

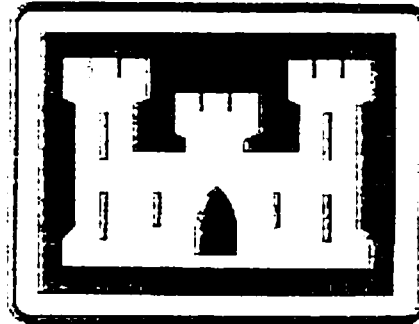


**ENVIRONMENTAL
CHEMICAL
CORPORATION**

CHARACTERIZATION REPORT

**CHARACTERIZATION OF SPENT SHELL
CASINGS
TWENTY-NINE PALMS, CA**

**Contract No. DACW05-95-D-0014
Delivery Order No. 0019**




Prepared for:

Department of the Army
U.S. Army Corps of Engineers
Los Angeles District
Inland Resident Office
5023 4th Street, Bldg. 2640
March Air Reserve Base, CA 92618

1240 Bayshore Highway
Burlingame, California 94010
Telephone: (650) 347-1555 Facsimile: (650) 347-4571

18 Oct, 1999


Characterization of Spent Shell Casings, Twenty-Nine Palms, CA
Contract No. DACW05095-D-0014
Delivery Order No. 0019
ECC Serial Letter # 011

Marine Corps Air Ground Combat Center
Environmental Operations Office
Natural Resources / Environmental Affairs Directorate
Building 1451 MCAGCC, Box 788110
Twenty-Nine Palms, CA. 92278-8110
ATTN: Leon Bowling

Subject: Transmittal of Project Final Report Change pages

Dear Mr. Bowling:

Please find the attached Final Closure and Characterization change pages that address Mr. David Munro's comments addressed to me by FAX on 18 October 1999 (Attached). Please call me at (303) 989-8344 with any questions. Distribution has been accomplished in accordance with Para 3.4 of the revised Statement of Work, attached.

Sincerely,


William J. Walenius
UXO Project Manager

Atch: 2 Cys - Closure and Characterization Report Change Pages
1 Cy - Change letter
1 Cy - Submittal Recipients
1 Cy - Mr. Munro's Comments
1 Diskette - Photos
1 Diskette - Closure Report
1 Diskette - Characterization Report

CHARACTERIZATION REPORT

**Characterization of Spent Shell Casings
Twenty-Nine Palms, CA**

Prepared for

**U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
Inland Resident Office
5023 4th Street, Bldg. 2640
March Air Reserve Base, California 92681**

**Contract No. DACW05-95-D-0014
Delivery Order No. 0019**

October 18, 1999

**Environmental Chemical Corporation
1240 Bayshore Highway
Burlingame, California 94010**

Original, 2 Copies & Diskette	Marine Corps Air Ground Combat Center Environmental Operations Office Natural Resources/ Environmental Affairs Directorate Building 1451 MCAGCC, Box 788110 Twenty-nine Palms, CA 92278-8110 ATTN: Leon Bowling
1 Copy:	US Army Corps of Engineers, Los Angeles District Inland Resident Office, ATTN: John Andalon (COR) 5023 4th Street March ARB, CA 92518
1 Copy:	U.S. Army Corps of Engineers, Los Angeles District UXO Safety & Occupational Health Specialist 10845 Rancho Bernardo Road, Suite 204 Rancho Bernardo, CA 92127 ATTN: James B. Walker
1 Copy & Diskette:	U.S. Army Corps of Engineers, Los Angeles District Environmental Construction Branch, ATTN: Eleanor Nevarez 645 North Durfee Avenue South El Monte, CA 91753
1 Copy:	U.S. Army Corps of Engineers, Los Angeles District PPMO, Military/SFO Branch, ATTN: Debbie Castens P.O. Box 2711 Los Angeles, CA 90053-2325
1 Copy:	US Army Engineer Center, Huntsville Attn: CEHNC-OE-DC-3 (Mr. Robert Nore) 4820 University Square Huntsville, AL 35807-4301

18 Oct. 1999

Change Page Instructions.

Please follow the below listed steps in updating both the final closure and characterization reports:

- 1.) Both reports:
Remove both "Draft" Covers and replace with attached Final Covers.
- 2.) Characterization Report:
 - A Remove inside cover page dated September 7, 1999 and replace with attached new page dated 18 October 1999.
 - B Remove pages 4 thru 6 and replace attached with new pages 4 thru 6.
- 3.) Closure Report:
 - A Remove inside cover page dated September 27, 1999 and replace with attached new page dated 18 October 1999.
 - B Appendix C: Remove pages 1 thru 3 and replace attached with new pages 1 thru 3.

Sample Description Table

Sample ID	Sampling Date	Sample Location	Sample source	Notes
OF-112-001	6/29/99	Range 112 - Stock Pile	Target Hit Simulator - APDS 2075	
OF-112-002	6/29/99	Range 112 - Stock Pile	40mm Smokes - M716	
OF-112-003	6/28/99	Range 112 - Stock Pile	Naplam Tank Scrap - MK77	
OF-112-004	6/29/99	Range 112 - Stock Pile	155mm White Phosphorus Projectile - M825	
OF-112-005	6/29/99	Range 112 - Stock Pile	Fire Bomb Igniter - MK13 w/ M343 fuse	
OF-112-006	6/29/99	Range 112 - Stock Pile	J.A.T.O Unit - MK251 Rocket Motor	
OF-112-007	6/29/99	Range 112 - Stock Pile	2.75in Rocket - MK66 MOD2	
OF-112-008	6/29/99	Range 112 - Stock Pile	M18 TP Tracers - M918	
OF-112-009	6/29/99	Range 112 - Stock Pile	MLRS Fuze - M455	
OF-112-010	6/29/99	Range 112 - Stock Pile	Candle Holder 155 Illumination Round - M485A2	
OF-112-011	6/28/99	Range 112 - Stock Pile	Dragon Motor - M222	
OF-112-012	6/29/99	Range 112 - Stock Pile	25mm Shell Casings - PGU-23U	
OF-112-013	6/29/99	Range 112 - Stock Pile	Smoke Canister from 105mm - M84A1	
OF-112-014	6/29/99	Range 112 - Stock Pile	Hydra Submunition - M73- practice	
OF-112-015	6/29/99	Range 112 - Stock Pile	Candle from 105mm Illumination Round - M314A3	
OF-112-016	6/29/99	Range 112 - Stock Pile	M772 - Fuze	
OF-112-017	6/29/99	Range 112 - Stock Pile	M/CLIC Fuze - M1134A1	
OF-112-018	6/29/99	Range 112 - Stock Pile	60mm Illumination Round - M721 w/ M776 Fuze	
OF-112-019	6/29/99	Range 112 - Stock Pile	Expulsion Motor for TOW - M114	
OF-112-020	6/29/99	Range 112 - Stock Pile	155 Smoke Canister - M116A1	
OF-112-021	6/29/99	Range 112 - Stock Pile	Sub Cal - LAW - M73	
OF-112-022	6/29/99	Range 112 - Stock Pile	M339 Fuze	
OF-112-023	6/29/99	Range 112 - Stock Pile	MLRS Outer Skin	
OF-112-024	6/29/99	Range 112 - Stock Pile	20mm Brass - M103	
OF-112-025	6/29/99	Range 112 - Stock Pile	MLRS Outer Skin	Duplicate

Notes:

All samples were collected from an ordinance scrap pile. Dave Monroe extrapolated that the samples had been exposed to the elements for 6 - 8 months. He thought that this would be representative of the conditions these wastes would be exposed to before disposal.

29 Palms MCAGCC Sample Results Summary

Sample ID	Corrosivity Method 9045 (pH)	Total Sulfide Method 9030A (mg/kg)	Ignitability (Flashpoint) Method 1010 (DEG F)	Explosives - CDHS TTLC Method 8330 (mg/kg)	Explosives - CDHS STLC Method 8330 (µg/L)	Explosives - TCLP Method 8330 (µg/L)	Tetrazene- CDHS TTLC Method 8331 (mg/kg)	Tetrazene- CDHS STLC Method 8331 (µg/L)	Tetrazene- TCLP Method 8331 (µg/L)	Toxicity Bioassay Method CADHS (LC50>750mg/l)
OF-112-001	9.4	82.2	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-002	7.6	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-003	8.2	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-004	7.4	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-005	8.6	ND	>180	see table 3	ND	ND	ND	ND	ND	Passed
OF-112-006	5	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-007	8.4	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-008	8.1	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-009	7	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-010	10.7	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-011	8.6	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-012	8.3	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-013	5.7	9070*(1)	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-014	7.8	50.1	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-015	7	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-016	8.3	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-017	7.7	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-018	8.9	ND*	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-019	6.5	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-020	6.2	ND*	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-021	7.3	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-022	7.9	962(1)	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-023	7.7	ND	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-024	9.2	ND*	>180	ND	ND	ND	ND	ND	ND	Passed
OF-112-025	6.4	ND	>180	ND	ND	ND	ND	ND	ND	Passed
Notes:										
* Elevated detection limit due to matrix interference.										
(1) Please refer to section 5 of the Analysis Characterization Report										
ND: Not Detected										

Characterization Report
 Characterization of Spent Shell Casings
 Contract # DACW05-95-D-0014
 USACE - LA District

ECC
 1240 Bayshore Highway
 Burlingame, CA 94010

Nitroaromatics & Nitramines by HPLC - Method 8330 TCL

Sample ID	IMX	1,3,5 - Trinitrobenzene	RDX	1,3 - Dinitrobenzene	Nitrobenzene	2,4,6 - Trinitrofluorene	Tetryl	2,4 - Dinitrofluorene	2,6 - Dinitrofluorene	2-AM-DNT	4-AM-DNT	2- Nitrofluorene	4- Nitrofluorene	3- Nitrofluorene
OF-112-005	ND	ND	ND	ND	0.26	ND	ND	ND	ND	ND	ND	ND	ND	ND

All results in mg/L