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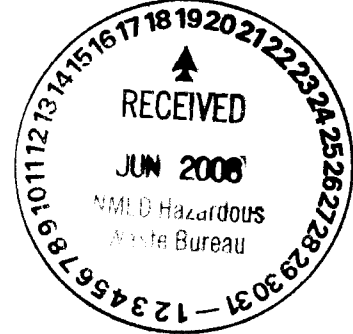
**DEPARTMENT OF THE ARMY**  
HEADQUARTERS, U. S. ARMY AIR DEFENSE ARTILLERY CENTER AND FORT BLISS  
1733 PLEASANTON ROAD  
FORT BLISS, TEXAS 79916-6816

June 15, 2006

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: Request for Class I Permit Modification with prior written approval for  
U.S. Army Air Defense Artillery Center and Fort Bliss (Fort Bliss)  
Open Detonation Unit, Fort Bliss, New Mexico  
Hazardous Waste Facility Permit NM 4213720101-01

Dear Mr. Bearzi:

Fort Bliss requests a Class I Permit Modification with prior written approval of the New Mexico Environment Department. Fort Bliss requests the permit modification to specify that the closure standards for the Open Detonation Unit be the Residential New Mexico Soil Screening Levels.

We appreciate your consideration of this request and enclose the revised Closure Plan (Permit Attachment F) for your review. If you need additional information, please do not hesitate to call Patricia McKernan at (915) 568-2688.

Sincerely,

Keith Landreth  
Director of Environment

Enclosure (Permit Attachment F – Closure Plan)

Copy with enclosure:  
Cheryl Frischkorn, NMED HWB

Copies of letter furnished:  
John Kieling, NMED HWB  
Tammy Diaz, NMED HWB  
David Cobrain, NMED HWB

Patricia McKernan, Fort Bliss DOE  
Ron Baca, Fort Bliss DOE

PERMIT ATTACHMENT F  
CLOSURE PLAN

This copy is enclosed for your convenience in reviewing the Closure Plan.  
Deleted phrases are marked with double strikethrough; inserted paragraph (page  
14) is highlighted.

## PERMIT ATTACHMENT F CLOSURE PLAN

This chapter contains the closure plan that describes the activities necessary to close the U.S. Army Air Defense Artillery Center and Fort Bliss (USAADACENFB) Open Detonation (OD) thermal treatment unit. This plan was submitted to the New Mexico Environment Department (NMED) in accordance with the requirements of HWMR-7, Part IX, §270.14(b)(13).

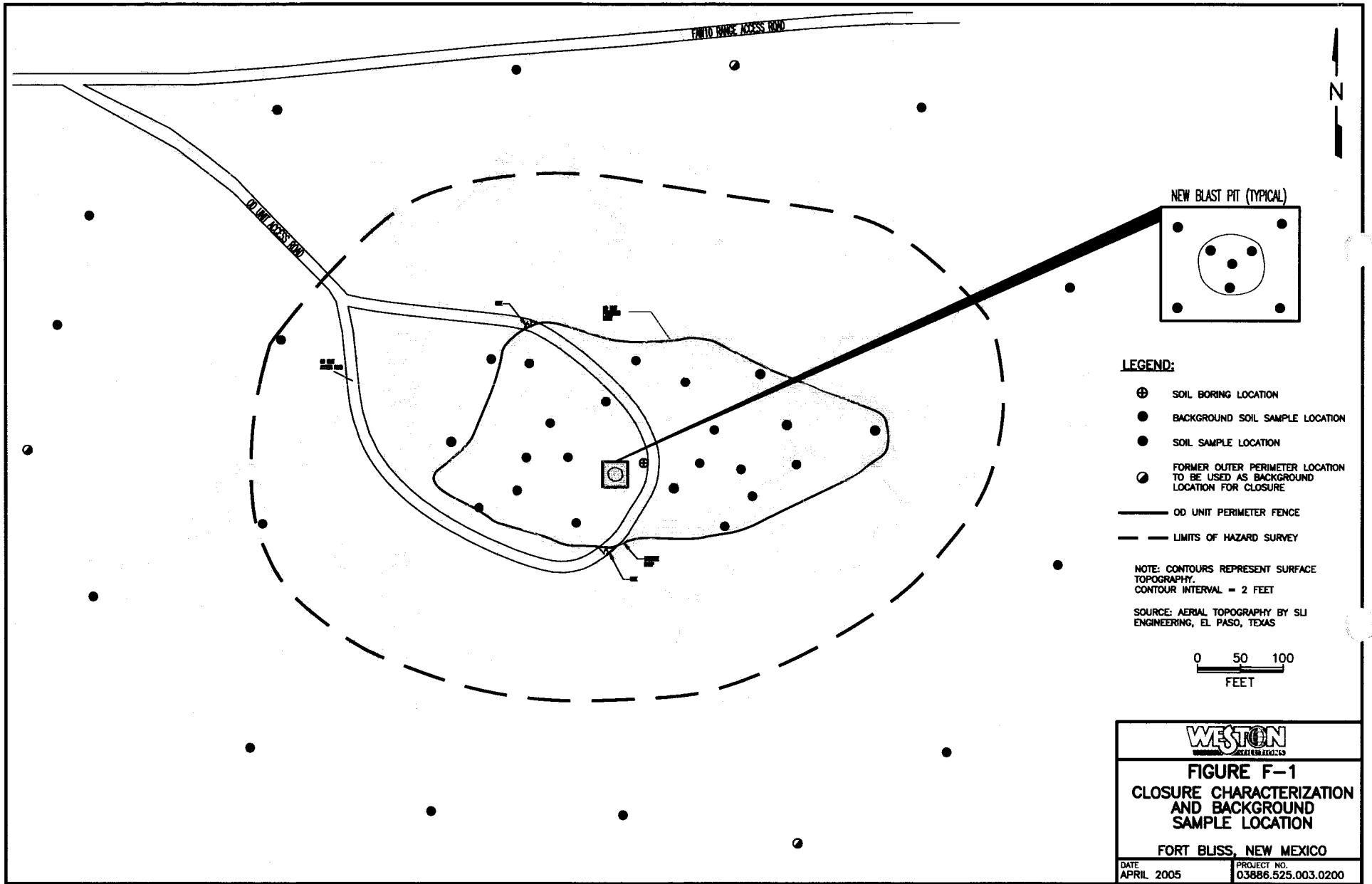
Closure of the OD treatment unit must include decontamination and decommissioning of all OD structures and equipment. As shown on Figure F-1, this unit is a fenced excavation approximately 30 feet deep, so the fence is the only equipment or structure existing at the site. Blast pits within the larger excavation are used to limit kick-out and contaminant migration. Groundwater is 400 to 600 feet below ground surface. Compliance sampling has been conducted for ten years and constituents of concern have not been found above NMED residential SSLs or the background values established during the Initial Site Investigation in 1995.

Until final closure of the OD thermal treatment unit is complete and has been certified in accordance with HWMR-7, Part V, §264.115, a copy of the approved plan and all approved revisions will be on file at the USAADACENFB Directorate of Environment (DOE) Office and available to the Secretary of the NMED or the EPA Regional Administrator upon request.

### CLOSURE PERFORMANCE STANDARDS

The OD treatment unit is intended to be clean closed. The latest update to the New Mexico Residential Soil Screening Levels (SSLs) ~~and background values established for Resource Conservation and Recovery Act (RCRA) metals~~ will be used as the closure standards. To meet the requirements of "clean closure," all wastes and waste residues will be removed from the OD treatment unit and associated structures. Soil contaminated with hazardous constituents will be excavated and removed. There should be no post-closure migration of hazardous waste, hazardous waste constituents, or hazardous waste decomposition products to ground or surface waters or the atmosphere. Decontamination activities will help to ensure the removal of waste residues to levels acceptable to NMED, and further maintenance or post-closure care should not be necessary. Closure will be to NMED Residential SSLs, ~~and background metals concentrations,~~ and it is anticipated that, at most, hot spot removal in and around blast pits may be required. The contaminated soil removed from any hot spot remediation will be transported to a RCRA permitted treatment, storage, or disposal (TSD) facility.

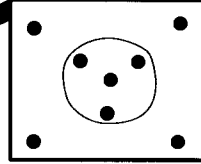
**FIGURE F-1**



FORT BLISS ACCESS ROAD

OD UNIT ACCESS ROAD

NEW BLAST PIT (TYPICAL)



**LEGEND:**

- ⊕ SOIL BORING LOCATION
- BACKGROUND SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- ⊙ FORMER OUTER PERIMETER LOCATION TO BE USED AS BACKGROUND LOCATION FOR CLOSURE
- OD UNIT PERIMETER FENCE
- - - LIMITS OF HAZARD SURVEY

NOTE: CONTOURS REPRESENT SURFACE TOPOGRAPHY.  
CONTOUR INTERVAL = 2 FEET

SOURCE: AERIAL TOPOGRAPHY BY SLI ENGINEERING, EL PASO, TEXAS



**FIGURE F-1  
CLOSURE CHARACTERIZATION  
AND BACKGROUND  
SAMPLE LOCATION**

**FORT BLISS, NEW MEXICO**

DATE APRIL 2005	PROJECT NO. 03886.525.003.0200
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## **PARTIAL CLOSURE AND FINAL CLOSURE ACTIVITIES**

### **Notice of intent to close**

USAADACENFB will notify the Secretary of the NMED, in writing, at least 90 days before the date on which partial or final closure of the OD treatment unit will commence, pursuant to HWMR-7, Part V, §264.112(a). Partial closure of the OD unit will not occur.

### **Final Closure**

Final closure activities for the OD treatment unit is scheduled for the year 2005 and will consist of (1) decontaminating and decommissioning all structures and equipment used for hazardous waste treatment; (2) decontaminating the area within the OD treatment unit; and (3) removing any hazardous waste residues to a permitted TSD facility.

Final closure of the OD treatment unit will be complete when (1) all hazardous waste and hazardous waste residues have been removed from the OD unit to a permitted TSD facility for proper management; and (2) all structures, equipment, and surrounding areas have been decontaminated.

### **Maximum Extent of Operations**

The maximum extent of operations that will be open during the term of this permit includes the Open Detonation unit.

### **Maximum Waste Inventory:**

The maximum inventory of waste expected to be in treatment at the OD unit at anytime during the life of the unit will not exceed 2,500 pounds (1,135 kilograms) Net Explosive Weight (NEW) of munitions per calendar quarter. No more than 10,000 pounds (4,539 kilograms) of NEW will be detonated in a year. Therefore, the expected waste inventory for the permitted life of the open detonation treatment unit is 100,000 pounds (45,390 kilograms) of NEW. The actual quantity of waste treated over 10 years is 1,314 pounds.

### **Schedule for Closure**

OD cleaning, sampling, and analytical activities are expected to take 180 days. Closure will proceed by the following schedule:

<b>Activity</b>	<b>Maximum Time Required</b>
Notify NMED of intent to close.	0 Days
Process final volumes of wastes.	30 Days
Completion of site characterization.	60 Days
Completion of remediation.	165 Days
Certification of closure by independent professional engineer.	175 Days
Notification of completion of closure to NMED.	180 Days

### **Amendment of the Closure Plan**

If it becomes necessary to amend the Closure Plan for the OD treatment unit, USAADACENFB will submit a written notification or request for a permit modification describing any change in operation or facility design which affects the Closure Plan in accordance with HWMR-7, Part V, §264.112(c). The written notification or request will include a copy of the amended closure plan for approval by the NMED. USAADACENFB will submit a written notification of, or request for, a permit modification to authorize a change in the current plan if:

- There are changes in operating plans, waste management design, or waste types to be treated that affect the Closure Plan
- There is a change in the expected year of closure
- Unexpected events occur during closure that require modification of the current Closure Plan
- Changes in state or federal laws affect the Closure Plan.

USAADACENFB will submit a written request, pursuant to HWMR-7, Part V, §264.112(c), for a permit modification with a copy of the amended closure plan at least 60 days prior to the proposed change in facility design or operation, or within 60 days of the occurrence of an unexpected event that affects the closure plan. If the unexpected event occurs during final closure, the permit modification will be requested within 30 days of the occurrence.

If the Secretary of the NMED requests a modification of the closure plan, a plan modified in accordance with the request will be submitted within 60 days of notification, or within 30 days if a change in facility condition occurs during final closure.

The USAADACENFB (DOE) shall be responsible for storing and updating the facility copy of the closure plan and distribution of amended/updated copies of the closure plan to the USAADACENFB Explosive Ordnance Detachment (EOD) office and the NMED.

## **CLOSURE PROCEDURES**

When the decision is made to close the OD treatment unit, all hazardous waste present at the site will be treated or removed before closure activities commence. To the extent possible, all contaminated structures and equipment will be decontaminated and removed. Any structures and equipment that cannot be decontaminated shall be dismantled, placed into containers, and managed as hazardous waste. However, as shown on Figure 1, the fence, gates, and signs are the only on-site equipment at the unit and they are not contaminated. Although USAADACENFB intends to leave the fence in place after closure, the signs will be removed from the fencing after closure since the OD Unit will be clean closed.

The first phase of closure will consist of a hazards survey of the OD treatment unit conducted by USAADACENFB industrial hygiene personnel. The purpose of the survey will be to identify potential contamination concerns that may present hazards to workers during the closure activities and to specify any control measures necessary to reduce worker risk. This survey will provide the information necessary for industrial hygiene personnel to identify worker qualifications, personal protective equipment (PPE), safety awareness, work permits, exposure control programs, and emergency coordination that will be required to perform closure. All workers involved in the closure activities will be required to have training and medical monitoring as required by applicable regulations. Personnel performing closure activities will be required to wear PPE as specified by industrial hygiene personnel.

### **Open Detonation Pit**

Following completion of the health and safety survey, the detonation pits and the OD treatment unit will be decontaminated as necessary to meet the closure standards. Soil sampling of the OD treatment unit will follow the procedures described below. The soil in the OD treatment unit will be sampled as described below, and subsequently analyzed for the parameters listed in Table F-1.

### **Maximum Extent of Unclosed Portion**

The treatment unit will remain open until complete closure. It is not anticipated that any area within the OD treatment unit will be closed separately. However, if the soil sampling proposed herein indicates that a particular operation or area is a threat to human health and the environment, USAADACENFB may opt to amend the closure plan in order to reduce the threat. This may require closure of part of the treatment unit. Appropriate regulatory approvals will be obtained if this option is necessary.



### **Removal of Waste/Residue/Contaminated Soil**

Waste, residue, or soil will not be removed from the treatment unit during the active period of the OD events. If the results of the soil sampling, proposed herein, indicate that human health and the environment are threatened by these materials, and removal is the most cost-effective corrective measure, then the necessary regulatory approvals will be sought from NMED.

### **Year of Closure**

The treatment unit capacity is not being physically consumed at a measurable rate (i.e., it is not filling up). Therefore, no operationally required closure is anticipated and there is no anticipated limit to USAADACENFB/McGregor Range operations (e.g., base closure) which would necessitate closure. However, based on low usage, USAADACENFB has decided not to renew the RCRA permit and closure will occur in 2005.

### **CLOSURE SITE ACTIVITIES**

USAADACENFB will ensure that the OD treatment unit will be closed in a manner that will minimize or eliminate any potential adverse impact to human health or the environment. USAADACENFB will also eliminate or minimize the potential for the escape of hazardous wastes, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to groundwater, surface water, or to the air upon closure.

Since it is anticipated that the unit will be 100 percent in use during the life of the unit, there will be no partial closure of this thermal treatment unit and only the complete closure of this facility will be addressed.

Closure of the OD area thermal treatment unit will be conducted in three phases:

- Phase 1 - Site Characterization
- Phase 2 - Remedial Action, if needed
- Phase 3 - Post-closure Care, if needed

## **PHASE 1 - SITE CHARACTERIZATION**

The wastes handled in the OD unit are propellants, explosives, and pyrotechnics (PEP). During previous OD activities, the maximum amount of PEP wastes on site at any time during the facility's operation to date was approximately 2,000 lbs (900 kg).

To minimize the need of further maintenance of the OD treatment unit, all visible evidence of the PEP treatment will be removed. This evidence will include, but is not limited to, discolored soils, metal fragments, and any other remnants of the detonated munitions. Additionally, the detonation area and the surrounding areas within the unit, and areas to which a fragment could be expected to be blown to by a maximum explosion will be swept with metal detecting equipment. Because the OD Unit is a 30-foot deep pit, a 200-foot radius around the pit edge will be sufficient to detect kick-out. This distance was selected based on prior observations and inspections conducted after OD activities, as well as inspections conducted prior to all of the historical compliance sampling activities where PEP and OD fragments have not been found at or beyond this distance. Due to relatively small OD blasts, the depth of the OD Unit excavation, and the use of small blast pits, kickout of PEP, fragments, and munitions remnants is very limited. The 200-foot distance was also selected so as not to encounter other munitions fragments and materials associated with the active USAADACENFB McGregor Range that surrounds the OD Unit.

The metal detecting equipment will be used to detect any metal debris beneath the surface and to ensure that there are no Unexploded Ordnance (UXO) in the surface soils. Any fragments or remnants detected with this equipment, and any residues identified during the pre-work inspection by EOD will be removed. All metal fragments, residues, soils, and other wastes removed from the unit will be characterized for hazardous waste constituents and characteristics and properly disposed of in accordance with HWMR-7, Part V, §264.111. The USAADACENFB EOD will perform or oversee the UXO and PEP survey that will be conducted prior to the Site Characterization activities. The EOD will also support and oversee the Site Characterization activities.

### **Site Sampling**

In addition to the removal of visible remnants of the PEP destruction, soil samples from the detonation pits and surrounding areas will be collected. Sampling and analysis will be conducted in accordance with EPA established protocols.

Discreet soil samples will be collected from the OD unit. All samples will be taken using a

non-sparking (plastic) scoop or other sampling device if so directed by the EOD. Sampling personnel will record the location of each sample with respect to permanent stations (or through Global Positioning System [GPS] Surveying), the date, names of sampling personnel, and other pertinent information. Permit Attachment A (Waste Analysis Plan) presents the Quality Assurance Project Management plan.

### **Surface and Near Surface Soil Sampling**

Surface and near subsurface soil samples will be collected to characterize the small scale and most recent OD blast pit(s), the interior of the larger scale OD Unit excavation, and the area around the OD Unit excavation, including the perimeter. Specific sampling details are provided below.

Surface soil samples will be collected from the most recent blast pit at a depth between surface and 6 in. (15.2 cm) at the following locations (8 samples total):

- 1 discrete sample at the bottom of the most recent OD blast pit in the excavation,
- 3 discrete samples from the sides of the most recent OD blast pit (3 total), and
- 4 discrete samples around the perimeter of the most recent OD blast pit (outside of the pit) to evaluate the effect of kick-out.

Other surface soil samples will be collected as follows (8 samples total):

- 6 discrete samples obtained from the bottom of the OD unit where OD activities have been limited over the last ten years, and none have occurred during the last three years.
- 2 discrete samples approximately 200 feet from the perimeter (to confirm lack of kickout).

Soil samples will be collected from a depth of surface to 6 in. (15.2 cm), and 6 in. (15.2 cm) to 1 foot (0.3 m) (i.e., two samples per location) at the following locations (40 samples total):

- 8 discrete random samples in the bottom and sides of the OD treatment unit (but not in the blast pits, 16 samples),
- 8 discrete sample locations from the perimeter (outside of the treatment unit excavation, 16 samples), and

- 4 unspecified sample locations to fill data gaps (8 samples).

Approximate sampling locations are shown on Figure F-1.

### **Subsurface Soil Sampling**

Additional subsurface sampling will be conducted as follows. Soil samples will be taken on 5 foot (1.5 m) intervals from a 50 foot (15.2 m) boring placed approximately in the approximate middle of the OD treatment unit and near the area of the blast pits (10 samples total). The approximate boring location is shown on Figure F-1.

### **Background Soil Sampling**

To further characterize background ~~(and establish defensible values for use in closure)~~, 15 locations within the geographic area of the OD Unit will be sampled (15 samples total). The three former outer perimeter sampling locations (and originally specified background locations) are included in this total and will be used in the background evaluation. These locations will be outside of the potential OD unit influence area and shall be analyzed for RCRA metals and explosives. The proposed background sample stations are shown on Figure F-1, and the basic orientation is a radial layout around the OD Unit.

Three background sampling stations were initially (1995) established in areas of the site that were not impacted by operation of the OD Unit. During the 1995 Site Characterization, these three locations were established north, west, and south of the OD Unit at an approximate distance of 700 feet from the center and outside of the operational influence of the OD Unit. These three background sampling stations were sampled during each compliance sampling event for the complete list of constituents of potential concern (explosives, metals, and nitrate). The compliance sampling events, however, referred to these locations as "outer perimeter locations" instead of background. Organic constituents have not been reported in any of the background sampling locations during the compliance sampling events. Based on the historical results, the 700 feet distance selected for the initial set of background locations appears appropriate for the background sampling effort associated with this Closure Plan. The background samples will be collected as surface soil samples from the interval between the surface and a depth of 6 inches (15.2 cm).

The background sample results will first be validated for usability and reviewed for the presence of explosive constituents above the sample quantitation limit. Samples found to have quality-related issues or detections of explosives will be eliminated from the background

data set, and these instances will be reviewed further as part of the overall site characterization effort. ~~The resulting background data set will then be used to calculate the 95% Upper Confidence Limit (UCL) of the mean concentration of each RCRA metal constituent. The UCL values will then become the cleanup values for evaluating the site characterization results and determining the need for and level of remedial actions required for closure.~~

### Soil Sampling Summary

In summary, the following numbers of samples will be used to characterize the site:

▪ Blast Pit Bottom	1 surface samples
▪ Blast Pit Sides	3 surface samples
▪ Blast Pit Perimeter	4 surface samples
▪ OD Unit Bottom	14 surface samples
	8 near surface samples
▪ Perimeter	10 surface samples
▪	8 near surface samples
▪ Unspecified	4 surface samples
	4 near surface samples
▪ Background	15 surface samples
▪ <u>Subsurface</u>	<u>12 soil boring samples</u>
Total	81 samples

All samples will be examined for physical evidence of UXO or unburned materials. After examination, the soils will be placed into the appropriate sample containers.

Sample containers will be placed into a cooler with ice. When sampling is completed for the day, all samples will be shipped by overnight courier to a qualified laboratory, under appropriate chain-of-custody procedures, for analysis.

Analyses will be conducted using the methods presented in Tables F-1 and F-2. Note that background samples will only be analyzed for explosives and RCRA metals.

Quality assurance and decontamination procedures are discussed in the Quality Assurance Project Management Plan (QAPMP) in the Permit Attachment A.

### Sampling Equipment Decontamination Procedures

All sampling equipment that must be reused (non-disposable equipment) will be decontaminated by the following process as specified in the QAPMP and summarized below:

1. All surfaces of the equipment that contact the sample will be washed with a Liquinox/water wash, using a scrub brush to remove any remaining soils from the previous sample.
2. After washing, the equipment will be rinsed with distilled water and allowed to air dry.
3. Following the distilled water rinse, the equipment will be spray-rinsed with ethanol or isopropyl alcohol to remove any traces of the soap.
4. A final rinse of distilled water will complete the decontamination procedure.

All decontamination liquids will be sampled upon the completion of the sampling event and characterized for disposal. These liquids will be properly disposed of during the remediation of the site. In the event that disposable sampling equipment is used, decontamination may be limited to the drilling equipment that will be used for completing the soil boring

#### **Sampling Quality Assurance/Quality Control (QA/QC)**

To ensure that the data received from the sampling event is representative of the site, quality assurance/quality control samples will be collected as specified in the QAPMP (included with Permit Attachment A). These samples include:

1. Duplicate Samples
2. Matrix Spike/Matrix Spike Duplicate Samples.
3. Equipment Rinsate Blank Samples.

Trip blanks will not be used since these are typically associated with shipments containing water samples. The only water sample anticipated for the Site Characterization phase is one equipment rinsate blank, and this will be shipped to the laboratory by itself. The required samples, waste constituents, and frequency of analysis are summarized in Table F-2.

**TABLE F-1  
 SOIL SAMPLE ANALYSES  
 EXPLOSIVES ORDNANCE DEMOLITION AREA  
 FORT BLISS, MCGREGOR RANGE  
 OTERO COUNTY, NEW MEXICO**

<b>ANALYTE</b>	<b>ANALYTICAL METHOD<sup>1</sup></b>	<b>SAMPLE VOLUME (grams)</b>
<b><u>INORGANICS:</u></b>		
Free Liquids	SW846 9095	100
Ignitability	SW846 1010	10
pH	SW846 9045C	10
Nitrate/Nitrite (as N)	EPA 300.0	10
<b><u>METALS:</u></b>		
Antimony	SW846 6010B	100-500
Arsenic <sup>2</sup>	SW846 6010B	100-500
Barium <sup>2</sup>	SW846 6010B	100-500
Beryllium	SW846 6010B	100-500
Cadmium <sup>2</sup>	SW846 6010B	100-500
Chromium <sup>2</sup>	SW846 6010B	100-500
Cobalt	SW846 6010B	100-500
Copper	SW846 6010B	100-500
Iron	SW846 6010B	100-500
Lead <sup>2</sup>	SW846 6010B	100-500
Mercury <sup>2</sup>	SW846 7471	100-500
Potassium	SW846 6010B	100-500
Selenium <sup>2</sup>	SW846 6010B	100-500
Silver <sup>2</sup>	SW846 6010B	100-500
Strontium	SW846 6010B	100-500
Zinc	SW846 6010B	100-500
<b><u>ORGANICS:</u></b>		
Picric Acid	SW846 8330	100-500
HMX	SW846 8330	100-500
RDX	SW846 8330	100-500
2,4,6-Trinitrotoluene	SW846 8330	100-500
2,4-Dinitrotoluene	SW846 8330	100-500
2,6-Dinitrotoluene	SW846 8330	100-500
Nitroglycerine	SW846 8330	100-500
Polychlorinated Biphenyls (PCBs)	SW846 8082	100-500
Polychlorinated Dibenzo Dioxins and Furans	SW846 8280	100-500

<sup>1</sup> SW846 = "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods," Environmental Protection Agency, SW846 and  
 EPA 600 = "Methods for Chemical Analyses of Water and Wastes," Environmental Protection Agency, 1979, Revised 1983.

<sup>2</sup> Represents RCRA Metals

**TABLE F-2**  
**QUALITY ASSURANCE/QUALITY CONTROL SAMPLES**

<b>SAMPLE TYPE</b>	<b>FREQUENCY</b>	<b>ANALYSES</b>
Duplicate	5%	Metals, Organics, Nitrate/Nitrite
Matrix Spike/Matrix Spike Duplicate	5%	Metals, Organics, Nitrate/Nitrite
Rinsate Blank	1 per day	Metals, Organics, Nitrate/Nitrite



## PHASE 2 - REMEDIAL ACTION

When the analytical data from the site characterization has been reviewed, the extent and nature of contamination of the thermal treatment unit will be assessed. It is not anticipated that significant amounts of contamination will be reported in the soils collected from the site. However, in the event that detectable levels of contamination are reported at the site, the following activities will be conducted.

### Establishment of Clean-up Levels

Appropriate clean-up levels will be determined for the OD treatment unit at the time of closure, based on the nature of reported contamination at the site, the potential land use for the site, and the surrounding land use. Currently, the area surrounding the unit is uninhabited and not being used for agricultural purposes or otherwise developed. At the time of the unit closure, USAADACENFB shall incorporate the status of the area into the determination of the appropriate clean-up levels for the unit and will control, minimize, or eliminate, post closure escape of hazardous waste, hazardous constituents, leachate, or hazardous waste decomposition products to the ground or to the atmosphere for the protection of human health and the environment. The latest update to the NMED residential SSLs ~~and the calculated background metals concentrations~~ will be used as the cleanup levels for determining whether remedial actions/decontamination are necessary. For metals, the site characterization results may be evaluated through statistical means (e.g. 95% UCL) to define representative concentrations for comparison to the NMED residential SSLs. This practice may be necessary because of the inherent variability of metals in soils.

### Site Remediation

Compliance sampling for the past 10 years indicates the constituents of concern do not exceed NMED residential SSLs (or the initially calculated background values), so remediation is not anticipated. The Site Characterization sampling, if it confirms that residential SSLs ~~and background~~ are not exceeded, will serve to document closure without deed recording or long-term care. If residential SSLs ~~and background~~ are not achieved in some locations, hot spot removal may be implemented to meet the cleanup standards for clean closure. USAADACENFB will assess cost and benefit at that time and request approval from NMED for hot spot removal or other options such as deed recording and implementation of post-closure care. If remediation is warranted (and selected by USAADACENFB) above any hot spot removal, this Closure Plan will be modified in accordance with NMAC 20.4.1.900. Furthermore, additional soil sampling may be required if the deepest and outermost sampling locations associated with the site characterization effort (Phase I) indicate that a release from the OD Unit has occurred. Any additional sampling will be to define the extent of the area exceeding the action levels that may warrant remedial action.

The physical changes to the OD Unit during closure will be contouring the area, specifically to lessen the slope of the OD Unit sides. The few existing spoil piles (see Figure F-1) from historically excavated material will be graded to generally match to original land contours. Any remaining small blast pits within the OD Unit (excavation) will be filled to grade with soil from the contouring or from the few piles of excavated material.

If hot spot removal is implemented, confirmation soil samples will be collected from the base and sides of the excavated area. The soil samples will be submitted for the analyses listed in Table F-1 or an abbreviated subset of analyses as appropriate. Confirmation soil samples will generally be collected from the excavation base and sides at a spacing of one per 150 square feet and one per 20 linear feet, respectively. The excavation will be backfilled once removal of contaminated soil is confirmed through sampling.

Any waste generated during the hot spot removal will be disposed in accordance with all applicable regulations during the site remediation. These wastes may include excavated soils, decontamination liquids from the sampling event, metal fragments removed from the soils, and any other waste materials on-site.

### **Site Restoration**

As described, 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. The spoil piles are shown on Figure F-1 as topographic mounds, and these will be leveled during the contouring and blast pit backfilling effort.

Because of the potential for introduction of invasive weed species, in addition to the limited area that will be disturbed during contouring, no vegetation will be planted on the remediated areas. Rather, Fort Bliss will employ a natural reseeding procedure that has proven successful in other locations on the range. Sloped areas will be mechanically raked or scored perpendicular to the grade to leave the surfaces with a rough appearance that will reduce soil erosion and promote seed trapping and germination. In areas where storm water run-on is likely to occur, 2- to 3-foot high berms will be built at about 50-meter intervals at the main water courses to reduce water speed and erosion during torrential rain events.

### **Deed Recordation**

Upon closure of this OD treatment unit, if it is determined that NMED residential SSLs can not be met, Fort Bliss will, within 60 days of completion of the closure activities, complete the following actions.

- USAADACENFB will submit a record of the type, location, and quantity of materials remaining on-site to the NMED, the EPA Regional Administrator, and the local authority with jurisdiction over land use for the site.

- USAADACENFB will file and have recorded a deed notification statement with the Otero County Clerk stating the type and levels of hazardous waste remaining on the property along with a metes and bounds description by a New Mexico licensed surveyor, indicating the restrictions on land use of the property in absence of further future remediation.. Should this be necessary, it will simply provide a second layer of protection, in as much as the OD unit is already within a federally restricted area (McGregor Range Complex Impact Area).

### **PHASE 3 – POST-CLOSURE CARE**

It is anticipated that the cleanup standards (NMED residential SSLs ~~and background metals concentrations~~) can be achieved, possibly with hot spot removal. If this is not the case, NMED industrial SSLs will be used as the closure standard and a deed notice of the site will be recorded (as a landfill). In this case, a post-closure care permit application will be submitted within 90 days of making this determination.

The geology in the vicinity of the site may minimize the potential for groundwater contamination from activities at the site. Also, the groundwater level is approximately 600 feet (182.9 m) below the surface in this area. Based upon the geology and the depth to groundwater, no groundwater monitoring is anticipated at this site. Soil analyses will be used to make the determination.

If a clean closure is not achieved, fences, containment systems around the site, and warning signs will be used and inspected at least once every six months. Any deficiencies will be corrected as soon as possible, and within no more than 30 days from the date of discovery of the deficiency.

All records for the facility during the post-closure care period will be maintained by the USAADACENFB Directorate of Environment. Any inquiries relating the closure of this unit and post closure care should be directed to:

The Director  
Directorate of Environment  
Fort Bliss, Texas 79916  
(915) 568-3782

## **SUMMARY**

The following steps provide a summary of the potential closure process for this OD treatment unit.

- (1) If the analytical results indicate that there is no residual contamination above residential SSLs ~~and/or background metals concentrations~~ on the property, the site will be returned to approximately natural contours as the available soil stockpiles allow, using earth moving equipment (i.e., bulldozers). No decontamination of the equipment will be required.
- (2) If the analytical data indicates that residual contamination, above residential SSLs ~~and/or background metals concentrations~~ but below industrial SSLs, is present at the time of closure, the property may be decontaminated to the cleanup standards by hot spot removal or be deed recorded as a landfill. USAADACENFB will weigh the economics and inform NMED. The site will be returned to approximately natural contours using earth moving equipment (i.e., bulldozers). The entire site will be graded at the time of closure; no partial closure is anticipated.
- (3) If compliance sampling indicates that the cleanup standards cannot be achieved and hot spot removal is not feasible, a post-closure care plan and application will be prepared.
- (4) There are no permanent structures (other than fencing) or equipment at the OD Unit to be decontaminated. The only decontamination potentially required will be the earth moving equipment. If necessary, the equipment will be washed over an impervious surface with pressurized water to remove any traces of potentially contaminated soils. Water will be collected, sampled for hazardous waste characteristics, and properly disposed of. It is not anticipated that removal of contaminated soils or additional sampling or testing of soils will be required.

## **LOCATION OF PLAN**

The Closure Plan will be kept at the USAADACENFB Directorate of Environment office, Fort Bliss, Texas.

## **RESPONSIBILITY FOR PLAN UPDATE**

The Director, Directorate of Environment, will be responsible for updating the Closure Plan.

## **PERMIT ATTACHMENT F CLOSURE PLAN**

This chapter contains the closure plan that describes the activities necessary to close the U.S. Army Air Defense Artillery Center and Fort Bliss (USAADACENFB) Open Detonation (OD) thermal treatment unit. This plan was submitted to the New Mexico Environment Department (NMED) in accordance with the requirements of HWMR-7, Part IX, §270.14(b)(13).

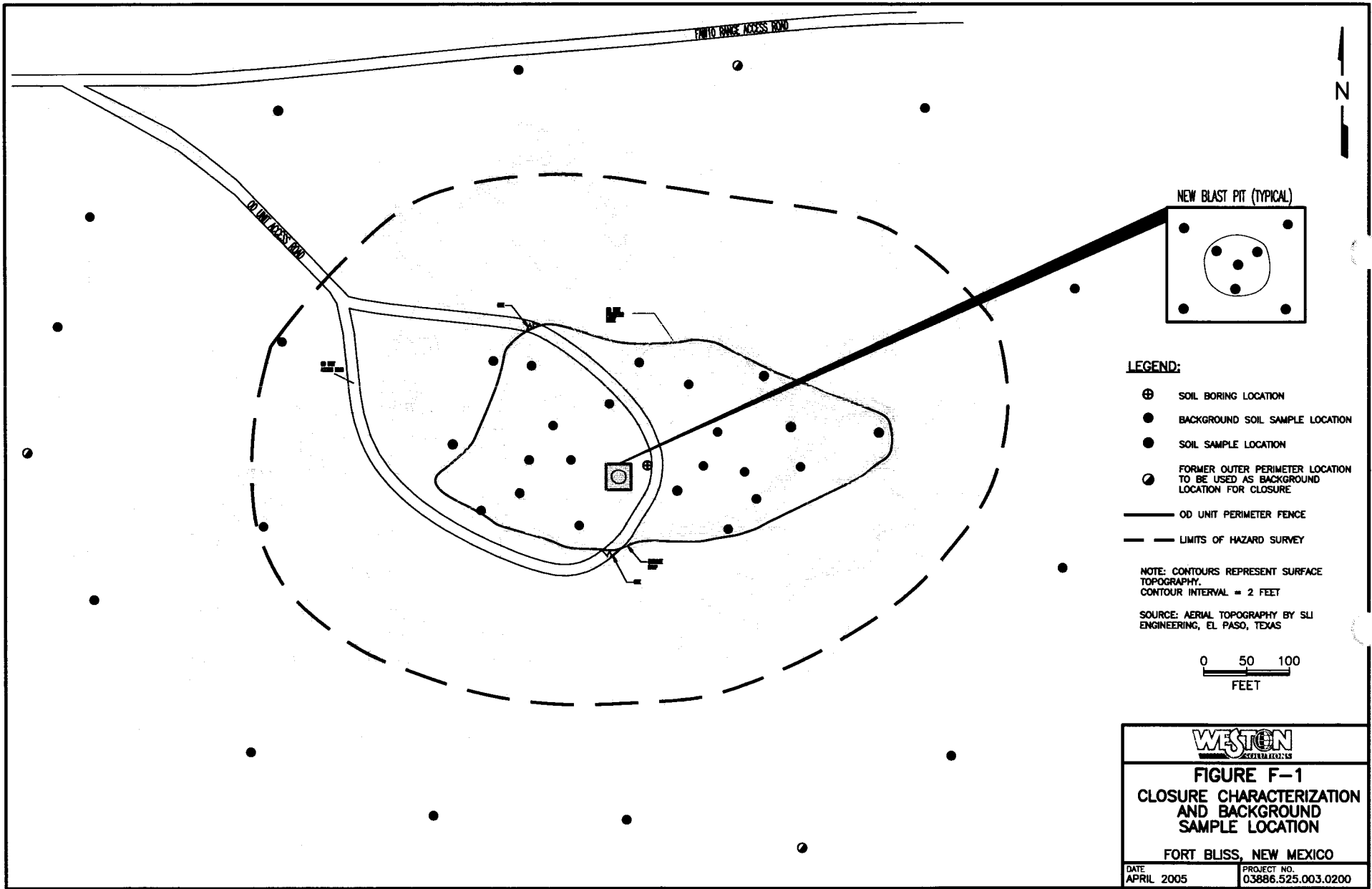
Closure of the OD treatment unit must include decontamination and decommissioning of all OD structures and equipment. As shown on Figure F-1, this unit is a fenced excavation approximately 30 feet deep, so the fence is the only equipment or structure existing at the site. Blast pits within the larger excavation are used to limit kick-out and contaminant migration. Groundwater is 400 to 600 feet below ground surface. Compliance sampling has been conducted for ten years and constituents of concern have not been found above NMED residential SSLs or the background values established during the Initial Site Investigation in 1995.

Until final closure of the OD thermal treatment unit is complete and has been certified in accordance with HWMR-7, Part V, §264.115, a copy of the approved plan and all approved revisions will be on file at the USAADACENFB Directorate of Environment (DOE) Office and available to the Secretary of the NMED or the EPA Regional Administrator upon request.

### **CLOSURE PERFORMANCE STANDARDS**

The OD treatment unit is intended to be clean closed. The latest update to the New Mexico Residential Soil Screening Levels (SSLs) will be used as the closure standards. To meet the requirements of "clean closure," all wastes and waste residues will be removed from the OD treatment unit and associated structures. Soil contaminated with hazardous constituents will be excavated and removed. There should be no post-closure migration of hazardous waste, hazardous waste constituents, or hazardous waste decomposition products to ground or surface waters or the atmosphere. Decontamination activities will help to ensure the removal of waste residues to levels acceptable to NMED, and further maintenance or post-closure care should not be necessary. Closure will be to NMED Residential SSLs; and it is anticipated that, at most, hot spot removal in and around blast pits may be required. The contaminated soil removed from any hot spot remediation will be transported to a RCRA permitted treatment, storage, or disposal (TSD) facility.

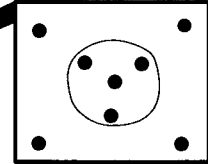
**FIGURE F-1**



FWTO RANGE ACCESS ROAD

OD UNIT ACCESS ROAD

NEW BLAST PIT (TYPICAL)



**LEGEND:**

- ⊕ SOIL BORING LOCATION
- BACKGROUND SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- FORMER OUTER PERIMETER LOCATION TO BE USED AS BACKGROUND LOCATION FOR CLOSURE
- OD UNIT PERIMETER FENCE
- - - LIMITS OF HAZARD SURVEY

NOTE: CONTOURS REPRESENT SURFACE TOPOGRAPHY.  
CONTOUR INTERVAL = 2 FEET

SOURCE: AERIAL TOPOGRAPHY BY SLI ENGINEERING, EL PASO, TEXAS

0 50 100  
FEET



**FIGURE F-1  
CLOSURE CHARACTERIZATION  
AND BACKGROUND  
SAMPLE LOCATION**

**FORT BLISS, NEW MEXICO**

DATE APRIL 2005	PROJECT NO. 03886.525.003.0200
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## **PARTIAL CLOSURE AND FINAL CLOSURE ACTIVITIES**

### **Notice of intent to close**

USAADACENFB will notify the Secretary of the NMED, in writing, at least 90 days before the date on which partial or final closure of the OD treatment unit will commence, pursuant to HWMR-7, Part V, §264.112(a). Partial closure of the OD unit will not occur.

### **Final Closure**

Final closure activities for the OD treatment unit is scheduled for the year 2005 and will consist of (1) decontaminating and decommissioning all structures and equipment used for hazardous waste treatment; (2) decontaminating the area within the OD treatment unit; and (3) removing any hazardous waste residues to a permitted TSD facility.

Final closure of the OD treatment unit will be complete when (1) all hazardous waste and hazardous waste residues have been removed from the OD unit to a permitted TSD facility for proper management; and (2) all structures, equipment, and surrounding areas have been decontaminated.

### **Maximum Extent of Operations**

The maximum extent of operations that will be open during the term of this permit includes the Open Detonation unit.

### **Maximum Waste Inventory:**

The maximum inventory of waste expected to be in treatment at the OD unit at anytime during the life of the unit will not exceed 2,500 pounds (1,135 kilograms) Net Explosive Weight (NEW) of munitions per calendar quarter. No more than 10,000 pounds (4,539 kilograms) of NEW will be detonated in a year. Therefore, the expected waste inventory for the permitted life of the open detonation treatment unit is 100,000 pounds (45,390 kilograms) of NEW. The actual quantity of waste treated over 10 years is 1,314 pounds.

### **Schedule for Closure**

OD cleaning, sampling, and analytical activities are expected to take 180 days. Closure will proceed by the following schedule:



<b>Activity</b>	<b>Maximum Time Required</b>
Notify NMED of intent to close.	0 Days
Process final volumes of wastes.	30 Days
Completion of site characterization.	60 Days
Completion of remediation.	165 Days
Certification of closure by independent professional engineer.	175 Days
Notification of completion of closure to NMED.	180 Days

### **Amendment of the Closure Plan**

If it becomes necessary to amend the Closure Plan for the OD treatment unit, USAADACENFB will submit a written notification or request for a permit modification describing any change in operation or facility design which affects the Closure Plan in accordance with HWMR-7, Part V, §264.112(c). The written notification or request will include a copy of the amended closure plan for approval by the NMED. USAADACENFB will submit a written notification of, or request for, a permit modification to authorize a change in the current plan if:

- There are changes in operating plans, waste management design, or waste types to be treated that affect the Closure Plan
- There is a change in the expected year of closure
- Unexpected events occur during closure that require modification of the current Closure Plan
- Changes in state or federal laws affect the Closure Plan.

USAADACENFB will submit a written request, pursuant to HWMR-7, Part V, §264.112(c), for a permit modification with a copy of the amended closure plan at least 60 days prior to the proposed change in facility design or operation, or within 60 days of the occurrence of an unexpected event that affects the closure plan. If the unexpected event occurs during final closure, the permit modification will be requested within 30 days of the occurrence.

If the Secretary of the NMED requests a modification of the closure plan, a plan modified in accordance with the request will be submitted within 60 days of notification, or within 30 days if a change in facility condition occurs during final closure.

The USAADACENFB (DOE) shall be responsible for storing and updating the facility copy of the closure plan and distribution of amended/updated copies of the closure plan to the USAADACENFB Explosive Ordnance Detachment (EOD) office and the NMED.

## **CLOSURE PROCEDURES**

When the decision is made to close the OD treatment unit, all hazardous waste present at the site will be treated or removed before closure activities commence. To the extent possible, all contaminated structures and equipment will be decontaminated and removed. Any structures and equipment that cannot be decontaminated shall be dismantled, placed into containers, and managed as hazardous waste. However, as shown on Figure 1, the fence, gates, and signs are the only on-site equipment at the unit and they are not contaminated. Although USAADACENFB intends to leave the fence in place after closure, the signs will be removed from the fencing after closure since the OD Unit will be clean closed.

The first phase of closure will consist of a hazards survey of the OD treatment unit conducted by USAADACENFB industrial hygiene personnel. The purpose of the survey will be to identify potential contamination concerns that may present hazards to workers during the closure activities and to specify any control measures necessary to reduce worker risk. This survey will provide the information necessary for industrial hygiene personnel to identify worker qualifications, personal protective equipment (PPE), safety awareness, work permits, exposure control programs, and emergency coordination that will be required to perform closure. All workers involved in the closure activities will be required to have training and medical monitoring as required by applicable regulations. Personnel performing closure activities will be required to wear PPE as specified by industrial hygiene personnel.

### **Open Detonation Pit**

Following completion of the health and safety survey, the detonation pits and the OD treatment unit will be decontaminated as necessary to meet the closure standards. Soil sampling of the OD treatment unit will follow the procedures described below. The soil in the OD treatment unit will be sampled as described below, and subsequently analyzed for the parameters listed in Table F-1.

### **Maximum Extent of Unclosed Portion**

The treatment unit will remain open until complete closure. It is not anticipated that any area within the OD treatment unit will be closed separately. However, if the soil sampling proposed herein indicates that a particular operation or area is a threat to human health and the environment, USAADACENFB may opt to amend the closure plan in order to reduce the threat. This may require closure of part of the treatment unit. Appropriate regulatory approvals will be obtained if this option is necessary.

## **Removal of Waste/Residue/Contaminated Soil**

Waste, residue, or soil will not be removed from the treatment unit during the active period of the OD events. If the results of the soil sampling, proposed herein, indicate that human health and the environment are threatened by these materials, and removal is the most cost-effective corrective measure, then the necessary regulatory approvals will be sought from NMED.

## **Year of Closure**

The treatment unit capacity is not being physically consumed at a measurable rate (i.e., it is not filling up). Therefore, no operationally required closure is anticipated and there is no anticipated limit to USAADACENFB/McGregor Range operations (e.g., base closure) which would necessitate closure. However, based on low usage, USAADACENFB has decided not to renew the RCRA permit and closure will occur in 2005.

## **CLOSURE SITE ACTIVITIES**

USAADACENFB will ensure that the OD treatment unit will be closed in a manner that will minimize or eliminate any potential adverse impact to human health or the environment. USAADACENFB will also eliminate or minimize the potential for the escape of hazardous wastes, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to groundwater, surface water, or to the air upon closure.

Since it is anticipated that the unit will be 100 percent in use during the life of the unit, there will be no partial closure of this thermal treatment unit and only the complete closure of this facility will be addressed.

Closure of the OD area thermal treatment unit will be conducted in three phases:

- Phase 1 - Site Characterization
- Phase 2 - Remedial Action, if needed
- Phase 3 - Post-closure Care, if needed

## **PHASE 1 - SITE CHARACTERIZATION**

The wastes handled in the OD unit are propellants, explosives, and pyrotechnics (PEP). During previous OD activities, the maximum amount of PEP wastes on site at any time during the facility's operation to date was approximately 2,000 lbs (900 kg).

To minimize the need of further maintenance of the OD treatment unit, all visible evidence of the PEP treatment will be removed. This evidence will include, but is not limited to, discolored soils, metal fragments, and any other remnants of the detonated munitions. Additionally, the detonation area and the surrounding areas within the unit, and areas to which a fragment could be expected to be blown to by a maximum explosion will be swept with metal detecting equipment. Because the OD Unit is a 30-foot deep pit, a 200-foot radius around the pit edge will be sufficient to detect kick-out. This distance was selected based on prior observations and inspections conducted after OD activities, as well as inspections conducted prior to all of the historical compliance sampling activities where PEP and OD fragments have not been found at or beyond this distance. Due to relatively small OD blasts, the depth of the OD Unit excavation, and the use of small blast pits, kickout of PEP, fragments, and munitions remnants is very limited. The 200-foot distance was also selected so as not to encounter other munitions fragments and materials associated with the active USAADACENFB McGregor Range that surrounds the OD Unit.

The metal detecting equipment will be used to detect any metal debris beneath the surface and to ensure that there are no Unexploded Ordnance (UXO) in the surface soils. Any fragments or remnants detected with this equipment, and any residues identified during the pre-work inspection by EOD will be removed. All metal fragments, residues, soils, and other wastes removed from the unit will be characterized for hazardous waste constituents and characteristics and properly disposed of in accordance with HWMR-7, Part V, §264.111. The USAADACENFB EOD will perform or oversee the UXO and PEP survey that will be conducted prior to the Site Characterization activities. The EOD will also support and oversee the Site Characterization activities.

### **Site Sampling**

In addition to the removal of visible remnants of the PEP destruction, soil samples from the detonation pits and surrounding areas will be collected. Sampling and analysis will be conducted in accordance with EPA established protocols.

Discreet soil samples will be collected from the OD unit. All samples will be taken using a

non-sparking (plastic) scoop or other sampling device if so directed by the EOD. Sampling personnel will record the location of each sample with respect to permanent stations (or through Global Positioning System [GPS] Surveying), the date, names of sampling personnel, and other pertinent information. Permit Attachment A (Waste Analysis Plan) presents the Quality Assurance Project Management plan.

### **Surface and Near Surface Soil Sampling**

Surface and near subsurface soil samples will be collected to characterize the small scale and most recent OD blast pit(s), the interior of the larger scale OD Unit excavation, and the area around the OD Unit excavation, including the perimeter. Specific sampling details are provided below.

Surface soil samples will be collected from the most recent blast pit at a depth between surface and 6 in. (15.2 cm) at the following locations (8 samples total):

- 1 discrete sample at the bottom of the most recent OD blast pit in the excavation,
- 3 discrete samples from the sides of the most recent OD blast pit (3 total), and
- 4 discrete samples around the perimeter of the most recent OD blast pit (outside of the pit) to evaluate the effect of kick-out.

Other surface soil samples will be collected as follows (8 samples total):

- 6 discrete samples obtained from the bottom of the OD unit where OD activities have been limited over the last ten years, and none have occurred during the last three years.
- 2 discrete samples approximately 200 feet from the perimeter (to confirm lack of kickout).

Soil samples will be collected from a depth of surface to 6 in. (15.2 cm), and 6 in. (15.2 cm) to 1 foot (0.3 m) (i.e., two samples per location) at the following locations (40 samples total):

- 8 discrete random samples in the bottom and sides of the OD treatment unit (but not in the blast pits, 16 samples),
- 8 discrete sample locations from the perimeter (outside of the treatment unit excavation, 16 samples), and

- 4 unspecified sample locations to fill data gaps (8 samples).

Approximate sampling locations are shown on Figure F-1.

### **Subsurface Soil Sampling**

Additional subsurface sampling will be conducted as follows. Soil samples will be taken on 5 foot (1.5 m) intervals from a 50 foot (15.2 m) boring placed approximately in the approximate middle of the OD treatment unit and near the area of the blast pits (10 samples total). The approximate boring location is shown on Figure F-1.

### **Background Soil Sampling**

To further characterize background, 15 locations within the geographic area of the OD Unit will be sampled (15 samples total). The three former outer perimeter sampling locations (and originally specified background locations) are included in this total and will be used in the background evaluation. These locations will be outside of the potential OD unit influence area and shall be analyzed for RCRA metals and explosives. The proposed background sample stations are shown on Figure F-1, and the basic orientation is a radial layout around the OD Unit.

Three background sampling stations were initially (1995) established in areas of the site that were not impacted by operation of the OD Unit. During the 1995 Site Characterization, these three locations were established north, west, and south of the OD Unit at an approximate distance of 700 feet from the center and outside of the operational influence of the OD Unit. These three background sampling stations were sampled during each compliance sampling event for the complete list of constituents of potential concern (explosives, metals, and nitrate). The compliance sampling events, however, referred to these locations as "outer perimeter locations" instead of background. Organic constituents have not been reported in any of the background sampling locations during the compliance sampling events. Based on the historical results, the 700 feet distance selected for the initial set of background locations appears appropriate for the background sampling effort associated with this Closure Plan. The background samples will be collected as surface soil samples from the interval between the surface and a depth of 6 inches (15.2 cm).

The background sample results will first be validated for usability and reviewed for the presence of explosive constituents above the sample quantitation limit. Samples found to have quality-related issues or detections of explosives will be eliminated from the background

data set, and these instances will be reviewed further as part of the overall site characterization effort.

### **Soil Sampling Summary**

In summary, the following numbers of samples will be used to characterize the site:

▪ Blast Pit Bottom	1 surface samples
▪ Blast Pit Sides	3 surface samples
▪ Blast Pit Perimeter	4 surface samples
▪ OD Unit Bottom	14 surface samples 8 near surface samples
▪ Perimeter	10 surface samples
▪	8 near surface samples
▪ Unspecified	4 surface samples 4 near surface samples
▪ Background	15 surface samples
▪ <u>Subsurface</u>	<u>12 soil boring samples</u>
Total	81 samples

All samples will be examined for physical evidence of UXO or unburned materials. After examination, the soils will be placed into the appropriate sample containers.

Sample containers will be placed into a cooler with ice. When sampling is completed for the day, all samples will be shipped by overnight courier to a qualified laboratory, under appropriate chain-of-custody procedures, for analysis.

Analyses will be conducted using the methods presented in Tables F-1 and F-2. Note that background samples will only be analyzed for explosives and RCRA metals.

Quality assurance and decontamination procedures are discussed in the Quality Assurance Project Management Plan (QAPMP) in the Permit Attachment A.

### **Sampling Equipment Decontamination Procedures**

All sampling equipment that must be reused (non-disposable equipment) will be decontaminated by the following process as specified in the QAPMP and summarized below:

1. All surfaces of the equipment that contact the sample will be washed with a

Liquinox/water wash, using a scrub brush to remove any remaining soils from the previous sample.

2. After washing, the equipment will be rinsed with distilled water and allowed to air dry.
3. Following the distilled water rinse, the equipment will be spray-rinsed with ethanol or isopropyl alcohol to remove any traces of the soap.
4. A final rinse of distilled water will complete the decontamination procedure.

All decontamination liquids will be sampled upon the completion of the sampling event and characterized for disposal. These liquids will be properly disposed of during the remediation of the site. In the event that disposable sampling equipment is used, decontamination may be limited to the drilling equipment that will be used for completing the soil boring

#### **Sampling Quality Assurance/Quality Control (QA/QC)**

To ensure that the data received from the sampling event is representative of the site, quality assurance/quality control samples will be collected as specified in the QAPMP (included with Permit Attachment A). These samples include:

1. Duplicate Samples
2. Matrix Spike/Matrix Spike Duplicate Samples.
3. Equipment Rinsate Blank Samples.

Trip blanks will not be used since these are typically associated with shipments containing water samples. The only water sample anticipated for the Site Characterization phase is one equipment rinsate blank, and this will be shipped to the laboratory by itself. The required samples, waste constituents, and frequency of analysis are summarized in Table F-2.



**TABLE F-1  
 SOIL SAMPLE ANALYSES  
 EXPLOSIVES ORDNANCE DEMOLITION AREA  
 FORT BLISS, MCGREGOR RANGE  
 OTERO COUNTY, NEW MEXICO**

<b>ANALYTE</b>	<b>ANALYTICAL METHOD<sup>1</sup></b>	<b>SAMPLE VOLUME (grams)</b>
<b><u>INORGANICS:</u></b>		
Free Liquids	SW846 9095	100
Ignitability	SW846 1010	10
pH	SW846 9045C	10
Nitrate/Nitrite (as N)	EPA 300.0	10
<b><u>METALS:</u></b>		
Antimony	SW846 6010B	100-500
Arsenic <sup>2</sup>	SW846 6010B	100-500
Barium <sup>2</sup>	SW846 6010B	100-500
Beryllium	SW846 6010B	100-500
Cadmium <sup>2</sup>	SW846 6010B	100-500
Chromium <sup>2</sup>	SW846 6010B	100-500
Cobalt	SW846 6010B	100-500
Copper	SW846 6010B	100-500
Iron	SW846 6010B	100-500
Lead <sup>2</sup>	SW846 6010B	100-500
Mercury <sup>2</sup>	SW846 7471	100-500
Potassium	SW846 6010B	100-500
Selenium <sup>2</sup>	SW846 6010B	100-500
Silver <sup>2</sup>	SW846 6010B	100-500
Strontium	SW846 6010B	100-500
Zinc	SW846 6010B	100-500
<b><u>ORGANICS:</u></b>		
Picric Acid	SW846 8330	100-500
HMX	SW846 8330	100-500
RDX	SW846 8330	100-500
2,4,6-Trinitrotoluene	SW846 8330	100-500
2,4-Dinitrotoluene	SW846 8330	100-500
2,6-Dinitrotoluene	SW846 8330	100-500
Nitroglycerine	SW846 8330	100-500
Polychlorinated Biphenyls (PCBs)	SW846 8082	100-500
Polychlorinated Dibenzo Dioxins and Furans	SW846 8280	100-500

<sup>1</sup> SW846 = "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods," Environmental Protection Agency, SW846 and EPA 600 = "Methods for Chemical Analyses of Water and Wastes," Environmental Protection Agency, 1979, Revised 1983.

<sup>2</sup> Represents RCRA Metals

**TABLE F-2**  
**QUALITY ASSURANCE/QUALITY CONTROL SAMPLES**

<b>SAMPLE TYPE</b>	<b>FREQUENCY</b>	<b>ANALYSES</b>
Duplicate	5%	Metals, Organics, Nitrate/Nitrite
Matrix Spike/Matrix Spike Duplicate	5%	Metals, Organics, Nitrate/Nitrite
Rinsate Blank	1 per day	Metals, Organics, Nitrate/Nitrite

## **PHASE 2 - REMEDIAL ACTION**

When the analytical data from the site characterization has been reviewed, the extent and nature of contamination of the thermal treatment unit will be assessed. It is not anticipated that significant amounts of contamination will be reported in the soils collected from the site. However, in the event that detectable levels of contamination are reported at the site, the following activities will be conducted.

### **Establishment of Clean-up Levels**

Appropriate clean-up levels will be determined for the OD treatment unit at the time of closure, based on the nature of reported contamination at the site, the potential land use for the site, and the surrounding land use. Currently, the area surrounding the unit is uninhabited and not being used for agricultural purposes or otherwise developed. At the time of the unit closure, USAADACENFB shall incorporate the status of the area into the determination of the appropriate clean-up levels for the unit and will control, minimize, or eliminate, post closure escape of hazardous waste, hazardous constituents, leachate, or hazardous waste decomposition products to the ground or to the atmosphere for the protection of human health and the environment. The latest update to the NMED residential SSLs will be used as the cleanup levels for determining whether remedial actions/decontamination are necessary. For metals, the site characterization results may be evaluated through statistical means (e.g. 95% UCL) to define representative concentrations for comparison to the NMED residential SSLs. This practice may be necessary because of the inherent variability of metals in soils.

### **Site Remediation**

Compliance sampling for the past 10 years indicates the constituents of concern do not exceed NMED residential SSLs (or the initially calculated background values), so remediation is not anticipated. The Site Characterization sampling, if it confirms that residential SSLs are not exceeded, will serve to document closure without deed recording or long-term care. If residential SSLs are not achieved in some locations, hot spot removal may be implemented to meet the cleanup standards for clean closure. USAADACENFB will assess cost and benefit at that time and request approval from NMED for hot spot removal or other options such as deed recording and implementation of post-closure care. If remediation is warranted (and selected by USAADACENFB) above any hot spot removal, this Closure Plan will be modified in accordance with NMAC 20.4.1.900. Furthermore, additional soil sampling may be required if the deepest and outermost sampling locations associated with the site characterization effort (Phase I) indicate that a release from the OD Unit has occurred. Any additional sampling will be to define the extent of the area exceeding the action levels that may warrant remedial action.

The physical changes to the OD Unit during closure will be contouring the area, specifically to

lessen the slope of the OD Unit sides. The few existing spoil piles (see Figure F-1) from historically excavated material will be graded to generally match to original land contours. Any remaining small blast pits within the OD Unit (excavation) will be filled to grade with soil from the contouring or from the few piles of excavated material.

If hot spot removal is implemented, confirmation soil samples will be collected from the base and sides of the excavated area. The soil samples will be submitted for the analyses listed in Table F-1 or an abbreviated subset of analyses as appropriate. Confirmation soil samples will generally be collected from the excavation base and sides at a spacing of one per 150 square feet and one per 20 linear feet, respectively. The excavation will be backfilled once removal of contaminated soil is confirmed through sampling.

Any waste generated during the hot spot removal will be disposed in accordance with all applicable regulations during the site remediation. These wastes may include excavated soils, decontamination liquids from the sampling event, metal fragments removed from the soils, and any other waste materials on-site.

### **Site Restoration**

As described, 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. The spoil piles are shown on Figure F-1 as topographic mounds, and these will be leveled during the contouring and blast pit backfilling effort.

Because of the potential for introduction of invasive weed species, in addition to the limited area that will be disturbed during contouring, no vegetation will be planted on the remediated areas. Rather, Fort Bliss will employ a natural reseeding procedure that has proven successful in other locations on the range. Sloped areas will be mechanically raked or scored perpendicular to the grade to leave the surfaces with a rough appearance that will reduce soil erosion and promote seed trapping and germination. In areas where storm water run-on is likely to occur, 2- to 3-foot high berms will be built at about 50-meter intervals at the main water courses to reduce water speed and erosion during torrential rain events.

### **Deed Recordation**

Upon closure of this OD treatment unit, if it is determined that NMED residential SSLs can not be met, Fort Bliss will, within 60 days of completion of the closure activities, complete the following actions.

- USAADACENFB will submit a record of the type, location, and quantity of materials remaining on-site to the NMED, the EPA Regional Administrator, and the local authority with jurisdiction over land use for the site.

- USAADACENFB will file and have recorded a deed notification statement with the Otero County Clerk stating the type and levels of hazardous waste remaining on the property along with a metes and bounds description by a New Mexico licensed surveyor, indicating the restrictions on land use of the property in absence of further future remediation.. Should this be necessary, it will simply provide a second layer of protection, in as much as the OD unit is already within a federally restricted area (McGregor Range Complex Impact Area).

### **PHASE 3 – POST-CLOSURE CARE**

It is anticipated that the cleanup standards (NMED residential SSLs) can be achieved, possibly with hot spot removal. If this is not the case, NMED industrial SSLs will be used as the closure standard and a deed notice of the site will be recorded (as a landfill). In this case, a post-closure care permit application will be submitted within 90 days of making this determination.

The geology in the vicinity of the site may minimize the potential for groundwater contamination from activities at the site. Also, the groundwater level is approximately 600 feet (182.9 m) below the surface in this area. Based upon the geology and the depth to groundwater, no groundwater monitoring is anticipated at this site. Soil analyses will be used to make the determination.

If a clean closure is not achieved, fences, containment systems around the site, and warning signs will be used and inspected at least once every six months. Any deficiencies will be corrected as soon as possible, and within no more than 30 days from the date of discovery of the deficiency.

All records for the facility during the post-closure care period will be maintained by the USAADACENFB Directorate of Environment. Any inquiries relating the closure of this unit and post closure care should be directed to:

The Director  
Directorate of Environment  
Fort Bliss, Texas 79916  
(915) 568-3782

## **SUMMARY**

The following steps provide a summary of the potential closure process for this OD treatment unit.

- (1) If the analytical results indicate that there is no residual contamination above residential SSLs on the property, the site will be returned to approximately natural contours as the available soil stockpiles allow, using earth moving equipment (i.e., bulldozers). No decontamination of the equipment will be required.
- (2) If the analytical data indicates that residual contamination, above residential SSLs but below industrial SSLs, is present at the time of closure, the property may be decontaminated to the cleanup standards by hot spot removal or be deed recorded as a landfill. USAADACENFB will weigh the economics and inform NMED. The site will be returned to approximately natural contours using earth moving equipment (i.e., bulldozers). The entire site will be graded at the time of closure; no partial closure is anticipated.
- (3) If compliance sampling indicates that the cleanup standards cannot be achieved and hot spot removal is not feasible, a post-closure care plan and application will be prepared.
- (4) There are no permanent structures (other than fencing) or equipment at the OD Unit to be decontaminated. The only decontamination potentially required will be the earth moving equipment. If necessary, the equipment will be washed over an impervious surface with pressurized water to remove any traces of potentially contaminated soils. Water will be collected, sampled for hazardous waste characteristics, and properly disposed of. It is not anticipated that removal of contaminated soils or additional sampling or testing of soils will be required.

## **LOCATION OF PLAN**

The Closure Plan will be kept at the USAADACENFB Directorate of Environment office, Fort Bliss, Texas.

## **RESPONSIBILITY FOR PLAN UPDATE**

The Director, Directorate of Environment, will be responsible for updating the Closure Plan.