

**CLOSEOUT REPORT
FOR
MAINTENANCE AT RANGE D-29 AND A-1
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA**

Prepared for:

DEPARTMENT OF THE NAVY
Contract No. N622470-93-D-3032
Delivery Order No. 0151

Atlantic Division
Naval Facilities Engineering Command
6506 Hampton Boulevard
Building A (South East Wing) 3rd Floor

Prepared by:



**OHM Remediation
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APRIL 2000

OHM Project No. 919668

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FOR
MAINTENANCE AT RANGE D-29 AND A-1
MARINE CORPS BASE
CAMP LEJEUNE, NC**

Prepared for:

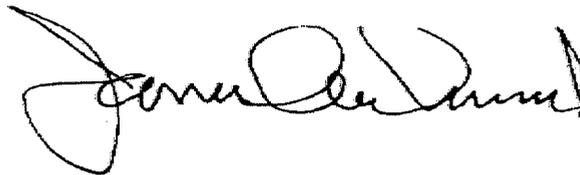
DEPARTMENT OF THE NAVY
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LIST OF ACRONYMS AND ABBREVIATIONS

LANTDIV	Navy Atlantic Division
MCB	Marine Corps Base
OHM	OHM Remediation Services Corporation
QC	Quality Control
TCLP	Toxicity Characteristics Leaching Procedure
T&D	Transportation and Disposal
PAH	Poly Aromatic Hydrocarbon

EXECUTIVE SUMMARY

This maintenance activity report is a Contractor's Closeout report. It provides a description of how OHM Remediation Services Corporation (OHM) performed the remedial and maintenance activities at Ranges D-29 and A-1, at MCB Camp Lejeune, North Carolina. The remedial and maintenance activities have been successfully implemented for Ranges D-29 and A-1. These activities were performed during the period between July 7, 1998 and April 26, 1999. The maintenance and remedial activities at the subject sites included the following tasks:

- Recover bullet metals and reduce the mobility of lead present in surface soils of the existing berms.
- Upgrade the berms at both ranges
- Ship recovered metal bullets to an off-site recycling facility.
- Physically and chemically stabilize the berm surface soils and use as backfill material for the upgrade of the range berm.
- Install new bullet traps with dust collector at Ranges A-1 and D-29 to capture bullets and prevent lead contamination of the berm soil.

The berm surfaces were excavated and the soil was physically screened to segregate the bullet metal fragments from other debris. Excavation of the berm soil continued until no visible metal fragments were encountered. Potentially contaminated soils were stabilized using trisodium phosphate to reduce the mobility of the lead contained in the soil. Stabilized soil was used as a backfill for berm restoration. Pre- and post- treatment soil samples were collected for TCLP lead analysis. Recovered bullet metal fragments were shipped offsite to a recycling facility. As noted on the As-built drawings (Appendix A) construction of baffles, sidewalks, and retaining walls at both ranges was performed by other firms. All disturbed areas were hydroseeded. In addition, the berm slope was netted as a means of controlling erosion.

1.0 INTRODUCTION

This Maintenance Activity Report is a Final Contractor's Closeout Report for remediation and maintenance activities conducted at Range D-29 and A-1 at the Marine Corps Base (MCB), Camp Lejeune, North Carolina. The remedial activities at the subject sites were performed under Delivery Order (D.O.) No. 0151 of Navy Atlantic Division (LANTDIV) Contract N62470-93-D-3032. This report provides a description of how OHM Remediation Services Corporation (OHM) performed maintenance and remedial activities at the sites. The work required to accomplish the project objectives, as specified in the May 1998 work plan for this D.O., was performed beginning July 7, 1998 through November 30, 1998 with final inspection completed on April 26, 1996. OHM successfully completed all activities required for soil remediation at Ranges D-29 and A-1 in accordance with the May 1998 work plan and the Statement of Work Design Package Specifications dated June 24, 1997 under D.O. 0151.

1.1 SITE BACKGROUND

The D-29 pistol and rifle battle zero (BZO) range was commissioned in 1955 and has 17 firing points. The A-1 pistol and shot gun range was commissioned in the 1950's and has 10 firing points. These ranges are used for small-arms target practice.

Camp Lejeune is a training base for the U.S. Marine Corps, located in Onslow County, North Carolina. The base covers approximately 234 square miles and includes 11 miles of coastline. MCB Camp Lejeune is bounded to the southeast by the Atlantic Ocean, to the northeast by State Route 24, and to the west by U.S. Route 17. The town of Jacksonville, North Carolina is located north of the Base (Figure 1 in Appendix A).

Ranges D-29 and A-1 are located adjacent to the New River as shown in Figure 1 (Appendix A). Range D-29 is located on River Road near F-Street in the Hadnot Point Area. Range A-1 is located at Montford Point, Camp Johnson. The ranges are essentially flat with earthen berms located parallel to the shoreline of the New River to prevent bullets from leaving the range area. The site layout (plan view) for Ranges D-29 and A-1 are shown in Figures 2 and 3 (Appendix A).

1.2 PROJECT OBJECTIVES

The objectives for the remedial and maintenance activities at the subject ranges were to:

- Recover bullet metals and reduce the mobility of lead present in surface soils of the existing berms.
- Ship recovered metal bullets to an off-site recycling facility.
- Physically and chemically stabilize the berm surface soils and use as backfill material for the upgrade of the range berm.
- Install new bullet traps with dust collectors at Ranges A-1 and D-29 to capture bullets and prevent lead contamination of the berm soil.

2.0 SUMMARY OF ACTIONS

2.1 SUMMARY OF REMEDIAL ACTION

The remedial and maintenance activities at Ranges D-29 and A-1, were performed beginning on July 7, 1998 through November 30, 1998. These activities are summarized as follows:

- Site preparation and utility clearance
- Clearing and grubbing of work areas
- Berm soil excavation and physical screening of excavated materials
- Chemical treatment of excavated materials – soil stabilization
- Shipment of recovered bullets and metal fragments to a recycling facility
- Berm restoration
- Installation of bullet traps and dust collectors

2.2 SUBMITTALS

In November 1997, OHM submitted draft work plans for Delivery Order No. 151. The plans consisted of Maintenance Work Plan, Construction Quality Control Plan, Transportation and Disposal Plan, Sampling and Analysis Plan, Environmental Protection Plan, and a Site-Specific Health and Safety Plan. The plans provided a description of the project objectives, schedule, sampling and analysis requirements, construction requirements and storage, transportation and removal requirements that would be implemented to fulfill the requirements of the project specifications. The plans were reviewed and approved by LANTDIV and final plans incorporating all comments were issued in May 1998.

2.3 CLEARING AND GRUBBING

Prior to starting any site clearing and grubbing, the site was prepared and the preparation involved the following activities.

- Demarcation of the berm limits, excavation limits and other features such as equipment staging area.
- Installation of silt fence.
- Establishing decontamination area
- Utility clearance

Photographs showing the site condition prior to the implementation of remedial and maintenance activities are included in Appendix B. The sites, D-29 and A-1, were cleared

and grubbed on the top and side face of the berm adjacent to the range. The under-growth, tree limbs, roots, and other non-contaminated debris were stockpiled and later disposed at a nonhazardous solid waste landfill in accordance with the Transportation and Disposal (T&D) Plan. The existing retaining walls and the drainage trough were demolished and disposed of at the Base landfill.

2.4 SOIL EXCAVATION AND SCREENING

Soil excavation began with the removal of soil on the top and the front surface of the berms. After the berm soil was excavated, a visual inspection of the surrounding soils was performed for metal bullet fragments. Upon inspection, if bullet fragments were visible, additional soil was excavated. Excavation of the soil continued until no visible bullets and metal fragments were encountered. Approximately 2 feet of soil was excavated from the top of the berm and 3 to 4 ft. from the front face of the berm when no more bullets and metal fragments were visible. A Power Screen was used to physically separate the metal bullet fragments from the soil and debris.

Potentially contaminated soil was stockpiled on plastic sheeting and covered with plastic sheeting at the end of each day prior to leaving the site and when it rained, to minimize the potential for contaminated stormwater run-off at the site. A front-end loader delivered excavated soil to a grizzly with a live bottom feeder to separate debris, rocks, and oversized materials greater than 4-inch diameter. Oversized materials were stockpiled and materials less than 4 inch were conveyed to a vibratory shaker screen to segregate the soil particles from bullet fragments. Photographs showing soil excavation and screening activities are included in Appendix B.

2.5 TREATMENT AND DISPOSAL

The fine soil (smaller than bullet fragments) was stockpiled on plastic sheeting in a designated soil stabilization area. Samples were procured from the stockpiles and analyzed for TCLP lead. Stockpiles that failed TCLP testing were treated with 2% Trisodium phosphate (TSP) to stabilize the lead. The stockpiled soil was mixed on the plastic sheeting using the backhoe. After mixing a five-point composite sample was collected from each soil pile and sent off-site for analysis in accordance with the sampling and analysis plan. Analytical results of the treated soil are summarized in Table 2-1 and complete results are contained in Appendix C. All treated soil indicating that lead had been stabilized was used as backfill for the excavated (berms) areas.

Table 2.1
Pre- and Post Treated Soil Analytical Results
Ranges D-29 and A-1
Camp Lejeune, North Carolina

Sample ID	Sample Date	pH	Lead (mg/L)	Detection Limit
CLJ-151-2-002 ^a	7/23/98	4.9	39.0	5.0
CLJ-151-2-003 ^a	7/28/98	4.9	<RDL	1.0
CLJ-151-2-004 ^b	7/28/98	5.0	170	1.0
CLJ-151-2-005 ^c	8/14/98	6.0	<RDL	1.0
CLJ-151-2-006 ^c	8/14/98	6.0	<RDL	1.0
CLJ-151-2-007 ^c	8/14/98	5.9	<RDL	1.0
CLJ-151-3-008 ^a	8/14/98	6.2	<RDL	1.0
CLJ-151-3-009 ^{c,d}	8/14/98	6.4	<RDL ^d	1.0
CLJ-151-2-013 ^c	8/19/98	NA	<RDL	1.0

^aComposite Sample from pre-treated stockpile.

<RDL = Less than Reported Detection Limit

^bComposite Sample from pre-treated roll-off.

^cStabilized composite sample

^dSample was analyzed for Full TCLP: Herbicides, Metals, Pesticides, SVOCs, and VOCs - all target analytes were not detected.

2.6 BACKFILLING AND REVEGETATION

Stabilized berm soil materials and clean soil that is free from organic material was used as backfill for the excavated berms. The berms were restored by an additional of 2 ft. above the old berm, to a height of 16 ft. for the berm at Range D-29 and 11.5 ft. for the berm at Range A-1 (Figures 4 and 5 in Appendix A). The berms and all other disturbed areas were hydroseeded. In addition, netting was placed on berm slopes to provide erosion control.

2.7 BULLET TRAP INSTALLATION

Prior to installing the bullet trap and dust collector at Ranges A-1 and D-29, OHM built the concrete foundation slab to support the bullet trap at each site (photographs in Appendix B). The bullet traps with dust collectors were supplied, installed, and started-up by the

manufacturer. The layout of the bullet trap and the dust collector is shown in Figure 3 included in Appendix A and its section is shown in Figure 5. The following are some of the features of the bullet traps:

- Consist of lane modules 5-feet wide separated by a center 3-foot module and with 3-foot modules on each end.
- The traps employ a single stage air collection and filtration system to collect and purify the air within the main deflection aperture chamber.
- The dust collectors are weather proof, suitable for outdoor installation.

Photographs for the bullet trap and dust collector installation are included in Appendix B.

2.8 OTHER ACTIVITIES

The following activities associated with range restoration were performed by other firms. These activities include:

- Installation of baffles
- Installation of 2 ft. wide sidewalks at each firing position
- Installation of 24 inch thick walls at the edges of the ranges
- Electrical power distribution

These structures are shown in the As-built drawings (Figures 6 through 9) as installed by others (Appendix A).

3.0 TRANSPORTATION AND DISPOSAL

All recovered bullet fragments and lead-contaminated materials were shipped to an off-site facility for the recycling of lead. A total of 53.05 tons of material was shipped off-site by Wills Trucking Company, to a recycling facility in Reading, Pennsylvania. Exide Battery Corporation owns the recycling facility. Prior to leaving the site, the truck was brushed to remove soil and debris from vehicle tires and bed, delivery tickets were signed by Base personnel, and the truck was released for travel to the disposal facility. Upon arrival at the facility, the truck was weighed, and after unloading the truck was weighed again to establish the net weight of load carried. As summarized in Table 3.1, three shipments of lead contaminated material occurred during the execution of the project. Copies of the delivery tickets are included in Appendix C.

Table 3.1

**Transportation and Disposal Log
Range D-29 and A-1
MCB Camp Lejeune, North Carolina**

Date	Transporter	Ticket #	Tons	Cubic Yards
9/10/98	Wills Trucking Company	162175	23.76	35.64
9/17/98	Wills Trucking Company	162545	20.76	31.14
9/22/98	Wills Trucking Company	162823	8.53	12.80

4.0 QUALITY CONTROL SUMMARY

The quality control (QC) engineer conducted preparatory and initial site inspections during a site visit. The QC Engineer reviewed the completeness and adequacy of mobilization activities, to observe health and safety practices, to evaluate excavation operations, to check sampling and analysis documentation. Inspections were performed in accordance with the requirements of the contract as supplemented by the Delivery Order Quality Control Plan. Inspection results were documented and submitted on Contractor QC Report Forms. A weekly QC meeting was conducted and the minutes recorded and submitted with the inspection report to the ROICC by the site supervisor. All QC documentation is included in Appendix D

5.0 OPERATION AND MAINTENANCE

This section presents a summary for the operation and maintenance of the bullet trap system. The summary is divided in two parts: 1) the dust collection unit and 2) the total containment trap. Appendix E provides more details describing the step-by-step procedures for the startup, monitoring, resetting, maintenance, and manual shutdown of the bullet trap system.

5.1 DUST COLLECTION UNIT

5.1.1 Operation

Basic: To begin operation, press the start button and hold it down. The low-pressure alarm will sound for several seconds while the blower is coming up to speed. When proper operating pressure has been achieved the alarm will stop. If the alarm does not stop, refer to the owner's manual for troubleshooting. If at any time the blower turns off or if the alarm sounds, cease operation immediately until the unit is thoroughly checked. When use of the dust collection unit is concluded, press the stop button momentarily.

Differential Pressure: When the filters are properly loaded, there should be a normal operating pressure of about 1 to 1.7 inches (in-H₂O). If the operating pressure rises above or falls below the set points, the control circuitry should sense this and shut the system down.

5.1.2 Maintenance

The dust collection unit requires regular maintenance in order to ensure long life and reliability. It is required that a log for all weekly maintenance sessions should be kept. The log should include the date of inspection, the type of procedure performed, the readings observed on the equipment, and any other important observation.

Daily: Each time the dust collection unit is used:

- Check the differential pressure gauge. When the power is off, the gauge should read 0. During operation, the pressure should be about 1 to 1.7 inches.
- Check that the set point knobs are properly set, "low set point pressure" both sides should read 0.5 inches and the "high set point pressure" right side should read 1.8 inches and left side 2.7 inches.
- Check that the air pressure is in the range of 90 to 100 psi. Prior to use of the system, open the purge valve on the bottom of the compressor to see that compressed air blows out.

Weekly: Perform the daily procedure as outlined above.

- Test the automatic breach detection circuitry -(wear ear protection during this procedure). Refer to owner's manual for procedure.
- Test automatic cleaning circuitry. Refer to owner's manual for procedure.
- Check the level of lead accumulation in the collection barrel -(wear gloves or other protective clothing for this procedure). Refer to owner's manual for procedure.
- Check the oil level in the air compressor. Refer to owner's manual for procedure.

Every 2000 hours: Grease the motor pumps at 2000 hour intervals.

Yearly: Check the logs to see when the filters were last changed. If filters have been used for more than 3 years or 4000 hours, they may need changing. Refer to owner's manual for recommendations.

Filter Changing: When it becomes necessary to change a filter, follow the procedure in the owner's manual.

Loading New Filter: Refer to owner's manual for procedure for loading a new filter.

5.1.3 Debugging

If the system will not turn on, or if the pressure is too low or too high, refer to owner's manual for troubleshooting the system.

5.2 TOTAL CONTAINMENT TRAP

5.2.1 Operation

The bullet trap is a passive device so it does not require any power to operate.

5.2.2 Maintenance

The bullet trap requires regular maintenance. The most important procedure is the regular removal of lead from the collection canisters or other accumulation areas. Refer to owner's manual for procedure.

Damage: If the trap is damaged by a round of higher power than it can withstand, resulting in a crater or a hole through a plate or joint, the damaged part should be replaced to avoid bullet splatter.

Canister Inspection: Canisters should be inspected weekly. Refer to owner's manual for procedure.

Cleanup: Two basic types of cleaning the bullet trap all required, normal lead removal from the canisters or collection area and lead cleanup in the surrounding area:

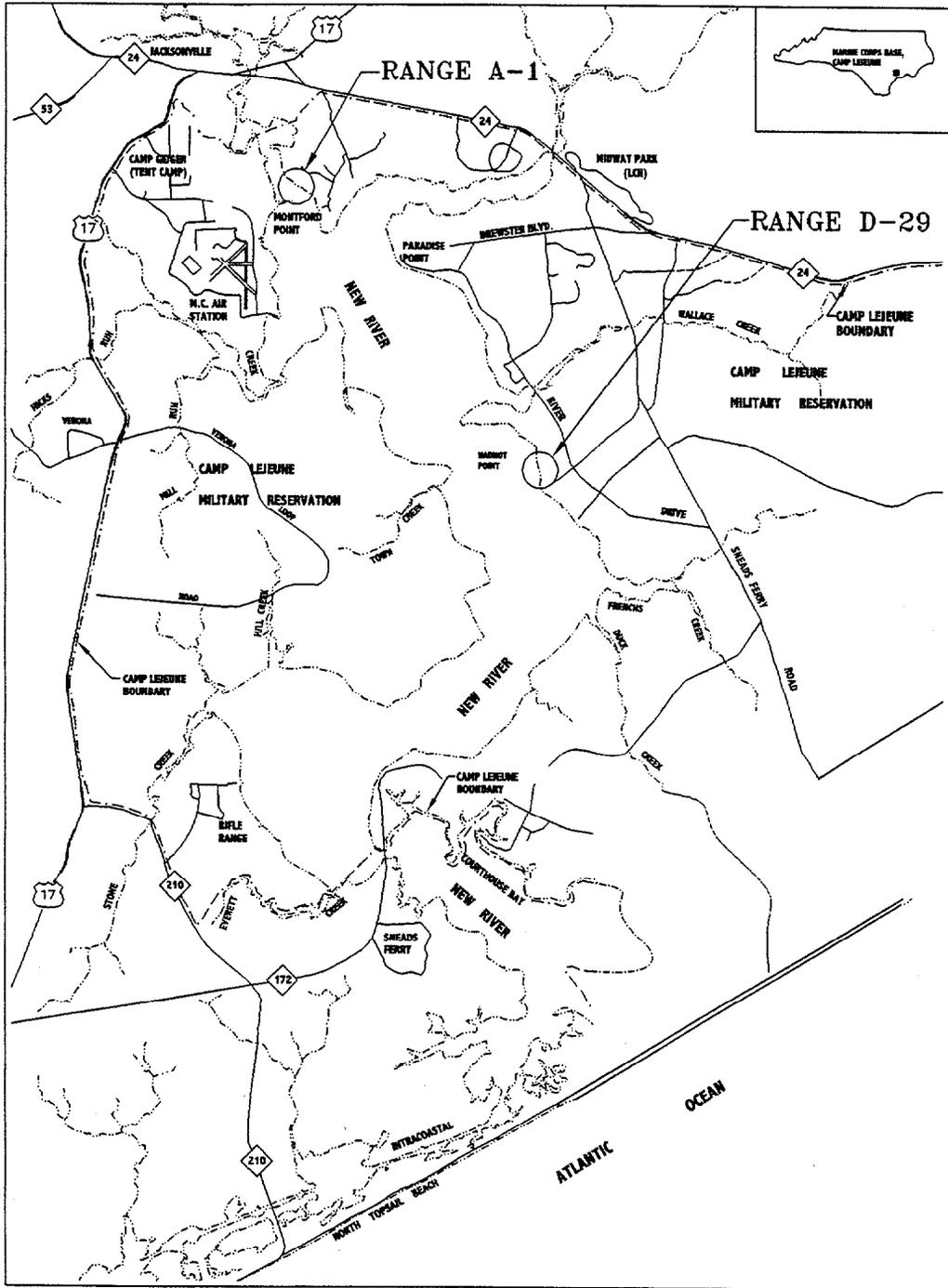
- It is recommended that the operator use lifting belt, a hand truck or other lifting apparatus when changing a canister. Refer to owner's manual for a step by step procedure for changing a canister.
- If there is significant accumulation of lead dust in the trap area, it should be visible as fine black dust on the ground. Begin vacuuming as you enter the area. Vacuum the floor and any flat areas where dust may accumulate. Do not proceed past a point that has not been cleaned. Never use a broom, a shovel, compressed air, or other means to move dry lead dust, as this will lift the dust into the air where it can be a health hazard. Do not use a vacuum cleaner with a beater brush, the vacuum should solely be suction to pull in the dust. Refer to the owner's manual for more information on the cleaning procedure.

Painting: All outside of the trap should be kept painted to prevent rusting.

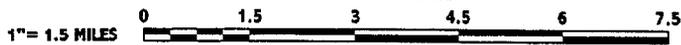
APPENDIX A

AS-BUILT DRAWINGS

MARINE CORPS BASE, CAMP LEJEUNE NORTH CAROLINA



VICINITY MAP

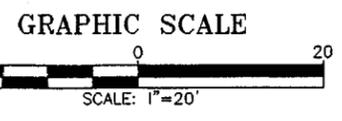
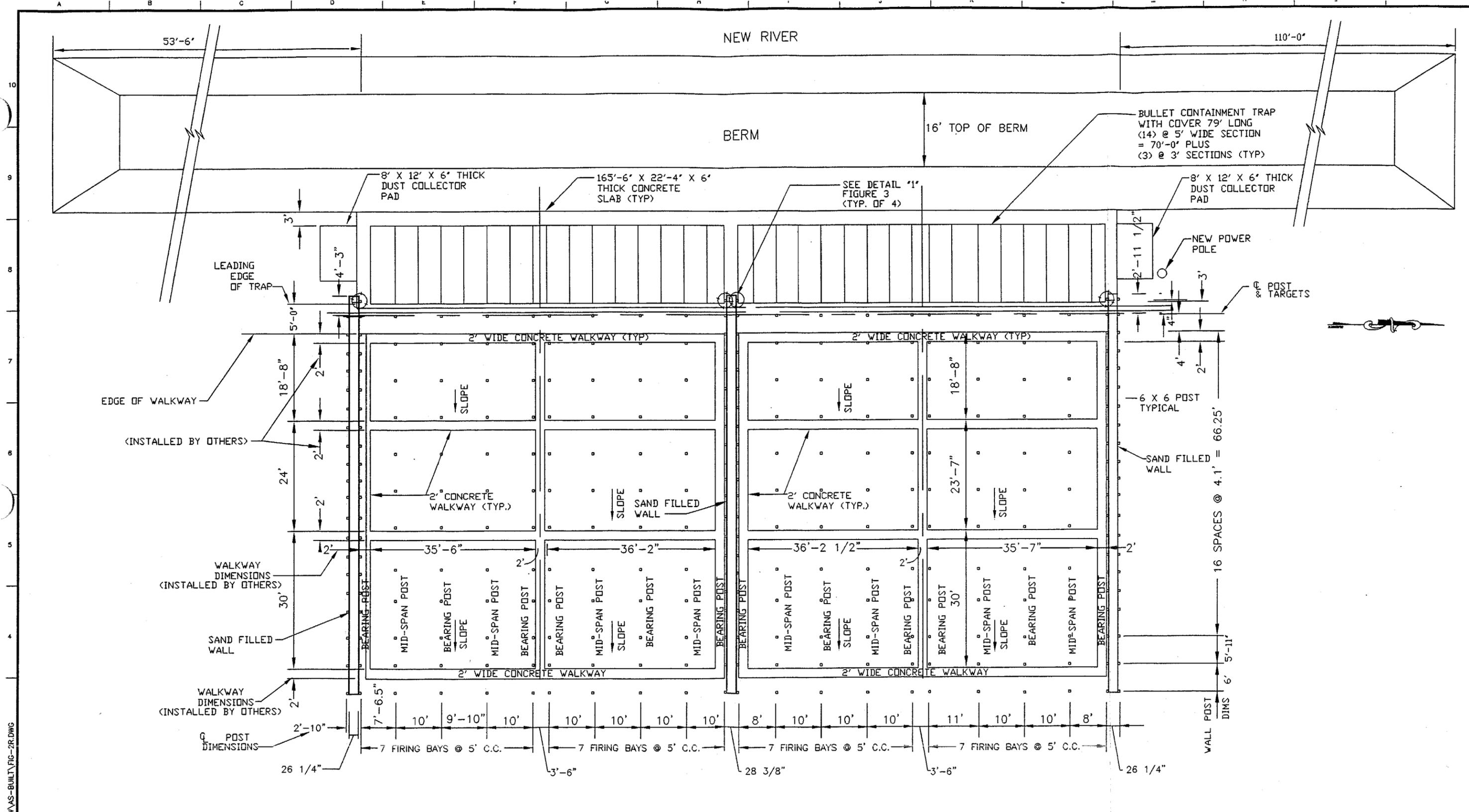


**OHM Remediation
Services Corp.**
NORCROSS, GEORGIA
A SUBSIDIARY OF OHM CORPORATION

DRAWN BY	J. COLLINS	9/20/99
CHECKED BY	G. GILLES	9/20/99
APPROVED BY	J. DUNN	9/20/99
REV. 0	SHEET # -	PROJECT NO. 19668

FIGURE 1

**VICINITY MAP
RANGES D-29 AND A-1
REMEDICATION OF LEAD
CONTAMINATED SOIL**



- NOTES:
1. WALL DETAILS SEE FIGURE 8.
 2. BAFFLE DETAILS SEE FIGURE 9.

RECORD DRAWING

OHM Remediation Services Corp.
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SUBMITTED: _____ PROJECT MANAGER: _____ DATE: _____
APPROVED: _____ SR. PROJECT ENGINEER: _____ DATE: _____
APPROVED: _____ DEPT. MANAGER: _____ DATE: _____

REVISIONS				
REV.	DESCRIPTION	BY	DATE	APP.
1	REVISED FOR WALL EXTENSION	-	9/15/98	JAD
2	ISSUED WITH WORK PLAN	-	10/23/98	-
3	RECORD DRAWING	-	9/16/99	JAD

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

ATLANTIC DIVISION

NAVAL STATION NORFOLK, VIRGINIA

CONTRACT NO. N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2

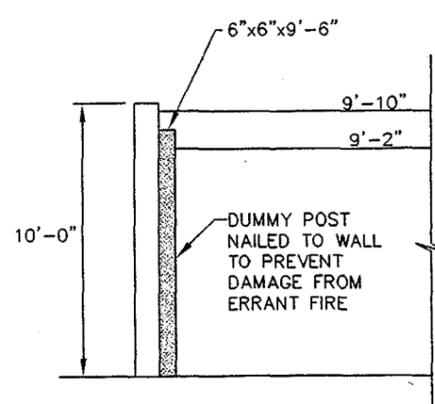
OHM PROJECT NO. 19668 MARINE CORPS BASE, CAMP LEJUNE, N.C.

FIGURE 2
RANGE D-29
PLAN VIEW

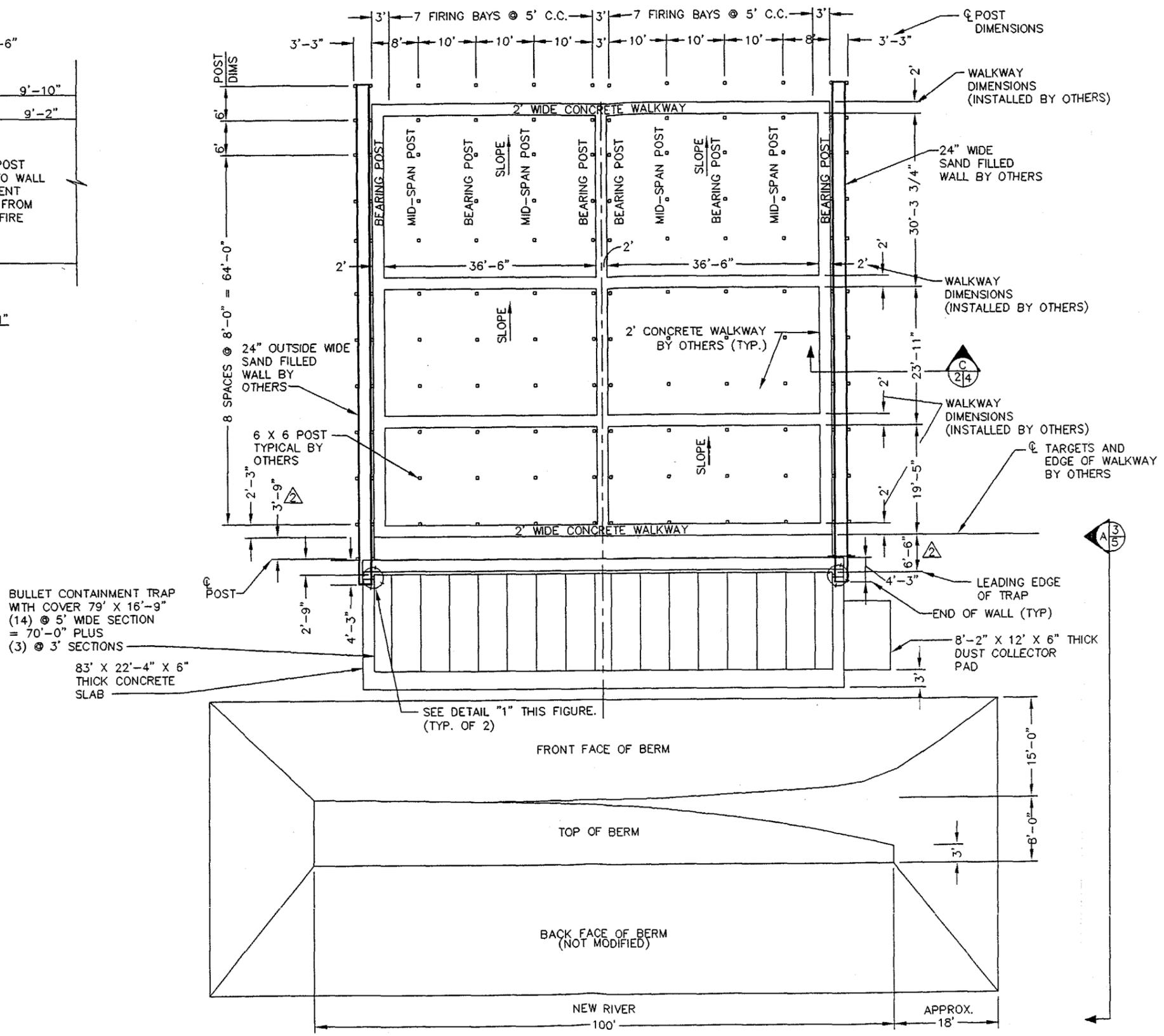
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SHEET NUMBER: _____
DATE: 9/16/99

02365DUPPDE012

J:\LANDINV\LEJUNE\FIRE-RANGE\NEWAS-BUILT\FIG-2R.DWG



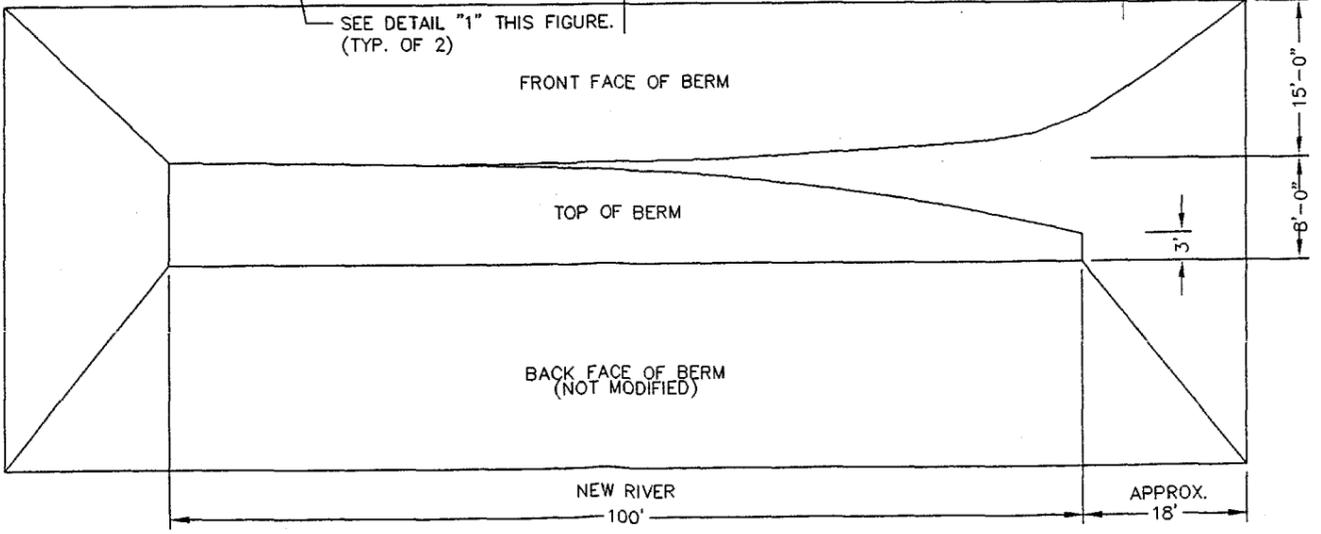
DETAIL "1"



NOTE:
 BAFFLE AND WALL
 CONSTRUCTION
 BY OTHERS

BULLET CONTAINMENT TRAP
 WITH COVER 79' X 16'-9"
 (14) @ 5' WIDE SECTION
 = 70'-0" PLUS
 (3) @ 3' SECTIONS

83' X 22'-4" X 6"
 THICK CONCRETE
 SLAB



RECORD DRAWING

J:\LANTDV\LEJE\58\FIRE-RANGE\NEW\FIG3R.DWG

OHM Remediation Services Corp.
 Norcross, Georgia
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SUBMITTED: _____ DATE: _____
 PROJECT MANAGER:
 APPROVED: _____ DATE: _____
 SR. PROJECT ENGINEER:
 APPROVED: _____ DATE: _____
 DEPT. MANAGER:

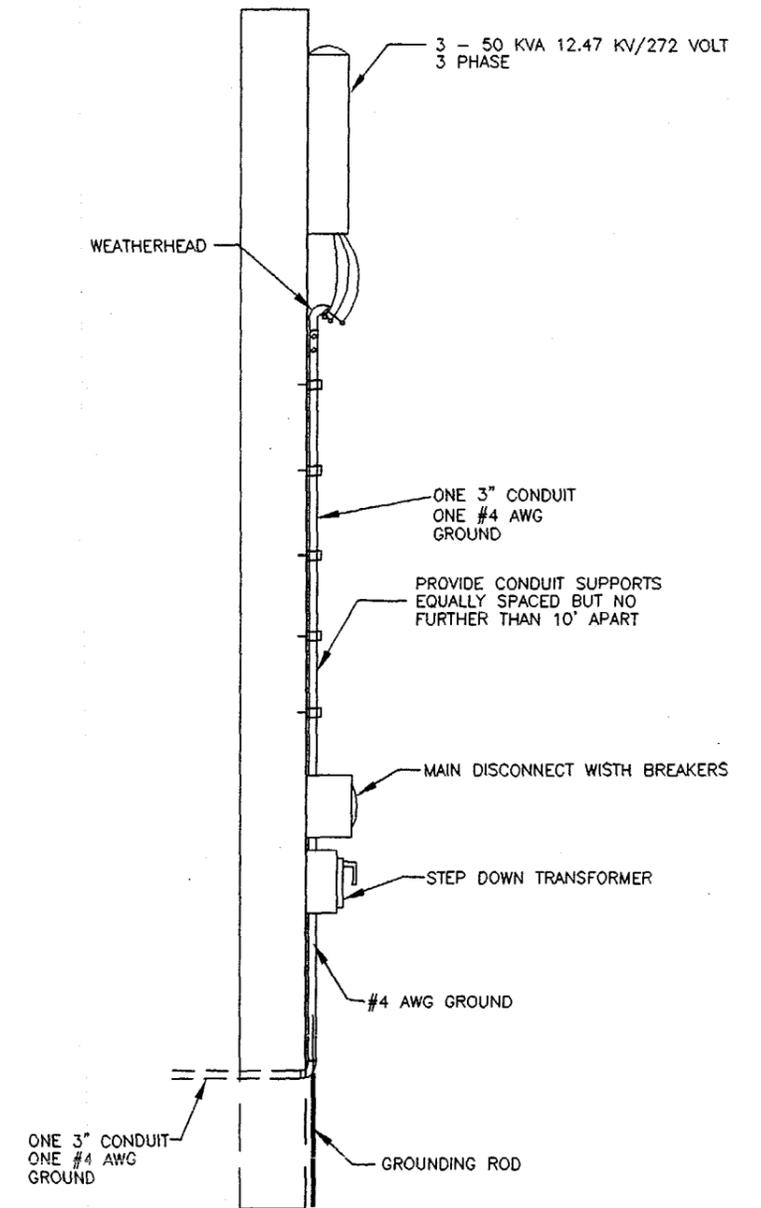
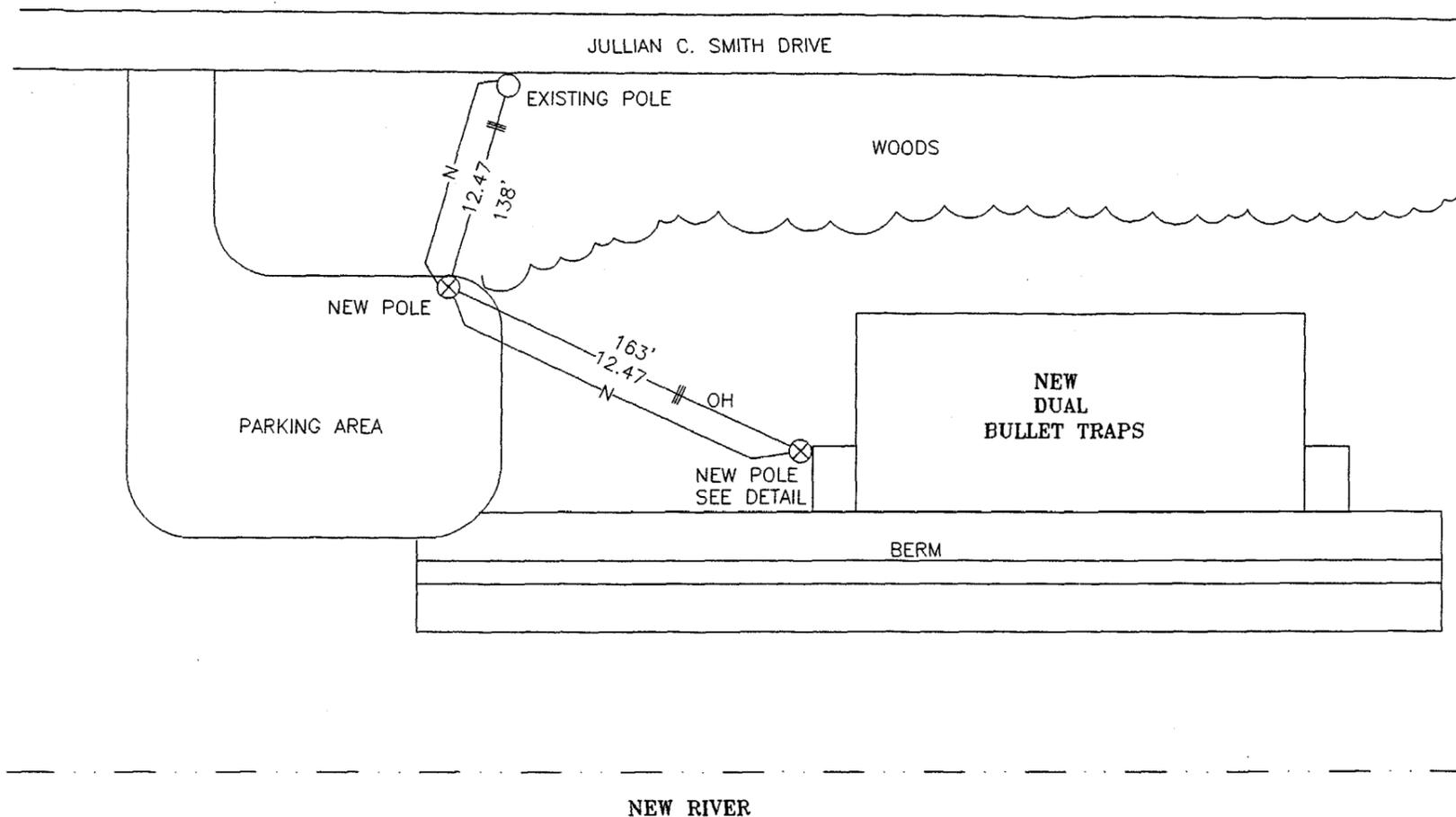
CADD FILE: RANGE A-1.DWG	DESIGNED: L. PETTIT
DRAWN: L. SHULMAN	CHECKED: J. DUNN
CHECKED: G. GILLES	

REV.	DESCRIPTION	BY	DATE	APP.
1	ISSUED FOR CONSTRUCTION	-	5-27-98	JAD
2	REVISED FOR CLIENT TARGETS	LS	8/2/98	JAD
3	REVISED FOR WALL EXTENSION	JL	9/10/98	JAD
4	RECORD DRAWING	JL	9/16/99	JAD

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL STATION NORFOLK, VIRGINIA
 CONTRACT NO. N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2
 OHM PROJECT NO. 19868 MARINE CORPS BASE, CAMP LEJEUNE, N.C.

FIGURE 3
RANGE A-1
PLAN VIEW

DRAWING NUMBER:	
SHEET NUMBER:	
DATE:	9/16/99



NOTE: SOURCE TO TRAP EQUIPMENT IS RIGID CONDUIT ALONG REAR OF TRAPS.

RECORD DRAWING

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SUBMITTED: _____ DATE: _____
PROJECT MANAGER: _____

APPROVED: _____ DATE: _____
SR. PROJECT ENGINEER: _____

APPROVED: _____ DATE: _____
DEPT. MANAGER: _____

REVISIONS						
ZONE	REV.	DESCRIPTION	BY	DATE	APP.	
	1	ISSUED FOR CONSTRUCTION	-	5/27/98	JAD	
	2	REVISED FOR CLIENT TARGETS	LS	6/2/98	JAD	
	3	RECORD DRAWING	JEL	9/20/99	JAD	

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

ATLANTIC DIVISION

NAVAL STATION NORFOLK, VIRGINIA

CONTRACT N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2

OHM PROJECT NO. 19868 MARINE CORPS BASE, CAMP LEJUNE, N.C.

FIGURE 4

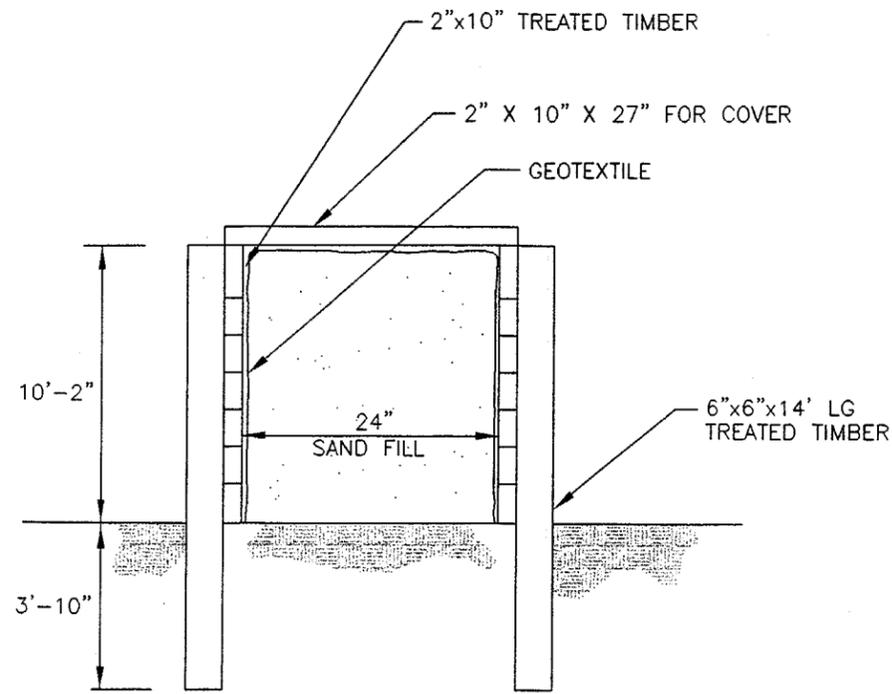
ELECTRICAL PLAN

12.47 OVERHEAD DISTRIBUTION

RANGE D-29

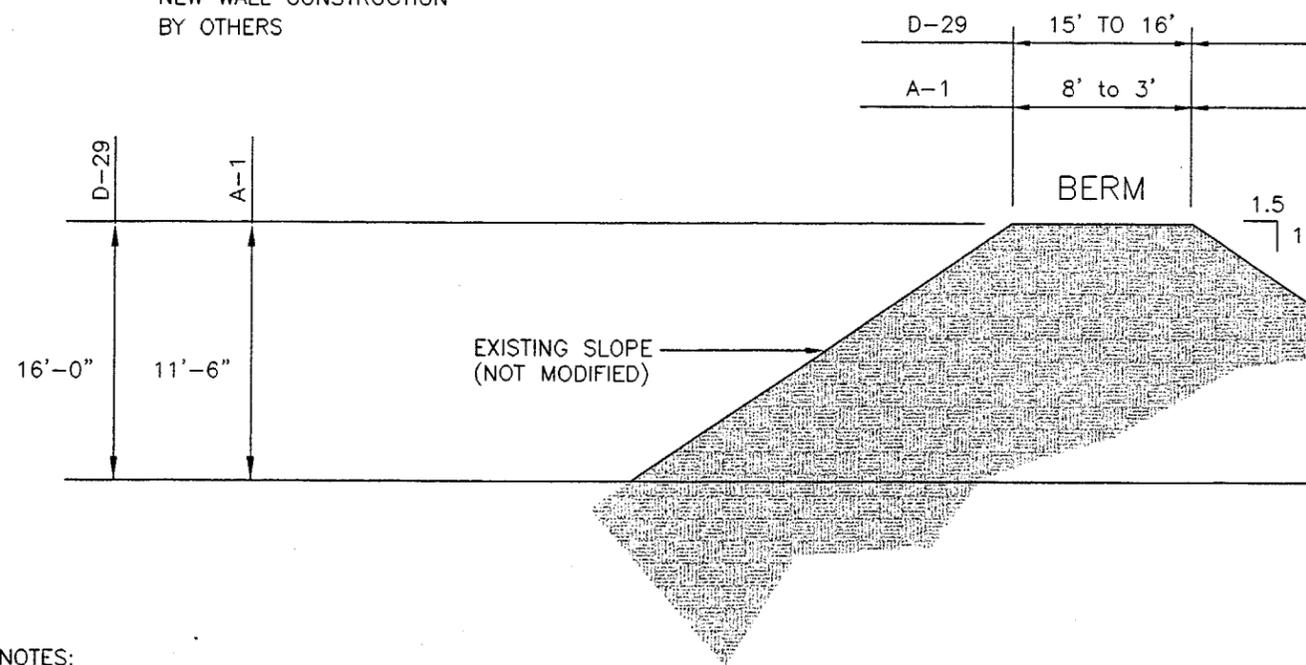
DRAWING NUMBER:	
SHEET NUMBER:	
DATE:	9/20/99

J:\LANTIV\LEVEL\8\NEW_08-bultr\FIG4r.DWG

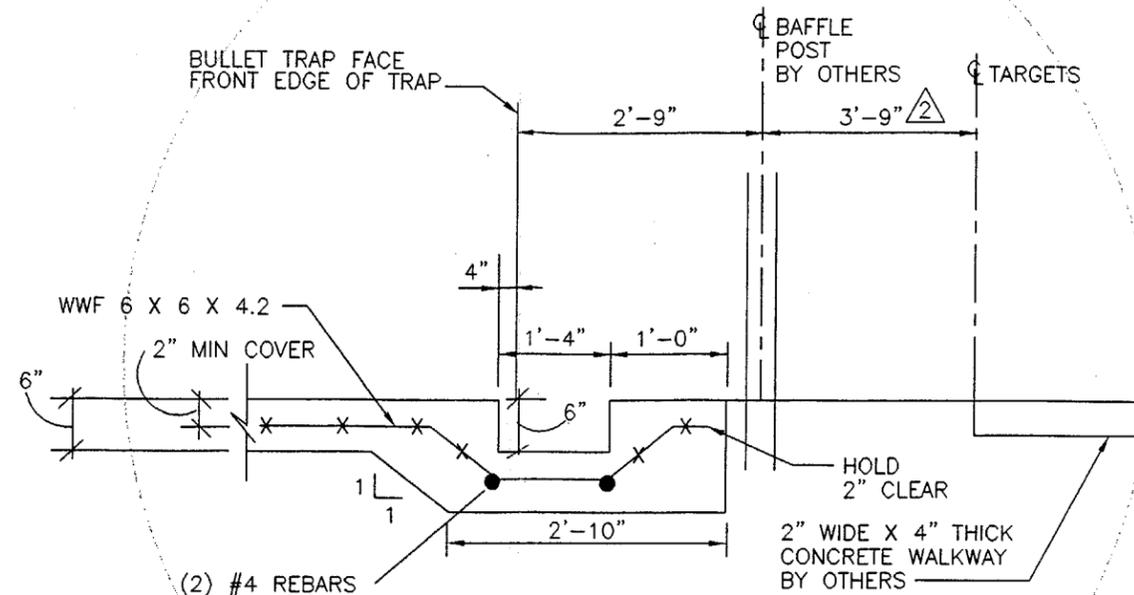


SECTION C
NOT TO SCALE 2/4

NEW WALL CONSTRUCTION
BY OTHERS



SECTION A
3/5



CONCRETE TRENCH DETAIL
NOT TO SCALE

NOTES:

1. THE SLOPE OF BERM FACE ADJACENT TO NEW RIVER WAS NOT MODIFIED.
2. THE HEIGHT OF THE BERM AT A-1 WAS INCREASED BY 2 FT. FROM APPROXIMATELY 9'-6" TO 11'-6" ABOVE GRADE.

RECORD DRAWING

OHM Remediation Services Corp.
Norcross, Georgia
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APPROVED: _____ DEPT. MANAGER: _____ DATE: _____

REVISIONS				
REV.	DESCRIPTION	BY	DATE	APP.
1	ISSUED FOR CONSTRUCTION	-	5/27/98	JAD
2	REVISED FOR CLIENT TARGETS	LS	6/2/98	JAD
3	RECORD DRAWING	JEL	9/28/99	JAD

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION NORFOLK, VIRGINIA
CONTRACT N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2
OHM PROJECT NO. 19668 MARINE CORPS BASE, CAMP LEJUNE, N.C.

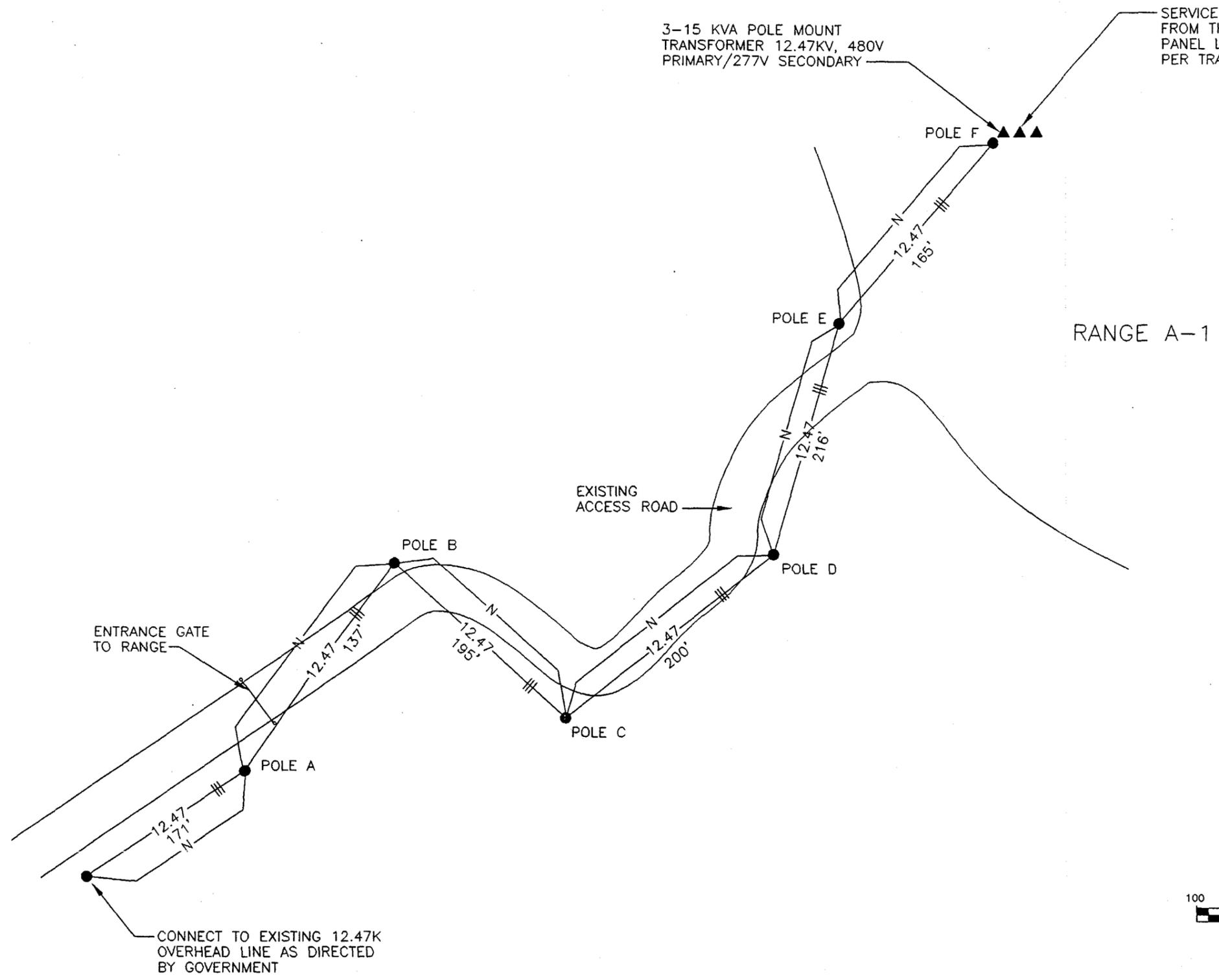
FIGURE 5
BERM & BULLET TRAP
SECTION
RANGE A-1 & D-29

DRAWING NUMBER:
SHEET NUMBER:
DATE: 9/28/99

J:\LANTONA\LEJUNE\NEW AS-BUILT\FIG5R.DWG

3-15 KVA POLE MOUNT
TRANSFORMER 12.47KV, 480V
PRIMARY/277V SECONDARY

SERVICE TO TRAP IS UNDERGROUND (31 FT.)
FROM THIS POLE TO THE MAIN DISTRIBUTION
PANEL LOCATED ADJACENT TO THE TRAP AS
PER TRAP MANUFACTURER'S RECOMMENDATIONS.

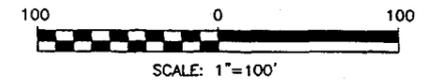


RANGE A-1

ENTRANCE GATE
TO RANGE

EXISTING
ACCESS ROAD

CONNECT TO EXISTING 12.47K
OVERHEAD LINE AS DIRECTED
BY GOVERNMENT



RECORD DRAWING

FIGURE 6

ELECTRICAL PLAN
12.47 OVERHEAD DISTRIBUTION
RANGES D-29 & A-1

DRAWING NUMBER:
SHEET NUMBER:
DATE: 9/20/99

J:\ANTIDMA\LEJE...NEW\AS-BUILT\FIG6R.DWG

OHM Remediation Services Corp.
Norcross, Georgia
A Subsidiary of OHM Corporation

SUBMITTED: _____ PROJECT MANAGER: _____ DATE: _____
APPROVED: _____ SR. PROJECT ENGINEER: _____ DATE: _____
APPROVED: _____ ODP. MANAGER: _____ DATE: _____

REVISIONS					
REV.	DESCRIPTION	BY	DATE	APP.	
1	ISSUED FOR CONSTRUCTION	-	5/27/98	JAD	
2	RECORD DRAWING	-	9/20/99	JAD	
	DESIGNED: L. PETTIT				
	CHECKED: J. DUNN				
	CHECKED: G. GILLES				

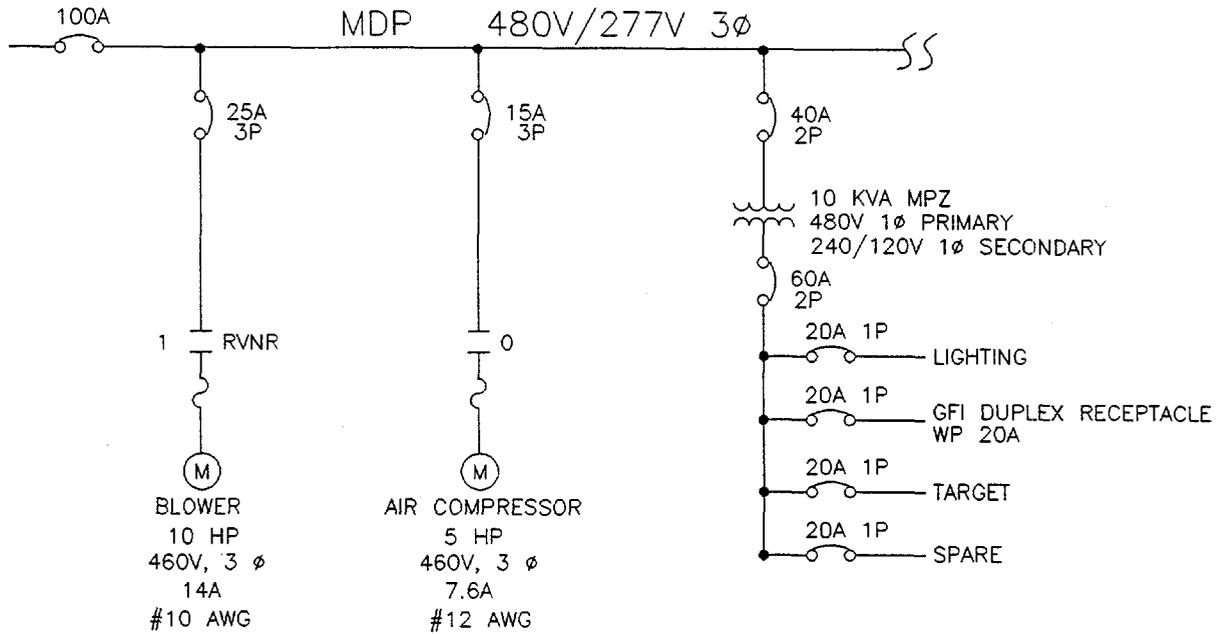
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

ATLANTIC DIVISION

NAVAL STATION NORFOLK, VIRGINIA

CONTRACT N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2

OHM PROJECT NO. 19668 MARINE CORPS BASE, CAMP LEJEUNE, N.C.



ONE LINE DIAGRAM

N.T.S.

NOTES:

1. MAIN DISTRIBUTION PANEL IS SERVICE ENTRANCE RATED.

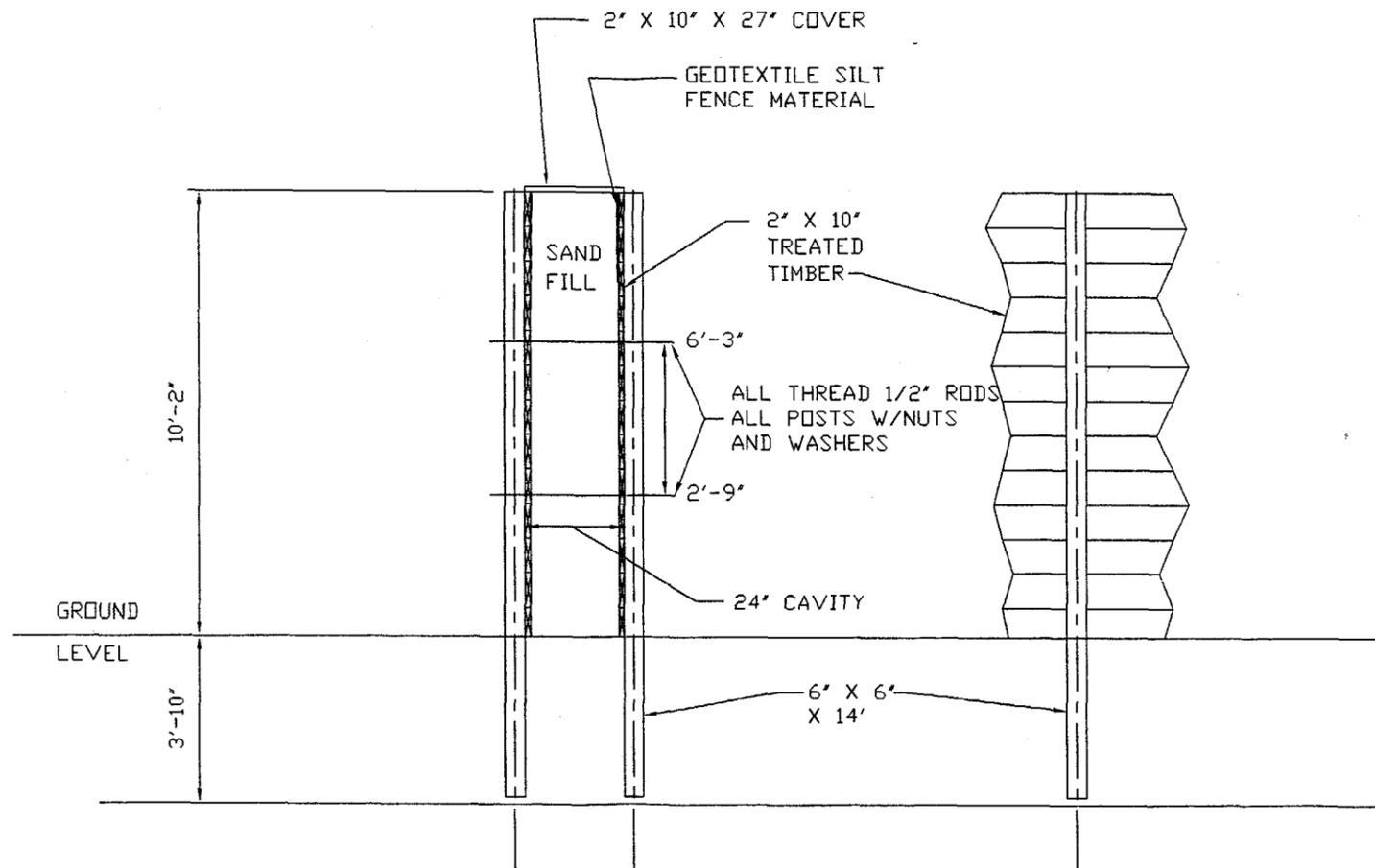
RECORD DRAWING

 OHM Remediation Services Corp. <small>NORCROSS, GEORGIA A SUBSIDIARY OF OHM CORPORATION</small>		
DRAWN BY	J. LANGE	9/20/99
CHECKED BY	F. HAAS	9/20/99
APPROVED BY	G. GILLES	9/20/99
REV. 1	SHEET # -	PROJECT NO. 19668

FIGURE 7
**ELECTRICAL ONE-LINE
 DIAGRAM**
**TYPICAL EACH TRAP
 RANGES A-1 & D-29**

E:\AS-BUILT\FIG7R.DWG

J. LANTIER\LEJEUNE



NEW WALLS
BY OTHERS

SCALE = 1/4" = 1'-0"

RECORD DRAWING

OHM Remediation Services Corp.
Norcross, Georgia
A Subsidiary of OHM Corporation

SUBMITTED: _____ PROJECT MANAGER DATE: _____
APPROVED: _____ SR. PROJECT ENGINEER DATE: _____
APPROVED: _____ DATE: _____

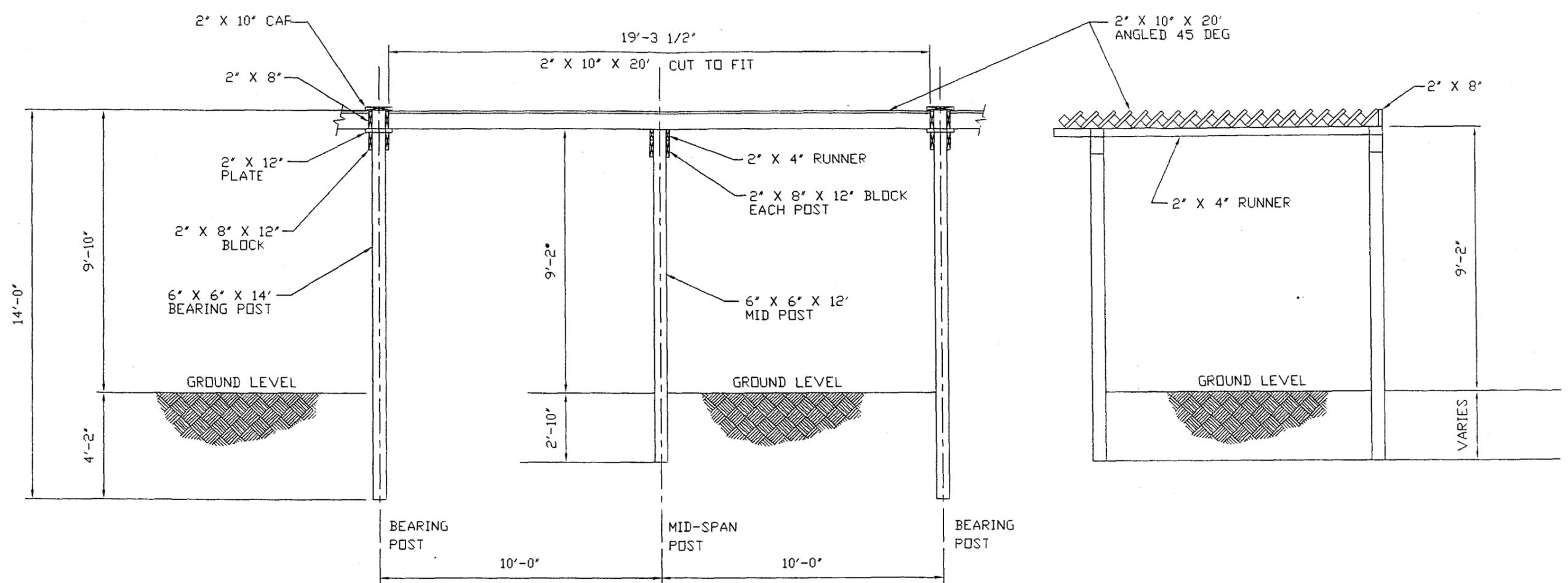
REVISIONS				
REV.	DESCRIPTION	BY	DATE	APP.
1	ISSUED FOR CONSTRUCTION	-	5/27/98	JAD
2	RECORD DRAWING	-	9/16/99	JAD

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION NORFOLK, VIRGINIA
CONTRACT N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2
OHM PROJECT NO. 19668 MARINE CORPS BASE, CAMP LEJEUNE, N.C.

FIGURE 8
OLD AND NEW WALLS
FRONT AND SIDE VIEWS
A-1 AND D-29

DRAWING NUMBER:
SHEET NUMBER:
DATE: 9/16/99

20091001 990120 E RANGE NEW FIG8.DWG



FRONT VIEW

SIDE VIEW

BAFFLE CONSTRUCTION BY OTHERS

SCALE = 1/4" = 1'-0"

RECORD DRAWING

J:\LANTANA\LEJUNE\FIRE RANGE\NEW\FIG9R.DWG

OHM Remediation Services Corp.
Norcross, Georgia
A Subsidiary of OHM Corporation

SUBMITTED: _____ PROJECT MANAGER DATE: _____
 APPROVED: _____ SR. PROJECT ENGINEER DATE: _____
 APPROVED: _____ DEPT. MANAGER DATE: _____

REVISIONS				
REV.	DESCRIPTION	BY	DATE	APP.
1	ISSUED FOR CONSTRUCTION	-	5/27/98	JAD
2	REVISED BAFFLE HEIGHT TO MATCH BULLET TRAP	-	9/14/98	JAD
3	RECORD DRAWING	-	9/16/99	JAD

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

ATLANTIC DIVISION

NAVAL STATION NORFOLK, VIRGINIA

CONTRACT N62470-93-D-3032 DELIVERY ORDER 0151 MOD 2

OHM PROJECT NO. 19668 MARINE CORPS BASE, CAMP LEJUNE, N.C.

FIGURE 9

NEW BAFFLE DETAILS

FRONT AND SIDE VIEWS

A-1 AND D-29

DRAWING NUMBER:
SHEET NUMBER:
DATE: 9/16/99

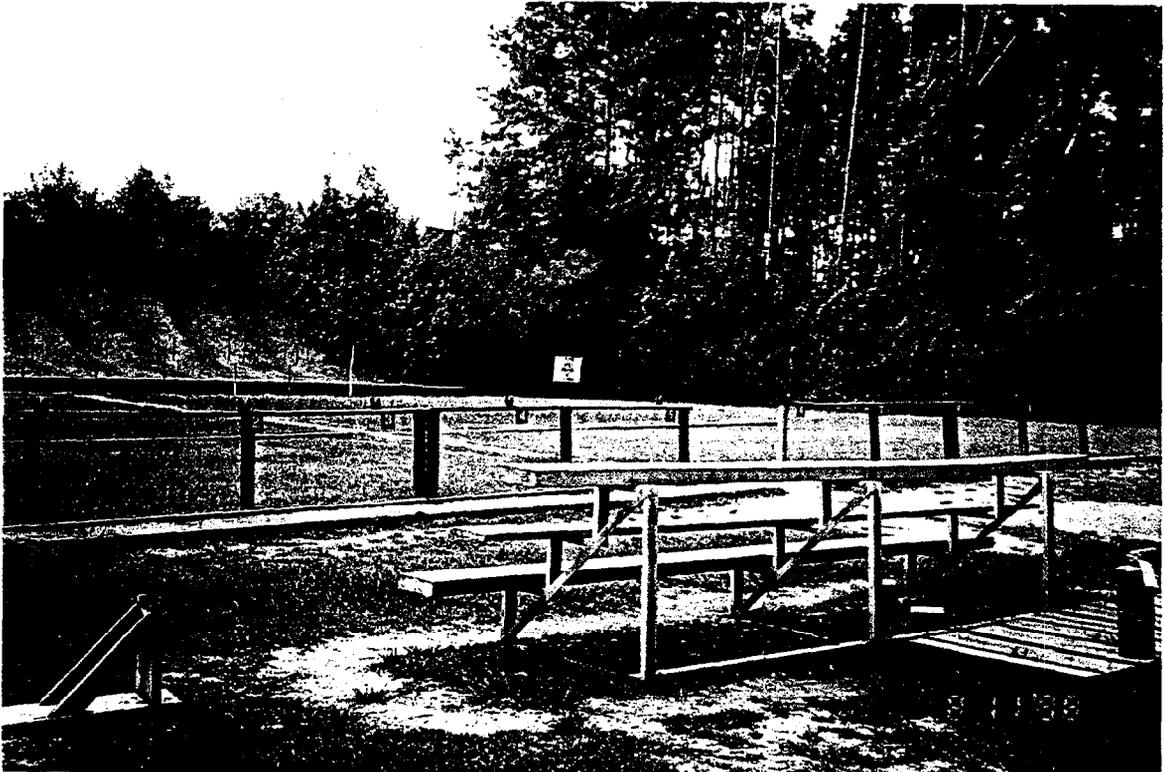
APPENDIX B

PHOTOGRAPHIC DOCUMENTATION

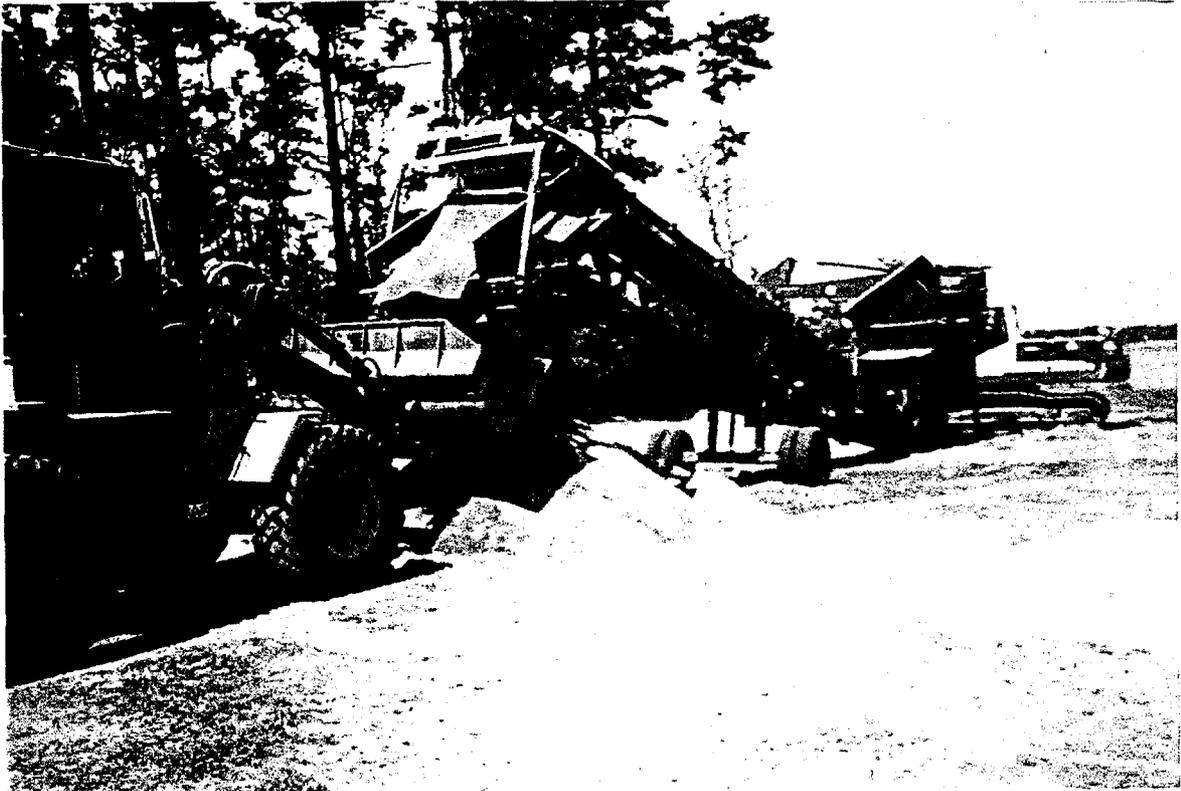
RANGE A-1



Site: Range A-1
Date: August 11, 1998
View Towards: South
Description: Overall View of Range Prior to Construction



Site: Range A-1
Date: August 11, 1998
View Towards: Southwest
Description: Firing Area Prior to Construction



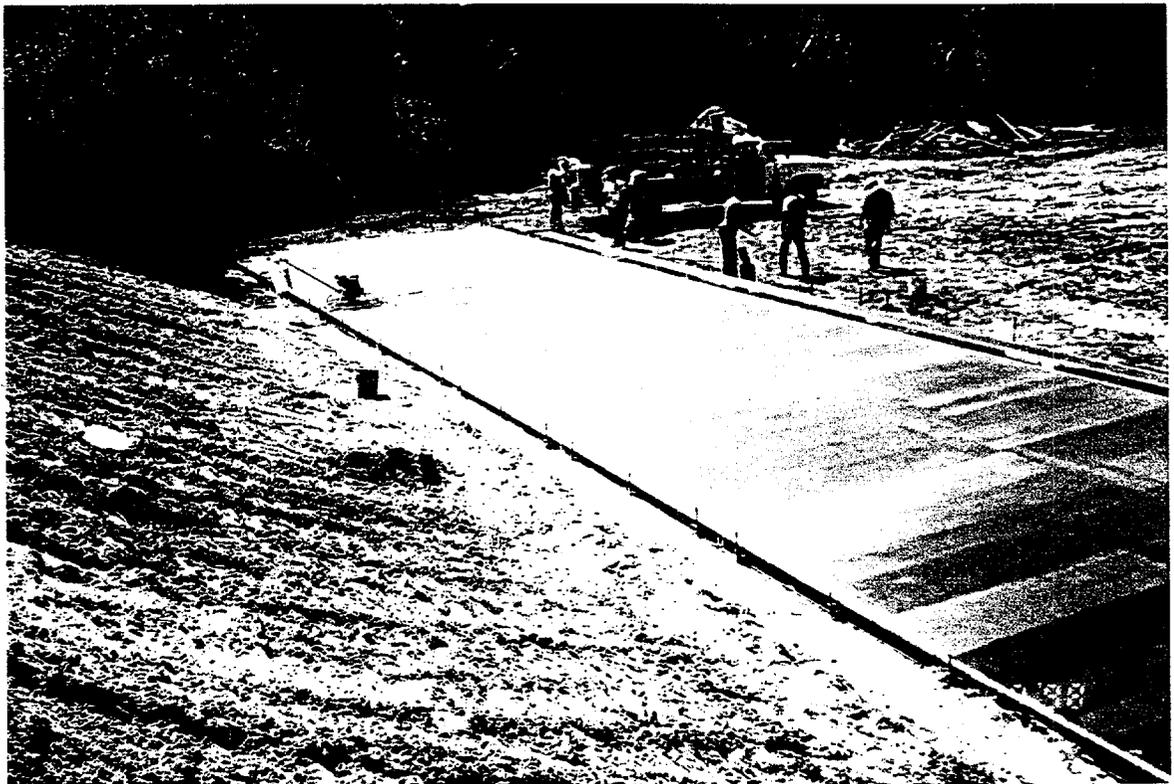
Site: Range A-1
Date: August 15, 1998
View Towards: South
Description: Power Screening Operations



Site: Range A-1
Date: August 15, 1998
View Towards: Southeast
Description: Screened Materials



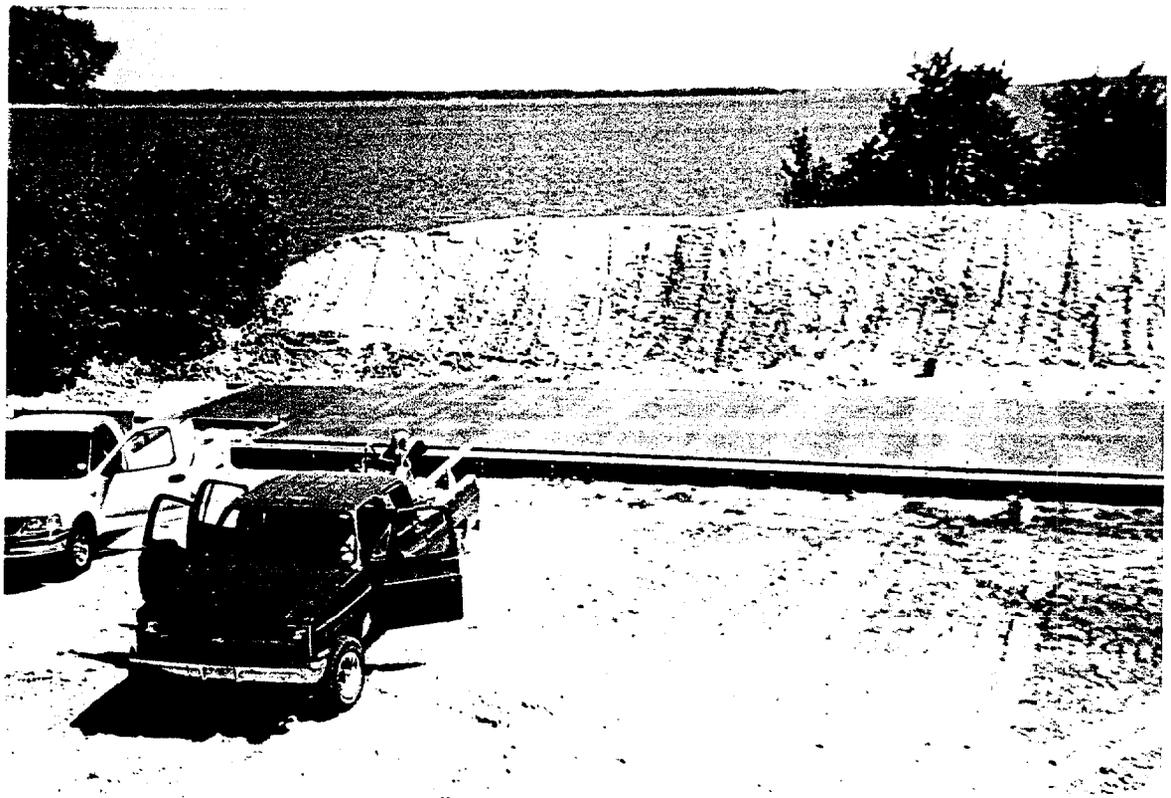
Site: Range A-1
Date: August 20, 1998
View Towards: Northwest
Description: Rebar Placement, Bullet Trap Foundation



Site: Range A-1
Date: August 20, 1998
View Towards: Northwest
Description: Foundation Slab Finishing



Site: Range A-1
Date: August 20, 1998
View Towards: Northeast
Description: Foundation Slab for Bullet Trap

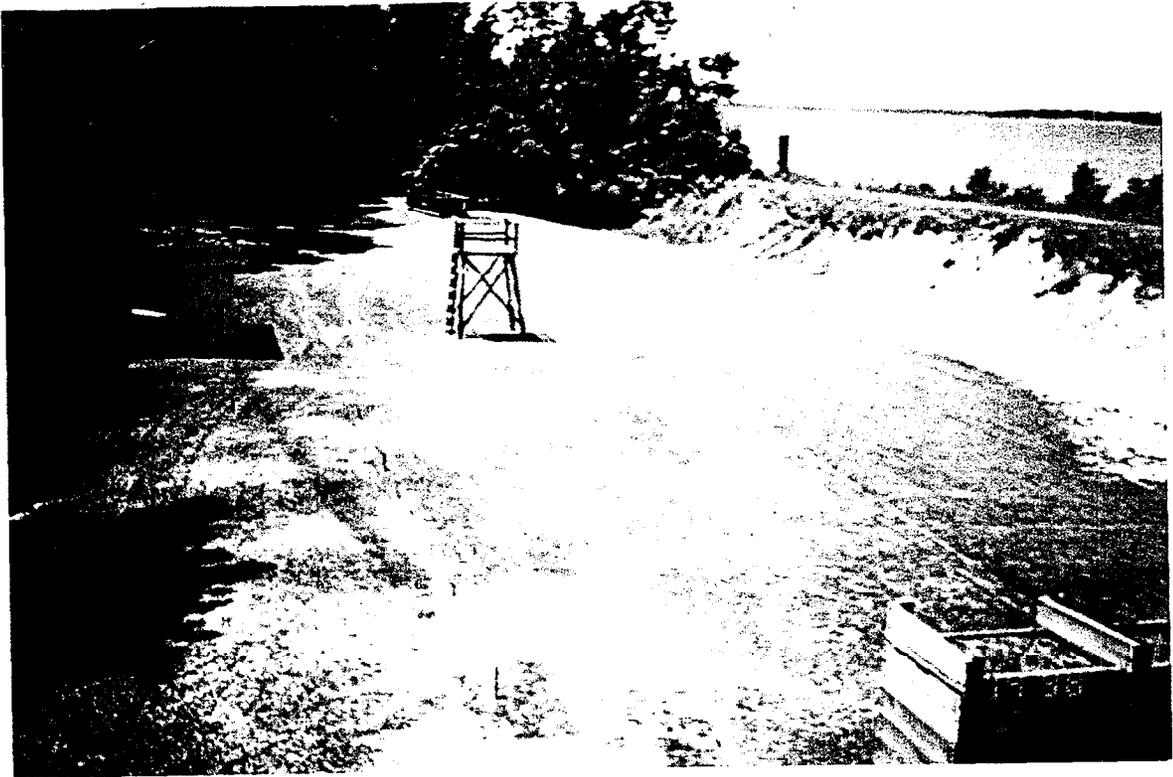


Site: Range A-1
Date: August 20, 1998
View Towards: South
Description: Completed Foundation Slab and Reconstructed Berm



Site: Range A-1
Date: September 14, 1998
View Towards: Southwest
Description: Completed Bullet Trap Assembly

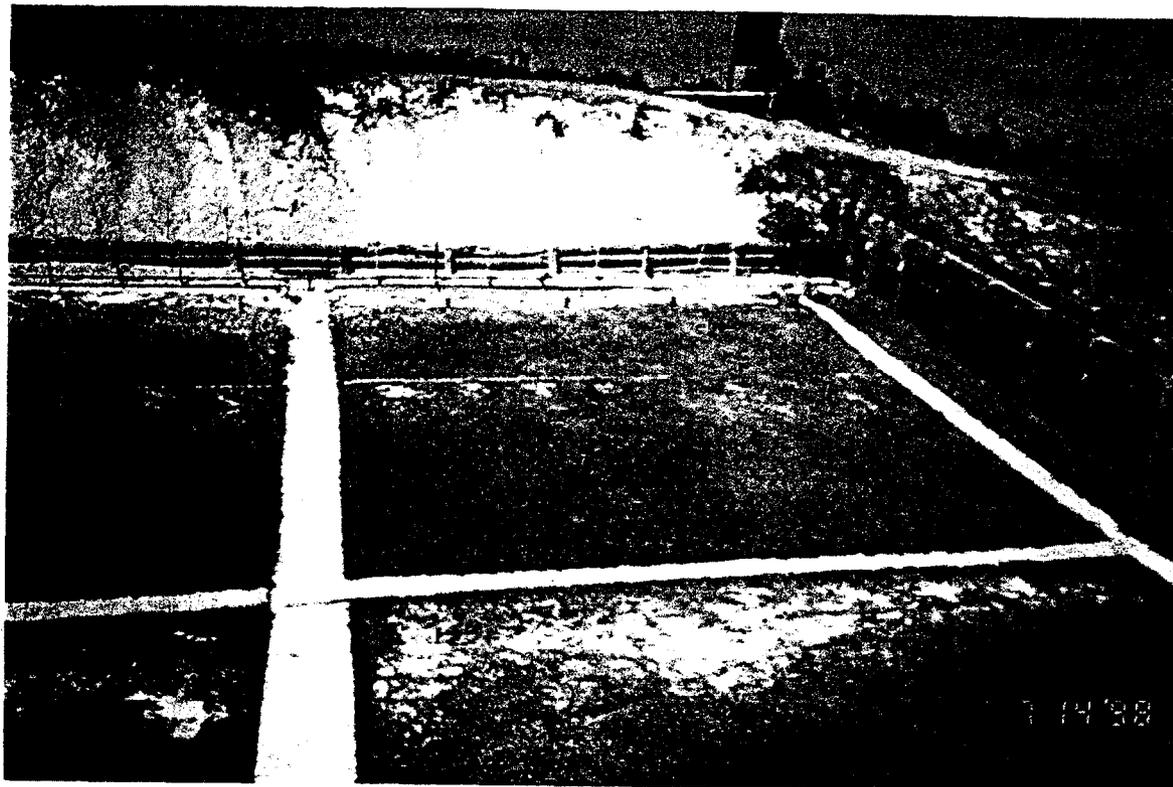
RANGE D-29



Site: Range D-29
Date: July 14, 1998
View Towards: South
Description: Open Range Prior to Construction



Site: Range D-29
Date: July 14, 1998
View Towards: Southwest
Description: Shotgun Area Prior to Construction



Site: Ranges D-29
Date: July 14,1998
View Towards: West
Description: Pistol Range Prior to Construction



Site: Range D-29
Date: July 14, 1998
View Towards: West
Description: North End of Berm Prior to Construction



Site: Range D-29
Date: August 3, 1998
View Towards: South
Description: Screening Operations Area



Site: Range D-29
Date: September 25, 1998
View Towards: South
Description: Reconstructed Berm, Grading Firing Area



Site: Range D-29
Date: September 28, 1998
View Towards: South
Description: Preparing for Slab Construction



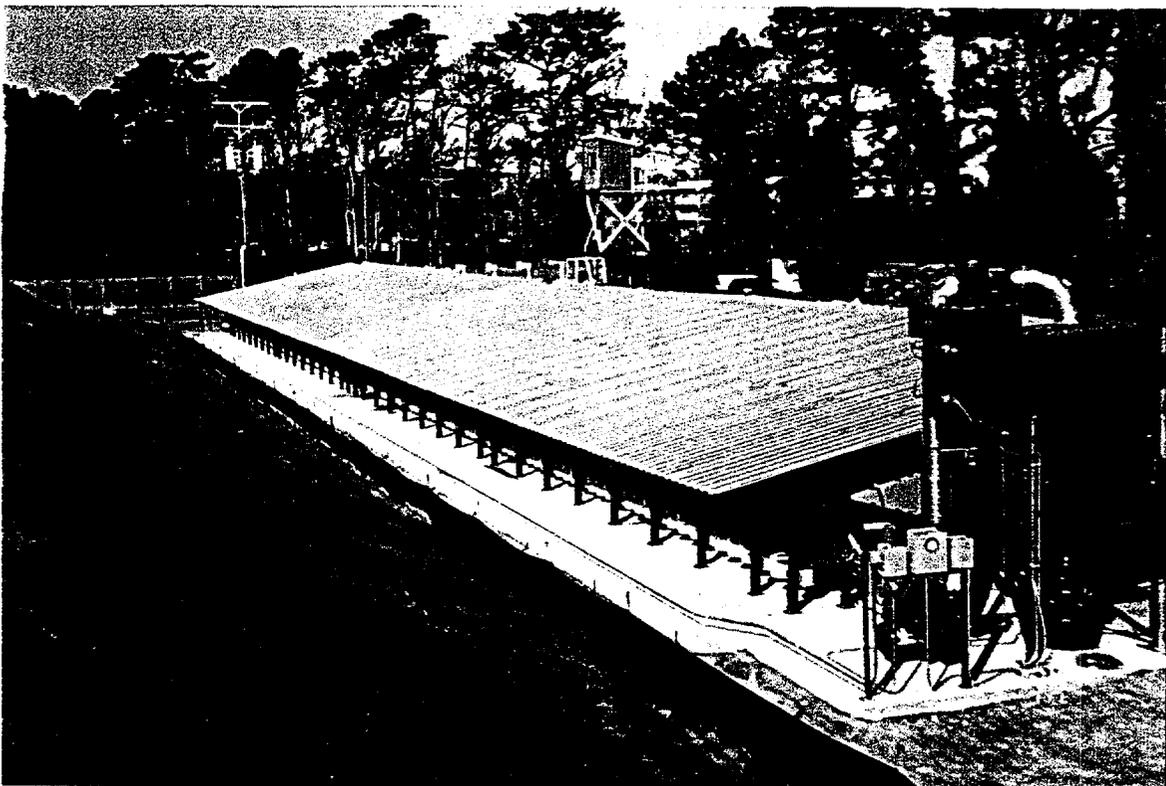
Site: Range D-29
Date: November 10, 1998
View Towards: Southwest
Description: Bullet Trap Construction



Site: Range D-29
Date: November 10, 1998
View Towards: South
Description: Rearview - Bullet Trap and Berm



Site: Range D-29
Date: November 19, 1998
View Towards: Southeast
Description: Roof Panel Installation - Bullet Trap



Site: Range D-29

Date: November 22, 1998

View Towards: Northeast

Description: Completed Bullet Trap Assemblies

APPENIDX C

ANALYTICAL DATA, CHAIN OF CUSTODY DELIVERY TICKETS

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 17343
Client Project: Camp Lejeune / 19668

No problems were encountered with this project.



Quality Assurance



Client Services Representative

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB48282

Accura Project #: 17343

Client: OHM Corporation-Norcross

Date Sampled: 7/23/98

Client Contact: R.HENDERSON

Date Received: 7/24/98

Client Project Number: 19668

Date Reported: 7/27/98

Client Project Name: CAMP LEJEUNE

Sample Matrix: SOIL

Client Sample ID: CLJ-151-2-002

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Analyzed: 7/24/98

Date Ext/Dig/Prep: 7/24/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Analyzed: 7/25/98

Date Ext/Dig/Prep: 7/25/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

4.9

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Analyzed: 7/27/98

Date Ext/Dig/Prep: 7/27/98

Result Units: mg/L

Analyte Name

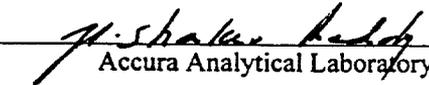
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

39

5


Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB48283

Accura Project #: 17343

Client: OHM Corporation-Norcross

Date Sampled: 7/23/98

Client Contact: R.HENDERSON

Date Received: 7/24/98

Client Project Number: 19668

Date Reported: 7/27/98

Client Project Name: CAMP LEJEUNE

Sample Matrix: SOIL

Client Sample ID: METHOD BLANK

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Analyzed: 7/24/98

Date Ext/Dig/Prep: 7/24/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Analyzed: 7/25/98

Date Ext/Dig/Prep: 7/25/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

2.9

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Analyzed: 7/27/98

Date Ext/Dig/Prep: 7/27/98

Result Units: mg/L

Analyte Name

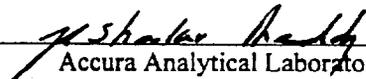
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

5


Accura Analytical Laboratory, Inc.

HML PROJECT # 17343



OHM Remediation Services Corp

Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

207319

FORM 0019 REV 297

OHM LAB COORDINATOR Elena Rodriguez	LAB COORDINATOR'S PHONE 770-734-8060	LAB COORDINATOR'S FAX 770-453-7716	LABORATORY SERVICE ID Accwa	LABORATORY CONTACT David Fuller	MAIL REPORT (COMPANY NAME) OHM Remediation Services,
PROJECT NAME	PROJECT LOCATION Camp Lejeune	PROJECT NUMBER 19668	LABORATORY PHONE 770-444-8800	LABORATORY FAX	RECIPIENT NAME Elena Rodriguez
PROJECT CONTACT Russell Henderson	PROJECT PHONE NUMBER 910-451-2390	PROJECT FAX 910-451-1809	LABORATORY ADDRESS 6017 Financial Drive	ADDRESS	5445 Triangle Pkwy, Ste 400
PROJECT ADDRESS lot 203 Holcomb Bld	CITY STATE AND ZIP CODE Camp Lejeune, NC	CLIENT LANTDIV	CITY STATE AND ZIP CODE Norcross GA. 30071	CITY STATE AND ZIP CODE	Norcross, GA 30092
PROJECT MANAGER Jim Dunn	PROJECT MANAGER'S PHONE 770-734-8072	PROJECT MANAGER'S FAX 770-453-7743	Analyses TCLP Lead		

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	T.A.T	Analyses	RAC #	Comments
1	CLT-151-2-002 Stockpile #1 20' and Composite Sample	Soil	7/23/98	14:00	No	1	E	3 days		AD48282	Please fax results to SITE & to Elena Rodriguez.
2											
3											
4											
5											
6											
7											
8											
9											
10											

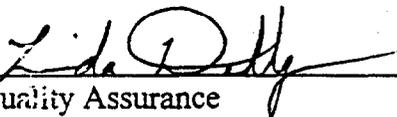
SAMPLES COLLECTED BY Randy Smith	COURIER AND AIR BILL NUMBER 801960759585	CARRIER TEMPERATURE UPON RECEIPT
RELINQUISHED BY Randy Smith FEP EX	RECEIVED BY Fedex 359L	SAMPLES CONDITION UPON RECEIPT
	DATE 7/23/98 7/24/98	TIME 17:00 0930

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 17392
Client Project: Firing Range D-29 / 19668

No problems were encountered with this project.


Quality Assurance


Client Services Representative

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB48518

Accura Project #: 17392

Client: OHM Corporation-Norcross

Date Sampled: 7/28/98

Client Contact: E. RODRIGUEZ

Date Received: 7/29/98

Client Project Number: 19668

Date Reported: 8/4/98

Client Project Name: FIRING RANGE D-29

Sample Matrix: SOIL

Client Sample ID: CLJ-151-2-003

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Analyzed: 7/29/98

Date Ext/Dig/Prep: 7/29/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Analyzed: 7/30/98

Date Ext/Dig/Prep: 7/30/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

4.9

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Analyzed: 8/3/98

Date Ext/Dig/Prep: 7/31/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB48519

Accura Project #: 17392

Client: OHM Corporation-Norcross

Date Sampled: 7/28/98

Client Contact: E. RODRIGUEZ

Date Received: 7/29/98

Client Project Number: 19668

Date Reported: 8/4/98

Client Project Name: FIRING RANGE D-29

Sample Matrix: SOIL

Client Sample ID: CLJ-151-2-004

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Analyzed: 7/29/98

Date Ext/Dig/Prep: 7/29/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Analyzed: 7/30/98

Date Ext/Dig/Prep: 7/30/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

5.0

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Analyzed: 8/3/98

Date Ext/Dig/Prep: 7/31/98

Result Units: mg/L

Analyte Name

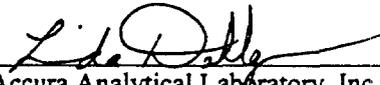
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

170

1


Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB48520

Accura Project #: 17392

Client: OHM Corporation-Norcross

Date Sampled: 7/28/98

Client Contact: E. RODRIGUEZ

Date Received: 7/29/98

Client Project Number: 19668

Date Reported: 8/4/98

Client Project Name: FIRING RANGE D-29

Sample Matrix: SOIL

Client Sample ID: METHOD BLANK

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Analyzed: 7/29/98

Date Ext/Dig/Prep: 7/29/98

Result Units:

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
TCLP Extraction	NA	0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Analyzed: 7/30/98

Date Ext/Dig/Prep: 7/30/98

Result Units: pH Units

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
TCLP Leachate Fluid pH	4.9	0

ANALYSIS: TCLP Metals - Lead

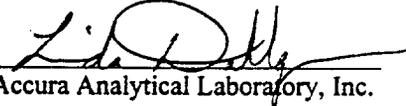
Method Ref: 3010A/6010B

Date Analyzed: 8/3/98

Date Ext/Dig/Prep: 7/31/98

Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Lead (Reg Limit = 5.0)	<RDL	1


Accura Analytical Laboratory, Inc.



Environmental Services Corp
 a subsidiary of OHM Corporation
 Route 214 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY:
 20732

FORM 0019 REV. 1-97

OHM LAB COORDINATOR Elena Rodriguez	LAB COORDINATOR'S PHONE 770-734-8060	LAB COORDINATOR'S FAX 770-453-7716	LABORATORY SERVICE ID Accura Analytic	LABORATORY CONTACT David Fuller	MAIL REPORT (COMPANY NAME) OHM Remediation Services,
PROJECT NAME Firing Range 0-29	PROJECT LOCATION Camp Lejeune	PROJECT NUMBER 19668	LABORATORY PHONE 770-449-8800	LABORATORY FAX	RECIPIENT NAME Elena Rodriguez
PROJECT CONTACT Russell Henderson	PROJECT PHONE NUMBER 910-451-2390	PROJECT FAX 910-451-1809	LABORATORY ADDRESS 6017 Financial Drive	ADDRESS 5445 Triangle Pkwy, Ste 400	
PROJECT ADDRESS Lot 203 Holcomb Bld	CITY, STATE AND ZIP CODE Camp Lejeune, NC	CLIENT LANTDIV	CITY, STATE AND ZIP CODE Norcross, Ga 30071	CITY, STATE AND ZIP CODE Norcross, GA 30092	
PROJECT MANAGER Jim Dunn	PROJECT MANAGER'S PHONE 770-734-8072	PROJECT MANAGER'S FAX 770-453-7743	Analytes TCLP Lead AME AB		

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	T.A.T	Analytes	Comments
1	CLJ-151-2-003 Stackpile #2 200y Composite	Soil	7/27/08	0830	4°C	1	NECSH E	3 day	X	Please fax results to SITE & to Elena Rodriguez.
2	CLJ-151-2-004 Stackpile #1 80% grass, 15% dirt, 5% Rock Composite	Soil	7/27/08	1430	4°C	1	NECSH E	3 day	X	
3										
4										
5										
6										
7										
8										
9										
0										

SAMPLES COLLECTED BY Russell Henderson	COURIER AND AIR BILL NUMBER 801960759363	COOLER TEMPERATURE UPON RECEIPT
RELINQUISHED BY Russell Henderson	RECEIVED BY FED EX & Goldberg	SAMPLE'S CONDITION UPON RECEIPT
	DATE 7/29/08	TIME 1600
	DATE 7/29/08	TIME 0930

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 17564
Client Project: Firing Ranges / 19668

No problems were encountered with this project.

COC in the back of each
section


Quality Assurance


Client Services Representative

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB49528

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: SOIL

Client Sample ID: CLJ-151-2-005

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/15/98

Date Analyzed: 8/15/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Ext/Dig/Prep: 8/16/98

Date Analyzed: 8/16/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

6.0

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/17/98

Date Analyzed: 8/17/98

Result Units: mg/L

Analyte Name

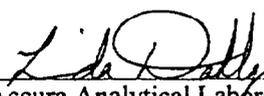
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


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LABORATORY REPORT

Accura Sample ID #: AB49529

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: SOIL

Client Sample ID: CLJ-151-2-006

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/15/98

Date Analyzed: 8/15/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Ext/Dig/Prep: 8/16/98

Date Analyzed: 8/16/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

6.0

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/17/98

Date Analyzed: 8/17/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


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LABORATORY REPORT

Accura Sample ID #: AB49530

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: SOIL

Client Sample ID: CLJ-151-2-007

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/15/98

Date Analyzed: 8/15/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Ext/Dig/Prep: 8/16/98

Date Analyzed: 8/16/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

5.9

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/17/98

Date Analyzed: 8/17/98

Result Units: mg/L

Analyte Name

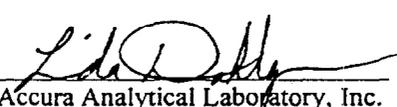
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


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LABORATORY REPORT

Accura Sample ID #: AB49531

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: SOIL

Client Sample ID: CLJ-151-3-008

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/15/98

Date Analyzed: 8/15/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Ext/Dig/Prep: 8/16/98

Date Analyzed: 8/16/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

6.2

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/17/98

Date Analyzed: 8/17/98

Result Units: mg/L

Analyte Name

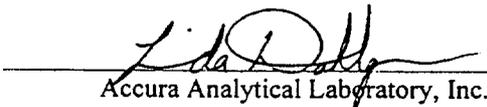
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


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LABORATORY REPORT

Accura Sample ID #: AB49532

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: SOLID

Client Sample ID: CLJ-151-3-009

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/19/98 Date Analyzed: 8/19/98

Result Units:

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
TCLP Extraction	NA	0

ANALYSIS: TCLP Herbicides

Method Ref: SW846-8151A

Date Ext/Dig/Prep: 8/21/98 Date Analyzed: 8/21/98

Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,5-TP (Silvex) (Reg Limit = 1.0)	<RDL	0.05
2,4-D (Reg Limit = 10.0)	<RDL	0.1

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Ext/Dig/Prep: 8/20/98 Date Analyzed: 8/20/98

Result Units: pH Units

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
TCLP Leachate Fluid pH	6.4	0

ANALYSIS: TCLP Mercury

Method Ref: 7470A

Date Ext/Dig/Prep: 8/24/98 Date Analyzed: 8/24/98

Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Mercury (Reg Limit = 0.2)	<RDL	0.01

ANALYSIS: TCLP Metals

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/20/98 Date Analyzed: 8/20/98

Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Arsenic (Reg Limit = 5.0)	<RDL	1
Barium (Reg Limit = 100.0)	<RDL	1

Cadmium (Reg Limit = 1.0)	<RDL	1
Chromium (Reg Limit = 5.0)	<RDL	1
Lead (Reg Limit = 5.0)	<RDL	1
Selenium (Reg Limit = 1.0)	<RDL	1
Silver (Reg Limit = 5.0)	<RDL	1

ANALYSIS: TCLP Pesticides

Method Ref: 3510C/8081A

Date Ext/Dig/Prep: 8/21/98 Date Analyzed: 8/21/98 Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Chlordane (Reg Limit = 0.03)	<RDL	0.01
Endrin (Reg Limit = 0.02)	<RDL	0.002
Heptachlor & Hep Epoxide (Limit = 0.008)	<RDL	0.002
Lindane (gamma-BHC) (Reg Limit = 0.4)	<RDL	0.004
Methoxychlor (Reg Limit = 10)	<RDL	0.1
Toxaphene (Reg Limit = 0.5)	<RDL	0.1

ANALYSIS: TCLP SVOC's

Method Ref: 3520C/8270C

Date Ext/Dig/Prep: 8/20/98 Date Analyzed: 8/24/98 Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,4-Dichlorobenzene (Reg Limit = 7.5)	<RDL	0.04
2,4,5-Trichlorophenol (Reg Limit=400.0)	<RDL	0.04
2,4,6-Trichlorophenol (Reg Limit = 2.0)	<RDL	0.04
2,4-Dinitrotoluene (Reg Limit = 0.13)	<RDL	0.04
2-Methylphenol (Reg Limit = 200.0)	<RDL	0.04
4-Methylphenol (Reg Limit = 200.0)	<RDL	0.04
Hexachlorobenzene (Reg Limit = 0.13)	<RDL	0.04
Hexachlorobutadiene (Reg Limit = 0.5)	<RDL	0.04
Hexachloroethane (Reg Limit = 3.0)	<RDL	0.04
Nitrobenzene (Reg Limit = 2.0)	<RDL	0.04
Pentachlorophenol (Reg Limit = 100.0)	<RDL	0.04
Pyridine (Reg Limit = 5.0)	<RDL	0.04
Total Cresol (Reg Limit = 200.0)	<RDL	0.04

ANALYSIS: TCLP-ZHE Leaching Extraction

Method Ref: 1311

Date Ext/Dig/Prep: 8/17/98 Date Analyzed: 8/17/98 Result Units:

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
TCLP-ZHE Extraction	NA	0

ANALYSIS: TCLP-ZHE VOC's

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/19/98 Date Analyzed: 8/19/98 Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,1-Dichloroethene (Reg Limit = 0.7)	<RDL	0.05
1,2-Dichloroethane (Reg Limit = 0.5)	<RDL	0.05

Benzene (Reg Limit = 0.5)	<RDL	0.05
Carbon tetrachloride (Reg Limit = 0.5)	<RDL	0.05
Chlorobenzene (Reg Limit = 100.0)	<RDL	0.05
Chloroform (Reg Limit = 6.0)	<RDL	0.05
Methyl ethyl ketone (Reg Limit = 200.0)	<RDL	0.5
Tetrachloroethene (Reg Limit = 0.7)	<RDL	0.05
Trichloroethene (Reg Limit = 0.5)	<RDL	0.05
Vinyl chloride (Reg Limit = 0.2)	<RDL	0.05

ANALYSIS: X TCLP HERB QC Surrogates

Method Ref: SW846-8151A

Date Ext/Dig/Prep: 8/21/98 Date Analyzed: 8/21/98 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
DCAA	102	0

ANALYSIS: X TCLP PEST/PCB QC Surrogates

Method Ref: 3510C/8081/2

Date Ext/Dig/Prep: 8/21/98 Date Analyzed: 8/21/98 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
* Decachlorobiphenyl	66	0
Tetrachloro-m-xylene	78	0

ANALYSIS: X TCLP SVOC QC Surrogates

Method Ref: 3520C/8270C

Date Ext/Dig/Prep: 8/20/98 Date Analyzed: 8/24/98 Result Units: %

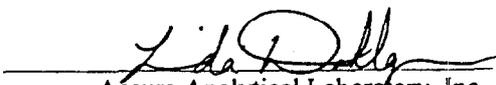
<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	86	0
2-Fluorobiphenyl	85	0
2-Fluorophenol	79	0
Nitrobenzene-d5	70	0
p-Terphenyl	81	0
Phenol-d5	75	0

ANALYSIS: X TCLP-ZHE VOC QC Surrogates

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/19/98 Date Analyzed: 8/19/98 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	103	0
Bromofluorobenzene	89	0
Toluene-d8	88	0


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LABORATORY REPORT

Accura Sample ID #: AB49533

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: WATER

Client Sample ID: CLJ-151-3-010FB

ANALYSIS: Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/18/98

Date Analyzed: 8/19/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

Lead

<RDL

0.05


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LABORATORY REPORT

Accura Sample ID #: AB49534

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: WATER

Client Sample ID: CLJ-151-2-011RS

ANALYSIS: Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/18/98

Date Analyzed: 8/19/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

Lead

<RDL

0.05


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LABORATORY REPORT

Accura Sample ID #: AB49535

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: WATER

Client Sample ID: CLJ-151-3-012RS

ANALYSIS: Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/18/98

Date Analyzed: 8/19/98

Result Units: mg/L

Analyte Name

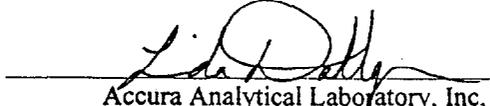
Analytical Results

Reported Detection Limits

Lead

<RDL

0.05


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LABORATORY REPORT

Accura Sample ID #: AB49536

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: SOIL

Client Sample ID: METHOD BLANK

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/15/98

Date Analyzed: 8/15/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Herbicides

Method Ref: SW846-8151A

Date Ext/Dig/Prep: 8/21/98

Date Analyzed: 8/21/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

2,4,5-TP (Silvex) (Reg Limit = 1.0)

<RDL

0.05

2,4-D (Reg Limit = 10.0)

<RDL

0.1

ANALYSIS: TCLP Leachate Fluid pH

Method Ref: 1311

Date Ext/Dig/Prep: 8/16/98

Date Analyzed: 8/16/98

Result Units: pH Units

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Leachate Fluid pH

4.9

0

ANALYSIS: TCLP Mercury

Method Ref: 7470A

Date Ext/Dig/Prep: 8/24/98

Date Analyzed: 8/24/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

Mercury (Reg Limit = 0.2)

<RDL

0.01

ANALYSIS: TCLP Metals

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/20/98

Date Analyzed: 8/20/98

Result Units: mg/L

Analyte Name

Analytical Results

Reported Detection Limits

Arsenic (Reg Limit = 5.0)

<RDL

1

Barium (Reg Limit = 100.0)

<RDL

1

Cadmium (Reg Limit = 1.0)	<RDL	1
Chromium (Reg Limit = 5.0)	<RDL	1
Lead (Reg Limit = 5.0)	<RDL	1
Selenium (Reg Limit = 1.0)	<RDL	1
Silver (Reg Limit = 5.0)	<RDL	1

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/17/98 Date Analyzed: 8/17/98 Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Lead (Reg Limit = 5.0)	<RDL	1

ANALYSIS: TCLP Pesticides

Method Ref: 3510C/8081A

Date Ext/Dig/Prep: 8/21/98 Date Analyzed: 8/21/98 Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Chlordane (Reg Limit = 0.03)	<RDL	0.01
Endrin (Reg Limit = 0.02)	<RDL	0.002
Heptachlor & Hep Epoxide (Limit = 0.008)	<RDL	0.002
Lindane (gamma-BHC) (Reg Limit = 0.4)	<RDL	0.004
Methoxychlor (Reg Limit = 10)	<RDL	0.1
Toxaphene (Reg Limit = 0.5)	<RDL	0.1

ANALYSIS: TCLP SVOC's

Method Ref: 3520C/8270C

Date Ext/Dig/Prep: 8/20/98 Date Analyzed: 8/24/98 Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,4-Dichlorobenzene (Reg Limit = 7.5)	<RDL	0.04
2,4,5-Trichlorophenol (Reg Limit=400.0)	<RDL	0.04
2,4,6-Trichlorophenol (Reg Limit = 2.0)	<RDL	0.04
2,4-Dinitrotoluene (Reg Limit = 0.13)	<RDL	0.04
2-Methylphenol (Reg Limit = 200.0)	<RDL	0.04
4-Methylphenol (Reg Limit = 200.0)	<RDL	0.04
Hexachlorobenzene (Reg Limit = 0.13)	<RDL	0.04
Hexachlorobutadiene (Reg Limit = 0.5)	<RDL	0.04
Hexachloroethane (Reg Limit = 3.0)	<RDL	0.04
Nitrobenzene (Reg Limit = 2.0)	<RDL	0.04
Pentachlorophenol (Reg Limit = 100.0)	<RDL	0.04
Pyridine (Reg Limit = 5.0)	<RDL	0.04
Total Cresol (Reg Limit = 200.0)	<RDL	0.04

ANALYSIS: TCLP-ZHE Leaching Extraction

Method Ref: 1311

Date Ext/Dig/Prep: 8/17/98 Date Analyzed: 8/17/98 Result Units:

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
TCLP-ZHE Extraction	NA	0

ANALYSIS: TCLP-ZHE VOC's

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/19/98

Date Analyzed: 8/19/98

Result Units: mg/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,1-Dichloroethene (Reg Limit = 0.7)	<RDL	0.05
1,2-Dichloroethane (Reg Limit = 0.5)	<RDL	0.05
Benzene (Reg Limit = 0.5)	<RDL	0.05
Carbon tetrachloride (Reg Limit = 0.5)	<RDL	0.05
Chlorobenzene (Reg Limit = 100.0)	<RDL	0.05
Chloroform (Reg Limit = 6.0)	<RDL	0.05
Methyl ethyl ketone (Reg Limit = 200.0)	<RDL	0.5
Tetrachloroethene (Reg Limit = 0.7)	<RDL	0.05
Trichloroethene (Reg Limit = 0.5)	<RDL	0.05
Vinyl chloride (Reg Limit = 0.2)	<RDL	0.05

ANALYSIS: X TCLP HERB QC Surrogates

Method Ref: SW846-8151A

Date Ext/Dig/Prep: 8/21/98

Date Analyzed: 8/21/98

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
DCAA	103	0

ANALYSIS: X TCLP PEST/PCB QC Surrogates

Method Ref: 3510C/8081/2

Date Ext/Dig/Prep: 8/21/98

Date Analyzed: 8/21/98

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	92	0
Tetrachloro-m-xylene	89	0

ANALYSIS: X TCLP SVOC QC Surrogates

Method Ref: 3520C/8270C

Date Ext/Dig/Prep: 8/20/98

Date Analyzed: 8/24/98

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	73	0
2-Fluorobiphenyl	81	0
2-Fluorophenol	79	0
Nitrobenzene-d5	60	0
p-Terphenyl	87	0
Phenol-d5	71	0

ANALYSIS: X TCLP-ZHE VOC OC Surrogates

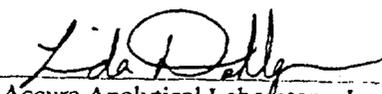
Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/19/98

Date Analyzed: 8/19/98

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	94	0
Bromofluorobenzene	88	0


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LABORATORY REPORT

Accura Sample ID #: AB49537

Accura Project #: 17564

Client: OHM Corporation-Norcross

Date Sampled: 8/14/98

Client Contact: R. HENDERSON

Date Received: 8/15/98

Client Project Number: 19668

Date Reported: 8/25/98

Client Project Name: FIRING RANGES

Sample Matrix: WATER

Client Sample ID: **METHOD BLANK**

ANALYSIS: Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/18/98

Date Analyzed: 8/19/98

Result Units: mg/L

Analyte Name

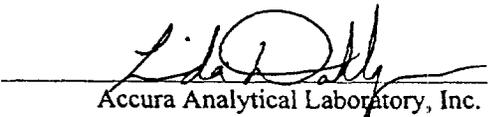
Analytical Results

Reported Detection Limits

Lead

<RDL

0.05


Accura Analytical Laboratory, Inc.



OHM Remediation Services Corp

Subsidiary of OHM Corporation

U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

PROJECT FILE CARD

207321

FORM 0019 REV. 2-97

OHM LAB COORDINATOR Elena Rodriguez	LAB COORDINATOR'S PHONE 770-734-8060	LAB COORDINATOR'S FAX 770-453-7716	LABORATORY SERVICE ID Accura Analytical	LABORATORY CONTACT Jim Reisch	MAIL REPORT (COMPANY NAME) OHM Remediation Services,
PROJECT NAME Firing Range	PROJECT LOCATION Camp Lejeune	PROJECT NUMBER 19668	LABORATORY PHONE 770-449-8800	LABORATORY FAX	RECIPIENT NAME Elena Rodriguez
PROJECT CONTACT Russell Henderson	PROJECT PHONE NUMBER 910-451-2390	PROJECT FAX 910-451-1809	LABORATORY ADDRESS 6017 Financial Drive		ADDRESS 5445 Triangle Pkwy, Ste 400
PROJECT ADDRESS Lot 203 Holcomb Blc	CITY, STATE AND ZIP CODE Camp Lejeune, NC	CLIENT LANTDIV	CITY, STATE AND ZIP CODE Norcross, Ga 30071		CITY, STATE AND ZIP CODE Norcross, GA 30092
PROJECT MANAGER Jim Dunn	PROJECT MANAGER'S PHONE 770-734-8072	PROJECT MANAGER'S FAX 770-453-7743	Analyses Total Lead Full TCLP		

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses	Comments
1	CLJ-151-2-005 Stockpile 1 D-29 stabilized	Soil	8/11/98	0800	4°C	1	OHM Min	3day	X	Please fax results to SITE & to Elena Rodriguez.
2	CLJ-151-2-006 Stockpile 3 D-29 stabilized	↓	↓	0820	↓	↓	↓	X		
3	CLJ-151-2-007 Stockpile 4 D-29 stabilized	↓	↓	0840	↓	↓	↓	X		
4	CLJ-151-3-008 Stockpile 1 A-1	↓	↓	0920	↓	↓	24hr	X		
5	CLJ-151-3-009 Debris A-1	Solid	↓	0940	↓	↓	7day	X		
6	CLJ-151-3-010 Field BLANK A-1	Water	↓	0950	HNO ₃	↓	3day	X		
7	CLJ-151-2-011 Rinsate BLANK D-29	↓	↓	0810	↓	↓	↓	X		
8	CLJ-151-3-012 Rinsate BLANK A-1	↓	↓	0955	↓	↓	↓	X		
9										
10										

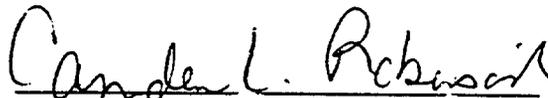
SAMPLES COLLECTED BY: Russell Henderson	COURIER AND AIR BILL NUMBER: 806903416184	COOLER TEMPERATURE UPON RECEIPT:
RELINQUISHED BY: <i>[Signature]</i>	RECEIVED BY: FED EX	SAMPLE'S CONDITION UPON RECEIPT:
	DATE: 8/11/98	TIME: 1600

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 17605
Client Project: Firing Range D-29 / 19668

No problems were encountered with this project.


Quality Assurance


Client Services Representative

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB49741

Accura Project #: 17605

Client: OHM Corporation-Norcross

Date Sampled: 8/19/98

Client Contact: R. HENDERSON

Date Received: 8/20/98

Client Project Number: 19668

Date Reported: 8/24/98

Client Project Name: FIRING RANGE D-29

Sample Matrix: SOLID

Client Sample ID: CLJ-151-2-013

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/20/98

Date Analyzed: 8/21/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/22/98

Date Analyzed: 8/23/98

Result Units: mg/L

Analyte Name

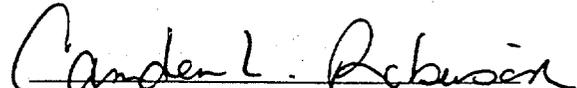
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB49742

Accura Project #: 17605

Client: OHM Corporation-Norcross

Date Sampled: 8/19/98

Client Contact: R. HENDERSON

Date Received: 8/20/98

Client Project Number: 19668

Date Reported: 8/24/98

Client Project Name: FIRING RANGE D-29

Sample Matrix: SOLID

Client Sample ID: METHOD BLANK

ANALYSIS: TCLP Extraction Procedure

Method Ref: 1311

Date Ext/Dig/Prep: 8/20/98

Date Analyzed: 8/21/98

Result Units:

Analyte Name

Analytical Results

Reported Detection Limits

TCLP Extraction

NA

0

ANALYSIS: TCLP Metals - Lead

Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 8/22/98

Date Analyzed: 8/23/98

Result Units: mg/L

Analyte Name

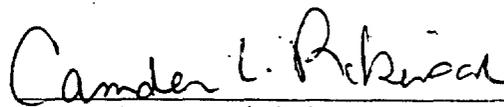
Analytical Results

Reported Detection Limits

Lead (Reg Limit = 5.0)

<RDL

1


Accura Analytical Laboratory, Inc.

REC-113

AAC
CAC

Edco/General Battery Corporation - Reading Smelter

RECYCLABLE MATERIAL ANALYSIS RECORD ER-113

Check one: Hazardous Waste Coproduct (Per PA Law) Other (Explain in Section 6)

Generator Information

Company Name: U.S. Marine Corp.
Address, State, Zip Code: ERD/EMD Bldg 67, mCB Camp Lejeune, NC 28542
Facility Name: Camp Lejeune EPA ID #: NC6170025580
Facility Contact: Tom Morris Tel. No. #: 910-451-5048

Material Description/Characterization

Common Name of Material: Lead Shot & Bullets & Casings From Firearms
Generating Process: Clean up from Fire Arms Range

U.S. DOT Shipping Name: Environmentally hazardous substances, solid, NOS
DOT Hazard Class: 9 UNNA Number: 120307

Expected Annual Quantity (specify units): 80 to 120 TONS
Anticipated Shipment Frequency: 4 to 8 quarters of yr
Packaging (Bulk, Drums, Boxes, etc.): Roll off box or Dump Trailer

Physical Properties at 23-Degree Celsius
Physical State (check as appropriate):
Liquid Solid Sludge (% solids) _____ Single Phase
Multi-phase

(10% slurry in distilled water for solids)
Sp. Gr./Specific Gravity: 7
Color Appearance (color & texture): Soil & lead shot & bullet casings
Odor (type & strength): NONE
Are any radioactive constituents present? Yes No

3. Material Composition

List all components within the material stream by percentage. Account for 100 percent of the material in the Typical % column.

Constituent	Typical %	Range %
Lead shot	60-80	60-80
Copper casings	20-30	20-30
Soil	10-20	10-20
Rock, shells, etc. debris	1-5	1-5

RECEIVED
 8/17/98

Facility Use Only
 AAC or
 CACI

TEACHMENT A
 IV-001 Rev. 04

Ecob/General Battery Corporation - Reading Smelter

RECYCLABLE MATERIAL ANALYSIS RECORD ER-15

Check one: Hazardous Waste Coproduct (Per PA Law) Other (Explain in Section 6)

Generator Information

Company Name: U.S. Marine Corp.
 Address, State, Zip Code: IRD/EMD Bldg 67, MCB Camp Lejeune, NC 28542
 Facility Name: Camp Lejeune EPA ID #: NC6170032530
 Facility Contact: Tom Morris Tel. No. #: 910-451-5068

Material Description/Characterization

Common Name of Material: Lead shot & Bullets & Casings From Firearms
 Generating Process: Clean up from fire arms range.

U.S. DOT Shipping Name: Environmentally hazardous substances, solid, n.o.s.
 DOT Hazard Class: 9 UN/NA Number: 120302

Expected Annual Quantity (specify units): 80 to 120 TONS
 Anticipated Shipment Frequency: 4th quarter of 98 to 2nd quarter of 99
 Packaging (Bulk, Drums, Boxes, etc.): Pallets (30k or Dump trailer)

Physical Properties at 25 Degree Celsius
 Physical State (check as appropriate):
 Liquid Solid Sludge (% solids) _____ Single Phase _____
 Multi-phase _____
 pH (10% slurry in distilled water for solids): 7
 Density/Specific Gravity: 4000 lbs/cy
 Physical Appearance (color & texture): soil & lead shot & bullet casings
 Odor (type & strength): NONE
 Are any radioactive constituents present? Yes No

3. Material Composition

List all components within the material stream by percentage. Account for 100 percent of the material in the Typical % column.

Component	Typical %	Range %
Lead shot	60-80	60-80
Copper casings	20-30	20-30
Soil	10-20	10-20
Rock, shells, etc.	1-5	1-5

GBC EX-183

Analysis - Analytical Laboratory Analysis

COMPLETE FOR HAZARDOUS WASTE:

RCA Testing _____
 Hazardous Waste Characteristics (check if applicable):
 Toxicity _____ Ignitability _____ Reactivity _____ Corrosivity _____

TCLP Procedure for Metals (data expressed in mg/L)

	TC Limit		TC Limit
Arsenic	5.0	Lead	5.0
Barium	100.0	Mercury	0.1
Cadmium	1.0	Selenium	1.0
Chromium	5.0	Silver	5.0

COMPLETE FOR HAZARDOUS WASTE, CO-PRODUCT & OTHER:

Chemical Constituents - Total Concentration (specify units)

	Expected Range (specify)		Expected Range (specify)
Aluminum		Lead	70%
Antimony		Magnesium	40-80%
Arsenic		Mercury	
Barium		Selenium	
Cadmium		Silver	
Chlorine		Tin	
Chromium		Zinc	
Copper	15%	Other (specify)	
Iron	20-30%	Total Metals	

5. Facility Treatment, Storage, or Disposal Facility Information

Exide/GBC Location: General Battery Corporation Reading Smelter
 Address: Spring Valley Road & Nolan Street
 City, State, Zip Code: Reading, Pennsylvania 19603
 EPA Identification No.: PAD990753089
 Facility Contact: Howard Master Telephone: (610) 921-4004

6. Additional Comments, Descriptions, or Material Stream Information

Lead shot for recycling

I certify and warrant that all information on this form is complete and factual (including attached information) and is an accurate representation of the known and suspected hazards of the material stream described.

[Signature] ENV. PROT. SPEC.
 Signature Title

18 Aug 98
 Date

CERTIFICATION

**EXEMPTION
ORGANIC AIR EMISSION STANDARDS
HAZARDOUS WASTE TANKS AND CONTAINERS**

I hereby certify that:

Name of Generator U.S. Marine Corps
Street Address TRD/EMD Blvd, 67, MCB
City, State, Zip Code Camp Lejeune, NC 28542
US EPA ID No., if applicable NC6170022580

has determined that the lead-containing materials described as Lead shot & casings provided to General Battery Corporation for recycling are exempt from requirements for Organic Air Emission Standards for Tanks and Containers under 40 CFR Part 264, Subpart CC and Part 265, Subpart CC. This determination is based on the materials meeting the following criteria (check all that apply):

- The materials have an average volatile organic concentration at the point of origination less than 100 ppmw as determined by:
 - Direct measurement by analysis per Method 25D in 40 CFR Part 60, appendix A.
 - Knowledge of the waste, which may include information such as material balances, raw materials lists, comparison to similar materials and/or other documents.

The materials are by-products, coproducts, drosses, slags, scrap lead or other materials which are either not solid wastes when recycled or are exempt from regulation when recycled.

Signature [Signature]
Printed Name T.S. MORRIS
Title ENV. PROT. SPEC
Date 18 Aug 98

LETTER OF CERTIFICATION

EXEMPTION FOR BURNING OF LEAD-CONTAINING MATERIALS
IN INDUSTRIAL FURNACES

This statement certifies, in accordance with Exide/General Battery Corporation request of 8-14-98 (insert date), that the lead-containing materials provided by:

Name of Company U.S. Marine Corps
Street Address TRD/EMO Bld. G7 MCB
City, State, Zip Code Camp Lejeune, NC 28542
Telephone 910-451-5068
US EPA ID Number, if applicable NC6170022580

to Exide/General Battery Corporation for recycling meet one or more of the following three exemption criteria for burning of lead-containing materials in industrial furnaces:

1. The materials have a heating value of less than 5,000 BTU/lb and contain less than 500 ppm of toxic organic constituents, or
2. The materials are identified on the attached listing of Appendix XI to 40 CFR 261 and are
 - a. Generated or initially produced by the lead industry (defined in the regulations as lead smelting operations (both primary and secondary), lead-acid battery manufacturing, and lead chemical manufacturing (i.e., producers of lead compounds)), and
 - b. If the material contains more than 500 ppm of toxic organic constituents, it does not exhibit the toxicity characteristic (TC) of § 261.24 for an organic constituent and it is not listed as a hazardous waste in Subpart D of Part 261 because it contains an organic constituent as identified in Appendix VIII of Part 261, or
3. The materials are byproduct crosses, slurry and slurry screenings, slags, scrap lead, or other materials which are either not solid wastes when recycled or are exempt from regulation when recycled.

Signature [Signature]
Printed Name TS. MORRIS
Title ENV. PROT. SPEC
Date 10 AUG 98

Invoice



Invoice number:
98-181

Please Remit to:
C.E.O., Inc.
21227 Edewood Court
Sterling, VA. 20165
Tel: 703-404-3400
Fax: 703-404-3800

Inv Date:
(1998

Page:
1

Sold To:

O.H. Materials, Georgia Div.
5445 Triangle Parkway
Norcross, GA 30092

**CONSOLIDATED
ENVIRONMENTAL
OPTIONS, INC.**

21227 Edgewood Court
Sterling, VA 20165
Phone (703) 404-3400
Fax (703) 404-3800

Customer ID: OHM150

Customer PO	Payment Terms	Due Date	Sales Rep ID
Purchase Order 72712	Net 30 Days	11/6/98	GRA100

Quantity.	Item	Description	Unit Price	Extension
		Removal of Lead Contaminated Soil from Camp Lejeune, NC.		
23.76	Tons	Ship date 9/10/98.	80.00	1,900.80
20.76	Tons	Ship date 9/17/98.	80.00	1,660.80
8.53	Tons	Ship date 9/22/98.	80.00	682.40
1.00	Transport	Transport, Roll-off.	1,500.00	1,500.00
23.76	Tons	Transport Dump Trucks, Price per ton.	67.40	1,601.42
22.00	Tons	Transport Dump Truck, 22 Ton Minimum.	67.40	1,482.80
1.00	Roll-off	Roll-off Spot Fee	800.00	800.00
40.00	Days	Roll-off Rental Fee	10.00	400.00
3.00	Liner	Liner	40.00	120.00
53.05	Tons	Penssylvania State Tax. Project # CEO236.	3.00	159.15

419648

Check No:

Subtotal	10,307.37
Sales Tax	
Total Invoice Amount	10,307.37
Payment Received	0.00
TOTAL	10,307.37

8.53 tons

33

EXIDE BATTERY CORPORATION

TICKET: 162823
IN DATE: 09/22/98
OUT DATE: 09/22/98
IN TIME: 07:16
OUT TIME: 07:57

BUCK COMPANY NAME: WILCS

VEHICLE ID: 635 PRODUCT: SL .36

GROSS: 52898 LBS	TRAILER: 23820 LBS
TARE: 41040 LBS	DRIVES: 7750 LBS
NET: 17058 LBS	OTHERS: 10570 LBS

WEIGHMASTER: 21532

SCALE NUMBER: 14877

OWNER/AGENT/CONSIGNEE: US Marine Corp/sea

SIGN [Signature]

DRIVER: [Signature]

23.76 tons

4 Jer Gray
0219

EXIDE BATTERY CORPORATION

9/10

TICKET: 168175
IN DATE: 09/11/98
OUT DATE: 09/11/98
IN TIME: 09:40
OUT TIME: 10:12

TRUCK COMPANY NAME: WELLS

VEHICLE ID: 630467 PRODUCT: SCRAP LEAD

GROSS: 78600 LBS
TARE: 31110 LBS
=====
NET: 47510 LBS

TRAILER: 21240 LBS
DRIVES: 0 LBS
STEERS: 3670 LBS

WEIGHMASTER: 21532

SEAL NUMBER: 14877

OWNER/AGENT/CONSIGNEE: US. Marine / en

IGN [Signature]

DRIVER: [Signature]

20.76 tons

EXIDE BATTERY CORPORATION

TICKET: 162545
IN DATE: 09/17/98
OUT DATE: 09/17/98
IN TIME: 00:00
OUT TIME: 09:00

312

TRUCK COMPANY NAME: WILLIS

VEHICLE ID: 402

PRODUCT: 6 LEAD

94.5

GROSS: 76200 LBS

TRAILER: 17200 LBS

TARE: 34720 LBS

DRIVES: 6480 LBS

STEERS: 10960 LBS

NET: 41510 LBS

LIME C
03.25

WEIGHMASTER: 2153L

SEAL NUMBER: 14817

OWNER/AGENT/CONSIGNEE: US MARINE CORP

IGN [Signature]

DRIVER: Bill

APPENDIX D

CONTRACTOR QUALITY CONTROL REPORT

CONTRACTOR QUALITY CONTROL REPORT

DATE
7/13/98

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

PHASE	Y - YES, N - NO, SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	<input checked="" type="checkbox"/> Ba/m excavation
	THE SUBMITTALS HAVE BEEN APPROVED	<input checked="" type="checkbox"/> Ed Rogers
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	<input checked="" type="checkbox"/> Randy Smith
	MATERIALS ARE STORED PROPERLY	<input checked="" type="checkbox"/> Steve Pyle
	PRELIMINARY WORK WAS DONE CORRECTLY	<input checked="" type="checkbox"/> m. k. Rosenbarger
	TESTING PLAN HAS BEEN REVIEWED	<input checked="" type="checkbox"/> - Went over work plans and all drawings
	WORK METHOD AND SCHEDULE DISCUSSED	<input checked="" type="checkbox"/> - Review all Health and Safety plans.
		- Went over methods of construction
		- Equipment on site today.
		- Ranse A-1 and D-29.

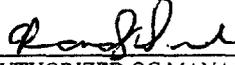
PHASE	TESTING PERFORMED & WHO PERFORMED TEST
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY
	SAMPLE HAS BEEN PREPARED/APPROVED
	WORKMANSHIP IS SATISFACTORY
	TEST RESULTS ARE ACCEPTABLE
	WORK IS IN COMPLIANCE WITH THE CONTRACT

PHASE	TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
--	---

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

 **7/14/98**
 AUTHORIZED QC MANAGER AT SITE DATE

GOVERNMENT QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

7/14/99

PHASE	Y - YES, N - NO, SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREP ARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	Y	<p><i>All personal went over the quality of workmanship reviewed the plans</i></p>	TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED	Y		
	WORKMANSHIP IS SATISFACTORY	Y		
	TEST RESULTS ARE ACCEPTABLE	Y		
	WORK IS IN COMPLIANCE WITH THE CONTRACT	Y		

Berm excavation and clearing and grubbing.

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE		TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
--	---

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE

7/14/99

DATE

GOVERNMENT QUALITY ASSURANCE REPORT	DATE
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT	

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE
7/17/98

PHASE	Y - YES, N - NO. SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X	TESTING PERFORMED & WHO PERFORMED TEST
	<i>All excavating and screening is in compliance with work plan</i>		

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
--	---

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE

7/17/98

DATE

GOVERNMENT QUALITY ASSURANCE REPORT	DATE
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT	

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE
7/21/98

PHASE	Y - YES. N - NO. SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
-------	--	--

P R E P A R A T O R Y	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

I N I T I A L	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	

TESTING PERFORMED & WHO PERFORMED TEST

F O L L O W - U P	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE X	
	All excavating and screening is in compliance with work plan	

TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
--	---

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

7/21/98
 AUTHORIZED QC MANAGER AT SITE DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

7/22/98

PHASE	Y - YES, N - NO, SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PRE P A R A T O R Y	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

I N I T I A L	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		

F O L L O W - U P	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X	TESTING PERFORMED & WHO PERFORMED TEST
	Screen 116 Truck hoe Buckets, All Screenings with work plan		

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
--	---

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE

7/22/98

DATE

<h2 style="margin: 0;">GOVERNMENT QUALITY ASSURANCE REPORT</h2>	DATE
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT	

CONTRACTOR QUALITY CONTROL REPORT

DATE
7/23/98

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

PHASE	Y - YES, N - NO. SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

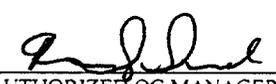
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X	TESTING PERFORMED & WHO PERFORMED TEST
	<p><i>Screened 90 Buckets and Rescreened 27 Buckets. Needed to Rescreen material. All Fines are OK. No Lead going through Screenings.</i></p>		

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
--	---

REMARKS

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 AUTHORIZED QC MANAGER AT SITE

7/23/98
 DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

7/24/98

PHASE	Y - YES. N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X	22 Buckets 2 nd Screen	TESTING PERFORMED & WHO PERFORMED TEST
	40 Buckets 1 st Screen No Lead in Fines.			

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

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AUTHORIZED QC MANAGER AT SITE

7/24/98

DATE

<h2 style="margin: 0;">GOVERNMENT QUALITY ASSURANCE REPORT</h2>	DATE
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT	

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

7/27/98

PHASE	Y - YES. N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	
	<p style="font-size: 1.2em; margin-left: 20px;">X</p> <p style="font-size: 1.2em; margin-left: 20px;">22 Buckets 2nd Screenings Kittle</p> <p style="font-size: 1.2em; margin-left: 20px;">42 Buckets; 1st Screenings Pistol</p> <p style="font-size: 1.2em; margin-left: 20px;">No Lead in Fines</p>	<p style="text-align: center;">TESTING PERFORMED & WHO PERFORMED TEST</p> <p style="font-size: 1.2em; margin-top: 20px;">Looked at Fines No Lead in Fines</p> <p style="font-size: 1.2em; margin-top: 10px;">Randy Smith</p>

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE

7/27/98

DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

7/28/98

PHASE Y - YES, N - NO. SEE REMARKS. IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT

P R E P A R A T O R Y	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

I N I T I A L	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

F O L L O W - U P	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<i>X</i>		TESTING PERFORMED & WHO PERFORMED TEST
	<i>36 Buckets 1st Run R. f/e Side 27 Buckets 1st Run Pistol Side</i>			<i>No Lead in Fines Rande Smith</i>

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

Rande Smith

AUTHORIZED QC MANAGER AT SITE

7/28/98

DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

7/29/98

PHASE	Y - YES, N - NO, SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT	
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X	TESTING PERFORMED & WHO PERFORMED TEST
	120 Buckets 15' Run Pistol Side		
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)	

REMARKS

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AUTHORIZED QC MANAGER AT SITE

7/29/98
 DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

DATE
7/30/98

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

PHASE	Y - YES, N - NO, SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X
	<i>145 Buckets of P.s 1st Side</i>	
		TESTING PERFORMED & WHO PERFORMED TEST
		<i>No Lead in Fiver</i>
		<i>Randy Smith</i>
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

[Signature]
AUTHORIZED QC MANAGER AT SITE

7/30/98
DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

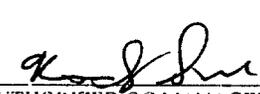
7/31/98

PHASE	Y - YES, N - NO. SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	Y
	<i>63 Buckets Pistol Side</i>	<i>No Lead in Fines</i> <i>Kandy Smith</i>

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

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 AUTHORIZED QC MANAGER AT SITE

7/31/98

 DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

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DATE

8/11/98

PHASE	Y - YES, N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT	
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		
	INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
SAMPLE HAS BEEN PREPARED/APPROVED			
WORKMANSHIP IS SATISFACTORY			
TEST RESULTS ARE ACCEPTABLE			
WORK IS IN COMPLIANCE WITH THE CONTRACT			
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>	TESTING PERFORMED & WHO PERFORMED TEST
	<p>6 3 Bucket Re Screened Distoi 8 4 Bucket 2nd Time.</p>		<p>No Lead in Fires</p> <p style="text-align: right;"><i>Randy Smith</i></p>
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)	

REMARKS

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 AUTHORIZED QC MANAGER AT SITE

8/11/98
 DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

8/2/98

PHASE	Y - YES, N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	
	<p style="font-size: 2em; margin-left: 20px;">X</p> <p>46 Buckets 3rd Time Trying to get more Soil away from lead.</p>	<p>TESTING PERFORMED & WHO PERFORMED TEST</p> <p style="font-size: 1.2em; margin-left: 20px;">No Lead in Fives</p> <p style="font-size: 1.2em; margin-left: 20px;">Ed Rogers</p>

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

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AUTHORIZED QC MANAGER AT SITE

8/2/98

DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT
(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE
8/4/98

PHASE	Y - YES, N - NO. SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	Y	<p><u>Soil Stabilization:</u> Ed Rogers and Randy Smith went over requirements of stabilization 2.5% mix ratio. 21 pallets on site.</p>
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY	Y	
	PRELIMINARY WORK WAS DONE CORRECTLY	Y	
	TESTING PLAN HAS BEEN REVIEWED	Y	
	WORK METHOD AND SCHEDULE DISCUSSED	Y	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE			TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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8/4/98
 AUTHORIZED QC MANAGER AT SITE DATE

GOVERNMENT QUALITY ASSURANCE REPORT DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

8/7/98

PHASE	Y - YES, N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	Y
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	Y
	TEST RESULTS ARE ACCEPTABLE	Y
	WORK IS IN COMPLIANCE WITH THE CONTRACT	Y
<i>Reviewed Micings plan Randy + Ed.</i>		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	Y
	<i>Start Mixing TSP and Soil.</i>	
TESTING PERFORMED & WHO PERFORMED TEST		

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)

REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

REMARKS

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 AUTHORIZED QC MANAGER AT SITE

8/7/98
 DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

DATE

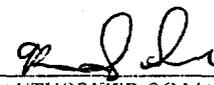
8/13/98

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X	TESTING PERFORMED & WHO PERFORMED TEST
	Screened 61 Buckets A-1 1st Run		No Lead in Fine
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)	

REMARKS

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 AUTHORIZED QC MANAGER AT SITE

8/14/98
 DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

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DATE
8/14/98

PHASE	Y - YES, N - NO, SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE X	TESTING PERFORMED & WHO PERFORMED TEST
	<i>90 Buckets Screened</i>	<i>No Lead in Fines</i>

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

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 AUTHORIZED QC MANAGER AT SITE

8/14/98
 DATE

GOVERNMENT QUALITY ASSURANCE REPORT DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

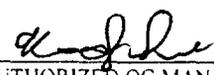
(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE
8/15/98

PHASE	Y - YES, N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>
	<i>44 Buckets Resealed</i>	
		TESTING PERFORMED & WHO PERFORMED TEST
		<i>No Lead in Pipes</i>
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

REMARKS

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 AUTHORIZED QC MANAGER AT SITE

8/15/98
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GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

8/18/98

PHASE	Y - YES, N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	Y	Randy Smith and Ed Koser go over Concrete Slab - 4000psi with Wire mesh - High-Early Cure in 3-DAYS. - Go over all spec. requirements.
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY	Y	
	PRELIMINARY WORK WAS DONE CORRECTLY	Y	
	TESTING PLAN HAS BEEN REVIEWED	Y	
	WORK METHOD AND SCHEDULE DISCUSSED	Y	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE			TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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REMARKS

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 AUTHORIZED QC MANAGER AT SITE

8/18/98
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DATE

8/19/98

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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
	INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY
SAMPLE HAS BEEN PREPARED/APPROVED		
WORKMANSHIP IS SATISFACTORY		Y
TEST RESULTS ARE ACCEPTABLE		
WORK IS IN COMPLIANCE WITH THE CONTRACT		Y
		Go over plans with Sub to insure workmanship. Sub Super VAE.
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	
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8/19/98
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8/20/98

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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>		TESTING PERFORMED & WHO PERFORMED TEST
	All concrete was 4000psi concrete from S2W All Rebar and Mesh was in All work was do to spec. Good Job.			Pow was done to spec. Randy Smith

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DATE

8/21/98

PHASE Y - YES, N - NO, SEE REMARKS. IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
 BLANK - NOT APPLICABLE

PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	Y	Ranch and Ed go over trap installation. A Sub will Supervisor work and warranty All work ON TRAP.
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	Y	
	MATERIALS ARE STORED PROPERLY	Y	
	PRELIMINARY WORK WAS DONE CORRECTLY	Y	
	TESTING PLAN HAS BEEN REVIEWED	Y	
	WORK METHOD AND SCHEDULE DISCUSSED	Y	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

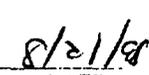
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE			TESTING PERFORMED & WHO PERFORMED TEST

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9/1/98

PHASE	Y - YES, N - NO, SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	
	<i>Trap Installation mount Chambers Loss All by Subcontracts</i>	
		TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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9/1/98
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DATE

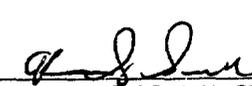
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CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

9/28/98

PHASE	Y - YES - NO - SEE REMARKS BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT	
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
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	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<i>Y</i> <u>Pouring Concrete</u>	TESTING PERFORMED & WHO PERFORMED TEST
	<i>100yds of 4000ps. Concrete. All work due to plans wire mesh and rebar in pad at proper depth.</i>		
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)	
REMARKS			
<p>On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">  AUTHORIZED QC MANAGER AT SITE </div> <div style="text-align: center;"> <i>9/28/98</i> DATE </div> </div>			
GOVERNMENT QUALITY ASSURANCE REPORT			DATE
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT			

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

11/2/98

PHASE	Y - YES, N - NO. SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	Y	All personnel Subs Donlatcher, SHANN, Terry And Jim with sub Eric Brownson go over trap installation. D-29
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	Y	
	MATERIALS ARE STORED PROPERLY	Y	
	PRELIMINARY WORK WAS DONE CORRECTLY	Y	
	TESTING PLAN HAS BEEN REVIEWED	Y	
	WORK METHOD AND SCHEDULE DISCUSSED	Y	

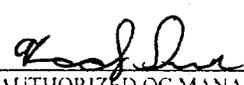
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	Y	Start to pull string line for Anchor bolts.	TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED	Y		
	WORKMANSHIP IS SATISFACTORY	Y		
	TEST RESULTS ARE ACCEPTABLE	Y		
	WORK IS IN COMPLIANCE WITH THE CONTRACT	Y		

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE			TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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 AUTHORIZED QC MANAGER AT SITE

11/2/98
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DATE
11/3/98

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PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED		
	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>	TESTING PERFORMED & WHO PERFORMED TEST
	<i>Start drilling holes in concrete to put Anchor Bolts in All to the right depth.</i>		
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)	

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11/3/98

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DATE
11/5/98

PHASE	Y - YES, N - NO. SEE REMARKS, BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>
	<i>Mount Camber legs All to spec.</i>	

TESTING PERFORMED & WHO PERFORMED TEST
TESTING PERFORMED & WHO PERFORMED TEST

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11/5/98
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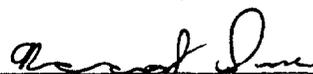
11/6/98

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	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>	TESTING PERFORMED & WHO PERFORMED TEST
	<p><i>Mount Chamber legs. Starting duct work starting on hanging I-Beams All to spec.</i></p>		
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11/7/98

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	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>		TESTING PERFORMED & WHO PERFORMED TEST
	<p><i>Set more I-Beams. Set 1 row of plates. Finish duct work. All work do correctly</i></p>			

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11/8/98

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	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
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INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X
	<p><i>Mount 1st top row of plates.</i></p> <p><i>Install detector plate.</i></p> <p><i>All work done correctly</i></p>	
		TESTING PERFORMED & WHO PERFORMED TEST
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	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY			TESTING PERFORMED & WHO PERFORMED TEST
	SAMPLE HAS BEEN PREPARED/APPROVED			
	WORKMANSHIP IS SATISFACTORY			
	TEST RESULTS ARE ACCEPTABLE			
	WORK IS IN COMPLIANCE WITH THE CONTRACT			

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>		TESTING PERFORMED & WHO PERFORMED TEST
	<p><i>Mount 2nd row of metal Brackets And strips</i></p> <p><i>Set Less for 2nd Bottom row.</i></p> <p><i>All work to spec</i></p>			

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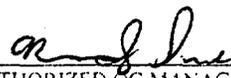
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	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X
	<p><i>Mount 2nd row bottom plate</i></p> <p><i>Hanging Sheet metal</i></p> <p><i>All work to specs.</i></p>	
		TESTING PERFORMED & WHO PERFORMED TEST
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	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY		
	SAMPLE HAS BEEN PREPARED/APPROVED		
	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		

TESTING PERFORMED & WHO PERFORMED TEST

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>	
	<p><i>Start hanging top row at 2nd trap and 3rd row on 1st trap</i></p> <p><i>All work to spec.</i></p>		

TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

REMARKS

On behalf of the contractor, I certify that this report is complete and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE

11/11/98
DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

CONTRACTOR QUALITY CONTROL REPORT

DATE

11/12/98

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

PHASE	Y - YES, N - NO, SEE REMARKS. BLANK - NOT APPLICABLE	IDENTIFY DEFINABLE FEATURE OF WORK LOCATION AND LIST PERSONNEL PRESENT
PREPARATORY	THE PLANS AND SPECS HAVE BEEN REVIEWED	
	THE SUBMITTALS HAVE BEEN APPROVED	
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	
	MATERIALS ARE STORED PROPERLY	
	PRELIMINARY WORK WAS DONE CORRECTLY	
	TESTING PLAN HAS BEEN REVIEWED	
	WORK METHOD AND SCHEDULE DISCUSSED	
INITIAL	PRELIMINARY WORK WAS DONE CORRECTLY	
	SAMPLE HAS BEEN PREPARED/APPROVED	
	WORKMANSHIP IS SATISFACTORY	
	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>
	<p><i>Hansing 3-d row on 2nd floor.</i></p> <p><i>work on DCUS</i></p> <p><i>All work do to spec.</i></p>	
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	THE SUBMITTALS HAVE BEEN APPROVED		
	MATERIALS COMPLY WITH APPROVED SUBMITTALS		
	MATERIALS ARE STORED PROPERLY		
	PRELIMINARY WORK WAS DONE CORRECTLY		
	TESTING PLAN HAS BEEN REVIEWED		
	WORK METHOD AND SCHEDULE DISCUSSED		

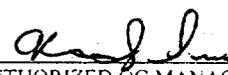
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	WORKMANSHIP IS SATISFACTORY		
	TEST RESULTS ARE ACCEPTABLE		
	WORK IS IN COMPLIANCE WITH THE CONTRACT		

FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<input checked="" type="checkbox"/>	TESTING PERFORMED & WHO PERFORMED TEST
	<p><i>Bottom row of plates at 1st trap</i></p> <p><i>Top row of 2nd trap plates</i></p> <p><i>Putting ends on both trap</i></p> <p><i>All to spec.</i></p>		

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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DATE
11/16/98

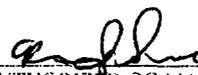
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	WORK IS IN COMPLIANCE WITH THE CONTRACT	
		TESTING PERFORMED & WHO PERFORMED TEST
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	Y
	<i>Hanging Ferralls and end plates</i> <i>All to spec.</i>	
		TESTING PERFORMED & WHO PERFORMED TEST

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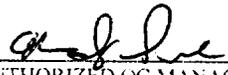
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	<i>Trap #1 Finished.</i>
	<i>Hang 2nd Trap Bottom Plate. Grade Work All to spec.</i>	

TESTING PERFORMED & WHO PERFORMED TEST

REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)	REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)
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	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X
	<p><i>Hansins Ferralls</i></p> <p><i>Grade Work</i></p> <p><i>All to spec.</i></p>	
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TESTING PERFORMED & WHO PERFORMED TEST

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	TEST RESULTS ARE ACCEPTABLE	
	WORK IS IN COMPLIANCE WITH THE CONTRACT	
FOLLOW-UP	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	X
	<p style="font-size: 1.2em; font-family: cursive;">All work completed at D-29 Other contractor on site. Grade work All to spec.</p>	
REWORK ITEMS IDENTIFIED (NOT CORRECTED BY CLOSE OF BUSINESS)		REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

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APPENDIX E

OPERATION AND MAINTENANCE MANNUAL

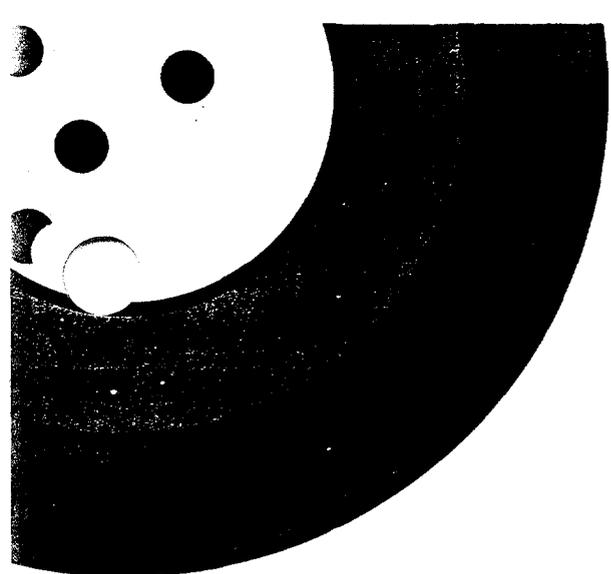
Owners Manual Table of Content

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 - 1.2 Warning
 - 1.3 General
- 2.0 Operation**
 - 2.1 Basic
 - 2.2 Differential Pressure
- 3.0 Maintenance**
 - 3.1 Daily
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 - 3.6 Loading New Filter



ACTION TARGET

OWNER'S MANUAL FOR:

Rangemaster
Camp LeJeune
Camp LeJeune, NC.

Bullet Trap Dust Collection Unit

Copyright Action Target Inc., May 1995

October 29, 1998

WARNING!

Any activity using firearms is inherently dangerous and should only be carried out with the greatest of care and seriousness. This equipment is intended for professional use—not for consumer or amusement activities. It should only be used under the strict supervision of qualified firearms training personnel. Action Target will assume no responsibility whatsoever for persons or organizations who use Action Target equipment in a manner which is unsafe and/or which poses a threat to human life, property, or the environment. Never place a target in a location which can be seen from anywhere other than the area where the intended shooter will be firing from. Keep hands and clothing clear of any moving parts, actuators, motors, etc. Always use proper armament in front of actuators, air lines, controllers, fixtures, and any other parts of the system which might be damaged by gunfire. Action Target's warranty will not cover equipment which has been improperly or inadequately armored.

REPAIR OF DAMAGED TARGET COMPONENTS

If you require repair for damaged components, please call Action Target to obtain a Return Authorization (RA) number. Then ship the return items to the address shown below. Unless you have been explicitly instructed otherwise, you are responsible for the cost of shipping returned materials back for service.

ACTION TARGET INC.
1281 West 220 North
Provo, UT 84601
801-377-8033

If the returned item is covered by warranty, it will be returned to you without charge. Otherwise, you may be charged for the repair. If you wish to be advised of any possible repair costs before the repair is done, please specify this when obtaining your return authorization.

Action Target reserves the right to repair or replace, at its option, any part of an Action Target system or component in the course of servicing that system or component.

ACTION TARGET LIMITED WARRANTY

Action Target Inc. will repair or replace, at its option, any product which does not function correctly due to faulty components or workmanship for a period of 90 days from date of purchase. Action Target Inc. reserves the right to not warranty any product which falls into any of the following categories:

- A product which has been modified or altered by anyone other than an authorized Action Target service person.
- A product which has been damaged due to improper armoring (A bullet hole in a product is a good indication of improper armoring.)
- A product which has been damaged due to user negligence or failure to perform the recommended maintenance procedures.
- A product which has been damaged due to acts of nature or chance (earthquake, lightning, flood, fire, etc.)

An extended warranty or a service contract may extend your coverage over that stated herein but does not exist unless explicitly stated in writing and as part of a specific, single purchase. Action Target makes no other warranties, expressed or implied.

1 Overview

1.1 Scope

This manual will aid the user in maintaining, checking, and adjusting the Action Target Dust Collection Unit. Sizing, installation, and repair questions should be directed to Action Target for more detailed technical assistance. If you have specific questions about environmental contamination or other environmental issues, please direct them to a local, qualified professional environmental consultant.

1.2 Warning

Action Target is not responsible for contamination, environmental damage, or any other consequences of range operation regardless of whether or not a Dust Collection Unit is in use. The mere presence of the Dust Collection Unit is no guarantee that lead or other environmental contamination will not occur. The Dust Collection Unit is designed to reduce particulate emissions—not eliminate them. The effectiveness of the filtration system is largely dependent upon the type of filters used, the material loading on the filters, the integrity of the filters, and the particular environment in which the Dust Collection Unit is used. See figure 1 for the technical specifications of the filters provided by Action Target.

The Dust Collection Unit is normally furnished as a primary containment system only. Failsafe circuitry is provided which, when properly maintained, will shut the system down within seconds of a filter breach. This will minimize any resulting contamination, but will not eliminate it. This potential hazard can be virtually eliminated by the addition of a final, redundant HEPA filter stage (available from Action Target). However, it should be noted that in the case of a filter breach, the HEPA filter will be destroyed and must be replaced prior to continuing operation.

The filter cartridges in the Dust Collection Unit are designed to last for several years. However, the actual effective life will vary from one site to the next. The cleaning procedures outlined herein describe a method whereby the filters can be changed without excessive human contact with lead particulates. This should not be construed to mean that no contact with lead will occur. If you require absolute isolation from lead particulates, you must employ secondary measures such as protective clothing, respirators etc. while servicing the Dust Collection Unit and associated components.

You should obtain replacement filters only from Action Target. The mere fact that a replacement cartridge *fits* into the collector housing does **not** mean that the filter will perform to the specifications shown in figure 1.

1.3 General

The Dust Collection Unit consists of several components (see figure 2): the blower unit, the filter bank, the collection drum, and the collection manifold. The collection manifold consists of a main collector tube which is fed by individual tubes which connect to each bullet trap chamber module. The number of individual chambers varies from one range design to the next, so the main collector tube, the filter bank, and the blower will be sized accordingly.

A blast gate is provided where each individual tube enters the main collection tube. These gates are adjustable to vary the amount of air flow drawn off each bullet trap chamber. They are adjusted at the time of installation by a factory installer using a flow sensing device which is inserted at the calibration ports shown. Generally, these gates should not require adjustment by the user.

Inside the filter bank, air is passed through a group of filter cartridges. These filters are designed to process dry air only. If water is introduced into the filtration system by any means, the filters may be destroyed. Such damage will manifest itself either as a broken filter or a clogged filter. The user should maintain a supply of replacement filters on hand in case of a filter failure. If no failures occur, such spare filters can be used at the next regular replacement cycle. Replacement filters are available from Action Target and are not necessarily provided as a part of your original system.

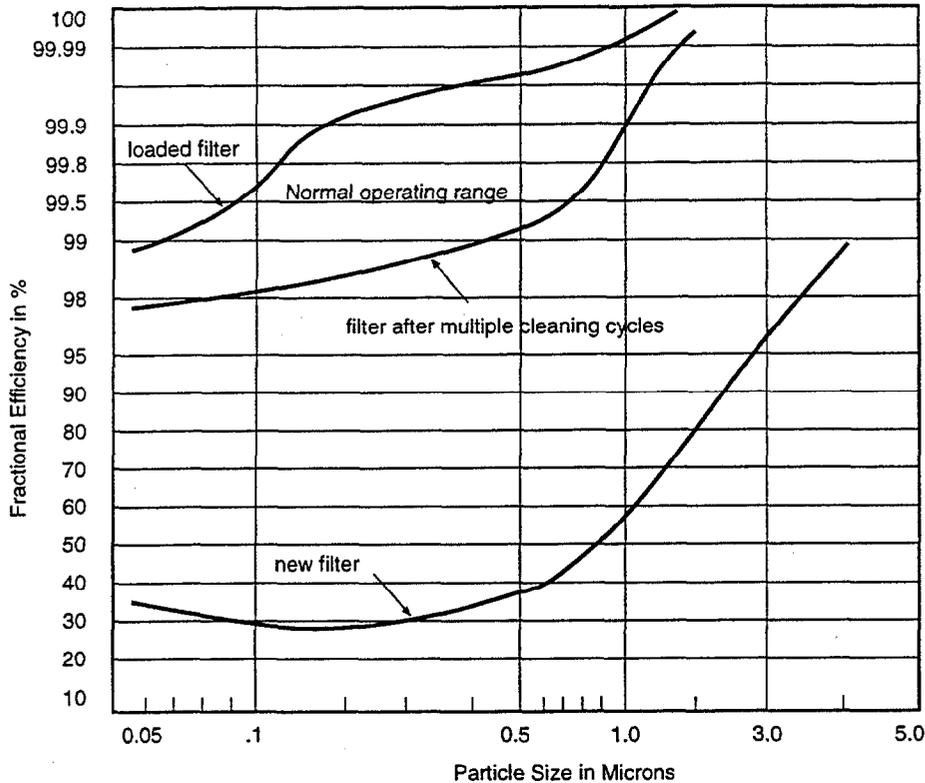


Figure 1: Filter Efficiency

2 Operation

2.1 Basic

The user controls for the Dust Collection Unit consist of two buttons: "start" & "stop" as shown in figure 3. Note that the exact location of these controls may be different for each installation. In installations where the operation of the Dust Collection Unit can not be detected audibly, there may also be an optional "power-on" indicator light on the user control panel.

To begin operation, press the start button and hold it down. The low-pressure alarm will sound for several seconds while the blower is coming up to speed. When proper operating pressure has been achieved, the alarm will go silent. When this happens, you may release the start button. If the start button is released before the alarm goes silent (by itself) the Dust Collection Unit will enter a shutdown state and will not operate properly until the start sequence is executed properly.

If the low-pressure alarm does not automatically turn off after a few seconds, this is an indication of a filter breach. The Dust Collection Unit should not be operated further until the filters have been examined (see section 4 on debugging). When the Dust Collection Unit is in operation, you should be able to clearly hear the sound of the blower. If at any time, the blower turns off or if the alarm sounds, cease operation immediately until the unit has been thoroughly checked.

When use of the Dust Collection Unit is concluded, press the stop button momentarily. This will remove power to the unit. The unit may be safely left in this state overnight or for extended periods of time. If it is desired that the unit be unusable for a period of time, remove power to the system by turning off the main breakers (120V control voltage and 3 phase motor voltage) or turn off and lock the local disconnect.

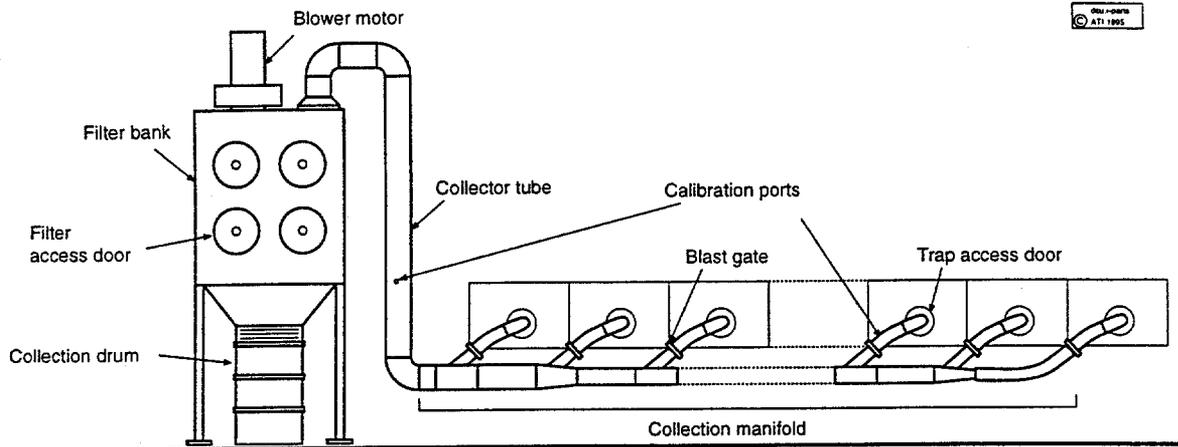


Figure 2: Dust Collection Unit Components

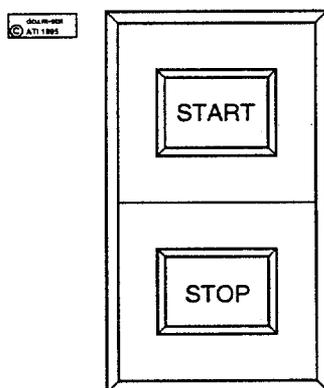


Figure 3: Start/Stop Controls

2.2 Differential Pressure

Figure 4 shows the front view of the main junction box. This box should be located somewhere between the control panel and the Dust Collection Unit. It contains the control circuitry which starts and stops the Dust Collection Unit as well as timer(s) to control the cleaning cycles of the filters.

This same figure also shows the cleaning cyclers control box which should be somewhere close to the main junction box. This box contains circuitry which, under control of the main cleaning timer, energizes the cleaning system. This cleaning cycle occurs, one filter at a time, at timed intervals.

The gauge on the front of the main junction box shows the current operating pressure of the Dust Collection Unit. This is an indication of the difference between the pressures on each side of the filters (inlet side and outlet side). When the filters are properly loaded, there should be a normal operating pressure of about 1 to 2 inches (in-H₂O).

There are two knobs on the front of the gauge. One sets a high pressure set-point and the other sets a low pressure set-point. If the operating pressure rises above the high set-point, this is an indication that the filters are clogged. The control circuitry should sense this and begin a cleaning cycle. If the operating pressure falls below the low set-point, this may be an indication that a filter has broken. The control circuitry should sense this and shut the system down so no particulates can escape through the broken filter.

Some systems are equipped with a second timer called the Startup Timer. This timer turns on each time power is applied to the system and runs a single cleaning cycle regardless of the pressure settings. If the timer module is missing (inside the junction box), the controller is not equipped

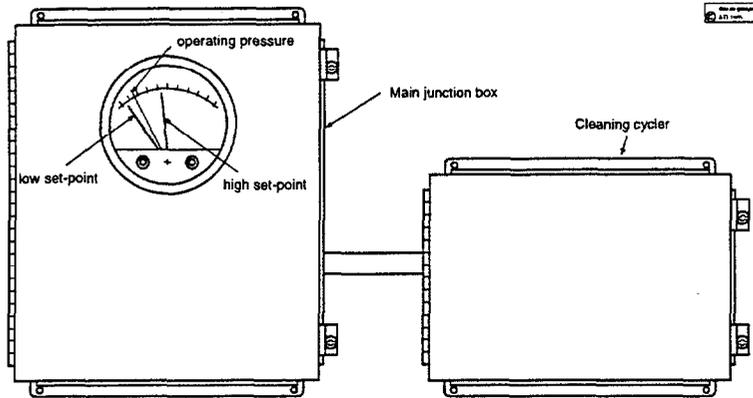


Figure 4: Junction boxes

with this option.

It should also be noted that new filters might register a pressure which is below the normal low set-point. This is simply a result of them being "too clean." In addition to causing a lower operating pressure, a filter which is "too clean" will not filter as well (see figure 1. Rather, it will allow larger particulates through than it will once it has been used for some time. As a result, there may be slightly increased particulate emissions from a system which has just recently had the filters changed.

In order to remedy this, there is a procedure called "loading" in which a powdery substance is introduced into the filtration system. This powder clings to the filters just as would the regular lead particulates during normal operation. This "cake" of powder on the filter surface increases the efficiency of the filter (as well as the operating pressure) to the proper specifications.

3 Maintenance

The Dust Collection Unit requires regular maintenance in order to ensure long life and reliability. A system which is operated with clogged filters or with an improper operating pressure can easily be damaged.

For this reason, it is required that you keep a log of all weekly maintenance sessions which records the date of the inspection, the type of procedures performed, and the readings observed on the equipment. If this log is not kept, the warranty for your Dust Collection Unit may be invalidated.

To prepare a log, simply make copies of the example log sheet in the back of this manual. Keep a book of these pages together. As each weekly maintenance procedure is executed, write in the appropriate information on the applicable sheet. (Note that the weekly procedure includes a daily procedure.) If service is required on your Dust Collection Unit these log sheets may be instrumental in determining the cause of the problems.

3.1 Daily

Each time the Dust Collection Unit is used, the differential pressure gauge on the main junction box should be checked. When the power is off, the gauge should read 0. During operation, the operating pressure should generally be about 1 to 2 inches. (This "proper operating pressure" may vary from one system to the next. Check with Action Target at the time of installation to get the proper operating pressure for your system and enter it below.

Also check to see that the set-point knobs are properly set. The high point is generally set just above 2 inches and the low point is generally set just below 1 inch. Again, these settings may be site dependent. Enter the proper site pressures here:

- Local site "proper operating pressure": 1" Right side
1.7" Left side

- Local site "low set-point pressure": Both sides .5"
- Local site "high set-point pressure": Right side 1.8" Left side 2.7"

If either setting has been moved by anyone, return it to its proper setting at once. If the operating pressure is higher than the high set-point pressure, see section 4.3. If the operating pressure is lower than the low set-point pressure, see section 4.2.

There is generally an air compressor which provides pressure for the filter cleaning cycle. Check to see that the air pressure is in the range of 90 to 100 psi. There should be a purge valve on the bottom of the compressor, somewhere in the air line, or both. Each day, prior to use of the system, open this purge valve momentarily to see that compressed air blows out. If water comes out, continue purging until all water has been blown out.

3.2 Weekly

Perform the Daily procedure outlined in section 3.1. Record the results of today's Daily checks and Weekly checks in the log as shown in section 5.

3.2.1 Automatic Breach Detection

First, test the automatic breach detection circuitry. (Wear ear protection during this procedure.)

First, turn the Dust Collection Unit power on. Test the automatic breach detection circuitry by slowly moving the low set-point knob to move the set-point up toward the normal operating pressure. When the low set-point reaches the operating pressure, the alarm should sound and the blower should turn off. After resetting the low set-point pressure to its proper value (see section 3.1), turn the entire system off and then back on again.

If the unit fails the breach-detection test, the sensor circuitry is malfunctioning. The malfunction may not pose an immediate threat. However, if a filter breaks, the surrounding environment will be contaminated with lead particulates. Therefore, this malfunction should be corrected immediately. Contact Action Target immediately for technical assistance.

3.2.2 Automatic Cleaning

Next, test the automatic cleaning circuitry. If your system is equipped with the Startup Timer, you will have to wait after power-on until the startup cleaning cycle has finished.

With the power on to the system, open the cover to the cleaning cyclor box and the main junction box (see figure 4). Do not touch any connections inside these boxes or electrical shock may occur.

With the system running, slowly move the high set-point knob to move the set-point down toward the normal operating pressure. When the high set-point reaches the operating pressure, the "R" light on the Pressure Timer module (inside the main junction box) should come on. Then, the red lights inside the cyclor box should begin to flash on very briefly and one at a time. (There are several seconds of delay from one light to the next.) Each time a light comes on in the cyclor box, this indicates a cleaning cycle on one of the filter cartridges.

If the unit fails this test, the automatic cleaning feature is malfunctioning. While this may not pose an immediate threat, before long, the filters will become clogged. This will impair the units effectiveness, it will increase environmental contamination, and may cause damage to the Dust Collection Unit. Therefore, this malfunction should be corrected immediately. Contact Action Target immediately for technical assistance.

3.2.3 Lead Accumulation

Next, check the level of accumulation in the collection barrel. (Wear gloves or other protective clothing for this procedure.) Turn the Dust Collection Unit off and wait about 15 minutes for the dust to settle inside the barrel. Loosen the lid clamp and look inside to determine how much debris has been collected. A full barrel may be too heavy to be moved (depending upon what equipment

you have to move the barrel). If the barrel has become full (or as full as you can easily move), replace the barrel with an empty one. Re-attach the lid and secure the lid clamp in place.

Next remove one of the covers over the filters on the collector unit (remove a different door each time you do this). Check to see that there is not a deep accumulation of matter on the top side of the filter. If there is a deep accumulation of lead, the cleaning system may be set improperly or may not be functioning properly.

To remedy this condition, it is first necessary to remove the excess lead from the top of the filters. This can be done with a HEPA vacuum or by simply rotating the filters. If you rotate the filters, you must wear the appropriate protective clothing and respirator to prevent contact with lead.

Once the lead accumulation has been removed, you must adjust the cleaning controller. Contact Action Target for help in achieving a better setting for the circuitry.

After these and any procedures where you may contact lead particulates, wash hands and face with soap and water (or shower if possible). Launder clothing at soonest available opportunity.

3.2.4 Air Compressor

Finally, check the oil level in the air compressor. Remove the plug at the base of the cylinder head. Oil should be clearly visible near the base of the threaded hole. Add oil if necessary. If oil must be added on more than a monthly basis, the rings on the compressor may be worn. This may be blowing oil into the filtration system and compromising the integrity of the filters. Repair the unit as soon as possible.

3.3 Every 2000 Hours

If the motor is equipped with grease zerks and is operational 24 hours a day or located in a harsh environment, grease the motor 2-3 pumps with a grease gun at 2000 hour intervals.

3.4 Yearly

Check the logs to see when the filters were last changed. If the filters have been used for more than 3 years or 4000 hours, you may want to consider changing them regardless of their current condition. Filters may last as long as 5 years or more or they may last as little as several months. If the filters are in good condition and the operating pressure is within tolerance, you may choose to continue using them for as long as they maintain proper operating pressure. However, you should note that the chance of a filter breach increases with the age of the filter.

3.5 Filter Changing

When it becomes necessary to change a filter, follow this procedure. In many cases, it is not necessary for the cleaning procedure to require direct contact with the lead particulates. However, it is advisable to wear gloves, a respirator and any other applicable protective clothing in case of a slip or spill.

If the bags are known not to be broken, turn the Dust Collection Unit on and perform the procedure for cleaning the filters discussed in section 3.2. Allow the cleaning cycle to run 10 to 20 times through. This should clean the filters as much as possible. If it is suspected that any bag is broken, do not operate the Dust Collection Unit at all. Rather, go directly to the next paragraph.

Turn the Dust Collection Unit off and wait for about 15 minutes for the dust to settle inside. Shake out a heavy-wall garbage bag so it is open, and doesn't cling together. Open the round access door over one of the filter cartridges (see figure 2) and remove the cover.

Hold one edge of the rim of the garbage bag in one hand. Hold the opening of the bag up against the opening around the filter. Push the bottom of the bag up against the filter and grasp the filter (the bag should be between your hand and the filter). Before removing the filter, rotate it a full 360 degrees. This will cause the heavier lead particles to fall into the collection bin first. Pull the filter out while holding the rim of the bag against the unit. As you pull it out, the filter should end up in

the bag. Pull the top of the bag around the filter. Tie the bag securely at the top with a wire-tie, and dispose of the bag according to your local guidelines for lead-waste material.

If you are careful, all of the particulate matter should be contained in the bag or stay inside the Dust Collection Unit. If any lead material drops on the ground, use a HEPA vacuum to clean up the spilled material.

Place a new filter in to replace the old one. Push the filter in firmly to make sure it is securely seated in its place. Repeat the procedure for the remaining filters. (If a single filter is being replaced because it is broken, the entire bank of filters should probably be replaced.) Replace the filter access doors, making sure the doors close tightly.

Make a note in maintenance logs of the date the filters were changed. This log must be kept in a place where future maintenance personnel will have access to it several years in the future as they perform the annual service routine (see section 3.4).

Proceed to section 3.6 to load the new filters.

3.6 Loading new filter

As mentioned, new filters are not fully functional until they accumulate a coating of particulates on them. This can be accomplished quickly by "loading" the filter. Use the loading compound supplied by Action Target for this procedure.

Note all safety warnings on the bag containing the loading compound. You must take appropriate steps such as (gloves and a respirator) to avoid inhaling or ingesting the compound during this procedure.

Turn the system on. If the operating pressure is too low to keep the system running, turn the low set-point down enough that the system will stay on. Disconnect one of the tubes on the end of the collection manifold farthest away from the filter bank. Slowly sprinkle about 1 cup of loading compound into the pipe at a time while monitoring the operating pressure. As you add more compound, the operating pressure should slowly rise until it comes into the range of acceptable pressure (see section 3.1). It may take about 1/2 gallon of compound for each filter in the system. If the operating pressure is not affected by the loading procedure, stop the procedure and check the filters again to make sure they are properly seated. If any significant amount of the loading compound blows out the blower outlet, stop the procedure and locate the leak before continuing.

Once the proper operating pressure has been achieved, replace the tube on the collection manifold. If your system is using the Startup Timer, you should remove this timer as described in section 4.2. The timer should be replaced once the first automatic cleaning cycle has been generated. This may take several days to several weeks depending on the usage. If there are any questions, please call Action Target.

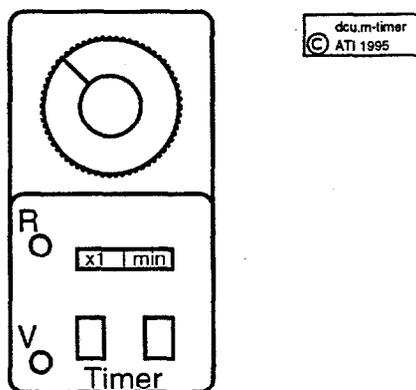


Figure 5: Timer Adjustment

4 Debugging

4.1 System Won't Turn On

If the system will not turn on, first check to see that the main circuit breakers are turned on. There should be a 120V line which operates the control circuitry in the main junction box. When this voltage is on, there should be a "V" light on on the timer module inside the this box.

There should also be a breaker which operates the motor voltage. This is probably 3 phase power at 208V or 408V.

4.2 Pressure Too Low

If the system has stopped automatically with an alarm sounding, or if the alarm never goes off during the startup procedure, this may indicate one of several problems.

If the filters are relatively new, you should check the cleaning cycle. Each cleaning cycle should run long enough to pulse the cleaning valve on each filter only about 1 time. If the cleaning cycle is excessively long, the filters may become unloaded and will not function properly.

If your system consistently operates at a pressure which is too low, check to see if the junction box is equipped with a Startup Timer. This timer cleans the filters once each time the unit is turned on regardless of operating pressure. To disable this function, simply remove the timer (pull it out of its socket). Without this timer, the system will only clean when the filter pressure rises over the high set point. In some installations, the DCU can be operated in this mode indefinitely. If you have questions about your site, please call Action Target.

The other timer is the Pressure Timer (both timers are as shown in figure 5). In a normal cleaning cycle, cleaning will continue until the operating pressure drops below the high set-point. From that time, the timer will begin running for the amount of time set on the dial (should generally be 2 - 3 minutes). This time should be sufficient to bring the operating pressure back into the acceptable region, but not so long that the natural loading of the filter is removed.

If the filters are older, or you think that water may have recently been introduced into the system, it is likely that a filter is broken. Follow the procedure in section 3.5 for changing the filters.

If the alarm has not sounded, but an examination of the pressure shows it is too low, the procedures listed earlier in this section are still valid. However, you have the added problem that the low-pressure detection circuitry is malfunctioning. Contact Action Target immediately for technical assistance.

4.3 Pressure Too High

If a routine examination of the system shows that the operating pressure is too high, this indicates that the filters may be clogged. Open the door to the cleaning cyclor box (see figure 4) and see if the indicator lights for the cleaning valves are coming on in sequence as described in the maintenance section. If the lights are not coming on, there is a malfunction in the cleaning circuitry. Contact Action Target immediately for technical assistance.

If the lights are coming on in sequence, check to see if there is air pressure present in the air compressor. This can easily be done by opening a purge valve momentarily. If air pressure is present, then either the cleaning valves are not functioning properly, or the filters are uncleanable.

Listen to the cleaning valves on the side of the filter bank during the cleaning cycle. As the cyclor lights flash on, you should be able to hear a burst of air as the valve fires. If the cyclor lights are flashing, but the valves are not operating, contact Action Target for technical assistance.

If you know that water has been introduced into the system recently, follow the procedure in section 3.5 for changing the filters. If the cleaning valves do not seem to be working properly or if the system quickly clogs again after filter replacement, contact Action Target immediately for technical assistance.

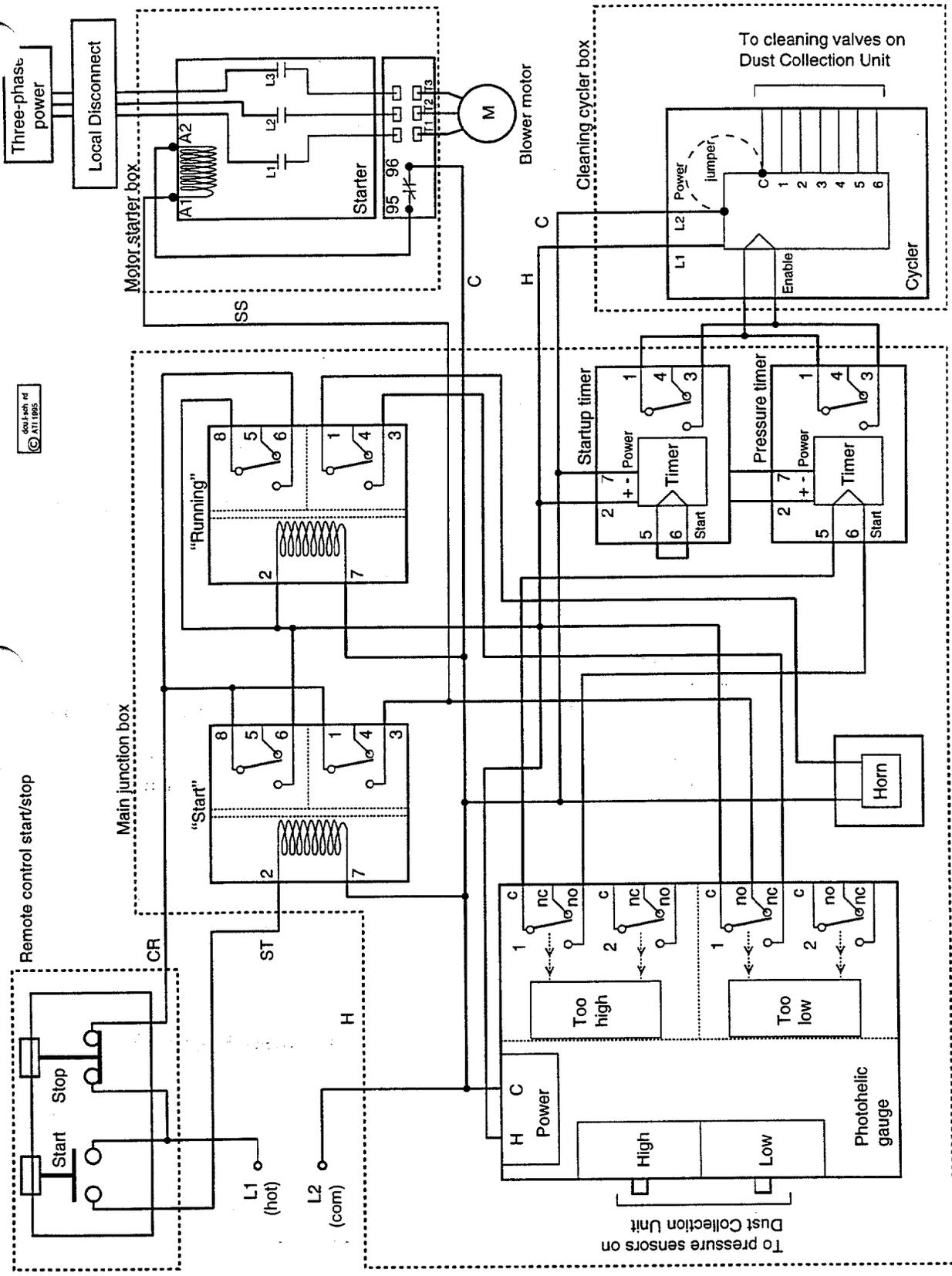


Figure 6: Control Schematic

The Action Target Total Containment Trap II (TC2)

Copyright Action Target Inc., May 1995

October 29, 1998

WARNING!

Any activity using firearms is inherently dangerous and should only be carried out with the greatest of care and seriousness. This equipment is intended for professional use—not for consumer or amusement activities. It should only be used under the strict supervision of qualified firearms training personnel. Action Target will assume no responsibility whatsoever for persons or organizations who use Action Target equipment in a manner which is unsafe and/or which poses a threat to human life, property, or the environment. Never place a target in a location which can be seen from anywhere other than the area where the intended shooter will be firing from. Keep hands and clothing clear of any moving parts, actuators, motors, etc. Always use proper armament in front of actuators, air lines, controllers, fixtures, and any other parts of the system which might be damaged by gunfire. Action Target's warranty will not cover equipment which has been improperly or inadequately armored.

REPAIR OF DAMAGED TARGET COMPONENTS

If you require repair for damaged components, please call Action Target to obtain a Return Authorization (RA) number. Then ship the return items to the address shown below. Unless you have been explicitly instructed otherwise, you are responsible for the cost of shipping returned materials back for service.

ACTION TARGET INC.
1281 West 220 North
Provo, UT 84601
801-377-8033

If the returned item is covered by warranty, it will be returned to you without charge. Otherwise, you may be charged for the repair. If you wish to be advised of any possible repair costs before the repair is done, please specify this when obtaining your return authorization.

Action Target reserves the right to repair or replace, at its option, any part of an Action Target system or component in the course of servicing that system or component.

ACTION TARGET LIMITED WARRANTY

Action Target Inc. will repair or replace, at its option, any product which does not function correctly due to faulty components or workmanship for a period of 90 days from date of purchase. Action Target Inc. reserves the right to not warranty any product which falls into any of the following categories:

- A product which has been modified or altered by anyone other than an authorized Action Target service person.
- A product which has been damaged due to improper armoring (A bullet hole in a product is a good indication of improper armoring.)
- A product which has been damaged due to user negligence or failure to perform the recommended maintenance procedures.
- A product which has been damaged due to acts of nature or chance (earthquake, lightning, flood, fire, etc.)

An extended warranty or a service contract may extend your coverage over that stated herein but does not exist unless explicitly stated in writing and as part of a specific, single purchase. Action Target makes no other warranties, expressed or implied.

1 Overview

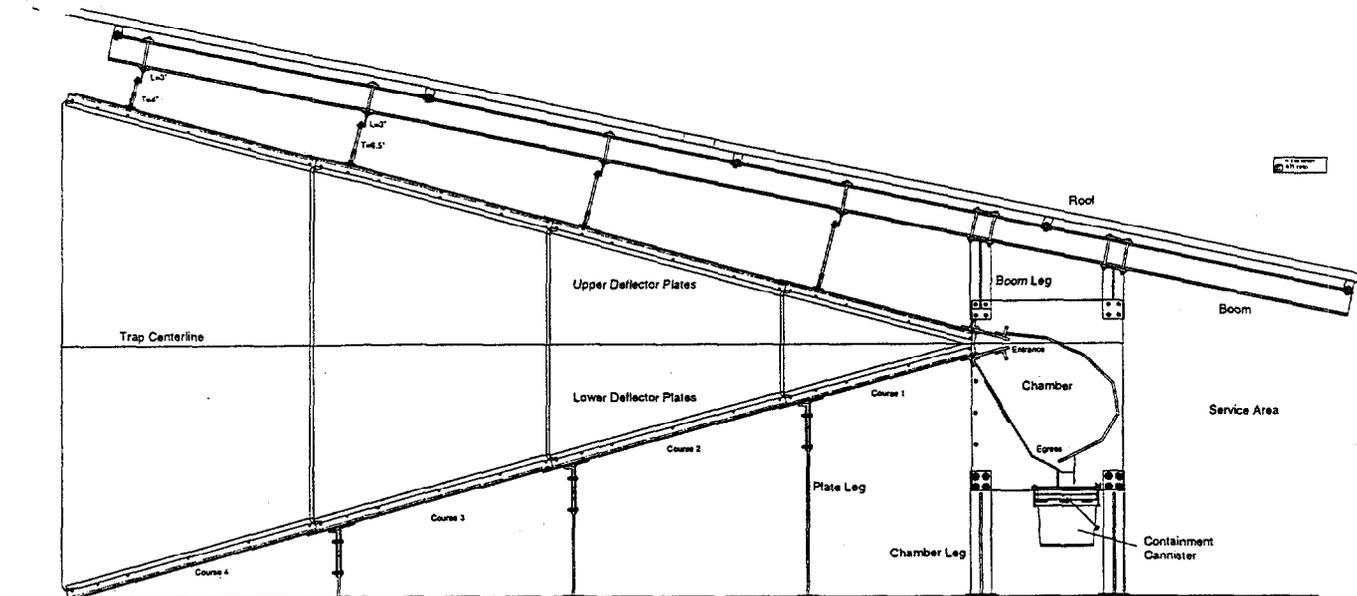


Figure 1: Typical Side View

1.1 The TC2

The TC2 is the second generation in the family of Total Containment Traps. It differs from the first generation of Total Containment Traps primarily in that its containment chamber is fabricated as a single unit. Its impact surfaces are also optimized for a more efficient deceleration of projectiles. And its lead collection system is greatly improved.

The TC2 is one of the most innovative and safe steel bullet traps available for any firing range - indoor or outdoor. Unlike many traps of the past, the TC2 is a projectile "containment system." This means that it not only stops bullets, but also collects them in a containment cannister where they will be permanently stored until they are transported for disposal or recycling. The low impact angles and sealed, enclosed chamber design of the TC2 greatly reduce emissions of lead particulates associated with traditional, open-frame steel traps. The addition of an optional dust collection unit virtually eliminates airborne particulate emissions. The heavy steel design is long-lasting and rugged to assure years of reliable use.

The TC2 uses hardened steel deflector plates oriented at low angles of impact to direct projectiles through a small aperture and into a containment chamber (see figure 2). Once inside the chamber, the bullet is broken up and decelerated by a series of impact plates oriented at increasing angles of incidence. Once stopped, bullet fragments fall downward through the base of the chamber where they are collected in a cannister. (Some other collection options are available.)

1.2 Warning

The TC2 is designed to virtually eliminate bullet splatter back in the direction of the shooter. However, bullet splatter is not entirely predictable. Some rounds fragment in a regular manner, while others can throw off pieces in unexpected directions. If you are in the vicinity of any surface where bullets are impacting, it is only a matter of time until you will be struck by some small fragment of a bullet. While this is not likely to be life-threatening, it can cause damage to eyes or other exposed areas of the body.

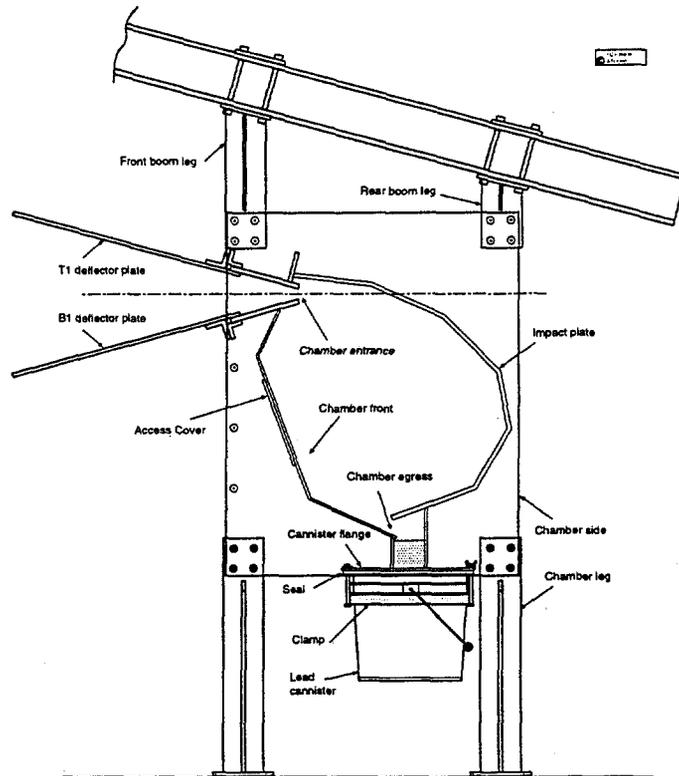


Figure 2: Trap Chamber Side View

For this and other reasons, eye and ear protection must be mandatory on any shooting range. Long pants and shirt sleeves help reduce the chance of discomfort due to the impact of bullet splatter.

Action Target will not accept responsibility for damages due to bullet splatter, environmental contamination or any other consequence of the use of a TC2. Action Target makes no representation whatsoever that the TC2 or any other bullet catching device will contain 100 percent of the potential splatter or contaminants present on a shooting range. The TC2 is a primary containment system only. Secondary containment or other redundant means may be required in order to assure operation compliant with local, federal or other environmental standards.

The cleanup procedures outlined herein are not represented by Action Target to be inherently safe nor 100 per cent effective. These procedures are given for reference only and outline the absolute minimum safety standards that should be considered. Therefore, these procedures may need to be combined with redundant precautions such as respirators or other protective precautions to isolate the operator from lead and/or other contaminants.

1.3 Lead Particulates

As the bullet is decelerated inside the containment chamber, it becomes fragmented. The resulting particulates range from large, heavy fragments down to "micron-size" dust. In most lower volume applications, the great majority of these particulates eventually make their own way down into the collection canisters at the base of each chamber. The small portion of the particulates which don't make it into the containment chamber eventually settle on the lower deflector plates or on the ground in the surrounding area. On indoor ranges, this dust can easily be collected as part of a regular cleaning procedure with a HEPA vacuum.

In installations which are outdoors, or where there are a large volume of high velocity rounds fired, it is generally not acceptable to allow such lead emissions since wind and rain can carry the contaminants away from the trap area and into the surrounding environment. In such cases, a

secondary containment system is highly recommended.

A further device for minimizing lead emissions from the containment chamber is the "Dust Containment Unit" (DCU) from Action Target. The DCU is a high volume, high pressure vacuum system which evacuates air and particulates from the bullet containment area where the majority of lead particulates are created. This system creates a "net negative pressure" inside the containment chamber, causing air to flow into the chamber entrance, carrying lead and other particulates as it goes. The DCU then filters particulates from the air, depositing the collected matter in a canister for recycling or disposal. The clean, filtered air is expelled into the atmosphere. Please see the DCU operations manual for more specific information.

1.4 Other Sources of Lead Particulates

The lead collection mechanisms of the TC2 can only be expected to deal with lead and projectiles which successfully reach its containment chamber. Some errant projectiles strike walls, the ground, or other solid objects prior to coming in contact with the bullet trap. All projectiles experience slight deformation on initial contact with the bullet trap deflector plates. And many types of ammunition expel lead particulates and other contaminants directly from the barrel of the gun.

All these are additional, potential sources of contaminants and must be addressed in addition to the use of the TC2. Perhaps the most effective way to prevent the spreading of such contaminants into the surrounding environment is to perform a regular cleaning procedure with a HEPA vacuum of all effected surfaces such as the mouth of the bullet trap, the surrounding ground, the walls and ground surrounding the shooter, and the area behind the bullet trap.

Some ranges successfully utilize a wet wash-down procedure to control particulate matter. For such a procedure, the range must be equipped with a catch basin or reservoir of some type to contain the runoff water. This water can not be released into the environment until it is purified in some way either by evaporation, filtration, or settling. Section 1.5 goes into more detail on this subject. Note that a wet cleanup procedure is not recommended on ranges which utilize the DCU since the direct introduction of water into the collection unit can destroy the filters and necessitate their replacement.

1.5 Range Design Considerations

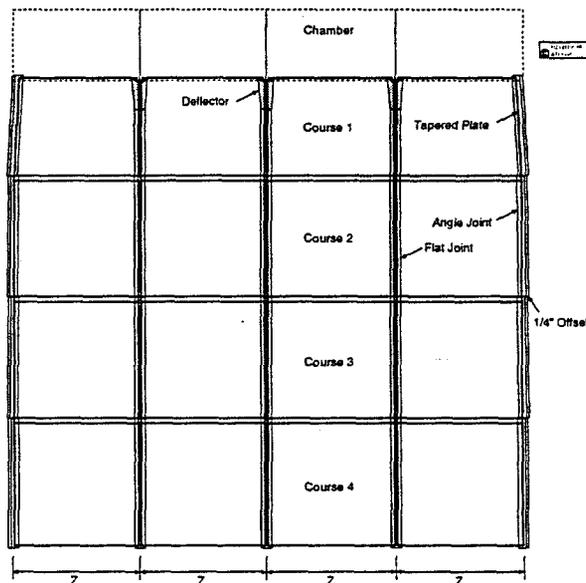


Figure 3: Figurative Top View

1.5.1 Lane Placement

The TC2 consists of a number of modules placed side by side to form a complete bullet trap (see figure 3). Normally these joint strips are not as resilient as the deflector plates which form the shooting lanes so heavy shooting on the modules joints should be avoided where possible. In most cases, each trap module should correspond with a shooting lane. In other words, orient the targets so that the majority of rounds hitting the target will impact in the center section of a trap module rather than on the joints. The TC2 can optionally be provided with special hardened joint strips for high power applications or applications where heavy shooting on the joints can not be avoided.

Depending on the angle, cross directional shooting can radically reduce the effectiveness of the TC2. For example, never shoot from lane 1 into the trap at lane 20. The angle of impact on the trap may cause damage or injury. As might be expected, this problem is more acute when using high velocity projectiles and much less significant with pistol fire. In the case of rifle fire, the trap may be damaged or completely penetrated. In any case, the splatter coming off the round can be dangerous to observers or other shooters in the area.

It is not recommended that the shooter stand directly in the mouth of the trap while firing. The range should be designed so the shooter is not required to stand any closer than 20 ft. from the front aperture of the trap. The probability of being struck by small fragments of bullet splatter will dramatically decrease as the distance from the trap is increased.

It is also recommended that the range be oriented so that the majority of projectiles enter the trap on a flat, horizontal trajectory. The closer the point of impact is to the opening of the containment chamber, the less the chances will be of producing particulates which do not make it into the chamber.

1.5.2 Roof Option

It is not recommended that rainwater be allowed to pass into the containment chamber in any installation. In fact, on installations which use the Dust Collection Unit, any significant volume of water which enters the system can solidify the particulates accumulated on the filters. This renders them useless and requires replacement of all filters in the system.

The TC2 can be installed inside a building or outdoors. When installed inside a building, it is most efficient if the upper portions of the trap can be supported by the roof structure inherent in the building. The trap structure adds about 15 psf to the average roof load in the area of the trap.

The TC2 is also available as a totally self-supporting system, requiring only a 6", 4000psi concrete pad under the area of the trap and no overhead support (see figure 1). When this system is employed, it is possible to add an optional roof system which covers the area of the trap, about 24" on each side, and about 36" on the back. While this does not keep all of the rain off the bullet trap, it does keep the chambers dry as well as the vast majority of lead particulates which might be present on the ground underneath the trap.

However, if the range is designed in such a way that the runoff from other parts of the range drains toward the trap, this water may pick up lead particulates and carry them off into the surrounding environment. This defeats some of the value of a roof system. New ranges should be designed so that any water present on the ground in the trap area is contained and then evaporated or filtered prior to being released. Water present on the ground in other areas of the range should run off the range without passing through the trap area.

1.5.3 Passive Indoor Systems

Indoor ranges can effectively operate a trap system without a dust collection unit (passively) if the proper precautions are taken. First it must be recognized that, while the majority of lead fragments will be contained by the collection system, a small percentage of the total lead in the system will remain airborne for some time inside the containment chamber. A portion of this airborne lead may escape through the chamber entrance and float around the area near the trap.

To operate a passive system indoors, you should make sure that the area around the trap is totally sealed off from the outside. Air flow in this area is not desirable as it may pick up airborne

lead and convey it to other areas. Ventilation required within the range should be drawn out in front of the trap to maintain the air flow only in the area between the shooters and the trap. Air drawn off in this way should be filtered and should not be reintroduced into the shooter area unless proper filters or other means are used to purify the air. Any doors or other access into the area should contain weather stripping or other means of sealing in order to contain lead emissions within the trap area. A periodic cleanup procedure must be performed as outlined in the maintenance section.

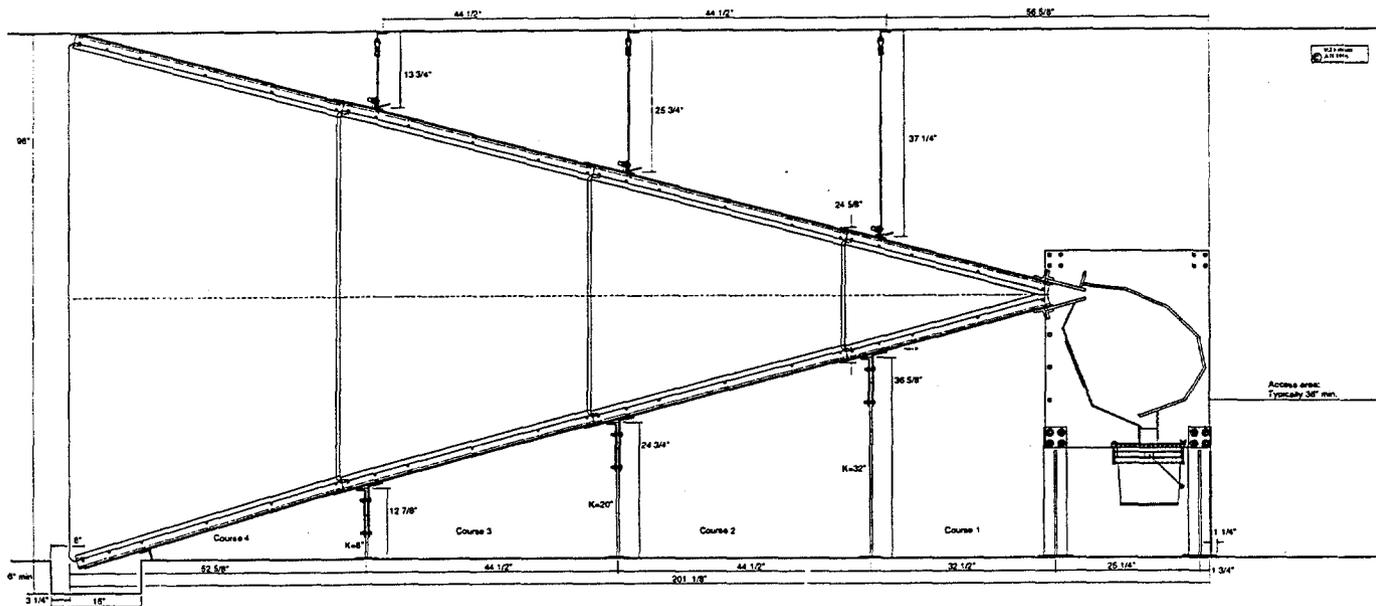


Figure 4: TC2 with Overhead Support and Collection Trough

1.5.4 Wet Secondary Containment Systems

All outdoor systems should include a secondary containment system if possible. Even if lead emissions off the trap are reduced to zero, any shooting range still has a contamination potential due to muzzle emissions, misdirected shots etc. Therefore, to improve environmental protection, secondary containment is always recommended.

This normally consists of a concrete pad extending the full width of the range and all the way from the shooter area to the rear of the bullet trap. The concrete pad should be bordered on all sides by a wall at least 6" tall and preferably several feet tall. These walls are intended both to contain water and to limit the spreading of contaminants by wind from the range to other surrounding areas. All surfaces should grade slightly toward a containment trough, generally located near the front edge of the bullet trap as shown in figure 4. This containment trough should be ported outside the range into an evaporation pond or containment pool with enough capacity to contain the likely rainfall for your particular region (check with a local engineer for local rainfall projections).

Evaporation pools are generally very wide and very shallow. They should be as deep as necessary to contain the desired runoff, but should be as wide as possible to speed the evaporation process. As with the walls around the range, walls around the pond should be as high as possible to keep lead in the pond area.

2 Operation

The TC2 itself is a passive device so it does not require any power to operate. However, if a conveyor option or the dust collection unit is used, they must be turned on prior to use of the system. Please refer to the DCU manual for specific operational details.

3 Maintenance

The TC2 requires regular maintenance. The most important procedure is the regular removal of lead from the collection cannisters or other accumulation area. Since there are a variety of possible configuration, see the subsection which best matches your installation.

When accessing the trap area, do not kneel or otherwise contact the ground with areas other than the bottom of your shoes. After handling portions of the trap, accessing the trap area, or performing maintenance and cleaning procedures, always wash hands and face with soap and water or shower if possible. Launder clothing at the soonest opportunity.

3.1 Damage

If the trap is struck by a round of higher power than it can withstand or which impacts at an improper angle, some damage may occur. This may be a crater or a complete hole through a plate or joint.

Such damage creates a further safety hazard by providing a source of increased bullet splatter. If any component of the trap is damaged in this way, repair or replace the part before using the trap further. All components and replacement parts are available from Action Target.

3.2 Cannister Inspection

Make a weekly inspection of the bullet trap. Inspect the top of each collection cannister to see that it is firmly seated against the gasket and will not leak out lead dust. If necessary, tighten the clamping nuts on the appropriate side of the cannister (there are 4 clamping nuts) to pull the cannister up firmly, but not too tight, against the gasket.

Make a note of the level of lead in the cannisters. Compare this level with the previous week's level. If there is little or no lead accumulating in the cannisters, you may have a clogged chamber. This condition must be checked immediately before it becomes a larger problem!

To inspect the chamber, first remove the cannisters along the bottom and look up into the chamber with a flashlight. You should be able to see if there is a lead clog at the base of the chamber.

If this method is not satisfactory, remove the access cover on the front of the chamber (where the air is drawn out for the DCU). Examine the inside of the chamber to determine if lead is accumulating inside. If any large chunks of lead are present which will not fit through the normal outlet, remove them through the access hole.

To clean a clogged chamber, reach through the front access port with a HEPA vacuum hose and draw out all the lead material into the vacuum.

If you have a clogged chamber, it is important to determine why. The chamber outlet is designed to pass any object larger than about 1 1/4" diameter. If you shoot a large volume of shotgun rounds at the trap, it is possible for the plastic wads to aggravate a clogging problem. But generally, even shotgun wads should pass through the chamber without much problem. If you have a persistent clogging problem, please contact Action Target for further assistance.

3.3 Cleanup

A Dust Collection Unit will greatly reduce lead emissions at and around the bullet trap. However, it will not eliminate the need for periodic lead cleanup procedures around the trap. Therefore two types of cleaning are discussed:

- normal lead removal from the container or collection area
- lead cleanup in the surrounding area

If you need help obtaining equipment such as a HEPA vacuum cleaner contact Action Target for assistance.

Remember that there will generally be some airborne lead in the area surrounding the bullet trap. So before entering the trap area, you should wait for 15 minutes after shooting is concluded and collection or ventilation systems have been turned off. This will allow lead dust to settle on the ground where it is more easily dealt with.

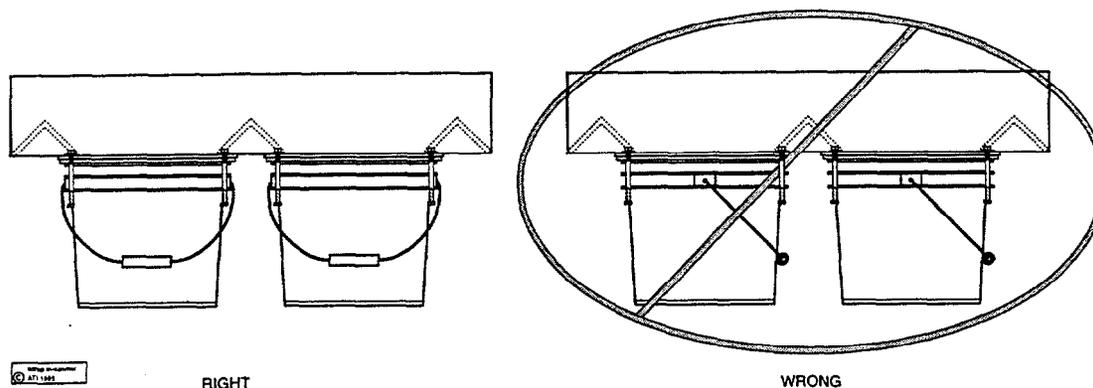


Figure 5: Cannister Attachment

3.3.1 Lead Removal Using Containment Cannisters

If your trap is equipped with containment cannisters, you can monitor the accumulation of lead in each cannister very easily. Since the cannisters are somewhat translucent, the accumulation level can be viewed from the outside.

The user can wait until some cannisters are nearly full and then change out the entire system. Or, each cannister can be changed individually as it becomes full. The latter method distributes the work load over time, making the process easier for a single maintenance person to accomplish. For example, if one or two cannisters are changed each day, the process is much less difficult than if the entire process is attempted at one time.

Each cannister is designed to be small enough that it can be lifted even when completely full of lead. However, even with the relatively small cannister size, it can be quite heavy. It is recommended that the operator use a lifting belt, a hand truck or other lifting apparatus where possible.

When it is time to change a cannister, slide a board or some other support underneath the cannister which is tall enough to leave just a slight gap (1/4" or so) between the support and the bottom of the cannister. Loosen the two nuts on the cannister clamps which are visible from the access area. (Do not loosen the nuts on the opposite (front) side of the chamber.)

As you loosen the nuts, the cannister will drop down away from the gasket. Slide the cannister out away from the trap and immediately install a lid by pounding it into place with a hammer until sealed tight. Do not attempt to carry or transport the cannister without the lid in place.

Replace the cannister with an empty one. Reinstall the clamps, making sure that the clamps lock in under the portion of the rim of the cannister where they are reinforced (where the handle ring attaches). See figure 5 for an example of this. Tighten the clamps to pull the new cannister tightly up against the flange. If the clamps are not tight, the seal will not be maintained as the cannister becomes heavy under the weight of the lead.

3.3.2 Lead Removal With no Containers

For this type of installation lead removal is, in essence, the same as lead cleanup since all captured lead is simply dropped onto the ground under the trap. Refer to the applicable cleanup section below.

3.3.3 Dry Lead Cleanup Procedure

If there is a significant accumulation of lead dust in the trap area, it should be visible as a fine, black dust on the ground. Begin vacuuming as you enter the area. If you enter through a door, vacuum the door off first. Vacuum the floor and any flat areas where dust may accumulate. Do not proceed past a point which you have not yet cleaned.

Never use a broom, a shovel, compressed air or any other means to move dry lead dust as this will lift the dust into the air where it can become a health hazard. Do not use a vacuum cleaner with a beater brush. The vacuum should rely solely on suction to pull in the dust.

If your system has no container system, you may be able to vacuum all lead fragments right up off the floor. However, if the volume of lead is greater than the capacity of your HEPA vacuum, you should consider the containment cannister option or a bigger HEPA vacuum.

3.3.4 Wet Lead Cleanup Procedure

Wet cleanup should only be used on ranges which have a secondary containment trough or some other mechanism to prevent contaminated wash-down water from entering the surrounding environment prior to being purified. See section 1.5 above for more information on this.

Unlike the dry cleanup procedure, this procedure may more easily be used for lead removal from a trap with no lead container system. Or it can simply be used to clean up the area surrounding the bullet trap of any smaller amounts of lead which might have escaped other collection means.

Again, begin by allowing a settling time to pass so all airborne particulates have settled down to the ground. Use a hose with a nozzle capable of spraying a fine mist or a concentrated stream. Start by setting the nozzle to a fine mist. Spray down the surrounding areas with the mist so that all lead particulates become completely wet, but be careful not to disturb the dust and make it airborne.

If the primary collection area is on the floor, there will be large piles of lead directly under the containment chambers. When these piles are completely saturated with water, turn off the hose and use a flat bottom shovel to pick up the lead and deposit it in a collection bucket. As you scoop up the lead, allow excess water to drain back off to the floor. Again, if you see any dry lead, stop immediately and wet it down with a fine spray before continuing. When the major portion of lead has been collected in this way, proceed to use the water stream to direct the remaining small portion into the collection trough.

If the trap is equipped with cannisters or a conveyor, the bulk of the lead will already have been collected. In either case, the only thing left now on the floor should be a very small amount of fine particulates. With all surrounding areas sufficiently wet, turn the nozzle to a concentrated stream and use this stream to direct the dirt and particulates into the secondary containment trough. You must be careful that you not use so much water as to overflow the trough. So do your work quickly, using only the water necessary to do the job.

Eventually the collection trough will become full of dirt and lead particulates. At any time when this matter is completely saturated with water, it can simply be shoveled out into a container. It is generally not necessary to remove every last bit of lead. Rather, just remove enough so that you can continue to use the trough for catching cleanup water. If you ever do need to completely clean out the trough, shovel out all the lead that you effectively can, allow the remaining water to completely evaporate, and then vacuum out the remaining lead particulates with a HEPA vacuum.

3.4 Painting

All outside surfaces of the trap should be kept painted to prevent rusting. The TC2 comes with base coat of rust inhibiting primer. In time this finish may degrade, particularly in those areas of most intense impact from bullets. The shock of the impacts on the plates may cause the paint finish to gradually flake off (on both sides), exposing the underlying steel.

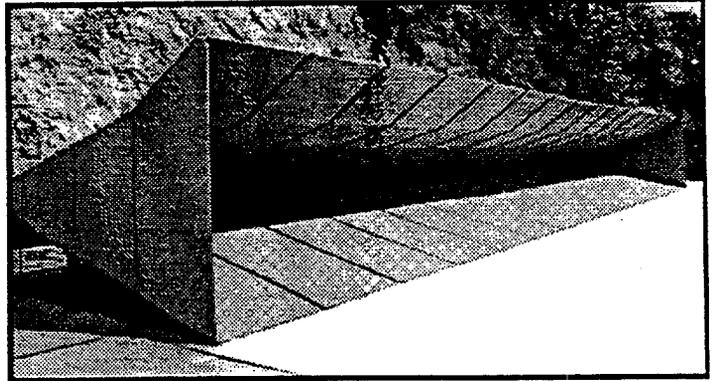
The hardened armor plate is somewhat resistant to rusting. However, in most cases, the joint components are not. On the side where the bullets strike, the lead coating left on the plate tends to help reduce problems from rust. But as flaking occurs on the opposite side of the plate, these areas should be spot painted to ensure a long useful life of all components.

In areas where corrosion is an increased problem, an epoxy paint offers increased life. However, epoxy paint is no more resistant to flaking than less expensive alternatives. So a moderately priced, zinc based industrial coating may be the overall best alternative.

Unlike some other bullet trap designs, the steel plates do not need to be oiled. While application of oil is an acceptable method for preventing corrosion on the steel plates, the introduction of oil into recovered lead may complicate the recycling process, rendering the lead less valuable than it might otherwise be. Furthermore, if oil is introduced into the dust collection unit, the filters may be damaged or destroyed.

TOTAL CONTAINMENT TRAP™

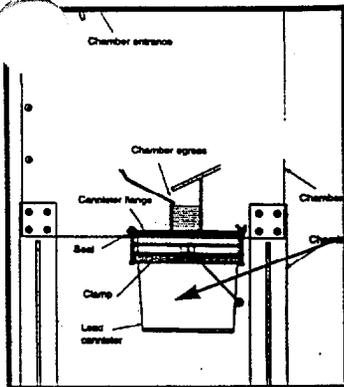
U.S. Patents 5400692, 5535662



The TCT is simply the best overall solution for ranges where safety, reliability, low maintenance and ease of use are top priorities. Action Target's TCT has overcome the problems of other inferior designs which do not provide for close-distance shooting or for shooting with high power rounds. The advanced design of the TCT uses a gracefully sloping funnel to safely direct rounds into a large chamber where they can be stopped with complete safety. The TCT can be safely used for handgun, shotgun and most high power rounds, and is ideal on both indoor and outdoor ranges.

The TCT is an independent, free standing structure, so it can be installed with minimal preparation on nearly any range site.

The Total Containment Trap is now available with a powerful vacuum system that literally sucks lead dust and other fine particles right out of the air before they have a chance to settle on the trap or the rest of your range.



Bullets and other large fragments are safely captured and conveniently deposited in sealable canisters for easy removal and storage.

Options Available From Action Target:

- Action Target's "Dust Collection Unit"
- Steel roof

What comes with the TCT:

Free-standing steel funnel plates and trap structure, Collection chambers, Sealable lead fragment storage canisters,

What else you need:

Concrete pad that extends 2 feet (without the DCU) on both ends of the trap and is suitable to your location based on equipment and snow load if applicable, and power for the DCU based on range requirements.

TECHNICAL INFORMATION

Size: 8' high x 16' deep

Class: Bullet Trap

Length: Varies by range

Main Use: Safety

Weight: X pounds/foot

Function Code: n/a

Power: Based on range dimensions

Video: Bullet Trap Technologies

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