 a.m.–8:00 p.m.
 Sat: 10:00 a.m.–4:00 p.m.
 Sun: 12:00 p.m.–4:00 p.m.
 Contact: Christine Scott-Smith

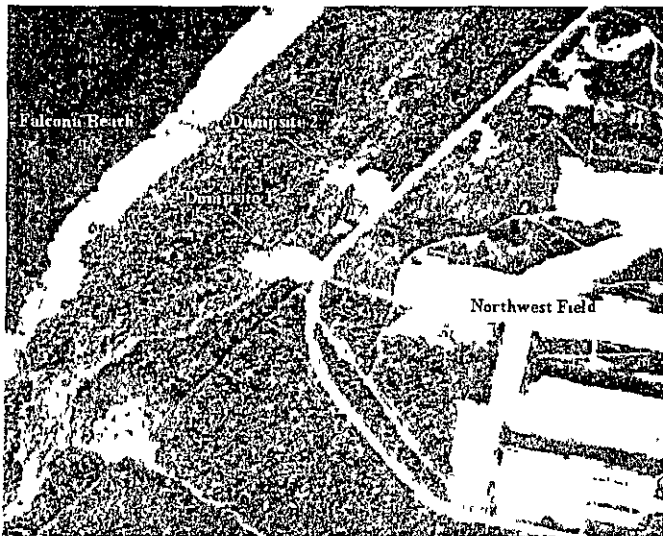


Photo 1 Late 1940s Aerial Photograph of Urunao Dumpsites 1 and 2

Andersen AFB, in consultation with the USEPA and GEPA, may modify the preferred alternative or select another response action presented in this Plan and the Urunao Dumpsites 1 and 2 RI/FS report based on new information or public comments. Therefore, the public is encouraged to review and comment on the alternatives identified here. Should you have any questions, contact our Public Affairs Office at (671) 366-4202.

the Remedial Investigation/Feasibility Study (RI/FS) report for Urunao Dumpsites 1 and 2, the United States Environmental Protection Agency (USEPA), the Guam Environmental Protection Agency (GEPA), and affected property owners have all agreed that *Excavation and Offsite Disposal* is the preferred alternative to clean up Urunao Dumpsites 1 and 2.

This Proposed Plan provides an overview of the extent of contamination, evaluates the potential risks posed to human and ecological receptors, establishes cleanup standards, evaluates various remedial alternatives, and selects the preferred remedial alternative for the dumpsites.

In 1986, the USAF established the Installation Restoration Program (IRP) to investigate waste disposal sites at Department of Defense facilities. The IRP forms the basis for assessments and response actions on USAF installations, under provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. As such, the IRP is specifically designed to identify, confirm, quantify, and remediate problems associated with the past management of hazardous wastes at USAF facilities.

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Dates to Please Plan--Mark Your Calendar

Public Comment Period

Date: 31 March–30 April 2003

Public Meeting

Date: 10 April 2003
Location: Hilton Hotel, Tumon Bay
Time: 6:30-8:00 p.m.

On 14 October 1992, Andersen AFB was listed on the National Priorities List (NPL), which required that it be investigated under the provisions of CERCLA. On 30 March 1993, Andersen AFB executed a Federal Facility Agreement (FFA) with GEPA and USEPA that identified potential waste sites and constituents of concern (COCs) that would be subject to the RI/FS process. In addition the FFA grouped sites into manageable Operable Units (OUs), and established the procedures and time frame for conducting the RI/FS.

As Urunao Dumpsites 1 and 2 are located off Air Force property they were not designated for RI/FS in the original FFA. However, the USAF added Urunao Dumpsites 1 and 2 as a distinct OU in October 1999 to expedite the cleanup.

The information presented in this Proposed Plan is based on the Urunao Dumpsites 1 and 2 RI/FS report. Additional information regarding the dumpsites is available in the Environmental Baseline Study (EBS), which is available in the Administrative Record (AR) files. The AR files are available at the information repositories shown on the previous page. Andersen AFB encourages the public to review this Proposed Plan and other documents to understand the activities that have been performed at Urunao Dumpsites 1 and 2. Acronyms and definitions are included in a Glossary at the end of this document.

Public Involvement Process

To inform the local community, a Restoration Advisory Board (RAB) was established for IRP activities in 1995. Currently, the RAB is comprised of community members, elected officials, Air Force officials, and representatives from regula-

tory agencies. The RAB meets on a quarterly basis to discuss program progress and to advise the community on the status and plans for the various IRP sites.

In addition to the RAB meeting, in January 2002 a fact sheet was distributed to the community that explained the status of the IRP investigations for Urunao Dumpsites 1 and 2.

This Proposed Plan is prepared in fulfillment of the USAF's public participation responsibilities under Section 113(k) and 117(a) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. Interested parties are encouraged to read and comment on this Proposed Plan, as well as the Urunao Dumpsite 1 and 2 RI/FS report.

Public comments will be accepted from 31 March to 30 April 2003. Written comments can be sent to Andersen AFB, to the attention of Mr. Gregg Ikehara. All written comments must be postmarked no later than 30 April 2003. The public comment period may be extended up to 30 days if a written request (postmarked no later than 30 April 2003) is submitted to Andersen AFB.

Oral and written comments can be submitted at the open house to be held between 6:30 and 8:00 p.m. on 10 April 2003 at the Hilton Hotel in Tumon Bay. At the open house, interested parties will have the opportunity to ask questions and make comments regarding the preferred alternative described in the Proposed Plan. Representatives from Andersen AFB, USEPA, and GEPA will be in attendance to discuss the results of the studies, discuss the preferred alternative, and answer questions.

Andersen AFB, in conjunction with the property owners, USEPA, and GEPA, will select the final cleanup alternative for the Urunao OU soil and groundwater only after considering public comments. Andersen AFB may modify the preferred cleanup alternative or select a more appropriate alternative based on new information or public comments. By 31 December 2003, a Record of Decision (ROD) will be issued that responds to public comments, and documents the rationale for the cleanup alternatives that will be implemented for soil and groundwater at Urunao Dumpsites 1 and 2.

INTRODUCTION

This Proposed Plan is divided into four sections. The introductory sections provide a brief overview of the preferred remedial alternative for soil and

groundwater at the Urunao OU. The next section, "Andersen AFB Background," describes general activities that have occurred at Andersen AFB, and its obligations under CERCLA. The concluding sections, "Soil Evaluation" and "Groundwater Evaluation," discuss site-specific information relating to the characterization and cleanup of impacted soil and the characterization of groundwater at the Urunao Dumpsites.

Preferred Remedial Alternative for Soil

The preferred alternative for soil at both the Urunao Dumpsites is *Excavation and Offsite Disposal*. A brief rationale for the selection of the preferred alternative at each site is introduced below, and is discussed in greater detail later in this document.

Dumpsite 1

Due to the steep slope at Dumpsite 1, the field investigation was limited to a detailed site inventory (DSI), surface and subsurface soil sampling, and groundwater seep sampling. Based on field investigation results at Dumpsite 1, an estimated 405 bank cubic yards (BCY) of soil are contaminated with the following COCs: antimony, arsenic, barium, cadmium, lead, manganese, and dioxins. Additionally, approximately 26,700 BCY of solid waste material and 10 BCY of deteriorated ordnance and explosives (OE) material were estimated at Dumpsite 1. The USAF is recommending *Excavation and Offsite Disposal* for the cleanup and restoration of Dumpsite 1 at an estimated cost of \$9,000,000.

Dumpsite 2

The field investigation at Dumpsite 2 was limited to a DSI, surface and subsurface soil sampling, and groundwater seep sampling. Based on the field investigation results at Dumpsite 2, an estimated 420 BCY of soil are contaminated with the following COCs: benzo(a)pyrene, Arochlor-1254, antimony, lead, and manganese. Additionally, approximately 15,500 BCY of solid waste material were estimated at Dumpsite 2. The

USAF is recommending *Excavation and Offsite Disposal* for the cleanup and restoration of Dumpsite 2 at an estimated cost of \$3,000,000

Preferred Remedial Alternative for Groundwater

The environmental investigation determined that there were no COCs detected in groundwater beneath Dumpsites 1 and 2, and therefore **No Further Action is recommended.**

ANDERSEN AFB BACKGROUND

Andersen AFB is located on the island of Guam, the largest of the Mariana Islands. It is located in the western Pacific region, approximately halfway between Japan and New Guinea, between latitudes 13° 15' N. and 13° 39' N. and longitudes 144° 37' E. and 144° 57' E. The island covers an area of nearly 209 square miles, and is approximately 30 miles long and from 4 to 8 miles wide. The northern half of the island is on a broad undulating limestone plateau overlying a volcanic core.

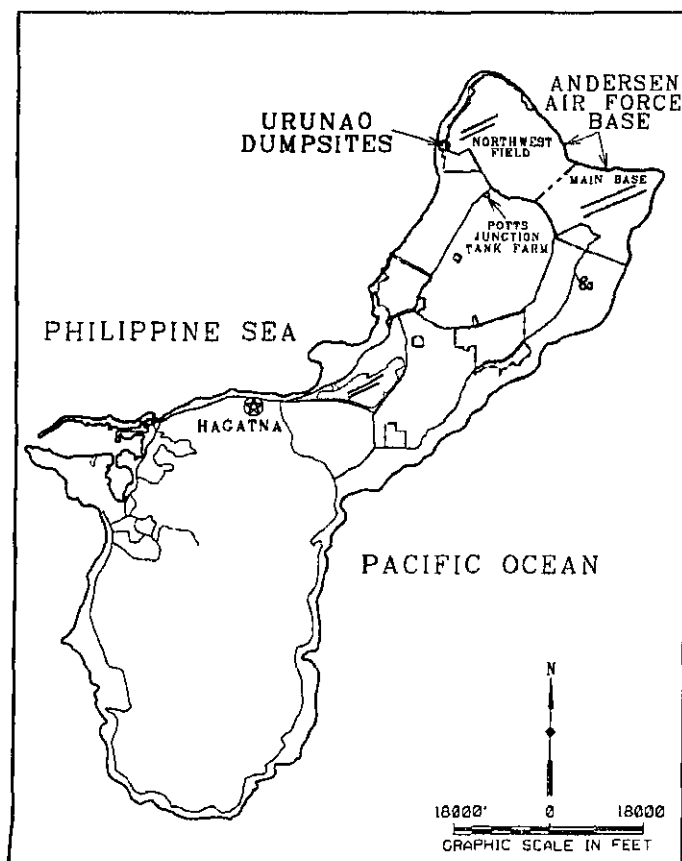


Figure 1 Location Map of Andersen Air Force Base on Guam

Andersen AFB consists of several parcels of land located in the northern half of the island (Figure 1). The main part of the base property is comprised of Main Base and Northwest Field, and is about 8 miles wide, 2 to 4 miles long, and covers about 24.5 square miles. Andersen AFB is bounded on the east, north, and west by cliffs rising about 500 feet above sea level. The active Base operations are located on the Main Base. Northwest Field has been generally inactive since the mid-1950s.

Several noncontiguous properties are also part of Andersen AFB. The MARBO Annex lies about 4 miles south of the Main Base and comprises about 3.8 square miles.

Northwest Field is a 2,130-acre portion of Andersen AFB property located on the northernmost section of Guam. Northwest Field is bounded by the Rota Channel to the north, the Philippine Sea to the west, and the Main Base and the Pacific Ocean to the east (Figure 2). Urunao Dumpsites 1 and 2 are located west of the Northwest Field, approximately

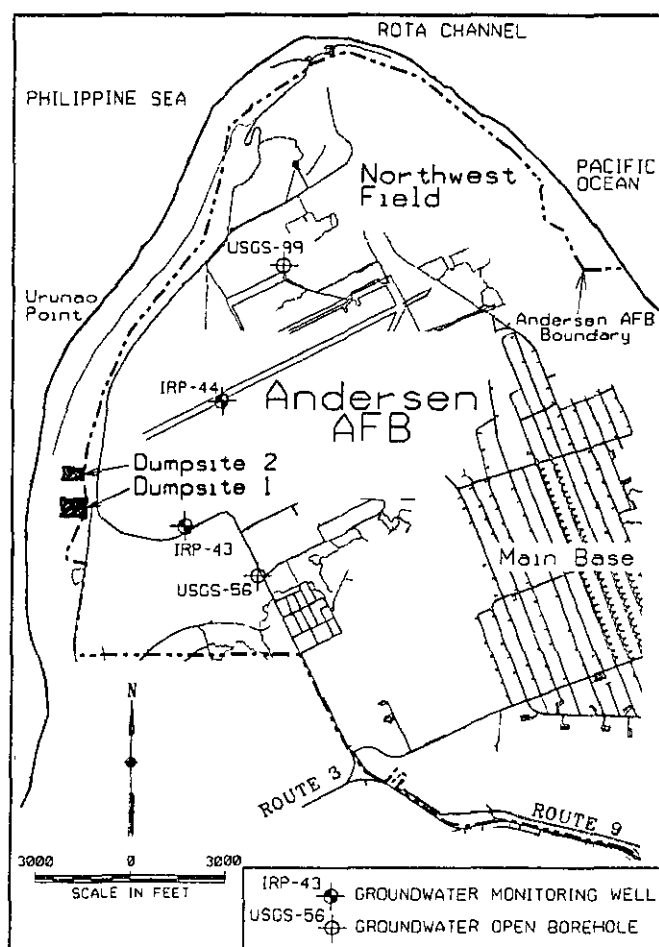


Figure 2 Location Map of Urunao Dumpsites 1 and 2 on Northwest Field

3,700 feet south of Urunao Point (Figure 2). Dumpsite 1 is located about 200 feet west of Route 3A and Dumpsite 2 is located north of Dumpsite 1 and about 400 feet west of Route 3A. Both sites are on steep slopes over the cliffline boundary for Andersen AFB. The Dumpsite 1 study area covers approximately 16.5 acres and the Dumpsite 2 study area covers approximately 6.2 acres. The combined study areas (22.7 acres) comprise approximately 5 percent of the total Urunao properties (approximately 431 acres). The lower limits of the dumpsites are approximately 1,000 feet from the shoreline. Near the end of 2001, an unpaved public access road was constructed within ½ mile of the northwestern portion of the Urunao dumpsites.

Urunao Dumpsites 1 and 2 are located on the northwest plateau and slope. Elevations range from approximately 475 feet above mean sea level (amsl) along the upper plateau cliffline to approximately 100 feet amsl at the base of the slope. Both dumpsites are comprised of two distinctive areas. Areas between the upper plateau cliffline and the intermediate cliffline have steep, rugged slopes (more than 60 percent) with near vertical drops. These steep regions comprise approximately 10 acres (7.1 and 2.9 acres at Dumpsites 1 and 2, respectively). Areas below the intermediate cliffline to the dumpsite toes are gently sloping to nearly flat. These flat regions comprise approximately 12.7 acres (9.4 and 3.3 acres at Dumpsites 1 and 2, respectively).

Soil at both dumpsites is scarce, consisting of a 2- to 3-inch-thick layer, scattered on native porous limestone bedrock. No rivers or streams are present at the dumpsites and all precipitation, except that portion lost to evapotranspiration, contributes to the groundwater lens. The depth to groundwater beneath the lower, flat portion of the Urunao Dumpsites is approximately 40–100 feet below ground surface (bgs), within a thin freshwater lens. At the upper cliffline, groundwater is approximately 475 ft bgs. Based on the historic groundwater elevation data in the area, the prevailing groundwater flow direction is to the west, toward the Philippine Sea (Figure 2). Both of the dumpsites are located downgradient of aquifer recharge zones and will not impact current or future groundwater production wells within the recharge zones.

For the most part, the vegetation on the cliffline is not supported by soil and subsurface soil is scarce. Most of the vegetation is supported by roots attached to the porous limestone. Urunao Dumpsites 1 and 2 are not fenced and can be readily accessed from the top and bottom, though access

from the top is more difficult. In order to alert the public to the potential dangers posed by both dumpsites, the Air Force is posting warning signs (February 2003). There is evidence of trails established along the cliffline that indicate occasional use of the site by poachers and hikers. The ecological habitat at the Urunao dumpsites is primarily limestone forest and no endangered plant or animal species have been observed at the dumpsites.

Archeological sites were documented near Dumpsites 1 and 2 during previous investigations. The Urunao Beach Complex and the Falcona Beach Complex have been identified as archeological areas on the northwestern portion of Guam. The Falcona Beach Complex covers approximately 4.3 acres and lies approximately 1,000 feet downgradient (west) of Dumpsites 1 and 2 (Photo 1). The Falcona Beach Complex is identified as Pre-Magellan (pre-historic) and in good condition. The area has been identified as a culturally valuable archeological site and was listed on the Guam Register of Historic Sites on July 1974. The site is on private land and is recommended for reserve status by the Government of Guam.

Because its primary mission is national defense, the USAF has long been engaged in a wide variety of operations that involve the use, storage, and disposal of hazardous material.

In 1992, the USEPA placed Andersen AFB on the NPL, commonly known as Superfund. The NPL is a prioritization of sites that have been identified for characterization and remediation activities. Numerous studies have been conducted to date to locate past chemical disposal areas and to determine if any buried materials have caused soil or groundwater contamination. Andersen AFB has been investigating Dumpsites 1 and 2 and developing cleanup alternatives to fulfill its obligations under CERCLA.

In October 1994, Andersen AFB began the RI/FS process for the Urunao OU. The process began with a historical records search and progressed into the investigative phase, which began in January 2001 and ended in May 2001. The findings are documented in detail in the Urunao Dumpsite 1 and 2 RI/FS report.

SOIL EVALUATION

This section summarizes site characterization activities at Dumpsites 1 and 2.

Site Characterization

Site characterization results are presented in Sections 3.1 through 3.3 of the Urunao Dumpsite 1 and 2 RI/FS report, as summarized below.

Dumpsite 1

Based on the DSI, there was no evidence of stained soil or stressed vegetation at Dumpsite 1. The debris at Dumpsite 1 was mostly surficial solid waste and deteriorated OE material. The OE material at Dumpsite 1 included scattered M-89 and M-90 target identification bombs, an abandoned 1,500-pound bomb, and deteriorated AN-M50 series incendiary bomblets. The exact location and number of the M-89 and M-90 target identification bombs and deteriorated AN-M50 series incendiary bomblets could not be determined because some were partially buried. At Dumpsite 1, there is an area of concentrated metal debris and OE material within two areas where surficial solid waste and OE material were burned using napalm (Figure 3). Other debris observed include aircraft and auto tires, scattered aircraft parts, deteriorated cubical metal containers, deteriorated empty 55-gallon drums, sheet metal, pipes, wires, cables, auto parts, small metal containers, empty compressed gas cylinders, glass bottles, food cans, soda cans, engine parts, concrete slabs, and household trash.

Most surface debris observed at Dumpsite 1 was scattered around the site's intermediate cliffline, with the exception of the tires (Figure 3). Because of their round shape, the

tires advanced further downslope and are concentrated at the toe of the site. The presence of tires is significant because they define the lower extent of the waste boundary. In many areas, more than 4 feet of deteriorated metal debris covers the cliffline surface. These areas are unstable and could collapse when stepped on, creating unsafe and physically hazardous conditions between the top of the cliffline and the intermediate cliffline at Dumpsite 1. The tires along the toe of the cliff at Dumpsite 1 are located approximately 1,000 feet from the ocean shoreline. Therefore, it is unlikely that the solid waste at Dumpsite 1 has impacted the shoreline downgradient of the site.

Soil at Dumpsite 1 is scarce, consisting of a thin, 2- to 3-inch-thick layer, scattered on native limestone bedrock. Subsequently, the soil sample locations were limited to areas where sufficient soil was available. Some samples collected from the area of concentrated debris at Dumpsite 1 included fine metal fragments that were disseminated in topsoil.

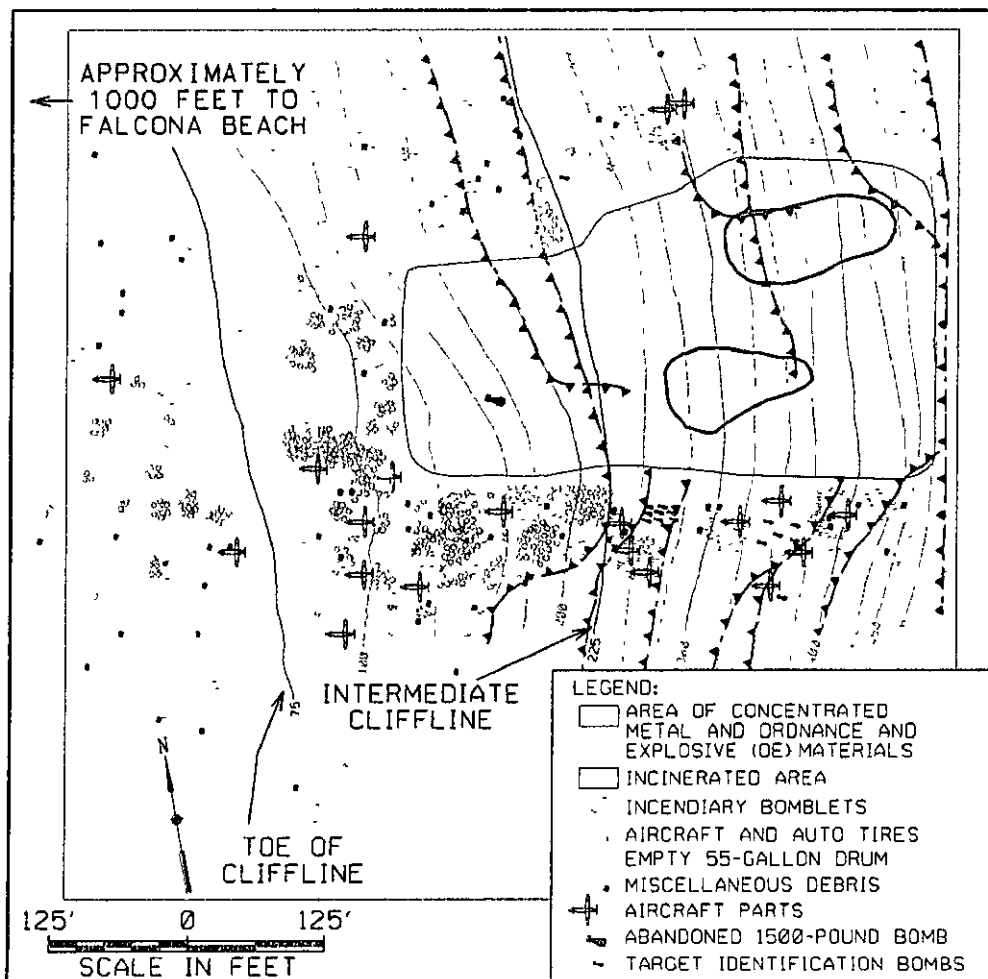


Figure 3 Detailed Site Inventory at Urunao Dumpsite 1

A total of 50 (including 5 duplicate) surface soil samples was collected and analyzed for semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), metals, dioxins, and explosive residues (Figure 4). Surface soil samples were not analyzed for volatile organic compounds (VOCs) because geologic and meteorologic conditions on Guam induce volatilization and infiltration thereby limiting the presence of VOCs in surface soil samples. Based on laboratory results, hexachlorobenzene, dibenz(a,h)anthracene, 4,4'-DDT, PCBs (Aroclor-1254 and Aroclor-1260), antimony, arsenic, barium, copper, iron, lead, manganese, and dioxins were identified as Constituents of Potential Concern (COPCs) in the surface soil samples at Dumpsite 1 (Figure 4). The above-listed chemicals were considered COPCs because they exceeded the USEPA established Residential Preliminary Remediation Goals (PRGs), and/or Background Threshold Values (BTVs).

Subsurface soil samples were difficult to collect at Dumpsite 1 due to the thin soils (<2 feet thick) and the amount of metallic debris. Only three subsurface soil samples (including one duplicate) were collected from Dumpsite 1, at depths ranging between 2 to 2.2 feet bgs. Samples were analyzed for VOCs, SVOCs, PAHs, pesticides, PCBs, metals, dioxins, and explosive residues. Based on laboratory results, antimony, barium, cadmium, iron, lead, and dioxins were identified as COPCs in the subsurface soil samples at Dumpsite 1.

No explosive residues were detected in any of the surface or subsurface soil samples collected from Dumpsite 1.

The locations of Dumpsite 1 surface and subsurface samples that contained COPCs are presented in Figure 4. To evaluate whether the surface and subsurface COPCs pose risks to human health or the environment, a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA) were performed for Dumpsite 1. Media of concern identified at the site were surface soil, subsurface soil, and air exposures that could result from dispersion of surface and subsurface soil into air. Exposure pathways were considered for the scenarios of current and

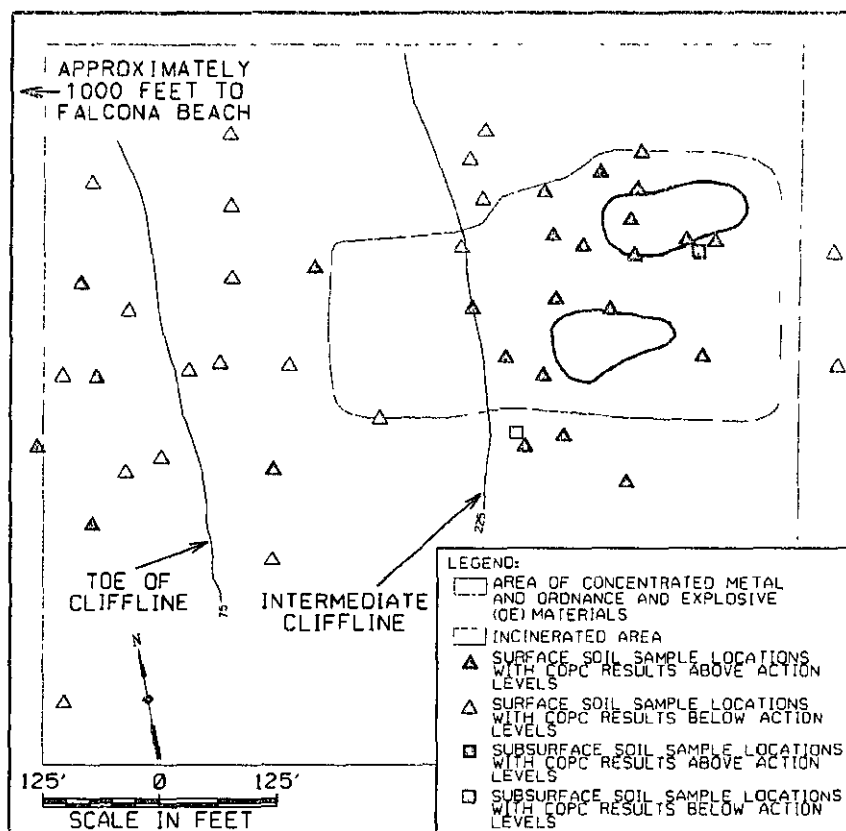


Figure 4 Surface and Subsurface Soil Sample Locations at Urunao Dumpsite 1

future occasional users/trespassers and future resident adults and children. The residential scenario was considered as a conservative baseline to determine cleanup levels.

Based on ERA results, antimony, copper, lead, and zinc in the *Areas of Concentrated Deteriorated Metal and EO Materials* (Figure 5) were determined to be surface soil surface COCs at Dumpsite 1. The *Areas of Concentrated Deteriorated Metal and EO Materials* are therefore proposed for cleanup to protect the environment at Dumpsite 1. Based on HHRA results, antimony, arsenic, lead, manganese, and dioxins were determined to be surface soil COCs, and antimony, barium, cadmium, lead, and dioxins were determined to be subsurface soil COCs at Dumpsite 1. Using the HHRA and ERA, cleanup standards were established for each COC so that chemical concentrations below cleanup standards pose no risk to either human health or the environment. The concentration ranges of the Dumpsite 1 surface and subsurface COCs and the cleanup standards are presented in Figure 5. Based on the cleanup standards, approximately 370 BCY of COC-impacted surface soil and 35 BCY of COC-impacted subsurface soil are recommended for cleanup at Dumpsite

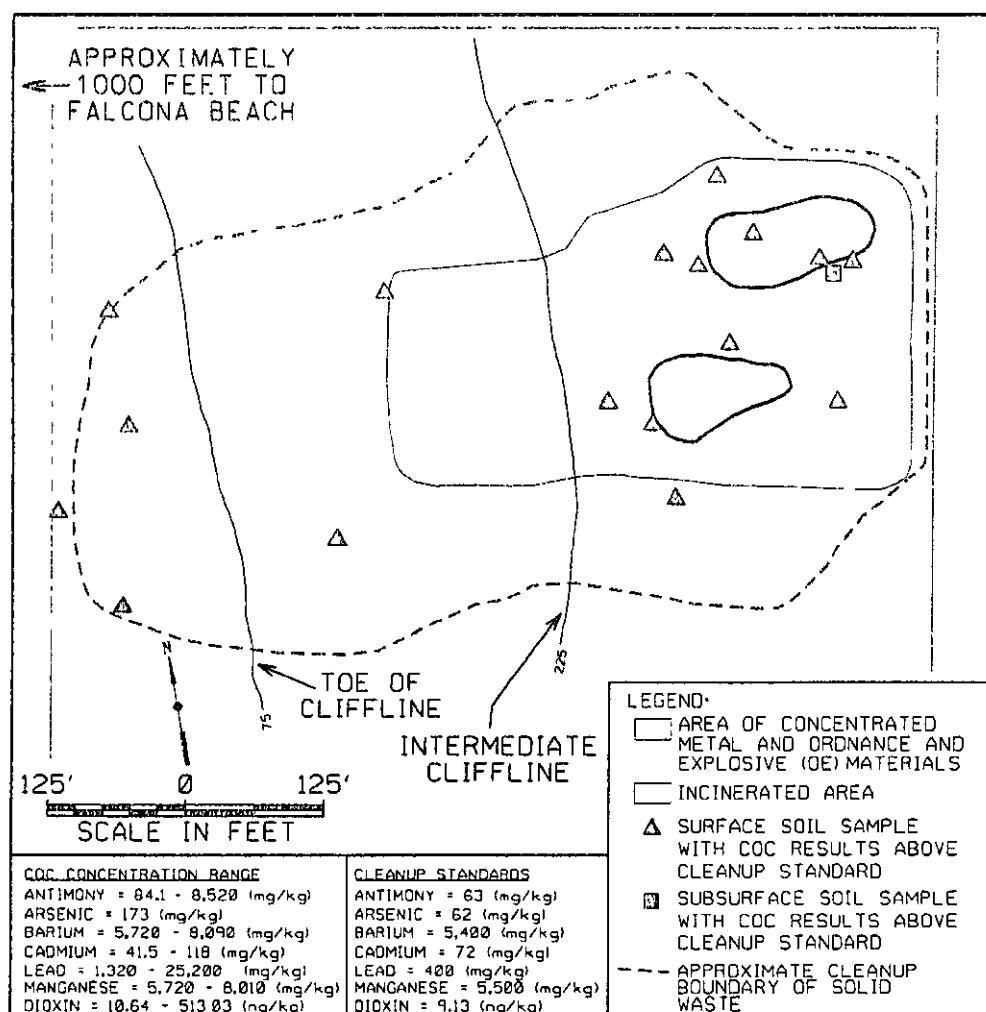


Figure 5 Proposed Cleanup Locations at Urunao Dumpsite 1

1 Additionally, solid waste debris and OE material at the Urunao Dumpsite 1 are mixed with the COC-impacted soils. Subsequently, 26,700 BCY of solid waste materials and 10 BCY of OE material were proposed for cleanup.

Thirty-four In-Situ and Ex-Situ cleanup alternatives were screened to evaluate feasible cleanup alternatives for Dumpsite 1. Due to the steep slope at Dumpsite 1, only three cleanup alternatives were selected for further analysis: *Excavation and Offsite Disposal*, *Institutional Control and Property Acquisition*, and *No Action*.

Evaluation of the *No Action* alternative is required by the NCP and CERCLA, as a baseline for comparison. The *No Action* alternative represents a true no action scenario, and solid waste, COC-impacted soil, and OE materials would remain at the dumpsite. Though the *No Action* alternative is easily implemented and there are no associated costs, it does not meet the two threshold criteria of CERCLA. *Overall Protection of Human Health and*

the Environment and Compliance with ARARs.

The Institutional Control and Property Acquisition alternative was selected for further evaluation due to its feasibility and ease of implementation. This alternative would control exposure to potential receptors by restricting site access. It would require the Air Force to acquire the impacted property and install a chain-link fence to prevent access and exposure to COC-impacted areas and OE materials. Signs would be posted on the fence to warn of potential physical, chemical, and explosive hazards. *Institutional Control and Property Acquisition* meets some of the threshold criteria, under CERCLA, by reducing the exposure pathways to human and ecological receptors.

However not all of the primary balancing criteria are met as the COC-impacted areas and the OE materials would not be removed or reduced. Without meeting these primary balancing criteria, *Territory and Community Acceptance* (including the private property owners) would be difficult to attain. The total cost for implementing the *Institutional Control and Property Acquisition* alternative for both Dumpsites 1 and 2 (including associated capital costs for property acquisition, institutional controls, and periodic review) is estimated at \$12,640,000. The proportional cost associated with implementing this alternative for Dumpsite 1 is approximately \$9,480,000. This alternative can be completed in less than one year.

The *Excavation and Offsite Disposal* alternative was selected for further evaluation because it meets the two threshold criteria of *Overall Protection of Human Health and the Environment and Compliance with ARARs*. The *Excavation and Offsite Disposal* alternative also meets the five primary balancing criteria of *Short-Term Effectiveness*;

Long-Term Effectiveness and Permanence, Reduction of Mobility, Toxicity, or Volume Through Treatment; Implementability; and Cost.

Under the *Excavation and Offsite Disposal* cleanup alternative, all solid waste debris and OE material will be removed from Dumpsite 1 prior to excavating and removing any remaining COC-impacted soils. All OE material removal and disposal will be done under the supervision of a team of experienced, certified OE technicians. Some deteriorated OE fragments (incendiary bomblets) will be burned at Dumpsite 1 using a steel burn pan. Any ash and slag from the burn operation will be removed and disposed of properly, based on laboratory analyses. Other OE material will be certified by Andersen AFB Explosive Ordnance Disposal (EOD) personnel as safe for transport and transported to the Andersen AFB EOD facility for proper disposal.

Once the solid waste debris and OE material are removed from Dumpsite 1, any remaining COC-impacted subsurface soil will be excavated and temporarily stockpiled on site. Composite samples of stockpiled soil will be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) parameters to determine whether the soil is considered hazardous waste for disposal purposes. All soil with concentrations exceeding the cleanup standards but not characterized as Resource Conservation and Recovery Act (RCRA) hazardous waste will be transported to the Andersen AFB Landfill for disposal. All soil with concentrations exceeding the cleanup standards that are also characterized as RCRA hazardous waste will be shipped to a USEPA certified off-island hazardous waste disposal facility, using Department of Transportation (DOT) standards and a DOT-certified transporter.

The USAF recommends *Excavation and Offsite Disposal* as the preferred alternative for Dumpsite 1. The *Excavation and Offsite Disposal* cleanup alternative meets all threshold and primary balancing evaluation criteria. The total cost for implementing the *Excavation and Offsite Disposal* alternative for Dumpsites 1 and 2 is estimated at \$12,000,000. The proportional cost associated with implementing this alternative for Dumpsite 1 is approximately \$9,000,000.

Dumpsite 2

Based on the DSI, there was no evidence of stained soil, stressed vegetation, or burnt areas at Dumpsite 2. The debris at Dumpsite 2 was mostly surficial solid waste material. Only a few (less than five) isolated deteriorated AN-M50 series incendiary bomblets were found scattered around Dumpsite 2. There is an area of sword grass that is reportedly where waste was buried and covered with crushed coral fill (Figure 6). Waste material disposed at Dumpsite 2 includes aircraft

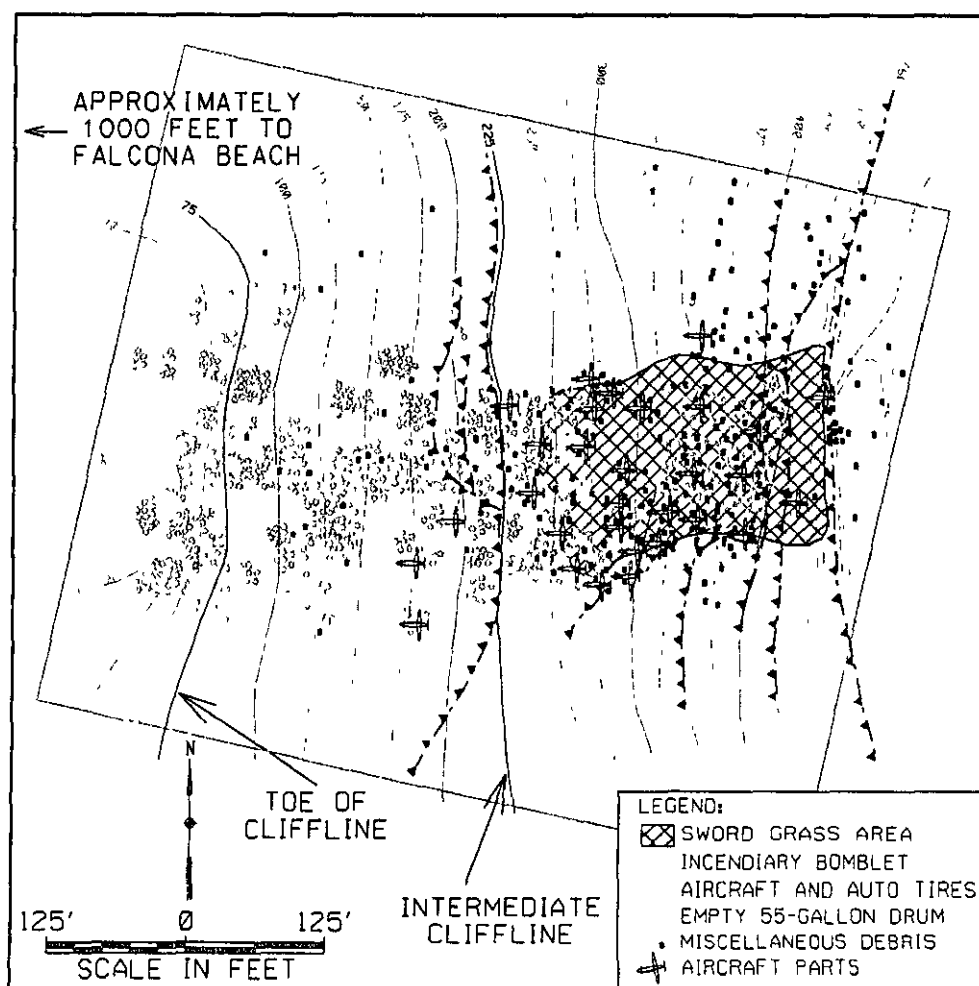


Figure 6 Detailed Site Inventory at Urunao Dumpsite 2

and auto tires, scattered aircraft parts, deteriorated automobile, deteriorated empty 55-gallon drums, sheet metal, pipes, wires, cables, auto parts, small metal containers, empty compressed gas cylinders, glass bottles, food cans, soda cans, concrete slabs, and household trash. Most surface debris found at Dumpsite 2 was scattered uniformly above and below the site's intermediate cliffline, except for tires, which were concentrated at the toe of the site (Figure 6), located approximately 1,000 feet from the shoreline. Therefore, it is unlikely that the solid waste at Dumpsite 2 has impacted the shoreline downgradient of the site.

Soil at Dumpsite 2 is scarce, consisting of a 2- to 3-inch-thick layer scattered on native limestone bedrock. As such, the soil sample locations were limited to areas where sufficient soil was available. Some soil samples collected from the area of concentrated debris included fine metal fragments that were disseminated in the thin layer of topsoil.

A total of 31 (including 5 duplicate) surface soil samples was collected and analyzed for SVOCs, PAHs, pesticides, PCBs, and metals. As the DSI at Dumpsite 2 included no evidence of burned materials, no samples were collected and analyzed for dioxins. Furthermore, no samples were collected and analyzed for explosive residues due to sparse UXO at Dumpsite 2. Based on laboratory results, dieldrin, benzo(a)pyrene, PCBs (Aroclor-1254 and Aroclor-1260), antimony, iron, lead, and manganese were detected at concentration above Residential PRGs, and/or BTVs and, therefore, were identified as COPCs in the surface soil sample at Dumpsite 2.

Subsurface soil samples were difficult to collect at Dumpsite 2 due to the thin soils (<2 feet thick) and the amount of metallic debris. Seven subsurface soil samples were collected from Dumpsite 2, at depths ranging between 2 to 29 feet bgs. Samples were analyzed for VOCs, SVOCs, PAHs, pesticides, PCBs, and metals. Based on laboratory

results, benzo(a)pyrene, dibenz(a,h)anthracene, antimony, iron, lead, and manganese were identified as COPCs in the subsurface soil.

The locations of Dumpsite 2 surface and subsurface soil samples that contained COPCs are presented in Figure 7. To evaluate whether or not the surface and subsurface COPCs pose risk to the human health or the environment, a HHRA and an ERA were performed. Media of concern identified at the site were surface soil, subsurface soil, and air exposures that could result from dispersion of surface and subsurface soil into air. Exposure pathways were considered for the scenarios of current and future occasional users/trespassers and future resident adults and children. The residential scenario was considered as a conservative baseline to determine cleanup levels.

Based on ERA results, copper, lead, and zinc in the "Sword Grass Area" (Figure 8) were surface soil surface COCs that required cleanup to protect the environment at Dumpsite 2. Based on HHRA results, benzo(a)pyrene, Aroclor-1254,

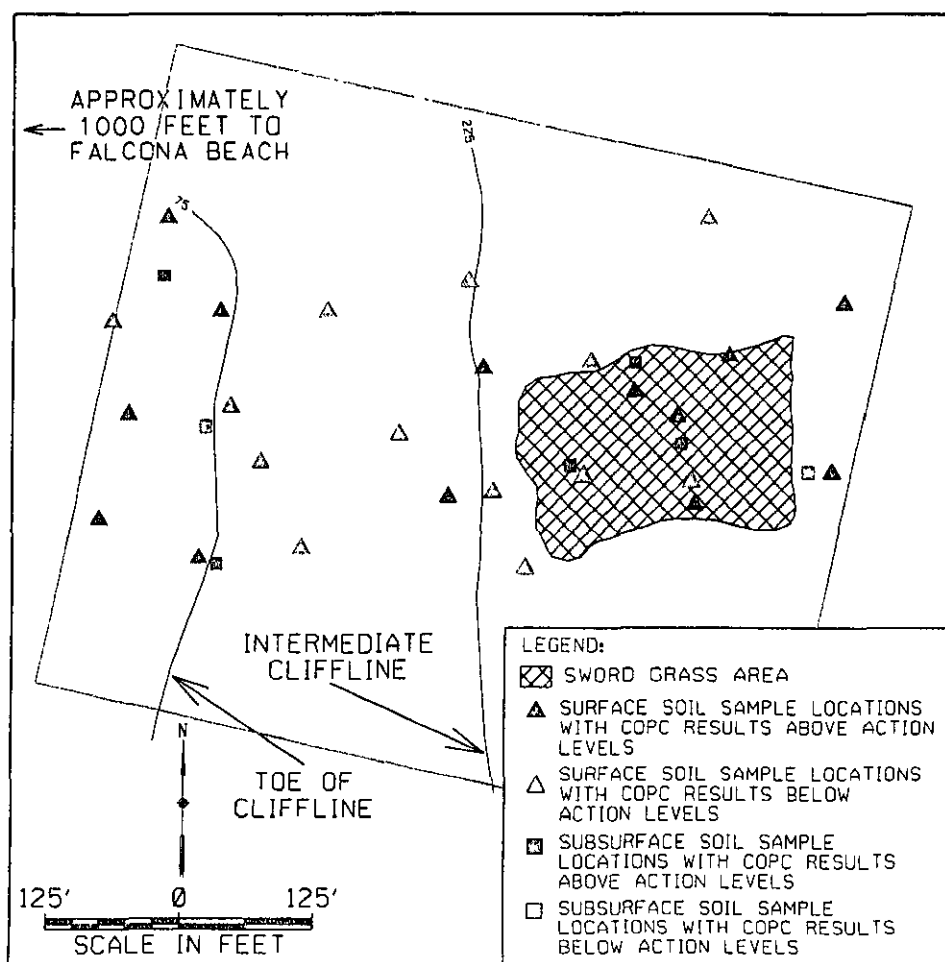


Figure 7 Surface and Subsurface Soil Sample Locations at Urunao Dumpsite 2

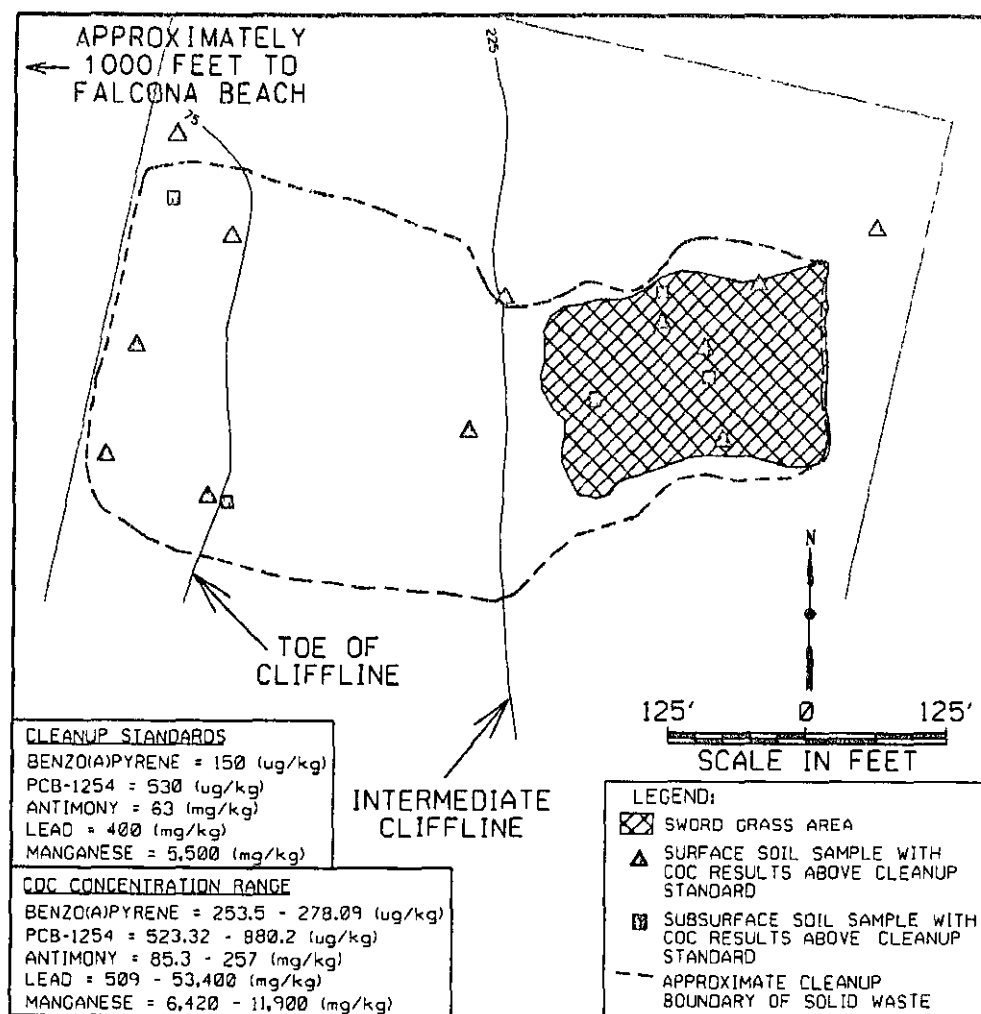


Figure 8 Proposed Cleanup Locations at Urunao Dumpsite 2.

antimony, lead, and manganese were surface soil COCs, and benzo(a)pyrene, antimony, and manganese were subsurface soil COCs that require cleanup. Using the HHRA and ERA, cleanup standards were established for each COC so that chemical concentrations below cleanup standards pose no risk to either human health or the environment. The concentration ranges of the Dumpsite 2 surface and subsurface COCs and the cleanup standards are presented in Figure 8. Based on the cleanup standards, approximately 280 BCY of COC-impacted surface soil and 140 BCY of COC-impacted subsurface soil are recommended for cleanup at Dumpsite 2. Additionally, 15,500 BCY of solid waste that are mixed with COC-impacted soil are proposed for cleanup.

Thirty-four In-Situ and Ex-Situ cleanup alternatives were screened to evaluate feasible cleanup alternatives for Dumpsite 2. Due to the steep slope at Dumpsite 2, only three cleanup alternatives were selected for further analysis. *Excavation and Offsite Disposal*, *Institutional Control* and

Property Acquisition, and *No Action*. Evaluation of the *No Action* alternative is required by the NCP and CERCLA, as a baseline for comparison. The *No Action* alternative represents a true no action scenario, and solid waste, COC-impacted soil, and OE materials would remain at the dumpsite. Though the *No Action* alternative is easily implemented and there are no associated costs, it does not meet the two threshold criteria of CERCLA: *Overall Protection of Human Health and the Environment* and *Compliance with ARARs*.

The *Institutional Control* and *Property Acquisition* alternative was selected for further evaluation due to its feasibility and ease of implementation. This alternative would control exposure to potential receptors by restricting site access. It would require the Air Force to acquire the impacted property and install a chain-link

fence to prevent access and exposure to COC-impacted areas and OE materials. Signs would be posted on the fence to warn of potential physical, chemical, and explosive hazards. *Institutional Control* and *Property Acquisition* meets some of the threshold criteria, under CERCLA, by reducing the exposure pathways to human and ecological receptors. However, not all of the primary balancing criteria are met as the COC-impacted areas and the OE materials would not be removed or reduced. Without meeting these primary balancing criteria, *Territory and Community Acceptance* (including the private property owners) would be difficult to attain. The cost for implementing the *Institutional Control* and *Property Acquisition* alternative for Dumpsite 2 is estimated at \$3,160,000. This alternative can be completed in less than one year.

The *Excavation and Offsite Disposal* alternative was selected for further evaluation because it meets the two threshold criteria of *Overall Protection of Human Health and the*

Environment and Compliance with ARARs. The *Excavation and Offsite Disposal* alternative also meets the five primary balancing criteria of *Short-Term Effectiveness; Long-Term Effectiveness and Permanence, Reduction of Mobility, Toxicity, or Volume Through Treatment; Implementability; and Cost.*

Under the *Excavation and Offsite Disposal* cleanup alternative, all solid waste will be removed from the dumpsite along with the COC-impacted soils. Once the solid waste is removed, any remaining COC-impacted subsurface soil will be excavated and temporarily stockpiled on site. Composite samples of stockpiled soil will be collected and analyzed for TCLP parameters to determine whether they should be disposed as hazardous waste. All COC-impacted soil with concentrations exceeding the cleanup standards but not characterized as RCRA hazardous waste will be transported to the Andersen AFB Landfill for disposal. Any soil exceeding the cleanup standards and characterized as RCRA hazardous waste will be shipped to a USEPA certified off-island hazardous waste disposal facility, using DOT standards and a DOT-certified transporter.

The USAF recommends *Excavation and Offsite Disposal* as the preferred alternative for Dumpsite 2. The *Excavation and Offsite Disposal* cleanup alternative meets all threshold and primary balancing evaluation criteria. The cost for implementing the *Excavation and Offsite Disposal* alternative for Dumpsite 2 is estimated at \$3,000,000.

GROUNDWATER EVALUATION

There are no monitoring wells within a ½-mile radius of Dumpsites 1 and 2. Monitoring wells IRP-43 and IRP-44 are the closest wells (Figure 2); however, they are upgradient of the dumpsites and cannot be used to evaluate potential impacts to groundwater. Three freshwater seep samples (including one duplicate) were collected downgradient of the dumpsites, at Falcona Beach, in May 2001. The freshwater seep samples were collected during the lowest daily tide (Photo 2) and analyzed for VOCs, PAHs, SVOCs, pesticides, PCBs, and metals.

Based on laboratory results, no VOCs, SVOCs, PAHs, pesticides, PCBs, or metals were detected in any of the seep samples at concentrations that exceeded their Maximum Contaminant Levels (MCLs). Therefore, the groundwater beneath Dumpsites 1 and 2 does not seem to be impacted by the dumpsites.

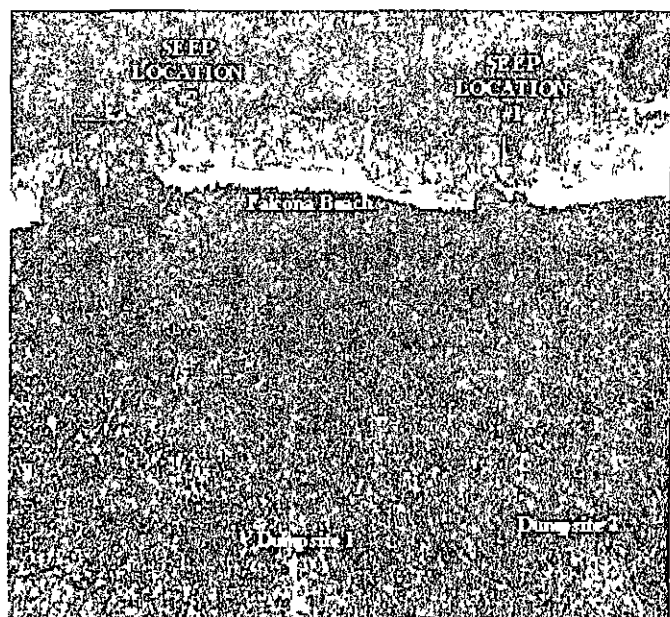


Photo 2. Location of Seep Samples Downgradient from

IMPLEMENTATION ISSUES

The implementation of the *Excavation and Offsite Disposal* cleanup alternative for Dumpsites 1 and 2 will require the Air Force and impacted property owners to identify and resolve issues related to site access, road improvements, and compensation prior to the commencement of the cleanup. This proposed plan recommends that the Air Force improve the existing, unpaved access road that currently extends to within ½ mile of the dumpsites. Under the *Excavation and Offsite Disposal* alternative the USAF would seek permission, from affected land owners, to widen, grade, and maintain the existing road during the cleanup. During the cleanup, access to some areas may be restricted and a temporary fence may be required to protect portions of the site and/or potentially dangerous work areas.

Glossary

ACTION LEVEL. Concentration in soil, sediments, air, or groundwater above which an action is required. It may be a regulatory standard (e.g., MCL), a risk-based concentration (e.g., PRG), or a technological limitation.

ADMINISTRATIVE RECORD (AR): The file containing all information used to select remedial action, including studies, plans, and other reports.

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs): Federal, state, or territorial environmental requirements or laws that must be considered in selecting a remedial alternative.

BACKGROUND THRESHOLD VALUE (BTV) Metal concentrations in soils occur in a range of concentrations. Because some metals occur naturally on Guam at relatively high concentrations, BTVs are calculated to establish the upper concentration limit of naturally occurring metals. The calculated BTV is compared against the data set to determine naturally occurring concentrations versus potential contamination.

CLEANUP. An action that reduces exposure of contaminated soil or groundwater to humans or the environment.

CONSTITUENTS OF CONCERN (COCs): Chemicals detected in soil or groundwater that warrant concern due to their potential contribution to risk to human health or the environment. COCs are generally determined after screening COPCs detected in soil or groundwater against action levels such as PRGs or MCLs. Risk assessment calculations are performed on COCs.

CONSTITUENTS OF POTENTIAL CONCERN (COPCs): Chemicals that exceed their Residential PRGs (and BTVs for metals). Those COPCs with elevated concentrations (exceeding PRGs) and a geographically consistent frequency of occurrence are regarded as Constituents of Concern (COCs).

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA): A law passed in 1980 that established programs to identify hazardous waste sites, ensure cleanup, evaluate potential damages to natural resources, and to create payment procedures for parties responsible for cleanup of the sites. Commonly known as "Superfund." CERCLA was modified in 1986 by the SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA).

ENVIRONMENTAL BASELINE SURVEY (EBS): An evaluation of environmental conditions at a Department of Defense property to be leased or transferred by deed, in accordance with the provisions of CERCLA 120 (h). An EBS assesses storage, release, treatment, or disposal of hazardous substances or petroleum products on the property to determine the presence of a release or threatened release.

FEDERAL FACILITY AGREEMENT (FFA): An interagency agreement between a federal facility that is on the NPL (e.g., Andersen AFB), the USEPA, and the relevant state or territory that defines specific actions, processes, and milestones to evaluate former waste sites at that facility and institute appropriate remedial actions.

FEASIBILITY STUDY (FS): An evaluation of potential cleanup remedies that identifies a preferred remedial alternative. A FS evaluates the effectiveness, ease of implementation, and costs associated with each remedial alternative.

GROUNDWATER. Water beneath the ground surface that forms a natural reservoir in pores, voids, and fractures. Groundwater accumulates from rain and other precipitation that seeps into the ground.

INSTALLATION RESTORATION PROGRAM (IRP). A program designed to identify, confirm, quantify, and remediate environmental problems related to past waste handling practices at Department of Defense installations.

INSTITUTIONAL CONTROLS (IC): Controls that are instituted at a site to protect human health and/or the environment that do not include treatment or similar remedial actions. Institutional controls can include deed restrictions, fencing, warning signs, providing alternate water supplies, and/or monitoring.

MAXIMUM CONTAMINANT LEVEL (MCL): A federally imposed concentration above which a chemical in the potable water supply should not exceed.

NATIONAL PRIORITIES LIST (NPL): EPA's list of top-priority hazardous substance sites that are required to be investigated, and if necessary cleaned up, in accordance with the provisions of CERCLA.

NET PRESENT WORTH: The amount of money necessary to secure the promise of future payment at an assumed interest rate.

ORDNANCE AND EXPLOSIVES (OE): Devices that can cause damage to personnel or material through

explosive force, incendiary action, or toxic effects. OE includes bombs, warheads, missiles, mortars, small arms ammunition, land mines, demolition charges, pyrotechnics, grenades, torpedoes, depth charges, high explosives, propellants, military chemical agents, fuses, boosters, bursters, and rocket motors.

OPERABLE UNIT (OU): A management unit into which potential hazardous waste sites with common elements are grouped. An OU may be based on a particular type of contamination, contaminated media (e.g., soil, groundwater), or geographic location.

PESTICIDES: Group of chemicals used for destroying a broad range of pests. Pesticides that target specific pests include: insecticides, herbicides, rodenticides, and fungicides. In general pesticides break down slowly and persist in the environment.

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs): A group of multi-ringed, aromatic hydrocarbons that are produced as the result of incomplete combustion. Also referred to as polynuclear aromatic hydrocarbons.

POLYCHLORINATED BIPHENYLS (PCBs): Compounds once commonly used in industrial applications such as electrical capacitors, electrical transformers, hydraulic fluids, pesticide extenders, lubricants, and cutting oils. Some PCBs are considered cancer-causing compounds.

PRELIMINARY REMEDIATION GOAL (PRG): Allowable concentrations of chemicals in soil based on potential health effects. PRGs for Guam are determined by USEPA Region IX as an initial guide to assist in evaluating potential health risks associated with site conditions. If agreed upon by the Air Force and the regulating agencies, PRGs can be used for remediation cleanup goals.

RECORD OF DECISION (ROD): A public document that explains the selected remedy for a National Priorities List site and the rationale for making the selection. The ROD is based on RI/FS reports and public comment.

REMEDIAL ACTION OBJECTIVES (RAOs) Objectives that are established for medium-specific remediation goals in order to protect the human health and the environment. RAOs identify the specific media (soil, groundwater, and air) and exposure pathways (ingestion, inhalation, and dermal contact) that need to be targeted for remediation. RAOs are often expressed in terms of Remedial Goal Objectives (RGOs) to establish cleanup levels and the extent of cleanup.

REMEDIAL INVESTIGATION (RI): An investigation conducted pursuant to CERCLA and based on methodology established by the USEPA, for characterizing the nature and extent of contamination and associated risks posed by the presence of the contamination.

RESTORATION ADVISORY BOARD (RAB): A panel, composed of community members, elected officials, Air Force officials, and representatives from regulatory agencies. The RAB meets on a quarterly basis to review and discuss issues relating to ongoing environmental activities at Andersen AFB IRP sites.

RISK ASSESSMENT (RA): A study conducted as part of an RI that describes the risks posed to human health and/or the environment due to exposure to chemicals present in various media (soil, air, water) at the site.

SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs): A group of compounds containing carbon and hydrogen that do not readily evaporate at room temperature (e.g., pyrene).

TIME-CRITICAL REMOVAL ACTION: The USEPA categorizes remedial actions into three types: emergency; time-critical; and non-time-critical. Emergency and time-critical remedial actions require action within 6 months and non-time-critical remedial actions require action that can start later than 6 months after the determination that a response is necessary.

UNEXPLODED ORDNANCE (UXO): Potentially explosive ordnance that has been fired, projected, dropped, or discarded in such a manner as to be capable of becoming armed and subject to detonation, and by design or accident, has failed to detonate.

VOLATILE ORGANIC COMPOUNDS (VOCs): A group of compounds containing carbon and hydrogen that readily evaporate at room temperature. VOCs include substances that are contained in fuels and solvents (e.g., benzene, trichloroethene).

COMMENT SHEET—Proposed Plan for Urunao Dumpsites 1 and 2

You may use this form to send in your written comments on this Proposed Plan. Please send your comments to the address shown below postmarked no later than 30 April 2003.

(fold line)

**Affix
Postage**

**Mr. Gregg Ikehara
Andersen AFB
36 CEV/CEVR, Unit 14007
APO AP 96543-4007**

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE