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DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY GARRISON COMMAND
1733 PLEASANTON ROAD
FORT BLISS, TEXAS 79916-6812

December 22, 2005

ENTERED

REPLY TO
ATTENTION OF:

Directorate of Environment

Mr. James Bearzi, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303



RE: Notification of Completion of Closure
Open Detonation Unit, McGregor Range
U.S. Army Air Defense Artillery Center and Fort Bliss (Fort Bliss)
Hazardous Waste Facility Permit NM 4213720101-01


Dear Mr. Bearzi:

The Closure Certification Report for the Fort Bliss Open Detonation Unit (OD Unit) is enclosed. The report describes all site characterization work, confirmation and verification sampling results, and remediation/restoration activities completed.

As certified by Susan Tighe Litherland, PE, the OD Unit meets the clean closure requirements of Permit Attachment F (Closure Plan); and Fort Bliss, therefore, requests that NMED consider closure of this site with no further action required.

The 2005 Compliance Sampling Results Report will be completed and sent to NMED in February 2006. If you need additional information about the Closure Report or Compliance Sampling Report, please do not hesitate to call Patricia McKernan at (915) 568-2688.

Sincerely,

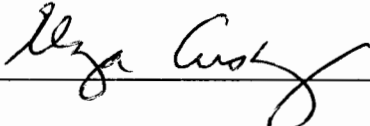
for 
Keith Landreth
Director of Environment

Copies furnished:

John Kieling, NMED
David Cobrain, NMED
Patricia McKernan, Fort Bliss DOE

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.



for

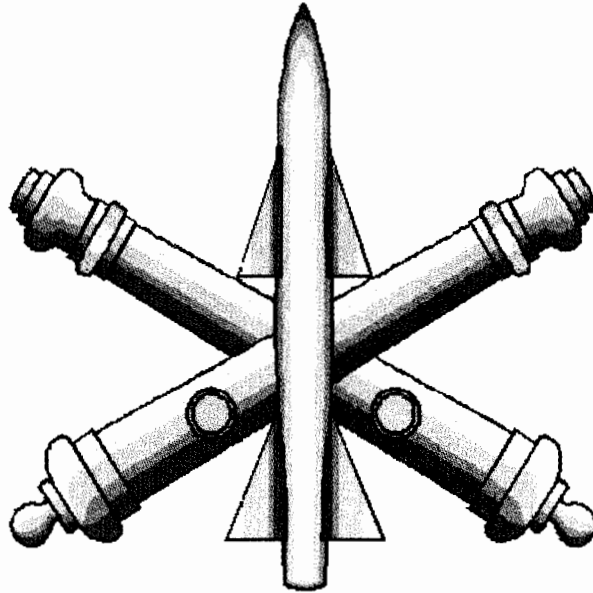
KEITH LANDRETH, Director
Directorate of Environment
Fort Bliss

12-22-05

(date)

**CLOSURE CERTIFICATION REPORT
McGREGOR RANGE OPEN DETONATION (OD) UNIT**

FORT BLISS, NEW MEXICO



I have read and understand the information in this report and believe it to be an accurate representation of the conditions at the McGregor Range Open Detonation Unit. This Closure Certification Report is being submitted in accordance with the RCRA Subpart X Permit Closure Plan (Permit No. NM4213720101.01)

A handwritten signature in black ink, appearing to read "Susan Tighe Litherland".

Susan Tighe Litherland
New Mexico PE Registration No. 9710
20 December 2005



**CLOSURE CERTIFICATION REPORT
McGREGOR RANGE OPEN DETONATION UNIT
FORT BLISS, NEW MEXICO**

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**CLOSURE CERTIFICATION REPORT
McGREGOR RANGE OPEN DETONATION UNIT
FORT BLISS, NEW MEXICO**

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**CLOSURE CERTIFICATION REPORT
McGREGOR RANGE OPEN DETONATION UNIT
FORT BLISS, NEW MEXICO**

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**CLOSURE CERTIFICATION REPORT
McGREGOR RANGE OPEN DETONATION UNIT
FORT BLISS, NEW MEXICO**

LIST OF ACRONYMS

ACRONYM	DEFINITION
bgs	below ground surface
COC	Chain-of-custody
DNT	Dinitrotoluene
EOD	Explosives Ordnance Detachment
EPA	U.S. Environmental Protection Agency
ETC	Environmental Testing and Consulting, Inc.
GPS	Global Positioning System
kg	kilogram
mg/kg	milligrams per kilogram
MS/MSD	matrix spike/matrix spike duplicate
NMED	New Mexico Environment Department
OD	Open Detonation
PCBs	polychlorinated biphenyls
pg/g	picograms per gram
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
SDG	Sample Delivery Group
SQL	Sample Quantitation Limit
SSLs	Soil Screening Levels
TCDD	tetra chlorinated dibenzodioxin
TEF	toxicity equivalency factor
TEQ	toxicity equivalence

**CLOSURE CERTIFICATION REPORT
McGREGOR RANGE OPEN DETONATION UNIT
FORT BLISS, NEW MEXICO**

LIST OF ACRONYMS (Continued)

ACRONYM	DEFINITION
TNT	trinitrotoluene
UCL	upper confidence limit
ug/L	micrograms per liter
USACE	U.S. Army Corps of Engineers
UXO	unexploded ordnance
WESTON	Weston Solutions, Inc.
WSMR	White Sands Missile Range

EXECUTIVE SUMMARY

ES.1 BACKGROUND

In June 1995, a Final Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Operational Permit (Permit) was issued to the U.S. Army Air Defense Artillery Center and Fort Bliss (Fort Bliss) by the New Mexico Environment Department (NMED, 1995). This Permit, EPA ID No. NM4213720101-01, authorized treatment of hazardous waste munitions by open detonation at the McGregor Range Open Detonation Treatment Unit (OD Unit). Permit Attachment F is the Closure Plan, and it reflects procedures agreed to between NMED and Fort Bliss on how the OD Unit is to be closed. The latest revision to the Closure Plan was submitted by Fort Bliss on 22 June 2005 and approved by NMED through a Class I Permit Modification on 7 July 2005. On 28 June 2005, Fort Bliss informed NMED of their intention to close the OD Unit because of lack of activity at the site.

ES.2 SITE CHARACTERIZATION

The OD Unit Site Characterization involved inspecting the condition of the OD Unit and associated features, collecting surface and near-surface soil samples in and around the OD Unit, collecting background samples, and completing one deep soil boring in the bottom of the OD Unit. The Site Characterization was conducted to evaluate the conditions at the OD Unit and determine whether the conditions are protective of human health. The results of the Site Characterization indicated that none of the analyzed organic constituents were reported at concentrations exceeding the applicable NMED residential SSLs. Arsenic was the only metal reported at concentrations above the SSLs. Three sample stations (025, 028, and 029) were reported with arsenic at levels above the range of concentrations reported across the OD Unit.

ES.3 CONFIRMATORY SAMPLING

Since only a limited number of samples were identified with arsenic above the general range of reported values, confirmation sampling was conducted. The results of the confirmatory samples revealed that the original arsenic levels were not confirmed during the re-sampling. Three of the confirmation samples were, however, reported with arsenic above the NMED Residential SSL. Several deep soil borings were completed around the OD Unit to investigate the subsurface variability of arsenic. Only one of the subsurface soil samples from one of the borings was reported with arsenic above the NMED Residential SSL.

ES.4 SITE RESTORATION

The Closure Plan provides guidelines for remediation and restoration of the OD Unit, specifically for hot spot removal to meet the cleanup standards for clean closure. Since elevated arsenic was only reported in a few locations, Fort Bliss decided to implement a hot spot removal approach. Furthermore, the Closure Plan states that when remediation of the OD Unit has been

completed, the site will be returned to as near natural grade as the available soil stock piles allow and sloped to drain. Three locations with elevated arsenic were excavated (approximately 30 total yards) and backfilled. The excavated soils were transported and disposed at an approved facility, and verification samples indicated that only one area of one excavation exhibited arsenic above the range of concentration observed at the OD Unit. Only the OD Unit access roads were graded to address erosion issues and revegetation, and other portions of the OD Unit with established vegetation and stable surface soils were not disturbed.

ES.5 CONCLUSIONS

- The occurrence of explosives has generally remained consistent over the time the OD Unit has been operated and monitored, and migration of explosives away from the OD Unit is not apparent.
- Explosives are generally not reported in near surface or subsurface soil samples (from the deep soil boring), indicating that vertical migration of explosives is not occurring.
- Organic constituents including explosives, dioxins, furans, nitrate, nitrite, and PCBs were not reported in any of the collected samples above the NMED and EPA (where NMED values were not available) Residential Human Health SSLs.
- Metals including arsenic, cadmium, chromium, copper, lead, strontium, and zinc were reported in the collected soil samples. With the exception of arsenic, none of the reported metals exceed the NMED Residential SSLs. Based on the location of the elevated arsenic (not close to the area where OD activities occurred) and literature stating average concentrations of arsenic in New Mexico, the presence of arsenic is believed to represent natural variations given the depositional history of the area encompassing the OD Unit.
- Site remediation and restoration activities were completed to address three arsenic hot spots, and verification samples indicated most of the soils containing elevated arsenic were removed. Only one location was reported with arsenic above the general range of concentration observed at the OD Unit.
- The 95% UCL of the soil conditions after hot spot remediation show that the overall arsenic concentration at the OD Unit is below the NMED SSL, and thus satisfies the clean closure requirement of the Closure Plan.
- The Closure Plan has been successfully implemented and the general requirements and provisions have been completed.

ES.6 PETITION FOR CLOSURE

The available data and information indicates that the OD Unit poses an acceptable risk to human health and the environment by virtue of not exceeding the established SSLs. The conditions at the OD Unit meet the clean closure requirements of the Closure Plan. Fort Bliss, therefore, requests that NMED consider closure of this site with no further action required.

SECTION 1 INTRODUCTION

In June 1995, a Final Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Operational Permit (Permit) was issued to the U.S. Army Air Defense Artillery Center and Fort Bliss (Fort Bliss) by the New Mexico Environment Department (NMED, 1995). This Permit, EPA ID No. NM4213720101-01, authorized treatment of hazardous waste (munitions) by open detonation at the McGregor Range Open Detonation Treatment Unit (OD Unit). The Permit authorized treatment of munitions for a period of 10 years, at which time a renewal would be required. Fort Bliss decided not to renew the Operational Permit and notified NMED of their intent to close the OD Unit on 28 June 2005.

This document represents the Closure Certification Report for the OD Unit and was prepared in accordance with the specifications provided in the Closure Plan (Permit Attachment F). The Closure Plan was updated by Fort Bliss, provided to NMED on 22 June 2005, and the permit modification for the updated Closure Plan was approved by NMED on 7 July 2005.

1.1 OBJECTIVE OF CLOSURE

The Permit Closure Plan requires that the OD Unit be “clean closed,” and the Residential Soil Screening Levels (SSLs) established by NMED have been used as the closure standards. Decontamination and decommissioning of any structures are required to meet the closure standards, with the objective of eliminating post closure care. To meet this objective, site characterization and hot spot remediation were conducted.

1.2 SITE BACKGROUND AND DESCRIPTION

The OD Unit is located in the northern portion of the Fort Bliss Military Reservation within the McGregor Firing Range (FAW-10). The location is approximately 7 miles east of the McGregor Range Camp within the impact area for ballistic aerial targets, large-caliber munitions, and guided rockets. Operations at the OD Unit were only conducted when McGregor Range was inactive. A location map for the OD Unit is provided as Figure 1-1.

The McGregor Range OD Unit has been in operation since 1965. Fort Bliss currently operates an Explosive Ordnance Detachment (EOD) that historically controlled and performed work at the OD Unit. The 741st EOD conducted explosives demolition (generally small) at the OD Unit approximately 1 to 2 times per quarter, or on an as needed emergency basis. The OD Unit was operated under RCRA interim status as a hazardous waste thermal treatment facility until the Permit was approved and issued in 1995. Afterward, the OD Unit was operated and utilized according to the requirements specified in the Operational Permit and subsequent modifications. Quantities of explosives (net explosive weight) that were allowed for treatment (detonation) according to the Permit (modification dated 9 May 1996) were 2,500 pounds or

1,135 kilograms (kg) per quarter. Military chemical warfare agents and related compounds, or materials contaminated with or suspected of being contaminated with these agents or compounds, were not destroyed (treated) at the OD Unit. Also, munitions fitted with depleted uranium and similar warfare agents were not treated at the OD Unit.

The OD Unit is a manmade excavation and the dimensions are approximately 500 feet by 200 feet by 30 feet deep. A site plan of the OD Unit is provided as Figure 1-2. Prior to the first compliance sampling event in 1996, the bottom of the OD Unit was regraded to remove vegetation (required by the Permit) and to provide for an emergency exit road for trucks that carry the munitions to the OD Unit. A 6-foot tall chain link fence with lockable gates was constructed around the OD Unit to control access. In June 1996, a storm water diversion and control system was constructed to prevent excess storm water from a nearby arroyo from entering the OD Unit. This measure was implemented, as required by the Permit, to eliminate entry of storm water and to mitigate the potential for standing water in the bottom of the OD Unit. Photographs of the OD Unit, collected during the closure activities, are provided in Appendix A.

As required by the Permit, Fort Bliss completed an initial Site Investigation of the OD Unit in September 1995. Surface, near-surface, and subsurface soil samples were collected and submitted for metals, selected inorganic species, and organic compound analyses. Results of the initial Site Investigation revealed the presence of explosives, metals, and nitrate; primarily in surface soils in the western portion and along the western perimeter of the OD Unit. Once the initial investigation of the OD Unit was completed, compliance sampling was performed from 1996 to 2004 as required by the Permit. The results of the compliance sampling were compared to those of the initial characterization to evaluate whether any changes in conditions had occurred. Based on the results of the compliance sampling events, no substantial change in conditions was ever identified.

In December 2000, Fort Bliss petitioned for and received a Permit Modification (the fourth issued by NMED) to allow receipt and demolition of waste military munitions from the nearby White Sands Missile Range (WSMR). However, no waste military munitions from WSMR were ever received at the Fort Bliss OD Unit.

Because of limited use over the last two years, Fort Bliss decided not to renew the Operational Permit for the OD Unit. At the request of NMED (3 March 2005 and 10 June 2005), Fort Bliss revised the Permit Closure Plan to provide additional details regarding establishment of background metals concentrations, definition of screening criteria that would be used to evaluate the site conditions, and additional details regarding the hazards survey and other activities. Fort Bliss addressed the issues identified by NMED and submitted a revised Closure Plan to NMED on 22 June 2005. A notification of intent to close was issued to NMED on 28 June 2005, and NMED approved the Class I Permit Modification for the updated Closure Plan on 7 July 2005. NMED also approved Fort Bliss' request to begin the 2005 sampling required by the Permit in July rather than August. A copy of the Closure Plan is included as Appendix B.

1.3 CLOSURE CERTIFICATION REPORT FORMAT

The remainder of this Closure Certification Report details the activities that Fort Bliss conducted to achieve closure of the OD Unit. The activities are in accordance with the Closure Plan, and the remainder of this report has been formatted as follows:

- Section 2 – Site Characterization
- Section 3 – Confirmation Sampling
- Section 4 – Remedial Actions
- Section 5 – Summary and Closure Petition
- Section 6 – References

Reference and supporting documentation is also provided with this Closure Report as summarized below, and figures and tables have been placed at the end of each section where first reference.

- Appendix A – Photographic Documentation
- Appendix B – Closure Plan
- Appendix C – Analytical Laboratory Reports
- Appendix D – Data Validation Narrative Report
- Appendix E – Analytical Data Summary Tables
- Appendix F – Health Hazard Survey from William Beaumont Army Medical Center
- Appendix G – Soil Disposal Manifests