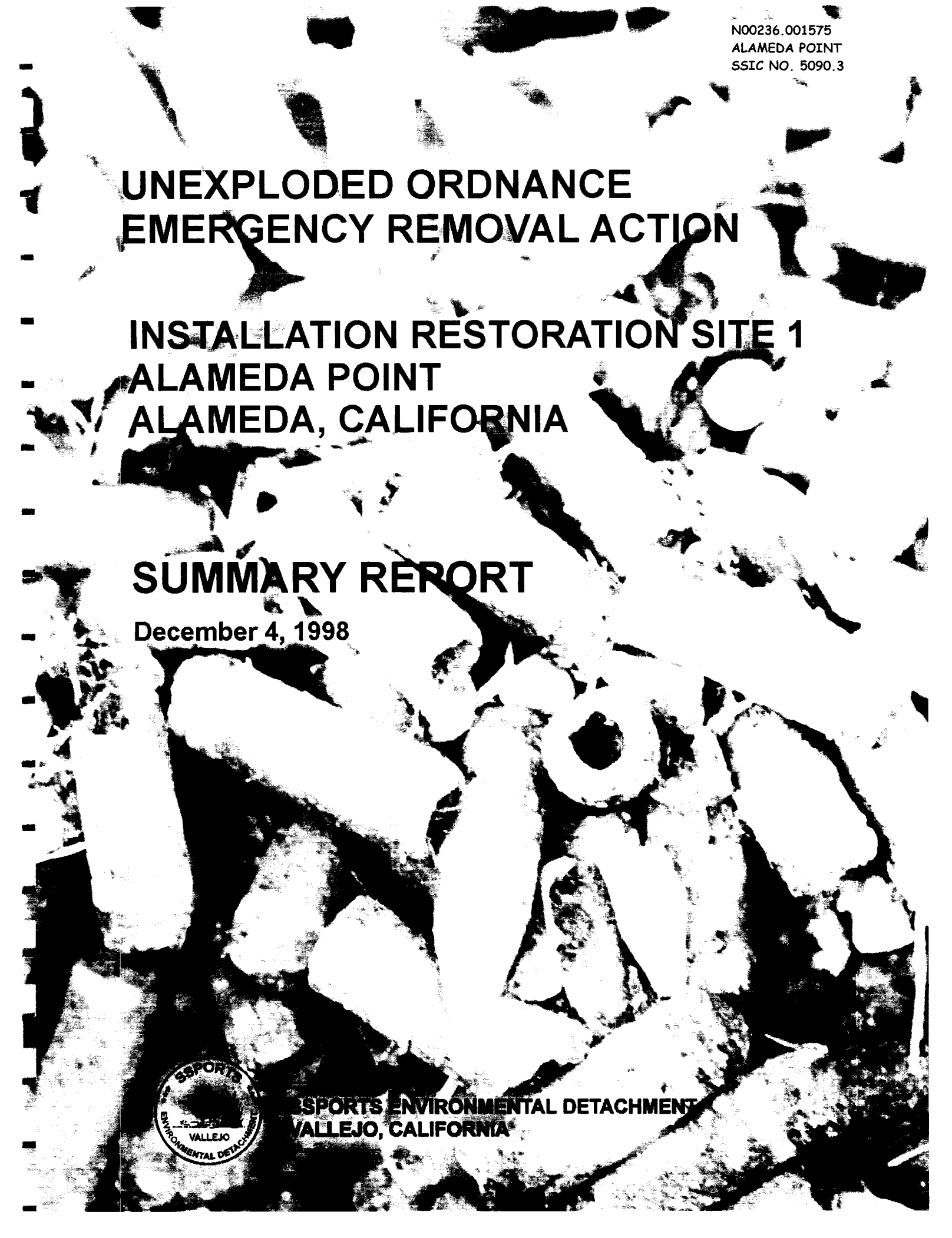
UNEXPLODED ORDNANCE EMERGENCY REMOVAL ACTION

INSTALLATION RESTORATION SITE 1 ALAMEDA POINT ALAMEDA, CALIFORNIA

SUMMARY REPORT

December 4, 1998



SSPORTS ENVIRONMENTAL DETACHMENT
VALLEJO, CALIFORNIA

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INSTALLATION RESTORATION SITE 1
ALAMEDA POINT

Review and Approval:

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REVISION RECORD

Revision	Description	Approval	Date

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DDESB - Department of Defense Explosive Safety Board
DRMO - Defense Reutilization and Marketing Office
EFA WEST - Engineering Field Activity West (Department of the Navy)
EOD – Explosive Ordnance Disposal
ESQD - Explosive Safety Quantity-Distance
OP - Ordnance Pamphlet
SOP - Standard Operating Procedure
SSPORTS - Supervisor of Shipbuilding, Conversion, & Repair - Portsmouth VA Environmental Detachment, Vallejo
UXO - Unexploded Ordnance

EXECUTIVE SUMMARY

The Installation Restoration Site 1 landfill at Alameda Point (formerly Alameda Naval Air Station) was used as a solid waste disposal site for the base between 1943 and 1956. First person accounts indicate that ordnance material, including spent projectiles from aircraft gun tests, was also disposed of at the site. A live 20mm high explosive projectile was discovered by Superintendent of Shipbuilding, Conversion, and Repair, Portsmouth, Virginia (SSPORTS) Environmental Detachment Vallejo employees conducting a radiation survey of the site in late September 1998. Subsequent observations by Air Force Explosive Ordnance Disposal (EOD) personnel and employees of the SSPORTS Unexploded Ordnance Program indicated that additional ordnance items were present at the site. The Military Munitions Rule (40 CFR Part 266 Subpart M) classifies discarded inert ordnance material as solid waste and live ordnance as hazardous waste. Because of the danger posed by the type of projectiles already recovered, an emergency removal action to mitigate the immediate hazard to site workers was initiated.

The goal of the emergency removal action was to clear all surface ordnance material from an eight acre section of the site to allow safe completion of the radiation survey. The removal began on October 26, 1998 and was completed on October 31. The clearance was accomplished by a team of explosive certified workers under the oversight of an Unexploded Ordnance Specialist. 335 live 20mm high explosive projectiles were recovered along with another 14,304 inert ordnance items. Hazardous ordnance material was stored onsite in a nearby explosives storage magazine pending emergency disposal by SSPORTS Unexploded Ordnance Specialists. Inert ordnance items were recycled whenever possible.

Although the goal of the emergency removal action was accomplished, the site remains an ordnance concern. Additional ordnance clearance will be necessary during any intrusive site work including the planned investigation of radiation anomalies and remediation of the small arms range backstop. The minimum ordnance clearance requirements of the Department of Defense Explosives Safety Board (DDESB), as outlined in NAVSEA OP 5 (Ammunition and Explosives Ashore), must also be satisfied for the planned "Public Access" (recreational) reuse of the site before the property can be transferred.

UNEXPLODED ORDNANCE
EMERGENCY REMOVAL ACTION
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SUMMARY REPORT

1. INTRODUCTION

The Installation Restoration (IR) Site 1 landfill is located in the northwestern corner of Alameda Point (formerly Alameda Naval Air Station) (Figure 1). The site served as a landfill for the base between 1943 and 1956 and received primarily solid waste including old aircraft engines, garbage from ships in port, cables, scrap metal, waste oil, waste paint, waste solvents, cleaning compounds, construction debris, and low-level radiological material. The site was compacted and covered with soil. A small arms range was constructed on a portion of the site near Building 576.

Radiological control personnel from the Superintendent of Shipbuilding, Conversion, and Repair, Portsmouth, Virginia (SSPORTS) Environmental Detachment Vallejo, CA were conducting a radiation survey of the IR-1 landfill site during the week of September 28, 1998 when they located a single 20mm high explosive projectile approximately 100 yds east of the small arms range backstop. Additional projectiles were found on October 8,1998 by the radiation survey team near the right edge of the small arms range backstop. Air Force Explosive Ordnance Disposal (EOD) personnel from Travis Air Force Base responding to this incident removed over twenty 20mm projectiles. Several were suspected to contain high explosive, the remainder were "practice" (inert non-explosive) projectiles. SSPORTS Unexploded Ordnance (UXO) Program representatives visited the site on 10/9/98 with Roger Caswell of the Alameda Point Navy Transition Office and observed additional projectiles in the same location near the range backstop (Figure 2). Since approximately 8 acres of the IR-1 landfill site remained to be surveyed and because of the risk posed by the ordnance found there, the radiation survey was suspended until a surface clearance of exposed ordnance could be accomplished.

A phone conversation on October 13, 1998 with the former NAS Alameda Explosive Safety Manager (Mr. Winkleman) indicates that fired 20mm projectiles from aircraft gun testing were disposed of near the small arms range within the IR-1 landfill site. Although it was standard procedure to use "practice" rounds with inert projectiles for function testing of guns, improper clearing of high explosive rounds from the gun feed systems prior to testing may have resulted in some live rounds being fired.

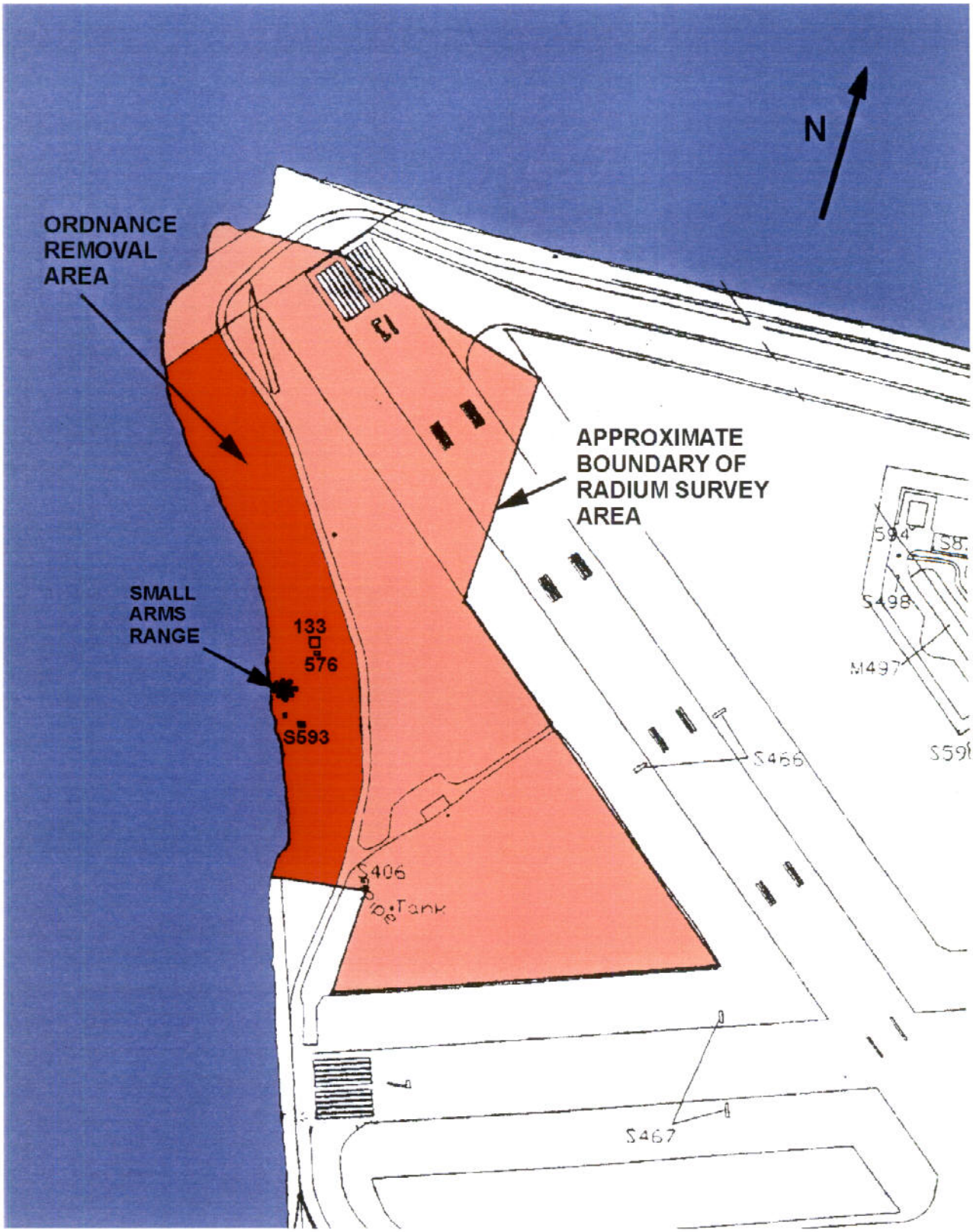

FIGURE 1 – INSTALLATION RESTORATION SITE 1 LAYOUT

FIGURE 2 – 20MM PROJECTILES ON SURFACE (9 OCT 98)

The ordnance removal was accomplished by SSPORTS Environmental Detachment Vallejo under contract to Engineering Field Activity (EFA) West. The removal fulfilled all actions specified by the EFA West Scope of Work for IR Site #1 dated October 19, 1998.

2. SITE RISK ASSESSMENT

Military munitions are designed to injure or kill people and/or to damage or destroy property. The presence or suspected presence of military munitions therefore creates unique challenges due to explosives safety concerns. Discarded live ordnance is also classified as hazardous waste (by the Military Munitions Rule, 40 CFR Part 266 Subpart M (references 3 and 4).

20mm high explosive projectiles are approximately 3 inches long, 7/8 inches in diameter, and contain a small quantity of high explosive in a steel body (Figure 3). They utilize a point detonating fuze designed to be armed by the firing process and then detonated by contact with a solid surface. Since all recovered projectiles have been fired, the fuzes are assumed to be armed. Detonation of the projectile by impact, rough handling, static electricity, etc. could cause severe injury to persons in the vicinity. The

projectiles are classified as a NATO Hazard Class 1 Division 1 hazardous material because of their explosive filler.

Although the site is currently fenced and locked, authorized persons accessing the site are exposed to the hazard posed by surface ordnance material.

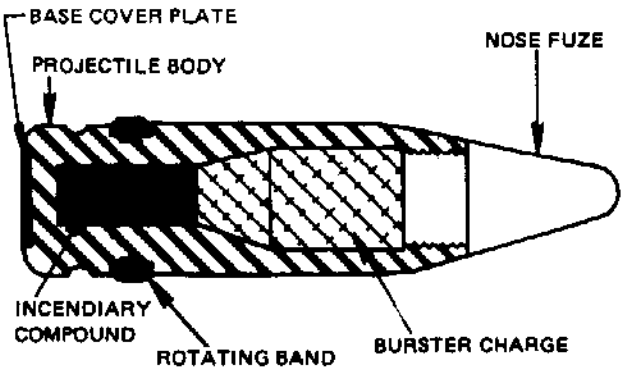

FIGURE 3 – 20mm HIGH EXPLOSIVE PROJECTILE (ACTUAL SIZE)

3. REMOVAL GOALS

The goal of the removal action was to enable the safe completion of the radiation survey by removing all accessible ordnance material. A surface sweep was planned to clear all surface ordnance material from the remaining eight acres of the site that had not yet been surveyed.. Additionally, all ordnance inside a 10 x 20 foot area located near the north edge of the small arms range backstop (Figure 4) was to be excavated since the deposit of 20mm projectiles observed there during the October 9th site visit was extremely dense and appeared to extend down into the soil.

4. SITE WORK

A team of five SSPORTS Unexploded Ordnance (UXO) workers trained and certified by the SSPORTS Explosive Safety Manager to handle ordnance accomplished the clearance of surface ordnance under the supervision of a UXO Specialist. UXO Specialists are graduates of the U.S. Navy Explosive Ordnance Disposal (EOD) School at Indian Head, Maryland who also act as On-Site Health and Safety Coordinator. The UXO Specialist provided safety oversight for the removal operation and inspected the recovered ordnance material to determine if it posed an explosive hazard. Items determined to be hazardous ordnance material were packaged, labeled, and transported to Magazine M354 to await disposal. The magazine was approved by the Naval Ordnance Center for the temporary storage of deteriorated ordnance.

FIGURE 4 – ORDNANCE AREA (WHITE TAPE) NEAR SMALL ARMS RANGE

A 1250 foot Explosive Safety Quantity Distance (ESQD) arc was enforced around the ordnance work area during clearance operations to minimize the possibility of injury to uninvolved persons. Access into the ESQD during removal operations was restricted to qualified and certified ordnance workers. All site work was conducted in accordance with the site specific Standard Operating Procedure (SOP) prepared for the clearance operation. The SOP contained elements of a site specific Work Plan and Health and Safety Plan in addition to rigid ordnance handling procedures. A briefing for all site workers that covered the health and safety aspects of the job and related ordnance standard operating procedures was completed on September 23, 1998 before the start of site work.

The eight acre section of the IR-1 landfill site not yet searched by the radiation survey team was the focus of a surface ordnance sweep. Temporary markers were used to divide the area into discrete zones that were then visually searched by clearance team members in a methodical manner. All surface ordnance material was removed, inspected by the UXO Specialist, and either placed in an onsite holding area (inert material) or in an explosive storage magazine (live material).

The ordnance deposit inside the 10 x 20 foot area near the small arms range backstop was excavated using non-sparking hand tools. Most of the ordnance recovered during the removal action came from this deposit. Ordnance was found in a layer approximately 8-12 inches thick under a bed of surface vegetation. All ordnance within the boundaries of this deposit was removed.

20mm projectiles were also found embedded in the concrete support anchors for range targets and in personnel walkways at the 50 foot firing line (Figure 5). This observation supports verbal reports from Mr. Winkleman that fired projectiles were used as aggregate in concrete structures at the range. Projectiles entrained in the concrete were not removed.

FIGURE 5 –20MM PROJECTILES ENTRAINED IN CONCRETE

Another apparent ordnance "burial site" was discovered during the surface sweep but was not excavated since it's boundaries could not be accurately defined and since it was possible to clear ordnance from the surface with some confidence that radiation survey personnel would not disturb additional items. The site is located on the north side of the small arms range at the toe of the backstop berm.

A total of 335 live 20mm high explosive projectiles and 2 live small arms cartridges (one .45 caliber ball round, and one .30 caliber ball round) were recovered during the removal action. Additional inert ordnance material recovered included: 12,259 20mm

projectiles (Figure 6), 1,686 .50 caliber armor piercing projectiles, and 359 assorted brass cartridge cases.

Also discovered during the surface sweep were a portion of the arming mechanism from a 40mm high explosive dual purpose (HEDP) grenade fuze together with the remains of electric blasting cap leads, packaging, and firing wire. This evidence would indicate that ordnance disposal operations had been conducted in the area at some time.

FIGURE 6 – RECOVERED INERT 20MM PROJECTILES

5. DISPOSITION OF RECOVERED MATERIAL

Material recovered from the site was categorized by a UXO Specialist as either hazardous ordnance material or non-hazardous ordnance material.

Hazardous ordnance material was packed with inert filler material into metal containers and placed in Magazine M354 for temporary storage. Onsite disposal of the recovered material was accomplished on December 2, 1998 by SSPORTS Unexploded Ordnance Specialists using the process of open detonation. The disposal operation met the criteria for an emergency disposal authorized by Code of Federal Regulations (CFR) 40

Section 270.1 (c) (3) to mitigate "...an immediate threat to human health, public safety, property, or the environment from the known or suspected presence of military munitions...". The emergency disposal classification was verified by Mr. Dan Swienton of the Alameda Point Navy Transition Office in a phone conversation with Mr. James Stettler of the U.S. Environmental Protection Agency on November 30, 1998.

Ordnance items inspected by a UXO Specialist and determined not to pose an ordnance hazard (non-hazardous ordnance material) were placed in bins for recycling through the Defense Reutilization and Marketing Office (DRMO). The written certification by a SSPORTS Unexploded Ordnance Specialist verifying the material to be non-hazardous was provided to allow acceptance by DRMO.

6. SUMMARY AND RECOMMENDATIONS

The goal of the emergency removal action, to clear surface ordnance and allow completion of the radiation survey, was achieved.

The IR-1 landfill site was found to contain additional subsurface ordnance material. The Military Munitions Rule (40 CFR Part 266 Subpart M) classifies discarded inert ordnance material as solid waste and live ordnance as hazardous waste. As a known ordnance area, the land transfer restrictions imposed by the Department of Defense Explosives Safety Board (DDESB) for land converted to private sector use apply to the IR-1 landfill site. The required ordnance clearance depth will be based on the planned reuse of the site, in order to maintain public safety in accordance with Chapter 12 of the Department Of Defense Ammunition and Explosives Safety Standards (DOD 6055.9-STD).

Accomplishment of a UXO Preliminary Assessment and Site Investigation should be accomplished to determine the actual scope of ordnance contamination at the site. Results of those studies would determine what additional UXO removal work is required before the property can be transferred for unrestricted public use.

In the interim, a UXO screening operation to assure the safety of workers should be included as part of any intrusive work accomplished at the site (e.g., the removal of radiation anomalies and remediation of the range backstop soil).

GLOSSARY OF TERMS

FUZE - The component of a projectile, bomb, or other explosive device designed to initiate the explosive sequence leading to detonation of the device's main charge. Fuzes usually contain very sensitive and energetic explosive materials.

HIGH EXPLOSIVE – A substance that, once initiated, reacts with virtually instantaneous and continuous speed through the total mass, causing very high blast pressures and a widespread shattering effect.

INERT - The term used to describe ordnance that does not contain explosive material. Ordnance is considered to be live unless certified inert by competent authority (qualified Explosive Ordnance Disposal personnel).

MAGAZINE -Building or structure used for the storage of ammunition and explosives.

ORDNANCE - Any device (or component of a device) which contains or is designed to contain explosive material. This includes propellant, projectiles, bulk explosive, primers, fuzes, small arms ammunition, pyrotechnics, etc.

ORDNANCE CONTAMINATION - Term describing the uncontrolled presence of ordnance items or components in an area. In the context of this report, the term does not imply chemical contamination of soil or structures attributed to explosive material (unless specifically stated).

PROJECTILE - Component which is launched by a firing device (rifle, pistol, cannon, etc.) toward a target. Projectiles can be inert or can contain explosive materials (fuze, booster, main charge, etc.). Most projectiles 20mm and larger contain explosives.

EXPLOSIVE SAFETY QUANTITY-DISTANCE – A safety zone established around explosive facilities or operations to minimize property damage and personnel injuries in the event of an accidental detonation.

SMALL ARMS AMMUNITION - Ammunition up to .60 caliber designed for use in man portable weapons (rifles, pistols, shotguns, etc.) consisting of an integral cartridge case, primer, propellant, and inert (non-explosive) projectile that may contain small amounts of tracer or incendiary compounds.

STANDARD OPERATING PROCEDURE - A document which prescribes exact instructions for personnel to follow in performing a specific task involving explosives.

REFERENCES

1. "Department Of Defense Ammunition and Explosives Safety Standards", DOD 6055.9-STD, Under Secretary of Defense for Acquisition and Technology, August 1997

2. "Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation, and Shipping", Naval Sea Systems Command Ordnance Procedure 5 (NAVSEA OP 5), Volume 1, Sixth Revision, Change 2, March 1997

3. "Military Munitions Rule", Federal Register 62 FR 6621, February 12, 1997

4. Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities – Military Munitions, 40 CFR, Part 266, Subpart M