INSTALLATION RESTORATION PROGRAM
SITES 24 & 25
CLOSED PISTOL RANGES
NAVAL WEAPONS STATION EARLE

REMEDIAL ACTION REPORT

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1. INTRODUCTION

The Installation Restoration Program at Naval Weapons Station Earle addresses sites where previous activities may have caused or have the potential to cause environmental impact.

As a consequence of the use of Sites 24 and 25 as pistol ranges, a significant amount of small caliber inert metal bullet casings were deposited in the sandy impact berms and in the firing line areas.

A removal action was selected which consisted of mechanical separation of the metal bullets from the sandy impact berm soils, and subsequent washing of the soils. The removal action would serve to minimize the potential for run off of metals in surface water and groundwater from the site. This action was consistent with Navy policy to close existing small arms ranges that are no longer required to support mission requirements in a manner that protects the environment.

The project was executed by the Navy's contractor (Metcalf & Eddy operated mechanical separation equipment and Foster Wheeler provided overall project management and arranged for disposal of residuals) and Navy civilian personnel who operated earth moving equipment. The remedial action took place in September 1996.

2. ACTION TAKEN

(a) Site Worker Safety and Health

All personnel involved in this remedial action were provided with the proper training with regard to site hazards (lead dust, etc.). Occupational safety and health site-specific training was provided on August 27, 1996 and again on September 9, 1996. A Site Safety Plan was prepared, distributed and discussed (Appendix A) as part of the training. Protective gear was made available to all site workers.

(b) Remedial Action

An Action Memorandum and Engineering Evaluation and Cost Analysis (EECA) was prepared in July, 1996. Public Notice of this action was provided in the Asbury Park Press on July 17, 18 and 19 of 1996. The United States Environmental Protection Agency was supportive of this effort in their letter of August 9, 1996 (All located in Appendix B).

Over the period September 13 - 28 of 1996, approximately 1500 tons of soil (total) removed from the pistol range impact berms and firing lines was processed. An additional process unit ("clarifier") was added to the original process scheme to remove heavy humic material unearthed from the firing line areas of both ranges. A total of ten (10) tons of small caliber metal bullet shells were recovered. The bullets will be sold to a metal recycler (anticipated sale price = $4,000). The washed soils were re-placed on the sites; the non-hazardous process water (6,500 gallons) was directed to the Station's wastewater treatment plant; the clarifier contents (69 tons of humic sediment material) was sent to an asphalt batch plant for recycling (see Appendix C for disposal documentation). Other clean sediment is being recycled as road fill material on the Station.

(c) Sampling/Analysis Results

Sampling and analysis was conducted for industrial hygiene (air sampling), to characterize the site soils after excavation and treatment, to assure the acceptability of process water residuals at the Station's wastewater treatment plant and to properly identify clarifier material and sediments for disposal. Additionally, previous documents identified the existence of treated railroad ties at the sites, therefore samples from the sites were analyzed for target analyte list (TAL) and target compound list (TCL) constituents in conformance with the Action Memorandum.

Air sampling results were sufficiently below levels requiring respirator use. Therefore, the requirement for respirator use was relaxed for workers upon receipt of this analysis report.

Post excavation analysis results confirmed that the Environmental Protection Agency's clean up guidance criteria (400 mg/kg for lead) was met. The following post excavation results are provided:

Location	Result (mg/kg)
Site 24 (North Range-berm) (NR-PE1)	3.1
Site 24 (North Range-firing line) (NR-PE2)	9.8
Site 25 (South Range-firing line) (SR-PE1)	15.4
Site 25 (South Range-berm)	176.0

Soils re-placed on the sites tested as 14.6, 38.3, 34.9 and 66.2 mg/kg; all well below the 400 mg/kg guidance criteria. Clarifier sediments tested at 6.6 and 1500 mg/kg total lead. Prior to shipping the clarifier sediment dumpsters off site, a dessicant had to be added to each of the three dumpsters in order to reduce the amount of free liquids. Toxic Characteristic Leachate Potential (TCLP) tests subsequently performed yielded a non-hazardous designation for disposal purposes. Process bin sediments had 59.8 and 360 mg/kg total lead, enabling their further use as road fill material.

Target analyte list and target compound list compounds were analyzed for; the majority of the compounds detected are consistent with creosote treated lumber. The presence of pesticides (4,4 DDE and 4,4 DDT) was detected in the sample at Site 25 at levels well below Residential Cleanup Standards.

Analytical results and a post excavation sampling schematic is provided in Appendix D.

3. PLANNED ACTION

(a) Site Restoration

Site 25 will be revegetated in the Spring of 1997 so as to blend in with the surrounding tree stands; Site 24 will be established as a recreation area, primarily for archery. The archery range will be designed and constructed in 1997.

4. CONCLUSION

The remedial actions taken at the closed pistol ranges identified as Sites 24 and 25 have been completed within the guidelines set by the United States Environmental Protection Agency.