RCRA PART B PERMIT APPLICATION
OPEN BURN UNIT

REVISION 1

Prepared for:

Chemring Ordnance

Chemring Ordnance, Inc.
Perry, Taylor County, Florida
FAC ID FLD 046 966 593
Permit Number 16099-006-HO

and

Florida Department of Environmental Protection
2600 Blair Stone Road MS4560
Tallahassee, Florida 32399

Prepared by:

ENSAFE

EnSafe Inc.
7775 Baymeadows Way, Suite 105
Jacksonville, FL 32256
(904) 367-4324
www.ensafe.com

July 2016

Chemring Ordnance

September 11, 2015

Ms. Camille Stein
Florida Department of Environmental Protection
Hazardous Waste Regulation Section
2600 Blair Stone Road MS4560
Tallahassee, FL 32399-2400

RE: Permit Renewal Application, Open Burn Unit
Chemring Ordnance, Inc.
Perry, Taylor County, Florida
FAC ID FLD 047 966 593
Permit Number 16099-006-HO

Dear Ms. Stein:

Chemring Ordnance, Inc. (COR) is pleased to submit the enclosed permit application renewal for the Open Burn Unit. Also enclosed is a check in the amount of $15,000 for the permit application fee. This application for renewal is submitted 180 days prior to COR's current permit expiration date of March 12, 2016.

The submittal package includes three hard copies of the application and the attachments, and three compact disks containing editable application files. An additional copy of the submittal package has been sent to Mr. Jabe Breland at the FDEP Northeast District.

If you have questions regarding this application or require additional information, please call me at (850) 843-5244.

Sincerely,

Robert Parman

Robert Parman, CSP
Director Health, Safety & Environmental

Enclosure

cc: w/enclosure: Environmental Files, COR
w/o enclosure: Kelly Murray, EnSafe

10625 Puckett Road Perry Florida 32348 USA
Telephone: +1 850 584 2634 Facsimile: +1 850 584 2044 www.chemringordnance.com
Chemring Ordnance, Inc.
Part of the Chemring Group

Chemring Ordnance

Chemring Ordnance, Inc.
10625 Puckett Road
Perry Florida 32348
850-584-2634 ext. 253

Citizens Bank
William Penn Place Office
525 William Penn Place
Pittsburgh, PA 15219
6224817425

5008321

DATE	AMOUNT
09/10/2015	$15,000.00

Fifteen Thousand Dollars And 00 Cents

Pay to the Order of:

Florida DEP
Hasardous Waste Regulation Section
2600 Blair Stone Road MS4560
Tallahassee, FL 32399-2400

⑈5008321⑈ ⑆036076150⑆ 6224817425⑈

Security features. Details on back.

Citizens Bank PA

To: Florida DEP

Check Number: 5008321

Date: 09/10/2015

Invoice Number	Date	Description	Amount	Discount	Paid Amount
	September 10, 201	Permit Renewal	$15,000.00		$15,000.00

APPLICATION FOR A HAZARDOUS WASTE FACILITY PERMIT
CERTIFICATION
TO BE COMPLETED BY ALL APPLICANTS

Signature and Certification

Facility Name Chemring Ordnance, Inc.

EPA/DEP I.D. No. FLD 047966593

The following certifications must be included with the submittal of an application for a hazardous waste authorization. The certifications must be signed by the owner of a sole proprietorship; or by a general partner of a partnership; or by a principal executive officer of at least the level of vice president of a corporation or business association, or by a duly authorized representative of that person. If the same person is a facility operator, facility owner, and real property owner, that person can cross out and initial the signature blocks under "1. Facility Operator" and "2. Facility Owner," and add the words "Facility Owner and Operator" at the line "Signature of the Land Owner or Authorized Representative."

1. Facility Operator

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, I agree to comply with the provisions of Chapter 403, Florida Statutes, and all rules of the Department of Environmental Protection. It is understood that the permit is only transferable in accordance with Chapter 62-730, Florida Administrative Code (F.A.C.), and, if granted a permit, the Department of Environmental Protection will be notified prior to the sale or legal transfer of the permitted facility.

Robert Parman

Signature of the Operator or Authorized Representative*

Mr. Robert Parman, Director of Health, Safety and Environmental

Name and Title (Please type or print)

Date September 15, 2015 E-mail address bparman@chemringordnance.com

Telephone (850) 223-5244

- **Attach a letter of authorization**

2. Facility Owner

This is to certify that I understand this application is submitted for the purpose of obtaining a permit to construct, operate, or conduct remedial activities at a hazardous waste management facility on the property as described. As owner of the facility, I understand fully that the facility operator and I are jointly responsible for compliance with the provisions of Chapter 403, Florida Statutes, and all rules of the Department of Environmental Protection.

Robert Parman

Signature of the Facility Owner or Authorized Representative*

Mr. Robert Parman, Director of Health, Safety and Environmental

Name and Title (Please type or print)

Date September 15, 2015 E-mail address bparman@chemringordnan

Telephone (850) 223-5244

*** Attach a letter of authorization**

3. Land Owner

This is to certify that I, as land owner, understand that this application is submitted for the purpose of obtaining a permit for the construction, operation or postclosure of a hazardous waste management facility on the property as described. For hazardous waste facilities that close with waste in place, I further understand that I am responsible for providing the notice in the deed to the property required by 40 CFR 264.119 and 265.119, as adopted by reference in Chapter 62-730, F.A.C.

Robert Parman

Signature of the Land Owner or Authorized Representative*

Mr. Robert Parman, Director of Health, Safety and Environmental

Name and Title (Please type or print)

Date September 15, 2015 E-mail address bparman@chemringordnan

Telephone (850) 223-5244

*** Attach a letter of authorization**

4. Professional Engineer Registered in Florida

Complete this certification when required to do so by Chapter 471, F.S., or when not exempted by Rule 62-730.220(9), F.A.C.

This is to certify that the engineering features of this hazardous waste management facility have been designed or examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgement, this facility, when properly constructed, maintained and operated, or closed, will comply with all applicable statutes of the State of Florida and rules of the Department of Environmental Protection.

Signature

David A. Myers, P.E.
Name (please type)

Florida Registration Number 66483

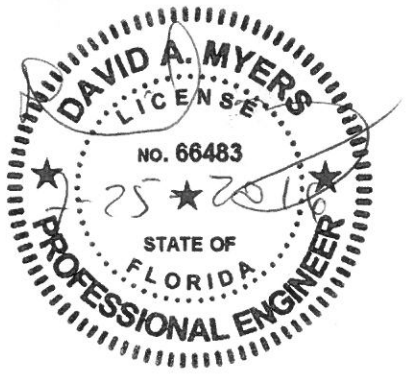
Mailing Address 7775 Baymeadows Way, Suite 104
street or P.O. Box

Jacksonville FL 32256
city state zip

Date 7-25-2016 E-mail address dmyers@ensafe.com

Telephone (904) 367-4324

(PLEASE AFFIX SEAL)



5. Professional Geologist Registered in Florida

Complete this certification when required to do so by Chapter 492, F.S., or when not exempted by Rule 62-730.220(10), F.A.C.

This is to certify that the interpretations of geology at this hazardous waste management facility have been examined by me, and the interpretations conform to sound geological principles. In my professional judgement, this facility, when properly constructed, maintained and operated, or closed, will comply with all applicable statutes of the State of Florida and the rules of the Department of Environmental Protection.

Signature

John C. King III, P.G.

Name (please type)

Florida Registration Number PG2770

Mailing Address 7775 Baymeadows Way, Suite 105

street or P.O. Box

Jacksonville FL 32256

city state zip

Date 7/25/16 E-mail address JKing@ensafe.com

Telephone (904) 367-4324

(PLEASE AFFIX SEAL)

Chemring
Ordnance

10625 Puckett Road
Perry, Florida 32348
USA
Tel: +1 850 584 2634
Fax: +1 850 584 2044

March 12, 2015

Florida Department of Environmental Protection
Northeast District Office, Industrial Wastewater Section
8800 Baymeadows Way, West, Suite 100
Jacksonville, Florida 32256-7590

RE: Notification of Additional Authorized Agent for Chemring Ordnance, Inc., Perry, Taylor County, Florida for all Health; Safety and Environmental

To Whom It May Concern:

Chemring Ordnance, Inc. (COR) is hereby notifying the Florida Department of Environmental Protection (FDEP) that, Bob Parman, our HSE Director, is an authorized representative of, and has the overall responsibilities on health, safety and environmental matters related to the COR plant operations.

If you have questions regarding this matter or request more information, please call me at (850) 584-2634.

Sincerely,
Chemring Ordnance, Inc.

Mike Quesenberry
President

cc: FDEP NE District, Hazardous Waste; Potable Water Sections
FDEP, Tallahassee
FDEP, Air Division
US EPA Region 4
Environmental Files
Chen Lin; Able Engineering

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Part I: General Facility Information

Part II: Specific Facility Information

Acronyms and Abbreviations

CSGAS	Constituent Specific Graphical Accumulation Summary
µg	microgram
µg/L	micrograms per liter
IRIS	Integrated Risk Information System
HEAST	Health Effects Assessment Summary Tables
NCEA	National Center for Environmental Assessment
°C	degrees Celsius
AOC	areas of concern
ASTM	American Society for Testing and Materials
aw	atomic weight
BP	black powder
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations
EM	electric match
EPA	United States Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FF	first fire (combustion)
g/cm^3	grams per cubic centimeter
GCTL	groundwater cleanup target level
HMX	cyclotetramethylenetetranitramine
HSWA	Hazardous and Solid Waste Amendment of 1984
ICI	Imperial Chemical Industries
IWTP	industrial wastewater treatment plant
lbs/ft^3	pounds per cubic foot
MCL	maximum contaminant level
MEI	Martin Electronics, Inc. (now Chemring Ordnance, Inc.)
mg/kg	milligrams per kilogram
MJU	magnesium jellied unit
MK	Mark (a U.S. Department of Defense-designated acronym)
mph	miles per hour
n	number of polymers
NELAC	National Environmental Laboratory Accreditation Conference
NFPA	National Fire Protection Association
OBU	open burn unit
OSHA	Occupational Safety and Health Administration
PETN	pentaerythritol tetranitrate
POC	point of compliance
PPE	personal protection equipment
ppmw	parts per million by weight
QA	quality assurance
RCRA	Resource Conservation and Recovery Act

RDX	cyclo-1,3,5-trimethylene-2,4,6-trinitramine
RFA	RCRA Facility Assessment
RFA	RCRA Facility Investigation
SAP	Sampling Analysis Plan
SCTL	soil cleanup target level
SOP	standard operating procedure
SRWMD	Suwannee River Water Management District
SWAT	special weapons and tactics
SWMU	solid waste management unit
TCLP	toxicity characteristic leaching procedure
USGS	United States Geological Survey
xpl	explodes

Part I
General Facility Information

APPLICATION FOR A HAZARDOUS WASTE PERMIT
PART I – GENERAL
TO BE COMPLETED BY ALL APPLICANTS

Please Type or Print

A. General Information

1. Type of Facility in accordance with Part 270.13(a)

- ☐ DISPOSAL
  - ☐ Landfill ☐ Land Treatment ☐ Surface Impoundment
  - ☐ Miscellaneous Units Type of Unit _____
- ☐ STORAGE
  - ☐ Containers ☐ Tanks ☐ Piles
  - ☐ Surface Impoundment ☐ Containment Building
  - ☐ Miscellaneous Unit Type of Unit _____
- ■ TREATMENT
  - ☐ Tanks ☐ Piles ☐ Surface Impoundment
  - ☐ Incineration ☐ Containment Building
  - ☐ Boiler / Industrial Furnace Type of Unit _____
  - ■ Miscellaneous Unit Type of Unit OBU

2. Type of application:

- ☐ Construction Permit
- ■ Operation Permit
- ☐ Construction & Operation Permit
- ☐ Research, Development & Demonstration (RD&D) Permit
- ☐ Postclosure Permit
- ☐ Clean Closure Plan
- ☐ Subpart H Remedial Action Plan
- ☐ Equivalency Demonstration

3. Revision Number: 0

4. Date current operation began, or is expected to begin: ____/____/1988

5. Facility Name Chemring Ordnance, Inc.

6. EPA/DEP I.D. No. FLD 047966593

7. Facility location or street address 10625 Puckett Rd, Perry, FL 32348

8. Facility mailing address 10625 Puckett Rd
street or P.O. Box
Perry, FL 32348
city state zip

9. Contact person Mr. Robert Parman Telephone (850) 223-5244

Title Director of Health, Safety & Environmental

Mailing address 10625 Puckett Rd
street or P.O. Box
Perry, FL 32348
city state zip

E-mail address BParman@chemringordnance.com

10. Operator's name Chemring Group PLC Telephone ( ) 01489 8818

Mailing address Roke Manor, Old Salisbury Lane
street or P.O. Box
Romsey, Hampshire, sO51 0ZN, United Kin
city state zip

E-mail address Michael Flowers, Chief Executive Officer, Joannah@chem

11. Facility owner's name Chemring Ordnance, Inc. Telephone (850) 223-5244

Mailing address 10625 Puckett Road
street or P.O. Box
Perry, Florida 32348
city state zip

E-mail address Mike Quesenberry, President, MQuesenberry@chemringor

12. Legal structure

■ Corporation ☐ Non-profit corporation ☐ Partnership ☐ Individual
☐ Local government ☐ State government ☐ Federal government ☐ Other

13. If an individual, partnership, or business is operating under an assumed name, specify the county and state where the name is registered.

County N/A State _____

14. If the legal structure is a corporation, indicate the state of incorporation.

State of incorporation Delaware

15. If the legal structure is an individual or partnership, list the owners.

Name N/A

Address _____
Street or P.O. Box city state zip

Name _____

Address _____
Street or P.O. Box city state zip

16. Site ownership status

☒ Owned ☐ To be purchased ☐ To be leased _____ years

☐ Presently leased; the expiration date of the lease is ____/____/_____.

If leased, indicate land owner's name _____

Address _____
Street or P.O. Box city state zip

E-mail address _____

17. Name of engineer David Myers Registration No. 66483

Address 7775 Baymeadows Way, Suite 105, Jacksonville, Fl 32256
Street or P.O. Box city state zip

Associated with EnSafe Inc.

18. Is the facility located on Tribal land? ☐ Yes ☒ No

19. Existing or pending environmental permits (attach a separate sheet if necessary)

NAME OF PERMIT	AGENCY	PERMIT NUMBER	DATE ISSUED	EXPIRATION DATE
Industrial Wastew	FDEP	FLA 011825	02/25/2015	02/24/2018
Potable Water	FDEP	PWS 2624173	12/30/1994	N/A
Water Use	SRWMD	2-123-218131-3	10/28/2013	N/A
HW Misc Unit Op	FDEP	16099-010-HO	08/15/2011	03/12/2016

B. Site Information

1. The facility is located in Taylor County.

The nearest community to the facility is Perry.

Latitude 29 58'13"N Longitude -83 39'37"W

Method and datum topographic map

2. The area of the facility site is 1,060 acres.

3. Attach a scale drawing and photographs of the facility showing the location of all past, present, and future treatment, storage and disposal areas. Also show the hazardous wastes traffic pattern including estimated volume and control.

SEE ATTACHMENT I.B.3

4. Attach a topographic map which shows all the features indicated in the instructions for this part. SEE ATTACHMENT I.B.4

5. Is the facility located in a 100-year flood plain? ☐ Yes ■ No

6. The facility complies with the wellhead protection requirements of Chapter 62-521, F.A.C.
■ Yes ☐ No

C. Land Use Information

1. The present zoning of the site is Industrial.

2. If a zoning change is needed, what should the new zoning be? N/A.

D. Operating Information

1. Is waste generated on-site? ■ Yes ☐ No

2. List the NAICS codes (5 to 6 digits) 332994 332993 332995 _____

_____ _____ _____ _____ _____ _____ _____

3. Use the codes and units provided in the instructions to complete the following table. Specify:

   a. Each process used for treating, storing or disposing of hazardous waste (including design capacities) at the facility, and

   b. The hazardous waste(s) listed or designated in 40 CFR Part 261, including the annual quantities, to be treated, stored, or disposed by each process at the facility.

PROCESS CODE	PROCESS DESIGN CAPACITY AND UNITS OF MEASURE	HAZARDOUS WASTE CODE	ANNUAL QUANITY OF HAZARDOUS WASTE AND UNITS OF MEASURE
OTHER	T18	D001, D003, D005, D	Varies with contracts

CONTINUATION SHEET

19. Existing or pending environmental permits (attach a separate sheet if necessary)

NAME OF PERMIT	AGENCY	PERMIT NUMBER	DATE ISSUED	EXPIRATION DATE
Industrial Wastew	FDEP	FLA 011825	02/25/2015	02/24/2018
Potable Water	FDEP	PWS 2624173	12/30/1994	N/A
Water Use	SRWMD	2-123-218131-3	10/28/2013	N/A
HW Misc Unit Oj	FDEP	16099-010-HO	08/15/2011	03/12/2016

Name of Permit	Agency	Permit Number	Date Issued	Expiration Date
HSWA	FDEP	16099-010-HO	08/15/2011	03/12/2016
Title V Air	FDEP	AIR1230047-006-AV (REV)	02/22/2014	02/22/2014

I.B.3
Facility Layout and Photographs

This application was prepared in accordance with Title 40 Code of Federal Regulations (CFR) 264 Subpart X (Miscellaneous Units), appropriate sections of 40 CFR 270, and Florida Administrative Code (FAC) Chapter 62-730.

Site Location

Chemring Ordnance, Inc (COR), is in Taylor County, Florida, approximately 9 miles south of the Town of Perry. The facility is situated on approximately 1,040 acres of land, and includes business offices, production buildings, product testing grounds, and shops for the maintenance of machinery and vehicles. The Open Burn Unit (OBU) on the west-central portion of the facility is where the Resource Conservation and Recovery Act (RCRA) hazardous waste treatment operations take place.

The mailing address of COR is:

Chemring Ordnance, Inc.
10625 Puckett Road
Perry, Florida 32348

Owner/Operator

Chemring Ordnance, Inc. is a subsidiary of Chemring Group PLC, which is located in the United Kingdom:

Chemring Group PLC
Roke Manor
Olds Salisbury Lane
Romsey
Hampshire
SO51 0ZN

Contact: Michael Flowers, Chief Executive Officer
Phone: 01489 881880
Joannah@chemring.co.uk

The legal owner of the land and operator of the U.S. business is:

Chemring Ordnance, Inc.
10625 Puckett Road
Perry, Florida 32348

Contact: Mike Quesenberry, President
Phone: (850) 584-263
MQuesenberry@chemringordnance.com

The contact person responsible for hazardous waste management activities at COR is:

Director of Health, Safety, and Environmental/Environmental Manager
Chemring Ordnance, Inc.
10625 Puckett Road
Perry, Florida 32348

Contact: Mr. Robert Parman
Phone: (850) 584-2634
BParman@chemringordnance.com

Per the authorization letter included with this application, Mr. Quesenberry has authorized Mr. Parman to sign environmental permit applications on behalf of Chemring Ordnance, Inc.

The site location, facility layout loading/unloading areas for hazardous waste at the open burn unit (OBU), and traffic patterns are illustrated on Figures I.B.3-1, I.B.3-2, and I.B.3-3. Figure I.B.3-4 provides photographs of the OBU taken in July 2015. There have been no changes to the OBU structure since the permit renewal application associated with the current Operating/Postclosure/Corrective Action Permit 16099-010-HO issued August 15, 2011.

Hazardous waste generated in production areas generally includes scrap composition from upset conditions in the mixing/drying process, grains that do not pass quality control standards, and rags and miscellaneous materials from clean-up operations. The hazardous waste is accumulated in 30-gallon steel drums lined with conductive bags. During accumulation, diesel fuel may be added to the drums to stabilize the waste. Full drums are collected and staged in hazardous waste accumulation buildings south of the OBU.

The only source of waste treated at the OBU is the hazardous waste pyrotechnics and explosives generated during the COR manufacturing processes. Unfired flares or other energetic materials, which are not normally generated, may also be accumulated in ammunition cans and transported to the OBU for treatment. These wastes are considered RCRA hazardous because they meet the definition of ignitable (D001) and reactive (D003) hazardous wastes per 40 CFR Parts 261.21 and 261.23, adopted by reference in Chapter 62-730.030 FAC. Some hazardous wastes generated from the manufacturing process also meet the definition of a toxicity characteristic waste for barium (D005), chromium (D007), and lead (D008), and may contain traces of acetone that meets the definition of the listed hazardous waste F003.

During normal operations, trained hazardous waste technicians transport the hazardous waste pyrotechnics and explosives from satellite accumulation areas (SAAs) in the production areas to the OBU storage buildings. At the plant's full capacity, up to 1,000 pounds of reactive waste material may be moved in a day from the SAAs to the accumulation storage buildings at the OBU. This movement occurs using a golf cart or similar utility vehicle equipped with a trailer. No other vehicle types are used for waste transportation. Each container of waste has a specified building for accumulation storage at the OBU. COR does not accept waste from offsite sources.

Open burning treatment only occurs between the hours of 8 a.m. to 5 p.m., 5 days a week. The daily treatment capacity does not exceed 500 pounds of pyrotechnic waste per day. The estimated annual quantity of pyrotechnic waste generated in COR's production areas and treated at the OBU is less than 50,000 pounds per year. Estimated quantities of each reactive waste treated per burn are listed in the Table II.A.5-2 of the Application.

Puckett Road (Route 361A) is the major access road to the facility. The access road is designed in accordance with engineering criteria appropriate for sustaining the traffic volume and loading for the industrial activities in this area.

Once inside the facility, traffic moves on in-plant roads that are capable of sustaining the traffic volume and loading. The road to the OBU is constructed of limerock material approximately 6 to 8 inches deep, which is capable of sustaining the traffic volume and loading for activities in this area. The road to the OBU has demonstrated adequate strength for the fire trucks and one-half ton pickup trucks that utilize it. There is no regular maintenance schedule for the road to the OBU; however, periodic repairs are performed as necessary to restore the road to sustain onsite traffic.

Since the OBU generates only small quantities of containerized burn residue, minimal offsite vehicular traffic is associated with this hazardous waste management unit. The low volume of waste from the OBU does not significantly impact traffic flow. No non-employee traffic occurs on facility roads; therefore, traffic control signs and signals are not applicable.

Permit History

Since its inception, the COR facility has been engaged in the manufacture of pyrotechnic and explosive devices for military and law enforcement agencies. These devices generally include grenade fuses, smoke grenades, anti-personnel obstacle breaching systems, cryptographic destroyers, emergency document destroyers, grenade simulators, primers, detonators, signal devices (flares, smoke, and illumination), 40 millimeter practice and live rounds, decoy flares, screening grenades, electric and percussion primers, and distraction devices.

On March 31, 1992, COR attended a pre-application meeting with the FDEP. During this meeting, it was determined that COR needed to submit a Hazardous Waste Facility Construction and Operating Permit application by June 30, 1992. In addition, FDEP required COR to submit a groundwater monitoring plan for the open burn unit (OBU; Solid Waste Management Unit [SWMU] No. 18).

On April 3, 1992, FDEP notified COR that it could begin onsite treatment of the accumulated reactive wastes and continue onsite treatment until May 1, 1992. On April 29, 1992, FDEP issued an Amended Emergency Final Order allowing COR 30 additional days to thermally treat accumulated reactive wastes.

The groundwater monitoring plan for the OBU was submitted to FDEP on May 1, 1992. A total of four wells (three compliance wells and one background well) were installed at SWMU No. 18 in mid-May 1992. COR retained Environmental Resource Management, South, Inc., (ERM) to prepare the Part B permit application, which was submitted on June 19, 1992.

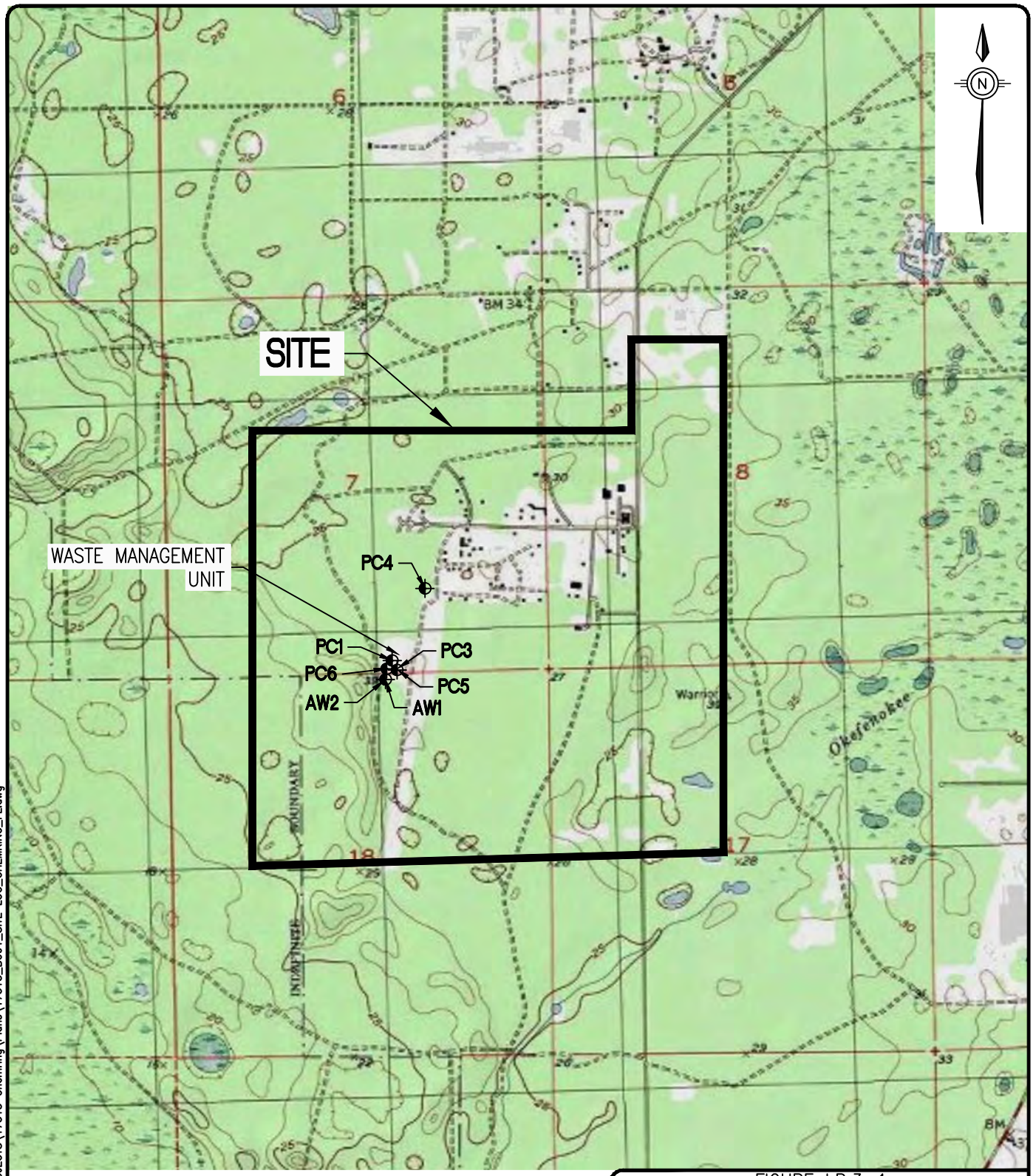
On August 5, 1992, COR requested another emergency burn permit to treat reactive wastes that had accumulated since May 31, 1992. In addition, on August 20, 1992, COR requested an extension to the 90-day limit on storage of hazardous waste. FDEP granted the extension on storage of hazardous wastes on August 24, 1992. On October 1, 1992, FDEP issued a Second Amended Emergency Final Order requiring COR to cease generating any reactive waste until offsite disposal could be arranged, a permit was issued, or a consent order could be executed. The order allowed COR 60 days to complete thermal treatment of the accumulated reactive wastes.

COR submitted the Hazardous Waste Facility Construction and Operating Permit application to FDEP on June 19, 1992. The permit application was revised in March 1993, January 1994, May 1994, September 1994, and November 1994. The final permit application was submitted in May 1995 (ERM 1995) and the permit (#HO62-215109) was issued in March 1996.

COR operated under permit #HO62-215109 from March 1996 through March 2001, performing quarterly and semi-annual groundwater monitoring at the OBU. Semi-annual soil monitoring was also conducted from July 1996 until December 1999 when a complete soil assessment was conducted. Based on this soil assessment, in 2000, COR developed an alternative soil quality monitoring technique for the OBU and proposed a temporary monitoring plan for soil at the OBU to be used throughout 2000. Figure 2-1 illustrates the groundwater monitoring and soil sampling locations at the OBU.

During the five-year permit period, COR also completed the confirmatory sampling at SWMUs 22, 55, 59, 60, 61, 65, 76, 78, 80, 83, 85, 86, 20, 62, 73, 87 and areas of concern (AOCs) B, C, D, E, and F. Resource Conservation and Recovery Act (RCRA) facilities investigations also were completed at SWMUs 19, 46, 47, 48, 70, 74, and 75. COR completed a corrective measures study work plan and conducted corrective measures at SWMUs 19, 46, 47, 48, 55, 70, 73, 74, 75, and 85. A final report on corrective action was submitted to FDEP in January 2001. Based on recommendations presented in this report, only one SWMU — SWMU 75, the percolation pond — may require additional corrective measures. The SAP for that assessment work will be provided as an addendum to this SAP. Figure 2-2 illustrates the locations of the identified SWMUs and AOCs at the facility.

COR is currently operating the OBU in accordance with Permit 16099-010-HO. The permit expires March 12, 2016.



I:\CAD PROJECTS\17515 Chemring\Plans\17515_B001_SITE LOC_CHEMRING_FL.dwg

0 2000 4000

SCALE IN FEET

LEGEND

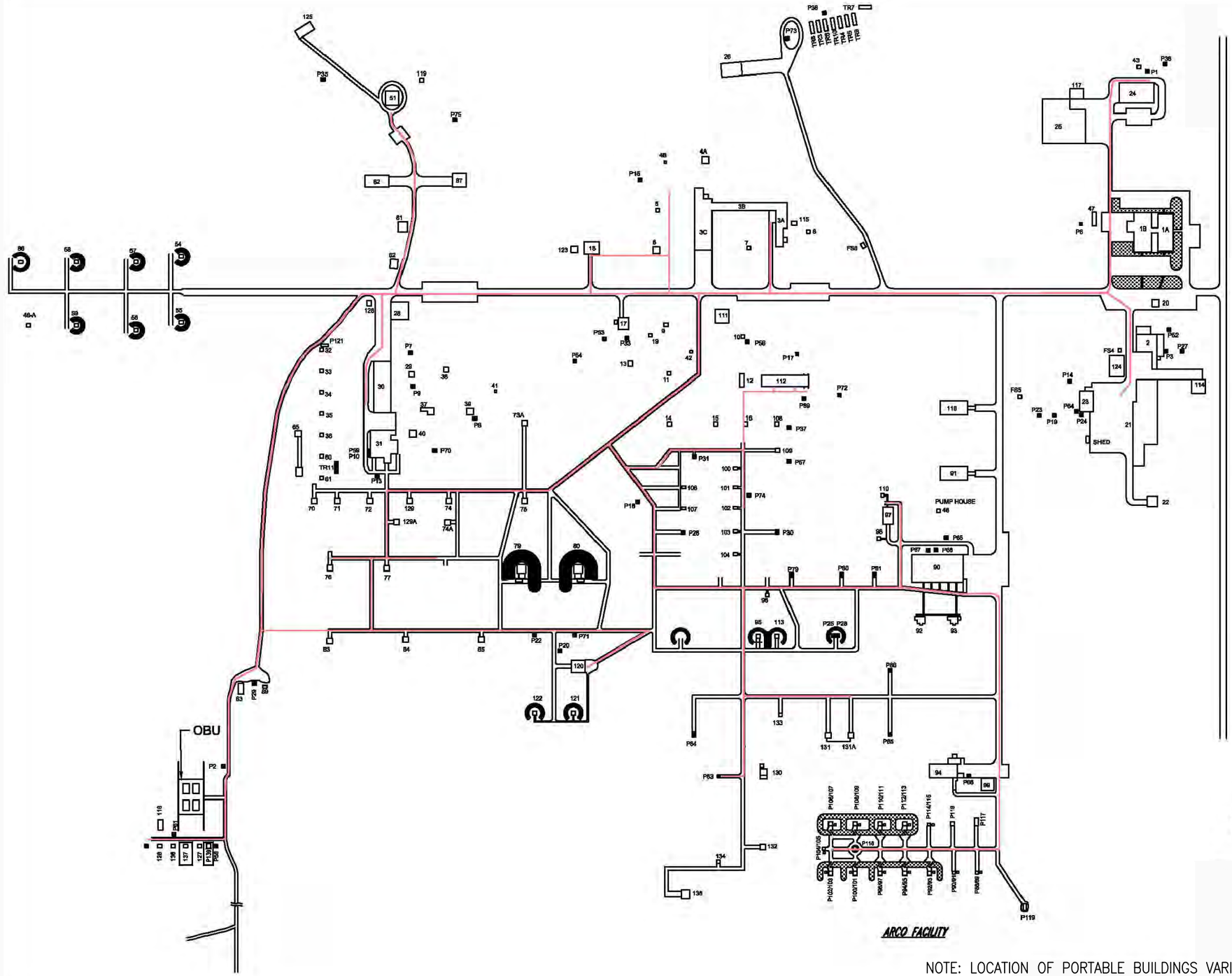
⊕ – POINT OF COMPLIANCE

MAP SOURCE:
USA_Topo_Maps – Copyright: ©2013 National Geographic Society, i–cubed

FIGURE I.B.3–1
SITE LOCATION MAP
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/31/15
DWG NO:	17515_B001

ENSAFE
creative thinking.
custom solutions.®
(800) 588-7962
www.ensafe.com



-LEGEND-

FS = FUEL STORAGE
TR = TRAILER
P = PORTABLE BUILDINGS

1A. OFFICE
1B. OFCS.SHIPG.& RCVG.
2. MACHINE SHOP
3A. FUZE LOADING ROOM
3B. HEAD ASSEMBLY ROOM
3C. FUZE PACK OUT
4A. POWDER REFILL ROOM
4B. POWDER STORAGE ROOM
5. QC HOLD
6. FUZE TESTING
7. DELAY POWDER STORAGE
8. PRIMER STORAGE ROOM
9. DRYING & STORAGE ROOM
10. STORAGE AREA (HEATED)
11. SOLIDS PROCESSOR
12. BLENDING AREA
13. BLENDING AND STORAGE
14. HEATED STORAGE
15. HEATED STORAGE
16. HEATED STORAGE
17. LOADING BUILDING
18. TEST BUILDING
19. COMPRESSOR BUILDING
20. GUARD BUILDING
21. DIE CASTING & PLATING
22. LABORATORY
23. ASSEMBLY BUILDING
24. ASSEMBLY BUILDING
25. WAREHOUSE
26. FUZE STORAGE
28. LOADING DOCK
29. HEATED STORAGE
30. ASSEMBLY BUILDING
31. ASSEMBLY BUILDING
32. T & H ASSEMBLY BLDG.
33. STORAGE BUILDING
34. STORAGE BUILDING
35. T & H TEST
36. JOLT TEST
37. T & H ASSEMBLY BLDG.
38. ASSEMBLY BUILDING
39. T & H ASSEMBLY BLDG.
40. BOILER ROOM
41. WATER PUMP ROOM
42. WATER PUMP
43. WATER PUMP ROOM
44. WATER PUMP ROOM
45. WATER PUMP ROOM
46. WATER PUMP ROOM
47. GOVT QAR OFFICE
51. PELLET PACKING
52. PELLET PRESS ROOM
53. PELLET PRESS ROOM
54. STORAGE MAGAZINE
55. STORAGE MAGAZINE
56. STORAGE MAGAZINE
57. STORAGE MAGAZINE
58. STORAGE MAGAZINE
59. STORAGE MAGAZINE
60. BLEND ROOM
61. BLEND ROOM
62. STORAGE PAD
63. TEST RANGE SHED
64. TEST RANGE CONTROL
65. TESTING
66. HIGH AIR TEST CHAMBER
67. 40' DROP TEST
68. STORAGE MAGAZINE

TRAFFIC PATTERN FOR ON-SITE MOVEMENT OF HAZARDOUS WASTES

70. HEATED STORAGE
71. HEATED STORAGE
72. HEATED STORAGE
73. BLEND BUILDING
73A. SOLVENT RECOVERY
74. HEATED STORAGE
75. REMOTE CONTROL BLDG.
76. HEATED STORAGE
77. HEATED STORAGE
78. HEATED STORAGE
79. BLEND BUILDING
80. BLEND BUILDING
81. STORAGE
82. STORAGE
83. HEATED STORAGE
84. HEATED STORAGE
85. HEATED STORAGE
86. STORAGE MAGAZINE
87. STORAGE
88. COMPRESSOR
89. TEST OBSERVATION
90. ASSEMBLY
91. STORAGE
92. LOAD ROOM
93. LOAD ROOM
94. PROCESS BUILDING
95. PELLET PRESS
98. REMOTE CONTROL BLDG.
97. PROCESS BLDG.
98. STORAGE
99. STORAGE
100. PROCESS BUILDING
101. PROCESS BUILDING
102. PROCESS BUILDING
103. PROCESS BUILDING
104. PROCESS BUILDING
105. PROCESS BUILDING
106. PROCESS BUILDING
107. PROCESS BUILDING
108. PROCESS BUILDING
109. PROCESS BUILDING
110. OVEN BUILDING
111. BREAK ROOM
112. PYRO. BUILDING
113. PRESS BUILDING
114. FILTER PRESS
115. PAINT MIXING
116. SCRAP STORAGE, TEST RANG
117. PALLET STORAGE BLDG.
118. STORAGE
119. BLENDER BLDG.
120. DELAY COMP. PROCESSING
121. DELAY COMP. BLENDING
122. DELAY COMP. BLENDING
123. MK124 TESTING
124. FIRE TRUCK CANOPY
125. POTABLE WATER SYSTEM
126. STORAGE SHED
127. SCRAP STORAGE
128. RANGE STORAGE
129. BLEND BUILDING
129A. SOLVENT SUPPLY
130. PELLET PRESS
131. COMP. BLENDER
131A. HEXANE SUPPLY
132. HEATED COMP. DRY
134. CONTROL ROOM
135. CROSS BLENDER

EARTHERN BERM

OBU OPEN BURN UNIT
137 90 DAY STAGING
P139 EQUIPMENT STAGING (PORTABLE)

APPROXIMATE SCALE IN FEET (Not a surveyed drawing)

0 300 600 900

NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., 9/2000.

FIGURE I.B.3-2
FACILITY MAP AND TRAFFIC PATTERN FOR
ON-SITE HAZARDOUS WASTE MOVEMENT
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	07/19/16
DWG NO:	17515_B002

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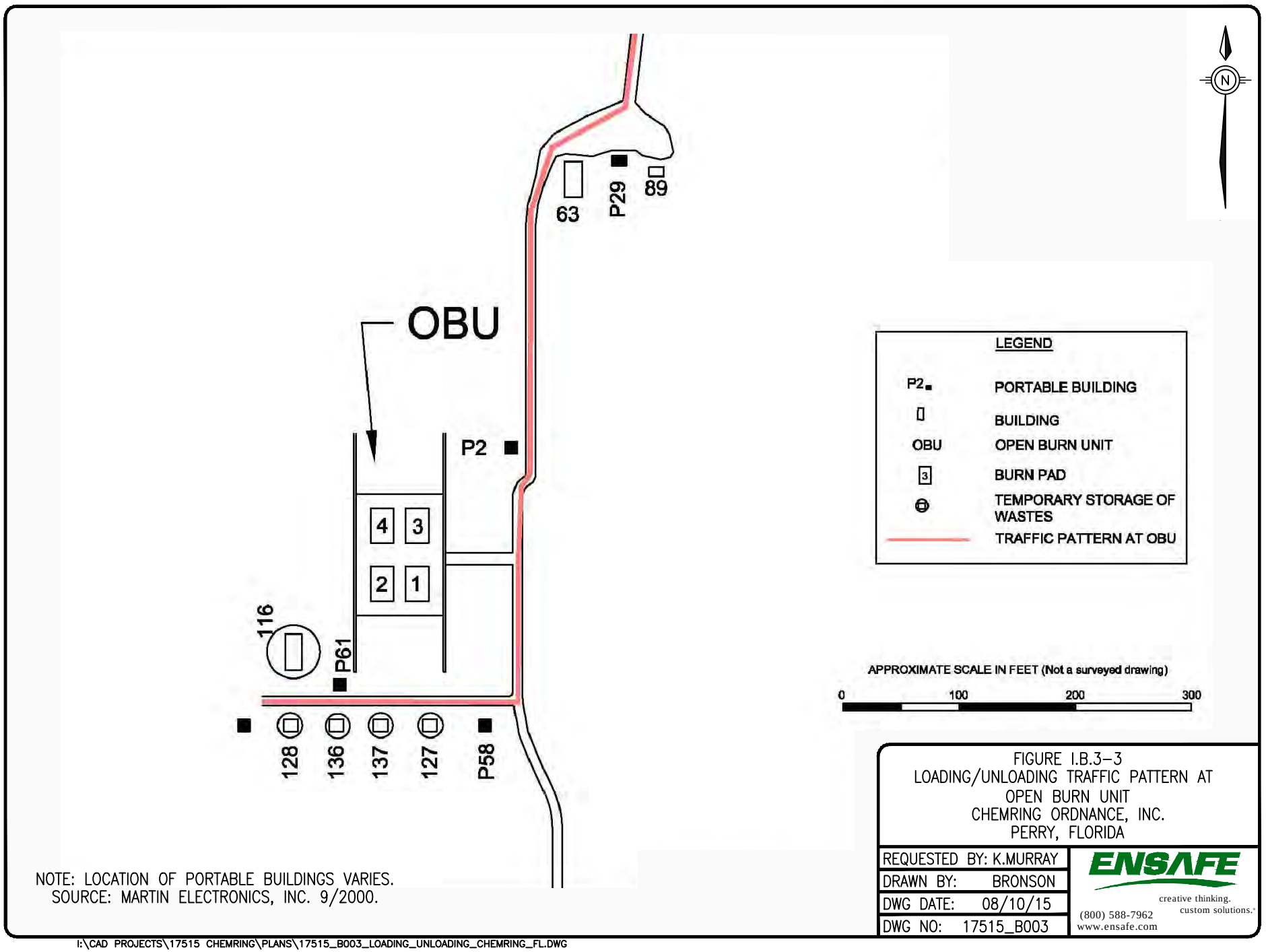

NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC. 9/2000.

FIGURE I.B.3–3
LOADING/UNLOADING TRAFFIC PATTERN AT
OPEN BURN UNIT
CHEMRING ORDNANCE, INC.
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/10/15
DWG NO:	17515_B003

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Photo 1: View of the OBU, facing south.

Photo 2: Interior portion of the OBU, facing south.

Photo 3: Interior portion of the OBU, Burn Pan1.

Photo 4: OBU Burn Pan 2.

Photo 5: Open land adjacent and west of the OBU.

Photo 6: OBU Burn Pan 4.

Photo 7: OBU Burn Pan 3.

Photo 8: OBU Burn Pan 1.

Photo 9: OBU Burn Pan 1.

Photo 10: View of the OBU from the east.

Photo 11: Waste storage buildings south of the OBU.

Photo 12: Portable storage buildings and monitoring wells south of the OBU.

Photo 13: Similar view of portable storage buildings south of the OBU.

Photo 14: Open land adjacent and east of the OBU.

Photo 15: Northern portion of the OBU, depicting previous land subsidence repair efforts.

Photo 16: Typical fabricated monitoring well protective cover.

Photo 17: Damaged monitoring well proposed for replacement.

Photo 18: Similar view of damaged monitoring well proposed for replacement.

Photo 19: Proximity of monitoring well to the OBU structure.

Photo 20: Similar view of the proximity of monitoring well to the OBU structure.

Photo 21: Waste staging area near the southwestern corner of the OBU; no longer in use.

Photo 22: The OBU, southern view.

I.B.4
Topographic Map

A United States Geological Survey (USGS) topographic map is supplied as Figure I.B.3-1. Due to the small size of the affected portion of the site, all the information requested under I.B.4 of the application form cannot be placed on one map. Therefore, additional maps are referenced that provide the requested information.

a. Map scale and date(s): Supplied on all maps.

b. 100-year floodplain area: Based on information available (Figure I.B.4-1), portions of the COR property lie within the 100-year floodplain; however, the developed portions of the facility, including the OBU, are not located within the 100-year floodplain.

c. Orientation of map(s): Supplied on all maps.

d. Surface water bodies within one-quarter mile of the facility property boundary (e.g., intermittent streams and springs): Surface water bodies located within one-quarter (0.25) mile (1,320 feet) of the COR property boundary include portions of Okefenokee Slough to the northeast, east, and southeast. Okefenokee Slough is a freshwater swamp with a water course that flows in a southwesterly direction to the Gulf of Mexico, south of the facility.

   Within the COR property, surface water bodies are located near the southeastern, northwestern, and northeastern corners of the property. None of these surface water bodies appear connected to overland flow channels. None of the surface water bodies are located within a one-quarter (0.25) mile radius of the OBU (see Figure I.B.3-1).

e. Surrounding land uses: The areas surrounding the facility are predominantly agricultural and rural residential in nature (Figure I.B.4-2). The surrounding area is generally used for forestry and livestock grazing.

f. Legal boundaries of the facility: The legal boundaries of the facility are depicted on Figure I.B.3-1.

g. Injection wells used by the facility within one mile of the facility property boundaries: No injection wells are used by the facility.

h. Drinking water wells listed in public records or otherwise known to the applicant within one-quarter mile of the facility property boundary: The Suwannee River Water Management District (SRWMD) website was accessed to review well construction permits and consumptive-use permits within 0.25 mile of the facility boundary. Based upon the information obtained from SRWMD, approximately 16 private domestic water wells are located within 0.25 mile of the facility boundary. With the exception of COR wells, no drinking water wells were determined to be within 0.25 mile of the OBU, as the OBU is at least 0.25 mile from the facility's property line. Table I.B.4-1 provides the available information regarding water wells in the area.

i. Intake and discharge structures within one mile: Based on information obtained from the Florida Department of Environmental Protection (FDEP) Map Direct system (July 2015), there are no known discharge or intake structures within one mile of COR. The closest known discharge structures are the City of Perry Wastewater Treatment Plant which discharges to Spring Creek of the Fenholloway River at approximate Latitude 30°08'10"N/Longitude 82°35'54"W, approximately 11.5 miles from COR. Foley Cellulose discharges to the Fenholloway River at approximate Latitude 30°03'59"N/Longitude -83°33'12"W, approximately 8.5 miles northeast of COR.

The Waste Management Area and Point Of Compliance are depicted on Figure 2-1 in Subattachment I.M.11-1.

Table I.B.4-1
Suwannee River Water Management District Well Construction Permitting and Consumptive-Use Permits
Chemring Ordnance, Perry, Florida

Location Sec-T-R	Owner Name	Well Type	Purpose	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)
Sec 13-6S-7E	Michael Sands	Domestic	—	32	2	24
Sec 13-6S-7E	Michael Sands	Domestic	—	46	2	44
Sec 8-6S-7E	Rick Altis	Domestic	—	24	2	21
Sec 8-6S-7E	Marilyn (Maryland) Assemblies	Domestic	—	45	2	30
Sec 8-6S-7E	Martin Electronics	Other	Not Used	62	6	30
Sec 8-6S-7E	Martin Electronics	Monitoring	Not Used	30	2	20
Sec 8-6S-7E	Martin Electronics	Test	Not Used	60	2	30
Sec 8-6S-7E	Martin Electronics	Monitoring	IWTP	23	2	23
Sec 8-6S-7E	Martin Electronics	Monitoring	IWTP	23	2	23
Sec 8-6S-7E	Martin Electronics	Monitoring	IWTP	23	2	23
Sec 8-6S-7E	Martin Electronics	Test	Not Used	75	2	38
Sec 8-6S-7E	Martin Electronics	Public Supply	Cooling	70	4	40
Sec 8-6S-7E	Martin Electronics	Other	Not Used	70	2	50
Sec 8-6S-7E	Martin Electronics	Public Supply	Cooling	100	4	70
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	—	—	124	6	63
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	Martin Electronics	Monitoring	—	25	2	15
Sec 8-6S-7E	James Tyler	Domestic	—	28	2	15
Sec 8-6S-7E	Gary Moore	Domestic	—	35	2	NA
Sec 8-6S-7E	Butch Isreal	Domestic	—	30	2	26
Sec 8-6S-7E	Rick Aldous	Domestic	—	24	2	21
Sec 8-6S-7E	Chris Sadler	Domestic	—	52	2	21
Sec 8-6S-7E	Marie Drubbio	Domestic	—	NA	NA	NA
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	23	2	23
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	25	2	25
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	25	2	25
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	25	2	25
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	35	2	35
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	35	2	35
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	25	2	25
Sec 7-6S-7E	Martin Electronics	Monitoring	OBU	25	2	25
Sec 7-6S-7E	Martin Electronics	Public Supply	Drinking	90	NA	70
Sec 7-6S-7E	Chemring Ordnance	—	—	15	2	5
Sec 7-6S-7E	Maryland Assemblies	Climate Control	—	29	2	21
Sec 7-6S-7E	Maryland Assemblies	Climate Control	—	27	2	21
Sec 7-6S-7E	Pedro Pedrez	Domestic	—	48	2	NA
Sec 7-6S-7E	Jimmie R. Halloway	Domestic	—	29	2	24
Sec 7-6S-7E	Kevin Jackson	Domestic	—	30	2	25
Sec 7-6S-7E	Timothy Aldous	Domestic	—	39	2	31

Table I.B.4-1
Suwannee River Water Management District Well Construction Permitting and Consumptive-Use Permits
Chemring Ordnance, Perry, Florida

Location Sec-T-R	Owner Name	Well Type	Purpose	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)
Sec 7-6S-7E	Timothy Aldous	Domestic	—	47	2	36
Sec 7-6S-7E	KDI Corporation	Monitoring	—	17	2	7
Sec 7-6S-7E	KDI Corporation	Monitoring	—	17	2	7
Sec 7-6S-7E	KDI Corporation	Monitoring	—	17	2	7
Sec 7-6S-7E	KDI Corporation	Monitoring	—	17	2	7
Sec 7-6S-7E	John Batton	Domestic	—	40	2	30
Sec 7-6S-7E	John Batton	Domestic	—	39	2	31
Sec 7-6S-7E	Danny Jabobs	Domestic	—	26	2	18
Sec 7-6S-7E	Ed Sadler	Domestic	—	35	2	23
Sec 6-6S-7E	Earl McGuire	Domestic	—	40	2	35
Sec 6-6S-7E	Buddy Sadler	Domestic	—	29	2	24
Sec 6-6S-7E	Martian (Martin) Electronics	Monitoring	—	25	2	25
Sec 6-6S-7E	Martian (Martin) Electronics	Monitoring	—	23	2	23
Sec 6-6S-7E	Donald Ray Spears	Domestic	—	36	2	24
Sec 6-6S-7E	Jackie Jones	Domestic	—	25	2	21
Sec 6-6S-7E	Chris Batton	Domestic	—	38	2	23
Sec 6-6S-7E	Williams Sandra L Christopher	Domestic	—	38	2	35
Sec 5-6S-7E	Maryland Assemblies	Irrigation	—	NA	2	NA
Sec 5-6S-7E	Drubbio Property	Monitoring	—	35	6	28
Sec 5-6S-7E	Robert Chaney	Domestic	—	40	2	32
Sec 5-6S-7E	Robert Sadler	Domestic	—	43	2	NA
Sec 5-6S-7E	James Tyler	Domestic	—	NA	2	NA
Sec 5-6S-7E	Vince Diaublo	Domestic	—	48	2	48
Sec 5-6S-7E	Willie Joe Jolly	Domestic	—	26	2	16
Sec 5-6S-7E	C & B Sadler	Domestic	—	NA	NA	NA
Sec 5-6S-7E	Reba Sadler	Domestic	—	NA	NA	NA
Sec 5-6S-7E	Jesse Sadler	Domestic	—	NA	NA	NA
Sec 5-6S-7E	Charles Sadler	Domestic	—	NA	NA	NA
Sec 5-6S-7E	John Lundgren	Domestic	—	33	2	23
Sec 5-6S-7E	Mike Sadler	Domestic	—	39	2	31
Sec 5-6S-7E	Robert C Stephens	Class V Injection	Drainage	36	2	18
Sec 5-6S-7E	Timothy and Tracy McGuffy	Domestic	—	33	2	21
Sec 5-6S-7E	Francis Stevens	Domestic	—	NA	NA	NA
Sec 5-6S-7E	David Sewell	Domestic	—	NA	NA	NA
Sec 5-6S-7E	Reba Dean	Domestic	—	33	2	21
Sec 5-6S-7E	James Baumgardner	Domestic	—	36	2	21
Sec 5-6S-7E	Charles Sadler	Domestic	—	NA	NA	NA
Sec 5-6S-7E	Robert Sadler	Domestic	—	44	2	31

Notes:

— = Unknown
E = East
IWTP = Industrial wastewater treatment plant
NA = Not available
OBU = Open burn unit
R = Range
S = South
Sec = Section
T = Township

N

0 1.5 3 Miles

Site Boundary

0.2% Annual Chance Flood Hazard

Zone A - No Base Elevations Determined

Zone AE - Base Flood Elevations Determined

Zone AH - Flood Depths of 1 to 3 ft. (Usually Areas of Ponding); Base Flood Elevations Determined

Zone VE - Coastal Flood Zone with Velocity Hazard (Wave Action); Base Flood Elevations Determined

Zone X - Areas determined to be outside the 0.2 % annual chance floodplain

FIGURE I.B.4-1
FLOODPLAIN MAP
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY: K. MURRAY

DRAWN BY: M. SENNE

DATE: 8/10/2015

PROJECT NO: 0888817515

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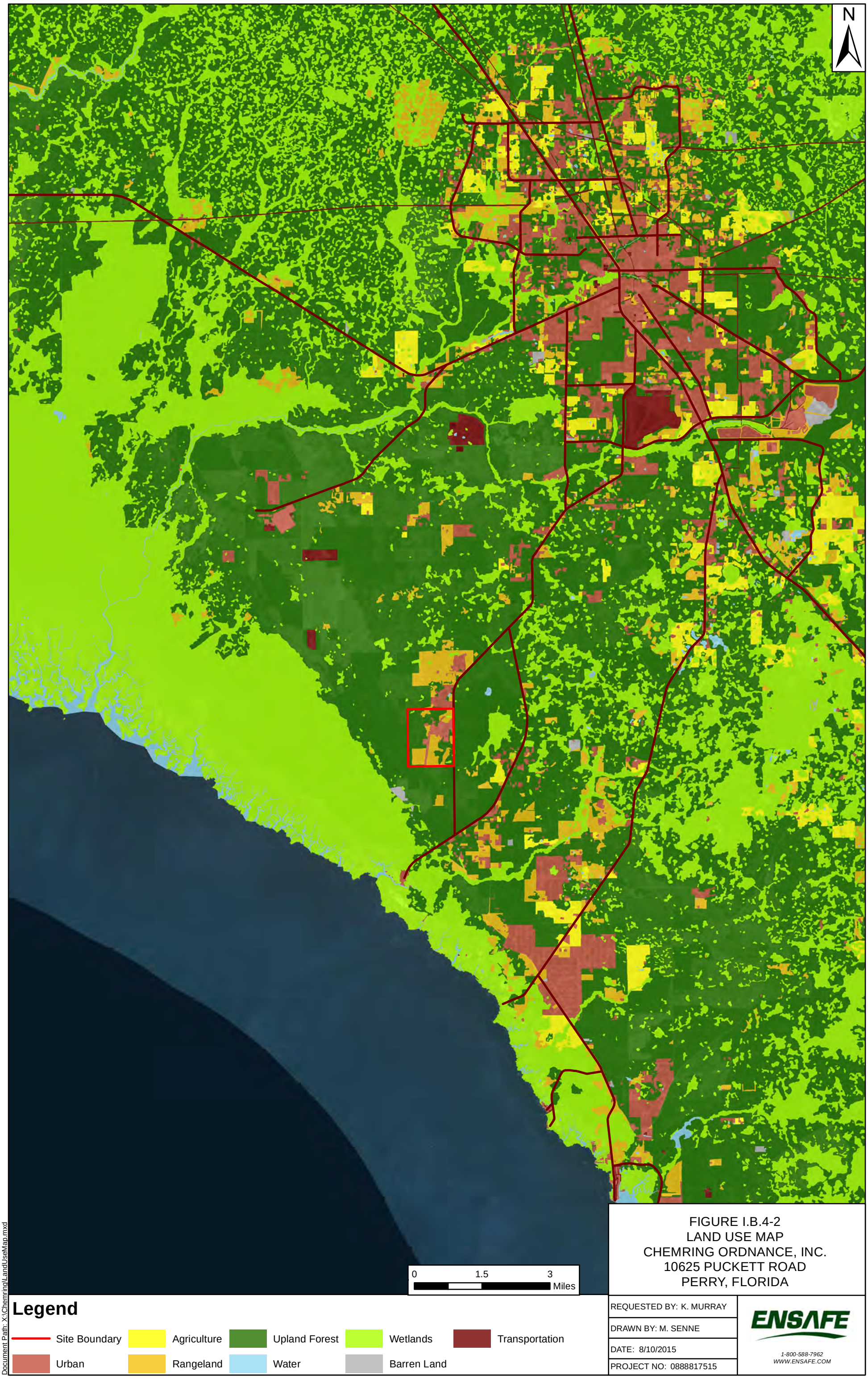
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


N
0
1.5
3
Miles
Legend
Site Boundary
Agriculture
Upland Forest
Wetlands
Transportation
Urban
Rangeland
Water
Barren Land
FIGURE I.B.4-2
LAND USE MAP
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA
REQUESTED BY: K. MURRAY
DRAWN BY: M. SENNE
DATE: 8/10/2015
PROJECT NO: 0888817515
ENSAFE
1-800-588-7962
WWW.ENSAFE.COM
Document Path: X:\ChemringLandUseMap.mxd
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

I.D.2
Description of Facility Operation

COR manufactures small- to medium-size explosive and pyrotechnic devices. The defense devices produced at COR generally include types of 40 MM low and high velocity ammunition; pyrotechnic marking, signaling, and tactical illumination devices; battlefield effects simulators; hand grenade fuses and other ammunition components such as large caliber electronic primers; and anti-personnel obstacle breaching systems (APOBS). The products vary depending on current contracts. The products are generally manufactured for the Department of Defense, the Department of Homeland Security, and law enforcement agencies.

The facility is situated on approximately 1,040 acres of land, and includes business offices, production buildings, product testing grounds, and shops for the maintenance of machinery and vehicles. The facility currently has approximately 200 permanent employees working 24 hours a day, 7 days a week.

COR's most recent Hazardous Waste Generator Notification (U.S. EPA Form 8700-12) dated April 12, 2012, characterized the facility as a large quantity generator (LQG) of hazardous waste. Currently COR generates used oil, universal wastes, waste solvent, spent aerosol cans, paint waste and other wastes which include U.S. EPA Waste Codes D001, D002, D003, D005, D006, D007, D008, F002, F003, F005, and F006.

All hazardous wastes stored and treated at the COR facility are generated solely by plant operations, and no wastes are received from offsite sources. A general description of the OBU is provided in this section. A detailed description of the OBU, including operational parameters, is included in Part II.I of this permit renewal application.

Open Burn Unit

The OBU consists of four burn pads for the thermal treatment of reactive and shock-sensitive hazardous wastes. The unit is constructed of a six-inch thick by 75 feet by 105 feet continuous monolithic 3,000 pounds per square inch (psi) concrete pad with an eight inch tall by eight inch wide concrete curb along the perimeter. The concrete surface of the unit is coated with a chemical and heat-resistant sealant. The concrete pad is constructed on top of a six-inch thick, 85 feet by 115 feet limerock base. Four six-inch thick 3,000 psi concrete burn pads with dimensions of 15 feet by 30 feet

are constructed on top of the concrete pad. Each burn pad has an eight-inch high berm along the perimeter. Elevated metal burn pans constructed of cold rolled steel with maximum dimensions of 26 feet by 11 feet by one foot are placed on each concrete pad. When necessary, removable metal screens are positioned three inches from the top of each burn pan to contain ejected large particles from the burn pan.

Similar to the burn pans, burn cages constructed of cold rolled steel with maximum dimensions of 13 feet by 8 feet by 6 feet may be used in place of burn pans. The burn pans are covered with a retractable aluminum cover, mounted over an I-beam trolley rail, when the unit is not in operation. The design specifications and material of construction of the unit are further described in Attachment II.I.1 of this permit application.

Thermal treatment of the wastes is conducted in accordance with the procedures described in Attachment II.A.5 of this permit application. COR operates the unit for the thermal treatment of reactive pyrotechnic and explosive powder/composite cuttings, shavings, residues, slurries, and unacceptable parts and contaminated industrial materials (U.S. EPA Hazardous Waste ID Code D003). The powder/composite cuttings, shavings, residues, slurries, and unacceptable parts may also carry U.S. EPA Hazardous Waste ID Codes D001, D005, D006, D007, and D008. The contaminated industrial materials may carry U.S. EPA Hazardous Waste ID Codes D005, D006, D007, D008, F002, F003, and F005.

The OBU receives the above-described wastes from the production and testing areas of the plant. COR operates the unit in accordance with established safety rules, regulations, load limits, and standard procedures developed by COR for the area (refer to Subattachment II.A.5-1). A record of all wastes received and handled at the OBU is maintained in the area logbook (refer to Attachment II.A.6).

In accordance with established procedures, COR complies with the following requirements prior to thermal treatment:

- Wastes are placed on the pad only when a thermal treatment event is planned within four hours.

- Wastes are not placed on the pad unless the pad has been cleared of residue from the previous thermal treatment event.

- The following meteorological conditions are required before thermal treatment:

  — An absence of thunderstorms and lightning within two hours of thermal treatment.

  — A surface wind speed of less than 15 miles per hour for the period two hours before and after thermal treatment.

  — For treatment of lead-containing compositions, (compositions that might contain lead azide, lead styphnate, lead dioxide, lead tetraoxide, and lead chromate) the wind speed requirements are between 4.5 and 15 miles per hour for the period two hours before and after thermal treatment.

  — Relative humidity is greater than 30%.

- Thermal treatment takes place only during the time period between 8:00 A.M. and 5:00 P.M., Monday through Friday.

- All of the hazardous waste destined for thermal treatment are collected, transported, placed on the burn pad(s) and treated in accordance with the work instructions listed in Attachment II.A.5 of the permit application.

- On the day of each scheduled thermal treatment event and prior to transporting the waste to the burn pad(s) COR will:

  — Verify and record the meteorological conditions listed in the Specific Condition 5.c of current Hazardous Waste Operating Permit 16099-010-HO.

  — Inspect the concrete pads for hot spots, cracks and loose or broken floor or berms.

  — Inspect burn pans/burn cages for hot spots or loose parts.

  — Remove all unauthorized personnel and vehicles from the OBU and range area.

  — Inspect the fire truck for sufficient water quantity.

— Check the fire truck to see if it is in position to extinguish any secondary fires that might occur.

— Maintain written records of all information observed per the requirements of Part II Subpart B — Specific Operating Conditions in Operating Permit 16099-010-HO, and keep them as part of the operating records.

- If unexpected meteorological conditions arise or if technical difficulties (such as a hangfire) develop, COR may allow the material to remain on the pad under the following conditions:

  — The pad is covered as soon as safety conditions allow.

  — The waste is treated, in compliance with 16099-010-HO Specific Condition 5, as soon as the conditions become safe.

  — No additional waste is placed on the pad.

- COR will remove the waste from the burn pad(s) within four hours, if it is determined that meteorological conditions or technical difficulties will prevent the treatment on the same day, and the waste can be safely removed from the burn pad(s). The cause for the postponement will be recorded in the operating record.

- COR will complete removal of ash, spilled or leaked waste and other residues from the burn pad(s), concrete surfaces and surrounding soils a minimum of 24 hours after ignition of the thermal treatment process, in accordance with the work instruction of Attachment II.A.5 of the permit application. The residue may be removed sooner if COR determines that the residue has cooled near ambient temperature and may be managed safely. Any accumulated precipitation within the burn pad will be removed within 24 hours and handled as appropriate.

- COR will manage ash and other residues, removed from the burn pad(s), in accordance with the procedures described in COR procedure ENV-GEN-013 in Subattachment II.A.5-1.

- Thermal treatment of the hazardous waste will be conducted by qualified personnel, experienced in handling such reactive material, under the supervision of a law enforcement official, Department of Defense official, bomb squad official, or other agency or COR personnel who has received a Blaster Permit as issued by the Bureau of Explosives and Fire Equipment, Division of State Fire Marshal's Office, Department of Insurance and Treasury.

- COR will provide adequate fire protection to ensure confinement and control of any fire resulting from the operation, as specified in Subattachment II.A.4.b-1, RCRA Contingency Plan. COR will notify the local fire department of the on-going nature of onsite thermal treatment of reactive waste, and will allow local fire officials (State Department of Forestry or the Taylor County Fire Marshal) to observe and provide additional fire protections.

- All the burn pans and burn cages that are determined by COR to be no longer usable for the thermal treatment will be decontaminated and disposed of within 30 days of such determination, in accordance with the decontamination and disposal procedures as described in Attachment II.I.1.

- A report describing all the decontamination activities will be developed within 15 days of completion of decontamination and kept as part of the operating records.

- COR will conduct inspections of the unit, on each day of the thermal treatment and weekly when the unit is not in operation, to detect precipitation, stains, residues from incomplete combustion, accumulation of stormwater and integrity of burn pads and concrete pads including berms. If a significant deterioration of the concrete pads or joint sealant material is noted during inspections, COR will re-evaluate the need for repairing the facility and the need for a protective coating on the burn pad. All the inspection reports including corrective actions will recorded and kept as part of the operating records in accordance with 40 CFR 264.15 and Operating Procedures.

- COR will implement appropriate remedial actions for problems discovered during the inspections conducted pursuant to the Specific Condition 12 of Operating Permit 16099-010-HO. For problems that cannot be remediated within 48 hours, COR will notify the FDEP within three working days and follow up with a written report within fourteen days of discovering such problems. The report will include descriptions of the remedial actions taken. COR will cease operation of the burn pad(s) until completion of the necessary repairs.

- COR will keep a quarterly report describing the activities at the burn pad, as described in the work instructions in Attachment II.A.5. These reports will be completed by the twentieth day of the month following the quarter and be available for review upon the FDEP's request. The quarterly report will include the following information:

- Description and quantity of each hazardous waste received and treated at the unit.
- Dates of its treatment.
- Location and quantity of each hazardous waste at each location within the accumulation areas material storage buildings at the end of the reporting period as depicted in Figure I.B.3-3.
- Summary reports and details of all incidents that require implementation of the contingency plan at the unit.
- List of personnel present at each event.
- Weather conditions to include humidity, weather forecast, wind speed and wind direction at each event.
- Copies of manifests showing disposition of burn residues and/or the quantity of burn residues onsite at the end of the reporting period.
- Details of any problems discovered during inspections conducted pursuant to Specific Condition 12 of Operating Permit 16099-010-HO and details of remedial actions taken.

- COR will maintain compliance with the environmental performance standards listed in 40 CFR 264.601 at all times.

Procedure ENV-GEN-014 in Subattachment II.A.5-1 includes the standard procedures for Process Waste Assessment, the information needed to assign waste codes, and the responsibilities for notification when processes change. In the case of ash disposal from the OBU, the treatment and the origin of the treated material is the process.

Die Cast and Plating Operations

In addition to the OBU, the facility operates small-scale die cast and plating lines that include captive zinc die-casting, vibratory deburring, noncyanide alkaline zinc electroplating, and noncyanide chromate conversion coating operations. The Die Cast/Plating Building is divided into two areas. The plating area includes two plating lines: chromate plating and zinc electroplating. The plating line is

part of the production process for hand grenade fuse parts and related components. The plating processes are conducted on an intermittent basis, dependent on contract schedules and requirements. The plating lines are small batch processes for dipping the parts using a steel basket into each bath. The zinc electroplating line is used for steel parts and contains a cleaner, a rinse, mild 9% acidic bath, a rinse, three electroplating tanks, a rinse, and a phosphate seal. COR uses zinc balls to dissolve in the electroplating tanks. When the tanks are not in use the balls are placed in a rack for later use. The chromate plating is used for the zinc parts and contains an isoprep NCZ cleaner, two rinses, a hydrochloric acid bath, a rinse, indite 1 A 1 B bath and a rinse. The processes are cleaned out annually unless there is a process issue. The rinse tanks are pumped out using a wet/dry vacuum and sent to the onsite waste water treatment plant (WWTP). The wet/dry vacuum is labeled for plating area use only to prevent any cross contamination with other areas.

The chromate conversion coating and zinc electroplating waste streams are individually chemically treated in an onsite waste treatment system in accordance with a wastewater treatment permit. Post-treatment effluent from the waste treatment system is not a listed hazardous waste or a characteristic hazardous waste as defined in 40 Code of Federal Regulations (CFR), Part 261.

After treatment, nonhazardous waste treatment effluent from chromate conversion coating and zinc electroplating processes are combined with the (nonhazardous) non-contact cooling water. This composite wastewater stream is discharged to an onsite percolation/evaporation pond in accordance with FDEP industrial wastewater treatment/disposal facility Operating Permit No. FLA 011825 (expires 2018).

The die cast area is used to mold grenade parts using molten zinc. Floor sweepings and zinc scraps with impurities are sent offsite for smelting.

Production Lines / Areas

Each product that is produced by COR has a dedicated production line. The production processes associated with explosives and pyrotechnic materials generally include blending, forming, assembly, packaging/encasing, and preparation for shipment. The exact number of steps and physical buildings involved in the production varies from product to product. Quality assurance inspections occur throughout the production process.

Each stage of the production process may produce wastes. The blending process may generate mixing residues, decanted solvents, metal bearing powders, and energetic contaminated solvents. The forming process may generate cuttings, shavings, and industrial materials contaminated with

energetics, metals, and solvents. The packaging/encasing process may generate spillage, residue, paint, and spent solvents. The preparation for shipment rarely generates reactive wastes. The quality assurance inspections may generate wastes in the form of non-acceptable units. All the processes may generate waste industrial materials such as gloves, Tyvek suits, and paper towels that are contaminated with powders, metal bearing powders, and solvent-contaminated powders.

Product Testing Facilities

COR has several product testing facilities within the complex. The testing facilities are used to verify the products meet contract specifications. Whenever possible, products that do not meet specifications are reworked; if rework is not possible, the product may be considered a reactive waste. One of the testing facilities is the test range immediately adjacent to the OBU.

Raw Materials and Product Storage

COR maintains storage facilities for raw materials and finished product. Due to the potentially reactive nature of both the raw materials and the finished products, materials and products are stored in segregated structures in accordance with US DoD, BATF, and National Fire Protection Association (NFPA) requirements for the storage of reactive/pyrotechnic materials. The NFPA requirements generally rely on distances between storage units for reduction in hazard potential. All blending and storage areas are labeled with the maximum amount of materials or products that may be managed or stored in the area.

Waste Types and Sources

Five major waste types are generated at the facility. The first waste type is the plating wastewater previously discussed. The second waste type is the wastewater treatment plant sludge from the filter press at the wastewater treatment plant. The wastewater treatment plant sludge is considered RCRA-hazardous and COR manages the material as a regulated hazardous waste (D007).

Industrial waste is the third waste type. Industrial waste generally includes paper goods, scrap metal, wood and other non-hazardous solid wastes that are not contaminated with pyrotechnic powders.

Reactive waste is the fourth waste type. Reactive wastes include, but are not limited to, the explosive and pyrotechnic powder/composite cuttings, shavings, residuals, slurries, unacceptable parts and waste industrial materials such as gloves, Tyvek suits, and paper towels that are contaminated with energetic powders, metals bearing powders, and solvent-contaminated powders.

Spent solvents and paints are the fifth waste type. These materials are generally not contaminated with energetic powder/residues and are shipped offsite for treatment, recycling or disposal.

The management of the various hazardous waste types will be addressed in the appropriate sections of the permit application. Procedures for the management of used oil, universal wastes, waste solvent, spent aerosol cans, paint waste and other wastes that are characteristic or listed are documented in COR procedures ENV-GEN-004, ENV-GEN-005, and ENV-GEN-017 in Subattachment II.A.5-1. Solid Waste Management Unit (SWMU) 22 (Buildings 62 and 149) is the Main Staging Area / 90-day accumulation area (electronics, spent inks, paints, solvents, and aerosols). The OBU is SMWU 18. SWMU 18 includes the burn pad and the four 90-day staging areas (Buildings 127, 137, 136, and 128). The Universal Waste accumulation area is Building 126. The expired materials/product (things being determined whether they are waste, to be used, or to be recycled) is Building 81, but this building is being returned to chemical storage and COR intends to move the expired materials/products to Building 131 in the future as funding allows.

Document Review

The following partial list of documents were used in the preparation of this permit application:

1. Application for Renewal of Hazardous Waste Operation Permit for the Open Burn Unit dated September 12, 2000 and revised December 06, 2000 and February 15, 2001.

2. Permit Modification for the Hazardous Waste Miscellaneous Unit-Burn Pad Operating Permit dated July 15, 2002 and subsequent reviews dated August 15, 2002.

3. Permit Modification for the Open Burn Unit Operation dated February 13, 2003.

4. Request for Authorization to Treat New Waste Stream in Open Burn Unit dated January 23, 2004.

5. Hazardous Waste Facility Operating Renewal Application dated August 23, 2005.

6. Revision to Contingency Plan dated September 29, 2005 and revised January 06, 2006.

7. Semi-annual Groundwater Monitoring Reports, August 2005 through February 2015.

8. Open Burn Unit Operation Permit Renewal for Chemring Ordnance, Inc., Formerly Known as Martin Electronics, Inc. dated September 10, 2010 and revision of November 30, 2010.

9. Additional Product Information for Chemring Ordnance, Inc. Open Burn Unit Operation Permit Renewal dated February 10, 2011.

10. COR OBU Operating Permit 16099-010-HO dated August 15, 2011.

Part II
Specific Facility Information

Part II.A
General

II.A.1
Topography, Wind, and Traffic

II.A.1.a Topographic Map

The Florida Department of Environmental Protection (FDEP) requires submission of a topographic map showing a distance of 1,000 feet around the waste management area, as defined in Attachment II.M.3, with a scale of 1 inch equals 200 feet (Figure II.A.1.a-1). Topographic contours must be depicted on the map with intervals sufficient to clearly illustrate the pattern of surface water flow in the vicinity of and from each operational unit. Because the unit occupies a small footprint within the larger facility property, multiple maps were created to illustrate the required information in a legible format. Map figure numbers are referenced for the following FDEP requirements:

1. Map scale and date(s): All maps have a scale and date indicated.

2. 100-year floodplain area: Based on information available from the SRWMD, as confirmed by review of Federal Emergency Management Agency Map Panels, portions of the facility lie within the 100-year floodplain. The developed portions of the facility, including the OBU, do not lie within the 100-year floodplain. A Floodplain Map is included as Figure I.B.4-1.

3. Orientation of the map(s): All maps depict orientation.

4. Access control (fences, gates, etc.): Figure II.A.1.a-2 depicts facility access control features. This facility is required to meet security requirements established by the U.S. Department of Defense.

5. Injection and withdrawal wells both onsite and offsite: There are no injection wells onsite. The onsite withdrawal wells are included in the well inventory in Table I.B.4-1. The onsite wells are used for drinking water, production, and fire suppression. A well inventory for the topographic quadrangle Sections, Townships, and Ranges that fall within a 0.25-mile radius surrounding the site was conducted and is presented in Attachment I.B.4.

6. Buildings and other structures: Buildings and other structures are depicted on Figure II.A.1.a-2.

7. Elevations and contours sufficient to show surface water flow: Topographic contours for the facility are depicted on Figure II.A.1.a-1. The surface water bodies located within the COR property boundaries (northeastern, northwestern, and southeastern corners) are not connected to any surface water course discharging from the facility. There are no stormwater drains onsite; therefore, all water that falls on the ground at the COR facility typically soaks into the ground. As indicated in Attachment II.M.2, the facility topography slopes gradually downward from the northeast to the southwest. Figure II.A.1.a-1 depicts the general direction of ground surface elevation decrease and the assumed direction of any surface water sheet flow that might occur under flood conditions.

8. Loading and unloading areas: Figure II.A.1.a-1 depicts the OBU area. Loading and unloading of reactive wastes may occur at any of the storage buildings or the burn pad area. Additional details regarding traffic patterns are provided in Attachment II.A.1.c.

9. Drainage or flood control barriers: The facility has no formal drainage or flood control barriers.

10. Hazardous waste units: Figure II.A.1.a-2 depicts the hazardous waste management area.

11. Run-off control system: The run-off control system for the OBU is described in Part II.I.1.

No storm, sanitary and process sewerage systems, water lines, or fire control facilities are present in the area depicted on the topographic map figure. Water in the vicinity of the OBU is provided by a supply system at the range, approximately 1,200 feet from the OBU, or via a water truck.

II.A.1.b Wind Rose

The prevalent wind direction (at wind velocities of 4 to 7 knots) is in a northerly direction for the City of Perry as represented on Figure II.A.1.b-1. For wind velocities of 7 to 11 knots, the prevalent wind direction is in a southerly direction. COR is located approximately 10 miles outside the city limits of Perry in an isolated area. Local and regional sensitive receptor points exist, upwind, in a northeasterly direction in the City of Perry. To the south of COR (the prevalent wind direction) is toward the Gulf of Mexico.

II.A.1.c Traffic Information

The facility layout loading/unloading areas for hazardous waste at the OBU and traffic patterns are illustrated on Figure II.A.1.a-1. Puckett Road (Route 361A) is the major access road to the facility. The access road is designed in accordance with engineering criteria appropriate for sustaining the traffic volume and loading for the industrial activities in this area.

Once inside the facility, traffic moves on in-plant roads that are capable of sustaining the traffic volume and loading. The road to the OBU is constructed of limerock material, approximately 6 to 8 inches deep, that is capable of sustaining the traffic volume and loading for activities in this area. The road to the OBU has demonstrated adequate strength for the fire trucks and one-half ton pickup trucks that utilize it. There is no regular maintenance schedule for the road to the OBU; however, periodic repairs are performed when necessary to restore the road to sustain onsite traffic.

The reactive waste material is moved from the satellite accumulation buildings to the accumulation storage areas at the OBU whenever necessary. Once per day, five days a week up to 500 pounds of material is moved from the OBU accumulation storage area to the OBU at a time. This movement occurs using a golf cart or similar utility vehicle equipped with trailer. No other vehicles are used for waste transportation. Each container of waste has a specified location for accumulation storage at the OBU. Table II.A.1.c-1 lists the current waste handling locations.

Since the OBU generates only small quantities of containerized hazardous waste, minimal offsite vehicular traffic is associated with the unit. The low volume of waste from the OBU does not significantly impact traffic flow. No non-employee traffic occurs on facility roads; therefore, traffic control signs and signals are not applicable.

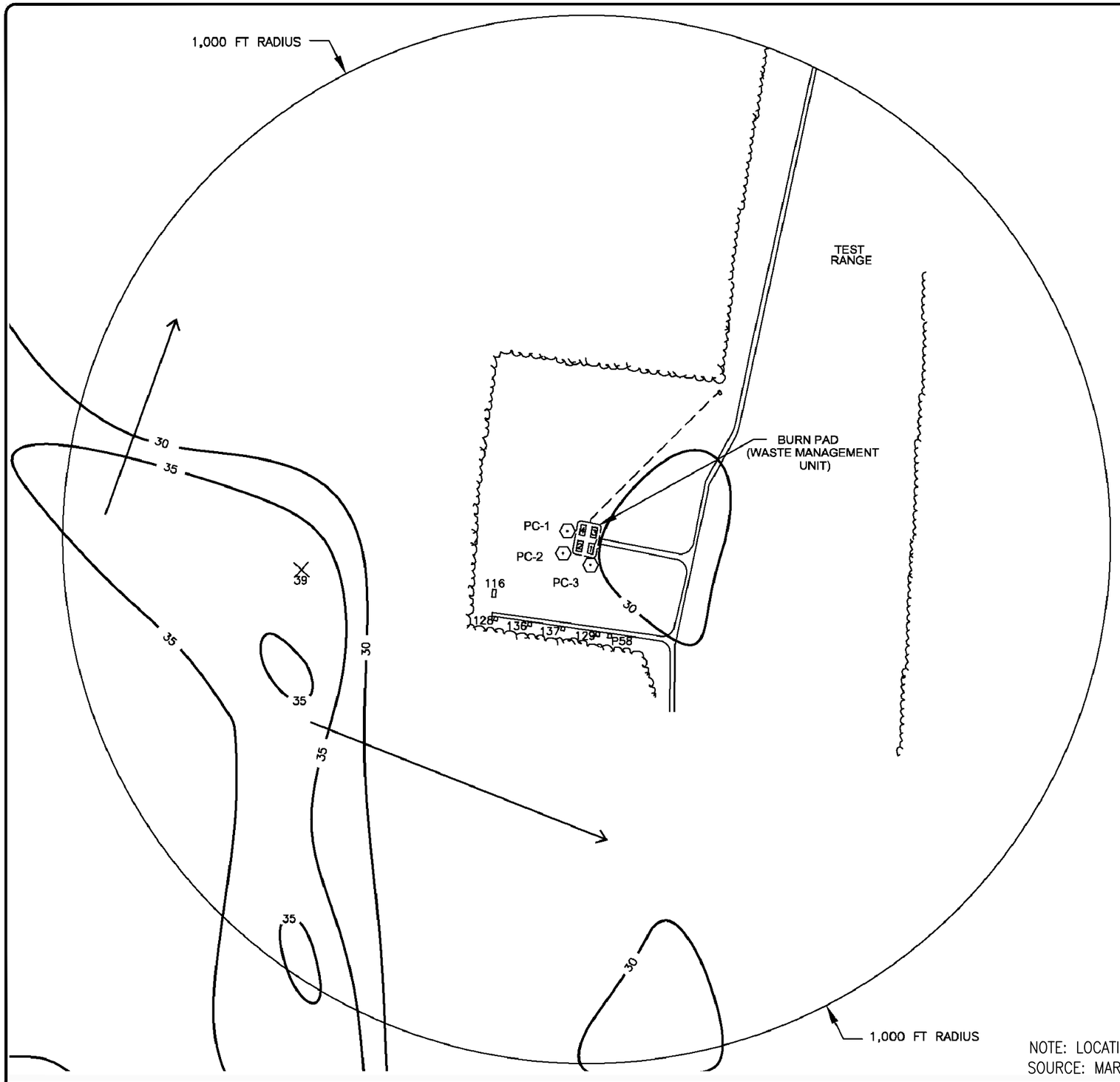
Table II.A.1.c-1
Waste Handling Locations at the Open Burn Unit
Chemring Ordnance, Inc., Perry, Florida

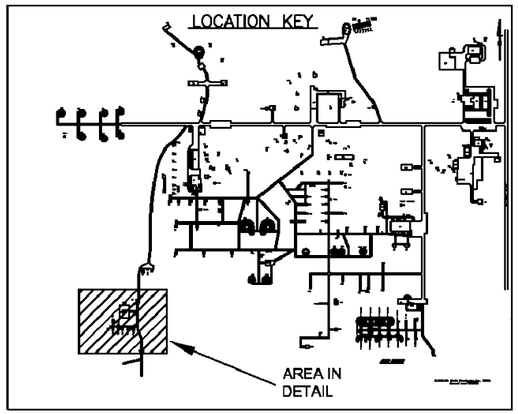
Material	OBU Storage Building	Burn Pad [a]
Smoke Composition	137	3,4
Flare Composition	127, 128	2
Heat Pads	137	3
Pellets	137	3
Smoke Candles	137	4
Flare Candles	137	4
Mag-Tef Composition	127, 128	1,2
Starter Composition	127, 128	2
Igniter Composition	127, 128	2
Igniters	137	3
ZR/NI Delay	137	3
AIA	127, 128	2
Loaded M201 Igniters	137	3
Primers	137	3
Black Powder	127	2
Lead Azide	137	4
Delay Housings	137	3
Burster Housings	137	3
Primer Composition	137	3
M9	127, 128	2
Loaded 38s	137	3
First Fire Composition	127, 128	2
Ignition Mixture	127, 128	2
Tungsten Delay Composition	137	3
M583 Full-ups	137	3
Industrial Wipers	136 [b]	1,2,3,4
Floor Sweepings	136 [b]	1,2,3,4
Wood Containers or Cradles	not applicable	1,2,3,4

Notes:

a Each of the numbered burn pads is used to treat a specific type of waste. This ensures that the composition of burn residues from each pad is predictable; and that non-hazardous burn residues are not contaminated with potentially hazardous burn residues.

b These wastes will be generated in different process areas; therefore, the industrial wipers and floor sweepings will be treated on the burn pad(s) that are used to treat the wastes with similar contamination. For example, industrial wipers contaminated with Mag-Tef will always be treated on burn pads 1 or 2, with other Mag-Tef contaminated wastes.





LEGEND

PC-1 ⊙	GROUND WATER MONITORING WELLS INSTALLED BY ERM PC = POINT OF COMPLIANCE
4	BUILDINGS/STRUCTURES
	TREE LINE
25	ELEVATION CONTOUR
3	BURN PAD
→	LOCAL SURFACE WATER FLOW DIRECTION

NOTE: Elevation information obtained from USGS 7.5 minute series 1954 Quadrangle Okefenokee Slough Taylor County Florida

APPROXIMATE SCALE IN FEET (Not a surveyed drawing)

0 200 400 600

NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., 9/2000.

FIGURE II.A.1.A–1
SITE LOCATION, TOPOGRAPHY, SURFACE WATER DRAINAGE, AND HAZARDOUS WASTE LOADING/UNLOADING AREA MAP
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/28/15
DWG NO:	17515_B004

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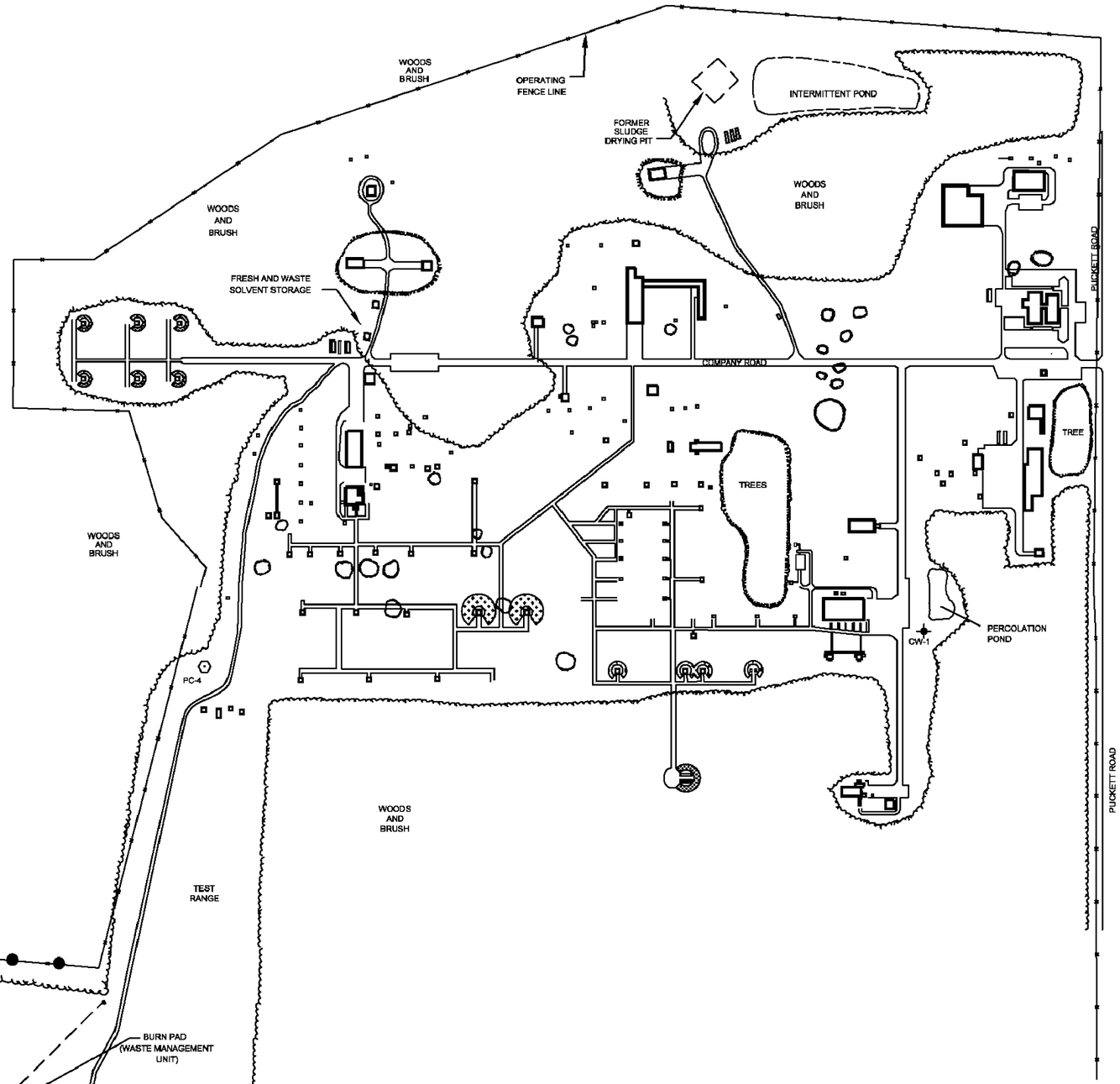

LEGEND

- PC-1 — GROUND WATER MONITORING WELLS INSTALLED BY ERM
- EARTHERN BERM
- BUILDINGS/STRUCTURES
- PORTABLE BUILDING
- TREES
- TREE LINE
- CW-1 — GROUND WATER MONITORING WELL INSTALLED BY I.T.
- FENCE
- SECURITY SIGNS
- ROPE BARRICADE WITH SECURITY SIGN

APPROXIMATE SCALE IN FEET (Not a surveyed drawing)

0 300 600 900

NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., ERM, 1995.

FIGURE II.A.1.A–2
SECURITY SIGNAGE LOCATIONS AND HAZARODOUS WASTE MANAGEMENT AREA MAP
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/27/15
DWG NO:	17515_B005

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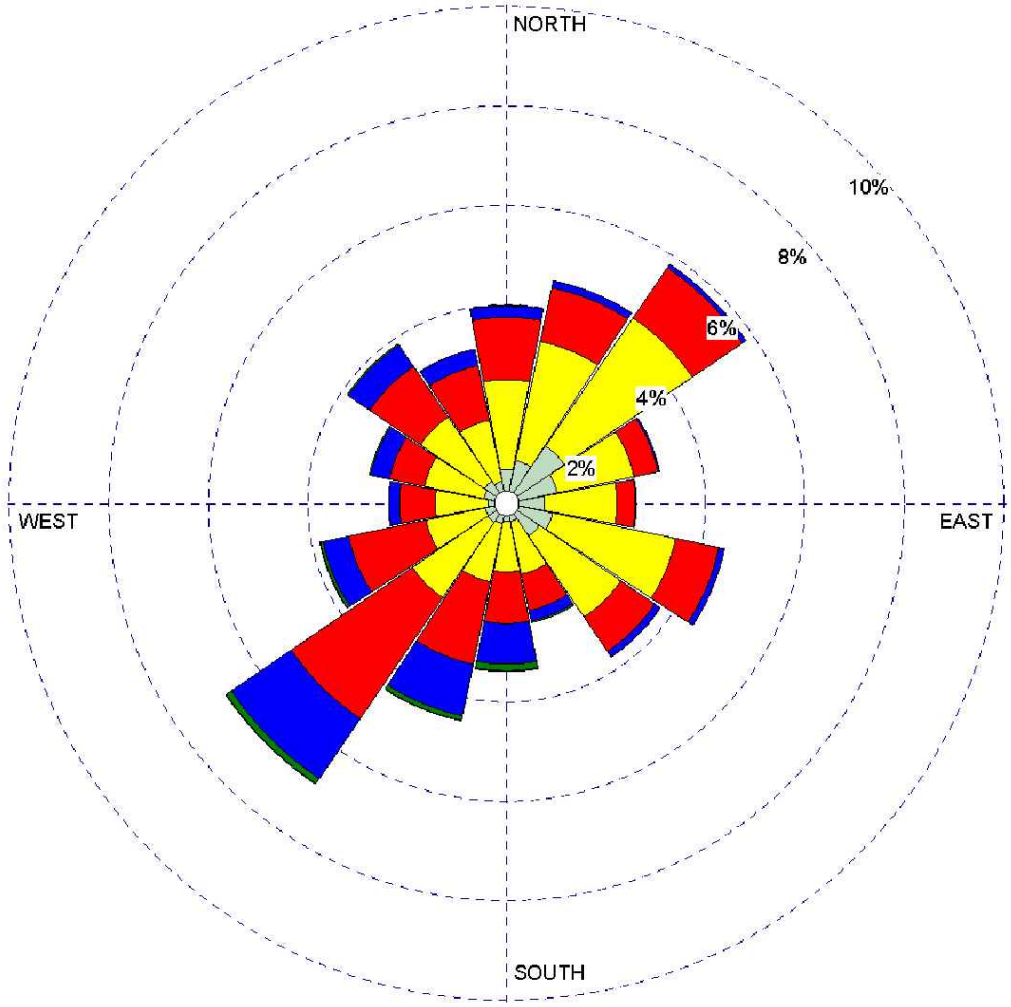

WIND SPEED
(Knots)

- >= 22
- 17 - 21
- 11 - 17
- 7 - 11
- 4 - 7
- 1 - 4

Calms: 38.57%

STATION #53862 – PERRY FOLEY AIRPORT, FLORIDA
DISPLAY: WIND SPEED DIRECTION (BLOWING FROM)

DATA PERIOD: **2010 2011 2012 2013 2014 Jan 1 - Dec 31 00:00 - 23:00**	**Integrated Surface Hourly (ISH) Meteorological Data**	
CALM WINDS: **38.57%**	TOTAL COUNT: **42758 hrs.**	**Liesa R. Elliott** Consulting Meteorologist
AVG. WIND SPEED: **3.97 Knots**	DATE: **8/26/2015**	FIGURE II.A.1.B–1 WIND ROSE CHEMRING ORDNANCE, INC. 10625 PUCKETT ROAD PERRY, FLORIDA

WRPLOT View - Lakes Environmental Software

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/27/15
DWG NO:	17515_B006

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II.A.2
Financial Responsibility

II.A.2.a Closure Cost Estimate

The current closure cost estimate is provided in Attachment II.K.1 of this application. A copy of COR's financial assurance, DEP Form 62-730.900(4)(f), will be sent to the FDEP Financial Coordinator at the Hazardous Waste Regulation Section under separate cover.

II.A.2.b Post-Closure Care Cost Estimate

The current post-closure care cost estimate is provided in Attachment II.K.2 of this application. A copy of COR's financial assurance, DEP Form 62-730.900(4)(f), will be sent to the FDEP Financial Coordinator at the Hazardous Waste Regulation Section under separate cover.

II.A.2.c Liability Coverage

A copy of COR's liability assurance certificate on DEP Form 62-730.900(4)(k) is provided as Subattachment II.A.2.c-1 of this section. The original has been sent to the FDEP Financial Coordinator at the Hazardous Waste Regulation Section.

Subattachment II.A.2.c-I
Liability Coverage
DEP Form 62-730.900(4)(k)

Joyce Cairo

Marsh USA Inc.
Two Logan Square
Philadelphia, PA 19103-2797
215 246 1443
Joyce.Cairo@marsh.com
www.marsh.com

MARSH

Mr. Edgar Echevarria
Florida Department of Environmental Protection
Bob Martinez Building
2600 Blair Stone Road/MS 4548
Tallahassee, Florida 32399-2400

April 03, 2015

Subject: Chemring Ordnance, Inc. – Policy #PLS 16151543 – 3/12/15 to 3/12/16

Dear Edgar:

Enclosed please find the original completed and signed State of Florida Hazardous Waste Facility Certificate of Liability Insurance for Chemring Ordnance, Inc. policy #PLS 16151543 covering the period from 3/12/15 to 3/12/16.

Sincerely,

Joyce Cairo

Enclosure

Copy:
Jocelyn Catledge and Tarun Handa, Chemring Ordnance, Inc.

DEP Form # 62-730.900(4)(k)
Form Title HW Certificate of Liability Insurance
Effective Date January 5, 1995
DEP Application No.

STATE OF FLORIDA
HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE
(Primary Policy)

1. AIG Specialty Insurance Company (Name of Insurer), (the "Insurer"),

of 175 Water Street, New York, NY 10038 (Address of Insurer)

hereby certifies that it has issued liability insurance covering bodily injury and property damage to Chemring Ordnance, Inc. formerly Martin Electronics (Name of Insured), (the "Insured"), of

10625 Puckett Road, Perry, Florida 32348-8505 (Address of Insured)

in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147, as adopted by reference in Section 62-730.180, Florida Administrative Code (F.A.C.). The coverage applies at

EPA/DEP I.D. No.	Name	Address
FLD 047 966 593	Chemring Ordnance	10625 Puckett Road

for:

X sudden accidental occurrences

_____ nonsudden accidental occurrences

_____ sudden and nonsudden accidental occurrences

If coverage is for multiple facilities and the coverage is different for different facilities, indicate which facility(ies) are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences, and which are insured for both.

The limits of liability are $ 1,000,000 each occurrence and $ 2,000,000 annual aggregate, exclusive of legal defense costs. The coverage is provided under policy number PLS 16151543, issued on March 12, 2015 (Date). The effective date of said policy is March 12, 2015 (Date).

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

   (a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

   (b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.147(f), as adopted by reference in Section 62-730.180, F.A.C.

   (c) Whenever requested by the Secretary of the Florida Department of Environmental Protection (FDEP), the Insurer agrees to furnish to the Secretary a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the Insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Secretary of the FDEP.

(e) Any other termination of the insurance (e.g., expiration, non-renewal) will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Secretary of the FDEP.

I hereby certify that the wording of this instrument is substantially identical to the wording specified in 40 CFR 264.151(j), as adopted by reference in Section 62-730.180, F.A.C., as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States including Florida.

Signature of Authorized Representative of Insurer

Kevin Haas

Type name

Regional Manager

Title

Authorized Representative of

AIG Specialty Insurance Company

Name of Insurer

One Liberty Place, 1650 Market Street,Philadelphia, PA 19103

Address of Representative

II.A.3
Flood Information

Based on information available (Figures I.B.4-1 and II.A.1.a-1), some of the undeveloped portions of the facility lie within a 100-year floodplain. The developed portions of the facility lie within Flood Zone X or areas of minimal flooding according to Federal Emergency Management Agency (FEMA) Map Panel 12123C0485D, effective on May 04, 2009. The developed portions of the facility do not require any special flood management procedures.

Precipitation Information

Precipitation information for Perry, Florida, was obtained from the Suwannee River Water Management District (SRWMD). Data were recorded at the "Foley at U.S. 27/Foley Tower" station located approximately 14 miles northeast of COR property. Table II.A.3-1 presents monthly precipitation data for the previous six years. The monthly average precipitation data were: for 2009, 4.23 inches; for 2010, 4.30 inches; for 2011, 3.17 inches; for 2012, 5.51 inches; for 2013, 5.41 inches; and for 2014, 6.05 inches.

Table II.A.3-1
Monthly Precipitation Data
January 2009 Through December 2014
"Foley at U.S. 27/Foley Tower" Station,[a] Perry, Florida

	Rainfall/Inches					
Month	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
January	3.48	8.95	3.95*	2.22	0.76	5.38
February	1.06	3.95	0.52*	2.49	8.37	5.67
March	2.55	3.73	2.13*	3.68	3.63	8.27
April	5.60	6.51*	1.55*	0.77	2.92	11.22
May	4.44	5.04*	0.61*	8.43	2.40	6.96
June	3.80	6.41*	9.02	17.38	9.46	3.41
July	6.13	3.29*	4.99	11.46	12.79	3.71
August	6.86	5.61*	3.46	10.67	12.40	7.26
September	7.62	4.87*	5.42	4.10	4.22	12.65
October	1.89	0.17*	2.46	2.48	0.59	1.15
November	1.67	0.95*	1.15	0.24	4.50	3.81
December	5.65	2.12*	2.81	2.18	2.91	3.07
Yearly Total	50.75	51.60	38.07	66.10	64.95	72.56
Monthly Average	4.23	4.30	3.17	5.51	5.41	6.05

Source: Suwannee River Water Management District.

Notes:
[a] "Foley at U.S. 27/Foley Tower" station is located approximately 14 miles northeast of COR property.
* Data qualified by SRWMD as "poor quality data".

II.A.4
Facility Security Information

II.A.4.a Security Procedures and Equipment

There are no substantive changes to the current permit conditions. A guarded gate restricts access to the facility, and all vehicles are required to register at the gate and park in a designated area near the gate. At selected locations across the facility, security camera installation is currently ongoing.

COR submitted an alternate Department of Homeland Security (DHS) Site Security Plan to the DHS on January 7, 2016. In accordance with the plan, facility guards are provided with Active Shooter and Emergency Response training. Security fencing is maintained and inspected by security personnel on a monthly basis, in accordance with DHS requirements. COR intends to implement increased range security procedures in late 2016 at the entrance of the range (the OBU is located at the range). Range access will be controlled by a Range Safety Officer via a lift gate from a Range Control Building or remotely. All OBU burns will be initiated at a Range Control Building. A fence will be placed around the OBU and a camera installed at the OBU fence line for viewing at the Range Control Building.

The facility maintains the following International Organization for Standardization (ISO) certifications:

- ISO 9001: CERT-0069875: Original Cert. Date, Apr 22, 2004; Current Cert. Expiration Date, April 20, 2016.

- ISO 14001: CERT-0093311: Original Cert. Date, Dec 15, 2009; Current Cert. Expiration Date, September 14, 2018.

- ISO 18001: CERT-0075860: Original Cert. Date, Jan 24, 2011; Current Cert. Expiration Date, January 22, 2017.

II.A.4.b Contingency Plan

A copy of COR's contingency plan is presented in Subattachment II.A.4.b-1. In accordance with the contingency plan, COR will:

- Immediately carry out the provisions in the plan and follow the emergency procedures described by 40 CFR 264.56, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment. COR will provide proper notification if an emergency situation arises and, within five calendar days, must submit to the FDEP a written report which includes all information required in Part I Condition 8.(b).

- Comply with the requirements of 40 CFR 264.53.

- Within seven calendar days of meeting any criterion listed in 40 CFR 264.54(a), (b) or (c), COR will amend the plan and submit the amended plan for FDEP approval. Any other changes to the plan will be submitted to the FDEP within seven days of the change. All amended plans will be distributed to the appropriate agencies.

- Comply with the requirements of 40 CFR 264.55, concerning the emergency coordinator.

Waste residues resulting from thermal treatment activities are characterized by both process knowledge and waste analysis. Initially, process knowledge defines the potential constituents likely to occur or persist in the thermally treated residue. For example, it is generally assumed that any metals known to be present in the pre-treated waste will persist in the residue and therefore be disposed accordingly using the appropriate hazardous waste codes. Testing for metals, volatiles, and energetics are performed on representative samples from the residues of each waste type or process to determine the proper disposal method in compliance with 40 CFR 261. The procedures are generally described in COR procedure ENV-GEN-013.

II.A.4.c Preventive Procedures, Structures, and Equipment

The OBU 90-day staging area buildings are inspected every 7 days. If any hazardous material is in a staging area for 60-days, it is listed during the routine inspection and must be treated as soon as possible. (COR procedure ENV-GEN-008) On a routine basis, it is COR's practice to minimize the amount of waste in the OBU staging areas: the average container of waste is treated within 2 weeks of the accumulation date. The following discussion outlines preventive procedures, structures, and equipment associated with the unit.

1. Equipment failure and power outages: Minimal equipment is associated with the storage, transport, and treatment of wastes. Satellite accumulation areas (SAAs) are established in each of the process areas. No electrically-powered equipment is required to operate the SAAs; therefore, power outages have no impact on the SAAs. Golf carts or four-wheel utility vehicles with trailers are used to transport the waste from SAAs to the OBU storage buildings. The vehicles are inspected regularly according to established work instructions. If a vehicle fails during transport of the wastes, another vehicle will complete transportation of the wastes. No special equipment is used to operate the OBU. OBU structures are inspected regularly to ensure structural integrity (see Part II.I). Limited electricity is provided to the OBU. Exceptions include an underground wire used to initiate an e-match and a burn. An alternative method may be utilized if needed to light burns at the OBU such as but not limited to a timed fuze. A camera is expected to be installed in 2016 to prevent transients from entering the area. Power outages should have negligible impact on waste storage or treatment.

2. Hazards in unloading operations: COR has established procedures to prevent hazards in unloading operations. All personnel are instructed in safe unloading operations, and provided with tools and personal protection equipment (PPE). Wastes drums are moved from the SAAs to the transport trailer using hand trucks. Each of the transport trailers is equipped with a ramp to facilitate loading and unloading of the wastes.

3. Exposure of personnel to hazardous waste: COR has established procedures to ensure each employee's exposure to chemical, physical, and biological agents remains below the established limits. This is accomplished through the use of effective control measures and personnel training. Each employee is responsible for compliance with the control measures applicable to the task, including the use of PPE. Further information is included in Attachment II.A.4.e, and in Subattachment II.A.5-1. In addition, employees review a written hazard analysis of a task before proceeding.

4. Water Supplies: No consumptive use wells are located within 0.25 mile of the OBU.

5. Run-off: The configuration of the OBU is designed to prevent stormwater runoff and reduce or eliminate the potential for impacts to groundwater in the vicinity of the OBU. Key preventive features of this design include:

    - The concrete containment pad is designed with 8-inch curbing. The concrete burn pads on the containment pad are also designed with 8-inch curbing.

- The concrete containment is coated with a chemical- and heat-resistant sealant.

- When the area is not in operation, a retractable roof covers the entire containment pad area to protect it from precipitation.

6. Releases to the atmosphere: A discussion regarding releases to the atmosphere is provided in Attachment II.O.2. Part II.O (Exposure Information) applies only to facilities that have a surface impoundment or a landfill, and will apply if the miscellaneous unit cannot clean close.

7. Accidental ignition or reaction: Procedures to prevent accidental ignition or reaction are described in Attachment II.I.5.

II.A.4.d Preparedness and Prevention Procedures Required by 40 CFR Part 264, Subpart C

The COR Contingency Plan is included as Subattachment II.A.4.b-1. Note that the separation of the Preparedness and Prevention Procedures and the Contingency Plan was discussed during the meeting between COR and FDEP on January 13, 2016, and has been resolved satisfactorily.

II.A.4.e Personnel Training

The purpose of COR's training program is to familiarize employees with hazardous materials, environmental regulations, records, and emergency procedures so they can perform their jobs in the safest and most efficient manner possible.

Description of Training Program

Each employee is trained to operate and maintain the facility safely, and to understand hazards unique to the job assignment. All employees receive a combination of classroom and on-the-job training regarding hazardous materials as a part of the COR Hazard Communication Training Program. The classroom portion of the training occurs within 30 days of the employment start-date. On-the-job training occurs prior to an employee working independently. Refresher training is provided annually and may be presented in a classroom or interactive computer-based format.

All production employees have the potential to generate hazardous wastes as a part of their normal work activities. As a part of the Hazard Communication Training Program, production employees are instructed on the management of hazardous wastes within each work area to which they are assigned from the point of generation to the satellite receptacle locations. Employees who are directly involved in the management and handling of hazardous wastes subsequent to the satellite receptacle locations receive general RCRA training. This training is also a combination of

classroom and on-the-job training and is provided within six months of an employee assignment to a hazardous waste-handling activity. Employees are not permitted to work unsupervised prior to completing the hazardous waste handling portion of the Hazard Communication Training Program.

Personnel working at the hazardous waste staging area or the OBU, as well as those employees performing security duty (i.e., security inspectors) also receive RCRA Contingency Plan training prior to working at these facilities.

Personnel working at the OBU, and those who are designated to respond to facility emergencies, receive HAZWOPER Responder 24 Hour training. This training is provided prior to working unsupervised at the OBU. Refresher training is required every 12 months.

All facility personnel receive HAZWOPER "Awareness" Level training and yearly refreshers.

All facility personnel receive ISO 14001 EMS "Awareness" training and yearly refreshers.

Personnel meeting the definition of a HAZMAT employee receive DOT HAZMAT training every 36 months.

Classroom training is overseen by the Director of Health, Safety, and Environmental (Environmental Manager), the Environmental Engineer, and/or Environmental Manager. Classroom instructors have completed appropriate training or have demonstrated sufficient proficiency for each topic for which they provide training. On-the-job training is provided by the employees' supervisors.

Outline of Training Program

An outline of the topics covered in the COR Hazard Communication Training Program is presented in Table II.A.4.e-1. Table II.A.4.e-2 provides the outline for the additional training for those employees directly involved in the management and handling of hazardous wastes. Both types of training are provided initially and annually. Table II.A.4.e-3 provides a timetable for updating the Hazard Communication Training for those employees directly involved in the management and handling of hazardous waste.

Job Title / Job Description

Job descriptions for employees who are expected to manage or handle hazardous wastes are provided in Subattachment II.A.4.e-1. The names of personnel who hold these positions as of August 2015 are provided in Table II.A.4.e-4. An updated list is maintained at the facility in accordance with 40 CFR 264.16.

Training Content, Frequency, and Techniques

Employee training is accomplished using a combination of classroom and on-the-job methods. An employee is trained at the time of employment or assignment, and is trained annually thereafter, or as in the case of DOT HAZMAT training, training updates are provided every 36 months. The training requirements for employees who manage or handle hazardous wastes are outlined below.

Supervisors: A combination of classroom and on-the-job methods are used to provide information regarding RCRA requirements and COR hazardous waste management practices. This training is conducted annually. Table II.A.4.e-5 lists the topics covered during the training and the amount of time allotted to each topic.

Supervisors are hired with proven supervisory experience or they are promoted from within. After orientation, they are trained by the Production Manager or his/her designee. They are briefed concerning the product and production requirements, and are taught all aspects of the hands-on assembly of the product, packaging of the product, etc. They are given Job Instructions including safety requirements for each position. The Production Manager works with supervisors on a day-to-day basis and provides continual safety training. He attends supervisors' safety meetings and provides ideas and materials for those meetings.

Supervisors are also given opportunities to attend voluntary and required in-house seminars and workshops addressing changes in employment law. Weekly supervisory meetings are held under the direction of the Production Manager or his/her designee and serve as continuous training.

Engineering Technicians (Powder Blenders): New employees are provided with two weeks of on-the-job training, during which time they are introduced to the procedures for labeling, storing, handling, and internal plant transportation of hazardous wastes. Refresher training is conducted annually. The training includes a review of the Contingency Plan. Table II.A.4.e-5 lists the topics covered during on-the-job training and the amount of time allotted to each topic.

Material Handlers: New employees within this job classification include Shipping, Receiving, and Material Leader I; Lift Truck Driver II; Lift Truck Driver III; and Utility II. Employees are provided with two weeks of on-the-job training, during which time they are introduced to the procedures for labeling, storing, handling, and internal plant transportation of hazardous wastes. Refresher training is conducted annually and includes a review of the Contingency Plan. Table II.A.4.e-5 lists the topics covered during on-the-job training and the amount of time allotted to each topic.

Open Burn Unit Operators: Employees who operate the OBU are working under the leadership of someone with a Blaster's License. Employees are also provided with two weeks on on-the-job training, during which time they are introduced to the procedures for labeling, storing, handling, and internal plant transportation of hazardous wastes. Refresher training is conducted annually. Table II.A.4.e-5 lists the topics covered during on-the-job training and the amount of time allotted to each topic. Additional training, including General RCRA Training, OSHA HAZWOPER Awareness Level Training, HAZWOPER Annual Refresher Training, Respirator Training, OBU Contingency Plan Review Training, Contingency Plan Training, and Safety & Health Plan Review Training is provided in accordance with COR's Safety and Health Program included in Subattachment II.A.4.e-2.

Annual Training: On an annual basis, employees are trained using a program prepared and updated by the Environmental Engineer or Manager; the training includes the topics in Tables II.A.4.e-1 and II.A.4.e-2 and follows the timetables presented in Table II.A.4.e-3. The training generally includes updates on environmental regulations, an in-depth review of the Contingency Plan, and a review of RCRA inspection criteria. The training may be conducted in a classroom setting or using an interactive computer-based format. All training incorporates a discussion of the facility's RCRA Operating permit. In addition, periodic memoranda on changes in environmental regulations are issued by the Environmental Engineer or Manager and must be read by, and discussed with, all personnel. Records are maintained in the facility Human Resource office.

Training Director: The training director is the Environmental Engineer or Manager. A list of training achievements is provided in Subattachment II.A.4.e-3.

The Environmental Engineer or Manager is responsible for keeping the facility and its personnel operating in compliance with federal, state, and local environmental regulations. The Environmental Engineer or Manager reports to the Director of Health, Safety and Environment.

Duties

- Manage the environmental program.

- Coordinate sampling and testing of any affected lands and waterways to monitor the extent and degree of pollution caused by the incident, including periodic sampling of onsite waterways for background information.

- Ensure that all reports and notifications required by state and federal regulators are accurate and filed in a timely and efficient manner.

- Assess possible hazards to human health and the environment.
- Assist in the supervision and coordination of post-emergency response actions.
- Determine the adequacy of any response efforts, and advise the Emergency Response Coordinator of the scope of any additional cleanup required.
- Ensure proper containerization and labeling of all hazardous waste.
- Maintain official records and photographs documenting the extent of spills and all containment, cleanup, and recovery actions taken and procedures used.
- Maintain a detailed log of events connected with the emergency.
- Coordinate all activities related to hazardous waste management, safety, health, and security.
- Obtain all necessary permits, licenses, and act as a liaison with federal, state, and local environmental regulatory agencies.
- Initiate purchase of emergency equipment, waste handling equipment, and reference materials.
- Acquire analytical tests of wastes and act as a liaison with contract laboratory.
- Conduct classroom training.
- Coordinate hazardous waste accumulation areas in accordance with work instructions and appropriate regulations and permit conditions.
- Maintain the Contingency Plan and any upgrades or modifications required and review the Contingency Plan after each incident.
- Ensure that all inspections are conducted in accordance with the work instructions.
- Prepare or oversee the proper preparation of manifests and hazardous waste reports.

Classroom Training Courses

- 40-Hour Hazardous Waste Operations (HAZWOPER) — initial
- 8-Hour HAZWOPER refresher course (annual)
- U.S. DOT HM-232 Training for HAZMAT Employees
- Annual RCRA Training

Relevance of Training to Job Position

Each employee is trained to operate and maintain the facility safely and to understand hazards unique to the job assignment. COR training programs are designed to give employees appropriate instruction regarding the hazardous waste management procedures they will encounter while performing their respective duties. Since the handling of hazardous materials is a large part of the facility operations, all employees are given training in hazardous materials handling and the Contingency Plan.

Training for Hazardous Waste Management

Employees are trained in the aspects of hazardous waste management that are relevant to their assigned position. This includes job-specific hazards and necessary precautions, emergency response, and recordkeeping requirements. This training is provided initially and is updated annually.

Training for Preparedness, Prevention, Contingency and Emergency Procedures Plan Implementation

Employees are trained in Contingency Plan implementation, through both initial training and yearly HAZWOPER and ISO 140001 refresher courses, as summarized in Tables II.A.4.e-1 and II.A.4.e-2. Employees are trained on the contents of the Contingency Plan, as well as criteria for implementation. Training summaries for COR employees are maintained in the facility Human Resources office.

Training for Emergency Response

Employees are trained in emergency response procedures through both initial training and yearly refresher courses as summarized in Tables II.A.4.e-1 and II.A.4.e-2. The emergency training involves spill and fire prevention, as well as remedial action procedures. Employees are also trained to recognize when evacuation and outside assistance may be necessary.

Personnel are also trained in the COR Emergency Response and Incident Command Structure. This training outlines responsibilities for activating and implementing emergency procedures, including procedures in the event of a fire/explosion and/or accident/serious illness.

Training for Fire Response

Employees are trained in fire response procedures through both initial training and yearly refresher courses as summarized in Table II.A.4.e-1. This training is covered under the topic Fire Extinguisher/Protection Authorized, Emergency Response and Incident Command Structure, and in the Contingency Plan.

Training for Explosion Response

Employees are trained in explosion response procedures through both initial training and yearly refresher courses as summarized in Table II.A.4.e-1. This training is covered under the topic Fire Extinguisher/Protection Authorized, Emergency Response and Incident Command Structure, and in the Contingency Plan.

Training for Spill Response

All employees are trained in spill response procedures through both initial training and yearly refresher courses as summarized in Table II.A.4.e-2.

Additional Training Topics

Additional training topics are covered during the initial and annual training of employees as specific job responsibilities may require.

Forklift Training: This training class satisfies Occupational Safety and Health Administration (OSHA) requirements. Safety and classroom training are provided, and a performance test is required to obtain a certified forklift operator license in accordance with 29 CFR 1910.178.

Powered Industrial Trucks: Training is provided to those employees who routinely operate powered industrial trucks. This training covers topics found in 29 CFR 1910.178, which includes appropriate use of different industrial trucks, safety, operator training, truck operations, traveling, and maintenance.

Portable Fire Extinguisher Training: Training in the proper use of portable fire extinguishers as outlined in 29 CFR 1910.157 is provided to all employees. This training includes selection and distribution, inspection, maintenance, and testing.

Employee Emergency Plans and Fire Prevention Plans: Training is provided to all employees in the scope and application of the emergency action plan as outlined in 29 CFR 1910.38(a). This training includes instructions on the alarm system, housekeeping procedures, and the implementation of a fire prevention plan.

Implementation of Training Program

New supervisors and all employees picking up waste for the OBU or thermally treating waste at the OBU are given instruction on the Contingency Plan within 30 days of starting work. New supervisors and all employees are given the full Hazard Communication Training course as outlined in Table II.A.4.e-1 within 30 days of starting work. Employees directly involved with handling hazardous wastes receive the additional training outlined in Table II.A.4.e-2 within six months of starting work. All training materials are reviewed annually thereafter. Material Handlers and Engineering Technician (Powder Blenders) involved in direct handling of hazardous waste do not work unsupervised until they have completed the entire initial hazardous materials training course presented in Tables II.A.4.e-1 and II.A.4.e-2.

Personnel Training Record Forms

Figure II.A.4.e-1 is a sample personnel training record form for the COR Hazard Communication Program Training. Figure II.A.4.e-2 is a sample personnel training record form for RCRA Introductory and Continuing Training for Employees Involved in Hazardous Waste Management Training. These forms, or equivalent forms, are used to record training. All training is documented and kept on file at the facility for at least three years from the date the employee last worked at the facility or until facility closure for current personnel.

Table II.A.4.e-1 **Hazard Communication Training Program** **Chemring Ordnance, Inc., Perry, Florida**
• COR Safety Program/Policy
• Existence of Rights Under Right-to-Know Law
• Existence of and Location of Company Written Hazard Communication Program
• Location of Material Safety Data Sheets in Work Area
• In-Plant Labeling System and How it Ties to Material Safety Data Sheets
• Physical Hazards of Chemicals in Your Work Area: — Fire/Explosion — Chemical Intoxication — Chemical Splash
• Measures You Can Take to Protect Yourself From Hazards to: — Eyes — Ears — Skin — Respiratory — Muscle/Bone Systems
• Methods and Observations Employed to Detect Presence of Hazardous Substances: — Vapor — Dust — Noise Monitoring — Safety Survey and Inspection System
• Identification of Operations in Your Work Area Where Hazardous Substances are Present
• Types of Hazardous Wastes You May Generate in Your Work Area
• Disposal/Management Procedures for Hazardous Wastes
• What to do in the Event of An Accident/Injury or Hazardous Material/Waste Release

Table II.A.4.e-2 **RCRA Introductory and Continuing Training Topics** **for Employees Involved in Hazardous Waste Management** **Chemring Ordnance, Inc., Perry, Florida**
• Environmental Regulation Update
• Part A Application
• Waste Analysis Plan
• Contingency Plan
• Training
• Closure
• Inspections
• Manifesting, Labeling, and Recordkeeping
• Spill Simulation and Spill Reports

Note:
RCRA = Resource Conservation and Recovery Act (1976).

Table II.A.4.e-3
Timetable For Hazard Communication Training
Chemring Ordnance, Inc., Perry, Florida

Job Title	On the Job	Annually	When Regulations and/or Procedures Change
Powder Blender	Required	Required	Required
Shipping, Receiving, and Materials Leader I	Required	Required	Required
Lift-Truck Driver	Required	Required	Required
Utility Person	Required	Required	Required
Supervisor, Composition Processing and Transportation	Required	Required	Required
Engineering Technician (formerly Power Blender I)	Required	Required	Required
Engineering Technician III	Required	Required	Required
Environmental Engineer or Manager	Required	Required	Required
Environmental Engineer Aide	Required	Required	Required
Environmental Specialist	Required	Required	Required
Environmental Specialist of Industrial Wastewater Treatment Plant	Required	Required	Required
Production Supervisor	Required	Required	Required
Production Plant Manager	Required	Required	Required

Table II.A.4.e-4 Personnel and Job Titles Chemring Ordnance, Inc. Perry Florida	
Job Title	**Personnel**
Supervisor of Energetics	Gilbert Rykard
Powder Blender	Marty Ingle Amanda Poppell
Shipping, Receiving, and Materials Leader	Robert Windstead
Lift-Truck Driver	Robert Windstead
Lift-Truck Driver	Adolph Hill
Supervisor Safety and Health, Energetic	Gilbert Rykard
Director of Safety and Health, Environmental (Environmental Manager)	Bob Parman
Health Safety and Environmental Coordinator	Craig Harrell
Environmental Engineer (Environmental Assistant Manager)	Thomas Brown
Sanitary Drinking Water Plant Operator	Tim Sutterfield
Environmental Specialist	Tim Sutterfield
Industrial Wastewater Plant Operator	Tim Sutterfield
Production Supervisor	Eric Blue Todd Holmes Robert Williams Jeffery Puckett Cathern Sadler Jeffrey Tift Randall Van Dielen
Vice President of Operations	Bruce Van Stratum
Facilities/Maintenance Manager	Eric Bucklin

Note:
An updated list is maintained at the facility, in accordance with 40 Code of Federal Regulation 264.16

List current as of June, 2016

Table II.A.4.e-5
On-the-Job Training Elements
Chemring Ordnance, Inc., Perry, Florida

	HAZARD COMMUNICATION					HAZARDOUS WASTE HANDLING		EMERGENCY RESPONSE			
Job Title	**Chemical hazards**	**Physical hazards**	**SDS location**	**Chemical exposure routes**	**Personal Protection Equipment**	**Hazardous waste location**	**Labeling and transporting waste**	**Internal communication system**	**Evacuation routes**	**Emergency/spill response equipment location**	**Location of emergency response plan**
Powder Blender	M	M	L	M	H	L	M	M	M	H	M
Shipping Receiving, and Materials Leader I	M	M	L	M	H	L	M	M	M	H	M
Lift-Truck Driver	M	M	L	M	H	L	M	M	M	H	M
Utility Person	M	M	L	M	H	L	M	M	M	H	M
Supervisor, Composition Processing and Transportation	M	M	L	M	H	M	H	H	H	H	L
Engineering Technician	M	M	L	M	H	L	M	M	M	H	M
Engineering Technician III	M	M	L	M	H	M	H	M	M	H	L
Environmental Engineer or Manager	M	M	L	M	H	M	H	H	H	H	M
Environmental Engineer Aide	M	M	L	M	H	M	H	H	H	H	M
Environmental Specialist	M	M	L	M	H	M	H	H	H	H	M
Environmental Specialist of Industrial Wastewater Treatment Plan	M	M	L	M	H	M	H	H	M	H	M
Production Supervisor	M	M	L	M	H	M	H	H	H	H	L
Production Plant Manager	M	M	L	M	H	M	H	H	H	H	M

Notes:
H = High (>1.0 hours).
M = Medium (0.5 to 1.0 hour).
L = Low (<0.5 hour).

Figure II.A.4.e-1

Hazard Communication Training Record
Chemring Ordnance, Inc., Perry, Florida

EMPLOYEE NAME _____ CLOCK NO. _____

****

Subject Covered

(1) COR Safety Program/Policy

(2) Existence of rights under right-to-know-law

(3) Existence of and location of company written hazard communication program

(4) Location of material safety data sheets (SDSs) in work area

(5) In-plant labeling system and how it ties to SDSs

(6) Physical hazards of chemicals in your work area: fire/explosion, chemical intoxication, chemical splash

(7) Measures you can take to protect yourself from hazards to the eyes, ears, skin, respiratory, and muscle/bone systems

(8) Methods and observations employed to detect presence of hazardous substance, i.e., vapor, dust and noise monitoring, safety survey, and inspection system

(9) Identification of operations in your work area where hazardous substances are present

(10) Types of hazardous waste present in workplace

(11) What to do in the event of an accident/injury

****

On _____ day of _____ 20___, I attended a safety training session and also received a briefing on the state and federal hazard communication standard (29 CFR Part 1910) and the Florida right-to-know law which was presented by Chemring Ordnance, Inc.

_____
SIGNATURE OF EMPLOYEE

Figure II.A.4.e-2

RCRA Personnel Training Record
Chemring Ordnance, Inc., Perry, Florida

EMPLOYEE NAME _____ CLOCK NO. _____

****

Subject Covered

(1) Environmental Regulation Update

(2) Waste Analysis Plan

(3) Preparedness, Prevention, Contingency, and Emergency Procedures Plan

(4) Training

(5) Inspections

(6) Manifesting, Labeling, and Recordkeeping

(7) Spill Simulation and Spill Reports

(8) Disposal/management procedures for hazardous waste

****

The undersigned has successfully completed the RCRA training as shown by receiving a score of 80% or higher on the written text.

_____
SIGNATURE OF EMPLOYEE

_____
DATE

Subattachment II.A.4.b-1
Contingency Plan

TITLE

RCRA Contingency Plan

APPROVED BY:
Robert Parman

Director of HSE

CHEMRING ORDNANCE, INC. (COR) Open Burn Unit Staging Area (OBU SA) RCRA CONTINGENCY PLAN, [40 CFR 264 & 265 SUBPART D]

[Ref. 264.53(a); 264.54; 265.53(a); 265.54]
Electronic copies of this Contingency Plan and all revisions to the plan is available through COR's document control system.

The plan will be REVIEWED and AMENDED, if necessary, whenever:

- Applicable REGULATIONS are revised
- The PLAN FAILS in an emergency
- The FACILITY CHANGES in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency
- The list of FACILITY RCRA EMERGENCY COORDINATORS change
- The list of EMERGENCY EQUIPMENT changes

THIS CONTINGENCY PLAN WILL BE CARRIED OUT IMMEDIATELY WHENEVER THERE IS A FIRE, EXPLOSION, OR RELEASE OF HAZARDOUS ENERGETIC WASTE OR HAZARDOUS WASTE CONSTITUENTS ASSOCIATED WITH ITS GENERATION, COLLECTION, ON-SITE TRANSPORTATION, AND THERMAL TREATMENT WHICH COULD THREATEN HUMAN HEALTH OR THE ENVIRONMENT INSIDE OR OUTSIDE THE FACILITY

The primary Facility RCRA Emergency Coordinator will be notified that a new copy of the new Contingency Plan will be available in Document Control whenever the plan is revised. The primary Facility RCRA Emergency Coordinator will notify the alternate Facility RCRA Emergency Coordinators and facility personnel of the changes. A copy of the revised Contingency Plan will also be sent to the Taylor County Sheriff's Department, Taylor County Fire Department, Taylor County Emergency Management, Doctors Memorial Hospital, and the Florida State Division of Forestry.

1. GENERAL INFORMATION

Energetic waste is collected weekly from active operating buildings and transported on-site to an Open Burning Unit (OBU) for thermal treatment.

The COR OBU Resource Conservation and Recovery Act (RCRA) permitted Treatment, Storage, and Disposal Facility (TSDF) may thermally treat up to five hundred (500) pounds of reactive hazardous waste per day (Monday - Friday). This facility is regulated under 40 CFR Part 264.

Wastes are burned within elevated metal burn pans, troughs, and/or burn cages. The pans and troughs are constructed of steel; burn cages are constructed of expandable metal. The maximum inventory of primarily reactive wastes ever on-site over the active life of the facility is typically 2,500 lbs. At a minimum, the operating procedures currently in use will be utilized at the OBU. Waste residues resulting from thermal treatment activities will be properly characterized, in accordance with State and Federal regulations, and disposed of accordingly.

The type of wastes to be thermally treated includes the following:

- D003 primary and secondary high explosives, bulk propellants, pyrophoric materials, liquid/gel energetics
- D003 pyrotechnic powder/composite wastes
- D003 pyrotechnic powder/composite wastes which may contain one or more of the following characteristic EPA Hazardous Waste No.; D005, D006, D007, D008
- D003 industrial materials contaminated with pyrotechnic residues
- D003 industrial materials contaminated with pyrotechnic residues which may also contain - D005, D007, D008 residues as well as those which may be listed by one or more of the following EPA Hazardous Waste No.; F002, F003, F005

2. EMERGENCY COORDINATORS [Ref. 40 CFR 264.52 (d); 264.55; 265.52(d); 265.55]

The following individuals are qualified to act as FACILITY RCRA EMERGENCY COORDINATORS for the COR OBU SA:

NAME	ADDRESS	HOME PHONE	BUSINESS PHONE
PRIMARY:			
Gilbert Rykard	2286 Post Oak Rd, Perry FL	850 578-2763	584-2634
ALTERNATE:			
Craig Harrell	1103 East Julia St., Perry FL	850 274-4286,	584-2634

3. IMPLEMENTATION [Ref. 40 CFR 265.52(a); 265.55; 265.56 (b,c,d)]

[Ref. 40 CFR 265.55]
In the event of a RELEASE, FIRE, or EXPLOSION at the OBU SA, facility personnel would immediately notify the COR security by telephone at (**444** or **226**), during normal business hours; or after hours and provide all available information so that the emergency tone and appropriate code(s) may be initiated to alert the plant Outside Fire Response Team (OFR Team) and affected personnel. The FACILITY RCRA EMERGENCY COORDINATOR (FREC) would immediately coordinate with the plant OFR Team. Security would function as the central control point for all communications and would notify the appropriate off-site response organizations, if needed.

The FREC, with assistance from HSE personnel, would determine if there had been an environmental release, and if needed, would notify the Florida Department of Environmental Protection (FDEP), the Florida State Watch Center, the National Response Center, and the Environmental Protection Agency (EPA) Region 4 as described in the Emergency Response Procedures on the following pages.

The FREC has the responsibility for determining the hazard potential the incident poses to personnel, for assessing the potential danger of the incident to the environment and for directing the specific responses to be taken in the event of a fire, explosion, or release of hazardous waste or hazardous waste constituents. In the event of a fire at the OBU SA, the FREC provides information to the COR OFR Team and/or the Taylor County Fire Department, as applicable, to determine the appropriate firefighting method (i.e., water or chemical) to be used.

THE FACILITY RCRA EMERGENCY COORDINATOR HAS THE AUTHORITY TO COMMIT THE RESOURCES NECESSARY TO DEAL WITH AN OBU SA INCIDENT

In the event of a FIRE, EXPLOSION, or any unplanned sudden or non-sudden RELEASE of a hazardous waste the COR security at (**444** or **226**) **is contacted immediately** and provided all available information so that the emergency tone and appropriate code(s) may be initiated to alert the plant OFR Team and site personnel. The COR security would **immediately notify the Facility RCRA Emergency Coordinator (FREC)** if not already notified. The appropriate off-site emergency response teams would be notified upon request of the FREC.

[Ref. 40 CFR 265.56(b)]
The FREC, with assistance from Engineering, will identify the EXTENT of the release, fire, or explosion by OBSERVATION and KNOWLEDGE concerning the OBU and surrounding area to determine an ESTIMATE on the volume, depth, and real extent of the release.

[Ref. 40 CFR 265.56(c)]
Based on the extent of the release, fire, or explosion, the FREC will ASSESS THE HAZARDS to human health or the environment. The assessment will consider both direct and indirect effects resulting from the incident.
These include gases, runoff, explosion potential, ground contamination, etc. The appropriate off-site emergency response teams would be notified upon request of the FREC
[Ref. 40 CFR 265.56(d)]
Upon determining the extent of the fire, explosion, or release, harmful to human health or the environment, outside the facility, involving hazardous waste the FREC or designee will notify:

- Florida State Watch Center at either 1-800-320-0519 and provide the following information;
    - Name and telephone of REPORTER
    - Name and address of FACILITY
    - Time and type of INCIDENT
    - Name and quantity of MATERIALS INVOLVED
    - EXTENT OF INJURIES, if known
    - POSSIBLE HAZARDS to Human Health or the Environment outside the facility
    - ACTION TAKEN to manage the incident

- Other Agencies, which **MAY** be notified, as required by applicable regulations, in case of an emergency involving the OBU SA are provided below:
    - National Response Center (800/424-8802)
    - Taylor County Fire/Rescue Department (911 or 8584-3311)
    - Taylor County Sheriff's Department (911 or 584-2429)
    - Doctors Memorial Hospital (911 or 584-0800)
    - Florida State Division of Forestry (911 or 838-2299)
    - North Central Florida Regional Planning Council (352/955-2200)
    - Taylor County Emergency Management (911 or 838-3575)
    - Florida Department of Environmental Protection, Jacksonville (904/256-1700)
    - Environmental Protection Agency Region 4, Atlanta (404/562-8440)

4. EMERGENCY RESPONSE PROCEDURES [REF: 40 CFR 265.56(a,e,f,g,h)]

After an incident at the OBU SA has been reported to the COR security at (**444** or **226**), the FREC will be notified by Public Address system, or telephone call. The emergency procedures for explosions, fires, and releases, which could threaten human health or the environment, will be followed as outlined below.

[NOTE: Select members of the COR OFR Team also trained as the COR Spill Control Team and certified per OSHA 1910.120 (p)(7).]

EXPLOSIONS

1. KEEP NON-ESSENTIAL PERSONNEL AWAY from the area.

2. CONTACT the COR OFR Team via the COR security (**444** or **226**). Security will use the PA system to alert facility personnel. (CODE 5)

3. SHUT OFF FLOW to the facility, as appropriate (e.g., upright overturned containers).

4. In case of a resultant SPILL to the environment, ensure the OFR Team dons the appropriate protective clothing and perform appropriate measures to minimize the spread of the material WITHOUT endangerment of employees.

5. DO NOT attempt to clean up spilled material without direction from the HSE department. Collect released waste in appropriate DOT approved drums compatible with the waste materials. ALL spilled material will be managed as a hazardous waste; sampled and analyzed using the approved Quality Assurance Plan (QAP), and disposition will be in accordance with applicable State and Federal regulations. Damaged containers will be removed and temporarily isolated for remediation.

UNCONTROLLED FIRE

A FIRE should be approached by the COR OFR Team **ONLY IF**, in the judgment of supervisory personnel in attendance (e.g., OFR Team Leader); it can be controlled **WITHOUT** exposing personnel to undo risk.

1. KEEP NON-ESSENTIAL PERSONNEL AWAY from the area.

2. IMMEDIATELY REPORT THE FIRE to the OFR Team via the COR security at (**444** or **226**). Security will use the PA system to alert facility personnel. (CODE 5)

3. SHUT OFF FLOW to the facility, as appropriate (e.g., upright overturned containers).

4. EXTINGUISH FIRE using appropriate firefighting techniques; **ONLY IF** in the judgment of supervisory personnel in attendance (e.g., OFR Team Leader), this can be accomplished **WITHOUT** exposing personnel to undo risk.

5. STAND-BY at a SAFE DISTANCE to assist the OFR Team Leader in the event off-site support is needed.

ENVIRONMENTAL RELEASE

1. KEEP NON-ESSENTIAL PERSONNEL AWAY from the area.

2. IMMEDIATELY REPORT THE RELEASE to the OFR Team (also the Spill Control Team) via the COR security at (**444** or **226**). Security will use the PA system to alert facility personnel. The Response Team will bring additional spill control equipment. (CODE 99)

3. SHUT OFF FLOW to the facility, as appropriate (e.g., upright overturned containers).

4. NOTIFY the HSE Department personnel.

5. With assistance from HSE personnel, determine the EXTENT of the release and the RELEASE POTENTIAL by assessing the location of the release and the amount of material maintained at the point of release. Use ENV-GEN-010 "Reporting Spills or Releases of Hazardous Substances, Petroleum or Hazardous Waste" to assist in documenting the release.

6. Ensure the OFR Team dons the appropriate protective clothing and perform appropriate measures to minimize the spread of the material **WITHOUT** endangerment of employees.

7. **DO NOT** attempt to clean up spilled material without direction from the HSE department. Collect released waste in appropriate DOT approved drums compatible with the waste materials. ALL spilled material will be managed as a hazardous waste, sampled and analyzed using the approved QAP, and dispositioned in accordance with applicable State and Federal regulations. Any damaged containers will be removed and temporarily isolated for remediation.

ANY tools or equipment used during the emergency will be decontaminated as appropriate and returned to normal service whenever possible. The rinseate from the cleaning process will be managed as a hazardous waste; sampled and analyzed using the approved QAP, and disposition will be in accordance with applicable State and Federal regulations.

[NOTE: Incompatible Wastes are Segregated. The Clean-up of Spilled Materials Poses No Threat of Mixing Incompatible Wastes.]

5. POST-EMERGENCY PROCEDURES [Ref. 265.56(h,i)]

The causes of any accidental releases of chemicals to the environment will be investigated. Plans will be made by the HSE department and appropriate facility personnel (e.g., OFR Team Leader, etc.) to prevent a recurrence. Instruction and direction for reporting, investigating, and preventing the recurrence of accidental releases to the environment will follow EPA reporting guidelines. The emergency equipment used in containment cleanup will be decontaminated, maintained, reconditioned, and returned to service, or if necessary replaced. If the equipment is replaced the used equipment will be characterized and disposition will be in accordance with applicable State and Federal regulations. Once all emergency equipment has been returned to normal service or replaced, the cleanup will be considered complete. FDEP and LOCAL OFFICIALS, as necessary, WILL BE NOTIFIED BEFORE OBU OPERATIONS ARE RESUMED.

6. REQUIRED REPORTS [Ref. 265.56(j)]
Inspection records for the OBU SA (form COR-ENV-F004) are kept in Building 1B and will be maintained for a period of at least 3 years. The TIME, DATE, and DETAILS OF ANY INCIDENT that requires implementation of the Contingency Plan will be noted in the Environmental Files, Bldg. 1B.

Any incident requiring implementation of the Contingency Plan will be investigated. As required by 40 CFR 265.56(j), a report will be submitted to FDEP and EPA Region 4 within 15 days of the incident and a copy maintained on file at COR. The report will include:

- Name, address, and telephone number of the OWNER or OPERATOR
- Name, address, and telephone number of the FACILITY
- DATE, TIME, and TYPE of incident (e.g., Fire, Explosion, Release)
- Name and quantity of MATERIALS involved
- The extent of INJURIES, if any
- An assessment of actual or potential hazardous to human health or the environment, where this is applicable
- Estimated quantity and disposition of recovered materials that resulted from the incident.

7. EMERGENCY EQUIPMENT [Ref. 265.52(e)]

Emergency equipment available in close proximity to the OBU includes:

1. Portable FIRE EXTINGUISHERS (TYPE A,B,C) capable of extinguishing a small blaze of any origin
2. SPILL CONTROL EQUIPMENT including; 55 gal. drum; over pack drum; oil dry; shovel; pick; absorbent socks (e.g., Pigs); plastic sheeting

3. PERSONAL PROTECTIVE EQUIPMENT including: Tyvek suits; plastic aprons; shoe covers; rubber gloves; goggles
4. Radio for two-way communications to contact additional assistance
5. Combination eyewash/safety shower or wall mounted eye wash station.

SITE EMERGENCY EQUIPMENT

In addition to the OBU SA specific emergency equipment/assistance is available if needed. This includes a Response Team, Spill Control Team, First Aid Department, and Security Force. These emergency response groups are coordinated through the COR Public Address system.

The OFR TEAM is trained in controlling secondary fires involving hazardous materials and is capable of responding to most potential emergencies. The OFR Team has sufficient facility resources (e.g., 350 gal. fire truck pumper, 100 gal. back-up pumper, for responding to on-site outside fire emergencies.

The OBU facility personnel are trained in and respond to hazardous material releases, and therefore act as the SPILL RESPONSE TEAM. In addition to the above personnel protective equipment, the team has the following spill equipment to respond to spills: absorbent pads; absorbent compounds; portable pumps; shovels; brooms; picks, etc. Additional facility personnel (e.g., OFR Team, environmental and safety facility personnel) are available to assist the OBU team, as needed.

COR maintains its own FIRST AID facility emergency response vehicle supported by First Responders and other specialized technicians. The First Aid facility is equipped with sufficient medical equipment (e.g., AED; oxygen; assorted first aid supplies, etc.) to provide initial first aid assistance.
COR has its own SECURITY FORCE, trained to handle security activities including access control, routine patrols, and emergency management.

The equipment identified in Section 7 is inspected weekly. Select COR personnel are TRAINED to respond to emergencies. They are familiar with and are TRAINED in the use of the ABOVE MENTIONED EQUIPMENT.

8. COORDINATION AGREEMENTS [Ref. 40 CFR 265.52(c), 265.53(b)]

Arrangements have been made with the: Taylor County Sheriff's Department; Taylor County Fire/Rescue Department; Taylor County Emergency Management; Doctors Memorial Hospital; and the Florida Division of Forestry. Specifically, to familiarize them with the facility layout, properties of hazardous materials handled at the facility and associated hazards, entrances to and roads inside the facility, and evacuation routes. Arrangements have been made to familiarize the local hospital with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which would result from fires, explosions, or releases at the facility. Additionally, in the event of a serious incident occurring to personnel arrangements have been made with the Taylor County Fire/Rescue Department to transport individuals to hospitals in Tallahassee and/or Gainesville through the Life Flight air ambulance. Life Flight has the appropriate facility coordinates for a facility landing and has performed actual landing exercises at COR.

9. EVACUATION PLANS [Ref. 265.52(f)]

Non-essential personnel will utilize the evacuation procedure, when necessary, in the event of a facility explosion, fire, or hazardous waste release. Evacuation routes detailed here, if evacuation is necessary.

1. The FREC will request the COR security to announce the following over the COR Public Address (PA) system:

   "EVACUATE THE MAIN STAGING AREA" or
   "EVACUATE THE OPEN BURN UNIT AREA"

2. The FREC will limit access and will be supported by security if needed

3. All non-essential personnel will move away from the OBU SA and the site of the emergency, preferable Northeast of the OBU SA.

ESSENTIAL PERSONNEL WILL REMAIN TO AID IN THE EMERGENCY RESPONSE

4. NON-ESSENTIAL PERSONNEL will proceed to their designated rally point using available roads.

5. Non-Essential personnel will remain at their designated rally point to assist in the emergency, if needed.

10. PROCEDURE FOR HURRICANES AND OTHER NATURAL DISASTERS:

OBU staging area buildings shall be inspected after hurricanes or floods for signs of damage and to insure buildings have remained secure.

Organizational Structure
The following establishes the overall responsibilities of COR supervisors, operators, and support

personnel.

[NOTE: The COR OFR Team is the primary responsible organization for responding to OBU emergencies. Personnel listed below in addition to OFR Team personnel will assist as requested by the OFR Team Leader. Key personnel are HAZWOPER trained.]

OFR Team Leader (HAZWOPER Team Leader)	Gilbert Rykard
OBU Supervisor	Gilbert Rykard
OFR Team	Gilbert Rykard Marty Ingle Tim Sutterfield James Blaske Amanda Poppell
OBU Operators	Gilbert Rykard Marty Ingle
Health/Safety/Security/Environmental Group	Bob Parman, HSE Director Tim Sutterfield, Environmental Specialist Conrad Webley, HSE Engineer Craig Harrell, HSE Engineer Tom Brown, HSE Geologist

- This organizational structure will be reviewed and updated as necessary.

Related Documents:

Emergency Response and Incident Command Structure, COR-SAF-002 Chemring Ordnance, Inc. Emergency Phone Numbers, COR-SAF-F108

11. RECORDS:
None

12. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
Original	4/11/2012	Patsy Sadler	Initial Release
A	8/30/2012	Patsy Sadler	Remove Josh Stephens as an alternate EC
B	10/30/2013	Norman Kendrick	Revised to change logo; reflect changes in management
C	12/17/2013	Norman Kendrick	Revised to reflect changes in personnel
D	08/26/2015	Bob Parman	Revised to reflect changes in personnel
E	09/14/2015	Bob Parman	Revised to reflect changes in Incident Command Structure

SPILL CONTROL AND EMERGENCY RESPONSE EQUIPMENT

ITEM	TYPE/CAPACITY	LOCATION
Fire Extinguisher	ABC	Bldg. 126/ P-139
Eye wash	Portable Aquarion (yellow)	Bldg. 127
Gloves	Rubber/Leather	Bldg. 126 and Main Staging Area
Protective Clothing	Coveralls and/or Vinyl Splash Suits	Bldg. 126 and Main Staging Area
Eye Protection	Safety Glasses/Goggles	Bldg. 126
Sorbent Material	Clay Absorbent and/or Pigmats	Bldg. 126 and Main Staging Area
Shovel	Standard Square/Round	Bldg. 126, OBU, and Main Staging Area
Picks	NA	Bldg. 126
Recovery Drum	85 gal. poly or 55 gal. metal	Bldg. 126 and Main Staging Area
Plastic Sheeting	16 x 100 ft, 6 mil	Bldg. 126 and Main Staging Area
Shoe Covers	Rubber Booties	Bldg. 126 and Main Staging Area

NOTES:
NA = Not Applicable
***** = This equipment is moved to the area indicated during operation.

DESCRIPTION AND USES OF EMERGENCY EQUIPMENT

ITEM	USE/ DESCRIPTION
Gloves	The rubber or plastisol gloves are to be used when handling the solvents
Safety Glasses or Face Mask	Whichever is required is to be worn when loading or unloading hazardous material
Plastic Aprons	For situations where hazardous materials may get on the worker's clothing.
Eyewash Stands	To flush eyes of Contaminants/Workers should become familiar with its operation.
Showers	To rinse off workers body in the event it is exposed to hazardous materials.
Fire Extinguisher	An ABC extinguisher is a universal system used on paper, wood, and electrical, as well as solvent fires. The extinguishers must be full and carry an inspection tag.
Absorbent Material	For handling small spills
Portable Pump	Portable Pump For use in pumping up liquid spills in containment area, or other paved areas, and to transfer materials associated with a spill
Recovery Drum	Emergency storage of spilled product, cleaning fluids, or other material associated with a spill.
Sheet Plastic	To be used for containment of decontamination zones.
Duct Tape	Duct Tape For the taping of protective clothing, containment plastic and other miscellaneous uses.
First Aid	Treatment of minor first-aid needs and health problems.
Shovels and Mops	To be used to collect spills and spill residues.
Communication Equipment	Production area telephones with Intercom/paging/speaker systems are available in the supervisor's office. Two-way radios are also available for approved personnel.
Decontamination Equipment	Brushes, detergent and cloth rags are available for the decontamination of clean-up equipment and personnel.
Water Trucks	To be used by authorized personnel to fight fires on outside of buildings and to keep fire from spreading to other areas

Arrangements have been made with local authorities (Sheriff's Department, Fire Department, Division of Forestry, Taylor County Emergency Management and Doctors Memorial Hospital) for emergency response in the event of an incident where public health or the environment is threatened.

Chemring Ordnance

Emergency Contact Numbers

****NOT FOR DISTRIBUTION****

For situations that may occur when full management is not available on-site during the evening and weekend hours, facility security should **contact the people in the order indicated below.**

1)	Bruce Van Stratum	(850) 843-0985
2)	Keith Brooks	(850) 843-1792
3)	Jeanne Harden	(850) 295-4852

FOR SECURITY MATTERS (BREAK-IN, THEFT, OR DISTURBANCES) CALL:

1)	Sheriff (if threat warrants police assistance)	911
2)	Bruce Van Stratum	(850) 843-0985
3)	Jeanne Harden	(850) 295-4852

FOR FACILITY PROBLEMS CALL:

ELECTRICAL/EQUIPMENT:

1) Eric Bucklin (850) 843-1861

If you are unable to contact Eric Bucklin call:

2) Keith Brooks (850) 843-1792 or (850) 843-0494 or (850) 584-7841

PLUMBING/BUILDING DAMAGE:

1) Billy Joe Wigglesworth (850) 843-0856

If you are unable to contact Billy Joe Wigglesworth call:

2) Keith Brooks (850) 843-1792 or (850) 843-0494 or (850) 584-7841

TELEPHONE/NETWORK:

1) Tyson Hill (850) 295-2383

If you are unable to contact Tyson Hill call:

2) Jeanne Harden (850) 295-4852

If directed by Keith Brooks or in the event of emergency, call:

Fairpoint Communications	(850) 584-8611
Tri-County Electric	(850) 584-4639/3579
Florida State Division of Forestry	(850) 838-2299 or 911
Nation Response Center	(800) 424-8802
State Watch Center	(800) 320-0519 or (850) 413-9911
FDEP Northeast District	(904) 256-1700

UNANTICIPATED AFTER-HOUR AND WEEKEND DELIVERIES ARE NOT ALLOWED

During Emergency Response, use radio channel 1 for emergency contact, or dial 444 for emergency operator.

Appendix A
Letters to Local Authorities

Chemring
Ordnance

September 10, 2015

Certified Return Receipt # 70103090000170190211

Taylor County Emergency Management
591 E. US Hwy 27
Perry, FL 32347

RE: Contingency Plan for Chemring Ordnance, Inc., Perry, Taylor County Florida (Permit No: FLD 047966593)

Dear Sir or Madam:

Chemring Ordnance, Inc. (COR) submits the enclosed Contingency Plan for your information as required by the Resource Conservation and Recovery Act (RCRA), 40 CFR 264.53. The Contingency Plan has been revised due to personnel changes and the permit renewal process.

The plan pertains only to the Open Burn Unit and not to facility manufacturing operations. This plan describes the facility response in the event of an unplanned fire, explosion, or release of hazardous waste or hazardous waste constituents to the environment.

If you have questions regarding this matter or require more information, please call me at (850) 584-2634.

Sincerely,

Thomas Brown
Environmental Engineer
Chemring Ordnance
tbrown@chemringordnance.com

CC: Florida State Division of Forestry
Taylor County Sheriff's Department
Doctors Memorial Hospital
Taylor County Fire Rescue
Environmental Files 5.6.1

Chemring
Ordnance

September 10, 2015

Certified Return Receipt # 70103090000170190228

Doctors Memorial Hospital
333 N. Byron Butler Parkway
Perry, FL 32347

RE: Contingency Plan for Chemring Ordnance, Inc., Perry, Taylor County Florida (Permit No: FLD 047966593)

Dear Sir or Madam:

Chemring Ordnance, Inc. (COR) submits the enclosed Contingency Plan for your information as required by the Resource Conservation and Recovery Act (RCRA), 40 CFR 264.53. The Contingency Plan has been revised due to personnel changes and the permit renewal process.

The plan pertains only to the Open Burn Unit and not to facility manufacturing operations. This plan describes the facility response in the event of an unplanned fire, explosion, or release of hazardous waste or hazardous waste constituents to the environment.

If you have questions regarding this matter or require more information, please call me at (850) 584-2634.

Sincerely,

Thomas Brown
Environmental Engineer
Chemring Ordnance
tbrown@chemringordnance.com

CC: Florida State Division of Forestry
Taylor County Sheriff's Department
Taylor County Emergency Management
Taylor County Fire Rescue
Environmental Files 5.6.1

Chemring
Ordnance

September 10, 2015

Certified Return Receipt # 70103090000170190198

Taylor County Fire Rescue
501 Industrial Park Drive
Perry, FL 32348

RE: Contingency Plan for Chemring Ordnance, Inc., Perry, Taylor County Florida (Permit No: FLD 047966593)

Dear Sir or Madam:

Chemring Ordnance, Inc. (COR) submits the enclosed Contingency Plan for your information as required by the Resource Conservation and Recovery Act (RCRA), 40 CFR 264.53. The Contingency Plan has been revised due to personnel changes and the permit renewal process.

The plan pertains only to the Open Burn Unit and not to facility manufacturing operations. This plan describes the facility response in the event of an unplanned fire, explosion, or release of hazardous waste or hazardous waste constituents to the environment.

If you have questions regarding this matter or require more information, please call me at (850) 584-2634.

Sincerely,

Thomas Brown
Environmental Engineer
Chemring Ordnance
tbrown@chemringordnance.com

CC: Taylor County Sheriff's Department
Taylor County Emergency Management
Doctors Memorial Hospital
Florida State Division of Forestry
Environmental Files 5.6.1

Chemring
Ordnance

September 10, 2015

Certified Return Receipt # 70103090000170190204

Florida State Division of Forestry
618 Plantation Road
Perry, FL 32347

RE: Contingency Plan for Chemring Ordnance, Inc., Perry, Taylor County Florida (Permit No: FLD 047966593)

Dear Sir or Madam:

Chemring Ordnance, Inc. (COR) submits the enclosed Contingency Plan for your information as required by the Resource Conservation and Recovery Act (RCRA), 40 CFR 264.53. The Contingency Plan has been revised due to personnel changes and the permit renewal process.

The plan pertains only to the Open Burn Unit and not to facility manufacturing operations. This plan describes the facility response in the event of an unplanned fire, explosion, or release of hazardous waste or hazardous waste constituents to the environment.

If you have questions regarding this matter or require more information, please call me at (850) 584-2634.

Sincerely,

Thomas Brown
Environmental Engineer
Chemring Ordnance
tbrown@chemringordnance.com

CC: Taylor County Sheriff's Department
Taylor County Emergency Management
Doctors Memorial Hospital
Taylor County Fire Rescue
Environmental Files 5.6.1

Chemring
Ordnance

September 10, 2015

Certified Return Receipt # 70103090000170190235

Taylor County Sheriff's Department
108 North Jefferson Street
Perry, FL 32347

RE: Contingency Plan for Chemring Ordnance, Inc., Perry, Taylor County Florida (Permit No: FLD 047966593)

Dear Sir or Madam:

Chemring Ordnance, Inc. (COR) submits the enclosed Contingency Plan for your information as required by the Resource Conservation and Recovery Act (RCRA), 40 CFR 264.53. The Contingency Plan has been revised due to personnel changes and the permit renewal process.

The plan pertains only to the Open Burn Unit and not to facility manufacturing operations. This plan describes the facility response in the event of an unplanned fire, explosion, or release of hazardous waste or hazardous waste constituents to the environment.

If you have questions regarding this matter or require more information, please call me at (850) 584-2634.

Sincerely,

Thomas Brown
Environmental Engineer
Chemring Ordnance
tbrown@chemringordnance.com

CC: Florida State Division of Forestry
Taylor County Emergency Management
Doctors Memorial Hospital
Taylor County Fire Rescue
Environmental Files 5.6.1

Appendix B
SOP ENV-GEN-010
"Reporting Spills or Releases of Hazardous Substances, Petroleum, or Hazardous Waste"

Chemring Ordnance	**PROCEDURE**	NUMBER Rev DATE **ENV-GEN-010** E **10/30/13** Page 1 of 5
		AUTHOR: **Patsy Sadler** Environmental Assistant Manager
TITLE REPORTING SPILLS OR RELEASES OF HAZARDOUS SUBSTANCES, PETROLEUM OR HAZARDOUS WASTE		APPROVED: *Norman Kendrick* Director of HSSE

1. PURPOSE:

This procedure describes the immediate action and appropriate reporting requirements that must be completed whenever a hazardous substance, petroleum product, or hazardous waste is spilled/released into the environment.

2. SCOPE:

This procedure applies to all spills/releases of hazardous substances, petroleum products, and/or hazardous wastes as defined in Section 4 of this procedure.

3. REFERENCES:

40 CFR 300-399 CERCLA/SUPERFUND/SARA Title III

4. DEFINITIONS:

4.1 Spill/Release - any discharge of a hazardous substance, petroleum product, or hazardous waste to the environment.

4.2 Hazardous Substance - any substance, including radionuclides, designated by the Environmental Protection Agency (EPA) to be reported if a designated quantity (Reportable Quantity "RQ") of the substance is spilled/released into the environment.

4.3 Environment - navigable waters, surface waters (including storm sewers), groundwater, drinking water supply, land surface or subsurface strata, or ambient air. [NOTE: Spills/Releases to containment structures are not considered to be "to the environment." Only that quantity which volatilizes into the air or leaks to the ground or water is considered spilled/released to the environment.]

4.4 Petroleum Spill/Release - a petroleum spill/release of any quantity must be reported if it reaches the waters of the State (e.g., storm sewers, streams, rivers, lakes).

4.5 Reportable Quantity (RQ) - the quantity of a hazardous substance that triggers reporting requirements under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

5. RESPONSIBILITIES:

5.1 COR is required by law to immediately report spill/releases that exceed the RQ to appropriate agencies.

5.2 The Production Supervisor's, or designee's, responsibilities are as follows: Contacting the Environmental Manager and /or Environmental Assistant Manager for all spills/releases and completing form COR-ENV-F005 in pen for all spills/releases.

5.3 The Environmental Manager and /or Environmental Assistant Manager's responsibilities are as follows: Receive/review the spill/release information from the Production Supervisor, or designee; provide guidance on cleanup, containment techniques, and waste characterization/disposal; determine if and to what extent the spill/release is reportable; and continue consultation, guidance, and follow-up to assist in ensuring that regulatory requirements are met.

5.4 Ensure the COR Spill Response Team is adequately trained to respond to all spills/releases.

5.5 This procedure shall be completed for each spill/release.

6. PROCEDURE:

6.1 Spill Cleanup: Responses to spills/releases where there is no safety or health hazard may be conducted under the supervision of the appropriate Production Group. **All other spills are to be handled by the Spill Response Team.**

6.2 The Primary or Alternate Emergency Coodinators should be notified, as appropriate, upon identification of a spill/release.

6.3 Follow the appropriate safety precautions for the area in which the spill/release has occurred. Depending upon the type of material, obtain additional information from: Material Safety Data Sheets (MSDS), Process Knowledge, Environmental/Safety Managers, and/or the Environmental/Safety Assistant Managers.

6.4 Enter "NA" on form COR-ENV-F005 if a step does not apply.

6.5 Upon discovery of a spill/release the employee shall promptly call "444" and identify the situation to the operator, find their immediate supervisor, and take the below actions, as appropriate, (Stop/Warn/Isolate/Minimize - SWIM):

Stop, work, and evaluate the spill/release: warn others; isolate the area, keep non-essential employees away; **Spill Response Team** will minimize exposure (e.g., shut off flow to the facility and contain release using sandbags, shovels and dirt).

6.6 Enter the following spill/release information on form COR-ENV-F005.

6.6.1 The date and time of the spill/release.

6.6.2 Identitification of material spilled/released.

6.6.3 Chemical Abstract Service (CAS) Number, if applicable.

6.6.4 Quantity of material spilled/released, how this was determined, RQ exceeded, and name of individual verifying quantity.

6.6.5 The area in which the spill/release occurred (e.g., immediately east of and adjacent to Building 2 Automotive Bay).

6.6.6 Weather conditions during the spill/release.

6.6.7 The direction and distance of flow, if applicable.

6.6.8 Time interval/duration of spill/release.

6.6.9 Time interval/duration of spill/release.

6.6.10 Containment method used, if applicable.

6.6.11 Cleanup method used.

6.6.12 Characterization of waste for disposal purposes.

6.6.13 Description and probable cause of spill/release (e.g., human error, equipment failure, etc.).

6.6.14 Name of initial individual reporting spill/release.

6.6.15 Name of individual completing form.

6.6.16 Date and time of report completion.

6.6.17 Names, phone numbers, date, and time of any individuals or agencies notified.

7. RECORDS:

7.1 Training record: Personnel responding to a spill/leak must have at a minimum, completed basic RCRA, HAZWOPER "Awareness Level" and Contingency Plan training prior to responding.

7.2 Form COR-ENV-F005 will become a lifetime record when completed.

8. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
A	4-9-03	Dale Krejcar	This procedure has been revised to conform to current MEI's procedure format
B	3-31-10	Dale Krejcar	This procedure has been reviewed, Dale Krejcar title changed to Director of Operations; new logo added; added Environmental Assistant Manager to Author title; Changed the wording from Environmental Manager to Environmental Assistant Manager to 5.2, 5.3 and attachment 1.
C	11-2-10	Lucky Vostrirancky	Revised to change company name/Logo
D	7-24-12	Scott Thomas	Revised to change VP of Operations name and add new logo.
E	10/30/13	Norman Kendrick	Revised to change logo; reflect changes in management

9. APPENDIX:

NA

CHEMRING ORDNANCE, INC.

Training Certification Report Form

Location of Meeting:	Date
Name of Trainer:	
Topic of Meeting:	
Description of Meeting Contents;	

PRINT NAME	**SIGN NAME**

Note: See HR form for current revision

Appendix C
SOP ENV-GEN-001
"Training on New or Revised Environmental Procedures"

Chemring Ordnance	**PROCEDURE**	NUMBER **ENV-GEN-002** Rev **E** DATE **10/30/13** Page 1 of 4
		AUTHOR: **Patsy Sadler** Environmental Assistant Manager
TITLE ENVIRONMENTAL TRAINING PROGRAM		APPROVED: *Norman Kendrick* Director of HSSE

1. **PURPOSE:**

   To establish the requirements and responsibilities for training personnel on environmental rules and regulations compliance, new or revised environmental procedures.

2. **SCOPE:**

   This procedure applies to all facility personnel who require environmental training or who work around hazardous materials.

3. **REFERENCES:**

   40 CFR 265.16 & 264.16

   29 CFR 1910.120

   29 CFR 1910.1200

   49 CFR 173.1

   HR-FO46

4. **DEFINITIONS:**

   Department of Transportation (DOT)--The U.S. regulatory agency assigned responsibility for ensuring the safe transportation of hazardous materials.

   Environmental Protection Agency (EPA)--The U.S. regulatory agency assigned responsibility for protection of the environment.

   Hazardous Materials (HAZMAT) Employees--Those employees who load, unload or prepare hazardous materials for transportation or are directly responsible for associated paperwork.

   Hazardous Waste Operations & Emergency Response (HAZWOPER) - Emergency responders who would perform emergency response procedures; hazard identifications; decontamination procedures for spills.

   Occupational Safety & Health Administration (OSHA)--The U.S. regulatory agency assigned responsibility for employee safety.

   Resource Conservation & Recovery Act (RCRA)--The body of environmental regulations describing hazardous waste and associated management requirements.

Treatment, Storage, and/or Disposal Facility (TSDF)--A hazardous waste facility assigned a RCRA permit.

Hazardous Communication Standard (HAZCOM)--OSHA standard on employees' right to know about the chemicals with which they are working.

ISO Environmental Management System (ISO EMS) -- provides an overview of the organization, practices and procedures for implementing Chemring Ordnance (COR) Environmental Policy in accordance with ISO 14001:2004.

5. RESPONSIBILITIES:

Management/Supervision is responsible for ensuring employees receive the appropriate environmental training and for ensuring that their employees attend identified environmental training.

Personnel working with hazardous waste shall receive general RCRA training before working unsupervised with hazardous waste [Note: COR takes the proactive approach requiring all facility personnel to receive performance based general RCRA training.]

Personnel working at a RCRA Staging Area or RCRA permitted TSDF, and that performing security duty (i.e., security inspectors) shall receive RCRA Contingency Plan training prior to working at these facilities.

Personnel working at a RCRA TSDF, and those who are designated to respond to facility emergencies, shall receive HAZWOPER Responder 24 Hour training. This training shall be received prior to working unsupervised at the TSDF. Thereafter, 8 hour refreshers will be required every 12 months.

All facility personnel shall receive HAZWOPER "Awareness" Level training and yearly refreshers.

All facility personnel shall receive HAZCOM Standard information and yearly refreshers.

All facility personnel shall receive ISO EMS "Awareness" training and yearly refreshers.

Personnel meeting the definition of a HAZMAT employee shall receive HAZMAT training every 36 months.

6. PROCEDURE:

6.1 Management/Supervision is responsible for identifying those employees who require environmental training. Training on new or revised environmental procedures may be to review the procedure or procedure changes with guidance from supervisor, if needed.

6.2 Training Overview

6.2.1 General RCRA Performance Based Training consist of the following: Regulatory overview: Training requirement; definitions of solid waste; definitions of chacteristic and listed waste with examples; accumulation and mangement requirements; contingency plan implementation and management requirements; waste minimization requirements.

6.2.2 RCRA Contingency Plan Training covers site specific contingency plan and is a proctored training session with a question and answer period.

6.2.3 HAZWOPER 24 Hour Training is an off-site performance based training

6.2.4 HAZWOPER 8 Hour Refresher training consists of the following: site specific emergency response procedures; hazard identifications; decontamination procedures; practical exercises.

6.2.5 OSHA Awareness Level Training consists of the following: Regulatory overview/safety procedures; use and storage of flammable liquids, solvent and corrisives; identification/risks of hazardous materials; duties/responsibilities associated with "Awareness Level" training; personal protective equipment.

6.2.6 HAZMAT Performance Based Training consists of the following: Identification of hazardous materials; hazardous materials regulations; hazard classes; marking/labeling/placarding; loading/unloading hazardous materials; shipping papers and proper shipping names; emergency response procedures.

6.2.7 ISO EMS Awareness Level training consists of the following: The Environmental Policy Statement; the importance of conformance with the environmental policy and procedures; the potential consequences of EMS non-conformance; individual roles and responsibilities in achieving conformance with procedures; the significant environmental aspects associated with work activities and the environmental benefits.

6.3 When a new or revised Environmental procedure is issued, The Environmental Manager or a designee will send out a notification letter to all supervision. The letter will include the procedure title, the procedure number, revision number, and effective date.

7. RECORDS:

Environmental training on new and revised procedures using form number HR-FO46 shall be maintained in Human Resources in accordance with COR's "Retention Policy"

8. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
A	4-7-03	*Dale Krejcar*	This procedure has been revised to conform to current MEI's procedure format
B	3-31-09	*Dale Krejcar*	This procedure has been reviewed, Dale Krejcar title changed to Director of Operations; new logo added; added Environmental Assistant Manager to Author title

C	11-1-10	*Lucky Vostrirancky*	Revised to change company logo, add ISO EMS definitions and training
D	7-24-12	***Scott Thomas***	Revised to change VP of Operations name and add new logo.
E	10/30/13	*Margie E. Sleigher*	Revised to change logo; reflect changes in management; added section 6.3 added Form number HR-FO-46 to section 7.

CHEMRING ORDNANCE, INC.

Training Certification Report Form

Location of Meeting:	Date
Name of Trainer:	
Topic of Meeting:	
Description of Meeting Contents;	

PRINT NAME	**SIGN NAME**

Note: See HR form for current revision

Subattachment II.A.4.e-1
Job Descriptions for Employees Who May Manage or Handle Hazardous Wastes

Chemring Ordnance

Job Title: **Engineering & Facilities Manager**

Department: **Engineering**

Reports to: **VP of Operations**

EEO Category: **Mid Officials and Managers**

FLSA Code: **Exempt**

JOB SUMMARY: The Engineering Manager plans, directs, and manages all aspects of product, design, support and facilities engineering activities.

ESSENTIAL JOB FUNCTIONS:

1. Ensures all engineering projects, initiatives, and processes are in conformance with established policies and objectives.
2. Manage the daily engineering activities in support of on-going production programs
3. Coordinate with the Programs to ensure engineering support of special initiatives and/or new production programs are scheduled appropriately
4. Support the Program Managers through management of engineering resources to meet Plant goals
5. Support Quality Engineering as required through their preparation of FEMA's and/or failure analyses
6. Represent Engineering Department at meetings with customers and management
7. Manage engineering resources in support of bid and proposal activities.
8. Maintain good employee relations, and adherence to Affirmative Action Plan, Labor Laws, and EEO rules and regulations
9. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. Bachelor's Degree in technical or scientific discipline
2. Good communication skills, both oral and written
3. Ability to establish credibility and be decisive
4. Good organizational skills
5. Ability to lead and develop others
6. Ability to follow projects through to completion
7. Results oriented
8. Strong project management skills
9. Design/process change knowledge and experience

10. Mechanical knowledge in the design and fabrication of assembly tooling/automated equipment using CAD/CAM desirable
11. Working knowledge in using PLC programming; specifically for diagnostic trouble shooting desirable
12. Minimum of five years engineering and manufacturing management experience

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must not be color blind
4. Must have no known hearing loss
5. Must be able to stand/sit/walk for prolonged periods of time
6. Must be able to travel
7. Must have stamina to work more than the scheduled workday when needed
8. Must be able to pick up, handle, and otherwise work paper
9. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary

TRAINING:

1. Safety Orientation
2. HAZWOPPER Aware/Right to Know/RCRA 1 (annually)
3. Annual Drug and Alcohol Awareness
4. Annual Ethics Refresher

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Job Title: **Environmental Assistant Manager**

Department: **HSE**

Reports to: **Director of HSE**

EEO Category: **1st Officials & Managers**

FLSA Code: **Exempt**

JOB SUMMARY: The Environmental Assistant Manager will identify, assess and resolve problems concerning COR's environment and manage the environmental team.

ESSENTIAL JOB FUNCTIONS:

1. Perform weekly walk through of operating lines to assist in Environmental/Safety concerns
2. Ensure proper management of non-reactive waste drums, including packaging, labeling, segregation and temporary storage
3. Administer the manifesting and transporting hazardous and non-hazardous waste, and coordinate empty drum pickup including loading/unloading empty drums
4. Coordinate preparation of daily, weekly, and monthly environmental reports and forms and maintain all records
5. Schedule pickups as needed for wastewater, facility waste streams and recyclable materials
6. Schedule OBU and IWTP ground water monitoring and OBU soil monitoring
7. Ensure compliance with Federal, State and local regulations pertaining to Environmental; representing the company in all contact with regulatory agencies
8. Stay current with changes with safety and environmental laws and keep the company in compliance with all city and state and federal regulations including keeping permits current and keep supervisors and managers current as the changes relate to them
9. Establish COR environmental objectives and procedures with approval of the Director of HSE
10. Maintain good employee relations, and adhere to our Affirmative Action Plan, Labor laws and EEOC rules and regulations
11. Identify training needs (in accordance with company training policy and procedures) as it relates to Environmental
12. Update OBU staging area inventory
13. Clean out pipe, union and check valve at chlorine injection point and pull coliform samples
14. Represent the Safety and Health and Environmental departments in all meetings
15. Interface with Federal, State and local government/regulatory inspectors and insurance inspectors during inspections or audits of plant on Environmental issues

16. Perform regular inspections, determine corrective action or preventative measures where indicated and follows up to ensure implementation
17. Be involved with Chemical Handling, Hazardous Waste disposal and other programs
18. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. High school diploma or GED
2. Class C Drinking Water License (obtain within two years)
3. Good communication skills, both oral and written
4. Ability to establish credibility and be decisive
5. Demonstrated ability to supervise, develop and train others
6. Good organizational skills
7. Ability to be attentive to accuracy and detail
8. Good record keeping skills
9. Demonstrated dedication to HSE Procedures
10. Must be able to act responsibly and sensibly during stressful situations
11. Good interpersonal skills
12. Ability to follow projects through to completion
13. Ability to read
14. Technical knowledge of EPA regulatory requirements
15. At least three years related experience

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must not be color blind
4. Must have no known hearing loss
5. Must be able to stand/walk for prolonged periods of time
6. Must be able to sit
7. Must be able to travel
8. Must be able to endure sunshine and weather extremes
9. Must be able to endure fumes that are within OSHA accepted standards
10. Must have stamina to work more than the scheduled workday when needed, including nights and weekends
11. Must be able to lift up to 50 lbs.
12. Must be able to pick up, handle, and otherwise work paper
13. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary
14. Must be physically present during business hours

TRAINING:

1. Safety Orientation
2. HAZWOPPER Aware/Right to Know/RCRA 1 (annually)
3. 24 hour HAZWOPPER and then 8 hours per year
4. HAZMAT at least every 3 years
5. Annual Drug and Alcohol Awareness
6. Annual Ethics Refresher
7. Environmental training annually
8. Golf Cart Training
9. Forklift/tractor
10. Class D Drinking Water Operator class every two years

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Chemring Ordnance	**Revision History**	Rev A	DATE 01-15-15
		AUTHOR: **Page 1 of 1** *Margie E. Sleigher* HR Director	
TITLE	**Environmental Assistant Manager**		

Revision Level	Date	Approval	Description
Original	05-29-13	Margie E. Sleigher	Initial Release
A	01-15-15	Margie E. Sleigher	Added physically present during business hours

Job Title: **Environmental Engineer**

Department: **HSE**

Reports to: **Director of HSE**

EEO Category: **1st Officials & Managers**

FLSA Code: **Exempt**

JOB SUMMARY: The Environmental Engineer will identify, assess and resolve problems concerning COR's environment and manage the environmental team.

ESSENTIAL JOB FUNCTIONS:

1. Perform weekly walk through of operating lines to assist in environmental concerns
2. Ensure proper management of non-reactive waste drums, including packaging, labeling, segregation and temporary storage
3. Administer the manifesting and transporting hazardous and non-hazardous waste, and coordinate empty drum pickup including loading/unloading empty drums
4. Coordinate preparation of daily, weekly, and monthly environmental reports and forms and maintain all records
5. Schedule pickups as needed for wastewater, facility waste streams and recyclable materials
6. Conduct OBU and IWTP ground water monitoring and OBU soil monitoring
7. Maintain and improve ISO 14001 program, Storm Water Pollution Prevention Plan, Waste Minimization and Pollution Prevention Plan, RCRA Contingency Plan, and Used Oil Management program
8. Prepare state and federal reports such as but not limited to Storm Water Data, Industrial Waste Water Treatment Plant, Title V Emissions, and Toxic Release Inventory
9. Assist with Safety Data Sheet preparations
10. Ensure compliance with Federal, State and local regulations pertaining to Environmental; representing the company in all contact with regulatory agencies
11. Stay current with changes with environmental laws and keep the company in compliance with all city and state and federal regulations including keeping permits current and keep supervisors and managers current as the changes relate to them
12. Establish COR environmental objectives and procedures with approval of the Director of HSE
13. Maintain good employee relations, and adhere to our Affirmative Action Plan, Labor laws and EEOC rules and regulations
14. Identify, create, and improve training needs (in accordance with company training policy and procedures) as it relates to Environmental

15. Update OBU staging area inventory
16. Clean out pipe, union and check valve at chlorine injection point and pull coliform samples
17. Represent the Health, Safety, and Environmental Department in all meetings
18. Interface with Federal, State and local government/regulatory inspectors and insurance inspectors during inspections or audits of plant on Environmental issues
19. Perform regular inspections, determine corrective action or preventative measures where indicated and follows up to ensure implementation
20. Be involved with chemical handling, hazardous waste disposal and other programs
21. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. Bachelor of Science in Environmental Sciences, Geology, Hydrogeology, Engineering, or Chemistry
2. Minimum 3 years of experience in collecting environmental field data, writing technical reports, and implementing environmental compliance programs
3. Excellent communication skills, both oral and written
4. Ability to establish credibility and be decisive
5. Demonstrated ability to supervise, develop and train others
6. Excellent organizational skills
7. Ability to be attentive to accuracy and detail
8. Excellent record keeping skills
9. Demonstrate dedication to HSE Procedures
10. Must be able to act responsibly and sensibly during stressful situations
11. Good interpersonal skills
12. Ability to follow projects through to completion
13. Technical knowledge of EPA regulatory requirements

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must be able to stand/walk for prolonged periods of time
4. Must be able to sit
5. Must be able to travel
6. Must be able to endure sunshine and weather extremes
7. Must be able to endure fumes that are within OSHA accepted standards
8. Must have stamina to work more than the scheduled workday when needed, including nights and weekends
9. Must be able to lift up to 50 lbs.
10. Must be able to pick up, handle, and otherwise work paper

11. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary
12. Must be physically present during business hours

TRAINING:

1. Safety Orientation
2. RCRA for Hazardous Waste Generator and TSDF
3. Obtain and maintain Visible Emissions, EPA Method 9 certification
4. HAZWOPER Aware/Right to Know/RCRA 1 (annually)
5. 24 hour HAZWOPPER and then 8 hours per year
6. HAZMAT at least every 3 years
7. Class D Drinking Water Operator class every two years

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Chemring Ordnance	**Revision History**	**Origianl** DATE 06-09-15
		AUTHOR: **Page 1 of 1** *Bob Parman* HSE Director
TITLE	**Environmental Engineer**	

Revision Level	**Date**	**Approval**	**Description**
Original	06-09-15	Bob Parman	Initial Release

Job Title: **Environmental Specialist**

Department: **HSE**

Reports to: **Environmental Assistant Manager**

EEO Category: **Technicians**

FLSA Code: **Non-Exempt**

JOB SUMMARY: The Environmental Specialist will identify, assess and resolve problems concerning COR's environment.

ESSENTIAL JOB FUNCTIONS:

1. Perform weekly walk through of operating lines to assist in Environmental/Safety concerns
2. Ensure proper management of non-reactive waste drums, including packaging, labeling, segregation and temporary storage
3. Ensure compliance with Federal, State and local regulations pertaining to Environmental
4. Stay current with changes with safety and environmental laws and keep the company in compliance with all city and state and federal regulations including keeping permits current and keep supervisors and managers current as the changes relate to them
5. Clean out pipe, union and check valve at chlorine injection point and pull coliform samples
6. Flush hydrants and record
7. Operate facility wastewater water plants; including sampling, treatment, calibration and documentation requirements
8. Identify waste minimization activities
9. Perform regular inspections, determine corrective action or preventative measures where indicated and follows up to ensure implementation
10. Be involved with Chemical Handling, Hazardous Waste disposal and other programs
11. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. High school diploma or GED
2. Class C Drinking Water License (obtain within two years)
3. Class D Drinking Water License (obtain within two years)
4. Good communication skills, both oral and written
5. Ability to establish credibility and be decisive
6. Demonstrated ability to supervise, develop and train others
7. Good organizational skills

8. Ability to be attentive to accuracy and detail
9. Good record keeping skills
10. Demonstrated dedication to HSE Procedures
11. Must be able to act responsibly and sensibly during stressful situations
12. Good interpersonal skills
13. Ability to follow projects through to completion
14. Ability to read
15. Technical knowledge of EPA regulatory requirements
16. At least three years related experience

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must not be color blind
4. Must have no known hearing loss
5. Must be able to stand/walk for prolonged periods of time
6. Must be able to sit
7. Must be able to travel
8. Must be able to endure sunshine and weather extremes
9. Must be able to endure fumes that are within OSHA accepted standards
10. Must have stamina to work more than the scheduled workday when needed, including nights and weekends
11. Must be able to lift up to 50 lbs.
12. Must be able to pick up, handle, and otherwise work paper
13. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary

TRAINING:

1. Safety Orientation
2. HAZWOPPER Aware/Right to Know/RCRA 1 (annually)
3. 24 hour HAZWOPPER and then 8 hours per year
4. HAZMAT at least every 3 years
5. Annual Drug and Alcohol Awareness
6. Annual Ethics Refresher
7. Water well refresher every 2 years
8. Forklift/tractor
9. Wastewater treatment refresher every 2 years

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related

instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Chemring Ordnance	**Revision History**	Rev A	DATE 05-18-15
		AUTHOR: **Page 1 of 1** *Margie E. Sleigher* HR Director	
TITLE	**Environmental Specialist**		

Revision Level	Date	Approval	Description
Original	05-29-13	Margie E. Sleigher	Initial Release
A	05-18-15	Margie E. Sleigher	Removed duties that are no longer applicable

Job Title: **HSE Safety Coordinator**

Department: **HSE**

Reports to: **Director of HSE**

EEO Category: **Technician**

FLSA Code: **Exempt**

JOB SUMMARY: The HSE Safety Coordinator will be intimately involved in the design and development of, work areas and work procedures and makes environmental, health and safety recommendations accordingly

ESSENTIAL JOB FUNCTIONS:

1. Perform regular inspections, including decontamination and hot work inspections, determine corrective action or preventative measures where indicated and follow up to ensure implementation
2. Conduct incident investigations to develop root cause and corrective actions for all near miss and documented incidents
3. Understand accordingly DOD 4145 site safety plan as programs and processes are changed or added. Conduct regular DOD 4145 compliance audits
4. Attend required Process Hazard Analyses as required under the Process Safety Management Program
5. Review and approve production SOP's in relations to HSE
6. Ensure compliance with Federal, State and local regulations
7. Stay current with changes with safety, health and environmental laws and keep the company in compliance with all city and state and federal regulations and keep supervisors and managers current as the changes relate to them.
8. Stay current with recognized and generally accepted good engineering practices (RAGAGEP) such as but not limited to National Fire Protection Association (NFPA) and International Makers of Explosives (IME).
9. Establish COR HSE objectives and procedures with approval of the Director of HSE
10. Maintain good employee relations, and adhere to our Affirmative Action Plan, Labor laws and EEOC rules and regulations
11. Represent the Safety and Health and Environmental departments in all meetings as required
12. Maintain adherence to Company policies and procedures, safety and environmental standards, and good housekeeping practices

13. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. High School in related field
2. Good communication skills, both oral and written
3. Ability to establish credibility and be decisive
4. Good organizational skills
5. Ability to be attentive to accuracy and detail
6. Good record keeping skills
7. Demonstrated dedication to HSE Procedures
8. Must be able to act responsibly and sensibly during stressful situations
9. Good interpersonal skills
10. Ability to follow projects through to completion
11. Ability to read
12. Provide Guided Technical knowledge of OSHA rules and laws
13. At least three years related experience

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must not be color blind
4. Must have no known hearing loss
5. Must be able to stand/walk for prolonged periods of time
6. Must be able to sit
7. Must be able to travel
8. Must be able to endure sunshine and weather extremes
9. Must be able to endure fumes that are within OSHA accepted standards
10. Must have stamina to work more than the scheduled workday when needed, including nights and weekends
11. Must be able to pick up, handle, and otherwise work paper
12. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary

TRAINING:

1. Safety Orientation
2. HAZWOPPER Aware/Right to Know/RCRA 1 (annually)
3. Annual Drug and Alcohol Awareness
4. Annual Ethics Refresher
5. Golf Cart Training/Fork-Lift Train the trainer certifications

6. DOD 4145.26M
7. NFPA standards as needed such as 1, 51B, 70E, 101, 495, and 1124.

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Chemring Ordnance	**Revision History**	Rev A DATE 05-18-15
		AUTHOR: **Page 1 of 1** *Bob Parman* HSE Director
TITLE	**HSE Safety Coordinator**	

Revision Level	Date	Approval	Description
Original	07-01-14	Margie E. Sleigher	Initial Release
Revision A	05-18-15	Bob Parman	Added specific RAGAGEP and IME standards to remain current with. Added additional training to include NFPA standards as needed.

Job Title: **HSE Engineer**

Department: **HSE**

Reports to: **Director of HSE**

EEO Category: **Professional**

FLSA Code: **Exempt**

JOB SUMMARY: The HSE Engineer will be intimately involved in the design and development of facilities, work areas and work procedures and makes environmental, health and safety recommendations accordingly.

ESSENTIAL JOB FUNCTIONS:

1. Conduct incident investigations to develop root cause and corrective actions for all near miss and documented incidents
2. Understand and update DOD 4145 site safety plan as programs and processes are changed or added. Conduct regular compliance audits
3. Stay current with changes with OSHA Process Safety Management (PSM), ATF, DOD 4145.26M and Recognized and Generally Accepted Good Engineering Practices (RAGAGEP) such as but not limited to National Fire Protection Association (NFPA), American Society for Testing Materials (ASTM), International Makers of Explosives (IME), MIL-STD-398 and 882D, and EM 385-1-1 (Army Corps of Engineers Safety and Health Manual).
4. Lead the required Process Hazard Analyses as required under the Process Safety Management Program
5. Review and approve production SOP's in relations to PSM
6. Ensure compliance with OSHA Process Safety Management, DOD 4145.26M, and ATF regulatory agencies
7. Establish COR HSE objectives and procedures with approval of the Director of HSE
8. Maintain good employee relations, and adhere to our Affirmative Action Plan, Labor laws and EEOC rules and regulations
9. Represent the Safety and Health and Environmental departments in all meetings as required
10. Maintain adherence to Company policies and procedures, safety and environmental standards, and good housekeeping practices
11. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. Bachelor's degree in related field
2. Good communication skills, both oral and written
3. Ability to establish credibility and be decisive
4. Demonstrated ability to supervise, develop and train others
5. Good organizational skills
6. Ability to be attentive to accuracy and detail
7. Good record keeping skills
8. Demonstrated dedication to HSE Procedures
9. Must be able to act responsibly and sensibly during stressful situations
10. Good interpersonal skills
11. Ability to follow projects through to completion
12. Ability to read
13. Technical knowledge of OSHA rules and laws
14. At least three years related experience

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must not be color blind
4. Must have no known hearing loss
5. Must be able to stand/walk for prolonged periods of time
6. Must be able to sit
7. Must be able to travel
8. Must be able to endure sunshine and weather extremes
9. Must be able to endure fumes that are within OSHA accepted standards
10. Must have stamina to work more than the scheduled workday when needed, including nights and weekends
11. Must be able to pick up, handle, and otherwise work paper
12. Must be physically present at work during business hours
13. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary

TRAINING:

1. Safety Orientation
2. HAZWOPPER Aware/Right to Know/RCRA 1 (annually)
3. Annual Drug and Alcohol Awareness
4. Annual Ethics Refresher

5. Golf Cart Training
6. Forklift Train the Trainer Certification
7. DOD 4145.26M
8. Process hazards analyses, specifically Failure Modes and Effects Analysis (FMEA)
9. Sensitivity and reactivity testing of energetics

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Chemring Ordnance	**Revision History**	Rev C	DATE 05-18-15
		AUTHOR: *Bob Parman* HSE Director	**Page 1 of 1**

TITLE **HSE Engineer**

Revision Level	Date	Approval	Description
Original	05-29-13	Margie E. Sleigher	Initial Release
Revision A	06-18-14	Margie E. Sleigher	Added forklift train the trainer certification training and understand DOD 4145
Revision B	01-15-15	Margie E. Sleigher	Added physically present during business hours
Revision C	05-18-15	Bob Parman	Added specific regulatory citations to remain current with DOD 4145.26M, OSHA PSM, ATF, and RAGAGEP. Added additional training to include DOD 4145.26M, FMEAs, and sensitivity and reactivity testing for energetics.

Chemring Ordnance

Job Classification: Powder Blender I-VI

Department: Energetics

Reports to: Energetics Supervisor

Labor Grades: 05 to I

Job Summary: The Powder Blender will blend, test, and deliver pyrotechnic compositions. Will require working with onsite equipment.

ESSENTIAL JOB FUNCTIONS:

1. In accordance with current work instruction for assigned program(s)
2. Other duties as assigned

KNOWLEDGE AND SKILLS:

1. High School diploma or GED
2. Good communication skills, both oral and written
3. Good organizational skills
4. Ability to be attentive to accuracy and detail
5. Good record keeping skills
6. Demonstrated dedication to Safety Procedures
7. Knowledge of safety procedures when working with primary explosives
8. Must be able to read scales
9. Must be able to act responsibly and sensibly during stressful situations
10. Ability to follow projects through to completion
11. Ability to read and follow instructions carefully
12. Must have 12th grade math skills, including metrics system
13. Must have the ability to perform a wide variety of duties with minimal supervision
14. Must be able to work in team environment
15. Must have predictable onsite attendance

PHYSICAL REQUIREMENTS AND WORK ENVIRONMENT:

1. Must submit to and pass a drug test pursuant to Company Drug-Free Workplace Policy which includes random testing
2. Must have good vision (may be corrected)
3. Must not be color blind
4. Must have no known hearing loss
5. Must be able to stand/walk for prolonged periods of time

6. Must be able to bend and stoop during most of the scheduled workday
7. Must be able to travel off site for training
8. Must be able to drive a golf cart or truck
9. Must be able to endure sunshine, temperature and weather extremes
10. Must be able to endure fumes that are within OSHA accepted standards
11. Must be able to ensure wearing a respirator
12. Must have stamina to work more than the scheduled workday when needed; including nights and weekends
13. The noise level in the work environment is usually moderate (<85 dBA), however in some instances this job may require work in areas where ear protection is necessary
14. Must not have a history of allergies
15. Manual dexterity, must have steady hands
16. Must be able to lift up to 50lbs and have the stamina to lift up to 50lbs most of the scheduled workday; roll a drum up to 150 pounds and to move 300 pound drums with drum dolly

TRAINING:

1. Safety Orientation
2. Departmental Training

This job description in no way states or implies that these are the only duties to be performed by the employee(s) incumbent in this position. Employees will be required to follow any other job- related instructions and to perform any other job-related duties requested by any person authorized to give instructions or assignments. All duties and responsibilities are essential functions and requirements and are subject to possible modification to reasonably accommodate individuals with disabilities. To perform this job successfully, the incumbent will possess the skills, aptitudes and abilities to perform each duty proficiently. Some requirements may exclude individuals who pose a direct threat or significant risk to the health or safety of themselves or others. The requirements listed in this document are the minimum levels of knowledge, skills or abilities required. This document does not create an employment contract, implied or otherwise, other than an “at will” relationship.

Chemring Ordnance	**Revision History**	Rev	DATE 04-19-13
		AUTHOR: *Margie E. Sleigher* HR Director	**Page 1 of 1**
TITLE	**Powder Blender**		

Revision Level	Date	Approval	Description
Original	4-19-13	Margie E. Sleigher	Initial Release

Subattachment II.A.4.e-2
Open Burn Unit Safety and Health Program

CHEMRING ORDNANCE INC. (COR) OPEN BURN UNIT (OBU) SAFETY & HEALTH PROGRAM [OSHA 1910.120(p)(7)]

Purpose

The COR OBU is a Resource Conservation and Recovery Act (RCRA) permitted Treatment, Storage, and Disposal Facility (TSDF) for the thermal treatment of up to five hundred (500) pounds of reactive hazardous waste per day (Monday - Friday). This facility is regulated under 40 CFR Part 264. The Occupational Safety & Health Act (OSHA) regulates employee exposure to safety and health hazards at this facility. 29 CFR 1910.120(p)(7) of OSHA requires TSDF to implement a Safety & Health plan.

Scope

This program is designed to protect employees involved in hazardous waste operations and is available for inspection by employees, sub-contractors, and to personnel representing authorized regulatory agencies. This program is to be maintained in Buildings 12, 2, 20 and 1B. COR has policies and procedures in place, which identify, evaluate, and control safety and health hazards.

Application

The OBU is constructed of a 6" thick by 75' x 105' continuous monolithic 3000 psi concrete containment pad with an 8" high berm along the perimeter. The concrete surface of the containment pad is coated with a chemical and heat resistant sealant. Four 6" thick reinforced 3000 psi concrete burn pads with dimensions of 15'x 30' with a 8" high berm along the perimeter are constructed on top of the containment pad.

Wastes are burned within elevated metal burn pans, troughs, and/or burn cages. The pans and troughs are constructed of Cold Rolled Steel; burn cages are constructed of expandable metal. The maximum inventory of primarily reactive wastes ever on-site over the active life of the facility is typically 2,500 lbs. At a minimum, the operating procedures currently in use will be utilized at the OBU. Waste residues resulting from thermal treatment activities will be properly characterized, in accordance with State and Federal regulations, and disposed of accordingly. Wastes thermally treated include D003 pyrotechnic powder/composite/industrial materials wastes, D003 pyrotechnic powder/composite/industrial materials that may contain characteristic/listed hazardous wastes (i.e., D001, D005, D006, D007, D008, F002, F003, F005, F006).

Organizational Structure

The following establishes the overall responsibilities of COR supervisors, operators, and support personnel.

> [NOTE: The COR Outside Fire Response Team (OFR TEAM) is the primary responsible organization for responding to OBU emergencies. Personnel listed below in addition to OFR Team personnel will assist as requested by the OFR Team Leader. Key personnel are

Loss Prevention (Safety & Health Manager)	B. Parman
OBU Supervisor	G. Rykard
OFR Team Leader (HAZWOPER Team Leader)	G. Rykard
OFR Team	C. Harrell M. Ingels A. Poppell J. Blaske
OBU Operators	M. Ingles J. Blaske A. Poppell
Environmental & Safety Group	T. Brown T. Sutterfield C. Harrell T. Morgan C. Webley

* This organizational structure will be reviewed and updated as necessary.

OBU Supervisor Responsibilities

- Assure the safety of operators and other personnel at the OBU
- Assure all jobs are carried out in an environmentally safe manner in accordance with applicable procedures and the RCRA Permit
- Accept hazardous waste transfers from production
- Initiate notification and assist OFR Team as necessary, for emergency spill response and mitigation activities
- Report all spills per SOP ENV-GEN-010 "Reporting Spills or Releases of Hazardous Substances, Petroleum, or Hazardous Waste"

- Revise, review/field check, and follow-up on all new procedures and procedure revisions per COR SOP ENV-GEN-001 "Training on New and Revised Environmental Procedures"

OBU Operator Responsibilities

- Follow all procedures as directed by Supervision
- Accept hazardous waste transfers from production
- Assist OFR TEAM, as necessary, for emergency spill response and mitigation activities
- Conduct regular inspections of the OBU and associated Staging Areas
- Maintain job qualifications

Loss Prevention (Safety & Health) Responsibilities

- Identify and evaluate occupational stresses
- Perform employee exposure monitoring when indicated/requested
- Make final determination of those employees who should be followed in a Hazardous Waste Worker Medical Surveillance Program
- Provide assistance, as necessary, for emergency spill response and mitigation activities
- Provide guidance and counsel relative to elements contained within this program
- Provide or assist in providing information/training on this Program to employees

Environmental Responsibilities

- Report applicable incidents to the appropriate agencies
- Provide environmental compliance oversight
- Provide assistance, as necessary, for emergency spill response and mitigation activities

- Provide guidance and counsel relative to elements contained within this program
- Provide or assist in providing information/training on this Program to employees

OFR Team Leaders Responsibilities

- Coordinate emergency response and mitigation activities
- Direct all emergency response and mitigation activities
- Assume HAZWOPER Team Leader position
- Ensure OFR Team personnel are properly trained
- Provide guidance and counsel relative to elements contained within this Program
- Report all spills per COR SOP ENV-GEN-010 "Reporting Spills or Releases of Hazardous Substances, Petroleum, or Hazardous Waste"

OFR Team Responsibilities

- Respond to emergencies and mitigate incident
- Follow all procedures as directed by the OFR Team Leader
- Ensure training is up to date

PROGRAM ELEMENTS

Safety and Health

COR policy is to maintain each employee's exposure to chemical, physical, and biological agents below the regulatory established limits. This is accomplished through the use of effective control measures, personnel training, and the employee hazard communication program. Each employee is responsible for knowing and strictly following the control measures applicable to each job for minimizing exposures. In addition, each employee is expected to review the potential hazards of the job before proceeding.

Site Excavation

COR requires a Maintenance Service Request form to be completed prior to excavation activities. Any earth excavations deeper than four (4) feet must be sloped or shored per OSHA

requirements. The Maintenance Manager is responsible for ensuring that a review of the

proposed project is performed prior to initiating the project activity. Engineering, Safety, and Environmental are consulted as necessary.

Sub-Contractors

The Maintenance Manager is responsible for arranging orientations, as necessary, with sub-contractor personnel prior to allowing sub-contractors to perform work at the OBU.
Emergency procedures, this Health & Safety Plan, and any potential hazards associated within the area is outlined prior to the start of any work. Sub-Contractors are required to be properly trained in 29 CFR 1910.120 (p)(7) prior to working at this facility.

Hazard Communications

The COR Hazard Communication Program ensures that the hazards associated with those chemicals used at the OBU and those stored therein are properly evaluated. The appropriate hazards are then effectively communicated to both the employer, the employee and sub-contractors by various methods. The Hazard Communication Program is broken down into three (3) major components. A brief description of each follows:

1) Material Safety Data Sheets (MSDS) are maintained for all hazardous chemicals in the workplace. They are used as the primary source of safety and health information. Personnel review the MSDSs before handling/working with the hazardous substance.

2) The Labeling Program requires that all hazardous chemicals in the workplace be labeled with the correct chemical name and hazard warning. The National Fire Protection Association (NFPA) labeling system is used for container and tank labeling. It addresses exposure, flammability, reactivity and any special related hazards.

3) Hazard Communication Training is required for all employees and provides information that informs employees of the hazards associated with their jobs. This enables them to safely perform their assignments. Training is required at the time of assignment and when a new hazard is introduced into the area. Training is repeated annually and documented.

Medical Surveillance

The COR Medical Program ensures that OBU personnel receive timely medical examinations by licensed personnel. The examinations are provided at no cost to the employees. Examinations are provided at the time of assignment, periodically (dependent upon work assignment), and upon employee request. Employees are given a baseline history workup at the time of the first examination. The initial examination consists of; vision tests, hearing tests, blood pressure, pulse, height, weight, blood (dependent upon work assignment), urine workup, and pulmonary tests for personnel respirator clearance. Employees are provided with the results immediately upon examination and with blood work analysis.

Decontamination

Decontamination activities are performed by HAZWOPER trained individuals in controlled areas. This is to contain contamination and to minimize or prevent the exposure to uncontaminated employees and equipment. If any deficiencies occur, during decontamination, steps are taken to immediately correct them. Contaminated materials are treated as a controlled item until decontaminated. If contaminated materials cannot be successfully decontaminated then they are managed accordingly.

New Technology

The COR New Technology Program assures that only safe and effective equipment and procedures are used. This provides for the protection of employees working with hazardous waste. This program is designed to control the quality of site material/equipment and further prevents the use of unacceptable material/equipment. Only those materials/equipment, which successfully pass the Quality Control review, are accepted for use at COR. First issue procedures and subsequent revisions are also required to pass reviews from Quality Control, Safety, Engineering, and Environmental.

Materials Handling

The prevention of chemical spills is a main objective within the OBU. This is accomplished by limiting the amount of material treated/stored within the area, periodically inspecting storage areas, and annually training personnel in spill response. Personnel are trained annually in spill control techniques including the proper use of facility spill control/emergency equipment. A spill control unit is stationed near the OBU and is inspected monthly. In the event of a spill, SOP GEN-010 "Reporting Spills or Releases of Hazardous Substances, Petroleum, or Hazardous Waste" is implemented. If necessary, the OBU Contingency Plan is also implemented.

The COR OFR Team is contacted immediately and responds accordingly. OBU operations and procedures provide for the safe and proper handling of hazardous materials in accordance with existing State and Federal regulations. Hazardous wastes are retained in separate RCRA Staging Areas sufficiently distanced from OBU operations.

The OBU is inspected weekly and after thermal treatment operations. An individual who possesses a current Blaster's Permit issued by the State Fire Marshall's Office and per State approved procedures conducts thermal treatment. The procedures are reviewed and signed by the responsible supervisor upon procedure completion and retained per the retention schedule. The Loss Prevention (Safety & Health) Manager provides guidance on necessary Personnel Protective Equipment (PPE) that is to be used. Air monitoring is conducted per the requirements outlined within the RCRA permit. MEI maintains knowledgeable personnel who are thoroughly familiar with all Department of Transportation (DOT) regulations, including the proper packaging, handling, shipping, and storage of hazardous materials.

Training

The OBU Training program is designed so that employees can perform their assigned duties and function in a safe and healthy manner. This training, among others, is designed to protect themselves, fellow employees, and the environment. Facility personnel are required to complete this training. The initial training courses and a brief description are listed below. Copies of documentation certifying all training are maintained in the COR Personnel office.

COURSES

General RCRA Training

RCRA Training is a performance based program and includes; identification and proper management of hazardous wastes, requirements for hazardous waste generators, contingency plan requirements and implementation, and waste minimization requirements.

OSHA HAZWOPER Awareness Level Training

OSHA Awareness Level Training includes; recognizing and identifying hazardous materials, risks associated with hazardous materials, applicable Federal regulations, duties associated with awareness level training, and emergency response procedures.

Hazard Communication/Safety Training

Hazard Communication Training provides information which; informs employees of hazards associated with their job, identifying hazardous facility operations, and facility safety requirements.

Respirator Training

Respirator Training provides a cardio-pulmonary screening as well as the proper selection and use of facility respirators. This training class also utilizes a practical respirator fit testing exercise.

HAZWOPER Training

HAZWOPER Training is an in-depth twenty-four hour program designed to meet 29 CFR 1910.120(p)(7) requirements. This training includes; spill control techniques, PPE selection and proper operation, occupational health, decontamination procedures, and emergency response techniques and implementation.

HAZWOPER Annual Re-Fresher Training

HAZWOPER Re-Fresher Training consists of an eight-hour review/update and as a supplement

to the initial twenty-four hour course.

OBU Contingency Plan Review

Contingency Plan Training is a self-paced required reading session utilizing the specific OBU Contingency Plan. Supervisors are responsible for ensuring personnel working at OBU read this plan.

Safety & Health Plan Review

The Safety & Health Plan Training course is a self-paced required reading session utilizing the specific OBU Safety & Health Plan. Supervisors are responsible for ensuring personnel working at OBU read this plan.

Emergency Response

The OBU Emergency Response Program is comprised of the OBU Contingency Plan. The OBU Contingency Plan defines the appropriate response measures for all emergencies involving the OBU. The COR SAF 002 "Emergency Procedure" supports the OBU Contingency Plan. OBU operators and the OFR Team are thoroughly familiar with the OBU Contingency Plan. This plan will be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents, which could threaten human health or the environment.

References

1. COR RCRA Part B Permit
2. COR Open Burn Unit RCRA Contingency Plan 40 CFR 264 Subpart D
3. COR Environmental Compliance Manual
   - ENV-GEN-001 "Training/Review on New or Revised Environmental Procedures
   - ENV-GEN-002 "Environmental Training Program
   - ENV-GEN-010 "Reporting Spills or Releases of Hazardous Substances, Petroleum, or Hazardous Waste"
   - ENV-GEN-013 "Cleaning and Disposing of OBU and Other Hazardous Debris"
4. COR Safety Manual
   - COR-SAF 002 "Emergency Procedure"
   - COR-SAF 004 "Care of Injured/Ill Employees"
   - COR-SAF 007 "COR Respirator Program"
   - COR-SAF 008 "Hazard Communication Program"
   - COR-SAF 102 "Submission of New Construction Plans"
   - COR-SAF 201 "Hot Work Permit"
   - COR-SAF 203 "Lock-Out Tag-Out"
5. COR Policy and Procedure Manual
   - COR 008 "Purchasing Policy Procedure"

Subattachment II.A.4.e-3
Training Credentials

Chemring Ordnance, Inc.

Summary of Selected Training for Personnel Working In and Around the OBU

Position	Employee	Training	Citation	Original Training Date	Subsequent Refreshers
HS&E Director (Environmental Manager)	Bob Parman	OSHA HAZWOPER (40 hr)	29 CFR 1910.120	October 3, 2006	Annual
		DOT HazMat Trans	49 CFR 172.704	February 10, 2004	Every 3 years
		Incident Command System	NFPA 1600	March 5, 2008	Initial
OBU Supervisor	Gilbert Rykard	OSHA HAZWOPER (24 hr)	29 CFR 1910.120	May 12, 2004	Annual
HSE Engineer (Environmental Assistant Manager)	Tom Brown	OSHA HAZWOPER (40 hr)	29 CFR 1910.120	October 22, 1993	Annual
		DOT HazMat Trans	49 CFR 172.704	August 25, 2015	Every 3 years
		RCRA HazWaste Mgmt	40 CFR 262.34, 264.16, & 265.16	August 28, 2015	Annual
Environmental Specialist	Tim Sutterfield	OSHA HAZWOPER (24 hr)	29 CFR 1910.120	June 27, 2001	Annual
		DOT HazMat Trans	49 CFR 172.704	January 3, 2003	Every 3 years
		RCRA HazWaste Mgmt	40 CFR 262.34 & 265.16	September 9, 2003	Annual
HSE Engineer	Craig Harrell	OSHA HAZWOPER (24 hr)	29 CFR 1910.120	November 25, 2014*	Annual
Powder Blender	Marty Ingle	OSHA HAZWOPER (24 hr)	29 CFR 1910.120	November 25, 2014*	Annual
Powder Blender	James Blaske	OSHA HAZWOPER (24 hr)	29 CFR 1910.120	November 25, 2014*	Annual
Production Supervisor	Amanda Poppell	OSHA HAZWOPER (24 hr)	29 CFR 1910.120	November 8, 2014*	Annual

* Date of latest refresher training

TABLE CURRENT AS OF AUGUST 2015

II.A.5
Waste Analysis Reports

Reactive Waste Streams

COR is involved in the manufacture of small- to medium-size explosive and pyrotechnic devices. The specific products manufactured at any point in time may vary depending on current contract requirements. The production of these products generates process wastes that are classified primarily as reactive hazardous waste. This classification is based on the energetic nature of pyrotechnic and explosive materials. The pyrotechnic and explosive process waste may also contain metals such as lead, barium, and chromium, as well as trace amounts of solvents. While the exact waste material composition varies from product to product, the primary hazardous waste classification (reactive) remains unchanged.

With this in mind, COR has classified all individual waste materials into five categories that will function as waste stream groups. Table II.A.5-1 presents the existing COR product line and the associated waste stream groups. Five waste stream groups have been identified.

- Group 1 — Normal Pyrotechnics
- Group 2 — High Energy Pyrotechnics
- Group 3 — High Explosives
- Group 4 — Low Energy Pyrotechnics
- Group 5 — Contaminated Industrial Materials

The waste materials were grouped based on:

- Nature of the material
- Handling requirements
- Ignition requirements
- Rate of deflagration
- Nature of the deflagration

Included in Table II.A.5-1 are the following:

- Waste stream group
- Percentage by weight composition of the material
- Deflagration decomposition products
- Quantities of decomposition products resulting from the deflagration of 1 pound of the material
- Temperature of deflagration
- Percentage of residue

The mass balance equations were completed by COR. The U.S. Department of Defense Bang Box study and similar studies cited in the Bang Box study substantiate that a mass balance calculation is representative of the actual decomposition products measured during an open burn. A summary of reactive wastes and their treatment methods are presented in Table II.A.5-2. The decomposition products were determined using a mass balance equation assuming complete combustion.

The thermal treatment procedures (work instruction number COR-TT-1003) and related SOPs for waste management are provided in Subattachment II.A.5-1.

Group 1 — Normal Pyrotechnics

In general, these materials are characterized by high sensitivity. They are ignited fairly easily. They are handled carefully and will ignite directly from an electric match or squib.

Group 2 — High Energy Pyrotechnics

In general, these materials are ignited less easily than those in Group 1 and require a firing train to produce a heat source of sufficiently high temperature to effect ignition of the material itself. These materials are characterized by extremely high burn temperatures (generally in excess of 2,000 degrees Celsius), release of very high-energy levels per gram of weight, and have very fast reaction rates. The quantities of these materials burned at once must be carefully regulated due to the violent nature of their burn reaction, which could cause ejection of residue from the burn unit (refer to Subattachment II.A.5-1 for burn quantities).

Group 3 — High Explosives

These materials are prone to detonation if burned improperly. In general, the only way to "open burn" these materials is to dilute them with flammable, but pyrotechnically inert, materials. The propellant firing train has an igniter mixture added to provide a source of hot metal particles or slag to sustain ignition. Initiation is effected using an electric match.

Group 4 — Low Energy Pyrotechnics

In general, these materials are ignited less easily than those in Group 1 and require a firing train to produce a heat source of sufficiently high temperature to effect ignition of the material itself. These materials are characterized by high burn temperatures (generally, 1,500 to 2,000 degrees Celsius), release of 400 to 1,000 calories per gram of weight, and have slow reaction rates.

Group 5 — Contaminated Industrial Materials

This group consists of materials that are utilized in the general manufacturing processes and have become contaminated with reactive materials. For example, paper wipers used in cleaning tops of tables, equipment, etc., and cardboard boxes or containers that contained pyrotechnic materials are examples of materials that would be contaminated with reactive waste. In general, these materials are ignited easily and are burned in a wire cage to contain the burning material. The weight percentage of contamination in this waste group is estimated to be less than 2 to 3 percent. The decomposition products are chiefly carbon dioxide and water with trace residuals from the particular contaminants.

Post-Treatment Residues

Since the thermal treatment of pyrotechnic wastes is not a disposal method, but a technique for altering their composition such that the wastes no longer display the hazardous characteristic of reactivity, residual material remains after treatment. Burn residue is a solid, as are the burn residue samples. No free liquids are generated in the treatment process. The Waste Analysis Plan in Attachment II.A.6 describes how these treatment residuals are tested and characterized.

Limited analytical data are available about some of the separate treatment residuals. What is known is that while the devices/products can be categorized into waste stream groupings for purposes of treatment techniques, the residual from each device/product must be evaluated independently for the purposes of characterization for disposal. This process is discussed in Attachment II.A.6.

Based on chemical makeup, it is known that some of the devices contain no ingredients that would classify the device or the subsequent treatment residues as a hazardous waste via toxicity. Other devices contain ingredients (e.g., lead), which could classify the device and subsequent treatment residue as a hazardous waste for toxicity. With these factors in mind, the treatment residues from open burns conducted in May 2001, February 2002, October 2003, and October 2004 were analyzed for toxicity characteristics that could reasonably be expected to be present. A summary of the results of these analyses is presented in Table II.A.5-3. Based on the analytical information available, waste characterization forms are prepared for the residue from each waste prior to disposal and the wastes are disposed of properly. As new wastes are treated or additional analytical information is obtained, these forms will be updated to include the additional wastes.

COR uses the waste characterizations forms to identify those treatment residuals that exhibit a hazardous waste toxicity characteristic. The treatment residuals that are hazardous waste are sent offsite to an approved facility for disposal or reuse. Those treatment residuals that are non-hazardous are grouped together and handled as non-hazardous waste at a secured landfill. Table II.A.5-4 presents the waste disposal protocols for the waste residues that have been evaluated to date. Table II.A.5-5 presents physical and chemical properties of the pre-burn waste ingredients.

Non-Reactive Wastes

In addition to the reactive wastes that are treated at the OBU, COR also generates a number of other wastes, some of which are hazardous wastes. Table II.A.5-6 presents the non-reactive waste streams currently generated at COR. The list of non-reactive waste streams will vary over time. The current disposal procedures for each of these waste streams are also presented in Table II.A.5-6. These wastes generally fall into four categories: solvents (halogenated and non-halogenated), petroleum products, photographic wastes, and chromic hydroxide sludge.

New Waste Streams

All new reactive waste materials with similar chemical compositions will be treated in the same manner. Introduction of any new ingredients that may results in new hazardous waste codes will require FDEP approval prior to treatment.

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
1	MK 124 Pellet Composition	Boron Potassium Nitrate	18 82	Boric Oxide Potassium Oxide Nitrogen	0.579 lbs 0.382 lbs 1.58 ft^3	Trace	1800° C
1	Black Powder (M213 Fuze; M228 Fuze; M76; Sustaining Smoke; COR 400 Fuze)	Potassium Nitrate Sulfur Charcoal	72 10.4 15.6	Potassium Oxide Sulfur Dioxide Carbon Dioxide Nitrogen	0.345 lbs 0.21 lbs 0.57 lbs 0.21 lbs	Trace	1800° C
1	Composition A1A (M76; M201; Stun Grenade; COR 401 Fuze)	Zirconium Powder Ferric Oxide Diatomaceous Earth	65 25 10	Zirconium Dioxide Ferrous Oxide Silicon Dioxide	0.878 lbs 0.225 lbs 0.100 lbs	15	2700° C
1	M9 Propellant (Sustaining Smoke; M403 Fuze)	Nitrocellulose Nitroglycerine Potassium Nitrate Ethyl Centralite	57.75 40 1.50 0.75	Potassium Oxide Carbon Dioxide Nitrogen Water	0.007 lbs 2.90 lbs 0.44 lbs 0.74 lbs	Trace	1500° C
1	MK 46 Igniter Composition	Boron Powder Lead Dioxide Nitrocellulose (binder)	23 73 4	Lead Monoxide Boron Oxide Boron Nitride Carbon Dioxide Nitrogen Water	0.478 lbs 0.740 lbs Trace 0.02 ft^3 Trace 0.008 lbs	10	2200° C
1	MK 46 Starter Composition	Charcoal Dextrin Potassium Chlorate Nitrocellulose (binder)	9.0 1.9 79.9 9.2	Potassium Chloride Carbon Dioxide Nitrogen Water	0.486 lbs 2.69 ft^3 1.28 ft^3 0.028 ft^3	Trace	1500° C
2	MK 124 Flare Composition	Magnesium Powder Strontium Nitrate Potassium Perchlorate Polyvinyl Chloride Asphaltum	24.4 34.7 20.5 11.4 9.0	Magnesium Oxide Strontium Oxide Strontium Chloride Potassium Chloride Carbon Dioxide Nitrogen Water	0.40 lbs 0.10 lbs 0.13 lbs 0.11 lbs 0.31 lbs 0.09 lbs 0.13 lbs	5	1500° C
2	MK 124/COR 101/102 Ignition Composition	Silicon Powder Lead Tetroxide Fluoroelastomeric Binder	16 80 4	Lead Monoxide Lead Fluoride Silicon Dioxide Carbon Dioxide Water	0.614 lbs 0.183 lbs 0.342 lbs 0.336 ft^3 0.062 ft^3	114	1800° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
2	Mag-Tef Pyrotechnic Composition (MK 46; Stun Grenade; M206 IR Flare; MJU 32B; MJU 38B)	Magnesium Powder Polytetrafluoroethylene Fluoroelastomeric Binder	(b)	Magnesium Fluoride Magnesium Oxide Carbon Dioxide Water	(b)	5	(a)
2	Ignition Mixture (M1A2; M2A1 Cryptographic Destroyers)	Zirconium Powder Titanium Dioxide Iron Oxide	17.5 32.5 50.0	Zirconium Dioxide Titanium Dioxide Ferrous Oxide	0.236 lbs 0.542 lbs 0.450 lbs	120	4300° C
2	TH4 Thermate (M1A2; M2A1 Cryptographic Destroyers)	Aluminum Black Iron Oxide Barium Nitrate Polyester Binder	22 51 22 5	Aluminum Oxide Iron Barium Oxide Nitrogen Carbon Dioxide Water	0.461 lbs 0.396 lbs 0.129 lbs 0.302 ft^3 1.099 ft^3 1.282 ft^3	9.41	1535° C
3	Lead Azide (M76)	Lead Azide Dextrin	95 5	Lead Oxide Carbon Dioxide Water Nitrogen	0.73 lbs 0.08 lbs 0.06 lbs 0.49 lbs	Trace	1500° C
3	Composition A-5 (M76) (M433I)	Cyclotrimethylenetri-nitramine Stearic Acid (Binder)	98.5 1.5	Nitrogen Carbon Dioxide Water	4.774 ft^3 4.893 ft^3 0.243 lbs	Trace	2800° C
3	Composition RDX	Cyclotrimethylenetri-nitramine	100	Nitrogen Carbon Dioxide Water	0.38 lbs 0.30 lbs 0.24 lbs	Trace	2800° C
3	Composition CH-6 (M433I)	Cyclotrimethylenetri-nitramine Calcium Stearate Graphite Polyisobutylene	97.5 1.5 0.5 0.5	Nitrogen Carbon Dioxide Calcium Oxide Water	4.798 ft^3 4.981 ft^3 0.0014 lbs 0.245 lbs	Trace	2800° C
4	Zirconium-Nickel Delay Composition (M213 Fuze; M228 Fuze; M201 Fuze; M76; COR 400 Fuze; COR 401 Fuze)	Zirconium-Nickel Alloy Potassium Perchlorate Barium Chromate Polyvinyl Alcohol-Acetate	26 14 60 1.5	Zirconium Dioxide Nickel Oxide Barium Oxide Potassium Chloride Carbon Dioxide Water Chromium Oxide	0.175 lbs 0.165 lbs 0.363 lbs 0.075 lbs 0.245 ft^3 0.012 lbs 0.161 lbs	94	1300° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [a]		% Residue by Weight	Estimated Deflagration Temperature
4	Mn Delay Group (M1A2; M2A1 Cryptographic Destroyers; M201 Fuze)	Manganese Barium Chromate Lead Chromate	33 31 36	Manganese Oxide Barium Oxide Chromium Oxide Lead Monoxide	0.426 lbs 0.188 lbs 0.317 lbs 0.249 lbs	102	1300° C
4	MK 124 Smoke Composition (COR 101 Smoke Composition)	Orange Dye (xylene-B-naphthol) Red Dye #9 (1-methylaminoantraquinone) Potassium Chlorate Sugar Graphite Diatomaceous Earth	 41.3 14.1 20.6 17.2 2.0 4.8	Potassium Chloride Water Carbon Dioxide Nitrogen Silicon Dioxide	0.125 lbs 0.374 lbs 15.64 ft^3 0.642 ft^3 0.048 lbs	17	1800° C
4	Loaded 38 Cal. Brass w/Primer and/or Propellant (M781 40 MM; M49 Trip Flare Primer; M42 Primer)[c] (M433I)	Lead Styphnate Antimony Sulfide Barium Nitrate Aluminum Tetracene	53 10 22 10 5	Lead Monoxide Antimony Trioxide Sulfur Dioxide Barium Oxide Nitrogen Aluminum Oxide Carbon Dioxide Water	0.252 lbs 0.086 lbs 0.317 ft^3 0.129 lbs 0.392 ft^3 0.189 lbs 1.415 ft^3 0.027 lbs	Trace[b]	1600° C
4	MK 124 Heat Pads	Zirconium Barium Chromate Cellulose	10 30 60	Zirconium Dioxide Barium Oxide Chromic Oxide Carbon Dioxide Water	0.135 lbs 0.181 lbs 0.090 lbs 7.47 ft^3 0.156 lbs	41	1500° C
3	MK 137 Primer Composition	Diatomaceous Earth Aluminum Potassium Perchlorate	1 33 66	Aluminum Oxide Silicon Dioxide Potassium Chloride	0.624 lbs 0.010 lbs 0.355 lbs	Trace	1900° C
4	Flash Composition (Stun Grenade)	Potassium Perchlorate Aluminum Diatomaceous Earth	66 33 1	Potassium Chloride Aluminum Oxide Silicon Dioxide	0.354 lbs 0.624 lbs 0.010 lbs	Trace	1900° C
2	First Fire (M1A2; M2A1 Cryptographic Destroyers)	Titanium Red Iron Oxide	30 70	Titanium Dioxide Ferrous Oxide	0.500 lbs 0.630 lbs	113	3000° C
5	Contaminated Industrial Materials	Paper Reactive Material	99.0 <1				

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
4	MK 124 Smoke Candles	Cardboard Tube	13.02	Carbon Dioxide	13.117 ft^3	32.5	1100° C
		Stearic Acid	0.001	Water	0.357 lbs		
		Refractory Mortar	7.50	Refractory Mortar	0.075 lbs		
		Silicon	1.06	Potassium Chloride	0.0911 lbs		
		Lead Tetraoxide	5.30	Nitrogen	0.468 ft^3		
		Fluoroelastomeric Binder	0.26	Silicon Dioxide	0.072 lbs		
		Xylene-azo-B-naphthol	30.08	Lead Fluoride	0.020 lbs		
		1-methylaminoanthraquinone	10.27	Lead Monoxide	0.067 lbs		
		Potassium Chlorate	15.01				
		Sugar	12.53				
		Graphite	1.46				
		Diatomaceous Earth	3.50				
2	MK 124 Flare Candles	Cardboard Tube	20.65	Silicon Dioxide	0.022 lbs	69.3	1500° C
		Silicon	1.02	Lead Fluoride	0.012 lbs		
		Lead Tetraoxide	5.10	Lead Monoxide	0.039 lbs		
		Fluoroelastomeric Binder	0.26	Carbon Dioxide	5.932 ft^3		
		Magnesium	14.94	Water	0.171 lbs		
		Strontium Nitrate	21.24	Magnesium Oxide	0.248 lbs		
		Potassium Perchlorate	12.55	Strontium Chloride	0.087 lbs		
		Asphaltum	5.51	Strontium Oxide	0.047 lbs		
		Polyvinyl Chloride	6.98	Potassium Chloride	0.067 lbs		
		Stearic Acid	4.72	Nitrogen	0.360 ft^3		
		Refractory Mortar	7.03				
4	MK 124 Floor Sweepings	Floor Sweeping-Compound	95	Potassium Chloride	0.006 lbs	Trace	1100° C
		Smoke Composition	5	Nitrogen	0.032 ft^3		
				Silicon Dioxide	0.002 lbs		
				Carbon Dioxide	13.115 ft^3		
				Water	0.589 lbs		
1	MK 46 Igniters	Metal Components	90.92	Lead Monoxide	0.0513 lbs	101.7	1800° C
		Charcoal	0.068	Boron Oxide	0.0560 lbs		
		Dextrin	0.014	Boron Nitride	Trace		
		Potassium Chlorate	0.605	Carbon Dioxide	0.0017 ft^3		
		Nitrocellulose	0.373	Water	0.0006 lbs		
		Boron	1.741	Nitrogen	0.0007 ft^3		
		Lead Dioxide	5.526	Potassium Chloride	0.0003 lbs		
				Metal Components	0.9092 lbs		

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
1	Red Dot Propellant (Sustaining Smoke)	Nitrocellulose Nitroglycerin Ethyl Centralite Potassium Sulfate	57.75 40 0.75 1.50	Potassium Oxide Carbon Dioxide Nitrogen Water	0.007 lbs 6.274 ft^3 2.322 ft^3 0.209 lbs	Trace	1500° C
1	Igniter Compositon (201; COR 401 Fuzes; M1A2; M2A1 Cryptographic Destroyers)	Titanium Potassium Perchlorate	70.0 30.0	Titanium Dioxide Potassium Chloride	1.17 lbs 0.16 lbs	Trace	3000° C
4	Loaded 201 (COR 403 Fuze)	Metal Components Zirconium Red Iron Oxide Silicon Dioxide Titanium Potassium Perchlorate Zirconium-Nickel Alloy Barium Chromate	99.297 0.0182 0.0070 0.0028 0.0294 0.1012 0.1646 0.3798	Metal Components Zirconium Dioxide Nickel Oxide Barium Oxide Chromium Oxide Potassium Chloride Ferrous Oxide Silicon Dioxide Titanium Dioxide	0.99297 lbs 0.00186 lbs 0.00082 lbs 0.00230 lbs 0.00102 lbs 0.00054 lbs 0.00006 lbs 0.00003 lbs 0.00048 lbs	100	1500° C
4	Primers (201 Fuze; COR 401 Fuze; M1A2; M2A1 Cryptographic Destroyers)	Metallic Components Lead Styphnate Antimony Sulfide Barium Nitrate Aluminum Tetracene	81.20 9.96 1.88 4.14 1.88 0.94	Lead Monoxide Antimony Oxide Barium Oxide Aluminum Oxide Carbon Dioxide Nitrogen Sulfur Dioxide Water Metallic Components	0.049 lbs 0.015 lbs 0.024 lbs 0.036 lbs 0.556 ft^3 0.165 ft^3 0.065 ft^3 0.006 lbs 0.812 lbs	81.2	2300° C
4	Delay Housing M76	Metal Body Zirconium Red Iron Oxide Silicon Dioxide Zirconium-Nickel Alloy Potassium Perchlorate Barium Chromate Cyclotrimethylene-trinitramine Lead Azide Dextrin	89.976 0.977 0.376 0.150 0.977 0.526 2.255 2.380 2.264 0.119	Lead Oxide Carbon Dioxide Water Nitrogen Zirconium Dioxide Nickel Oxide Barium Oxide Chromium Oxide Potassium Chloride Ferrous Oxide Silicon Dioxide Metal Body	0.0219 lbs 0.1474 ft^3 0.0070 lbs 0.2209 ft^3 0.792 lbs 0.0062 lbs 0.0136 lbs 0.0061 lbs 0.0028 lbs 0.0034 lbs 0.0015 lbs 0.89976 lbs	104	1400° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
3	Burster Housing M76	Glass-Filled Nylon	39.30	Nitrogen	4.069 ft^3	14.7	1400° C
		Cyclotrimethylenetri-		Carbon Dioxide	4.171 ft^3		
		nitramine	64.71	Water	0.190 lbs		
		Stearic Acid	0.99	Silicon Dioxide	0.147 lbs		
4	M781 Primers	Metallic Components	81.20	Lead Monoxide	0.049 lbs	81.2	2300° C
	(M433I)	Lead Styphnate	9.96	Antimony Oxide	0.015 lbs		
		Antimony Sulfide	1.88	Barium Oxide	0.024 lbs		
		Barium Nitrate	4.14	Aluminum Oxide	0.036 lbs		
		Aluminum	1.88	Carbon Oxide	0.556 ft^3		
		Tetracene	0.94	Nitrogen	0.165 ft^3		
				Sulfur Dioxide	0.065 ft^3		
				Water	0.006 lbs		
				Metallic Components	0.812 lbs		
2	M4 Igniter Bag Charge	Sodium Nitrate	47.0	Sodium Oxide	0.171 lbs	17	1400° C
		Sugar	47.0	Nitrogen	0.992 ft^3		
		Charcoal	6.0	Carbon Dioxide	4.755 ft^3		
				Water	0.272 lbs		
1	Bulleyes (Sustaining Smoke; MK 137)	Nitrocellulose	57.75	Potassium Oxide	0.007 lbs	Trace	1500° C
		Nitroglycerine	40.0	Carbon Dioxide	6.274 ft^3		
		Potassium Sulfate	1.50	Nitrogen	2.322 ft^3		
		Ethyl Centralite	0.75	Water	0.209 lbs		
1	Ignition Composition (MK 131/132	Silicon	40	Potassium Oxide	0.050 lbs	Trace	1800° C
	Marine Signals)	Potassium Nitrate	54	Potassium Fluoride	0.248 lbs		
		Fluoroelastomer Binder	6	Silicon Dioxide	0.855 lbs		
				Water	0.005 lbs		
				Carbon Dioxide	1.531 ft^3		
				Nitrogen	1.852 ft^3		
2	MJU 7A/B Flares	Magnesium Powder	72	Magnesium Fluoride	0.940 lbs	5	(a)
	Intermediate/Initiation Composition	Polytetrafluoroethylene	13	Magnesium Oxide	0.313 lbs		
	(M206 IR Intermediate/Initiation)	Fluoroelastomeric Binder	15	Carbon Dioxide	21.563 ft^3		
				Water	0.013 lbs		
4	MK 131 Smoke	Dye, Dispersed Red 9	40.0	Potassium Chloride	0.195 lbs	17	1800° C
		Dye, Solvent Yellow 33	8.0	Nitrogen	13.585 ft^3		
		Potassium Chlorate	20.0	Carbon Dioxide	125.476 ft^3		
		Sugar	32.0	Water	1.016 lbs		

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
2	M22 Flash/Bang Composition	Magnesium Powder Tetrafluoroethylene Fluoroelastomeric Binder	75 10 15	Magnesium Fluoride Magnesium Oxide Carbon Dioxide Water	1.422 lbs 0.415 lbs 17.611 ft^3 0.013 lbs	5	(a)
4	MK 154 Primer (MK 131/132 Marine Signals)	Metallic Components Zirconium Lead Dioxide Lead Styphnate Tetrazene Antimony Sulfide	44.3 6.4 16.8 13 1.6 4.9	Chromium (III) Oxide Nickel (II) Oxide Molybdenum Oxide Ferric Oxide Zirconium Dioxide Lead Monoxide Carbon Dioxide Water Antimony Trioxide Barium Oxide Nitrogen Sulfur Dioxide	0.123 lbs 0.058 lbs 0.020 lbs 0.543 lbs 0.086 lbs 1.386 lbs 2.445 ft^3 0.041 lbs 0.032 lbs 0.038 lbs 5.261 ft^3 0.028 lbs	81.2	2300° C
1	M22 First Fire Composition (COR 403 Fuze)	Boron Powder Potassium Perchlorate Fluoroelastomer Binder	20.0 75.0 5.0	Potassium Chloride Boron (III) Oxide Boron Pentafluoride Carbon Dioxide Water	0.807 lbs 0.050 lbs 0.726 lbs 1.260 ft^3 0.004 lbs	Trace	3000° C
2	MJU 7A/B Ignition Dip (M206 First Fire)	Magnesium Powder Polytetrafluoroethylene Fluoroelastomer Binder	65.0 27.6 7.4	Magnesium Fluoride Magnesium Oxide Carbon Dioxide Water	1.250 lbs 0.269 lbs 38.236 ft^3 0.006 lbs	5	(a)
2	SM-875 ALE[(e)]	Magnesium Powder Sodium Nitrate Silicon Stearic Acid Lead Tetraoxide	50 26 3 4 17	Magnesium Oxide Sodium Oxide Nitrogen Silicon Dioxide Lead Oxide Carbon Dioxide Water	0.83 lbs 0.10 lbs 0.04 lbs 0.06 lbs 0.17 lbs 0.11 lbs 0.05 lbs	17	1800° C
3	M84 Detonators[(e)]	Pentaerythrite Tetranitrate Lead Azide Dextrin Nitrocellulose Lead Styphnate	48 45 2.4 1 3.6	Carbon Dioxide Water Nitrogen Lead Oxide	0.40 lbs 0.14 lbs 0.24 lbs 0.36 lbs	Trace	1500° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [a]		% Residue by Weight	Estimated Deflagration Temperature
3	M100 Detonators[e]	Cyclotetramethylene-Tetranitramine (HMX) Lead Azide Lead Styphnate Camphor Nitrocellulose	43 43 11 <1 2	Carbon Dioxide Water Nitrogen Lead Oxide	0.37 lbs 0.13 lbs 0.30 lbs 0.38 lbs	Trace	1500° C
2	M49 Trip Flare First Fire[e]	Barium Chromate Boron	90 10	Barium Oxide Boron Oxide Chromium Oxide	0.54 lbs 0.32 lbs 0.27 lbs	113	2550° C
2	M49 Trip Flare Ignition Composition[e]	Magnesium Sodium Nitrate PolyEster Resin Styrene	48 48 2.4 1.6	Magnesium Oxide Sodium Oxide Nitrogen Carbon Dioxide Water	0.79 lbs 0.17 lbs 0.08 lbs 0.10 lbs 0.02 lbs	68	1900° C
2	M49 Trip Flare Illumination Composition[e]	Magnesium Sodium Nitrate PolyEster Resin Styrene	36 54 6 4	Magnesium Oxide Sodium Oxide Nitrogen Carbon Dioxide Water	0.60 lbs 0.20 lbs 0.09 lbs 0.27 lbs 0.05 lbs	49	1900° C
NA	M49 Trip Flare Insulating Composition[e]	PolyEster Resin Styrene Talcum	39 26 35	Magnesium Oxide Silicon Oxide Carbon Dioxide Water	0.11 lbs 0.22 lbs 1.77 lbs 0.35 lbs	13	1900° C
1	Black Mag[e]	(d)	(d)	Carbon Dioxide Water Nitrogen Potassium Chloride Potassium Oxide	(d)	Trace	1400° C
1	Delay Composition (SWAT-TX) [e]	(d)	(d)	Barium Oxide Carbon Dioxide Chromium Oxide Nickel Oxide Potassium Chloride Water Zirconium	(d)	94	1300° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [a]		% Residue by Weight	Estimated Deflagration Temperature
1	Delay Composition (SWAT-T) [e]	(d)	(d)	Boric Oxide Nitrogen Potassium Oxide	(d)	Trace	1800° C
1	Booster Charge (SWAT-TX; SWAT-T) [e]	(d)	(d)	Carbon Dioxide Magnesium Fluoride Magnesium Oxide Water	(d)	5	(d)
1	Output Charge (SWAT-TX; SWAT-T) [e]	(d)	(d)	Potassium Chloride Aluminum Oxide Sulfur Dioxide	(d)	45	1800° C
1	M116A1 Flash Composition[e]	Aluminum Powder Potassium Perchlorate	42.5 57.5	Potassium Chloride Aluminum Oxide	0.23 lbs 1.09 lbs	83	1800° C
2	M116A1 Igniter Charge[e]	Potassium Chlorate Charcoal Dextrin	88 10 2	Potassium Chloride Carbon Dioxide Water	0.54 lbs 0.40 lbs 0.01 lbs	Trace	1500° C
2	M116A1 Priming Paste[e]	Potassium Nitrate Charcoal Sulfur Cellulose Camphor	67 14 9 8 2	Potassium Oxide Carbon Dioxide Sulfur Dioxide Nitrogen Water	0.31 lbs 0.66 lbs 0.18 lbs 0.10 lbs 0.04 lbs	Trace	1500° C
1	BBU 36B Initiation Charge[e]	Potassium Perchlorate Boron Viton	52.5 42.5 5	Potassium Chloride Boron (III) Oxide Carbon Dioxide Water Fluorine	0.28 lbs 1.05 lbs 0.05 lbs 0.01 lbs 0.03 lbs	Trace	1800° C
1	BBU 36B Booster Charge[e]	Potassium Nitrate Boron	80 20	Boric Oxide Potassium Oxide Nitrogen	0.50 lbs 0.37 lbs 0.11 lbs	Trace	1800° C
1	BBU 36B Output Charge[e]	Nitroglycerin Diphenylamine	98 2	Carbon Dioxide Nitrogen Water	0.63 lbs 0.19 lbs 0.20 lbs	Trace	1500° C
3	M201 Slug[f]	Silicon Potassium Nitrate Charcoal Stearic Acid Nitrocellulose	36.4 49.1 5.5 5 4	Silicon Dioxide Potassium Oxide Nitrogen Carbon Dioxide Water	0.2287 lbs 0.7787 lbs 0.071 lbs 0.4518 lbs 0.0964 lbs	77.87	1700° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [a]		% Residue by Weight	Estimated Deflagration Temperature
3	Composition B	Cyclotrimethylene-trinitramine 2,4,6-trinitrotoluene wax	~60 ~40 ~1	Carbon Dioxide Nitrogen Water	0.9304 lbs 0.301 lbs 0.2384 lbs	Trace	2800° C
3	Blasting Cap[f]	Lead Azide Lead Styphnate Pentaerythrite Tetra- nitrate	34.5 8 57.5	Lead Oxide Nitrogen Carbon Dioxide Water	0.3041 lbs 0.209 lbs 0.4471 lbs 0.1327 lbs	Trace	2800° C
3	Detonator Cord[f]	Lead Azide	100	Lead Oxide Nitrogen	0.7664 lbs 0.2886 lbs	Trace	2800° C
3	Detonator Cord[f]	Pentaerythrite Tetra- nitrate	 100	Carbon Dioxide Nitrogen Water	0.6961 lbs 0.1772 lbs 0.2279 lbs	Trace	2800° C
2	SM875 Ignition Comp[g]	Magnesium Polytetrafluoroethylene Fluoroelastomeric Binder	~74 ~22 ~0.5	Magnesium Oxide Magnesium Fluoride Carbon Dioxide Water	0.12963 lbs 0.60037 lbs 0.30362 lbs 0.00421 lbs	Trace	2000° C
4	M213 Detonator Assembly[h]	Lead Azide Lead Styphnate Cyclotrimethylenetri-nitramine	~31.9 ~16.1 ~51.7	Lead Oxide Carbon Dioxide Nitrogen Water	0.32427 lbs 0.19685 lbs 0.17227 lbs 0.04515 lbs	Trace	2800° C
4	ICI Red Smoke Composition[h]	1-methylamino-anthraquinone Potassium Chlorate Sucrose Magnesium Stearate	49.62 29.28 20.35 0.75	Magnesium Oxide Potassium Chloride Carbon Dioxide Nitrogen Water	0.001 lbs 0.18 lbs 1.71 lbs 0.03 lbs 0.34 lbs	18	1500° C
4	ICI Violet Smoke Composition[h]	D+C Violet No. 2 Potassium Chlorate Sucrose Magnesium Stearate	52.3 27.59 19.17 0.71	Magnesium Oxide Potassium Chloride Sodium oxide Sulfur Dioxide Carbon Dioxide Nitrogen Water	0.001 lbs 0.17 lbs 0.02 lbs 0.11 lbs 1.54 lbs 0.03 lbs 0.49 lbs	19	1500°C
4	Tungsten Delay Composition (583 Parachute Flare)	Barium Chromate Potassium Perchlorate Tungsten	35 22.5 42.5	Barium Oxide Chromium Oxide Potassium Chloride Tungsten Oxide	.2118 lbs .1050 lbs .1211 lbs .5359 lbs	97.4	1900° C

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [a]		% Residue by Weight	Estimated Deflagration Temperature
2	Illumination Composition (583 Parachute Flare)	Magnesium Sodium Nitrate Polyester Binder Styrene	48 47 5	Magnesium Oxide Sodium Oxide Carbon Dioxide Water	0.79 lbs 0.17 lbs 1.099 ft^3 1.282 ft^3	49	1900° C
1	Ignition Composition (583 Parachute Flare)	Boron Potassium Nitrate Polytetrafluoroethylene Polyester Binder Styrene	19 58 18 5	Boric Oxide Magnesium Oxide Potassium Oxide Nitrogen Carbon Dioxide Water	0.579 lbs 0.248 lbs 1.58 ft^3 1.099 ft^3 1.282 ft^3	Trace	1800° C
4	M433I Stab Detonators	Lead Styphnate Antimony sulfide Barium Nitrate Tetracene Lead Azide Metallic Components	~38.0 ~13.0 ~18.0 ~3.0 ~18.0 ~10.0	Lead Monoxide Antimony Trioxide Sulfur Dioxide Barium Oxide Carbon Dioxide Nitrogen Lead Oxide Water	0.252 lbs 0.086 lbs 0.317 ft^3 0.024 lbs 1.415 ft^3 0.392 ft^3 0.21 lbs 0.219 lbs	Trace[b]	2300° C
1	A-5 Powder Composition	RDX Stearic Acid	98.5-99 1-1.5	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
--	M49A1 Trip Flare	Magnesium Sodium Nitrate Polyvinyl Acetate Barium Chromate Boron Polyester Resin Methyl Ethyl Ketone Peroxide Methyl Ethyl Ketone Lead Styphnate Barium Nitrate Antimony Sulfide Pentaerythrite Tetranitrate Aluminum Tetracene Lead Thiocynate Nickel Vinyl Alcohol / Vinyl Acetate Polymer LP-2 Catalyst C5	--	--	--	--	--
--	LA44 Cartridge Signal	Potassium Nitrate Charcoal Sulfur Graphite Dextrin Aluminum Boric Acid Sodium Carbonate Barium Nitrate	--	--	--	--	--
--	LA45 Cartridge Simulator	Potassium Nitrate Charcoal Sulfur Graphite Sodium Salicylate Potassium Perchlorate Red Gum	--	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [a]		% Residue by Weight	Estimated Deflagration Temperature
--	LA46 Cartridge Ammunition Illuminating	Magnesium Powder Strontium Nitrate Zinc Dust Potassium Perchlorate Charcoal Sulfur Graphite	--	--	--	--	--
--	LA47 Simulator Cartridge	Potassium Nitrate Charcoal Sulfur Graphite Magnesium Powder Polytetrafluoroethylene	--	--	--	--	--
--	M34 Cartridge	Magnesium Powder Strontium Nitrate Zinc Dust Potassium Nitrate Charcoal Sulfur Graphite	--	--	--	--	--
--	M35 Cartridge	Black Powder, Fg Black Powder, FFFg STAR BODY Potassium Nitrate Aluminum Boric Acid Sodium Oxalate Dextrin Sulfur STAR PRIMER COATING Potassium Nitrate Charcoal Sulfur Dextrin	--	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
--	M583A1 40mm White Star Parachute Flare	Magnesium Sodium Nitrate Polyvinyl Acetate Potassium Nitrate Silicon Powder Barium Chromate Charcoal Sulfur Graphite Boron Styrene Polyester Resin 2.2.4 – Trimethyl – 1.3 – Pentaanediol Diisobtyrate Methyl Ethyl Ketone Peroxide Hexylene Glycol Methyl Ethyl Ketone Nitroglycerin Nitrocellulose Lead Styphnate Barium Nitrate Antimony Sulfide Pentaerythrite Tetranitrate Aluminum Tetracene Lead Thiocynate Nickel Polytetrafluoroethylene Tungsten Metal Powder Vinyl Alcohol/Vinyl Acetate Polymer Methyloxirane	--	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
--	M585 (MEI version) 40m.m. Cluster Flare	Magnesium Sodium Nitrate Polyvinyl Acetate Potassium Nitrate Silicon Powder Barium Chromate Charcoal Sulfur Graphite Boron Styrene Polyester Resin 2, 2, 4 – Trimethyl-1,3-Pentaanediol Diisobutyrate Methyl Ethyl Ketone Peroxide Hexylene Glycol Methyl Ethyl Ketone Nitroglycerin Nitrocellulose Lead Styphnate Barium Nitrate Antimony Sulfide Pentaerythrite Tetranitrate Aluminum Tetracene Lead Thiocynate Nickel Polytetrafluoroethylene Tungsten Metal Powder Vinyl Alcohol / Vinyl Acetate Polymer Methyloxirane	--	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
--	M662 40m.m. Red Flare	Magnesium Polyvinyl Chloride Strontium Nitrate Potassium Perchlorate Barium Chromate Charcoal Sulfur Graphite Boron Styrene Polyester Resin 2,2,4 – Trimethyl-1,3-Pentaanediol Diisobutyrate Methyl Ethyl Ketone Peroxide Hexylene Glycol Methyl Ethyl Ketone Nitroglycerin Nitrocellulose Lead Styphnate Barium Nitrate Antimony Sulfide Pentaerythrite Tetranitrate Aluminum Tetracene Lead Thiocynate Nickel Polytetrafluoroethylene Tungsten Metal Powder Vinyl Alcohol / Vinyl Acetate Polymer Methyloxirane	--	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
--	M992 40m.m. IR Star Parachute Flare	Polyester Binder Hexametghylenetetramine Silcon Cesium Nitrate Dl-Q152 Illuminant Iron Oxide Sodium Nitrate Polyvinyl Acetate Potassium Nitrate Silicon Powder Barium Chromate Charcoal Sulfur Graphite Boron Styrene Polyester Resin 2, 2, 4 – Trimethyl-1, 3-Pentaanediol Diisobutyrate Methyl Ethyl Ketone Peroxide Hexylene Glycol Methyl Ethyl Ketone Nitroglycerin Nitrocellulose Lead Styphnate Barium Nitrate Antimony Sulfide Pentaerythrite Tetranitrate Aluminum Tetracene Lead Thiocynate Nickel Polytetrafluoroethylene Tungsten Metal Powder Vinyl Alcohol / Vinyl Acetate Polymer Methyloxirane	--	--	--	--	--

Table II.A.5-1
Reactive Waste Materials
Chemring Ordnance, Inc., Perry, Florida

Group	Reactive Waste Material	Ingredients	Weight %	Decomposition Products Generated by 1 lb. Material [(a)]		% Residue by Weight	Estimated Deflagration Temperature
--	PBXN-9	Cyclotetramethylene-tetranitramine HyTemp Rubber Bis(2-ethylhexyl) hexanedioate	92 2 6	--	--	--	--
--	PBXN-10	Cyclotrimethylee-trinitramine Dioctyl Adipate Hy Temp	96 3 1	--	--	--	--
--	Pyrotechnic Composition Delay	Tungsten Barium Chromate Potassium Perchlorate Vinyl Alcohol Acetate Resin	--	--	--	--	--
--	TNT	2,4,6- Trinitrotoluene	100	--	--	--	--
--	Tungsten Metal	Tungsten	100	--	--	--	--

Notes:
(a) Example mass balance calculations for the decomposition products of representative reactive waste materials are presented in the previous permit application.
(b) This composition is designated as "classified" by the U.S. Department of Defense. However, for the purpose of assessing air exposures, emissions from open burning of this material were modeled using the maximum amount of each ingredient. This way the computed exposure concentrations from burning represents the "worst case" scenario.
(c) The information provided is for the primer only. There is approximately 35 mg of this composition in one primer and one primer in each brass 38 Cal. shell.
(d) "Confidential Business Information" Information submitted under separate cover to regulatory agencies as "CONFIDENTIAL."
(e) Permitted for treatment November 12, 1997.
(f) Reported to or acknowledged by FDEP in correspondence dated May 7, August 20, October 5, and November 5, 1999.
(g) Permitted for treatment March 13, 2000.
(h) Permitted for treatment August 1, 2002.
lb = pound.
ft^3 = cubic foot (feet).
°C = degrees Celsius.

All new reactive waste materials with similar chemical compositions will be treated in the same manner. Introduction of any new ingredients that may result in new hazardous waste codes will require FDEP approval prior to treatment.

Groups –
1 = Normal Pyrotechnics.
2 = High Energy Pyrotechnics.
3 = High Explosives.
4 = Low Energy Pyrotechnics.
5 = Contaminated Industrial Materials.

-- = NOT REPORTED

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
MK124					
MK124 Units	4	200	Burn Pan 4′x8′x2′	BP or M9, EM	
MK 124 Smoke Composition	4	100	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
MK 124 Flare Composition	2	100	Burn Pan 4′x8′x2′	BP or M9, EM	
MK 124 Heat Pads	4	40	Burn Cage 4′x8′x4′	BP or M9, EM	
MK 124 Pellet Composition	1	5	Burn Pan 4′x8′x2′	EM	
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
MK 124 Smoke Candles	4	100	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
MK 124 Flare Candles	2	50	Burn Pan 4′x8′x2′	BP or M9, EM	
MK 124 Floor Sweepings	4	100	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
MK 124 Ignition Composition	2	100	Burn Pan 4′x8′x2′	EM	
MK 46					
MK 46 Units	2	200	Burn Pan 12″x12″x6′	BP or M9, EM	
MAG-TEF Composition	2	200	Burn Pan 12″x12″x6′	BP or M9, EM	
MK 46 Starter Composition	1	10	Burn Pan 4′x8′x2″	EM	Diesel
MK 46 Igniter Composition	1	4	Burn Pan 4′x8′x2″	EM	
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4″	BP or M9, EM	
M213/M228/MEI400					
M213/M228/MEI400 Units	4	500	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Charcoal
Zirconium/Nickel Delay Composition	4	200	Burn Pan 4′x8′x1′	BP or M9, EM, FF	
C-70 Detonators (213)	3	2.4	Burn Pan 4′x8′x1′	BP or M9, EM	
M42 Primers	4	5	Two Pans, Top and Bottom	BP or M9, EM	Wood, Diesel, Charcoal
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
Black Powder	1	40	Burn Pan 4′x8′x1′	EM	
M201/COR 401 FUZES					
M201/COR 401 Units	4	500	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Charcoal
Zirconium/Nickel Delay Composition	4	200	Burn Pan 4′x8′x1′	M9, EM	
Composition A1A	1	5	Burn Pan 4′x8′x1′	EM	
Igniter Composition (201)	1	3	Burn Pan 4′x8′x1′	M9, EM	
Loaded 201 Fuze	4	50	Burn Pan 4′x8′x1′	M9, EM	Wood, Diesel, Charcoal
Primer 201 Fuze	4	5	Burn Pan 4′x8′x1′	M9, EM	Wood, Diesel, Charcoal
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	M9, EM	
Manganese Delay Composition	4	200	Burn Pan 4′x8′x1′	M9, EM	

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
M 76					
Composition A1A	1	5	Burn Pan 4′x8′x1′	EM	
Black Powder	1	40	Burn Pan 4′x8′x1′	EM	
Lead Azide	3	2.4	Burn Cage 4′x8′x4′	BP or M9, EM	Wood, Diesel, Cardboard
Composition A-5	3	30	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel
Composition CH-6	3	3	Burn Pan 4′x8′1 ′	BP or M9, EM	Wood, Diesel
Composition RDX	3	5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel
Zirconium/Nickel Delay Composition	4	200	Burn Pan 4′x8′x1′	BP or M9, EM, FF	
M 76 Delay Housing	4	20	2 Pans, Top & Bottom	BP or M9, EM	Wood, Diesel
M 76 Burster Housing	3	5	Burn Pan 12″x12″x6′	BP or M9, EM	Wood, Diesel
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
M 781 40MM					
M-9 Propellant	1	40	Burn Pan 4′x8′x1′	EM	
38 Cal. Brass with Primer and/or Propellant	4	200	2 Pans, Top & Bottom	BP or M9, EM	Wood, Diesel
M 781 Primer	4	5	2 Pans, Top & Bottom	BP or M9, EM	Wood, Diesel
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	Bp or M9, EM	
M1A2/M2A1 Cryptographic Destroyers					
M1A2/M2A1 Units	4	250	Burn Pan 4′x8′x1′	BP or M9, EM	
TH 4 Thermate	2	200	Burn Pan 4′x8′x1′	BP or M9, EM, FF	
Crypto First Fire Composition (FF)	2	10	Burn Pan 4′x8′x1′	BP or M9, EM	
Crypto Igniter Mixture	2	6	Burn Pan 4′x8′x1′	BP or M9, EM	
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
MK 137					
MK 137 Units	4	100	Burn Pan 4′x8′x4″	BP or M9, EM	
MK 137 Primer Composition	3	2	Burn Pan 2′x2′x6″	EM	Diesel
M9 Propellant (Bullseye/Red Dot)	1	40	Burn Pan 2′x2′x6″	EM	
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
STUN GRENADE					
Stun Grenade Units	2	200	Burn Cage 4′x8′x4′	BP or M9, EM	
Stun Grenade Flash Composition	4	3	Burn Pan 2′x2′x6″	BP or M9, EM	Diesel
Composition A1A	1	5	Burn Pan 2′x2′x6″	EM	
MAG-TEF Composition	2	200	Burn Pan 12″x12″x6′	BP or M9, EM	Diesel
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
M4					
M4 Units	2	250	Burn Pan 4′x8′x1′	BP or M9, EM	
M4 Igniter Bag Charge	2	50	Burn Pan 4′x8′x1′	BP or M9, EM	
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
MJU 7A/B Flares					
MJU 7A/B Units	2	200	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
Ignition Dip	2	300	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
Intermediate Ignition Composition	2	200	Burn Pan 12″x12″x6′	BP or M9, EM	Diesel
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
MAG/TEF	2	200	Burn Pan 12″x12″x6′	BP or M9, EM, FF	Diesel
M22					
M22 Units	2	100	Burn Pan 4′x8′x4′	BP or M9, EM	Diesel
MAG/TEF Flash/Bang Composition	2	200	Burn Pan 12′x12′x6′	BP or M9, EM	Diesel
First Fire Composition	2	20	Burn Pan 2′x2′x6′	BP or M9, EM	
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
MK131/132 Marine Signals					
MK 131/132 Units	2	100	Burn Cage 4′x8′x4′	BP or M9, EM	
MK131 Smoke Composition	4	100	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
MK131/132 Ignition Composition	2	20	Burn Pan 2′x2′x6′	BP or M9, EM	
MK154 Primer (MK131/132)	4	20	2 Pans, Top & Bottom	BP or M9, EM	Wood, Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
M84 Detonators					
M84 Units	2	2	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
PETN	3	5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
Lead Azide	3	2.4	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
Lead Styphnate	3	1.5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
Contaminated Industrial Materials	5	40	Burn Cage 4′x8′x4′	BP or M9, EM	
M100 Detonators					
M84 Units	3	5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
HMX	3	3	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
Lead Azide	3	2.4	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
Lead Styphnate	3	1.5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Sawdust, Cardboard
Contaminated Industrial Materials	5	40	Burn Cage 4′x8′x4′	BP or M9, EM	

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
SM875 Flare					
SM875 Units	2	150	Burn Pan 4′x8′x1′	BP or M9, EM	
SM875 Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Delay Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Illuminating Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
Black Mag (Black Powder Substitute)					
Black Mag Composition	1	100	Burn Pan 4′x8′x1′	EM	
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
MJU 32B/38B Flare					
MJU 32B/38B Units	2	100	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Ignition Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Flare Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
206 IR Flare					
206 Units	2	100	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
First Fire	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Intermediate Charge	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Ignition Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Flare Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
M49 Trip Flare					
M49	2	50	Burn Pan 4′x8′x1′	BP or M9, EM	
First Fire	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Ignition Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Illuminating Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Primers	4	5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
COR 403 Fuze					
403 Units	4	20	Burn Cage 4′x8′x4	BP or M9, EM	Wood, Diesel, Charcoal
M22 First Fire Composition	2	200	Burn Pan 4′x8′x1′	EM	
201 Fuze	4	50	2 Pans, Top and Bottom	BP or M9, EM	Wood, Diesel, Charcoal
M9	1	200	Burn Pan 4′x8′x1′	EM	

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
BBU 36/B Impulse Cartridge					
BBU 36/B Units	1	40	Burn Pan 4′x8′x1′	BP or M9, EM	
Booster Charge	1	25	Burn Pan 4′x8′x1′	BP or M9, EM	
Output Charge	1	40	Burn Pan 4′x8′x1′	BP or M9, EM	
Ignition Charge	1	4	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
M116A1 Hand Grenade Simulator					
M116A1 Units	2	25	Burn Pan 4′x8′x1′	BP or M9, EM	
Igniter Charge	2	25	Burn Pan 4′x8′x1′	BP or M9, EM	
Priming Paste	2	25	Burn Pan 4′x8′x1′	BP or M9, EM	
Flash Composition	1	50	Burn Pan 4′x8′x1′	BP or M9, EM	Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
COR 101/102/200 Units					
101/102/200 Units	4	100	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel, Charcoal
Flare Composition	2	200	Burn Pan 4′x8′x1′	EM	
201 Fuze	4	50	2 Pans, Top and Bottom	BP or M9, EM	Wood, Diesel, Charcoal
Ignition Composition	2	100	Burn Pan 4′x8′x1′	EM	
M42 Primers	4	5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel
Black Powder	1	40	Burn Pan 4′x8′x1′	EM	
Smoke Composition	1	200	Burn Pan 4′x8′x1′	EM	
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
SWAT-T/SWAT-TX Distraction Devices					
SWAT-T/SWAT-TX Units	1	200	Burn Pan 4′x8′x4′	BP or M9, EM	
SWAT-T Delay Composition	4	200	Burn Pan 4′x8′x4′	BP or M9, EM	
SWAT-TX Delay Composition	4	150	Burn Pan 4′x8′x4′	BP or M9, EM	
Booster Charge	2	100	Burn Pan 4′x8′x4′	BP or M9, EM	Diesel
Ignition Charge	2	5	Burn Pan 4′x8′x4′	BP or M9, EM	Diesel
Output Charge	2	5	Burn Pan 4′x8′x4′	BP or M9, EM	Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
ICI Security Packs					
ICI Units	4	200	Burn Cage 4′x8′x4′	BP or M9, EM	
ICI Smoke Composition	4	100	Burn Pan 4′x8′x2′	BP or M9, EM	Diesel
Contaminated Industrial Material	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
583 Parachute Flare					
583 Units	2	50	Burn Pan 4′x8′x1′	BP or M9, EM	
Tungsten/Barium Chromium Delay Composition	4	200	Burn Pan 4′x8′x1′	BP or M9, EM,FF	
First Fire Ignition Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Illuminating Composition	2	200	Burn Pan 4′x8′x1′	BP or M9, EM	
Primers	4	5	Burn Pan 4′x8′x1′	BP or M9, EM	Wood, Diesel
Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP or M9, EM	
992/585					
992/585 Illumination/Ignition Composition	4	200	Burn Pan 4′x8′x1′	BP, EM	Diesel
992/585 Cartridge Assembly with M9	4	100	Burn Pan 4′x8′x1′	BP, EM	Diesel
992/585 Illumination/Ignition Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
992/M49/585					
Illumination/Ignition Composition	4	200	Burn Pan 4′x8′x1′	BP, EM	Diesel
992					
992 Cartridge Case with Tungsten Assembly	4	100	Burn Pan 4′x8′x1′	BP, EM	Diesel
992 Cartridge Assembly with M9	4	100	Burn Pan 4′x8′x1′	BP, EM	Diesel
M992 Delay Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
992/M49					
992/M49 Illumination/Ignition (Energetic) Composition	2	200	Burn Pan 4′x8′x1′	BP, EM	Diesel
992/M49 Illumination/Ignition (Energetic) Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
M49					
M49 Contaminated Industrial Materials with First Fire Delay	5	500	Burn Cage 4′x8′x4′	BP, EM	
M49 Primer Covers	1	200	Burn Pan 4′x8′x1′	BP, EM	Diesel
Uncategorized					
Tungsten Delay Assembly	4	50	Burn Pan 12″x12″x6′	BP, EM	Diesel

Table II.A.5-2
Summary of Reactive Wastes and Treatment Methods
Chemring Ordnance, Inc., Perry, Florida

Reactive Waste	Group	Weight [a] (pounds)	Receptacle [b] (feet by feet by feet [or inches as indicated])	Ignition Train	Fuel
BES Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
A5 Powder	3	50	Burn Pan 12″x12″x6′	BP, EM	Diesel
PBXN-10 and 9 (Composition)	3	50	Burn Pan 12″x12″x6′	BP, EM	Diesel
PBXN Energetic Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
TNT (Energetic Composition/Pellets)	3	50	Burn Pan 12″x12″x6′	BP, EM	Diesel
TNT Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
992/662					
992/662 Delay Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
992/583/662					
992/583/662 Illumination/Ignition Composition	1	200	Burn Pan 4′x8′x1′	BP, EM	Diesel
992/583/662 Illumination/Ignition Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	
992/583					
992/583 Delay Cartridge Case Assembly with M9	4	200	Burn Pan 4′x8′x1′	BP, EM	Diesel
992/583Delay Contaminated Industrial Materials	5	500	Burn Cage 4′x8′x4′	BP, EM	

Notes:
The column entitled "Rapid Heat Loss" formerly included in this table has been removed from this version.
[a] Maximum net weight of reactive material burned per event.
[b] Typically sized receptacle.
BP = Black Powder. Black Powder or Black Mag may be used interchangeably. To the greatest extent possible, any useable scrap black powder and /or black mag will not be classified as waste but will be used as part of the thermal treatment ignition train.
EM = Electric Match.
FF = First Fire Composition.
HMX = Cyclotetramethylenetetranitramine.
ICI = Imperial Chemical Industries.
MJU = Magnesium jellied unit.
MK = Mark (a U.S. Department of Defense-designated acyroname).
PETN = Pentaerythritol tetranitrate.
RDX = Cyclo-1,3,5-trimethylene-2,4,6-trinitramine.
SWAT = Special weapons and tactics.

Groups:
1 = Normal Pyrotechnics.
2 = High Energy Pyrotechnics.
3 = High Explosives.
4 = Low Energy Pyrotechnics.
5 = Contaminated Industrial Materials.

Table II.A.5-3
Burn Residue Toxicity Characteristic Leaching Procedure (TCLP) Analytical Results
Chemring Ordnance, Inc., Perry, Florida

		Parameter (milligrams per liter)							
		Mercury	**Arsenic**	**Barium**	**Cadmium**	**Chromium (total)**	**Lead**	**Selenium**	**Silver**
	Regulatory Level	**0.20**	**5.0**	**100**	**1.0**	**5.0**	**5.0**	**1.0**	**5.0**
Date	**Residue Description**								
May 2001	875 Test Residue	—	—	—	—	—	<0.15	—	—
	Security Pac Residue	—	—	0.322	—	**6.14**	—	—	—
February 2002	MAG/TEF Burn Residue	—	—	<1.0	—	<0.2	<0.2	—	—
	Lead Dispersion	—	—	—	—	—	**630**	—	—
	Der Seal Mix Ph 8.5	—	—	—	—	**180**	—	—	—
	Cartridge Case/Primer Burn Residue	—	—	11	<0.1	—	—	—	—
	MAG/TEF Burn Residue, Dr2	—	—	1.3	—	<0.2	<0.2	—	—
October 2003	Primer Burn Residue M42	—	—	<1.0	<0.1	—	<0.2	—	—
October 2004	Zinc Burn Residue	—	—	14	—	1.3	—	—	—

Notes:
Numbers in Bold= Value exceeds Maximum Contaminant Level.
— = not tested.

Table II.A.5-4
Burn Residue Disposal Procedures
Chemring Ordnance, Inc., Perry, Florida

Group	Common Name of Waste	Potential TCLP Hazardous Constituents	U.S. EPA Hazardous Waste Numbers
1	MK124 Pellet Composition	NA	
1	Black Powder	NA	
1	Composition A1A	NA	
1	M9 Propellant	NA	
1	MK46 Igniter Composition	Lead	D008
1	MK46 Starter Composition	NA	
2	MK124 Flare Composition	NA	
2	MK124 Ignition Composition	Lead[a]	D008
2	Mag-Tef Composition	NA	
2	Crypto Ignition Mixture	NA	
2	TH4 Thermate Crypto	Barium[a] Lead[a]	D005 D008
3	Lead Azide - M76	Lead[a]	D008
3	Composition A-5	NA	
3	Composition RDX	NA	
3	Composition CH-6	NA	
4	Zirconium-Nickel Delay Composition	Barium[a] Chromium[a]	D005 D007
4	MN Delay Group	Barium Chromium Lead	D005 D007 D008
4	MK124 Smoke Composition	Lead[a]	D008
4	Smoke Composition M-80	NA	
3	MK137 Primer Composition	NA	
4	Flash Composition	NA	
4	Loaded 38 Cal. Brass w/Primer and or Propellant (38 Cal.)	Barium Cadmium[a] Lead[a]	D005 D006 D008
2	Crypto First Fire	NA	
5	Contaminated Industrial Materials	Barium Chromium Lead[a]	D005 D007 D008
4	MK124 Smoke Candles	Lead	D008
2	MK124 flare Candles	Lead	D008
4	MK124 Floor Sweepings	Lead[a]	D008
1	MK46 Igniters	Lead	D008
1	Red Dot Propellant (sustaining)	NA	
1	Igniter Composition (201 Fuze)	NA	
4	Loaded 201	Barium Chromium	D005 D007
4	Primers (201 Fuze)	Barium Cadmium[a] Lead[a]	D005 D006 D008
4	Delay Housing M76	Barium Cadmium[a] Chromium Lead[a]	D005 D006 D007 D008
3	Burster housing M76	NA	
4	M781 Primers	PK - Barium Lead	D005 D008

Table II.A.5-4
Burn Residue Disposal Procedures
Chemring Ordnance, Inc., Perry, Florida

Group	Common Name of Waste	Potential TCLP Hazardous Constituents	U.S. EPA Hazardous Waste Numbers
2	M4 Igniter Bag Charge	NA	
1	Bulleyes (Sustaining Smoke) MK137	NA	
4	403 Fuze (Unit)	PK — Barium Chromium	D005 D007
4	403 Fuze Slurry Composition (M22) First Fire	NA	
3	M84 Detonators	PK — Lead	D008
3	M100 Detonators	PK — Lead	D008
2	SM875 Flares	PK — Lead	D008
2	SM875 Flares (Delay Composition)	PK — Lead	D008
2	SM875 Flares (Flare, Illuminating Composition)	NA	
2	SM875 Flare Ignition Comp (w/out Pb)	NA	
1	Black Mag	NA	
2	MJU-32B Flare (Ignition, Flare Compositions)	NA	
2	MJU-38B Flare (Ignition, Flare Compositions)	NA	
	M116A1 Priming Paste	PK — Barium Chromium	D005 D007
	M116A1 Igniter Charge	NA	
	M116A1 Flash Composition	NA	
2	M206 IR Flare (Unit)	NA	
2	M49 Trip Flare (Unit)	PK — Barium Cadmium Chromium Lead	D005 D006 D007 D008
4	M49 Trip Flare (Primer)	PK — Barium Cadmium Lead	D005 D006 D008
2	M49 Trip Flare (First Fire)	PK — Barium Chromium	D005 D007
2	M49 Trip Flare (Ignition, Illumination, Insulating Compositions)	NA	
4	SWAT-TX Delay Composition	PK — Barium Chromium	D005 D007
4	SWAT-T Delay Composition	NA	
2	SWAT-TX; SWAT-T Booster Charge	NA	
2	SWAT-TX; SWAT-T Output Charge	NA	
1	BBU36/B Booster charge	NA	
1	BBU36/B Initiation Charge	NA	
1	BBU36/B Output Charge	NA	
3	201 Slug	NA	
3	Composition B	NA	
3	Blasting Caps	PK — Lead	D008
3	Detonator Cord (PETN)	NA	
3	Detonator Cord (Lead Azide)	PK — Lead	D008
4	M213 Detonators	PK — Lead	D008
4	ICI Red Smoke Composition	NA	
4	ICI Violet Smoke Composition	NA	
4	Tungsten Delay Composition (583 Parachute Flare)	PK — Barium PK — Chromium	D005 D007
4	M433I Stab Detonators	PK — Lead	D008

Notes:

[a] TCLP failure noted for this residue.

EPA	=	U.S. Environmental Protection Agency.
ICI	=	Imperial Chemical Industries.
MJU	=	Magnesium jellied unit.
MK	=	Mark (a U.S. Department of Defense-designated acyroname).
NA	=	Material contains no constituents (Table II.A.5-1) and/or no TCLP failures were noted for this residue.
PK — Chemical	=	Process knowledge used to characterize residue (e.g., chemical composition of ingredients, decomposition equations).
SWAT	=	Special weapons and tactics.
TCLP	=	Toxicity characteristic leaching procedure.

Groups:

1	=	Normal Pyrotechnics.
2	=	High Energy Pyrotechnics.
3	=	High Explosives.
4	=	Low Energy Pyrotechnics.
5	=	Contaminated Industrial Materials.

Table II.A.5-5
Physical and Chemical Properties of Waste Ingredients
Chemring Ordnance, Inc., Perry, Florida

Ingredient	CAS	Molecular Weight	Physical State	Density (g/cm^3)	Solubility in Water	Melting Point (°C)	Boiling Point (°C)
boron	7440-42-8	10.811	solid	2.46	insoluble	2,092	4,002
potassium nitrate	7557-79-1	101.8	solid	2.109	13.3 @ 0°C	333	400
sulfur	7704-34-9	32.066	solid	2.07	insoluble	95.5 - 118	444
charcoal			solid	0.21			
zirconium	7440-67-7	aw 40	solid	6.49	insoluble	1,850	3,578
diatomaceous earth	61790-52-2		solid	1.9 - 2.35	insoluble		
nitrocellulose	9004-70-0	$(262.64)_n$	solid	1.66		160 - 170	
nitroglycerin	55-63-0	227.09	solid @ 56°C	1.59	0.1%	13.2	50 - 60
ethyl centralite			solid	1.12	insoluble	79	325
lead dioxide	1317-36-8	239.19	solid	9.375	insoluble	290	
dextrin	9004-53-9	162.14	solid	1.03	soluble		
strontium nitrate	10042-76-9	211.64	solid	2.986	soluble	570	580 - 600
potassium perchlorate	7778-74-7	138.55	solid	2.535 @ 0°C	.75 @ 0°C	610	588
polyvinyl chloride	75-01-4	60,000 – 150,000	solid				263 - 476
asphaltum	8052-42-4		solid		insoluble		
lead tetraoxide	1317-36-8	685.57	solid	8.32 - 9.16	insoluble	500	
fluoroelastomeric enzyme							
tetrafluoroethylene	116-14-3	100.02	gas	1.58^{-78}	soluble	-142.5	-76.3
titanium	7440-32-6	aw 47.90	solid	4.4 - 4.506	insoluble	1,677	3,277
iron oxide	1309371	159.7	solid	5.24	insoluble	1,800	3,262
aluminum	7429905	26.982	solid	2.70	insoluble	660	2,520
black iron oxide	1309371			5.18	insoluble	1,538	
barium nitrate	10022-31-8	261.34	solid	3.24	8.7%@20°	592	
polyester binder		various	solid	various	various	various	various
lead azide	13424-46-9	291.24	solid	4.0	insoluble		xpl @ 350
cyclotrimethylenetrinitramine	121-82-4	222.13	solid	1.2 - 1.802	insoluble	202	
stearic acid	57-11-4	284.54	solid	.847	insoluble	69 - 70	361.9
calcium stearate	1592-23-0	607.00	solid	20 lbs/ft^3	insoluble	147 - 149	
graphite	7782-45-5		solid	2.09 - 2.23			
polyisobutylene		12,000 – 100,000	liquid/solid	.95	insoluble	135.5 - 141	
zirconium nickel		149.914	solid	7.20 - 8.10			
barium chromate	10294-40-3	255.33	solid	4.49	insoluble		
polyvinyl alcohol	9002-89-5	$(44.065)_n$	solid	1.329	soluble	200	

Table II.A.5-5
Physical and Chemical Properties of Waste Ingredients
Chemring Ordnance, Inc., Perry, Florida

Ingredient	CAS	Molecular Weight	Physical State	Density (g/cm^3)	Solubility in Water	Melting Point (°C)	Boiling Point (°C)
manganese	7439-96-5	54.938	solid	7.44		1,245	2097
xylene-B-naphthol							
1-methylaminoanthraquinone	82-38-2	296.32	solid	0.38		>168	
lead styphnate	15245-44-0	450.3	solid	2.5	<0.02%		xpl @ 260
antimony sulfide	12627-52-0	339.7	solid	4.64	insoluble	550	
tetracene	109-27-3	188	solid	1.65	insoluble		
silicon dioxide	7631-86-9	60.08	solid	2.32 - 2.66	insoluble	1,610 – 1,710	
sodium nitrate	7631-99-4	85	solid	2.261	soluble	308	380
pentaerythrite tetranitrate	78-11-5	316.14	solid	1.773	insoluble	140	
cyclotetramethylene tetranitramine	2691-41-0	296.16	solid	1.9	insoluble	275	
diphenylamine	122-39-4	169.22	solid	1.16	insoluble	52.9	302
ascorbic acid	50-81-7	176.14	solid	1.65	soluble	192	
camphor	76-22-2	152.24	solid	0.992	soluble	179.75	204
silicon	7440-21-3	28.09	solid	2.33	insoluble	1,410	2,600
2,4,6-trinitrotoluene	118-96-7	247.13	solid	1.654	insoluble	80.9	xpl @ 232
Tungsten		183.92	Solid	19.3	Insoluble	3,370	5,900

Sources:
CRC Handbook of Chemistry and Physics, CRC Press, 72nd Edition, 1991-1992.
Encyclopedia of Explosives and Related Items, PATR 2700, Vol. 8-10, U.S. Army Armament Research and Development Command, 1982.
Hawley's Condensed Chemical Dictionary, Von Nostrand Reinhold Company, 12th Edition, 1993.
Lange's Handbook of Chemistry, McGraw-Hill Inc., 14th Edition, 1992.
Perry's Chemical Engineering Handbook, McGraw-Hill Inc., 7th Edition, 1997.
The Merck Index, Merck & Company, Inc., 11th Edition, 1989.

Notes:
Physical state, density, and solubility in water are at standard temperature and pressure unless otherwise specified.

°C	=	degrees Celsius.
aw	=	atomic weight.
Blank cells	=	not available.
CAS	=	Chemical Abstracts Service.
g/cm3	=	grams per cubic centimeter.
lbs/ft3	=	pounds per cubic foot.
xpl	=	explodes.

Table II.A.5-6
Non-Reactive Waste Streams
Chemring Ordnance, Inc., Perry, Florida

Waste Stream	Hazardous Waste Classification	Source	Disposal Procedure
Hexane/Acetone	D001/F003	Flare Production	Hazardous Waste Disposal Contractor
Machine Oil	NRM	Parts Production and Cleaning	Oil Recycler
Waste Paint/ Toluene/Xylene	D001, F003, F005	Paint Production	Hazardous Waste Disposal Contractor
Waste Paint	D001	Paint Production	Hazardous Waste Disposal Contractor
Oily/Wash Water Mixture	NRM	Compressor Blowdown/Laundry	Oil Recycler
X-ray Fixer/Developer	D011	X-ray of assemblies	Hazardous Waste Disposal Contractor
Waste Acetone	D001/F003	Parts Production	Hazardous Waste Disposal Contractor
Chromic Acid Sludge/ Clay Absorbent	D007	Electroplating	Hazardous Waste Disposal Contractor
Chromic Acid Solution	D002/D007	Electroplating	Hazardous Waste Disposal Contractor
Sodium Hydroxide Cleaner	D002	Electroplating	Hazardous Waste Disposal Contractor
Alcohol/WD 40 Mixture	D001	Parts Production	Hazardous Waste Disposal Contractor
Lead Dispersion CIM	D008	Parts Production	Hazardous Waste Disposal Contractor
Oily Pigments/Absorbent	NRM	Clean-up	Hazardous Waste Disposal Contractor
Chromium Contaminated Materials	D007	Electroplating	Hazardous Waste Disposal Contractor
Phosphate Sludge/Clay Absorbent	NRM	Electroplating	Hazardous Waste Disposal Contractor
Toluene CIM	F005	Parts Production	Hazardous Waste Disposal Contractor
Heavy Metal Contaminated Water	D005/D007/D008	Moping/cleaning	Hazardous Waste Disposal Contractor
Chromium Filter Cake	D007	Wastewater Treatment Process	Hazardous Waste Disposal Contractor

Notes:
CIM = Contaminated industrial material.
NRM = Non-regulated material.

Subattachment II.A.5-1
Thermal Treatment Work Instructions and Standard Operation Procedures

TITLE: Collection and Transportation of Reactive Waste

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SECTION 1: TITLE BLOCK

a. Title: **Collection and Transportation of Reactive Waste**		
b. Work Instruction ID No.: **COR-TT-1000**	c. Revision: D	d. Date: 05/22/2015
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1000	
g. Building Number: All Production Areas	h. Bay Number:	i.Operation Number:

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:		EXPLOSIVE LIMITS:		
a. Operators:	2	d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	1	N/A	Reactive Waste	Varies
c. Total:	3			

SECTION 3: PREREQUISITE SAFETY TRAINING

1.) The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.
2.) If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.
3.) Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.
4.) Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.
5.) HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers
6.) Understanding of Range Safety Policy COR-SAF-049

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor

TITLE: Collection and Transportation of Reactive Waste

Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Cotton Coveralls	☒	
Conductive Shoes	☒			Leather Gloves	☒	
Cotton Clothing	☒					

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
55 gallons or less	Penalties/Fines/CAR/Flash/Burn/Explosion	Monitor area/PPE

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Energetic Material	Flash/Burn/Explosion	PPE	Seek Medical Attention

e. Safety Systems	f. Function of Safety System
Two Way Communication	To alert proper authorities of emergencies

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
Golf Cart/Vehicle	N/A
Trailer	N/A
2-Way Radio	Channel 2

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
Label/Tags	N/A	N/A
Black Ink Pen	N/A	N/A
Log Sheets	N/A	N/A
Black Velostat, Poly Pink Bag and/or Drum for Scrap	N/A	N/A
Sharpie Marker	N/A	N/A

Procedure: Ensure labels or tags on reactive waste collected have the appropriate hazardous waste codes; hazardous waste numbers; type of waste (i.e. slurry contaminated industrial material) and bldg. number where collected.

No.	Startup Checks and Settings

SECTION 9: NORMAL OPERATIONS

TITLE: Collection and Transportation of Reactive Waste

Procedure:	
No.	**Instruction Step**
Note:	**The Supervisor of each area that generates Reactive Waste is responsible for the following actions:**
1.	Establishing procedures within his/her area, which will ensure that reactive waste is removed from the operating location(satellite area) by designated personnel only.
2.	Supervisors will ensure that containers in satellite areas are in good condition and properly labeled in accordance with environmental regulations.
Note:	**The Blending/Energetic Department is responsible for the following actions:**
1.	Proceed to building satellite area, using inspected golf cart/vehicle and trailer.
2.	Ensure that there are no spark-producing metal, spark-producing tools, matches or electric devices being carried in the body of the transport vehicle or trailer. Do not transport when range is “HOT”.
3.	Designated personnel will collect reactive waste from satellite areas in scrap containers and replacing bags where necessary throughout facility. Use designated route COR-SAF-F136.
4.	Do not pick up waste if not properly prepared and packaged.
5..	Ensure scrap containers are closed and proplerly labeled with content, Hazardous Waste No., Hazard Code(s) and the area from which the waste was generated.
6.	Place the reactive material in the trailer and transport to thermal treatment staging area building per waste group. No reactive material shall be transported inside transport vehicle. **DO NOT TRANSPORT INTIATORS WITH OTHER WASTE.**
Note:	**In the event of CODE 25 immediately STOP scrap collection and take trailer to field behind P18 that is designated for trailer storage.**
7.	Weigh reactive waste in building and place ID log number, date, and weight on label.
8.	Enter information on permanent record (i.e., log in date, assigned log number, type of reactive waste, weights, generation areas and types of hazards) for each staging area.
9.	Verify load limit is not exceeded.
SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**
SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	

TITLE: Collection and Transportation of Reactive Waste

No.	Instruction Step
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: COLLECTION AND TRANSPORTATION OF REACTIVE WASTE

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (03/25/13)

TITLE: OPEN BURN UNIT QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION

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SECTION 1: TITLE BLOCK

a. Title: **OPEN BURN UNIT QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION**		
b. Work Instruction ID No.: **COR-TT-1002**	c. Revision: C	d. Date: 09/23/2014
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1002	
g. Building Number: N/A	h. Bay Number: N/A	i.Operation Number: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:		EXPLOSIVE LIMITS:		
a. Operators:	1	d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	2	N/A	N/A	N/A
c. Total:	3			

SECTION 3: PREREQUISITE SAFETY TRAINING

1.) The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.
2.) If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.
3.) Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.
4.) Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.
5.) HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers
6.) Understanding of Range Safety Policy COR-SAF-049

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor

TITLE: OPEN BURN UNIT QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION

Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Cotton Coveralls	☒	
Conductive Shoes	☒			Leather Gloves	☒	
Cotton Clothing	☒					

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
Personal Limits	Fire/Flash/Explosion	PPE/Work Instruction

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Energetic Materials	Fire/Flash/Explosion	PPE/Work Instruction	Seek Medical Attention

e. Safety Systems	f. Function of Safety System
Two Way Communication	To alert proper authorities of emergencies

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
N/A	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
N/A	N/A	N/A

Procedure: N/A

No.	Startup Checks and Settings

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
Note:	• Verify with Document Control that you are using the current revision number of COR-SAF-F018 • Inspect the OBU every quarter

TITLE: OPEN BURN UNIT QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION

1.	Enter either "Yes" or "No" to the items listed below on COR-SAF-F018 Section A—Condition of Concrete Pad and Rail System 1.1 Does the monolithic pad or the individual burn pads exhibit signs of severe cracking or chipping 1.2 Does the curbing of the monolithic pad or the individual burn pads exhibit signs of severe cracking or chipping 1.3 Does the concrete footer for the rail system exhibit signs of severe cracking or chipping 1.4 Does the rail system, including the brackets and associated tie down hardware exhibit signs of severe warping/rusting or missing parts 1.5 Does the pad sealant exhibit signs of severe deterioration
2.	Inspect the OBU every quarter and enter either "Yes" or "No" to the items listed on COR-SAF-F018 Section B – Condition of Canopy System. 2.1 Are canopy sheets missing or are gaps apparent 2.2 Are signs of severe rusting apparent 2.3 Are canopy support beams exhibiting signs of severe warping or rusting 2.4 Are cables becoming noticeably loose or severely fraying
3.	Inspect the OBU every quarter and enter either "Yes" or "No" to the items listed on COR-SAF-F018 Section C –Surrounding Lime Rock. 3.1 Are signs of significant lime rock erosion apparent along either the monolithic pad or the rail footer 3.2 Are signs of severe depressions as a result of vehicular traffic apparent
4.	Detailed description of Identified Items that Require Maintenance on COR-SAF-F018, Section D 4.1 Enter detailed description of any "Yes" response from above in spaces provided in this Section 4.2 Enter Date of inspection and Name of individual performing the inspection in space provided 4.3 Enter Date and Time of any Maintenance actions to any above "Yes" responses in the spaces provided 4.4 Enter Date that Maintenance actions were verified as completed and the Name of the individual verifying completion in the spaces provided.

SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**

SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

SECTION 13: NORMAL SHUTDOWN
Procedure:

TITLE: OPEN BURN UNIT QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION

No.	Instruction Step
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: OPEN BURN UNIT QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (03/25/13)

TITLE: THERMAL TREATMENT OF REACTIVE WASTE

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SECTION 1: TITLE BLOCK

a. Title: **THERMAL TREATMENT OF REACTIVE WASTE**		
b. Work Instruction ID No.: **COR-TT-1003**	c. Revision: J	d. Date: 09/23/2014
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1003	
g. Building Number: N/A	h. Bay Number: N/A	i.Operation Number: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:			EXPLOSIVE LIMITS:		
a. Operators:	2		d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	2		OBU	Reactive Waste	Varies
c. Total:	4				

SECTION 3: PREREQUISITE SAFETY TRAINING

1.) The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.
2.) If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.
3.) Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.
4.) Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.
5.) HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers
6.) Understanding of Range Safety Policy COR-SAF-049

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor

TITLE: THERMAL TREATMENT OF REACTIVE WASTE

Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Cotton Coveralls	☒	
Conductive Shoes	☒			Leather Gloves	☒	
Cotton Clothing	☒					

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
500 lbs Maximum	Penalties/Fines	Ensure weights are accurate

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Diesel Fuel	Refer to MSDS located in Building 12 Office	Avoid skin contact	Wash skin thoroughly
Acetone	Flammable; Refer to MSDS located in Building 12 Office	Use Non-sparking utensils Use in well ventilated areas	Move to fresh air area

e. Safety Systems	f. Function of Safety System
Two Way Radio	To alert proper authorities of thermal treatment and for emergencies
Fire Extinguisher	To extinguish small fires that are outside burn pads
Fire Truck	To extinguish larger fires that are outside burn pads
OBU Contingency Plan	To be carried out immediately whenever there is a fire, explosion or release of hazardous waste or hazardous constituents that could threaten Human Health or the Environment.

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
Two Way Radio	Channel 2
Burn Pan 12'X12'6" with expanded steel	DWG# 10001000
Burn Cage 8'X4'X4'	DWG# 10005000
Burn Pan 4'X8'X1'	N/A
Rake	N/A
Shovel	N/A
Broom	N/A

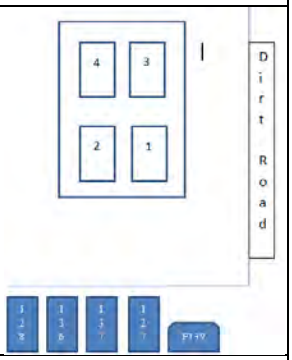
TITLE: THERMAL TREATMENT OF REACTIVE WASTE

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
Electric Matches	N/A	N/A
Inert Materials	N/A	N/A
Charcoal	N/A	N/A
55-gal open top metal drum	N/A	N/A
Label	N/A	N/A

Procedure: Startup Checks and Settings	
1.	Only trained and qualified personnel that are designated to handle reactive waste materials can perform this procedure.
2.	Only those reactive waste and weight limits listed on the attached burn table can be thermally treated at the Open Burn Unit (OBU).
3.	Ensure all unnecessary personnel are clear of the area.
4.	Obtain wind speed and direction. • For the treatment of Lead Azide, MK46 Igniter Component and MK124 Flare Candles, the wind speed shall be between 4.5 mph and 15 mph within 2 hours before and after projected thermal treatment. • All Other Waste: The wind speed shall be below 15 mph within 2 hours before and after projected thermal treatment. • Obtain Humidity. NOTE: Must be above 30%.
Note:	Must have an absence of thunderstorms/lightning within 2 hours of thermal treatment.

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
Note:	USE 2-WAY RADIO FOR COMMUNICATION WITH OTHER PERSONNEL IN CASE OF AN EMERGENCY
1.	Two operators shall log out and remove container(s) of reactive waste from storage building and place in trailer.
2.	Transport reactive waste to designated burn pad * Pad 1 (first pad to the left is for non hazardous waste). * Pad 2 (second pad on the left is for non hazardous waste). * Pad 3 (first pad on the right is for hazardous waste with the hazard codes of D005, D007). * Pad 4 (second pad on the right is for hazardous waste with the hazard code of D008). 
3.	Two operators shall carefully remove waste from trailer onto burn pad

TITLE: THERMAL TREATMENT OF REACTIVE WASTE

4.	For Energetic Material: Open containers and spread waste evenly within confines of burn pan. Apply ignition train if required. Proceed to step marked, "🗐" NOTE: 228/213 Fuze Units shall be burned separately from any other reactive materials; zinc dross resulting from thermal treatment is sent out for recycling.
5.	For Contaminated Industrial Material: Carefully place poly pink bags evenly within confines of burn cage, open one bag for application of ignition train. Proceed to step marked, "🗐"
6.	For Diesel Fuel on Energetic Material: Dispense diesel fuel evenly throughout the energetic material. Apply approximately 200 grams of M9 to wetted material. Proceed to step marked, "🗐"
7.	For using Inert Materials and Diesel Fuel on Energetic Material: Place inert material on bottom of pan. Place energetic material on top of inert material. Dispense diesel fuel evenly throughout the materials. Apply approximately 200 grams of M9 to wetted material. Proceed to step marked, "🗐"
8. 🗐	Attach electric matches (2) to lead wires, using electrical tape, and insert into reactive waste and ignition train. [Lead line should be shunted at the ends to reduce stray current hazard.]
9.	Withdraw to barricade, ensure fire truck is in position to extinguish any secondary fires that may occur after burn.
10.	NOTE: Only qualified and trained personnel with a valid Blasters Permit are authorized to set off a burn. Insert two lead wires into blasting machine; press down on charge button on the left side until charge light comes ON. While still pressing the charge button, press the firing button on the right-hand side of the blasting machine. (This will ignite the ignition train and waste.)
11.	If a misfire occurs, take the following precautions: Disconnect the lead wire from the blasting machine and shunt the ends of the line. Wait at least 15 minutes before returning to the area. Investigate and correct the misfire with experienced personnel.
12.	Personnel should remain in position after the burn to ensure that there are no secondary fires.
13.	Let burn residue cool down for a minimum of three hours, or until it can be safely removed.
14.	Fill out OBU Burn Report: COR-ENV-F026
SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**
SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	

TITLE: THERMAL TREATMENT OF REACTIVE WASTE

No.	Instruction Step
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	At the end of the day close the cover to the burn pad amd chain it down.
2.	If at any time during the day it looks like rain close the cover.
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: THERMAL TREATMENT OF REACTIVE WASTE

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (03/25/13)

TITLE: POST THERMAL TREATMENT PROCEDURE

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SECTION 1: TITLE BLOCK

a. Title: **POST THERMAL TREATMENT PROCEDURE**		
b. Work Instruction ID No.: **COR-TT-1004**	c. Revision: G	d. Date: 09/24/2014
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1004	
g. Building Number: N/A	h. Bay Number: N/A	i.Operation Number: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:		EXPLOSIVE LIMITS:		
a. Operators:	3	d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	2	N/A	N/A	N/A
c. Total:	5			

SECTION 3: PREREQUISITE SAFETY TRAINING

1.) The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.
2.) If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.
3.) Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.
4.) Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.
5.) HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers
6.) Understanding of Range Safety Policy COR-SAF-049

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor

TITLE: POST THERMAL TREATMENT PROCEDURE

Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Cotton Coveralls	☒	
Conductive Shoes	☒			Leather Gloves	☒	
Cotton Clothing	☒					

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
500 lbs maximum per day	Possible Fines	Ensure weights are accurate

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Energetic Material	Flash/Burn	PPE/Work Instruction	Seek Medical Attention

e. Safety Systems	f. Function of Safety System
Two Way Communication	To alert proper authorities of emergencies

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
Golf Cart/Vehicle	N/A
Tractor with forks	N/A
Trailer	N/A
2-Way Radio	Channel 2
Brooms	N/A
Dust pan	N/A
Shovels	N/A
Ratchet with 15/16 in socket	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
55-gal open top metal drum	N/A	N/A
Label	N/A	N/A

Procedure:

No.	**Startup Checks and Settings**

SECTION 9: NORMAL OPERATIONS

Procedure:

TITLE: POST THERMAL TREATMENT PROCEDURE

No.	Instruction Step
Note:	Use of a 2-way radio for communication with other personnel in case of an emergency
Note:	Must wait a minmum of 24 hours from ignition time to Clean Up.
1.	After thermal treatment, allow residue to cool down until safe to handle.
2.	Remove residue from burn pan and containment pad area, using brooms and shovel.
3.	Place residue into open top metal drum and label type of residue and if necessary hazardous waste number and hazard codes.
4.	Move drum to satellite or 90 day staging area, as appropriate. When satellite drum is full, date and move to 90 day staging area.
5.	All drum residues will be dispositioned per environmental.
6.	Ensure cover is over burn pads.
7.	Return all brooms, shovels, etc., to storage building.
SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**
SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Always make sure that the cover is closed and chained down over the pads.
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: POST THERMAL TREATMENT PROCEDURE

TITLE: POST THERMAL TREATMENT PROCEDURE

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (03/25/13)

TITLE: OPEN BURN UNIT OPERATING RECORD

SECTION 1: TITLE BLOCK

a. Title: **OPEN BURN UNIT OPERATING RECORD**		
b. Work Instruction No.: **COR-TT-1005**	c. Revision: **F**	d. Date: **3-1-11**
e. Program Name: Thermal Treatment	f. File Name: **COR-TT-1005**	
g. Building No.: N/A	h. Bay No.: N/A	i. Operation No.: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS (add/delete rows as required)

PERSONNEL LIMITS:		EXPLOSIVE LIMITS: (delete extra lines)		
a. Operators:	2	d. Location/Station:	e. Type: (Explosives/Components)	f. Amount:
b. Casuals:	1	N/A	N/A	N/A
c. Total:	3			

SECTION 3: OPERATOR TRAINING

SAFETY TRAINING: 4

1.) **The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.**
2.) **If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.**
3.) **Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.**
4.) **Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.**
5.) **HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers**

The only

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor/First Responder/911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	PPE	All Steps
Safety Glasses	☒	Cotton Coveralls	☒
Conductive Shoes	☒	Leather Gloves	☒
Cotton Clothing	☒		

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
500 lbs maximum per day	Possible fines/Flash/Fire	Ensure weights are accurate

TITLE: OPEN BURN UNIT OPERATING RECORD

SECTION 7: SAFETY & HEALTH CONSIDERATIONS			
a. Chemical Name	**b. Hazards *(unique hazards)***	**c. Safety Precautions**	**d. Actions if Exposed**
Energetic Materials	Flash/Fire	PPE/Work Instruction	Seek Medical Attention

e. Safety Systems	**f. Function of Safety System**
Two Way Communication	To Alert proper authorities of emergencies

SECTION 8: INITIAL STARTUP	
a. Equipment	**b. Equipment Settings**
N/A	N/A

c. Materials	**d. Quality Control Requirements**	**e. Maximum Intended Inventory**
N/A	N/A	N/A

Procedure: This procedure is to be completed by Environmental Assistant Manager or designated environmental personnel.

SECTION 9: NORMAL OPERATIONS	
Procedure:	
No.	**Instruction Step**
Obtain OBU Burn Report form from OBU operator	
1.	Complete Section A on the OBU Operating Record.
2.	Enter date and pad number at the top of the Operating Record NOTE: Verify with Document Control that you have the current revision number of this form.
3.	Notify the Division of Forestry, using the OBU telephone call the receptionist at 220 and inform her to call forestry and tell them that a thermal treatment will be conducted.
4.	Obtain wind speed and direction. **NOTES**: • For the treatment of **Lead Azide, MK46 Igniter Component** and **MK124 Flare Candles**, the wind speed shall be between 4.5 mph and 15 mph within 2 hours before and after projected thermal treatment. • **All Other Waste:** The wind speed shall be below 15 mph within 2 hours before and after projected thermal treatment.
5.	Obtain Humidity. **NOTE**: Must be above 30%.
6.	Obtain dew point, temperature, visibility and sky conditions by using computer/Internet for weather information or calling Perry/Foley Airport (838-3526) **NOTE:** Must have an absence of thunderstorms/lighting within 2 hours of thermal treatment.
7.	Complete Section B of Burn Record. • Enter process that produced waste, common name of the waste; net weight in pounds, diesel used in gallons; inert used in pounds; time thermal treatment occurred. • Enter the following: Will M-9 B.P or B.M be used; will electric match be used; individual conducting thermal treatment; safety observer; 1,250’ area clear of unauthorized personnel and vehicles.

TITLE: OPEN BURN UNIT OPERATING RECORD

	Complete Section C on the Burn Record. • Enter Yes/No/NA to following: Was thermal treatment postponed; EPA handling code X01 used; complete combustion; residue removed same day; residue containerized; residue segregated; container properly labeled; container closed; container in good condition; additional treatment planned today; hot spots out; cover in good condition and placed over pad; Deficiency Request Form completed.
8.	Complete Section D on Burn Record.
9.	Enter any observation or comments in this section.
10.	Print Burn Record.
11.	Sign and date the Burn Record.
12.	Ensure clean up operations have been performed than complete attachment 2 • Enter Person(s) performing clean up Operations; residue containerized; residue segregated; container properly labeled; container closed; container in good condition; additional treatment planned today; hot spots out; cover in good condition and placed over pad; Deficiency Request Form completed.
13.	Complete Section D on Clean up Record.
14.	Enter any observation or comments in this section.
15.	Print Clean up Record.
16.	Sign and date the Clean up Record.
SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	N/A
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: OPEN BURN UNIT OPERATING RECORD

Attachment 1

OBU Operating Record for Date: ***Pad Number:***

Section A:

Division of Forestry Notified	Pads/Berms in Good Condition & Absent of Hot Spots	Visibility (miles):
		Sky Conditions:
Wind Speed (mph)	Burn Pads/Cages free of Hot Spots & Spots Loose Parts:	Spill Control Equipment Available:
Wind Direction	Significant Deterioration of Pad Sealant Absent:	Burn Pads Free of Residue:
Humidity		
Dewpoint	Sufficient QTY. Water in Fire Truck/Water Pump Operational:	Pad/Pans Absent of Rainwater:
Temperature (Fahrenheit)	Absence of Thunderstorms and Lightning w/in 2 hours	

Section B:

EPA Hazardous Waste #	EPA Hazard	Physical Form	Will M-9 B.P or B.M be Used:	Will Electric Match be Used:	Individual Conducting Thermal Treatment:	Safety Observer (s):	1250' Area Clear of Unauthorized Personnel and Vehicles:

Process Which Produced the Waste	Common Name of Waste	Net Weight (lbs)	Diesel Fuel Qty. Used (-Gal)	Qty. of Inert Material Used (lbs)	Time Thermal Treatment Occurred	Time Thermal Treatment Completed

Section C:

Residue Containerize:	Additional Treatment Planned Today:	Was Thermal treatment Postponed:
Residue Segregated:	Hot Spots Out:	EPA Handling Code X01 Used:
Container Properly Labeled	Cover in Good Condition and Placed over Pad:	Complete Combustion:
Container Closed:	Deficiency Repair Request Form Completed:	Residue Removed Same Day:
Container in Good Condition		

Section D:

Individual Completing Record (Print/Sign/Date): _____

TITLE: OPEN BURN UNIT OPERATING RECORD

Attachment 2

OBU Operating Record for Date: ***Pad Number:***

Person(s) performing clean up Operations**:**

Residue Containerize:

Additional Treatment Planned Today**:**

Residue Segregated:

Hot Spots Out:

Container Properly Labeled

Cover in Good Condition and Placed over Pad:

Container Closed:

Container in Good Condition

Deficiency Repair Request Form Completed:

Section D:

Individual Completing Record (Print/Sign/Date): _____

TITLE: OPEN BURN UNIT OPERATING RECORD

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervision and with frequent monitoring.***	*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***	*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with limited supervision.***

Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	***Verified By***	***Date***	***Employee***	***Verified By***	***Date***	***Employee***	***Verified By***	***Date***

TITLE: OPEN BURN UNIT OPERATING RECORD

TITLE: PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF

ITAR CONTROLLED

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SECTION 1: TITLE BLOCK

a. Title: **PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF**		
b. Work Instruction ID No.: **COR-TT-1006**	c. Revision: H	d. Date: 9-24-14
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1006	
g. Building Number: 127	h. Bay Number: N/A	i.Operation Number: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:			EXPLOSIVE LIMITS:		
a. Operators:	2		d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	1		Bldg. 127	Reactive Waste	1500 lbs.
c. Total:	3				

SECTION 3: PREREQUISITE SAFETY TRAINING

SAFETY TRAINING: 4

1.) **The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.**
2.) **If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.**
3.) **Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.**
4.) **Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.**
5.) **HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers**
6.) **Understanding of Range Safety Policy COR-SAF-049**

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor

TITLE: PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF

Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Cotton Coveralls	☒	
Conductive Shoes	☒			Leather Gloves	☒	
Cotton Clothing	☒					

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
500 lbs	Penalties/fines/Flash/Fire	Ensure weights are accurate/PPE

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Diesel fuel	Refer to MSDS sheets located in B. 12 Office	Avoid skin contact, wear PPE	Wash skin thoroughly
Acetone	Flammable; Refer to MSDS sheets located in B. 12 Office;	Use Non-sparking utensils Use in well ventilated areas, wear PPE	Move to fresh air area
Black Powder/ Illuminant/Ignition Comp and CIM	Flash/fire	Use Non-sparking utensils Use in well ventilated areas, wear PPE	Contact operator at 444 for first aid

e. Safety Systems	f. Function of Safety System
Two-Way Radio	To alert proper authorities of thermal treatment and for emergencies
Fire Extinguisher	To extinguish small fires that are outside burn pads
Fire Truck	To extinguish larger fires that are outside burn pads
OBU Contingency Plan	To be carried out immediately whenever there is a fire, explosion or release of hazardous waste or hazardous constituents that could threaten Human Health or the Environment

SECTION 8: INITIAL STARTUP

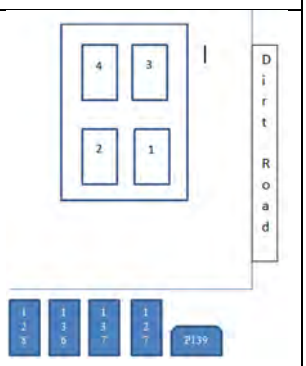
a. Equipment	b. Equipment Settings
Golf Cart/Vehicle	N/A
Two-Way Radio	Channel 2
Tractor with forks	N/A
Gator with trailer	N/A
Burn pan	N/A

TITLE: PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF

Burn cage	N/A
Pallet	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
Pen	N/A	N/A
Log Sheet	N/A	N/A
Drums of reactive waste	N/A	N/A

Procedure:

No.	**Startup Checks and Settings**
SECTION 9: NORMAL OPERATIONS	
Procedure:	
No.	**Instruction Step**
Note:	**USE 2-WAY RADIO FOR COMMUNICATION WITH OTHER PERSONNEL IN CASE OF EMERGENCY.**
1.	Obtain either the tractor and a pallet or the Gator and the trailer.
2.	Go to Building 127.
3.	Open the door to Building 127.
4.	Chain OPEN the door.
5.	Back the trailer with the pallet up to the door if using the tractor. Lower the forks on the tractor.
6	Move one drum at a time onto the pallet. Only four drums on the pallet at a time.
7	Move the drums to the OBU pad near pan #1 or #2. 
8	Using solvex gloved hands, remove the CIM from the drum and place inside the empty drum allowing as much diesel fuel as possible to drain from the CIM.
9	Repeat this process until all the CIM drums have been emptied into the previously empty drum.
10	If the diesel fuel can be reused, take the drum back to bldg. 127 and place on the appropriate pallet.
11	Replace the HAZMAT label with one that has all the up-dated information.

TITLE: PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF

12	Take the drums with the CIM and/or MAG TEF composition to building 137 and place them one at a time on the floor scales to obtain the weight of the material.
13	Once all the drums have been weighed and the weights recorded take the drums back to the OBU pad.
14	Back on the OBU pad, take the drums of MAGTEF composition and empty them into pans #1 or #2
15	Empty the contents of the CIM drums into the appropriate burn cages
16	If the drums can be re-used, load them onto the trailer for re-use.
17	Apply approximately 200 grams of black powder to the material to be burned.
18	Attach electric matches to the lead wires. Withdraw to the barricade.
19	Insert the lead wires into the blasting machine. Press down on charge button until charge light comes on. Press the fire button on the blasting machine.
20	If a misfire occurs, take the following precautions; Disconnect the lead wires from the blasting machine and shunt the wires. Wait at least 30 minutes before returning to the OBU pad. Investigate and correct the problem.
21	Personnel should remain in the area after the burn to ensure there are no secondary fires.
Note:	**The Mag Tef composition uses the same process as the CIM (Contaminated Industrial Material).**

SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**

SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1	Close cover on OBU.
2	Close and lock all doors.

TITLE: PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF

3	Ensure that the lids are on the drums in Buildings 127
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: PREPARATIONS FOR THERMAL TREATMENT OF REACTIVE WASTE – MAG/TEF

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

TITLE: TRANSFERRING DIESEL

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SECTION 1: TITLE BLOCK

a. Title: **TRANSFERRING DIESEL**		
b. Work Instruction ID No.: **COR-TT-1007**	c. Revision: H	d. Date: 09/24/2014
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1007	
g. Building Number: 127, FS4	h. Bay Number: N/A	i.Operation Number: 999

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:			EXPLOSIVE LIMITS:		
a. Operators:	2		d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	1		127	Reactive Waste	1,500 lbs.
c. Total:	3		FS4	Gas/Diesel	N/A

SECTION 3: PREREQUISITE SAFETY TRAINING

1.) Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.
2.) Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.
3.) HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers
4.) Understanding of Range Safety Policy COR-SAF-049

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

TITLE: TRANSFERRING DIESEL

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Cotton Coveralls	☒	
Conductive Shoes	☒			Leather Gloves	☒	
Cotton Clothing	☒			Chemical Gloves	☒	

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
N/A	N/A	N/A

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
N/A	N/A	N/A	N/A

e. Safety Systems	f. Function of Safety System
Two Way Radio	To alert proper authorities of thermal treatment and for emergencies
Fire Extinguisher	To extingiuish small fires that are outside burn pads
Fire Truck	To extinguish larger fires that are outside burn pads
OBU Contingency Plan	To be carried out immediately whenever there is a fire, explosion or release of hazardous waste or hazardous constituents that could threaten Human Health or the Environment.

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
2-Way Radio	Channel 2
Pump (explosion proof)	N/A
Vehicle with trailer	N/A
55-gallon drum (open top)	N/A
Scale	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
Pen	N/A	N/A
Log sheet	N/A	N/A
Drums of reactive waste in diesel	N/A	N/A

Procedure:

No.	**Startup Checks and Settings**

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
Note:	Use of two-way radio for communication with other personnel in case of emergency
1.	Pick up drum(s) from Building 127

TITLE: TRANSFERRING DIESEL

2.	Place one drum of scrap at a time in the trailer
3.	Drive vehicle with trailer to FS4 (fuel storage outside Maintenance Building)
4.	Obtain key from Maintenance personnel
5.	Unlock and slide door to open position
6.	Enter building and initiate fueling process
7.	Fill drum with approximately 5 gallons of diesel per drum
8.	Close and secure FS4. Close and Secure Drum.
9.	Return key to Maintenance personnel
10.	Drive vehicle with trailer to Building 127
11.	Unload drums into Building 127
12.	Secure lids to drums
13.	Apply proper labeling to drum
SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**
SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Clean Building
2.	Close the door
3.	Lock the door
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	

TITLE: TRANSFERRING DIESEL

Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: TRANSFERRING DIESEL

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (03/25/13)

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

SECTION 1: TITLE BLOCK

a. Title: **OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BUNR PAD WEEKLY INSPECTION**		
b. Work Instruction No.: **COR-TT-1009**	c. Revision: **E**	d. Date: **3-1-11**
e. Program Name: Thermal Treatment	f. File Name: **COR-TT-1009**	
g. Building No.: N/A	h. Bay No.: N/A	i. Operation No.: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS (add/delete rows as required)

PERSONNEL LIMITS:		EXPLOSIVE LIMITS: (delete extra lines)		
a. Operators:	1	d. Location/Station:	e. Type: (Explosives/Components)	f. Amount:
b. Casuals:	1	N/A	N/A	N/A
c. Total:	2			

SECTION 3: OPERATOR TRAINING

SAFETY TRAINING: 4

1.) **The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.**
2.) **If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.**
3.) **Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.**
4.) **Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.**
5.) **HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers**

The only

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours		

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps		PPE	All Steps
Safety Glasses	☒		Cotton Clothing	☒

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
N/A		

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
N/A	N/A	N/A	N/A

e. Safety Systems	f. Function of Safety System
Two Way Communication	To Alert proper authorities of thermal treatment and for emergencies

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
N/A	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
Attachment 1 (Form MEI-ENV-F003)	N/A	N/A

Procedure: N/A

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
	NOTE: USE 2-WAY RADIO FOR COMMUNICATION WITH OTHER PERSONNEL IN CASE OF AN EMERGENCY.
1.	Inspect the OBU monitoring wells, for the items listed below, then circle either "Y" (yes) or "N" (no) in the appropriate space in Section A of Form MEI-ENV-F003 (Attachment 1): • Are the wells easily accessible? • Are the wells labeled with the appropriate identification number? • Are the aluminum protective well covers in good condition? • Remove each of the aluminum protective well cover tops, are the concrete pad free of dirt/debris. • Are the concrete pads in good condition (i.e., free of deterioration, absent of cracking)? • Remove each of the flush mounted, metal security covers, does each well casing have a security cap in place. • Is each security cap locked? • Is each lock in good condition (i.e., free of rust/corrosion)? • Is each well annulus free of dirt/debris? • Is the space between the well borehole and cement well casing sealed and absent of signs of deterioration (e.g., cracking)? • Staging area buildings and doors in good condition and warning signs in place? • Door locks in good condition? • Fencing around staging area in good condition? • Is burn pad free of severe cracking/chipping; free of severe damage to pad sealant; cover/rail footer free of damage; drums managed and properly labeled?
	NOTE: A "NO" response to any question in Section A requires the completion of Section B--enter a description in the spaces provided and complete SOP GEN-003.
2.	Print/Sign and enter the date of the inspection in the spaces provided on Form MEI-ENV-F003.

SECTION 10: TEMPORARY OPERATIONS

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

Procedure: N/A	
SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Always make sure that the cover is closed and chained down over the pads.
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

ATTACHMENT 1

OPEN BURN UNIT MONITORING WELL INSPECTION CHECKLIST

SECTION A	AW1	AW2	PC1	PC2	PC3	PC4	PC5	PC6
1) Well Accessible	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
2) Well Labeled	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
3) Cover in Good Condition	Y N	Y N	Y N	Y N	Y N	**N/A**	Y N	Y N
4) Concrete Pad Free of Debris	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5) Concrete Pad in Good Condition	**N/A**	**N/A**	Y N	Y N	Y N	Y N	Y N	Y N
6) Security Cap in Place	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
7) Security Cap Locked	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
8) Lock in Good Condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
9) Annulus in Good Condition	**N/A**	**N/A**	Y N	Y N	Y N	Y N	Y N	Y N
10) Casing Sealed	**N/A**	**N/A**	Y N	Y N	Y N	Y N	Y N	Y N

SECURITY	**127**	**137**	**136**	**128**
11) Doors in Good Condition/Warning Signs in Place	Y N	Y N	Y N	Y N
12) Locks in Good Condition	Y N	Y N	Y N	Y N
13) Fencing in Good Condition	Yes		No	
14) Burn pad free of severe cracking/chipping; free of severe damage to pad sealant; cover/rail footer free of damage; drums managed and properly labeled	Yes		No	

A "NO" Response to any question in Section A shall be fully described in Section B

SECTION B
Description of Potential Deficiencies:

Discrepancies identified in Section B require completion of SOP ENV-GEN-003

Print and Sign Name of Inspector:

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

Date of Inspection:

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervision and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with limited supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	***Verified By***	***Date***	***Employee***	***Verified By***	***Date***	***Employee***	***Verified By***	***Date***

TITLE: OPEN BURN UNIT GROUNDWATER MONITORING WELL AND BURN PAD WEEKLY INSPECTION

COR FORM NO.: COR-OPS-FOO2 (09/01/10)

TITLE: OPEN BURN UNIT VEHICLE AND TRAILER WEEKLY INSPECTION

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SECTION 1: TITLE BLOCK

a. Title: **OPEN BURN UNIT VEHICLE AND TRAILER WEEKLY INSPECTION**		
b. Work Instruction ID No.: **COR-TT-1010**	c. Revision: D	d. Date: 9-25-14
e. Program Name: Thermal Treatment	f. File Name: COR-TT-1010	
g. Building Number: N/A	h. Bay Number: N/A	i.Operation Number: 999

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS

PERSONNEL LIMITS:		EXPLOSIVE LIMITS:		
a. Operators:	1	d. Location/Station:	e. Type: *(Explosives/Components)*	f. Amount:
b. Casuals:	1	N/A		
c. Total:	2			

SECTION 3: PREREQUISITE SAFETY TRAINING

SAFETY TRAINING: 4

1.) **The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.**
2.) **If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.**
3.) **Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.**
4.) **Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.**
5.) **HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers**
6.) **Understanding of Range Safety Policy COR-SAF-049**

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor

TITLE: OPEN BURN UNIT VEHICLE AND TRAILER WEEKLY INSPECTION

Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor / First Responder / 911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps		PPE	All Steps	Only Steps
Safety Glasses	☒			Leather gloves	☒	
Conductive Shoes	☒			Cotton Clothing	☒	
Cotton Coveralls	☒					

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
N/A	N/A	N/A

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
N/A	N/A	N/A	N/A

e. Safety Systems	f. Function of Safety System
N/A	N/A

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
Form COR-SAF-F118	N/A
Pen	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
N/A	N/A	N/A

Procedure:

1.	Verify with Document Control that you are using the current revision number of **COR-SAF-F118**.
No.	**Startup Checks and Settings**

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
Note:	Verify with Document Control that you are using the current revision number of **COR-SAF-F118**.

TITLE: OPEN BURN UNIT VEHICLE AND TRAILER WEEKLY INSPECTION

1	Inspect the vehicle and trailers weekly and enter either marking yes, no or n/a on form (**COR-SAF-F118**) 1.1 Tires/Nuts 1.2 Body/Frame Damage 1.3 Tralier Coupler/Ball 1.4 Brakes 1.5 Parking Brakes 1.6 Lights 1.7 Backup Lights/Alarm 1.8 Sterring 1.9 Wheels/Covers 1.10 Battery Water Level and Terminals 1.11 Key Switch 1.12 Windshield 1.13 Seates/Seat Belts 1.14 Bearing Caps 1.15 Loose Bolts 1.16 Latches 1.17 Operating Controls 1.18 Fuel/Battery Level 1.19 Fluid Level 1.20 Coolant Level 1.21 Exposed Corroded Wiring 1.22 Debris
2	If any NO responses were identified, enter a description in the spaces provided on form **COR-SAF-F118**
3	Print, Sign and Date form **COR-SAF-F118** in the lines provided

SECTION 10: TEMPORARY OPERATIONS	
Procedure: N/A	
No.	**Instruction Step**

SECTION 11: EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

SECTION 13: NORMAL SHUTDOWN

TITLE: OPEN BURN UNIT VEHICLE AND TRAILER WEEKLY INSPECTION

Procedure:	
No.	**Instruction Step**
	N/A
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

1

TITLE: OPEN BURN UNIT VEHICLE AND TRAILER WEEKLY INSPECTION

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervisor and with frequent monitoring.***			*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***			*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with area supervision.***		
Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (03/25/13)

TITLE: MANAGEMENT OF M228 AND M213 FUZE BURN RESIDUE

SECTION 1: TITLE BLOCK

a. Title: **Management of M228 and M213 Fuze Burn Residue**		
b. Work Instruction No.: **COR-TT-1011**	c. Revision: **C**	d. Date: **3-1-11**
e. Program Name: Thermal Treatment	f. File Name: **COR-TT-1011**	
g. Building No.: OBU	h. Bay No.: N/A	i. Operation No.: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS (add/delete rows as required)

PERSONNEL LIMITS:			EXPLOSIVE LIMITS: (delete extra lines)		
a. Operators:	2		d. Location/Station:	e. Type: (Explosives/Components)	f. Amount:
b. Casuals:	2		OBU	Reactive waste	Varies
c. Total:	4				

SECTION 3: OPERATOR TRAINING

SAFETY TRAINING LEVEL: 4

1.) **The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.**
2.) **If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.**
3.) **Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.**
4.) **Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.**
5.) **HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers.**

SECTION 4: GENERAL EMERGENCY PROCEDURES

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor/First Responder/911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	Only Steps	PPE	All Steps	Only Steps
Safety Glasses	☒		Leather gloves	☒	
Conductive Shoes	☒		Cotton Clothing	☒	
Cotton Coveralls	☒				

TITLE: MANAGEMENT OF M228 AND M213 FUZE BURN RESIDUE

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
Varies	Flash/Burn	PPE/Work Instruction

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Energetic Material	Flash/Fire	PPE/Work Instruction	Seek Medical Attention

e. Safety Systems	f. Function of Safety System
Two Way Communication	To Alert proper authorities of thermal treatment and for emergencies
OBU Contingency Plan	To be carried out immediately whenever there is a fire, explosion or release of hazardous waste or hazardous constituents that could threaten Human Health or the Environment

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
Brooms	N/A
Shovel	N/A
Brush	N/A
55 gallon metal drum	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
N/A	N/A	N/A

Procedure:

No.	Startup Checks and Settings
1	Only Trained and Qualified Personnel are designated to handle Materials at OBU
2	Ensure all unnecessary personnel are clear of the area

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
1	After fuze body burn residue has cooled down and can be safely removed, proceed to OBU burn pad.
2	Remove thermally treated zinc bodies from burn pan.
3	Sweep ash residue from zinc using broom or brush and place zinc on wooden pallet for shipment to recycler.
4	Place zinc slabs from OBU on pallet and shrink wrap to pallet.
5	Transport pallets to Recycle Management Area.
6	Using a broom and shovel place remaining ash into 55-galllon metal drum using appropriate Hazardous waste No. and Hazard Codes. (See Environmental Personnel)
7	All drum residues will be dispositioned per environmental.

SECTION 10: TEMPORARY OPERATIONS

Procedure:

No.	Instruction Step
	N/A

SECTION 11: EMERGENCY SHUTDOWN

Procedure:

TITLE: MANAGEMENT OF M228 AND M213 FUZE BURN RESIDUE

No.	Instruction Step
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	At the end of the day close the cover to the burn pad and chain it down.
2.	If at any time during the day it looks like rain close the cover.
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: MANAGEMENT OF M228 AND M213 FUZE BURN RESIDUE

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervision and with frequent monitoring.***	*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***	*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with limited supervision.***

Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**	**Employee**	**Verified By**	**Date**

COR FORM NO.: COR-OPS-FOO2 (09/01/10)

TITLE: MANAGEMENT OF M228 AND M213 FUZE BURN RESIDUE

TITLE: MANAGEMENT OF RECYCLABLE MATERIALS

SECTION 1: TITLE BLOCK

a. Title: **MANAGEMENT OF RECYCLABLE MATERIALS**		
b. Work Instruction No.: **COR-TT-1012**	c. Revision: **B**	d. Date: **3-1-11**
e. Program Name: Thermal Treatment	f. File Name: **COR-TT-1012**	
g. Building No.: N/A	h. Bay No.: N/A	i. Operation No.: N/A

SECTION 2: PERSONNEL AND EXPLOSIVE LIMITS (add/delete rows as required)

PERSONNEL LIMITS:		EXPLOSIVE LIMITS: (delete extra lines)		
a. Operators:	2	d. Location/Station:	e. Type: (Explosives/Components)	f. Amount:
b. Casuals:	1	N/A	N/A	N/A
c. Total:	3			

SECTION 3: OPERATOR TRAINING

SAFETY TRAINING: 4

1.) **The only personnel authorized to initiate the burn at the OBU pad are those who possess a valid Blaster Permit issued by the Florida State Fire Marshal.**
2.) **If the burn fails to ignite, wait a minimum of thirty (30) minutes before approaching the OBU pad. Trace the wires from the main line back to the electric matches ensuring all the connections are good. Clear the OBU pad and relight.**
3.) **Personnel must complete basic Resource Conservation and Recovery Act (RCRA) training before working with hazardous waste and every 12 months thereafter.**
4.) **Personnel must complete the OBU RCRA Contingency Plan training prior to working at the OBU.**
5.) **HAZWOPER 24-Hour Training and Annual 8-Hour Refreshers**

The only

CONDITION	ACTION	NOTIFICATION
Fire/Explosion	1. Evacuate to assigned assembly point 2. Do not fight fires involving Explosives.	1. Dial 444, Report Code 5, the Building No. and the Location 2. Notify Supervisor
Serious Injury	1. Render assistance until help arrives 2. Render first aide if trained	1. Dial 444, Report Code 10, the Building No. and the Location 2. Notify Supervisor
Chemical Spill	1. Stop leak if safe and you are trained 2. Keep other employees away until help arrives.	1. Dial 444, Report Code 99, the Building No. and the Location 2. Notify Supervisor
After Hours	Contact Supervisor/First Responder/911 When Applicable	

SECTION 5: PERSONNEL PROTECTIVE EQUIPMENT (PPE)

PPE	All Steps	PPE	All Steps
Safety Glasses	☒	Cotton Coveralls	☒
Conductive Shoes	☒	Leather Gloves	☒
Cotton Clothing	☒		

SECTION 6: OPERATING LIMITS

Operating Limits	Consequence of Deviation	Prevention and Avoidance
N/A	Flash/Fire	PPE/Work Instruction

TITLE: MANAGEMENT OF RECYCLABLE MATERIALS

SECTION 7: SAFETY & HEALTH CONSIDERATIONS

a. Chemical Name	b. Hazards *(unique hazards)*	c. Safety Precautions	d. Actions if Exposed
Energetic Material	Flash/Fire	PPE/Work Instruction	Seek Medical Attention

e. Safety Systems	f. Function of Safety System
Two Way Communication	To Alert proper authorities for emergencies

SECTION 8: INITIAL STARTUP

a. Equipment	b. Equipment Settings
Tractor with forks or Fork Lift	N/A
2-Way Radio	Channel 2
Brooms	N/A
Dust pan	N/A
Shovels	N/A

c. Materials	d. Quality Control Requirements	e. Maximum Intended Inventory
Pallet	N/A	N/A
Shrink wrap	N/A	N/A
Open top 55 gallon drum	N/A	N/A

Procedure: N/A

SECTION 9: NORMAL OPERATIONS

Procedure:

No.	Instruction Step
	NOTE: USE 2-WAY RADIO FOR COMMUNICATION WITH OTHER PERSONNEL IN CASE OF AN EMERGENCY.
1.	Place empty open top 55 gallon metal containers on pallet
2.	Obtain open top 15/30 gallon metal drums of screened fired/empty fuze bodies
3	Place zinc slabs from OBU on pallet and shrink wrap to pallet.
4.	Transport pallets to Recycle Management Area.
	NOTE: Environmental to complete the following steps
5.	Place screened fired/empty fuze bodies and 781 bodies into 55 gallon metal containers.
6.	When containers are full secure to pallet.
7.	Transport containers/pallets to warehouse 25 to obtain total weight. Record weight
8.	Transport weighed pallets to shipment storage area
9.	Follow steps 1 and 4 for assembling containers for aluminum and copper recyclable materials
10.	Place aluminum scrap and copper scrap into their own individual containers
11.	Follow steps 6, 7, 8 for all containers
12.	Transport 55 gallon drums of metal scrap to metal recycle bin across from Diecast
13.	Strap 55 gallon drum to drum dumping fixture, pick up with fork lift and pour metal into recycle bin.
14.	Transport empty 55 gallon drums back to production buildings.

SECTION 10: TEMPORARY OPERATIONS

Procedure: N/A

SECTION 11: EMERGENCY SHUTDOWN

Procedure:

TITLE: MANAGEMENT OF RECYCLABLE MATERIALS

No.	Instruction Step
1.	Leave the area immediately if an incident has created an unsafe condition and issue the relevant EMERGENCY CODE, if applicable.
2.	Contact the SAFETY DEPARTMENT.
3.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 12: EMERGENCY OPERATIONS	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.
SECTION 13: NORMAL SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Always make sure that the cover is closed and chained down over the pads.
SECTION 14: RESUMING OPERATIONS AFTER EMERGENCY SHUTDOWN	
Procedure:	
No.	**Instruction Step**
1.	Do not resume operations until clearance has been given by the SAFETY DEPARTMENT.

TITLE: MANAGEMENT OF RECYCLABLE MATERIALS

TRAINING RECORD

Employee has read and understands this work instruction. ***Employee may work under area supervision and with frequent monitoring.***	*Employee satisfactorily performs all activities stated in this work instruction and identifies common abnormal conditions.* ***Employee may work with area supervision.***	*Employee satisfactorily performs all activities related to this work instruction, including identification, troubleshooting and resolution of common abnormal conditions.* ***Employee may work with limited supervision.***

Print Name & Date			***Signature & Date***			***Signature & Date***		
Employee	***Verified By***	***Date***	***Employee***	***Verified By***	***Date***	***Employee***	***Verified By***	***Date***

TITLE: MANAGEMENT OF RECYCLABLE MATERIALS

Chemring Ordnance

OPEN BURN UNIT MONITORING WELL INSPECTION CHECKLIST

	SECTION A	AW1	AW2	PC1	PC2	PC3	PC4	PC5	PC6
1	Well accessible	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
2	Well labeled	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
3	Cover in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
4	Concrete pad free of debris	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5	Concrete pad in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
6	Security cap in place	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
7	Security Cap Locked	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
8	Lock in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
9	Annulus in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
10	Casing sealed	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N

	SECURITY	127	137	136	128
11	Doors in good condition/warning signs in place	Y N	Y N	Y N	Y N
12	Locks in good condition	Y N	Y N	Y N	Y N
13	Fencing in good condition	YES		NO	
14	Burn pad free of severe cracking/chipping	YES		NO	
15	Burn pad free of severe damage to pad sealant	YES		NO	
16	Cover/rail footer free of damage	YES		NO	
17	Drums managed and properly labeled	YES		NO	

A “NO” response to any question in section A shall be fully described in section B

SECTION B
Description of potential deficiencies:

Discrepancies identified in section B require completion of SOP ENV-GEN-003

Print and Signature of Inspector:
Date of inspection:

Chemring Ordnance

WEEKLY INSPECTION OFR RCRA HAZARDOUS WASTE STAGING AREA

SECTION A		YES/NO/NA
1)	Two-way cummunication present	_____
2)	SA properly segregated	_____
3)	Custodial contact signs in place	_____
4)	"Authorized Use Only" in place, if applicable	_____
5)	"No-Smoking" sign in place, if applicable	_____
6)	Spill control kit present	_____
7)	Primary and alternate routes accessible	_____
8)	Containers palletized	_____
9)	Container markings visible from SA entry point	_____
10)	Containers marked "Hazardous Waste"	_____
11)	Containers marked with hazardous waste number	_____
12)	Containers marked with hazard code	_____
13)	Containers marked with content description	_____
14)	Containers exhibit fill date	_____
15)	Containers closed, lids secure	_____
16)	Containers free of deterioation and in good condition	_____
17)	SA free of signs of spills or leaks	_____
18)	Eyewash/safety shower operational	_____
19)	Fire extinguisher charged	_____
20)	Containment system in good condition	_____
21)	Enter waste in space below, that have exceeded a 60-day holding time	

_____

NOTE: A "NO" response to any of the questions in Section A , except No. 21, indicates a potential deficiency and should be immediately reported to the primary or alternate coordinator for corrective action.

SECTION B

1) Describe any non-compliance identified from Section A. _____

_____

_____

2) Describe the corrective action taken in response to Question 1 of Section B. _____

_____

_____

3) Date/Time of Corrective Action _____

4) Person Responsible for Corrective Action _____

SECTION C

Printed Name/Signature of Inspector _____

Date/Time of Inspection _____ Number of drums/containers _____

Location of Staging Area Inspection _____

O.B.U BURN REPORT

Chemring Ordnance

DATE: _____

OPERATOR: _____ BLASTER: _____

CHARCOAL: _____ DIESEL: _____ PAD #:_____

BURN TIMES: START: _____ END: _____

Building Number: _____

LOG #	DESCRIPTION	WEIGHT
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

TOTAL:_____

Building Number: _____

LOG #	DESCRIPTION	WEIGHT
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

TOTAL:_____

Burn pad free of severe cracking/chipping; free of severe damage to pad sealant; cover/rail footer free of damage; drums managed and properly labeled	Yes	No

_____ _____

Signature (Inspection Completed) **Date**

Chemring Ordnance	PROCEDURE	NUMBER **ENV-GEN-001**	Rev **B**	DATE **8-26-15**
		AUTHOR: Patsy Sadler		Page 1 of 3
TITLE TRAINING ON NEW OR REVISED ENVIRONMENTAL PROCEDURES		APPROVED: **Dale Krejcar** Safety and Health Manager		

1. **PURPOSE:**

   To establish the requirements and responsibilities for training personnel on new or revised environmental procedures

2. **SCOPE:**

   This procedure applies to all personnel who work with environmental procedures

3. **REFERENCES:**

   Not applicable to this procedure

4. **DEFINITIONS:**

   Not applicable to this procedure

5. **RESPONSIBILITIES:**

   Management/Supervision is responsible for ensuring that their employees receive the appropriate required training

6. **PROCEDURE:**

   6.1 The training method for new or revised environmental procedures may be to review the procedure or procedure changes with guidance from supervision, if needed.

   6.2 If supervision determines that the training requirements cannot be satisfied by procedure review, the training needs shall be communicated to the Environmental Manager for resolution.

   6.3 When a new or revised environmental procedure is issued, the Environmental Manager will send out a notification letter to all supervision. The letter will include the procedure title, the procedure number, revision number, and effective date.

   6.4 When the notification letter is received, the supervisors responsible for implementing each new or revised procedure shall obtain a copy of that procedure and a copy of the Procedure Review Form (Attachment 1 of this procedure) to train their personnel as required.

   6.5 Appropriate personnel must be trained on the new or revised applicable procedures before they perform the task(s) outlined within the procedure.

6.6 Supervisors should emphasize to personnel the relationship between the procedure/procedure changes and their jobs before they review the procedure/procedure changes. Personnel should be provided a location to review procedure/procedure changes without distractions. Supervisors should provide an opportunity for discussion of the procedure/procedure changes and the impact on the job.

6.7 After the procedure/procedure changes are reviewed and understood the employee will sign and date the Procedure Review Form to document the required training.

6.8 Supervisors will forward the completed Procedure Review Form to the Environmental Manager.

7. RECORDS:

Procedure Review Form (Attachment 1) will be maintained by the Environmental Manager for a period of five years upon completion

8. REVISION HISTORY:

Revision Level	Date	Approval	Description
A	4-7-03	*Dale Krejcar*	This procedure has been revised to conform to current COR's procedure format
B	8-26-15	Bob Parman	Update facility name

9. APPENDIX:

N/A

TRAINING RECORD

EMPLOYEE TRAINEE **Signature and Date** *Acknowledgment that the employee (trainee) has read and understands this product work instruction.*	**EMPLOYEE TRAINEE** **Signature or Initials and Date** *Acknowledgment that the employee (trainee) feels that he/she is adequately trained to perform the activities described within this product work instruction.*	**TRAINER** **Signature or Initials and Date** *Acknowledgment that the trainer has verified that employee (trainee) is trained and capable of performing the activities described within this product work instruction*

Chemring Ordnance	**PROCEDURE**	NUMBER **ENV-GEN-004** Rev **G** DATE **3/14/16** Page 1 of 6
		AUTHOR: **Tom Brown** Environmental Assistant Manager
TITLE WASTE ACCEPTANCE CRITERIA		APPROVED: *Bob Parman* Director of HSE

1. PURPOSE:

This procedure provides the appropriate management requirements for facility wastes.

2. SCOPE:

2.1 This procedure applies to all personnel involved in the generation/handling of waste and/or recyclable/reclaimable materials.

2.2 Refer to the following sections of this procedure to identify the appropriate management of facility waste:

2.2.1 Hazardous Waste – Section 6.1

2.2.2 Sanitary Waste – Section – 6.7

2.2.3 Used Oil and Oil Filters – Section 6.8

2.2.4 Scrap Metal/Steel – Section 6.9

2.2.5 Empty Containers/Drums – Section 6.10

2.2.6 Aerosol Cans – Section 6.11

2.2.7 Lead Acid Batteries – Section 6.12

2.2.8 Fluorescent Lamps – Section 6.13

2.2.9 Hazardous Debris – Section 6.14

3. REFERENCES:

40 CFR Part 261--Part 279

COR FLD 047966593

ENV-GEN-001, Training on New or Revised Environmental Procedures

ENV-GEN-005, Used Oil Management

ENV-GEN-006, RCRA Satellite Accumulation Area Requirements

ENV-GEN-013, Cleaning & Disposing of Hazardous Debris

4. DEFINITIONS:

4.1 Empty Aerosol Can--Is considered empty if: 1) The aerosol can is absent of free liquid AND; 2) The pressure inside the can approaches atmospheric (e.g., when the nozzle is in working order and is depressed no discharge occurs).

4.2 Empty Container--A container (e.g., 55 gal. drum) is considered empty when: 1) All wastes have been removed that can be removed using normal practices (e.g., pumping, pouring, etc.), AND; 2) No more than one inch of residue remains on the bottom of the container.

4.3 Free Liquids--Liquids that readily separate from the solid portion of the waste under ambient (standard) temperature and pressure.

4.4 Generator--The facility/individual who generates waste or recyclable/reclaimable materials.

4.5 Hazardous Waste--Wastes specifically listed as hazardous in 40 CFR Part 261 Subpart D or which express a hazardous characteristic as identified within 40 CFR Part 261 Subpart C.

4.6 Hazardous Debris--Debris which contains a hazardous waste listed in 40 CFR Part 261 Subpart D or exhibits a hazardous waste characteristic as identified in 40 CFR Part 261 Subpart C.

4.7 Recycle--Converting solid wastes into new products by using the resources contained in discarded materials.

4.8 Sanitary Waste--Waste that does not meet the definition of hazardous waste and is therefore considered non-hazardous.

5. RESPONSIBILITIES:

5.1 It is the responsibility of all facility Supervisors to follow this procedure and to perform the activities outlined.

5.2 It is the responsibility of Environmental Assistant Manager or designee to ensure that this procedure is updated when applicable regulations are revised.

5.3 Waste Minimization--All personnel are responsible for reducing the volume, toxicity, and mobility of facility waste streams.

6. **PROCEDURE:**

6.1 Hazardous wastes are characterized by Environmental Assistant Manager using either process knowledge, analyses, or a combination of both and are updated whenever a process change occurs.

6.2 The following physically solid RCRA reactive hazardous wastes are collected in BLACK or CLEAR PINK VELOSTAT BAGS ONLY and thermally treated at the facility Open Burn Unit in accordance with the referenced RCRA permit: 1) EPA HW No. D003; 2) EPA HW No. D003, which may also contain EPA HW No's D005, D006, D007, D008; 3) EPA HW No. D003 which may also contain EPA HW No's F002, F003, F005

6.3 All other physically SOLID, non-reactive hazardous wastes generated on-site are collected within DOT open-top containers, then transported to an off-site RCRA permitted treatment, storage, or disposal facility.

6.4 All LIQUID hazardous wastes generated on-site are collected within DOT bung-type containers, then transported to an off-site RCRA permitted treatment, storage, or disposal facility

6.5 Facility personnel are required to manage hazardous wastes at the point of generation as outlined in ENV-GEN-006.

6.7 Non-Hazardous, physically solid sanitary wastes are placed in TRASH BAGS ONLY (as applicable, due to size constraints) and transported to an off-site Subtitle D facility for disposal.

6.7.1 Acceptable non-hazardous sanitary wastes include: Commercial Waste--paper, plastic, cloth, cans, kitchen waste, foodstuffs (TRASH BAG REQUIRED);

6.7.2 Brush and Land Clearing Debris--logs, stumps, branches, woody brush, tree remains (As Generated--Not Bagged);

6.7.3 Construction and Demolition Materials--steel, scrap metal, brick, concrete, glass, floor dry or pig pads contaminated with oil, asphalt roofing and paving materials, pipe, wallboard, crates, pallets, furniture, rocks, soil (As Generated--Not Bagged);

6.7.4 Rubber Materials--hose, equipment or vehicle tires (As Generated--Not Bagged);

6.7.5 White Goods--Inoperative and discarded refrigerators, freezers, and air conditioners (only after freon has been properly recaptured), ranges, water heaters, and other large commercial appliances (As Generated--Not Bagged)

6.7.6 Acceptable non-hazardous sanitary waste which requires pre-approval and scheduling include: Asbestos Containing Materials (e.g., transite, insulation) (CLEAR PLASTIC DOUBLE WRAPPED, TAPED TO SEAL REQUIRED).

6.8 Wastes NOT allowed to be disposed of to the non-hazardous sanitary landfill include: Hazardous Wastes--reactive, corrosive, ignitable, toxic, F-Listed spent solvents, hazardous laboratory or manufacturing chemicals; liquids in any form; used oil or used oil filters; polychlorinated biphenyls; hazardous debris; lead-acid batteries; fluorescent lamps; mercury vapor lamps or mercury switches.

6.9 Liquid, non-hazardous sanitary wastes are transported to an off-site, permitted Industrial Wastewater Treatment Plant for disposal. Acceptable wastes include: mop water, absent of solvents or heavy metals; compressor blowdown contaminated with small quantities of oil; anti-freeze and water from heater units; lab rinsate; leak test water and wash water. Mop water generated from bathrooms/offices and breakrooms should be poured into sinks or toilets for disposal. [NOTE: Never pour mop water on ground.]

6.10 Used Oil and Oil Filters: Used oil is accumulated and managed in accordance with ENV-GEN-005. Used oil filters are hot drained; hole punched or crushed and collected by the automotive shop for metal recycling.

6.11 Scrap Metal/Steel: Scrap metal/steel generated by maintenance/production must be placed in the dumpster located in the parking lot North of Building 21 for recycle/salvage by supervisor designated personnel. Scrap aluminum/copper/zinc and brass will be collected by Environmental Specialist for storage prior to pick up by recycling facility.

6.12 Empty Containers/Drums: Must be labeled with an "EMPTY" label and have the number of the building which generated the empty container written on the label; must be properly closed/sealed (e.g., lids or bungs secured) whenever possible; must be placed in the empty container laydown area located at 90 day staging area for recycle/salvage.

6.13 Aerosol Cans: Empty aerosol cans (see definition of empty in Section 4) may be disposed of as non-hazardous waste to the sanitary landfill or punctured for metal recycling .

6.13.1 Non-empty aerosol cans containing propellant only: Attempt to remove propellant by normal means (i.e., depress nozzle, replace nozzle if clogged with a good nozzle, depress nozzle); IF unable to remove propellant, contact Environmental Specialist for proper management . [NOTE: Do not attempt to puncture can.]

6.13.2 Non-empty aerosol cans containing liquids only: Contact Environmental Specialist for characterization and proper management of liquids.

6.14 Lead-Acid Batteries for Reclamation: Spent lead-acid batteries are maintained in BLDG. 126 for no more than 180 days and/or subsequently returned by tool crib personnel for retail core charge. Report amount to Environmental Assistant Manager for tracking on ISO data base.

6.15 Fluorescent Lamps for Reclamation: Maintenance collects spent fluorescent lamps during lighting change-outs and contacts Environmental Specialist so they can temporarily store them for no more than 360 days within Building 126 awaiting off-site shipments; Containers holding spent fluorescent lamps are labeled “Spent Mercury-Containing Lamps for Recycling,” and must have accumulation start date and properly closed.

6.16 Hazardous Debris: Hazardous debris generated from the facility Open Burn Unit is treated in accordance with ENV-GEN-013; hazardous debris generated elsewhere at the

facility is to be treated on-site per approved job plan generated by Environmental Assistant Manager.

7. RECORDS:

7.1 Hazardous waste and non-hazardous waste manifests shall be maintained in the Environmental files for a period of five years.

7.2 Salvage receipts generated from recycling activities shall be maintained in the Environmental files for a period of five years. Environmental Assistant Manager will track amount recycled per year on ISO data base.

7.3 Analytical results on facility wastestreams and/or process waste assessments shall be maintained for the lifetime of the facility.

8. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
A	4-7-03	Dale Krejcar	This procedure has been revised to conform to current MEI's procedure format
B	3-31-09	Dale Krejcar	This procedure has been reviewed; Dale Krejcar title changed to Director of Operations; new logo added; added Environmental Assistant Manager to Author title; updated Permit # in section 3; added wash water to 6.9; added or punctured for metal recycling to 6.13; change 180 days to 360 days and added must have accumulation start date to 6.15
C	8-3-09	Dale Krejcar	This procedure was revised to include management of other recyclables in section 6.11; clarification changes made to 5.2, 6.1, 6.13.1, 6.13.2, 6.14, 6.15, 6.16 and 7.2
D	11-2-10	Lucky Vostrirancky	Revised to change company name/Logo
E	7-24-12	Scott Thomas	Revised to change VP of Operations name and add new logo.
F	10/30/13	Norman Kendrick	Revised to change logo; reflect changes in management
G	3/14/16	Bob Parman	Revised to add F003 to Para 6.2 and revise labels on Fluorescent Lamp waste.

CHEMRING ORDNANCE, INC.

Training Certification Report Form

Location of Meeting:	Date
Name of Trainer:	
Topic of Meeting:	
Description of Meeting Contents;	
PRINT NAME	**SIGN NAME**

Note: See HR form for current revision

Chemring Ordnance	**PROCEDURE**	NUMBER **ENV-GEN-005** Rev **F** DATE **3/14/16** Page 1 of 4
		AUTHOR: **Tom Brown** Environmental Assistant Manager
TITLE USED OIL MANAGEMENT		APPROVED: *Bob Parman* Director of HSSE

1. PURPOSE:

This procedure provides the requirements for the generation, collection, storage and proper handling of non-hazardous used oil and used oil filters.

2. SCOPE:

This procedure applies to all personnel involved in the generation and handling of used oil or used oil filters.

3. REFERENCES:

40 CFR Part 279

ENV-GEN-010: Reporting Spills or Releases of Hazardous Substances, Petroleum or Hazardous Waste.

4. DEFINITIONS:

4.1 Generator – The facility/individual who generates used oil or used oil filters.

4.2 Used Oil – Any oil refined from crude oil which, as a result of use, is contaminated by physical or chemical impurities (e.g., used lubricating oil, used hydraulic oil).

4.3 Oil Collection Point (OCP) – An area established for the collection and temporary storage of any non-hazardous used oil or used oil filters this is currently near the Vehicle Maintenance Shop (Building 2).

4.4 Used Oil Filter – Any device which is an integral part of an oil flow system, is removed from service and contains entrapped used oil.

4.5 Hot Drained – Used oil filters which are removed from oil flow system while still hot and drained of oil.

4.6 Hazardous Waste Fuel – Used oil which has been mixed with an EPA listed hazardous waste or a significant amount of a characteristic hazardous waste. Hazardous waste fuel shall be managed as a RCRA hazardous waste. MEI is not expected to generate hazardous waste fuel routinely.

4.7 Composite Liquid Waste Sampler (COLIWASA) – A length of tubing typically 122-cm long and 6 to 16-mm in diameter. A COLIWASA is composed of glass, which can collect a sample from the full depth of a 55-gallon drum and maintain the sample in the tube until delivery to a sample bottle. This method provides for a vertical composite sample.

4.8 DOT – Department of Transportation

4.9 EPA – Environmental Protection

4.10 RCRA – Resource Conservation and Recovery Act

4.11 TSCA – Toxic Substance Control Act

5. RESPONSIBILITIES:

5.1 Generators of used oil and used oil filters shall ensure its proper handling and placement in Oil Collection Point (OCP).

5.2 Waste Minimization: All specification-used oil generated shall be shipped off-site to permitted facility and burned for energy recovery or recycled.

6. PROCEDURE:

6.1 Fifty-five gallon DOT 1A2 containers shall be used whenever possible and shall have a non-hazardous label with "Specification Used Oil or Used Oil" identifying contents.

6.2 Used oil filters shall be punched; hot drained and sent off-site for recycling.

6.3 The OCP shall be identified with the following:

6.3.1 "Oil Collection Point" sign,

6.3.2 "No Smoking" sign, and

6.3.3 "OCP Contact" sign with the name of the responsible individual.

6.4 Operating requirements:

6.4.1 Secondary containment with the capacity of 110% of the largest container shall be provided,

6.4.2 An ABC fire extinguisher shall be located nearby, and

6.4.3 A Spill Control Kit shall be located nearby.

6.5 Generation of Used Oil:

6.5.1 All quantities less than 55 gallons of non-hazardous used oil generated by maintenance change-outs, or other simuilar processes will be deposited into a pre-labeled 55 gallon container located at the established OCP

6.5.2 Ensure that used oil generated from cleaning processes or any process that could possibly generate a hazardous waste NOT be deposited within the OCP non-hazardous container.

6.5.3 Used oil generated from cleaning processes or other processes that might contain hazardous constutuents will be placed in a 55 gallon container with a hazardous waste label with Off-Specification Used Oil to identfy contents; when container is full enter the fill date. Hazardous waste determinations will be either based on the known hazardous waste additives, or on sample results from analyses of suspected hazardous waste additives.

6.6 Sampling Full Contaminated Used Oil Containers:

6.6.1 Obtain a new 100 ml plactic sample bottle, a new COLIWASA, a sample label,

6.6.2 Remove caps from both the used oil container and the sample bottle, then slowly lower the COLIWASA into the container. When the COLIWASA reaches the bottom of the container, cap COLIWASA top with thumb. Withdraw the COLIWASA from the container and discharge sample into sample container. Repeat this method until sample container is full. Close and seal sample bottle. Allow COLWASA to drain residual oil into container. Dispose of COLIWASA in sanitary waste. Fill out required information on label and place on sample bottle. Fill out chain of custody form and transport the sample to a laboratory for the following analyses.

6.6.2.1 Total Arsenic(As), Cadmium (Cd), Chromium (Cr), and Lead (Pb). Total Halogens, Flash Point, and Poly Chlorinated Biphenyls (PCB's)

6.7 Disposition of Used Oil:

6.7.1 Used oil shall be sent for energy recovery or recycling, provided there are no EPA listed solvents or no other hazardous wastes added to the used oil.

6.7.2 The used oil flash point is greater (>) than 140° F.

6.7.3 Concentrations of PCB's ≤50 ppm.

6.7.4 Used oil is pumpable.

6.8 Used oil filters will be sent out for recycle.

6.9 IF listed or other hazardous waste are added to the oil, manage the used oil as a RCRA hazardous waste. IF the used oil has a flash point <140° F, manage as a RCRA hazardous waste. IF the used oil contains concentrations of PCB's >50 ppm, manage in accordance withTSCA.

7. RECORDS:

A copy of all oil analyses and records of used oil shipments shall be maintained for a period of three (3) years

8. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
A	4-7-03	Dale Krejcar	This procedure has been revised to conform to current MEI's procedure format
B	11-17-08	Dale Krejcar	This procedure has been reviewed, Dale Krejcar title changed to Director of Operations; new logo added; add Environmental Assistant Manager to Author title
C	11-2-10	Lucky Vostrirancky	Revised to change company name/Logo
D	7-24-12	Scott Thomas	Revised to change VP of Operations name and add new logo.
E	10/30/13	Norman Kendrick	Revised to change logo; reflect changes in management

CHEMRING ORDNANCE, INC.

Training Certification Report Form

Location of Meeting: Date

Name of Trainer:

Topic of Meeting:

Description of Meeting Contents;

PRINT NAME	SIGN NAME

Note: See HR form for current revision

1. PURPOSE:

To identify requirements associated with Resource Conservation and Recovery Act (RCRA) Satellite Accumulation Areas (SAA).

2. SCOPE:

This procedure outlines SAA management and container requirements.

3. REFERENCES:

40 CFR 262

ENV-GEN-001 - Training on New and Revised Environmental Procedures

ENV-GEN-010 – Reporting Spills or Releases of Hazardous Substances, Petroleum or Hazardous Waste.

4. DEFINITIONS:

4.1 Hazardous waste (HW) – a waste, which, if improperly treated, stored, or disposed of or otherwise managed, may pose a threat to human health or the environment. [NOTE: By regulation, hazardous waste differs from other waste in that they are specifically listed or designated hazardous by EPA or the State where regulated, or posses characteristics that make them ignitable, corrosive, reactive or toxic.]

4.2 Acute Hazardous Waste – waste listed in 40 CFR 261.33(e) which are acutely toxic to human health or the environment (e.g., potassium cyanide). These wastes are primarily generated within a laboratory setting. Environmental will inform appropriate personnel if these wastes are generated on-site.

4.3 Satellite Accumulation Area (SAA) – an area designated for the collection of less than 55 gallons of hazardous waste or less than 1 quart of acutely hazardous waste.

4.5 Staging Area (SA) – an area designated for the temporary storage (<90 days) of an unlimited amount of hazardous waste.

4.6 RCRA – the Resource Conservation and Recovery Act

4.7 EPA – the Environmental Protection Agency

4.8 EPA HW No. – the identification number which EPA has assigned to each specific waste (i.e., D005 is for Barium).

4.9 EPA Hazard Code (HC) – the letter that the EPA has assigned which designates the specific hazard involved with the waste (i.e., “I” stands for “ignitable”)

5. RESPONSIBILITIES:

Hazardous waste generators are responsible for following this procedure.

6. PROCEDURE:

6.1 SAA's shall be located at or near the point of waste generation; shall be under the control of the operator generating the waste (no more than 55 gallons of hazardous waste or no more than 1 quart of acutely hazardous waste may be accumulated at each SAA). Containers must be labeled with HW label identifying the type of hazardous waste and HC.

6.1.1 When waste quanity limits are reached, the container shall be dated with the date the container was filled AND within three (3) calendar days the waste **must** be transferred to a RCRA 90 day Staging Area .

6.1.2 Each SAA can contain more than one hazardous waste container for waste accumulation but **if more than one** hazardous waste container is used, the combined size of the containers **should not exceed 55 gallons** for hazardous waste or 1 quart for acutely hazardous waste (e.g., three 15 gallon containers of loaded fuze bodies).

6.2 Container Requirement: 1) Containers must be in good condition (e.g., free of significant rust, deterioration, cracks, etc.); 2) Containers must be compatible with waste being stored (e.g., waste must not produce a chemical reaction with the container); 3) Containers must be closed unless waste is being added to or removed from the container; 4) Containers must be handled or stored in a manner that ensures that there are no ruptures or leaks.

6.3 Labeling Requirements: Each container holding a hazardous waste shall be labeled with a preprinted hazardous waste label filled out as identified in Attachment 1.

7. RECORDS:

N/A

8. REVISION HISTORY:

Revision Level	Date	Approval	Description
A	4-8-03	Dale Krejcar	This procedure has been revised to conform to current COR's procedure format
B	8-26-15	Bob Parman	Update facility name

9. APPENDIX:

Hazardous Waste Label

ATTACHMENT 1

HAZARDOUS WASTE

FEDERAL AND/OR STATE LAWS PROHIBIT IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION:

NAME _____

ADDRESS_____PHONE_____

CITY_____STATE_____ZIP_____

EPA/MANIFEST

ID No./DOCUMENT No. _____/_____

ACCUMULATION EPA

START DATE #4 WASTE No. # 1

ENTER COMMON NAME OF WASTE HERE #2

HANDLE WITH CARE

NOTES:

#1 – Example of EPA HW Number's

D001 (Ignitable Waste)	D007 (Chromium)
D002 (Corrosive Waste)	D008 (Lead)
D003 (Reazctive Waste)	D011 (Silver)
D005 (Barium Waste)	F002 & F003 & F005 (Solvent Waste)

#2 - Example of Some Common Waste Names

Contaminated Industrail Material (CIM) with Mag Tef HW No. "D003" HC "R "

Hexane/Acetone Cont.with Lead HW No. " D001/F003/D008" HC "I/T"

228 Delay Composition HW No. "D005/D007" HC 'R/T"

Toluene CIM HW No. "F005" HC "T"

#3 – Example of EPA Hazard Codes

"I" = Ingnitable	"E" = Toxicity Characteristic	"H" = Acute Hazardous Waste
'C" = Corrosive	"R" = Reactive	"T" = Toxic

#4 – Accumulation Start Date

Enter the date that the container becomes full. you then have three (3) calander days in which to move the container to a RCRA Staging Area

TRAINING RECORD

EMPLOYEE TRAINEE **Signature and Date** *Acknowledgment that the employee (trainee) has read and understands this product work instruction.*	**EMPLOYEE TRAINEE** **Signature or Initials and Date** *Acknowledgment that the employee (trainee) feels that he/she is adequately trained to perform the activities described within this product work instruction.*	**TRAINER** **Signature or Initials and Date** *Acknowledgment that the trainer has verified that employee (trainee) is trained and capable of performing the activities described within this product work instruction*

1. PURPOSE:

To provide for and document the treatment of hazardous debris to the clean debris standard prior to land disposal as defined in 40 CFR 268.45.

2. SCOPE:

This procedure is for performing treatment on hazardous debris.

3. REFERENCES:

Federal Register, Vol. 57, No. 160, Tuesday, August 18, 1992, "Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris".

ENV-GEN-001, Training on New/Revised Environmental Procedures

4. DEFINITIONS:

4.1 Debris: Any solid material exceeding 60 mm particle size that is intended for disposal and that is a manufactured object, plant or animal matter or natural geologic material.

4.2 Hazardous Debris: Debris that contains a hazardous waste listed in 40 CFR 261 Subpart D or that exhibits a characteristic of hazardous waste as identified in 40 CFR 261 Subpart C. Hazardous debris must meet treatment standards in 40 CFR 268.45 prior to land disposal.

4.3 Clean Debris Surface: The performance standard, as defined by 40 CFR 268.45, that must be met for hazardous debris to be considered non- hazardous. It means the debris surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste, except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices and pits may be present, provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5 percent of each square inch of surface area.

4.4 RCRA: Resource Conservation and Recovery Act.

4.5 A/B - Abrasive Blasting; S/G - Scarification/Grinding; HPS/WS - High Pressure Steam and Water Sprays: The treatment technologies, as defined by 40 CFR 268, that is used to effectively treat/clean TC contaminated hazardous debris to meet the required performance standard of a clean debris surface.

4.6 TCLP - Toxic Characteristic Leaching Procedure: a solid waste exhibits the characteristic of toxicity if, using the TCLP, test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" the extract from a representative sample of the waste contains any of the contaminants listed on Table 1 of 40 CFR 261.24 at a concentration equal to or greater than the respective value given in that table.

5. RESPONSIBILITIES:

5.1 Maintenance and Environmental will determine what extraction technology standard procedure will be preformed.

5.2 The Maintenance Department is responsible for ensuring procedure completion.

5.3 The Environmental Group is responsible for verifying procedure completion.

5.4 Debris treated to the clean debris performance standard, will be sent off-site to appropriate disposal facility.

5.5 Residue generated from the cleaning of debris will be managed as hazardous waste and is subject to appropriate waste-specific treatment standards.

5.6 It is the responsibility of management to ensure that individuals performing this procedure must be current in General RCRA training; OBU RCRA Contingency Plan training and HAZWOPER training. .

6. PROCEDURE:

6.1 Using appropriate sampling technique take representative sample of debris and send to Certified Laboratory for TCLP analysis. If samples contain any contaminants equal to or greater than the value given in Table 1 in 40 CFR 261.24 continue with remaining procedure steps 6.2 thru 6.13

6.2 Establish a plastic hut, on the OBU concrete pad, to perform the operation.

6.3 Place an appropriate container (i.e., DOT 1A2, open-top or DOT 1A1, closed top) within the OBU concrete pad.

6.4 Place a "Hazardous Waste" adhesive label on the container and enter onto the label the appropriate EPA Hazardous Waste No., Hazard Code, and a description of the waste to be generated.

6.5 Ensure personnel performing procedure are wearing proper PPE for chosen extraction method. Place the hazardous debris into the hut.

6.6 If performing S/G, use a spray bottle or similar device filled with water, dampen the pan where S/G operations will be performed. Perform S/G operations only on the area that has been dampened.

6.7 Periodically remove loose residue and place into the pre-labeled container.

6.8 Repeat Steps 6.6 and 6.7 until a "Clean Debris" surface has been achieved on the hazardous debris.

6.9 Contact the Maintenance Manager and a representative of the Environmental Group to inspect the cleaned debris.

6.10 IF the Maintenance Manager and a member of the Environmental Group determine that the debris does not meet the "Clean Debris" surface, THEN repeat Steps 6.6 and 6.7

6.11 IF the Maintenance Manager and a member of the Environmental Group determine that the debris does meet the "Clean Debris" surface, have them sign the following certification statement.

> I certify under penalty of law that the debris has been treated in accordance with the requirements of 40 CFR 268.45. I am aware that there are significant penalties for making a false certification, including the possibility of fine and imprisonment.

Maintenance Manager _____ Date _____

Environmental Group _____ Date _____

6.12 Ensuring that all residues from the cleaning operation has been containerized, seal the container. Transfer the container to the main staging area.

6.13 Transfer the cleaned debris to the appropriate lay down area.

7. RECORDS:

This procedure will become a record upon completion and be maintained for the lifetime of the facility in E. File 3.1.10.2

8. REVISION HISTORY:

Revision Level	Date	Approval	Description
A	4-24-03	Dale Krejcar	This procedure has been revised to conform to current COR's procedure format
B	5-25-05	Dale Krejcar	This procedure has been revised to address treatment standards for Hazardous Debris cleaning prior to land disposal.
C	8-26-15	Bob Parman	Update facility name

Chemring Ordnance	**PROCEDURE**	NUMBER **ENV-GEN-014** Rev **E** DATE **03/14/16** Page 1 of 4
		AUTHOR: **Tom Brown** Environmental Assistant Manager
TITLE Process Waste Assessments		APPROVED: ***Bob Parman*** Director of HSSE

1. PURPOSE:

To define Process Waste Assessment (PWA) requirements, provide characterizations of waste streams and to assist in identifying waste minimization activities during Process Hazard Analysis.

2. SCOPE:

This procedure applies to facility manufacturing operation for the assessment of process waste streams.

3. REFERENCES:

40 CFR Part 261 – Part 279

ENV-GEN-004, Waste Acceptance Criteria

ENV-GEN-011, Waste Minimization

4. DEFINITIONS:

4.1 Hazardous Waste (HW) – A waste which, if improperly treated, stored, or disposed of or otherwise managed, may pose a threat to human health or the environment. [NOTE: By regulation, hazardous waste differs from other waste in that they are specifically listed or designated hazardous by EPA in 40 CFR Part 261 Subpart D or the State where regulated, or possess characteristics that make them ignitable, corrosive, reactive or toxic as identified in 40 CFR 261 Subpart C.]

4.2 Recycle – Converting solid waste into new product by using the resources contained in discarded material.

4.3 Hazardous Waste – Waste specifically listed in 40 CRF Part 261 Subpart D or which expresses a hazardous characteristic as identified within 40 CFR Part 261 Subpart C.

4.4 Sanitary Waste – Waste that does not meet the definition of hazardous waste.

4.5 Waste – Unwanted materials that are left over from the manufacturing processes or refuse from human habitation.

4.6 EPA – Environmental Protection Agency

4.7 Waste Types – The major categories of waste generated by the manufacturing process. These include sanitary hazardous and recyclable waste.

4.8 PHA – Process Hazard Analysis

5. RESPONSIBILITIES:

5.1 Environmental/Safety is responsible for identifying generated waste for PWA's during PHA's for individual production programs.

5.2 Production Supervisors are responsible for ensuring that PWA's generated for their operations are adhered to and for notifying Environmental whenever any of the manufacturing processes or raw chemicals change.

5.3 All personnel are responsible for reducing the volume, toxicity and mobility of facility waste streams.

6. PROCEDURE:

6.1 PWA's are to be conducted for each manufacturing program during PHA's.

6.2 PWA's are to be completed prior to start-up of new manufacturing operations.

6.3 As part of the PHA, PWA's are to include the following determinations for waste generation.

6.3.1 Opportunities for reducing hazardous waste generation by chemical substitution or recycling whenever possible,

6.3.2 Process knowledge characterizations of all wastestreams resulting from manufacturing operations,

6.3.3 Appropiate waste segregation techniques,

6.3.4 Appropiate EPA hazardous waste numbers and hazard codes for each RCRA waste,

6.3.5 Common names for all wastestreams,

6.3.6 Appropriate waste management information (e.g., accumulation of waste in satellite accumulation areas, staging areas or non-hazardous collection points.

6.4 In the case of ash disposal from the treatment of energetic waste, the process must include the origin of the treated materials. Any Listed Hazardous Waste must retain the listed hazardous waste code (F-, K-, P-, and U- codes) after treatment even if the treatment destroys that waste.

7. RECORDS:

Process Waste Assessment is an essential part of the PHA process and are kept in the Process Safety Information (PSI) records for the lifetime of the facility

8. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
A	4-24-03	Dale Krejcar	This procedure has been revised to conform to current MEI's procedure format
B	3-31-09	Dale Krejcar	This procedure has been reviewed, Dale Krejcar title changed to Director of Operations; new logo added; add Environmental Assistant Manager to Author title
C	11-3-10	Lucky Vostrirancky	Revised to change company name/logo and the inclusion in PHA process
D	7-24-12	Scott Thomas	Revised to change VP of Operations name and add new logo.
E	10/30/13	Norman Kendrick	Revised to change logo; reflect changes in management

CHEMRING ORDNANCE, INC.

Training Certification Report Form

Location of Meeting:	Date
Name of Trainer:	
Topic of Meeting:	
Description of Meeting Contents;	
PRINT NAME	**SIGN NAME**

Note: See HR form for current revision

Chemring Ordnance	**PROCEDURE**	NUMBER **ENV-GEN-017** Rev E DATE **10/30/13** Page 1 of 3
		AUTHOR: **Patsy Sadler** Environmental Assistant Manager
TITLE WEEKLY INSPECTION OF BUILDING 126		APPROVED: *Norman Kendrick* Director of HSSE

1. PURPOSE:

To provide instruction for the weekly (every 7 days) inspection of fluorescent lamps; lead acid batteries and ni/cd/pb batteries temporarily stored (less than 360 days) in Building 126.

2. SCOPE:

This procedure explains how to conduct the weekly inspections and maintain a record of the inspections.

3. REFERENCES:

40 CRF 266

Managing Spent Fluorescent and High Intensity Discharge Lamps, FDEP fact sheet for Florida Business.

ENV-GEN-001, Training on New or Revised Environmental Procedures

ENV-GEN-010, Reporting Spills or Leaks of Process Chemicals, Petroleum or Hazardous waste

4. DEFINITIONS:

N/A

5. RESPONSIBILITIES:

Environmental is responsible for ensuring that this procedure is completed every 7 days or documenting the reason that an inspection has exceeded the 7 day period.

6. PROCEDURE:

6.1 Inspect Building 126 for the items listed below and check appropriate block in Section A of form COR-ENV-F006.

6.1.1 Ensure that the fluorescent lamps are properly containerized. [NOTE: Lamps are segregated in containers by size.]

6.1.2 Ensure that each container holding fluorescent lamps are labeled, “Spent Mercury-Containing Lamps for Recycle.”

6.1.3 Ensure that each container has an accumulation start date.

6.1.4 Ensure no date exceeds the 360 day accumulation hold time.

6.1.5 Ensure that lead acid batteries are in good condition and free of cracks or leaks.

6.1.6 Ensure that craked batteries or broken lamps are properly managed as hazardous waste.

6.1.7 Ensure that building floor appears impervious and free of gaps.

6.1.8 Ensure that the building exhibits good housekeeping.

6.1.9 Ensure the absence of broken glass from underneath Building 126. If broken glass is identified, contact the Environmental Department.

6.1.10 Ensure used ni/cd/pb rechargable batteries are properly stored in container labeled "Used Ni/Cd/Pb batteries for Recycle".

6.2 Describe any "NO" responses in Section A in the space provided in Section B.

6.3 Describe any corrective actions to non-compliance in Section C.

6.4 Enter quantity of lamps and/or lead acid batteries in storage if any. Enter the name of the individual performing the inspection and the date and time of the inspection in Section D.

7. RECORDS:

Form COR-ENV-F006 of this procedure will be completed in ink and become a record upon completion. This record will be maintained for three (3) years.

8. REVISION HISTORY:

Revision Level	Date	Approval	Description/Reason for Revision
A	4-23-03	Dale Krejcar	This procedure has been revised to conform to current MEI's procedure format
B	3-31-09	Dale Krejcar	This procedure has been reviewed, Dale Krejcar title changed to Director of Operations; new logo added; added Environmental Assistant Manager to Author title
C	11-4-10	Lucky Vostrirancky	Revised to change company name/logo
D	7-24-12	Scott Thomas	Revised to change VP of Operations name and add new logo.
E	10/30/13	Norman Kendrick	Revised to change logo; reflect changes in management

CHEMRING ORDNANCE, INC.

Training Certification Report Form

Location of Meeting:	Date
Name of Trainer:	
Topic of Meeting:	
Description of Meeting Contents;	

PRINT NAME	SIGN NAME

Note: See HR form for current revision

II.A.6
Waste Analysis Plan

Introduction

COR's Waste Analysis Plan (WAP) is prepared in general accordance with *Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes — DRAFT*, (U.S. EPA, January 2013) to ensure that COR has sufficient information to identify the waste for proper handling, transport, and treatment; confirm the effectiveness of treatment; and ensure proper disposal. The WAP is designed to describe the procedures used to obtain chemical and physical information and data on wastes to ensure proper transportation, treatment, and disposal. The WAP details parameters for analysis and supporting rationale, test methods, sampling methods, and frequency of analysis, along with other documentation for additional requirements pertinent to the OBU. Modifications to sampling, quality assurance (QA)/quality control (QC), or waste analytical methods, and additions to the types of hazardous waste treated at the OBU shall result in the modification of the WAP. Modifications shall be submitted to the FDEP.

All persons at COR responsible for characterizing, handling, treating, and managing hazardous waste shall be familiar with this WAP. Any deviation in the methods needed to characterize a solid or hazardous waste shall be reviewed and accepted by COR and incorporated into this plan.

Waste Characteristics

Non-Reactive Wastes

COR makes every reasonable attempt to segregate non-reactive wastes from those that are reactive. Specifically, separate collection receptacles are available in each process area for the collection of solid waste that is not contaminated with reactive constituents. Employees are encouraged to minimize the amount of reactive waste generated by reworking the product. In addition, employees attempt to limit the number of industrial wipers, etc. that are utilized with reactive materials. Any material that is non-reactive is not treated at the OBU. Non-reactive wastes are disposed of offsite as indicated in Attachment II.A.5 of the application for the current permit.

At COR, the majority of the explosive and pyrotechnic wastes regularly generated from onsite processes are RCRA characteristic wastes. These wastes are known to be hazardous due to their reactive, metal, and solvent constituents.

A summary of each class of reactive hazardous waste regularly generated at COR is provided in Attachment II.A.5 of the application for the current permit. In general, engineering process and materials knowledge is used rather than testing. Each waste stream has a distinctive color and texture. The operators who collect the wastes for transport are often the same people responsible for blending the original product and are thoroughly familiar with the color and texture of each waste stream. The operators visually inspect the material when it is picked up. If there is any question as to whether the waste stream is acceptable or not, the waste is held at the accumulation location until it has been properly categorized by the Supervisor of Process Blending or the Process Engineer. If, however, an unusual or unknown waste is generated, a complete identification analysis is conducted. This analysis may include explosive compounds and metals. The exact analysis to be performed is determined by the environmental coordinator working in conjunction with the process engineer. Knowledge of the process generating the waste us relied on to identify reactive and potentially reactive waste.

Table II.A.6-1 provides a brief description of the wastes expected to be treated by the OBU, the storage location at the burn range, and the burn pads used to treat the waste. COR transports waste from the production buildings and satellite accumulation areas on a daily basis to the designated storage buildings at the OBU. Table II.A.6-2 describes the use of each of the OBU storage/staging buildings.

Physical and Chemical Analysis

The wastes generated at COR consist of the materials identified in Attachment II.A.5. Since all these wastes contain explosive or pyrotechnic material either used or manufactured onsite, and the source of the wastes, as well as the composition, is well known and documented, analysis for the reactivity characteristic is not warranted. All of these materials are subject to treatment at the OBU, and in place of analysis, the onsite source of the waste, as well as the composition, is well-known and documented prior to their thermal treatment.

Scrap Pyrotechnics Compositions

The Magnesium/Teflon pyrotechnic process is associated with production of infrared flares and associated pyrotechnics. During production, manufactured magnesium pyrotechnic is milled and drilled to accommodate boosters and casings. The milling and drilling processes generate the most significant quantity of waste pyrotechnics treated at the OBU. The scrap magnesium pyrotechnic compositions exhibit the characteristics of ignitability (D001) under 40 CFR 261.21 and reactivity (D003) under 40 CFR 261.23.

To minimize premature reactions associated with this waste, the compositions are accumulated, transported, and burned while submerged in diesel fuel, which significantly reduces the possibility that friction or static sparks can initiate a reaction. In addition, the diesel fuel slows any initiated reaction considerably, thus reducing the possibility of an explosion.

Residual Solvent-Contaminated Rags

Rags containing residual pyrotechnics and acetone are occasionally taken to the OBU for treatment. Clean-up and decontamination of process equipment generates rags that may contain trace amounts of acetone or other solvent. These wastes are hazardous because they contain acetone, a solvent listed (based on ignitability) under Hazardous Waste Code F003, and may be characteristically hazardous for ignitibility (D001). Because the rags may also contain trace amounts of pyrotechnic material, they are burned at the OBU. This waste typically has hazardous waste codes D001, D003, and F003.

Scrap Propellant Waste

Propellant waste treated at the OBU may contain explosives mixtures such as nitroglycerine, nitrocellulose, cyclotetramethylene tetranitramine (HMX), cyclotrimethylene trinitramine (RDX), aluminum powder, and ammonium perchlorate. This waste typically has Hazardous Waste codes D001 and D003.

Scrap Barium and Tungsten Compositions

Minor quantities of barium and tungsten are also used during various production processes; waste generated from those processes typically has Hazardous Waste codes D001, D003, D005, and D007.

Scrap Lead Compositions

Minor quantities of lead are also used during various pyrotechnic production processes; waste generated from those processes typically has Hazardous Waste codes D001, D003, and D008.

Waste Tracking

Procedures for tracking raw waste movements to the OBU described below are used to ensure proper handling of these wastes. Also described is the waste analysis procedure to be followed for the residuals resulting from the thermal treatment process.

Tracking of Raw Waste Shipments

The wastes classifications expected to be treated at the OBU are listed in Table II.A.6-3. The following waste identification and handling procedures are followed to ensure proper tracking of waste sources:

- Containers of reactive wastes generated in the production areas are identified and labeled as to their contents at the point of generation.

- All wastes are packed in suitable containers and labeled (Figure II.A.6-1). The containers are placed in designated satellite accumulation locations in each of the process areas.

- The driver that picks up waste containers for transportation to the OBU storage buildings enter the waste on the Log Sheet for Waste Analysis in the OBU log book (Table II.A.6-4). This log sheet documents the waste generating area, the date the waste enters the unit, and the estimated waste quantity. The volume may be an estimate in some instances (i.e., industrial wipers). The wastes are transported to the OBU staging area via a motorized vehicle, generally a golf cart or similar utility vehicle with a trailer.

- Only wastes that fall into one of the categories listed in Table II.A.6-3 may be treated at the OBU. Each specific waste stream will be classified into one of the categories listed in Table II.A.6-3 and added to the list of waste streams maintained in the OBU Log Book. Table II.A.6-1 identifies the most common wastes treated at the OBU. The list is reviewed periodically by supervisors of production areas and modified as necessary. Copies of Tables II.A.6-1 and II.A.6-2 are kept in the OBU Log Book and are used to identify permitted types of waste allowed to be thermally treated at the OBU.

- The Environmental Manager is informed of any contracts that are being bid which may result in reactive wastes. This includes, but is not limited to, production processes with actual reactive waste residues, as well as contaminated industrial materials.

- The Environmental Manager evaluates the contract in consideration of production processes and wastes. The Environmental Manager will prepare a permit application modification, if necessary, to allow the treatment of the new materials at the OBU.

- Any unusual or new waste requires a Waste Characterization Form (Table II.A.6-5) to be completed and forwarded to the area supervisor. Approval from the Environmental Manager is required before the waste can be delivered to the OBU staging area. The completed form is maintained in the OBU Log Book.

- A yearly summary of wastes received by the OBU is developed based on all incoming and treated wastes. This summary is maintained in the OBU Log Book.

Containerized Waste

Wastes are transported from the satellite accumulation areas to the OBU staging area. The OBU staging area includes four storage buildings (see Figure II.A.6-2). Wastes are temporarily stored in buildings 127, 128, 136, and 137 prior to treatment. Wastes are segregated in the staging area as described in Tables II.A.6-1 and II.A.6-2. The wastes are moved from the staging area to the burn pad for treatment. Post-treatment residues are containerized and transferred to the staging area in preparation for transport offsite. The SOPs for collecting, transporting, and storing the waste are provided in Subattachment II.A.5-1.

OBU Ash and Residue Sampling and Analysis

Test Methods

Any information used to define or characterize a hazardous waste (i.e., generator knowledge, reference documentation, or analytical results) is maintained on file at COR for at least 5 years from the last day the specific hazardous waste was treated at the OBU.

Scrap Pyrotechnics Waste Stream

The chemical compositions of scrap waste pyrotechnics from COR's production areas are known to be reactive (D003). In addition, some of the constituents in the waste stream could also exhibit the characteristic of ignitability (D001), the characteristic of toxicity D005 (barium), D007 (chromium), D008 (lead), and listed hazardous waste F003 (acetone). As discussed in Attachment II.A.5, the chemical and physical characteristics of these waste streams remain constant over time because of strict manufacturing standards and procedures. Because of that, and since there is a safety hazard posed by the handling and testing of wastes containing relatively high levels of pyrotechnics, pyrotechnic-contaminated wastes have been and will be assumed to be reactive in lieu of testing, based on this generator process knowledge.

The ignitability of wastes handled under diesel fuel has been established through reference to Safety Data Sheets (SDSs) and literature such as the Fire Protection Guide on Hazardous Materials (National Fire Protection Association, 1986). Based on the definitions provided in 40 CFR 261.21(a)(1), diesel fuel waste is considered to be ignitable.

Ash Generated from Open Burning

Initial characterization of the ash and residue performed in accordance with 40 CFR 261 has indicated that ash and residue do not meet the definition of hazardous waste (Table II.A.5-3), with the exception of three products which are rarely produced. Work instructions for the management of M228 and M213 Fuze Burn Residue as hazardous waste is provided in Subattachment II.A.5. All waste ash characterization for new products will be performed in accordance with 40 CFR 261 Subpart C.

All COR wastes are generated from known processes and are thus fully characterized by information on the Waste Characterization Form provided in Table II.A.6-5 or similar. Burn residues with the potential to contain RCRA metals are reanalyzed annually for leachable heavy metals per the U.S. EPA Toxicity Characteristic Leaching Procedure (TCLP) in accordance with U.S. EPA's SW-846, 3rd Edition. Based on this analysis, the Waste Characterization Form is updated. Since the residues are not disposed of onsite, COR determines if the residues are hazardous in order to dispose of them offsite. All analytical analysis are performed by a laboratory certified by the National Environmental Laboratory Accreditation Conference (NELAC).

Samples of burn residue are collected from the storage drums by a member of COR's staff familiar with sampling protocols. An approved method in accordance with 40 CFR 261, Appendix I, is used. American Society for Testing and Materials (ASTM) P2234-76 is the preferred sampling technique. The sampler samples the drums by inserting a stainless steel laboratory scoop or spoon into the burn residue and immediately transfers the sample to the sample container.

Samples are shipped in accordance with chain of custody protocols to a contract laboratory selected by COR. Information on the sample shipment is recorded in the OBU Log Book.

Table II.A.6-1
Waste Handling at the Open Burn Unit
Chemring Ordnance, Inc., Perry, Florida

Material	OBU Storage Building	Burn Pad [a]
Smoke Composition	137	3,4
Flare Composition	127, 128	2
Heat Pads	137	3
Pellets	137	3
Smoke Candles	137	4
Flare Candles	137	4
Mag-Tef Composition	127, 128	1,2
Starter Composition	127, 128	2
Igniter Composition	127, 128	2
Igniters	137	3
ZR/NI Delay	137	3
AIA	127, 128	2
Loaded M201 Igniters	137	3
Primers	137	3
Black Powder	127	2
Lead Azide	137	4
Delay Housings	137	3
Burster Housings	137	3
Primer Composition	137	3
M9	127, 128	2
Loaded 38s	137	3
First Fire Composition	127, 128	2
Ignition Mixture	127, 128	2
Tungsten Delay Composition	137	3
M583 Full-ups	137	3
Industrial Wipers	136 [b]	1,2,3,4
Floor Sweepings	136 [b]	1,2,3,4
Wood Containers or Cradles	not applicable	1,2,3,4

Notes:

[a] Each of the numbered burn pads is used to treat a specific type of waste. This ensures that the composition of burn residues from each pad is predictable; and that non-hazardous burn residues are not contaminated with potentially hazardous burn residues.

[b] These wastes will be generated in different process areas. Therefore, the industrial wipers and floor sweepings will be treated on the burn pad(s) that are used to treat the wastes with similar contamination. For example, industrial wipers contaminated with Mag-Tef will always be treated on burn pads 1 or 2, with other Mag-Tef contaminated wastes.

Table II.A.6-2
Open Burn Unit Storage/Staging Area
Chemring Ordnance, Inc., Perry, Florida

Building	Contents or Function
P58	Scale; Also provides general storage for non-waste items
127	Drums containing Mag-Tef in a solution of acetone or diesel and large items transported to the Open Burn Unit for decontamination (such as hoods, tabletops, etc.)
137	Non-conforming parts, including primers, fuse bodies, etc.
136	Contaminated industrial materials contained in poly bags
128	Decanting operation; Immediately before a burn, excess acetone or diesel is decanted off the Mag-Tef waste drums. Excess acetone and diesel is reused to neutralize other mag-tef wastes
116	Satellite accumulation area for burn residues

Table II.A.6-3 Waste Groupings Chemring Ordnance, Inc., Perry, Florida	
Group 1	Normal Pyrotechnics
Group 2	High Energy
Group 3	High Explosives
Group 4	Low Energy Pyrotechnics
Group 5	Contaminated Industrial Materials

Table II.A.6-4
Log Sheet for Open Burn Unit Buildings
Chemring Ordnance, Inc., Perry, Florida

Log In Date:	Log No.	Description of Contents in Bag, Drum, etc./WT:	Building Originated	Log Out Date	U.S. EPA Hazardous Waste No.
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006
					D001, D003, D005, D006, D007, D008, F002, F003, F005, F006

Table II.A.6-5

WASTE CHARACTERIZATION FORM

I. **LOCATION** _____

EPA I.D.# _____ EPA CODE _____

II. **NAME OF WASTE** _____

III. **COMPOSITION**

A. MAJOR COMPONENTS:

1. _____
2. _____
3. _____
4. _____
5. _____

C. CONCENTRATION RANGE:

	Upper	Lower
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

B. TRACE COMPONENTS NOT LISTED ABOVE (ppm or N/A):

Ag ____ As ____ Ba ____ Cd ____ C1* ____
Cn ____ Cr ____ Cu ____ F* ____ Hg ____
I* ____ N* ____ Ni ____ P* ____ Pb ____
S* ____ Se ____ Zn ____ CR+6 ____ TI ____
Other: _____
Indicate Test Method: _____
EPTO/TCLP _____ Total Metals: _____

D. DOES THE WASTE CONTAIN:

	Yes	No
Sulfides	____	____
Cyanides	____	____
PCBs	____	____
Phenolics	____	____
Dioxin*	____	____
Listed Solvent #	____	____
Halogenated Organic Compounds 1,000 mg/L +	____	____
Insecticides, pesticides, herbicides, or rodenticides	__	____

IV. **PHY. STATE** @ 25°C (*Circle*): SOLID LIQUID SLUDGE LIQUID/SOLID PHASES GAS OTHER _____

- IS THERE A DUSTING HAZARD IF CONTAINERS ARE OPENED? Yes:_____ No: _____
- MULTIPLE PHASES? _____ VOL% OF EACH PHASE _____ % SOLID _____ % LIQUID _____
- CAN THE WASTE BE PUMPED? _____ POURED? _____ • % FREE FLOWING LIQUID LAYER _____ (VOLUME I)
- PRESSURE OF CONTAINER _____ PSIG • % SEPARATE PHASE WATER _____ ESTIMATED SPECIFIC GRAVITY _____

V. **SHIPPING CONTAINERS**

BULK _____ CONTAINER SPEC. _____ TREATED ONSITE _____

NON-BULK	SIZE	MATERIALS OF CONSTR.	CONTAINER SPEC.	APPROX. WEIGHT PER CONTAINER	CONTAINER LABEL USED
OTHER					

VI. **PROPERTIES:** FLASH POINT _____ °F (CLOSED CUP) BTU/LB. _____ COLOR _____ pH _____

	Yes	No		Yes	No		Yes	No
CORROSIVE			OSHA CARCINOGEN			RADIOACTIVE		
ODOR			REACTIVE			SHOCK SENSITIVE		
TOXIC			PYROPHORIC			EXPLOSIVE		
						ETIOLOGICAL		

OTHER _____

VII. **D.O.T. SHIPPING DESCRIPTION:** D.O.T. HAZARD CLASSIFICATION _____
EPA HAZ. SUBST.: Y ___ N_____ RQ _____ D.O.T. PLACARD _____
D.O.T. LABEL _____ U.N. NO. _____ N.A. NO. _____

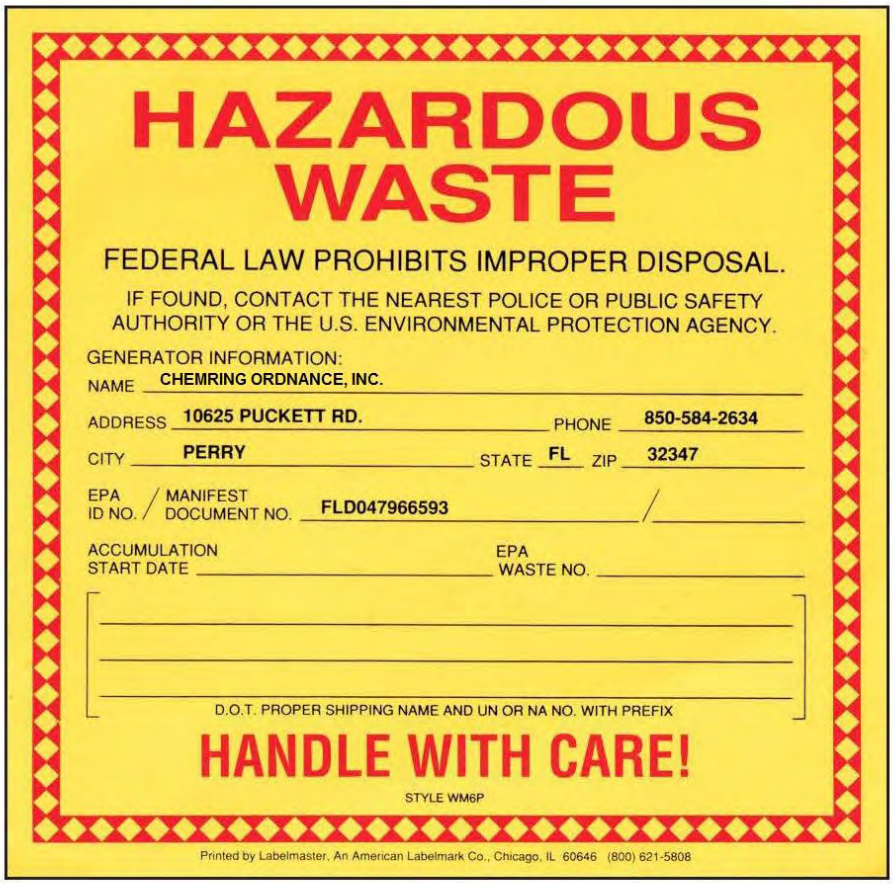
VIII. **VOLUME:** ANNUAL _____ THIS REQUEST _____ PER SHIPMENT

IX. **REMARKS** (TREATMENT OF SPILLS/SAFETY SUGGESTIONS/MSDS)_____

Notes:
* = Organically bound
\# = As defined in 40 CFR 261.31
\+ = Per 40 CFR 261.3 and 40 CFR 268 App III

PREPARED BY: _____

15022.01/02/IIA6-4.TAB/KSC/PJH/2/061592



Source: Chemring Ordnance, ENV-GEN-006 Rev. B

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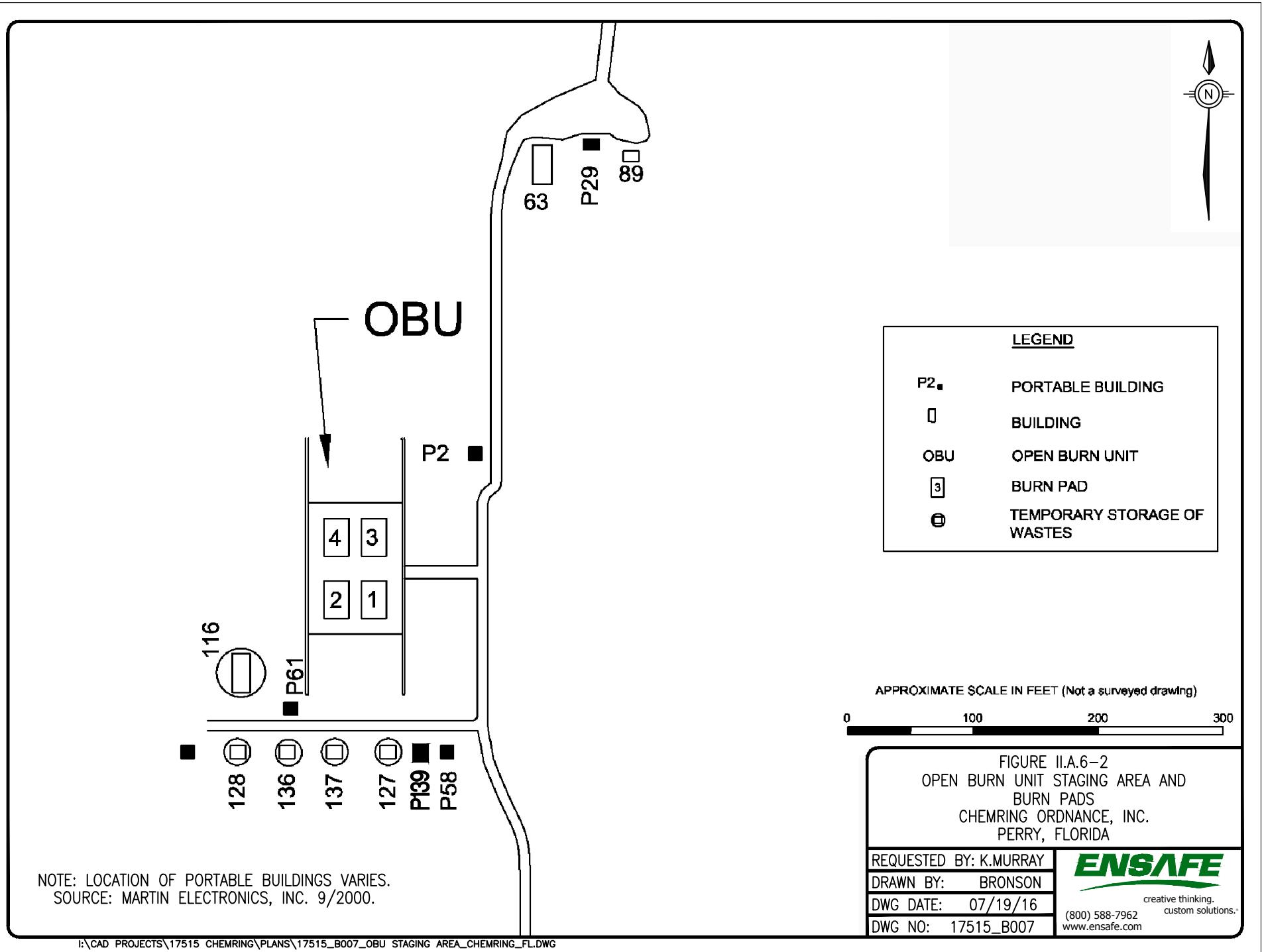
Figure II.A.6-1
Reactive Waste Label
Chemring Ordnance, Inc.
Perry, Florida

PREPARED FOR: Chemring Ordnance
PROJ MGR: K. Murray DATE: 08/26/2015
DRAWN BY: K. Murray PROJ. #: 0888817515


OBU
63
P29
89
P2
4
3
2
1
116
P61
128
136
137
127
P139
P58
LEGEND
P2 PORTABLE BUILDING
BUILDING
OBU OPEN BURN UNIT
3 BURN PAD
TEMPORARY STORAGE OF WASTES
APPROXIMATE SCALE IN FEET (Not a surveyed drawing)
0
100
200
300
NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC. 9/2000.
FIGURE II.A.6-2
OPEN BURN UNIT STAGING AREA AND BURN PADS
CHEMRING ORDNANCE, INC.
PERRY, FLORIDA
REQUESTED BY: K.MURRAY
DRAWN BY: BRONSON
DWG DATE: 07/19/16
DWG NO: 17515_B007
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I:\CAD PROJECTS\17515 CHEMRING\PLANS\17515_B007_OBU STAGING AREA_CHEMRING_FL.DWG

II.A.7
Manifest System, Recordkeeping, and Reporting

Record Retention

All records and plans except the OBU inspection records will be maintained at the site until closure is completed and closure certification is accepted by the FDEP. The inspection records will be maintained for a period of five years. All records are managed by the Environmental Manager or Environmental Assistant Manager.

40 CFR Part 264.74 requires that all records, including plans, must be furnished upon request to a duly designated representative of the Regional Administrator, and this requirement will be honored. A copy of all records of waste disposal locations and quantities will be submitted to the Regional Administrator and/or FDEP upon closure of the facility, if applicable.

Ownership Notices

Before transferring ownership or operation of this facility during its operating life, COR will notify the new owner or operator in writing of the requirements of 40 CFR Part 264 and Part 270.

Inspection Records

COR will record inspections in an inspection log or summary per 40 CFR 264.15(d). The inspection records will be maintained as a part of the operating record. These records will be kept for at least 3 years from the date of inspection. At a minimum, these records will include:

- The date and time of the inspection
- The name of the inspector
- A notation of the observations made
- The date and nature of any repairs or other remedial actions

COR will also follow Rule 62-730.160(5), F.A.C. requirements.

Manifest System

Each shipment of hazardous waste initiated from the COR facility to an offsite hazardous waste treatment, storage, or disposal facility will be accompanied by a Uniform Hazardous Waste Manifest. The reactive wastes treated at the OBU are not subject to manifesting since they are treated onsite. The burn waste residues may be subject to manifesting. COR does have other non-reactive waste streams that are subject to manifesting. COR will ensure that:

- All hazardous wastes shipped offsite will be accompanied by a manifest
- The manifests are prepared and signed properly
- Copies are distributed and kept on file, as required

Manifest Discrepancies

Manifest discrepancies will be resolved in accordance with 40 CFR 264.72. Upon discovering a significant discrepancy, COR will attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, COR will immediately submit to the Regional Administrator a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

Land Ban Notification/Certification Forms

As a generator of hazardous waste, COR retains copies of all notices, certifications, demonstrations, waste analysis data, and other documentation produced to comply with land disposal restrictions (40 CFR Part 268) for at least three years from the date that the waste which is the subject of such documentation was last sent to an on property or off-property facility for treatment, storage, or disposal, or until remedial activity is completed, whichever date is later. In accordance with 40 CFR 268.7, COR will provide notification/certification for wastes banned from landfills, if applicable.

Operating Records

An operating log that contains the information required under 40 CFR 264.73 is maintained for the OBU. All records and logs (except inspection logs) are available at the facility, in accordance with 40 CFR 264.74. All records and logs will be maintained at the site until closure is completed and the closure certification is accepted by the FDEP. The following information will be maintained in writing in the operation record for the OBU:

- A description and quantity of each hazardous waste received at the OBU
- The date and accumulation method for each hazardous waste
- The location of each hazardous waste accumulated at the OBU
- Records and results of waste analyses performed
- Summary reports and details of all incidents that require implementation of the Contingency Plan

- Inspection records (to be maintained for three years)

- Monitoring, testing, or analytical data, and corrective action where required by Subpart F and other applicable sections of 40 CFR 264

- All closure cost estimates under 40 CFR 264.142 and all contingent post-closure cost estimates under 40 CFR 264.144

Biennial Report

A biennial report will be submitted to the Regional Administrator and/or FDEP by March 1 during each even numbered year on U.S. EPA Form 8700-13A/B. The report will cover facility activities during the previous calendar years and will include:

- The U.S. EPA identification number, and address of the facility

- The calendar year covered by the report

- The method of treatment, storage, or disposal for each hazardous waste

- The most recent closure estimate under 40 CFR 264.142 and the most recent contingent post-closure cost estimate under 40 CFR 264.144

- For generators who treat, store, or dispose of hazardous waste onsite, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated

- For generators who treat, store, or dispose of hazardous waste onsite, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years

- A certification signed by the owner or operator of the facility or the authorized representative, no less often than annually, that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the permittee to be economically practicable; and the proposed method of treatment storage or disposal is that practicable method currently available to the permittee which minimizes the preset and future threat to human health and the environment

Additional Reports

Additional reports will be submitted to the U.S. EPA Regional Administrator if and when a release, fire, or explosion occurs or the facility undergoes closure.

Should a release, fire, or explosion occur, in accordance with 40 CFR 264.56(j), the Emergency Coordinator will note in the operating log the time, date, and details of any incident that requires implementing the Contingency Plan. Within 15 days after the incident, he will submit a written report on the incident to the Regional Administrator. The report will include:

- Name, address, and telephone number of the owner or operator
- Name, address, and telephone number of the facility
- Date, time, and type of incident (e.g., fire, explosion)
- Name and quantity of material(s) involved
- The extent of injuries, if any
- An assessment of actual or potential hazards to human health or the environment, where this is applicable
- Estimated quantity and disposition of recovered material that resulted from the incident

Should closure occur, per 40 CFR 264.115, COR will submit to the Regional Administrator, by registered mail:

- A certification that the hazardous waste management unit or facility, has been closed in accordance with the specifications in the approved closure plan
- This will be done within 60 days of completion of closure of each hazardous waste management unit or within 60 days of final closure
- The certification will be signed by the owner or operator and by an independent registered professional engineer
- Documentation of the independent professional engineer certification will be furnished to the Regional Administrator upon request

Noncompliance Notification

If, for any reason, COR does not comply with, or will be unable to comply with, any condition or limitation specified in the current operating permit, COR will immediately provide the FDEP with the following information:

- A description of and cause of noncompliance
- The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance

Notification of any noncompliance or emergency response including interim source removal, which may endanger health or the environment, including the release of any hazardous waste that may endanger public drinking water supplies or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, will be reported verbally to the FDEP within 24 hours, and a written report will be provided within five days. The verbal report will include the name, address, I.D. number, and telephone number of the facility; the date, time, and type of incident; the name and quantity of materials involved; the extent of any injuries if any; an assessment of actual or potential hazards; and the estimated quantity and disposition of recovered material. The written submission will contain all the elements of the verbal report and:

- A description and cause of the noncompliance.
- If not corrected, the expected time of correction, and the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

Notices

COR will comply with the "Notices" provisions of Rule 62-780.220, F.A.C.:

- Prior to performing field activities
- When contamination beyond the facility boundary is confirmed by laboratory analysis
- When a temporary point of compliance (TPOC) is established beyond the boundary of the source property in conjunction with monitored natural attenuation or active remediation

- Five year annual update to the status of a TPOC

- Warning signs at facilities where there may be a risk of exposure to the public of environmental media contaminated with hazardous waste

Planned Alterations

COR will give written notice to the FDEP within 15 days of any planned physical alterations or additions that could affect activities covered by the current operating permit. The notice will include at a minimum, a summary of the planned change, the reason for the planned change, a discussion of the effect(s) the planned change will have on the ability to investigate contamination at or from the contaminated site, and a discussion of the effect(s) the planned change will have on known or suspected contamination.

Permit Application Revisions

COR will revise "Part I — General" of the Application for a Hazardous Waste Facility Permit [DEP Form 62-730.900(2)(a)] and submit the revised form to the FDEP within 30 days of any changes in the Part I information.

Part II.I
Miscellaneous Units

II.I.1
Unit Description

II.I.1.a Physical Characteristics, Materials of Construction, and Dimensions of the Unit

The OBU contains an impervious monolithic reinforced concrete pad, four concrete burn pads, metal burn pans and cages, and a precipitation control roof. The dimensions of the OBU are 75 feet by 105 feet. Additional details regarding the design and construction of the unit are provided in the following sections. Record drawings of the OBU have been submitted to FDEP during the previous permit renewal (as Subattachment II.I.1-1) and there have been no changes to the unit since that submittal.

II.I.1.b Location, Design, Construction, Operation, and Maintenance

Location

The location of the OBU is southwest of any routinely inhabited portions of the facility (see Figures I.B.3-1 and I.B.3-2). The OBU is located away from any areas where raw materials, completed products, or production operations could be impacted by activities at the OBU. A 50-foot radius around the OBU is clear of all vegetation. The OBU layout is depicted in Figure I.B.3-3. The OBU is separated from public highways, passenger railways, and off-plant inhabited buildings by at least 3,500 feet. These distances are within the 40 CFR 264.382 requirement of 1,250 feet for a unit operating between 101 and 1,000 pounds per burn. The minimum distance from inhabited buildings, public highways, and passenger railway given by the Institute of Makers of Explosives (IME) are 400, 160, and 300 feet, respectively, for a unit burning 1,000 pounds of explosives.

Design and Construction

Impervious Monolithic Reinforced Concrete Pad: The OBU pad has dimensions of 75 feet by 105 feet and was designed to contain the majority of the measured deposition pattern on an impervious concrete surface. The construction includes a continuous monolithic 3,000-pounds-per square-inch (PSI) concrete slab with an 8-inch concrete curb along the perimeter to eliminate surface water run-on/run-off and to minimize surface wind dispersion of burned material inside the pad prior to its daily removal. The concrete surface was made impervious by application of a chemical and heat resistant sealant. The foundation of the concrete pad is made of a 6-inch-deep limerock base, measuring approximately 85 feet by 115 feet, installed as an additional barrier to potential contaminant migration from the OBU.

Concrete Burn Pads: On top of the monolithic concrete pad, there are four additional 6-inch-thick reinforced 3,000-psi concrete burn pads constructed with 8-inch perimeter curbs. Each burn pad measures 15 feet by 30 feet.

Metal Burn Pans: Because of the high temperatures generated during open burning of pyrotechnic devices, elevated metal burn pans are used to minimize thermal shock to the concrete burn pads. The elevated metal burn pans constructed of cold rolled steel with maximum dimensions of 26 feet by 11 feet by one foot are placed on each concrete pad. The burn pans are elevated above the concrete pad surface approximately 2 inches on steel angle legs. When necessary, removable metal screens are positioned approximately three inches from the top of each burn pan to contain ejected large particles from the burn pan. When very high temperature pyrotechnics are burned (e.g., thermate) sand is placed under the metal pans as additional insulating material to help protect the concrete burn pad. The burn pans are repaired by welding broken parts, or are disposed of when beyond economical repair. The disposal procedure for metal pans consists of decontamination with water and scrub brushes, and subsequent disposal as scrap metal. The specification drawings were approved and sealed by a Florida-registered Professional Engineer, and were included in the 1995 permit application submittal. No changes to the design are proposed.

Metal Burn Cage: Similar to the burn pans, burn cages constructed of cold rolled steel with maximum dimensions of 13 feet by 8 feet by 6 feet may be used in place of burn pans. The burn cages were specifically designed to contain the 38-caliber brass shell casings that jump around during destruction of the primer. Contaminated wipers are also burned in the cages to minimize dispersion of ash material. Like the burn pans, the cages are inspected and repaired by welding broken parts/screens until no longer serviceable, at which time they are replaced. Decontamination and disposal is identical to that for the burn pans.

Precipitation Control Roof: To prevent stormwater contact with burn residues, a removable aluminum roof is designed to enclose the entire 75-foot-by-105-foot concrete pad. The roof is mounted on an I-beam trolley rail to facilitate manual movement. The OBU is covered under this removable roof when it is not in use. During OBU operations, this roof is opened, allowing for heat dissipation.

Operation

Operational Record: COR maintains a written operating record at the OBU. This operating record will be maintained until the OBU is closed. In accordance with 40 CFR 264.73, the operating record includes the following information:

- Description and quantity of each hazardous waste received at the OBU
- Date(s) of its treatment and accumulation at the OBU
- Location of each hazardous waste within the OBU accumulation area and quantity at each location
- Records and results of waste analyses performed
- Summary reports and details of all incidents that require implementation of the contingency plan
- Records and results of inspections for at least three years from date of inspection
- Monitoring, testings or analytical data and corrective action where required by Subpart F and other applicable sections of Section 264, 40 CFR
- All closure and post-closure cost estimates
- A certification by the permittee no less than annually, that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the permittee to be economically practicable

Operational Procedures: Information about the waste streams that are thermally treated in the OBU is provided in Attachment II.A.5.

Maintenance, Monitoring and Inspection

Maintenance

Maintenance on the burn pad and the burn pad cover is conducted on an as-needed basis, based on observations made during weekly inspections.

Monitoring

Monitoring is discussed in detail in the groundwater monitoring plan contained in Part II.M, Groundwater Protection.

Inspection

COR's inspection plan establishes procedures and schedules for the systematic monitoring and inspection of hazardous waste management areas and emergency response equipment to ensure proper operation and maintenance compliance. The facility has a central voice communication system that is used daily and maintained by the onsite maintenance personnel. No special inspections or operational tests are routinely performed on this equipment. The other alarm systems, fire protection, spill control and decontamination equipment are included in the routine inspection program.

The Environmental Manager, Environmental Assistant Manager or designee is responsible for conducting the inspections of all hazardous waste management areas and emergency response equipment in accordance with the following procedure and schedule:

- Safety and Emergency Equipment — weekly;
- Security Devices — weekly;
- OBU — on days of operation; and
- Container Storage — weekly.

The inspection procedures establish a standard protocol for conducting inspections to ensure that each operational element, for both normal and emergency operations, is functional and available. Inspection Log Sheets are provided (Figures II.I.1-1 and II.I.1-2) to document each inspection. The following identifies the inspection concerns for each inspection item and describes the inspection method.

The separation of the Preparedness and Prevention Procedures and the Contingency Plan was discussed during the meeting between COR and FDEP on January 13, 2016, and has been resolved satisfactorily.

Weekly Inspections

Fire Extinguishers: The fire extinguishers in all buildings are checked to ensure that they are accessible, fully charged, and bear a current inspection tag. All locations identified in the Contingency Plan are inspected.

Spill Cleanup/Emergency Response Equipment: The supply of sorbent materials, empty drums, shovels, mops, rakes, and polyethylene sheeting in the warehouse, the supply of pumps and sampling materials in the plating department, and the supply of shovels on the emergency vehicles is checked to ensure the equipment is available, the supply is adequate, and the equipment is accessible and operable. The numbers of each type of equipment identified in Section 7 of the Contingency Plan is verified.

Personal Protection Equipment: All first aid kits, gloves, boots, protective clothing, goggles/safety glasses and respirator supplies are checked to ensure that the supply in all production buildings, emergency vehicles, and the warehouse is available and adequate. The eye washes are checked to ensure that the units are accessible and full. The valves are checked to ensure that they are connected and functional. The numbers of each type of equipment identified in Section 7 of the Contingency Plan is verified.

Gates and Locks: Each gate on the facility security fence is checked to ensure that warning signs are present and the gate is operable and in good condition.

Fence: The security fence is checked to ensure that there are no breaches in its integrity, such as broken ties, corrosion, holes, or distortion.

Hazardous Waste Accumulation Area: In the hazardous waste accumulation area, the drums are checked to make sure that each is closed, in good condition, and labeled and dated. The general area is inspected to ensure that all waste has been placed in drums, no leaks have occurred that have not been cleaned up, and an aisle space of 2 feet has been maintained. Emergency equipment is checked to ensure that communications and alarm systems are operable, spill control equipment is available and accessible, and fire equipment is operable.

Inspections on Days of Operation

Open Burn Unit: The containment area is inspected to ensure that there are no cracks, ponding, stains, deterioration, displacement, or leaks in the bottom and walls. The precipitation control covers are checked for corrosion, holes or other structural breaches. The waste accumulation areas are checked to ensure that no spills or leaks have occurred during loading/unloading operations.

The burn pads are inspected to ensure they are clear of any residues from the previous burn. All equipment used in the OBU operation is inspected prior to each burn. The sand and charcoal lining materials are checked to ensure that the supply is adequate and installation is complete. Each of the burn pans and burn cages are inspected for corrosion or holes. All emergency equipment is inspected to ensure availability, accessibility, and operation. All barricades are checked to ensure proper and secure placement. Groundwater monitoring well locks are checked to make sure they are in place and operable. All communication equipment is tested.

All problems encountered and/or repairs completed during the inspection are recorded on the Inspection Log Sheet. Repairs that cannot be completed at the time of the inspection must be addressed as emergency repairs requiring immediate attention. FDEP will be notified within 3 days if any cracks are discovered that require removal or repair. A complete report will be submitted within 10 days of completion of repair, and before that portion of the unit is returned to service.

Closure

The closure plan for this facility is discussed in detail in Attachment II.K.1.

Figure II.I.1-1 Open Burn Unit Inspection Log

OBU QUARTERLY PREVENTATIVE MAINTENANCE INSPECTION FORM

Section A--Condition of Concrete Pad and Rail System	Yes	No
1) Signs of severe cracking/chipping of pads	____	____
2) Signs of severe cracking/chipping of curbing	____	____
3) Signs of severe cracking/chipping of rail footer	____	____
4) Signs of severe warping/rusting or missing parts of either the rail system or tie-down hardware	____	____
5) Signs of severe deterioration of pad sealant	____	____

Section B--Condition of Canopy System		
1) Canopy sheeting missing or gaps apparent	____	____
2) Signs of severe rusting of canopy	____	____
3) Signs of severe warping/rusting of support beams	____	____
4) Signs of loose or frayed cables	____	____

Section C--Surrounding Lime Rock		
1) Signs of significant lime rock erosion	____	____
2) Signs of severe depressions	____	____

Section D--Identified Items that Require Maintenance

1) Enter a detailed description to any "Yes" response above

_____

_____

_____

2) Date inspection completed and name of individual performing inspection.

Date _____ Name _____

3) Date and time of Maintenance response to item(s) identified in Section D

Date _____ Time _____ Date _____ Time _____
Date _____ Time _____ Date _____ Time _____
Date _____ Time _____ Date _____ Time _____

4) Individual verifying that items identified in Section D, above, were addressed

Date _____ Name _____

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Figure II.I.1-2 Open Burn Unit Monitoring Wells Inspection Checklist

Form COR-ENV-F003

SECTION A		AW1	AW2	PC1	PC2	PC3	PC4	PC5	PC6
1	Well accessible	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
2	Well labeled	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
3	Cover in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
4	Concrete pad free of debris	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5	Concrete pad in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
6	Security cap in place	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
7	Security Cap Locked	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
8	Lock in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
9	Annulus in good condition	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
10	Casing sealed	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N

SECURITY		127	137	136	128
11	Doors in good condition/warning signs in place	Y N	Y N	Y N	Y N
12	Locks in good condition	Y N	Y N	Y N	Y N
13	Fencing in good condition	YES		NO	
14	Burn pad free of severe cracking/chipping	YES		NO	
15	Burn pad free of severe damage to pad sealant	YES		NO	
16	Cover/rail footer free of damage	YES		NO	
17	Drums managed and properly labeled	YES		NO	

A "NO" response to any question in section A shall be fully described in section B

SECTION B
Description of potential deficiencies:

Discrepancies identified in section B require completion of SOP ENV-GEN-003

Print and Signature of Inspector:
Date of inspection:

II.I.2
Land Use Description

Waste

A discussion of the wastes managed in the OBU is presented in Attachment II.A.5 of this application. The wastes managed in the unit are predominantly solid in nature. The wastes are fully containerized prior placement in the OBU for thermal treatment. The hazardous constituents by volume that may be found in the thermally treated wastes are primarily metals. The metals are non-corrosive by nature and are, therefore, unlikely to migrate through the concrete containment structure. Residuals that inadvertently land outside the containment area may have the potential to migrate through soil as a result of rainwater transport. The operational procedures and containment system are designed to minimize the inadvertent release of residuals to the ground. The groundwater monitoring program is designed to identify any hazardous constituents that may migrate to the groundwater from the operation of the OBU.

Groundwater

A detailed description of the hydrologic and geologic conditions, as well as the water quality at the site, is provided in Part II.M. The discussion in Part II.M includes the following:

- Hydrologic and geologic characteristics of the unit and surrounding area
- Quantity and direction of groundwater flow
- Existing quality of groundwater, including sources of contamination and their cumulative impact on the ground water

The inventory of water supply wells in the vicinity of the COR facility is included in Attachment I.B.4. The information obtained from the SRWMD did not include the address of the water supply wells. A review of the land use in the vicinity of the COR facility indicates residences, where potential groundwater withdrawals may occur, are generally present north and hydraulically upgradient of the COR facility. The COR facility maintains three water supply wells, and the wells are located north and northeast (hydraulically upgradient) of the waste management unit. Given the lack of groundwater use in the vicinity of COR, there are no potential groundwater receptors for discharges to the groundwater associated with the unit.

Surface Water, Woodlands, and Surface Soils

Surface Water, Woodlands / Wetlands

Surface water bodies located within one-quarter (0.25) mile (1,320 feet) of the facility property boundary include portions of Okefenokee Slough to the northeast, east, and southeast. The Okefenokee Slough is a freshwater swamp with a water course that flows southeasterly to the Gulf of Mexico, south of the facility. Surface water bodies are located near the southeastern, northwestern, and northeastern corners of the COR facility property. The surface water bodies do not appear connected to overland flow channels. The surface water bodies are not located within a 0.25-mile radius of the unit.

Based on the local topography, surface water runoff appears to flow toward the southwest. Given the locations of the onsite and offsite surface water bodies and the anticipated direction of surface water flow, it is unlikely that potential releases from the OBU would adversely affect the surface water or wetlands or woodlands in the vicinity of the OBU.

Surface Soils

The existing quality of surface soils at the unit is discussed in Attachment II.M.5. Historically, surface runoff and blow-off appeared to be the primary sources of surface soil impacts. The OBU construction prevents rainwater runoff by shielding the entire pad from contact with rainwater. Blow-off from the OBU is controlled through the use of removable metal screen covers over the burn pans.

Air

A discussion of the prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the air is presented in Attachment II.O.3.

Land Use

Area land use is depicted in Figure I.B.4-3. The area surrounding the property is predominantly native vegetation and managed timber land. Rural residences are present to the north of COR property. The OBU is at least 3,500 feet from the closest public roadway or rural residential property.

Potential Risk to Humans and the Environment

A discussion of the potential for damage to domestic animals, wildlife, crops, vegetation, humans, and physical structures caused by exposure to waste constituents from the unit is provided in Attachment II.O. This discussion addresses exposure potential from groundwater, subsurface soils, surface water, wetlands, air, food-chain crops, and other vegetation.

II.I.3
Potential Exposure Pathways

A discussion on potential exposure pathways applies only to landfills and surface impoundments. Since COR has neither of these units, this does not apply.

II.I.4
Treatment Efficiency

There have been no changes since the previous permit application.

II.I.5
Ignitable, Reactive, or Incompatible Waste Compliance

Pyrotechnic wastes treated at the OBU which are hazardous because they exhibit the characteristic of ignitability are classified with U.S. EPA Hazardous Waste Code D001. These wastes have the following properties characteristic of ignitability found in 40 CFR 261.21:

- It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

- It is an oxidizer.

Because the constituents that comprise the waste stream have the inherent nature to undergo a spontaneous reaction and are oxidizers, the knowledge-based waste characterization approach has been utilized to classify this waste stream.

Definition of Reactive Hazardous Waste

Pyrotechnic wastes treated at the OBU which are hazardous because they exhibit the characteristic of reactivity are classified with U.S. EPA Hazardous Waste Code D003. These wastes have the following property characteristic of reactivity found in 40 CFR 261.23:

- It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

Because the constituents that comprise the waste stream have the inherent nature of pyrotechnic devices to undergo detonation or explosive reaction, the knowledge-based waste characterization approach has been utilized to classify this waste stream.

Knowledge-Based Waste Characterization

COR's pyrotechnic device manufacturing processes involve exact chemical mixing procedures and formulas that generate waste streams with known chemical composition and properties unlike traditional hazardous waste generated during manufacturing or maintenance processes. The

manufacturing process specifications are strict and variations are limited. The identity of each waste pyrotechnic is traceable back to its original chemical ingredients and may be obtained from manufacturers and used for knowledge-based waste determination. SDSs may be used to characterize hazardous waste treated at the OBU.

All chemical compositions of the magnesium pyrotechnics have been ascertained from process knowledge (i.e., the physical and chemical characteristics of the components used to manufacture products) because of the potential safety hazards associated with sampling the material. Pyrotechnic materials have been tested in accordance DOT test criteria for explosives at 49 CFR 173.56-.58.

The employees at COR are aware of the potential for explosion, ignition, and reactivity of the materials that they handle. With this in mind, the following types of activities are not permitted in or around areas where ignitable or reactive materials or wastes are stored:

- Smoking
- Cigarette lighters
- Open flames
- Welding or torching
- Sparks from electrical activities or mechanical activities
- Sparks from static electricity
- Radiant heat
- Pressure

Precautions such as grounding and anti-static equipment are used to reduce the potential for inadvertent sources of ignition to come in contact with the hazardous materials/wastes.

During the transport of magnesium teflon wastes to the OBU, the waste is contained in an open-top drum within a diesel fuel bath to reduce the potential for premature ignition. Prior to treatment, excess diesel fuel is decanted from the magnesium teflon waste and reused.

II.I.6
Closure Requirements

Attachment II.K.1 presents the Closure Plan for this facility. The Closure Plan will be maintained at the facility until closure is completed and certification of closure is accepted by FDEP. Any amendments to the Closure Plan will be submitted to FDEP for approval.

II.I.7
Groundwater Protection

Groundwater protection information is presented in Part II.M.

II.I.8
Exposure Information

A discussion on potential exposure pathways applies only to landfills and surface impoundments. Since COR has neither of these units, this does not apply.

II.I.10
Closure and Post-Closure Cost Estimates

The closure cost estimate is included in Attachment II.K.1.

Part II.K
Closure

II.K.1
Closure Plan

Introduction

As authorized under RCRA of 1976 and the Hazardous and Solid Waste Amendment of 1984 (HSWA), Chapter 40 CFR Part 264, Subpart G requires that the owner or operator of a hazardous waste management facility prepare a written Closure Plan. Accordingly, this Closure Plan was prepared to comply with these regulations and to support a Part B/Subpart X Operating Permit Application for the COR facility located in Perry, Florida. The Closure Plan describes closure procedures, final closure, the maximum inventory of hazardous wastes onsite, decontamination methods, compliance with closure performance standards, and a closure schedule for operations.

Facility Description

Part I (General Facility Description) provides information relating to the location, size, other hazardous waste management units, and other environmental permits at the COR facility, and references the topographic map. Hydrogeologic information is presented in Part II.M of permit application. A description of the OBU is included in Part II.I.

Closure Description

Closure Performance Standard

This Closure Plan was prepared to ensure that the facility will not require further maintenance and engineering controls, to minimize or eliminate threats to human health and the environment, and to avoid the release of hazardous waste, hazardous waste constituents, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere following closure of the unit. The following sections discuss in detail efforts to be made to satisfy the closure performance standard. At the time of closure, a closure permit will be obtained from the FDEP in accordance with Chapter 62-730, Florida Administrative Code (FAC).

Partial and Final Closure Activities

Since the OBU does not contain other hazardous waste management units, partial closure cannot occur at the facility.

Management of Maximum Waste Inventory

During the course of normal operation of this facility, reactive waste is burned approximately once per day, weather permitting. This burning results in a manageable level of waste in accumulation and, as such, will yield only a minimal storage quantity at the time of closure. According to the burn records from the recent 5 years, the average waste quantity burned has stabilized at approximately 22,000 pounds per year. Adverse weather shutdowns and routine maintenance activities may cause temporary accumulation of wastes. The existing temporary storage capacity at the facility is approximately 3,000 pounds, or greater than an entire month's worth of waste quantity. In the past 12 years, COR has not experienced any occurrence when the accumulated reactive wastes exceeded 700 pounds; therefore, the maximum amount of reactive waste remains upon closure for third-party treatment is estimated at 750 pounds.

Residues from the burning operation are removed on a regular basis, typically monthly, and are generally non-hazardous; therefore, non-hazardous (non-reactive) residues will not contribute significantly to the maximum hazardous inventory.

Within a timeframe consistent with the closure permit, any reactive waste remaining in inventory will be burned following the routine operating procedures established by the facility operating plan. Residue waste will be removed and disposed of in an approved manner. Any residue that is hazardous will be disposed of at an approved facility. Waste Analysis information is included in Attachment II.A.6. Waste disposal will occur within a timeframe established in the closure permit.

Procedures for Decontamination and/or Disposal

The potentially contaminated areas and equipment include the material burning pan, containment pad area, staging area, and associated tools. The metal burn pan, metal burn cage, and cleanup tools will be steam-cleaned, and the rinsate collected. The rinsate will be sampled and profiled for waste characterization and proper disposal. The equipment will be considered clean when rinsate concentration levels are below the prospective groundwater cleanup target levels (GCTLs) for each of the detected constituents. The metal pan will then be disposed of at a non-hazardous waste landfill or managed as scrap metal. The concrete pad beneath the fabricated burning pan will be steam-cleaned and the rinsate collected. The rinsate will be sampled and analyzed for constituents listed in Table II.M.5-1 and disposed of appropriately. Once the concrete pad is cleaned, it will be demolished and removed. Based on the historical soil monitoring results, impacts from OBU operations are limited to the surface soil and it is unlikely that contaminants would penetrate the surface of the concrete. Therefore, the concrete will be disposed as industrial debris. For confirmation, four surface wipe samples, one from each of the four burn pads, also will be collected and analyzed for the metal constituents listed as part of Table II.M.5-1. Decontamination will take place within 30 days of the removal of all wastes, providing that the closure permit has been issued.

At the time of closure, if the annual soil detection monitoring program described in Part II.M indicates deposition of OBU-related contaminants in the soil around the OBU that are above the applicable regulatory criteria for restricted land use, a soil assessment will be performed to evaluate the aerial and vertical extent of contamination. If adverse impacts are confirmed, a corrective action plan will be developed to remove all contaminated soils to the then applicable soil cleanup target levels (SCTLs) or alternate cleanup levels approved by FDEP. COR will submit a permit modification for a soil remedial action plan to address horizontal and vertical contamination.

During assessment, soil borings will be advanced using a 3-inch hand auger. All augers and split-spoons will be decontaminated using a soap and water wash. All fieldwork and sampling will be performed in accordance with the Sampling Analysis Plan (SAP) that will incorporate the FDEP standard operating procedures (SOPs) and be submitted as a part of the closure permit application.

Cleaning and decontamination will be supervised by qualified personnel. Once any waste has been thermally treated, the residual contaminants are not expected to present an acute hazard. Level D personnel protective equipment will be worn throughout the decontamination process. The area surrounding the cleaning operations will be covered with plastic sheeting to prevent contamination of the soil. While waiting for test results, the demolition debris will be covered with plastic sheeting. Following the cleaning operations, the protective clothing and plastic sheeting, decontamination water, and treated waste residue will be drummed, manifested, and transported to an appropriate waste disposal facility.

After the removal of any contaminated soil, the ground will be graded, topsoil spread and leveled over the area, and grass planted. Typically, grading and revegetation can be completed within 30 days of the completion of the soil corrective action implementation. The site is currently fenced; this fence will be maintained after closure. In addition, a form of institutional control (e.g., deed restriction) will be established on the property for the post-closure period.

COR proposes to include a targeted groundwater sampling event at closure based on the latest results from the detection monitoring program (where the modified Appendix IX analysis will be performed). Under this approach, COR will perform at least two sampling events six months apart, and analyze groundwater samples for constituents that are deemed to be statistically significant based on the two-tiered statistical analysis. These analytical results will be compared with the applicable maximum contaminant levels (MCLs) for each constituent at the time of closure. If adverse impacts are confirmed (i.e., the applicable MCLs for the impacted aquifer are exceeded), a corrective action plan will be developed and implemented to remediate groundwater to the then applicable GCTLs or alternative cleanup levels approved by FDEP. If groundwater contamination exists, COR will submit a permit modification to address groundwater remediation.

Ancillary Closure Activities: Security System

During closure of the unit, access to the active area will be controlled by a fence.

Closure Certification

Within 30 days of grading, closure will be certified by in-house personnel and an independent professional engineer licensed in the State of Florida. Certification will provide that closure was completed in accordance with the approved Closure Plan. The following records will be maintained by the facility to support the certification: inspection logs, sampling data, construction logs, manifests, or other records of residuals sent offsite, and laboratory results.

Closure Schedule

Closure of the COR OBU has not been scheduled. The schedule illustrated in Figure II.K.1-1 presents the progress of closure activities for the OBU facility. The milestones are measured as numbers of work days before or after commencement of closure. The entire closure process is estimated to take approximately 150 days. Closure will not be initiated until a closure permit is received from FDEP.

Post-Closure Plan

The Post-Closure Plan for the OBU is provided in Attachment II.K.2.

Closure Plan Amendments and Maintenance

The Closure Plan will be maintained at the site until closure is completed and certified by FDEP. Any amendments to the Closure Plan will be submitted to the FDEP for approval.

The Closure Plan will be amended within 60 days after any change in the design of the OBU or its operating plan. If a facility or operational change necessitates a permit modification, a request for a Closure Plan modification will be made simultaneously with a request for permit modification.

Closure Cost Estimate

The costs presented in this section for final closure of the OBU were estimated using the CostPro Closure and Post Closure Care Cost Estimating Software, Version 6.1 (CostPro), as provided by the U.S. EPA. The default labor rates and other remedial costs standard to CostPro were used, unless a particular rate was not built into the software. For example, a cost for laboratory analysis of explosives by U.S. EPA Method 8330 is not part of the CostPro application. As directed by the U.S. EPA., actual laboratory costs for explosives were entered into CostPro in place of another analysis that was not utilized for calculating the analytical cost. Instances such as this, where substitutions of site-specific data were entered into CostPro, are documented on the output sheets; which are presented

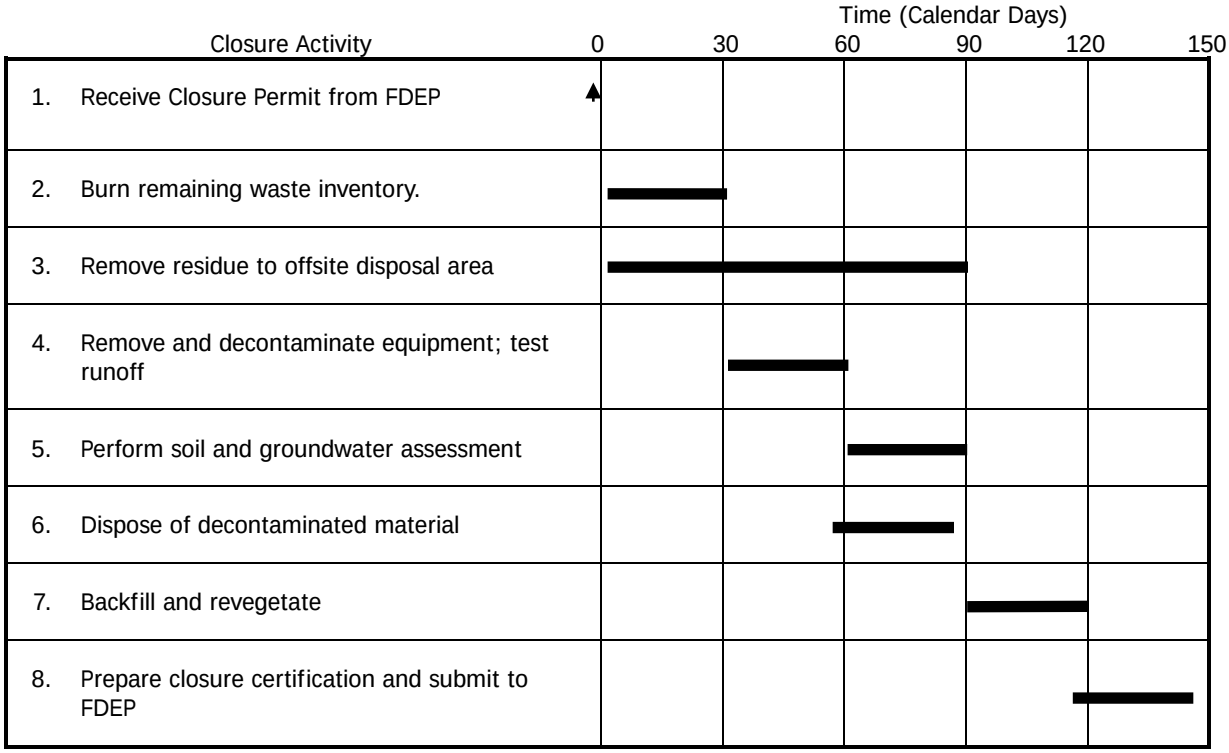
as Attachment II.K.3. The CostPro closure cost estimate is summarized in Table II.K.1-1. Estimated costs are presented in present dollars. The financial assurance mechanism for closure of this facility is presented in Attachment II.A.2. Assumptions used in this cost estimate are based on presently known information and conditions observed to be indicative of site conditions at this time. They include:

- Successful decontamination of concrete surfaces will be achieved after one decontamination attempt
- Minimal soil excavation will be required around the OBU
- Groundwater will require no remedial action
- The applicable regulatory criteria, at the time of closure, are the same as in the year 2015

Table II.K.1-1
Closure Cost Estimate
Chemring Ordnance, Inc. Perry, Florida

Description	Amount
A. Decontamination of the OBU	$21,316
B. Demolition and Removal of the OBU	$61,941
C. Excavation and Removal of Soil	$1,393
D. Backfill and Grading	$5,376
E. Sampling and Analysis	$51,057
F. Disposal of Decontamination Fluids	$3,452
Subtotal	**$144,535**
G. Engineering Expenses (10%)	$14,453
H. Final Closure Certification	$4,000
Subtotal	**$162,988**
I. Contingency Allowance (10%)	$16,299
J. Cover Installation	$2,787
Total	**$182,074**

Figure II.K.1-1
Closure Schedule Assuming No Groundwater Treatment is Required
Chemring Ordnance, Inc., Perry Florida



II.K.2
Post-Closure Plan

Introduction

Closure and post-closure regulations have been promulgated by the U.S. EPA at 40 CFR, Part 264, Subpart G, for permitted hazardous waste facilities. Specific post-closure requirements for miscellaneous units are contained in 40 CFR 264, Subpart X. Subpart X requires that the owner or operator of miscellaneous units with contaminated soils or groundwater that cannot be completely removed or decontaminated during closure must meet the requirements of Section 264.601 during post-closure care. The post-closure plan under Section 264.118 must specify the procedures used to satisfy these requirements. This Contingent Post-Closure Plan describes activities, identifies the facility contact during post-closure, and addresses pertinent regulations concerning post-closure activities. COR will:

- Prepare a Contingent Post-Closure Plan for submittal as a part of the Closure Permit Application
- Consider this miscellaneous unit as a landfill for the purpose of closure and post-closure, providing clean closure is not achieved

Action to Ensure Compliance

A Contingent Post-Closure Plan.

Requirements for Post-Closure under 40 CFR 264, Subpart N

This Contingent Post-Closure Plan has been written to address the requirements of Sections 264.117 through 264.120 and 264.310. Upon closure, all accessible soil contamination will be removed for disposal. Any contaminants contained within the area of stabilized soil and the concrete pads are considered immobilized and without a pathway for groundwater contamination. Therefore, the stabilized soil and concrete pads will be left undisturbed, i.e., the concrete pads and the stabilized soil layer will be left in place. Based on 10 years of monitoring results, only sporadic exceedences (including at background locations) were detected and there was no consistency in either the location or the concentrations of the detections. In addition, the potential contaminants at the site are mostly oxidized metals and were found to be non-leachable and not likely to be a source of groundwater contamination at the COR facility. This is supported by the total and toxicity characteristic leaching procedure (TCLP) analyses results; therefore, an impermeable cap is not proposed.

Any other necessary repairs, such as fence damage, well repair, or benchmark repair, will be noted and repaired within 1 week of discovery. Fence repair will include replacing damaged sections of the chain-link fence or barb-wire. Well repair would include repairing damaged protective casings or potentially completely replacing the well, as necessary, depending on the extent of damage. Any damaged benchmarks observed will be replaced and resurveyed. Table II.K.2-1 summarizes maintenance activities.

During the three-year post-closure period, semi-annual inspections will be documented on an inspection log that will include the survey date, location, inspector, site condition description, integrity of security control devices (fences), benchmark integrity, and corrective maintenance activities needed. Table II.K.2-2 presents the semi-annual inspection log. These forms will be maintained by the facility operator and copies will be provided to the Regional Administrator, if requested.

Requirements or Post-Closure under 40 CFR 264, Subparts F, K, L, M, N, and X

40 CFR 264.117 — Post-Closure Care and Use of Property

This subpart requires post-closure care for each hazardous waste management unit subject to post-closure care to begin immediately after completion of closure of the unit and to continue for 30 years after that date. Post-closure care must, at a minimum, consist of groundwater monitoring and reporting, maintenance, and monitoring of waste containment systems in accordance with the requirements of Subparts F, K, L, M, N, and X of Part 264. Subpart G allows the Regional Administrator to alter the post-closure period, if appropriate, or to continue any of the security requirements of Section 264.14 during the post-closure period. The final cover or any components of the system must not be disturbed during post-closure use of the property. All post-closure care activities must be in accordance with the provisions of the approved Post-Closure Plan, as specified in Section 264.118.

Action to Ensure Compliance

COR will initiate post-closure activities in accordance with this Contingent Post-Closure Plan.

A description of the monitoring and reporting activities, as well as the maintenance and monitoring activities for any waste containment systems, are provided under the monitoring program discussed later in this section.

40 CFR 264.118(a) and (b) — Post-Closure Plan — Written Plan

This subpart requires the owner/operator to have a written Post-Closure Plan. This Post-Closure Plan must identify the activities after closure of each disposal unit and the frequency of these activities and include at least:

1. A description of the planned monitoring activities and frequencies at which they will be performed to comply with Subparts F, K, L, M, N, and X of this part during the post-closure care period

2. A description of the planned maintenance activities and frequencies at which they will be performed to ensure that the function of the monitoring equipment is in accordance with the requirements of Subparts F, K, L, M, N, and X of this part

3. The name, address, and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period

Action to Ensure Compliance

If clean closure is not achieved, COR will develop and implement a post-closure plan as described in Attachment II.K.2. Water table elevation maps will be constructed from site-specific data. The existing monitoring well network will be used for data collection. Should any of the current wells not exist at the time of post-closure, locations for one new upgradient and three new compliance monitoring wells shall be proposed and submitted to FDEP for review. Upon receipt of FDEP's approval of monitoring well locations and proposed well construction techniques, COR will construct and properly develop these four new monitoring wells.

The name of the person/office to contact about the hazardous waste disposal unit or facility during the post-closure care period is:

Chemring Ordnance, Inc.
10625 Puckett Road
Perry, Florida 32348

The name of the contact during the post-closure period is included in the Part I.A. section of the application and will be kept current.

A copy of the approved Post-Closure Plan will be kept on file at the offices of the COR during the post-closure care period.

264.118(c) — Post-Closure Plan

Until the end of the post-closure period, a copy of the approved Post-Closure Plan will be furnished to FDEP and/or the Regional Administrator upon request. After certification of final closure, the person or office specified in Section 264.188(b)(3) must keep the approved plan during the remainder of the post-closure period.

Action to Ensure Compliance

A copy of the approved Post-Closure Plan will be submitted to the Regional Administrator upon request. A copy of the plan will remain on file with Chemring Ordnance, Inc., 10625 Puckett Road, Perry, Florida 32348.

264.118(d) — Amendment of Plan

The owner or operator must request in writing a permit modification to authorize a change in the approved Post-Closure Plan in accordance with the applicable requirements of 40 CFR Parts 124 and 270. The request must be submitted if:

- Changes in operation or design affect the plan
- There is a change in the year of final closure
- Any events occur that affect the approved Post-Closure Plan

The written request must be submitted within 60 days of a planned change or within 60 days following an unexpected change. If FDEP and/or the Regional Administrator requests changes to the plan, the owner or operator must submit the modified plan no later than 60 days after the request.

Action to Ensure Compliance

A permit modification will be requested if COR needs to modify the Post-Closure Plan. This request will be made 60 days prior to a planned change or will be submitted within 60 days following an unexpected change. Requests for modifications from FDEP and/or the Regional Administrator will be answered within 60 days of receipt of the request.

40 CFR 264.119 — Post-Closure Notices

This subpart requires the following:

"a. No later than sixty (60) days after certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Regional Administrator a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the owner or operator must identify the type, location, and quantity of the hazardous wastes to the best of his knowledge and in accordance with any records he has kept.

b. Within sixty (60) days of certification of closure of the first hazardous waste disposal unit and within sixty (60) days of certification of closure of the last hazardous waste disposal unit, the owner or operator must:

1. Record, in accordance with state law, a notation on the deed to the facility property — or on some other instrument which is normally examined during title search — that will in perpetuity notify any potential purchaser of the property that:

   i. The land has been used to manage hazardous wastes

   ii. Its use is restricted under 40 CFR Subpart G regulations

   iii. The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by Section 264.116 and Section 264.119(a) have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Regional Administrator

2. Submit a certification, signed by the owner or operator, that he has recorded the notation specified in paragraph (b)(1) of this Section, including a copy of the document in which the notation has been placed, to the Regional Administrator.

c. If the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner (if any), or contaminated soils, he must request a modification to the post-closure permit in accordance with the applicable requirements in Parts 124 and 270. The owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of 264.117(c). By removing hazardous waste, the owner or operator may become a generator of hazardous waste and must manage it in accordance with all applicable requirements of this Chapter. If he is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the Regional Administrator approve either:

   1. The removal of the notation on the deed to the facility property or other instrument normally examined during title search

   2. The addition of a notation to the deed or instrument indicating the removal of the hazardous waste."

Action to Ensure Compliance

COR shall submit all notices and record all documents as noted above, as appropriate. At the present time, the local zoning authority is the City of Perry through its Planning and Development Department.

40 CFR 264.120 — Certification of Completion of Post-Closure Plan

No later than 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner or operator must submit to the Regional Administrator, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-Closure Plan. The certification must be signed by the owner or operator, and an independent licensed Professional Engineer's certification must be furnished to the Regional Administrator upon request until the Administrator releases the owner or operator from the financial assistance requirements for post-closure care under Section 264.145(i).

Action to Ensure Compliance

COR shall submit the proper certification to the Regional Administrator (submitting to the FDEP constitutes a submittal to the Regional Administrator) within 60 days of completion of post-closure activities.

Monitoring Program

In accordance with 40 CFR 264, Subpart F, if post-closure and corrective action monitoring are required, the point of compliance (POC) and background wells discussed in Attachment II.M.6 will be used. Since the long-term historical groundwater monitoring database has indicated that the results have been consistent and no contaminant plume has been detected in groundwater, COR proposes groundwater samples be collected semi-annually from the onsite monitoring wells. COR proposes to monitor for the parameters listed in Table II.M.6-1 in part II.M.6 during the detection monitoring period. Any other Appendix IX constituents detected in the groundwater at post-closure will be added to this list. This list may need to be modified based upon additional assessment work conducted and the effectiveness of any removal and decontamination procedures that have been undertaken. Groundwater protection is further discussed in Part II.M.

Post-Closure Cost Estimate

The costs presented in this section for post-closure care of the OBU were estimated using the CostPro Closure and Post Closure Care Cost Estimating Software, Version 6.1 (CostPro), as provided by the U.S. EPA. The default labor rates and other remedial costs standard to CostPro were used, unless a particular rate was not built into the software. For example, a cost for laboratory analysis of explosives

by U.S. EPA Method 8330 is not part of the CostPro application. As directed by the U.S. EPA, actual laboratory costs for explosives were entered into CostPro in place of another analysis that was not utilized for calculating the analytical cost. Instances such as this, where substitutions of site-specific data were entered into CostPro, are documented on the output sheets; which are presented as Attachment II.K.3. Basic assumptions used in this estimate are as follows:

- Once every five years, a long list (Suite A) of monitoring parameters will be analyzed
- Statistical analysis of monitoring data will be typical of what is currently used (i.e., Mann-Whitney U Test and Intrawell Correlation Analysis)
- Monitoring wells will have a useful life of 15 years

The CostPro cost estimate for post-closure care for the COR OBU facility are summarized in Table II.K.2-3.

Table II.K.2-1
Maintenance Activities and Frequencies
Chemring Ordnance, Perry, Florida

Item	Planned Activity	Frequency
Security devices	Check fence, gates for breaches; repair as needed.	Semi-annually
Groundwater monitoring system	Inspect wells for integrity; repair or replace if needed.	Semi-annually
Survey benchmarks	Inspect for damage, repair or replace as needed	Semi-annually

Table II.K.2-2
Semi-annual Inspection Log
Chemring Ordnance, Perry, Florida

Inspection Date: **Inspector:**

	Condition[a]	**Corrective Action Needed**	**Date Corrective Action Completed**
Fence and Gate Integrity			
Gate Locking Mechanism			
Monitoring Well Protective Cover			
Monitoring Wells Casing Conditions			
Monitoring Well Locking Mechanism			
Benchmark Integrity			

Note:
[a] Note "adequate" or "inadequate" and reason.

Table II.K.2-3 Post-Closure Care Cost Estimate Chemring Ordnance, Inc. Perry, Florida	
Description	**Amount**
A. Site Security	$10,475
B. Groundwater Monitoring (30 years)	$266,046
C. Deed Notation	$6,800
D. Annual Statistical Evaluation of Groundwater Monitoring and Annual Report Preparation (30 years)	$119,400
Subtotal	**$402,271**
G. Engineering Expenses (10%)	$40,227
H. Post-Closure Care Certification	$5,000
Subtotal	**$447,993**
I. Contingency Allowance (10%)	$44,799
Total	**$492,792**

Attachment II.K.3
CostPro Model Output

Chemring Ordnance, Inc.

Address: 10625 Puckett Road
Perry
FLORIDA
32348

Comments:

Activity	Units	Closure Cost
Incinerators/BIFs	1	$182,074.05
Post Closure Care	1	$492,792.70
		$674,866.75
Additional Costs		$0.00
Total Estimated Cost		**$674,866.75**

Incinerators and BIFs Summary (IB_02-1)

Removal of Waste Residue (IB-03)	$0.00	
Decontamination of the Unit (IB-04)	$21,316.06	
Disassembly of Ancillary Piping (IB-05)	$0.00	
Demolition and Removal (IB-06)	$61,941.26	
Removal of Soil (IB-07)	$1,393.16	
Backfill and Grading (BF-01)	$5,375.50	
Decontamination (DC-01)	$0.00	
Sampling and Analysis (SA-02)	$51,056.47	
Monitoring Well Installation (MW-01)	$0.00	
Transportation (TR-01)	$0.00	
Treatment and Disposal (TD-01)	$3,452.15	
User Defined Cost (UD-01)	$0.00	
Subtotal of Closure Costs	$144,534.60	
Percentage of Engineering Expenses	10.0	%
Engineering Expenses	$14,453.46	
Certification of Closure (IB-08)	$4,000.00	
Subtotal	$162,988.06	
Percentage of Contingency Allowance	10.0	%
Contingency Allowance	$16,298.81	
Landfill Closure (Cover Installation) (CI-02)	$2,787.18	
TOTAL COST OF CLOSURE	$182,074.05	

Incinerators and BIFs Inventory (IB_01-1)

UNIT DESCRIPTION

Type of incinerator or BIF	Open burn pan	
Type of Air Pollution Control Device (APCD)	NA	
Type of heat recovery system	NA	
Length of ancillary piping	0.0	ft

MAXIMUM VOLUME OF SCRUBBER LIQUID

Maximum Volume of Scrubber Liquid	1,100.0	gal

MAXIMUM VOLUME OF NONLIQUID WASTE

Volume of incinerator or BIF ash	1.0	yd3
Volume of baghouse/cyclone/ESP dust	0.0	yd3
Volume of Nonliquid Waste	1.0	yd3

SURFACE AREA OF INCINERATOR OR BIF

Surface area of combustion chamber(s)	128.0	ft2
Surface area of APCD	0.0	ft2
Surface area of heat recovery equipment	0.0	ft2
Surface area of exhaust gas duct	0.0	ft2
Surface area of stack	0.0	ft2
Surface Area of Incinerator or BIF	128.0	ft2

SURFACE AREA OF ANCILLARY PIPING AND CONTAINMENT AREAS

Surface area of ancillary piping	0.0	ft2
Surface area of containment areas	7,875.0	ft2
Surface area of other structures	0.0	ft2
Surface Area of Ancillary Piping and Containment Areas	7,875.0	ft2

VOLUME OF MATERIAL TO BE DEMOLISHED AND REMOVED

Volume of materials constituting the incineration system	1,060.0	ft3
Volume of ancillary piping materials	0.0	ft3
Volume of other miscellaneous materials (such as containment areas) to be removed	19,688.0	ft3
Volume of Materials to be Demolished and Removed	20,748.0	ft3
Volume of Materials to be Demolished and Removed in yd3	768.4	yd3

VOLUME OF CONTAMINATED SOIL TO BE REMOVED

Length	360.0	ft
Width	3.0	ft
Depth	0.5	ft

Facility: Chemring Ordnance, Inc. **Unit:** Final Closure 08/27/2015

Volume of Contaminated Soil to be Removed	540.0	ft3
Volume of Contaminated Soil to be Removed in yd3	20.0	yd3

Notes: assume burn pans are 4' w x 8' l = 32 SF X 4 pans = 128 SF total

Incinerators and BIFs Decontamination of the Unit (IB_04-1)

Surface area of unit to be cleaned	8,003.0	ft
Choose the appropriate level of PPE:	Protection Level D	
Labor and equipment cost per work hour	$65.77	per Work Hour
Work rate required to clean the unit	0.0405	Work hr per ft2
Number of hours required to clean the unit	324.1	Work hrs
Subtotal of labor and equipment cost to clean unit by steam cleaning	$21,316.06	
Rate	1.0	gals per ft2
Volume of decontamination fluid	8,003.0	gal
Decontamination fluid is contained in:	Bulk	
Number of drums required to contain decontamination fluid	0	Drums
Cost of one drum	$83.85	
Cost of drums needed to contain decontamination fluid	$0.00	
TOTAL COST OF DECONTAMINATION OF THE UNIT	$21,316.06	

Incinerators and BIFs Demolition and Removal (IB_06-1)

Total volume of unit to be demolished	768.4	yd3
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$79.96	per Work Hour
Work rate required to demolish and remove one ft3	1.0000	Work hr per yd3
Number of hours required to demolish and remove the unit	768.4	Work hrs
Subtotal of labor and equipment cost to demolish and remove the unit	$61,441.26	
Cost of mobilization and demobilization (flat rate)	$500.00	
TOTAL COST OF DEMOLITION AND REMOVAL	$61,941.26	

Incinerators and BIFs Removal of Soil (IB_07-1)

Volume of contaminated soil to be removed	20.0	yd3
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$66.93	per Work Hour
Work rate required to remove one yd3	0.0300	Work hr per yd3
Number of hours required to remove soil	0.6	Work hrs
Cost to remove soil	$40.16	
Number of debris box containers needed to hold soil	1	Containers
Cost of one 20-yd3 -capacity debris box container (rent per week)	$853.00	per Container
Cost of debris box containers	$853.00	
Cost of mobilization and demobilization (flat rate)	$500.00	
TOTAL COST OF REMOVAL OF SOIL	$1,393.16	

Incinerators and BIFs Certification of Closure (IB_08-1)

Number of units requiring certification of closure	1	Units
Cost of certification of closure per unit	$4,000.00	
TOTAL COST OF CERTIFICATION OF CLOSURE	$4,000.00	

Backfill and Grading Summary (BF_01-1)

Backfilling Excavated Areas (BF-02)	$1,124.50
Grading to Provide Positive Slope (BF-03)	$4,251.00
Backfilling Storage, Process, and Containment Pits (BF-04)	$0.00
TOTAL COST OF BACKFILL AND GRADING	$5,375.50

Backfilling Excavated Areas (BF_02-1)

VOLUME OF EXCAVATED AREA

Volume	20.0	yd3
Compaction factor	0.2500	
Volume of additional fill required because of compaction factor	5.0	yd3
Total volume of fill needed	25.0	yd3

BACKFILL AREA

Labor, material, and equipment cost per yd3	$24.98	per yd3
Subtotal of labor, material, and equipment cost to backfill	$624.50	
Cost of mobilization and demobilization (flat rate)	$500.00	
TOTAL COST OF BACKFILL	$1,124.50	

Notes: RSMeans 2014 31 23 23.15 front end loader wheel mounted 3/4 cy bucket= 24.50 / cy + 31 23 23.23 compaction with riding vibrating roller 6" lifts 2 passes = 0.48

Grading To Provide Positive Slope (BF_03-1)

AREA OF SITE TO BE GRADED WITH SLIGHT POSITIVE SLOPE		
Area of site	999.0	yd2
Area of site in acres (minimum of 1)	1	Acres
COST FOR GRADING		
Labor and equipment cost per acre	$3,751.00	per Acres
Subtotal of labor and equipment cost to grade site	$3,751.00	
EQUIPMENT FOR MOBILIZATION AND DEMOBILIZATION		
Cost of mobilization and demobilization (flat rate)	$500.00	
TOTAL COST OF GRADING SITE	$4,251.00	

Notes: RSMeans 2014 32 91 19.13 fine grading and seeding including lime fertilizer and seed with equiment = 3.77 sqyard. Area to be graded is estimated based upon size of concrete pad (75' x 105') plus an additional 3 feet on all sides of concrete pad; 81' x 111' = 8991 sf = 999 sy

Cover Installation Summary (CI_02-1)

Installation of Undifferentiated Fill (CI-03)	$0.00	
Installation of Clay Layer (CI-04)	$0.00	
Installation of Geomembrane (CI-05)	$0.00	
Installation of Drainage Layer (CI-06)	$0.00	
Installation of Earthen Layer (CI-07)	$0.00	
Installation of Topsoil (CI-08)	$0.00	
Establishment of Vegetative Cover (CI-09)	$2,111.50	
Installation of Colloid Clay Liner (CI-10)	$0.00	
Installation of Asphalt Cover (CI-11)	$0.00	
Subtotal of Closure Costs	$2,111.50	
Percentage of Engineering Expenses	10.0	%
Engineering Expenses	$211.15	
Survey Plat (CI-12)	$0.00	
Subtotal	$2,322.65	
Percentage of Contingency Allowance	20.0	%
Contingency Allowance	$464.53	
TOTAL COST OF COVER	$2,787.18	

Establishment of Vegetative Cover (CI_09-1)

SOIL PREPARATION

Area of cover	8,955.0	ft2
Area of cover in thousand square feet (MSF)	9.0	MSF
Labor and equipment cost per MSF	$48.00	per MSF
Subtotal of labor and equipment cost to prepare soil	$432.00	
Cost of mobilization and demobilization (flat rate)	$500.00	
Cost to Prepare Soil	$932.00	

SEEDING, FERTILIZING, AND MULCHING

Labor, material, and equipment cost per MSF	$75.50	per MSF
Subtotal of labor and equipment cost to seed, fertilize, and mulch	$679.50	
Cost of mobilization and demobilization (flat rate)	$500.00	
Cost to Seed, Fertilize, and Mulch	$1,179.50	
TOTAL COST OF ESTABLISHMENT OF VEGETATIVE COVER	$2,111.50	

Notes: Area of cover assumes the containment pad with a 3' buffer to include the potential area with contaminated soil.

Sampling and Analysis Summary (SA_02-1)

Drilling and Subsurface Soil Sample - 2.5-Inch-Diameter-Holes (SA-03)	$0.00
Drilling and Subsurface Soil Sample - 4-Inch-Diameter-Holes (SA-04)	$38,190.51
Concrete Core Sample (SA-05)	$0.00
Wipe Sample (SA-06)	$888.56
Surface Water and Liquid Sample (SA-07)	$4,188.64
Soil, Sludge, and Sediment Sample (SA-08)	$0.00
Groundwater Sample (SA-09)	$7,788.76
Soil-Pore Liquid Sample (SA-10)	$0.00
Analysis of Subsurface Soil Sample (SA-11)	$0.00
TOTAL SAMPLING AND ANALYSIS COST	$51,056.47

Drilling and Subsurface Soil Samples - 4-Inch-Diameter-Holes (SA_04-2)

DRILLING AND SUBSURFACE SOIL SAMPLE COSTS - 4-INCH-DIAMETER-HOLES

Number of borings to be drilled	25	Borings
Enter depth of boreholes (sum of all)	13	ft
Choose the appropriate drilling method	Auger Boring - Level D	
Labor and equipment cost per work hour	$102.72	per Work Hour
Choose the appropriate drilling method	Hollow-Stem Auger 4-Inch	
Work rate to drill 4-inch-diameter hole	0.3560	Work hr per Ft
Number of hours required to drill 4-inch diameter hole	4.6	Work hrs
Cost of Drilling 4-Inch Borings per Sampling Event	$472.51	per Event

ANALYSIS OF DRILLING SAMPLE

Cost of Analysis per Sampling Event	$37,718.00	per Event

SAMPLING EVENTS

Number of sampling events	1	Events
TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES FOR CLOSURE - 4-INCH-DIAMETER-HOLES	$38,190.51	
TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES PER EVENT - 4-INCH-DIAMETER-HOLES	$38,190.51	per Event

Facility: Chemring Ordnance, Inc. **Unit:** Final Closure 08/27/2015

Drilling and Subsurface Soil Samples - 4-Inch-Diameter-Holes (SA_04)
Cost of Analysis per Sampling Event

Method		Standard	Qty	Quick	Qty	Total
Base/neutral & acid extractable organics (SW 3550/SW 8270)	Solid	$359.21	25	$718.42	0	$8,980.25
Metals (SW 6010), per each metal	Both	$13.73	350	$27.46	0	$4,805.50
Pesticides/PCBs (SW 3550/SW 8080)	Solid	$158.36	25	$316.72	0	$3,959.00
Purgeable organics (SW 3550/SW 8260)	Solid	$188.83	25	$377.66	0	$4,720.75
Targeted TCLP (metals, volatiles, semivolatiles only)	Both	$610.10	25	$1,220.20	0	$15,252.50

Wipe Samples (SA_06-1)

COLLECTION OF WIPE SAMPLES

Number of sampling locations	4	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$87.30	per Work Hour
Work rate required to collect samples from one sampling location	0.5000	Work hrs per Sample
Number of hours required to collect all samples	2.0	Work hrs
Cost of Collection per Sampling Event	$174.60	per Event

ANALYSIS OF WIPE SAMPLE

Cost of Analysis per Sampling Event	$713.96	per Event

SAMPLING EVENTS

Number of sampling events	1	Events
TOTAL COST OF SAMPLING AND ANALYSIS OF WIPE SAMPLES	$888.56	

Notes: Metals (SW 6010) 13 metals x 4 locations = 52 samples *Burn pan wipe samples*

Facility: Chemring Ordnance, Inc. **Unit:** Final Closure 08/27/2015

Wipe Samples (SA_06)
Cost of Analysis per Sampling Event

Method		Standard	Qty	Quick	Qty	Total
Metals (SW 6010), per each metal	Both	$13.73	52	$27.46	0	$713.96

Surface Water and Liquid Samples (SA_07-2)

COLLECTION OF SURFACE WATER AND LIQUID SAMPLES

Number of sampling locations	4	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$91.88	per Work Hour
Work rate required to collect samples from one sampling location	0.5000	Work hrs per Sample
Number of hours required to collect all samples	2.0	Work hrs
Cost of Collection per Sampling Event	$183.76	per Event

ANALYSIS OF SURFACE WATER AND LIQUID SAMPLES

Cost of Analysis per Sampling Event	$4,004.88	per Event

SAMPLING EVENTS

Number of sampling events	1	Events
TOTAL COST OF SAMPLING AND ANALYSIS OF SURFACE WATER AND LIQUID SAMPLES	$4,188.64	

Notes: *Rinsate* A cost for analysis of Explosives (SW846 8330) is not provided by CostPro. Actual lab analytical costs for 8330 were determined and entered into CostPro using the analysis for Temperature (170.1) as a placeholder.

Facility: Chemring Ordnance, Inc. **Unit:** Final Closure 08/27/2015

Surface Water and Liquid Samples (SA_07)
Cost of Analysis per Sampling Event

Method		Standard	Qty	Quick	Qty	Total
Base neutral & acid extractable organics (SW 3510/SW 8270)	Liquid	$359.21	4	$718.42	0	$1,436.84
Metals (SW 6010), per each metal	Both	$13.73	56	$27.46	0	$768.88
Purgeable organics (SW 3550/SW 8260)	Solid	$188.83	4	$377.66	0	$755.32
Temperature (EPA 170.1)	Liquid	$200.00	4	$20.60	0	$800.00
Total petroleum hydrocarbons (EPA 418.1)	Both	$60.96	4	$121.92	0	$243.84

Groundwater Samples (SA_09-1)

COLLECTION OF GROUNDWATER SAMPLES

Number of sampling locations	7	Sample Location
Choose the appropriate level of PPE	Protection Level C	
Labor and equipment cost per work hour	$208.71	per Work Hour
Work rate required to collect samples from one sampling location	4.0000	Work hrs per Sample
Number of hours required to collect all samples	28.0	Work hrs
Cost of Collection per Sampling Event	$5,843.88	per Event

ANALYSIS OF GROUNDWATER SAMPLES

Cost of Analysis per Sampling Event	$1,944.88	per Event

SAMPLING EVENTS

Number of sampling events	1	Events
TOTAL COST OF SAMPLING AND ANALYSIS OF GROUNDWATER	$7,788.76	

Notes: A cost for analysis of Turbidity (180.1) is not provided by CostPro. Actual lab analytical costs for 180.1 were determined and entered into CostPro using the analysis for Temperature (170.1) as a placeholder.

Facility: Chemring Ordnance, Inc. **Unit:** Final Closure 08/27/2015

Groundwater Samples (SA_09)
Cost of Analysis per Sampling Event

Method		Standard	Qty	Quick	Qty	Total
Fluoride SPADNS (EPA 340.1)	Liquid	$65.92	7	$131.84	0	$461.44
Metals (SW 6010), per each metal	Both	$13.73	91	$27.46	0	$1,249.43
pH (EPA 150.1)	Liquid	$7.79	7	$15.58	0	$54.53
Specific conductance (EPA 120.1)	Liquid	$10.64	7	$21.28	0	$74.48
Temperature (EPA 170.1)	Liquid	$15.00	7	$20.60	0	$105.00

Treatment and Disposal Summary (TD_01-1)

Treatment and Disposal of Wastes (TD-02)	$0.00
Treatment and Disposal of Decontamination Fluids (TD-03)	$3,452.15
Total Cost of Treatment and Disposal	$3,452.15

Treatment and Disposal of Decon Fluid (TD_03-1)

Volume of decontamination fluid generated from closure activities

Volume of decontamination fluid from Primary Unit	8,003.0	gal
Volume of decontamination fluid generated by steam cleaning or pressure washing (DC-02)	0.0	gal
Volume of decontamination fluid from heavy equipment (DC-04)	0.0	gal
Total Volume of Decontamination Fluid	8,003.0	gal
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per hour	$77.41	per Work Hour
Work rate to pump decontamination fluid to a holding tank	0.0001	Work hr per gal
Number of hours required to pump decontamination fluid to a holding tank	0.8003	Work hrs
Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank	$61.95	
Number of days required to rent a holding tank	1	Days
Holding tank rental fee (10,000 gal tank per day)	$189.00	per Day
Number of tanks required	1	Tanks
Subtotal of tank rental costs	$189.00	
Cost for treatment and disposal	$0.40	per Gallon
Treatment and disposal costs for bulk liquid	$3,201.20	
TOTAL COST TO TREAT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID	$3,452.15	

Post-Closure Care Summary (PC_01-1)

Removal of Leachate (PC-02)	$0.00	
Site Security (PC-03)	$10,475.00	
Maintenance of Vegetative Cover (PC-04)	$0.00	
Maintenance and Inspection (PC-05)	$0.00	
Groundwater Monitoring(PC-06)	$266,046.24	
Deed Notation (PC-07)	$6,800.00	
Maintenance and Inspection of Asphalt Cover (PC-8)	$0.00	
Surface Emission Monitoring (PC-09)	$0.00	
Gas Extraction System and Perimeter Probe Monitoring (PC-10)	$0.00	
User Defined Cost (UD-01)	$119,400.00	
Subtotal of Post-Closure Costs	$402,721.24	
Percentage of Engineering Expenses	10.0	%
Engineering Expenses	$40,272.12	
Certification of Post-Closure (PC-11)	$5,000.00	
Subtotal	$447,993.36	
Percentage of Contingency Allowance	10.0	%
Contingency Allowance	$44,799.34	
TOTAL COST OF POST-CLOSURE CARE	$492,792.70	

Post-Closure Care Site Security (PC_03-1)

FENCING

Length of fencing	450.0	ft
Labor, materials, and equipment cost per ft	$22.50	per ft
Cost to Fence Site	$10,125.00	

CORNER POSTS

Number of corner posts required	0	Posts
Cost per corner post	$154.00	per Post
Cost to Erect Corner Posts	$0.00	

GATES

Number of gates required	1	Gates
Labor, materials, and equipment cost per gate	$350.00	per Gate
Cost to Install Gates	$350.00	

REFLECTOR SIGNS

Number of signs required	0	Signs
Labor, materials, and equipment cost per sign	$115.00	per Sign
Cost to Install Signs	$0.00	
TOTAL COST OF SITE SECURITY	$10,475.00	

Post-Closure Care Groundwater Monit. (PC_06-2)

COLLECTION OF GROUNDWATER SAMPLES

Number of sampling locations	4	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$147.17	per Work Hour
Work rate to collect samples from one sampling location	4.0000	Work hr per Location
Number of hours required to collect all samples	16.0	Work hrs
Cost to Collect Groundwater Samples per Event	$2,354.72	per Event

ANALYSIS OF GROUNDWATER SAMPLES

Cost to Analyze Groundwater Samples per Event	$1,744.80	per Event

TOTAL GROUNDWATER MONITORING FOR POST-CLOSURE CARE PERIOD

Cost of Sampling and Analysis of Groundwater for Post-Closure	$4,099.52	per Event
Number of sampling events per year	2	Events per yr
Number of years of groundwater monitoring during the post-closure care period	30	Years
TOTAL COST OF GROUNDWATER MONITORING	$245,971.20	

Notes: Semi-Annual Short List (Suite B) GW Monitoring; twice a year for 30 years. A cost for analysis of Turbidity (180.1) is not provided by CostPro. Actual lab analytical costs for 180.1 were determined an entered into CostPro using the analysis for Temperature (170.1) as a placeholder.

Post-Closure Care Groundwater Monit. (PC_06-1)

COLLECTION OF GROUNDWATER SAMPLES

Number of sampling locations	4	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$0.00	per Work Hour
Work rate to collect samples from one sampling location	0.0000	Work hr per Location
Number of hours required to collect all samples	0.0	Work hrs
Cost to Collect Groundwater Samples per Event	$0.00	per Event

ANALYSIS OF GROUNDWATER SAMPLES

Cost to Analyze Groundwater Samples per Event	$3,345.84	per Event

TOTAL GROUNDWATER MONITORING FOR POST-CLOSURE CARE PERIOD

Cost of Sampling and Analysis of Groundwater for Post-Closure	$3,345.84	per Event
Number of sampling events per year	1	Events per yr
Number of years of groundwater monitoring during the post-closure care period	6	Years
TOTAL COST OF GROUNDWATER MONITORING	$20,075.04	

Notes: Long list (Suite A) analytical monitoring during Post-Closure years 5 10 15 20 25 and 30. No additional labor is anticipated; as the labor for this monitoring is captured under the semiannual ground montoring. A cost for analysis of Explosives (SW846 8330) is not provided by CostPro. Actual lab analytical costs for 8330 were determined an entered into CostPro using the analysis for Reactivity (Ch 7 P7.4) as a placeholder.

Post-Closure Care Deed Notation (PC_07-1)

Attorney fees	$1,800.00
Clerical and deed filing fees	$5,000.00
TOTAL COST OF DEED NOTATION	$6,800.00

Certification of Completion of Post-Closure Care (PC_11-1)

Number of units requiring certification of completion of post-closure care	1	Units
Cost of certification of completion of post-closure care per unit	$5,000.00	per Unit
TOTAL COST OF CERTIFICATION OF POST-CLOSURE CARE	$5,000.00	

User Defined Activity (UD_01-1)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	Water table map generation and statistical analysis of results	
Number of units of work to be performed	30	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$3,000.00	
Work rate to perform one unit of activity	1.0000	Work hrs per Unit
Number of hours required to perform activity	30.0	Work hrs
Additional cost per unit	$0.00	per Unit
Cost to conduct activity	$90,000.00	

Other cost(s) associated with this activity

Description of other costs	Maintain monitoring well network
Cost	$9,000.00
Description of other costs	Fence inspection
Cost	$6,000.00
Description of other costs	Monitoring well replacement (x4)
Cost	$14,400.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$119,400.00

Notes: Maintenance of monitoring well network assumes an annual cost of 300/year * 30 years = 9000.
Fence inspection assumed to be 100/hour x 1 hr/visit x 2 visit/year * 30 years = 6000
Monitoring well replacement = 20' depth x 4 wells x 180/ft = 14400

Part II.M
Groundwater Protection

II.M.1
Summary of Interim Status Period Groundwater Monitoring Data

No interim status groundwater monitoring data are available.

II.M.2
Regional and Site-Specific Geology and Hydrogeology

Groundwater elevations are measured semiannually. Based on the historical water level elevations in the onsite shallow monitoring wells, the groundwater flow direction remains generally toward the southwest, with a relatively flat groundwater gradient in the immediate vicinity of the OBU.

There are no changes to the regional or site-specific geology and hydrogeology since the previous permit application. Updated monitoring well construction summaries are provided in Attachment II.M.3.

II.M.3
Waste Management Area, Property Boundary, Proposed "Point Of Compliance," and Groundwater Monitoring Wells

The Waste Management Area (40 CFR 264.95(b)) is designated by an imaginary line circumscribing the miscellaneous unit, the extent of the soil sampling area, and adjacent Point of Compliance (POC), . The POC is the south and west edges of the Waste Management Area.

Figure I.B.3-1, at a scale of 1 inch equals 2,000 feet, depicts the waste management unit (burn pad), the property boundary, and the locations of the groundwater monitoring wells. This map scale facilitates the presentation of the location of the waste management unit with respect to the property boundary due to the size of the property. Monitoring well construction details are included in Table II.M.3-1. Groundwater monitoring wells PC-1, PC-2R, PC-3, PC-5, and PC-6 serve as POC wells. Monitoring well PC-2R replaced monitoring well PC-2, which was damaged during soil stabilization activities at the OBU. Gulf Atlantic Drilling, Inc. installed PC-2R on November 8, 1996. Monitoring well PC-2 was abandoned in accordance with the requirements of Chapter 62-532.500 (4) FAC on the same date.

Two additional assessment wells, AW-1 and AW-2, were installed on June 8 and June 16, 1998 respectively. Assessment well AW-1 was installed approximately 35 feet south-southwest of monitoring well PC-2R. Assessment well AW-2 was installed approximately 30 feet west of AW-1. Well construction reports and lithologic logs for these wells were submitted to FDEP during the previous permit application. Figure II.M.3-1 depicts the OBU area, the five monitoring wells (PC-1, PC-2R, PC-3, PC-5, and PC-6), the background monitoring well (PC-4), and the two assessment wells (AW-1 and AW-2).

Request For Modification of the Groundwater Monitoring Array

Groundwater at the OBU has been monitored since May 1992 via the three downgradient shallow wells (PC-1, PC-2, and PC-3), the two downgradient deeper wells (PC-5 and PC-6), and the one background well (PC-4). The wells were installed as flush-mounted wells, with the downgradient wells placed as close to the unit as possible in accordance with the 1986 RCRA Technical Enforcement Guidance Document (TEGD) to establish the POC.

In June of 1998, shallow assessment wells AW-1 and AW-2 were installed: AW-1 was installed approximately 30 feet downgradient of PC-2R, and AW-2 was installed approximately 30 feet west of AW-1. These wells were installed to assess the persistent detections of nitrates in PC-2R. Nitrates in PC-2R fell below the MCL in 1998.

In response to metals detections in the soils near the pads, COR (as Martin Electronics) modified the design of the OBU to include a concrete pad with water containment curbs, a moveable galvanized aluminum shelter, and a zone of stabilized soils and compacted limerock surrounding the unit. Based on the Soil Stabilization Plans and the Construction Certification (documents dated March 16, 1994 and November 7, 1996 respectively), the stabilized areas outside of the concrete pad include a minimum of 1-foot of in-situ sands stabilized with 15% Portland Cement topped with 6-inches of compacted limerock. The stabilized soils extend at least 15-feet beyond the concrete pad on the northern, eastern, and southern boundaries and along the shelter tracks, and approximately 30 feet west of the unit. The compacted limerock extends approximately 5-feet around the concrete unit. Due to construction and stabilization activities, the shallow POC wells that were previously flush-mounted are now 3 to 6 inches below the built-up ground surface.

During the investigation of aluminum exceedances in PC-1 during the 2nd 2014 semi-annual groundwater sampling event, Able Engineering (Able) determined that pH levels in PC-1 are also elevated, and provided a correlation between high pH and elevated aluminum. Able indicated that the most likely source of elevated pH was the soil stabilization activities. Able submitted the pH investigation report to the FDEP on February 23, 2015.

The shallow POC wells are constructed such that the water table is usually in the screened interval; however, there are times when the water level is below the screened interval and samples cannot be collected. Well screens spanning the water table are typically associated with investigations of light non-aqueous phase liquids (LNAPLs, or floating product). The TEGD, updated in 1992, specifies that the vertical position of the screen length should be based on the physical/chemical characteristics of the constituents of concern (COC), with the shortest screen length possible. Additionally, wells should be designed to provide groundwater samples that are representative of ambient groundwater conditions.

The COCs at the OBU are metals and residual energetics. The physical character of the COCs in groundwater is that they will flow as a dissolved fraction with the groundwater—they will neither float nor sink in the water column and will follow the normal groundwater pressure gradients. In general, there is a slight downward gradient that is normal under shallow unconfined conditions. This is a reflection of the immediate infiltration of surface water pushing the ambient groundwater downward until equilibrium is reached slightly below the water table. Dissolved contaminants under these

conditions will initially be pushed down a very few feet before traveling laterally with the local groundwater flow. Screens designed to intercept such contaminants should be placed just below the groundwater low-stand and with short screens.

Another consideration for the screened intervals are the shallow redox conditions. Many metals, the primary COCs for the OBU, are redox sensitive. Under aerobic conditions, they tend to crystalize or adsorb to sediment surfaces, dropping out of the groundwater. Under reducing conditions, they tend to dissolve and mobilize with the groundwater. The groundwater zone that includes the fluctuating water table is a redoximorphic zone; a zone of constant dis-equilibrium of natural metals that shifts from reducing conditions to aerobic conditions depending on the groundwater levels. Under these conditions, metals concentrations naturally fluctuate. In addition, sandy soils in Florida are typically podzolic—the acidic conditions of the shallowest horizons leach metals, particularly iron and aluminum, and they are redeposited in a thick dense B-horizon. The soil stabilization activities may have mixed high pH Portland cement with the iron and aluminum oxides in the B-horizon. Mobilization of these metals is not likely to be persistent, but within the transitionary horizons between the B-horizon and the redoximorphic zone, discerning contamination from natural metals concentrations is difficult. Under these conditions, aluminum is likely to be detected when the water table is high. A well screen installed to a depth that is several feet below the existing shallow well screens, as discussed above, will provide groundwater samples that are more representative of ambient groundwater conditions where contamination will be most likely detected.

Inspection of the flush-mount wells indicates that fines from the surrounding soil regularly wash into the annulus surrounding the riser (Figure I.B.3-4, Photo Log). These fines originate from the compacted limerock and stabilized soils and are allowed to stand, usually saturated, on the well pad and in the manhole. Given the wells' pad elevations compared to the surrounding ground surface elevation, the existing monitoring well construction may compromise the representativeness of any samples collected from the wells.

Based on the above information, any data from the existing monitoring array does not appear to be defensible.

Proposed Changes

Based on the potential for the existing wells to serve as conduits for surface water contamination, the POC wells (PC-1, PC-2R, PC-3, PC-5, and PC-6) should be abandoned. Because none of the current wells are at the POC (Part IV, Subpart C, Condition 6 in the permit), any statistically significant increases detected in the existing wells should only be used as early warning data and not violations of the groundwater protection standard. Per the meeting between COR and FDEP on January 13, 2016, COR

will leave the existing monitoring wells with risers (AW-1 and AW-2) in place for groundwater level measurements only. The existing flush-mount wells (PC-1, PC-2R, PC-3, PC-5, and PC-6) will be abandoned based on the discussed potential for contaminant migration through the wells' annuli.

The POC is defined as the hydraulically downgradient limit of the solid waste management area , and the waste management area is defined as any liner, dike, or other barrier designed to contain waste. Since the stabilization activities were designed to stabilize the historical deposition of metals, the replacement wells should be placed outside of the stabilized soils. The current permit (dated August 15, 2011) defines the waste management area as *an imaginary line circumscribing the miscellaneous unit, the extent of the soil sampling area, and adjacent Point of Compliance (POC), as indicated in Attachment B of this permit.* COR proposes the installation of three new compliance wells (PC-7, PC-8, and PC-9) installed at a point as close as possible to the waste management area as required in 40 CFR 264. The screens for these wells will be placed from -2 to 8 feet NGVD. Per the meeting between COR and FDEP on January 13, 2016, the new wells will not be flush-mounted, but will be installed with stick-ups and protective casings and bollards to protect them from damage and allow for positive drainage on the concrete pads. Deeper wells (AW-3, AW-4, and AW-5) will be installed as assessment wells and may be sampled on a routine basis based on the initial sample results. If the initial sample results do not indicate contamination at the POC, these deeper wells will be retained as piezometers to monitor vertical gradients. Figure II.M.3-2 below illustrates the approximate location of the proposed wells. Table II.M.3-2 below presents a proposed construction summary.

Per the meeting between COR and FDEP on January 13, 2016, COR will also install one additional interim well (PZ-1) immediately downgradient of PC-1 to monitor any of the noted contaminants from PC-1. PZ-1 will be constructed in the same design (depth and screen length) as the Point of Compliance wells.

The new wells will be constructed in compliance with the FDEP's 2008 Monitoring Well Design and Construction Guidance Manual, or its subsequent revisions. A well construction plan is included as Figure II.M.3-3; a well installation plan for the new POC wells is included as Figure II.M.3-4; and a well installation plan for the deeper assessment wells is included as Figure II.M.3-5.

Table II.M.3-1
Well Construction Summary
Chemring Ordnance, Inc., Perry, Florida

Well Number	Date Installed	Installed By	Installation Method	Total Well Depth (feet BGS)	Well Screen Interval (feet BGS)	Well Diameter (inches)	Slot Size (inches)	Top of Casing Elevation (feet AMSL)
Shallow Wells								
PC-1	05/13/92	ERM	HSA	17	7.00-17.00	2	0.010	26.61
PC-2R	11/18/96	E&E	HSA	18	8.00-18.00	2	0.010	26.90
PC-3	05/13/92	ERM	HSA	17	7.00-17.00	2	0.010	26.99
PC-4	05/14/92	ERM	HSA	17	7.00-17.00	2	0.010	24.99
AW-1	06/08/98	E&E	HSA	18	8.00-18.00	2	0.010	29.36
AW-2	06/16/98	E&E	HSA	18	8.00-18.00	2	0.010	29.37
Intermediate Wells								
PC-5	11/23/93	ERM	HSA	35	30.00-35.00	2	0.010	26.82
PC-6	11/23/93	ERM	HSA	35	30.00-35.00	2	0.010	26.92

Notes:

AMSL = Above mean sea level
AW = Assessment well
BGS = Below ground surface
E & E = Ecology and Environment, Inc.
ERM = Environmental Resources Management-South, Inc.
HSA = Hollow-stem auger
PC = Point-of-compliance well

Table II.M.3-2
Chemring Ordnance Groundwater Monitoring Well Construction Information Summary

					Casing Information		Screen Information		
	Well ID	Date Installed	Well Designation	Well Depth (ft)	ToC Elevation (ft NGVD)	Stick-up (ft)	Length (ft)	Top of Screen (ft NGVD)	Base of Screen (ft NGVD)
To Remain	PC-4	May-92	Background	17	24.99	Flush	10	18	8
	AW-1	Jun-98	Assessment	18	29.36	2	10	19.4	9.4
	AW-2	Jun-98	Assessment	18	29.37	2	10	19.4	9.4
To Be Abandoned	PC-1	May-92	Compliance	17	26.61	Flush	10	19.6	9.6
	PC-2R	Nov-96	Compliance	18	26.9	Flush	10	18.9	8.9
	PC-3	May-92	Compliance	17	26.99	Flush	10	20	10
	PC-5	Nov-93	Compliance	35	26.82	Flush	5	-3.2	-8.2
	PC-6	Nov-93	Compliance	35	26.92	Flush	5	-3.1	-8.1
Proposed Wells*	PZ-1	TBD	Compliance	28	29	3	10	-2	8
	PC-7	TBD	Compliance	28	29	3	10	-2	8
	PC-8	TBD	Compliance	28	29	3	10	-2	8
	PC-9	TBD	Compliance	28	29	3	10	-2	8
	AW-3	TBD	Assessment	43	29	3	5	-17	-12
	AW-4	TBD	Assessment	43	29	3	5	-17	-12
	AW-5	TBD	Assessment	43	29	3	5	-17	-12

* Locations, final depths, and elevations for the proposed wells are approximate.
All wells are 2" PVC with 0.010" slot-sized screens.

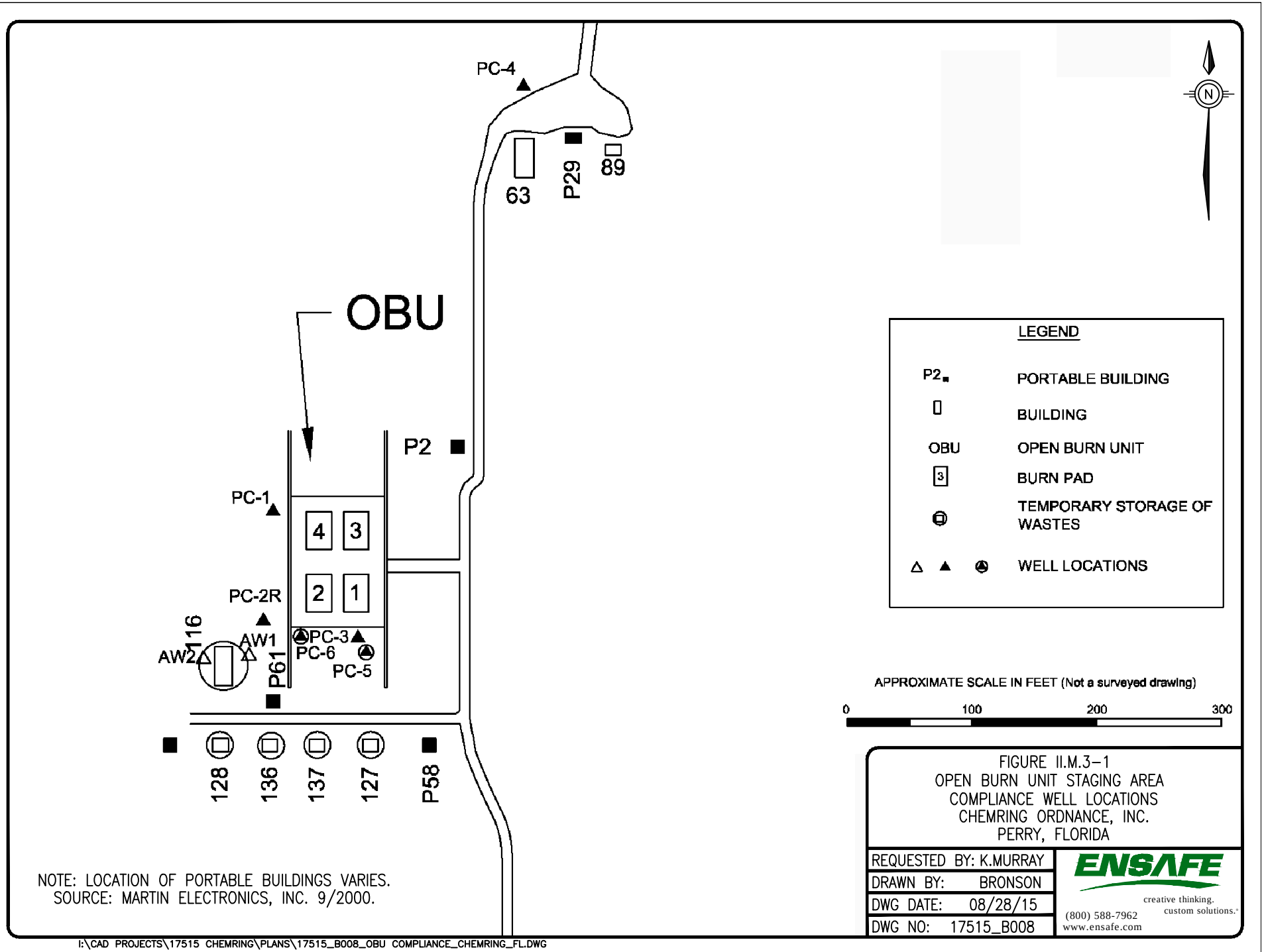


FIGURE II.M.3–1
OPEN BURN UNIT STAGING AREA
COMPLIANCE WELL LOCATIONS
CHEMRING ORDNANCE, INC.
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/28/15
DWG NO:	17515_B008

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Figure II.M.3-2
Proposed Well Locations

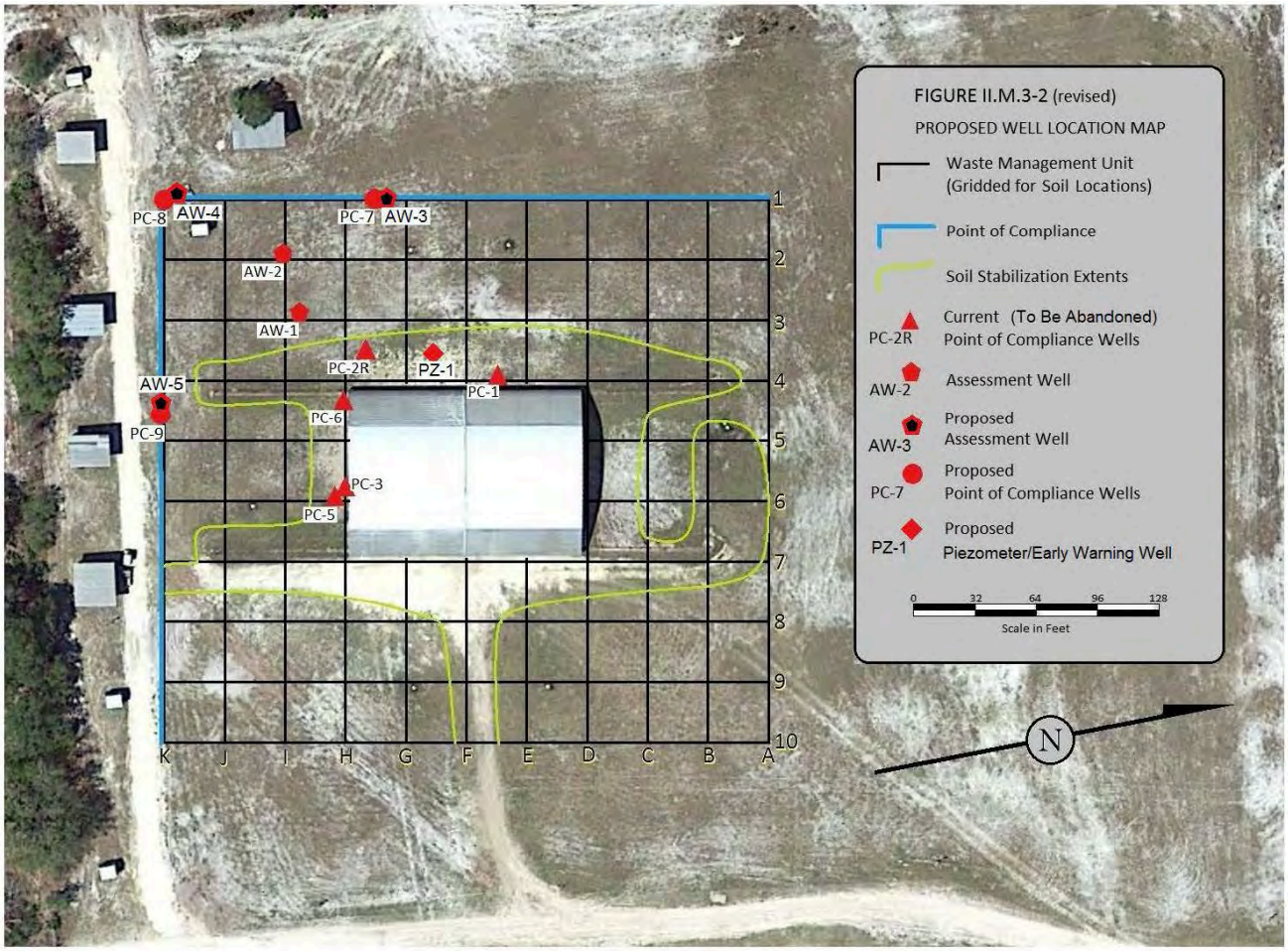


Figure II.M.3-3
Well Construction Plan

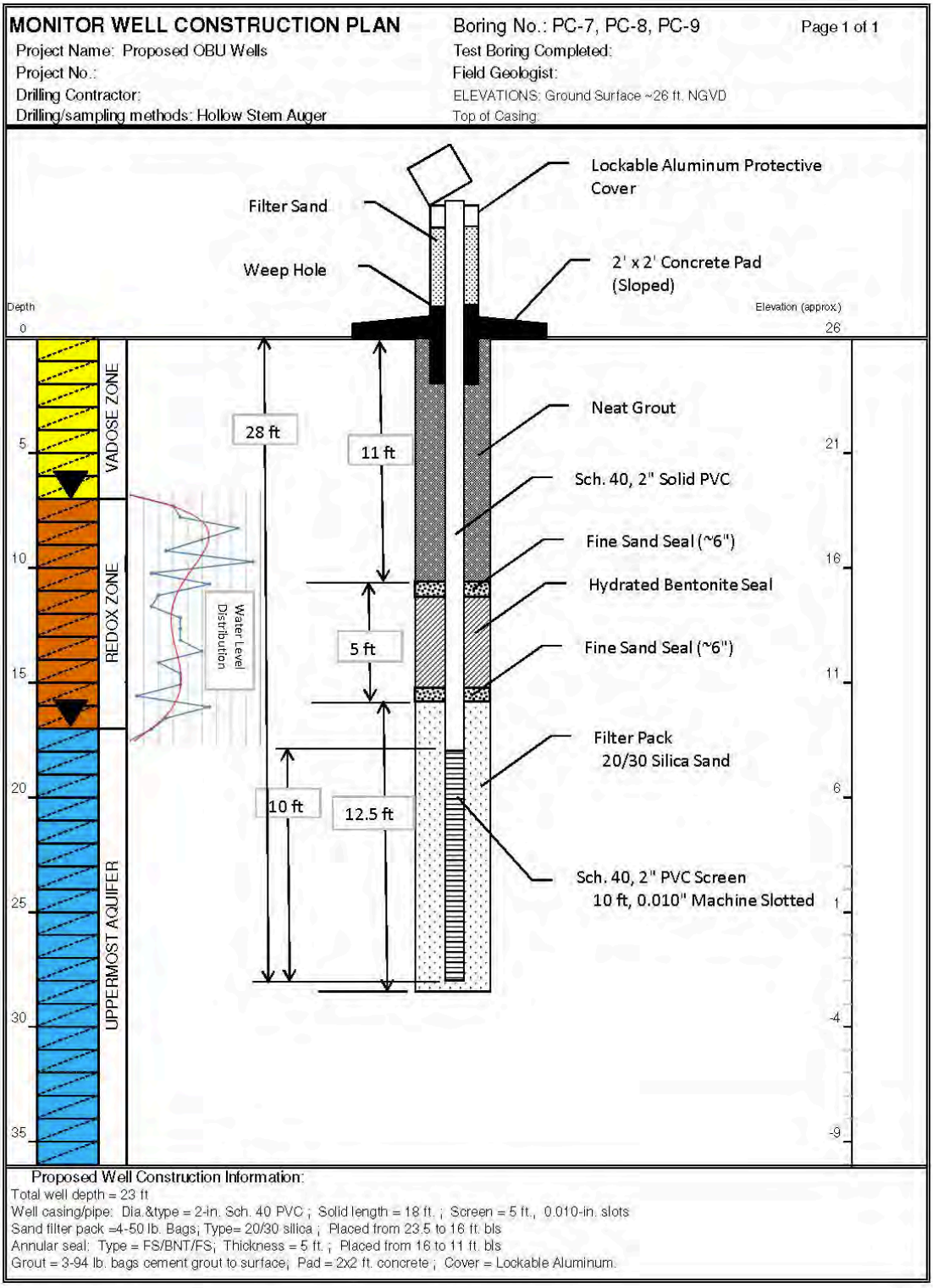
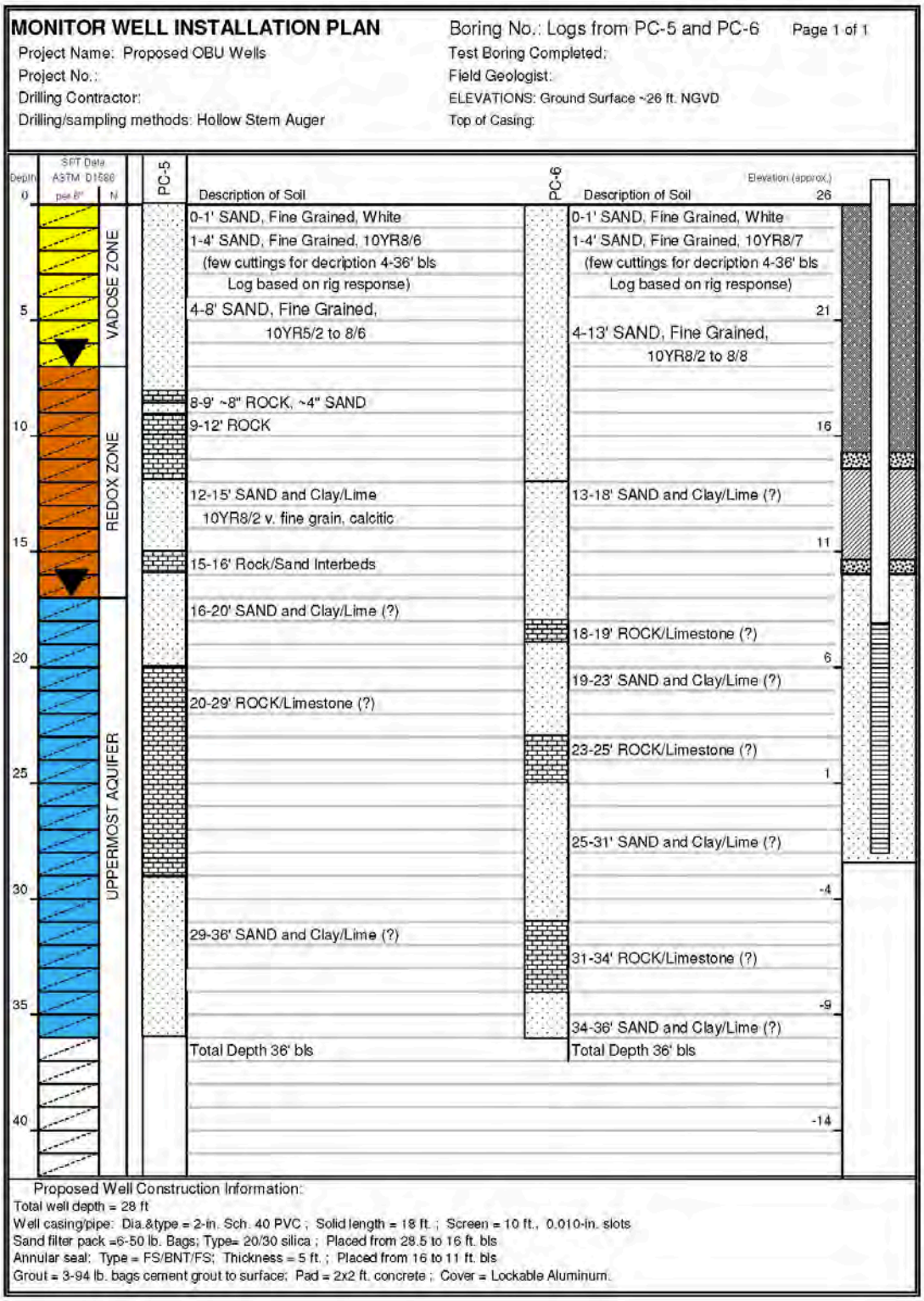
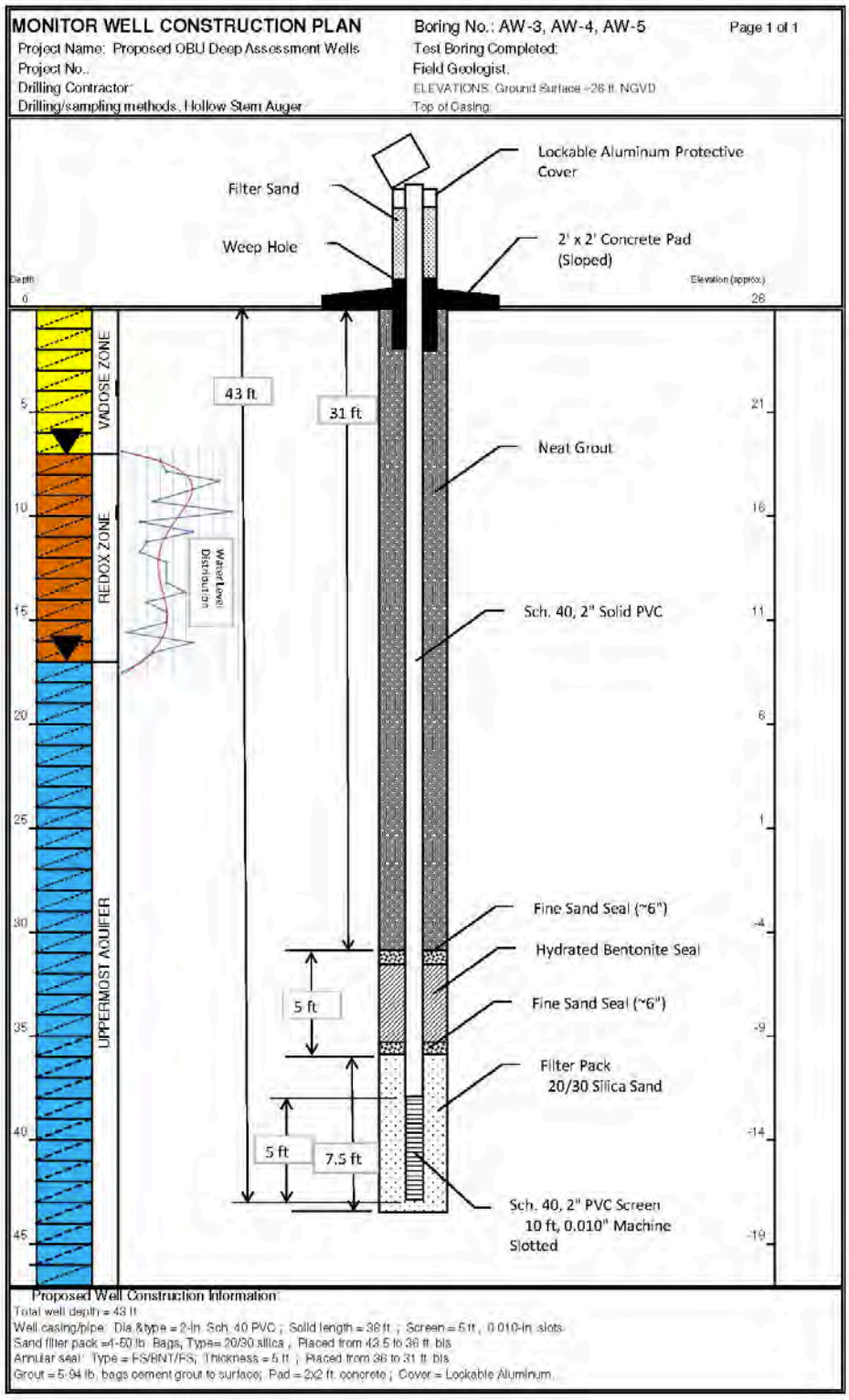


Figure II.M.3-4
Well Installation Plan - Shallow



Well Installation Plan, page1, 1/26/2016

Figure II.M.3-5
Well Installation Plan – Deep



Plan, 8/28/2016

II.M.4
Description of Contaminant Plume

There is currently no groundwater contaminant plume defined at the site.

II.M.5
Soil and Groundwater Monitoring Program

The soil quality and groundwater detection monitoring at the COR OBU will be performed on a semi-annual basis.

Soil Quality Monitoring

COR proposes to continue the current soil quality monitoring procedure, which includes particulate as well as soil sampling. Particulate sampling includes setting up particulate sampling stations that consist of a synthetic fabric (for solid particulates) over a stainless steel bowl (for leachate). A fresh fabric is used for each monitoring period. The method allows for flexibility of sample locations, as sample stations can be moved to target sample locations in the downwind direction during treatment. Because the filter fabric and the rainwater collected in the pan are analyzed, the total mass loading is considered, thereby providing a more conservative result than the traditional soil sampling method. The sampling method offers greater reproducibility as the complete sample is digested and analyzed as opposed to only a fraction of a soil sample that is homogenized in the field. A description of this procedure was provided in the previous permit application.

The parameters to be monitored, sample locations, station installation procedures, sampling frequency, sampling procedures, analytical protocol and data evaluation methods are documented herein.

Monitoring Parameters: The proposed monitoring parameters are selected to detect potential impacts of the OBU operations on the surrounding soil. Two suites of parameters are proposed for analysis. Suite A is a complete listing of all analytes that potentially may have adverse impacts to the environment and are associated with the OBU operations. Suite A parameters and associated analytical methods are listed in Table II.M.5-1. Suite B is an abbreviated list of indicator compounds. Table II.M.5-2 documents the indicators included in Suite B and the analytical methods to be used for detection. Seven analytes (barium, boron, cadmium, titanium, zinc, zirconium, and hydrocarbons) in the proposed Suite A list are ingredients of the COR production, but historically have not been detected or have been detected but at concentrations several orders of magnitude less than the criteria. The historical soil monitoring data has been provided to the FDEP in the previous permit application, and is not included in this application.

Sample Locations: Six fixed locations and one duplicate location are proposed, as depicted in Figure II.M.5-1, to assess the impact of the OBU operations on surrounding surface soil. The placement of these stations will be at a distance of 30 feet from the stabilized soil surrounding the OBU. One background sample location, BK8, will be used to monitor background conditions and to determine whether outside sources are affecting measurements at the OBU.

One mobile sample station (Mob-1) is also proposed to assure that the down-wind direction is monitored during burn periods. Usage of the mobile station may or may not be necessary depending on the wind direction and the fixed station locations. Southwesterly, southeasterly, northwesterly, and northeasterly wind directions will warrant the use of station Mob-1 as these are not covered by the fixed stations. The placement of Mob-1 will be 30 feet from the stabilized soil area along the wind direction.

Sample Station Installation: Sample station installation procedures were included in the previous permit application.

Cleanup Target Levels: The current land use of the COR facility is considered industrial. This land use is not expected to change over the course of the permit period and will remain in effect until the time of closure. Two soil cleanup target levels, residential and industrial, will considered for evaluating analytical results of soil samples collected from the vicinity of the OBU. Residential (unrestricted) land use will be considered during the closure plan (see Attachment II.K.1). During the permit period and under the current land use, industrial SCTLs are appropriate, and for compounds where industrial SCTLs are listed in Chapter 62-777 FAC, these levels will be used. Currently, there are no published residential or industrial SCTLs for the following 12 analytes: HMX, 1-methylaminoanthraquinone, nitrocellulose, isopropanol, tetrazine, PETN, magnesium, chloride, potassium, tungsten, titanium, and zirconium. Per the *Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, Final* (February 2005), calculations of the proposed criteria for these analytes were based on the following approaches in descending order, when appropriate:

- Use toxicity values published in the primary sources such as U.S. EPA's Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), or the National Center for Environmental Assessment (NCEA). These analytes include titanium (NCEA) and HMX (IRIS).

- Calculate based on National Academies upper intake levels (ULs; a primary source for toxicity values per FDEP guidance) or adequate intakes. These analytes include magnesium (UL), chloride (UL), and potassium (adequate intake).

- Calculate from modified occupational exposure limits. These analytes include isopropanol (OSHA).

Sample Frequency: Semiannual sampling is proposed over the duration of the permit period. A soil quality monitoring schedule is provided in Table II.M.5-4. Currently, soil sampling events are conducted in January and July of each year. COR proposes using artificial sample stations for each of the events except the July 2016 event. Each of the events, except the January 2016 event, will be monitoring for analytical Suite B analytes. The monitoring analytes will be determined in a Soil Assessment Work Plan to be submitted to FDEP Northeast, U.S. EPA Region IV, and FDEP Tallahassee for approval three months prior to this scheduled sampling event. The Suite A list analytes will be analyzed for the July 2016 artificial sample station monitoring event. If analytical results in any events indicate that analytes not included in Suite B are detected at concentrations greater than the respective criteria, these analytes will also be included in the analytical suite for the following three events.

Sample Collection: To collect the samples, the following procedure will be followed.

- Carefully remove the sample pad from the sample bowl, removing the five clamps.
- Place the pad to be sampled on visqueen sheeting avoiding contact with surrounding soil.
- Cut the sample pad into two equal sections.
- Cut two 4-inch-by-2-inch slices from the pad center to be placed in an 8-ounce soil jar.
- Label and seal the jar.
- If there is water in the pan, fill sample bottles with the water after recording the volume of water contained within the pan.
- If no water is present in the pan, pour 1 liter of deionized water in the pan and rinse the water into a sample bottle.
- Preserve water samples for laboratory shipment as specified in COR's SAP (Attachment II.M.11) and the FDEP SOPs.

Sample chain of custody, packaging, shipping, and laboratory analysis shall be performed in accordance with procedures documented in COR's FDEP-approved SAP and the FDEP SOPs for field activities.

Data Evaluation Methods. The units of measure for results are micrograms per wipe (µg/wipe), where one wipe is equivalent to 16 square inches of filter fabric, or µg/L in the case of the rainwater samples. For data evaluation, these values are normalized to a per day mass loading rate per unit area by considering the volume of rainwater collected in the pans, the open-faced surface area of the fabric (1.1 square feet) and the duration of the round. The equation used for this calculation is as follows:

$$(1) \qquad (P \times A_p / A_s) + (W \times Vr) = M_p$$

Where:

P	=	sample pad analytical result in µg/wipe
A_p	=	area of the sample pad in square feet (1.1 ft^2)
A_s	=	area of the laboratory sample in square feet (0.11 ft^2)
W	=	rainwater analytical result in µg/L
V_r	=	volume of rainwater or the added volume (1L) if the pan is dry
M_p	=	mass of analyte per pad location in µg

Assuming an average penetration of six-inches (based on Soil Assessment Results), the concentration of each analyte per a select volume of soil can be determined as follows:

$$(2) \qquad \{M_p / (A_p \times D_I)\ r_b\ \} = C_s$$

Where

M_p	=	as defined above
A_p	=	area of the pad in cm^2
D_I	=	the assumed depth of impact in cm
ρ_b	=	the bulk unit weight of soil in g/cm^3 (~ 1.5 g/cm^3)
C_s	=	the concentration of the analyte in soil in mg/kg

By multiplying this value by the number of days in a year, the yearly loading rate, M_y, in mg/kg/year can be obtained. Assuming a cleanup target level such as an established SCTL, the number of years to reach the level can be calculated as follows:

$$(3) \qquad (SCTL - C_o) / M_y = \quad T_a$$

Where

SCTL	=	a proposed cleanup target level or trigger level in mg/kg
C_o	=	the initial site baseline concentration in mg/kg — calculated as 95% of the upper confidence limit for the selected analyte based onsite data
M_y	=	the yearly mass loading rate in mg/kg/year
T_a	=	the time to reach the alarm level in years

Alarm Monitoring using the Constituent Specific Graphical Accumulation Summary

COR proposes to continue to use a Constituent Specific Graphical Accumulation Summary (CSGAS) for evaluating sample station analytical data. The CSGAS method will allow COR to monitor the cumulative impact of the OBU on surrounding soil, and provide notice to COR as, or if, concentrations approach a specified alarm level. The CSGAS method is designed to function similar to a control chart, providing COR with a mechanism for evaluating whether or not a process is in or out of "control."

In order to ensure that time is available to implement corrective actions should alarm levels approach, COR has selected a conservative value of 80% of the industrial SCTLs or alternative levels specified in Table II.M.5-3 as the alarm levels for the OBU. For example, assuming the maximum yearly loading rate for arsenic is 0.18 mg/kg/year and the baseline concentration is 1 mg/kg, the time to reach the alarm level, T_a, can be calculated using Equation 3. For this scenario, the time to reach the alarm level for arsenic (SCTL = 12 mg/kg) would be approximately 61 years. Eighty percent of 61 years is approximately 49 years, leaving 12 years to correct any problems at the site. This allows ample time for planning and implementing site corrections without adversely interrupting plant operations; therefore, 80% of the industrial SCTLs is considered an acceptable trigger level for the OBU soil quality monitoring program.

If there are exceedences of alarm levels, COR will submit a soil quality monitoring analysis report to the FDEP. If any soil quality monitoring analyte concentration exceeds eighty percent of either the industrial SCTLs or the alarm levels, COR will:

- Notify the FDEP of the exceedances within seven (7) calendar days.

- If the exceedence is related to an individual soil sampling point, then within fourteen (14) calendar days, COR will collect soil samples from the same location(s) and analyze it/them for the subject analyte(s). COR will provide the FDEP with analytical data within forty-five (45) calendar days of sampling.

- If the exceedence is related to a particulate sample station, then COR will follow the procedures described in Alarm Monitoring using the Constituent Specific Graphical Accumulation Summary, Attachment II.M-5 and will provide the FDEP with the analytical data.

- If the exceedence is related to a particulate sample station, and COR cannot correlate the exceedence to isolate sampling points, then COR may opt to conduct a complete round of soil sampling or may elect to submit a plan to the FDEP for assessment and remediation of the soil contamination.

- If soil sampling confirms that the concentration of any analyte is above eighty percent (80%) of either the industrial SCTLS or the action levels, then within thirty (30) calendar days of submitting the soil data from the resampling event COR will submit a plan to the FDEP for assessment and remediation.

- COR will provide the FDEP with opportunities to observe particulate and soil sampling and split samples by providing notification (either over the telephone or through electronic mail) at least seven (7) calendar days prior to each sampling event).

Groundwater Detection Monitoring

The groundwater detection monitoring program is described in Attachment II.M.6.

Groundwater Compliance Monitoring

A groundwater compliance monitoring program is not required.

Table II.M.5-1
Analyte List For Soil Quality Monitoring
Suite A
Open Burn Unit, Chemring Ordnance, Inc.

Parameter	U.S. EPA Method Number
Aluminum	6010B
Arsenic	7060A/6010B
Antimony	6010B
Barium	6010B
Boron	6010B
Cadmium	6010B
Total Chromium	6010B
Copper	6010B
Lead	6010B
Magnesium	6010B
Nickel	6010B
Titanium	6010B
Tungsten	6010B
Zinc	6010B
Zirconium	6010B
Acetone	8260B
Isopropanol	8260B
Hydrocarbons (as diesel fuel)	FL Pro
Tetrazine[a]	SW 8331
Nitrocellulose	USATHAMA LF03
Nitroglycerine	USATHAMA
1-methyl aminoanthraquinone	SW 8270B
PETN	USATHAMA
RDX	SW 8330
HMX	SW 8330
Styrene	8260B
Nitrobenzene	8260B
2,4-Dinitrotoluene	8270C
Diphenylamine	8270C
Percent Moisture	ASTM D2216-80
Perchlorate	SW 6850
Phosphorous*	365.1

Notes:

[a] Tetrazine will only be analyzed if a NELAP-certified laboratory is identified to perform the analysis.

* Phosphorus monitoring will begin during the sampling event prior to notification to the FDEP of COR's intent to initiate the Red Phosphorus program.

ASTM = American Society for Testing and Materials.
U.S. EPA = United States Environmental Protection Agency.
HMX = homocyclonite octogen cyclotetremethylene tetranitramine.
PETN = Pentaerythritol tetranitrate (explosive, vasodilator).
RDX = cyclo-1,3,5-trimethylene-2,4,6-trinitramine.
USATHAMA = United States Army Toxic and Hazardous Materials Agency.

Table II.M.5-2
Analyte List For Soil Quality Monitoring
Suite B
Open Burn Unit, Chemring Ordnance, Inc.

Parameter	U.S. EPA Method Number
Aluminum	6010B
Arsenic	6010B
Total Chromium	6010B
Copper	6010B
Lead	6010B
Magnesium	6010B
Nickel	6010B
Tungsten	6010B
Percent Moisture	ASTM D2216-80

Notes:
ASTM = American Society for Testing and Materials.
U.S. EPA = United States Environmental Protection Agency.

Table II.M.5-3
Proposed Soil Cleanup Target Levels
Chemring Ordnance, Inc., Perry, Florida

Parameter	Proposed SCTL (mg/kg)	Basis
Aluminum	no industrial CTL	62-777, FAC
Antimony	370	62-777, FAC
Arsenic	12	62-777, FAC
Barium	130,000	62-777, FAC
Boron	430,000	62-777, FAC
Cadmium	1,700	62-777, FAC
Total Chromium	470	62-777, FAC
Copper	89,000	62-777, FAC
Lead	1,400	62-777, FAC
Magnesium	No criterion	Dietary Upper Intake Limit, not a health concern
Nickel	35,000	62-777, FAC
Titanium	No criterion	NCEA, not a health concern
Tungsten	2,038	Current permit
Zinc	630,000	62-777, FAC
Zirconium	7,500	Current permit
TRPH	2,700	62-777, FAC
HMX (2691-41-0)	57,000	IRIS
RDX (121-82-4)	28	62-777, FAC
1-Methylaminoanthraquinone	PQL	Current permit
Nitrocellulose	PQL	Current permit
Styrene	23,000	62-777, FAC
PETN (78-11-5)	PQL	Current permit
2,4-Dinitrotoluene	4.3	62-777, FAC
Nitrobenzene	140	62-777, FAC
Tetrazine**	+	Current permit
Diphenylamine	40,000	62-777, FAC
Nitroglycerin	54	62-777, FAC
Isopropanol	No criterion	Occupational exposure value, not a health concern
Acetone	68,000	62-777, FAC
Perchlorate	+	Current permit
Phosphorous	+	Current permit

Notes:
+ = Lack of data. A level is not assigned.
** = No laboratory currently available. Will analyze if a lab becomes available.
FAC = Florida Administrative Code.
mg/kg= milligrams per kilogram.
PQL = Practical Quantitation Limit.

Table II.M.5-4
Soil Quality Monitoring Schedule
Open Burn Unit
Chemring Ordnance, Inc., Perry, Florida

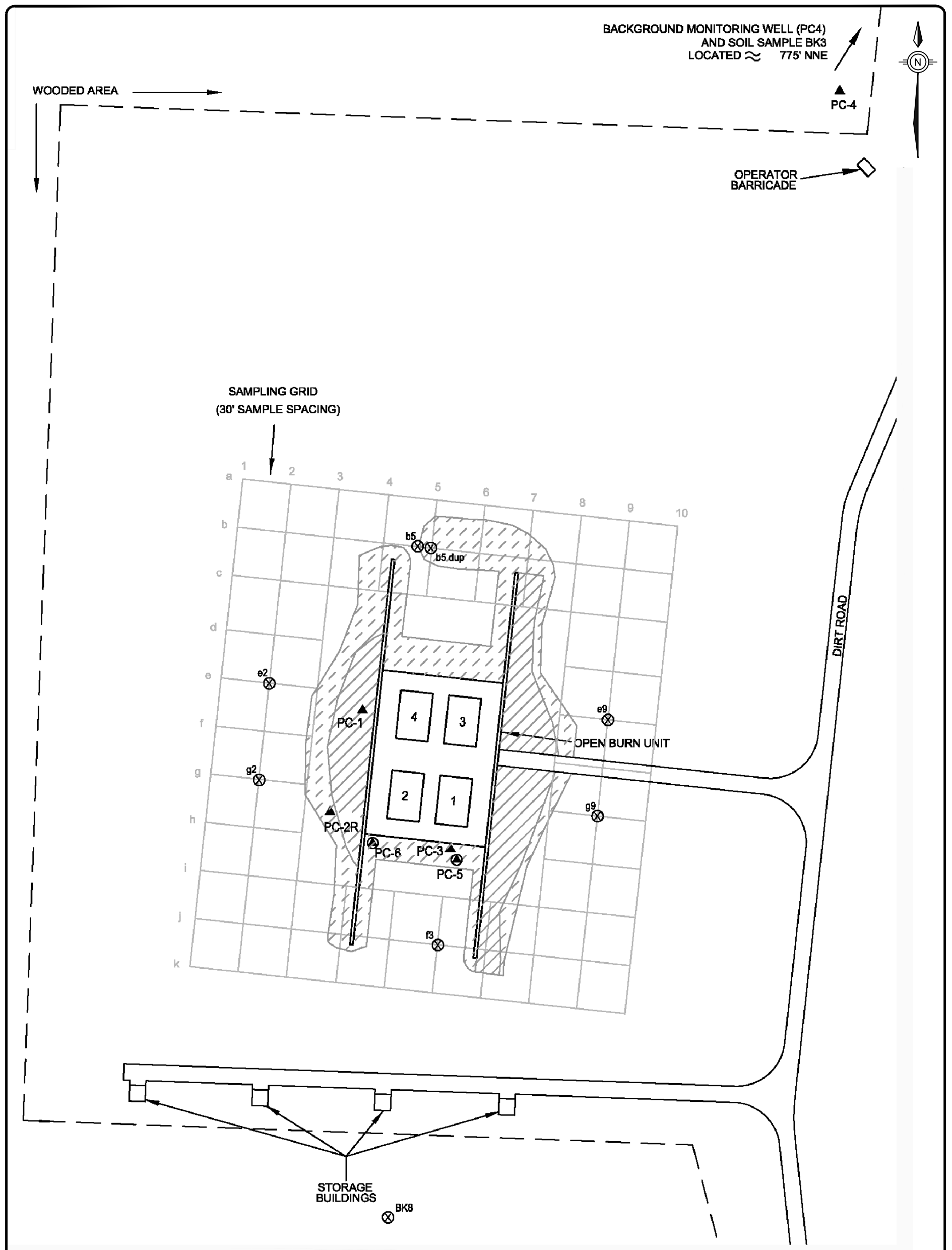
Year	Event #	Date	Sample Method[a]	Analytical Suite[b, c]
1	1	January 2016	Grid Soil Sampling	A
	2	July 2016	Sample Stations	B
2	3	January 2017	Sample Stations	B
	4	July 2017	Sample Stations	B
3	5	January 2018	Sample Stations	B
	6	July 2018	Sample Stations	B
4	7	January 2019	Sample Stations	B
	8	July 2019	Sample Stations	B
5	9	January 2020	Sample Stations	B
	10	July 2020	Sample Stations	B

Notes:

[a] Sample stations refer to fabric sampling as detailed in Attachment II.M.5. Sample station locations are shown on Figure II.M.5-1.

[b] Analytical Suite A is listed in Table II.M.5-1. Analytical Suite B is listed in Table II.M.5-2.

[c] Additional analytes will be included in three events following a detection of concentrations which exceed the SCTLs.


BACKGROUND MONITORING WELL (PC4)
AND SOIL SAMPLE BK3
LOCATED ≈ 775' NNE
PC-4
N
WOODED AREA
OPERATOR
BARRICADE
SAMPLING GRID
(30' SAMPLE SPACING)
1 2 3 4 5 6 7 8 9 10
a b c d e f g h i j k
b5
b5.dup
e2
PC-1
4
3
2
1
e9
OPEN BURN UNIT
g2
PC-2R
PC-6
PC-3
PC-5
g9
f3
DIRT ROAD
STORAGE
BUILDINGS
BK8
SCALE IN FEET
0 60 120 180
NOTE: Not a surveyed drawing.
KEY:
Fence
Shallow Point-of-Compliance Monitoring Well
Intermediate Point-of-Compliance Monitoring Well
Proposed Sample Station Locations (fixed)
BK
Background Sampling Location
Approximate Extent of the Soil Stabilization Area
Approximate Extent of the Buffer Area
NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., ERM, 1995.
FIGURE II.M.5-1
PROPOSED SAMPLING STATION LOCATIONS
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA
REQUESTED BY: K.MURRAY
DRAWN BY: BRONSON
DWG DATE: 08/28/15
DWG NO: 17515_B009
ENSAFE
creative thinking. custom solutions.
(800) 588-7962
www.ensafe.com
I:\CAD PROJECTS\17515 CHEMRING\PLANS\17515_B009_PROPOSED SAMPLING STATION_CHEMRING_FL.DWG

II.M.6
Groundwater Detection Monitoring Program

The groundwater detection monitoring plan proposes the sampling of existing and proposed new monitoring wells to monitor the impacts of the OBU operations to groundwater. The parameters to be monitored were selected to ensure protection of groundwater quality and cost effectiveness. Two different monitoring schemes and a monitoring schedule are proposed. The groundwater monitoring program, including monitoring parameters, sample locations, sampling frequency, and sampling protocol is described in the following sections.

Monitoring Parameters

Two suites of the monitoring parameters are proposed. Suite A is a complete listing of all analytes that potentially may have adverse impacts to the environment and are associated with the OBU operations. Suite A parameters and associated analytical methods are listed in Table II.M.6-1. The historical groundwater monitoring results have been previously submitted to the FDEP and are not included in the current permit application. Suite B is an abbreviated list containing compounds that would indicate impacts of the groundwater in the vicinity of the OBU. Table II.M.6-2 lists the parameters included in Suite B and the analytical methods to be used for their detection.

Compliance and Maximum Contaminant Levels (MCLs)

Chapter 62-777, FAC Table 1 presents the GCTL criteria for groundwater in the State of Florida. Most of the GCTLs for the constituents of COR's concern are based on the MCLs in 40 CFR 264.94, but currently Table 1 does not include a published GCTL for the following 11 analytes: magnesium, titanium, tungsten, potassium, zirconium, nitroglycerin, 1-methyl aminoanthraquinone, PETN, tetrafluoroethene, tetrazine, nitrocellulose, and isopropanol. Per the *Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, Final* (February 2005), calculations of the proposed criteria for these analytes were based on the following approaches in descending order when appropriate:

- Use toxicity values published in the primary sources such as U.S. EPA's Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), or the National Center for Environmental Assessment (NCEA). The analyte for which this applies is titanium (NCEA).

- Calculate based on National Academies upper intake levels (ULs; a primary source for toxicity values per FDEP guidance) or adequate intakes. The analyte for which this applies is magnesium (UL).

- Calculate from modified occupational exposure limits. The analyte for which this applies is isopropanol (OSHA).

The MCLs stipulated in 40 CFR 264.94 and the derived alternative standards as listed in Table II.M.6-3 will be used to evaluate the status of compliance. If any monitored constituents are detected at concentrations exceeding the prospective compliance levels, compliance monitoring will be initiated in accordance with 40 CFR Part 264.99 and Rule 62-4.050. The proposed groundwater compliance levels and GCTLs are summarized in Table II.M.6-3.

Sample Frequency

Semiannual sampling is proposed over the duration of the permit period. COR proposes to conduct the sampling events in February and August of each year. In the fifth (August 2017) and tenth (February 2020) sampling events, the Suite A parameters will be used to provide a comprehensive profile of the groundwater quality. For the rest of the sampling events, Suite B is proposed for detecting any parameters that might indicate an impact to the groundwater. As in the current permit conditions, in compliance with 40 CFR 264.97, four replicate samples will be collected during each sampling event; however, when the replicate sampling data demonstrate no statistically significant variations between replicate events, COR proposes to reduce the sample collection to one sample per well per sampling event. If, following the discontinuance of the replicate sampling, any constituent analyzed is found to exceed its compliance level, COR proposes verbal notification to the appropriate regulatory agency and resampling within seven days of the receipt of analytical results. If the second sampling event confirms that the compliance level is exceeded, COR will reinstitute replicate sampling and consider corrective actions.

Sample Locations

Three new monitoring wells are proposed for installation (AW-3, AW-4, and AW-5), and are described in Attachment II.M.3. Groundwater monitoring wells PC-1, PC-2R, PC-3, PC-5, and PC-6 are the current point of compliance (POC) wells for the OBU and are proposed to be abandoned and replaced by PC-7, PC-8, and PC-9. Monitoring well PC-4 will continue to serve as the background monitoring well. The seven wells (PC-4, AW-3, AW-4, AW-5, PC-7, PC-8, and PC-9) will be sampled during the semiannual monitoring events.

Sampling Protocol

Groundwater sampling methodology will follow the FDEP SOPs for field activities. Groundwater elevations will be measured at each POC well and at the background monitoring well whenever sampling is conducted. Data obtained from groundwater elevation measurements will be evaluated, and the local water table gradient and groundwater flow direction will be estimated. An FDEP-approved/NELAP-certified analytical laboratory will perform the analyses. Sample chain of custody, packaging, shipping, laboratory analysis, and data validation and interpretation will be performed in accordance with procedures in FDEP SOPs. The laboratory data will be kept in a binder at the COR facility.

Statistical Analysis

COR proposes that the two-tiered statistical analytical method as specified in the current permit remain in use. Tier I consists of the Mann Whitney U Test, which is used for comparing two populations based on independent random samples. Tier II consists of an intrawell correlation between constituents of concern at the site and other detected analytes. The methodology for each Tier is provided below.

Tier I: Perform the Mann-Whitney U test as in the original methodology to determine those constituents that differ significantly from background. This test determines whether the background well (PC-4) data is representative of a different population than the data from each POC well (replacement wells PC-7, PC-8, and PC-9). The test results are reported as a confidence level (a percentage) that two data sets for a specific analyte were derived from different populations (e.g., not impacted versus impacted). In accordance with the permit, if the p-level result of the Mann-Whitney U Test is less than 0.01, then there is 99 percent confidence that the data from the background well and the POC well are representative of two populations, and the POC wells potentially have been impacted and Tier II evaluation will be performed.

Tier II: Evaluate the list selected in the first tier to determine a constituent or constituents that are known to be of concern, either because they exceed regulatory criteria or because the constituent is known to be site-related and concentrations are increasing. Calculate correlation coefficients between the concentrations of these constituents and the other constituents selected in the first tier. If the correlation coefficients indicate a relationship between these constituents, this may be considered to be evidence that the site is influencing the concentrations of the constituent being tested. If not, this is evidence that the concentrations, while different from the background well, are not currently being influenced by the site. Correlation coefficients may be interpreted as follows:

Correlation Coefficient	Meaning of Result
> 0.7	There is a strong positive correlation between the two constituents. The constituent being tested is likely being influenced by the site. Concentrations of the constituent should be watched carefully in future sampling events to ensure that potential future increases do not result in unacceptable concentrations in groundwater.
> 0.5 and < 0.7	There is a moderate positive correlation between the two constituents. There is some evidence that the constituent being tested is being influenced by the site. Concentrations of the constituent should be watched carefully in future sampling events to ensure that potential future increases do not result in unacceptable concentrations in groundwater.
> 0.3 and < 0.5	There is a slight positive correlation between the two constituents. The constituent being tested may be influenced by the site.
> -0.3 and < 0.3	There is no significant correlation between the two constituents.
< -0.3	There is a negative correlation between the two constituents; as concentrations of the indicator constituent increase, concentrations of the constituent being tested decrease.

Table II.M.6-1
Suite A Analyte List for Groundwater Monitoring
Chemring Ordnance, Inc., Perry, Florida

Parameter	U.S. EPA Method Number
Antimony	EPA 6010B
Arsenic	EPA 6010B
Barium***	EPA 6010B
Boron***	EPA 6010B
Cadmium	EPA 6010B
Total Chromium	EPA 6010B
Copper	EPA 6010B
Lead	EPA 6010B
Magnesium	EPA 6010B
Nickel	EPA 6010B
Strontium	EPA 6010B
Titanium	EPA 6010B
Tungsten***	EPA 6010B/Standard Methods 3111B
Zinc	EPA 6010B
Zirconium	EPA 6010B
Hydrocarbons (as diesel)	FL-PRO
Fluoride	9056
pH	150.1
Specific Conductance	120.1
Turbidity	180.1
Tetrafluoroethene*	Currently not available
Tetrazine**	EPA 8331
Isopropanol***	EPA 8260A
Acetone***	EPA 8260A
2,4-dinitrotoluene***	EPA 8330
Nitrobenzene***	EPA 8330
1-methylaminoanthraquinone***	EPA 8270
PETN***	EPA 8330
Diphenylamine***	EPA 8330
HMX***	EPA 8330
RDX***	EPA 8330
Styrene***	EPA 8260A
Nitrocellulose***	USATHAMA LF03
Nitroglycerin***	EPA 8330
Phosphorus****	365.1
Perchlorate	314.0

Notes:

* No analytical method is currently available. This analyte will be monitored when an analytical method is available and accepted by FDEP.

** No laboratory currently identified as certified to perform this analysis. This analyte will be monitored when a lab is approved by FDEP to perform this analysis.

*** This analyte will be monitored in groundwater if detected in soil at concentrations that exceed the leachability SCTL.

**** Phosphorus monitoring will begin during the sampling event prior to notification to the FDEP of COR's intent to initiate the Red Phosphorus program.

Key:

HMX = Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.
PETN = Pentaerythritoltetranitrate.
RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

Table II.M.6-2
Suite B Analyte List for Groundwater Monitoring
Chemring Ordnance, Inc., Perry, Florida

Parameter	U.S. EPA Method Number
Arsenic	EPA 6010B
Barium***	EPA 6010B
Boron	EPA 6010B
Cadmium***	EPA 6010B
Total Chromium	EPA 6010B
Copper***	EPA 6010B
Lead	EPA 6010B
Magnesium	EPA 6010B
Nickel***	EPA 6010B
Titanium	EPA 6010B
Tungsten***	EPA 6010B/Standard Methods 3111B
Zinc***	EPA 6010B
Zirconium***	EPA 6010B
Fluoride	9056
pH	150.1
Specific Conductance	120.1
Turbidity	180.1
Tetrafluoroethene*/***	Currently not available
Tetrazine**/***	EPA 8331
Perchlorate	314.0

Notes:

* No analytical method is currently available. This analyte will be monitored when an analytical method is available and accepted by FDEP.

** No laboratory currently identified as certified to perform this analysis. This analyte will be monitored when a lab is approved by FDEP to perform this analysis.

*** This analyte will be monitored in groundwater if detected in soil at concentrations that exceed the leachability SCTL.

U.S. EPA = United States Environmental Protection Agency

Table II.M.6-3
Proposed Groundwater Compliance Levels
Chemring Ordnance, Inc.

Analyte	Compliance Level (µg/L)	Basis
Aluminum	200	MCL, 62-777, FAC
Antimony	6	MCL, 62-777, FAC
Arsenic	10	MCL, 62-777, FAC
Barium	2,000	MCL, 62-777, FAC
Boron	1,400	MCL, 62-777, FAC
Cadmium	5	MCL, 62-777, FAC
Total Chromium	100	MCL, 62-777, FAC
Copper	1,000	MCL, 62-777, FAC
Lead	15	MCL, 62-777, FAC
Magnesium	No GCTL	Dietary upper intake limit
Nickel	100	MCL, 62-777, FAC
Strontium	4,200	MCL, 62-777, FAC
Titanium (as Titanium Dioxide)	28,000	NCEA
Tungsten	29.2	Current permit criteria
Zinc	5,000	MCL, 62-777, FAC
Zirconium	175	Current permit criteria
Fluoride	4,000	MCL, 62-550, FAC
Acetone	6,300	MCL, 62-777, FAC
2,4-Dinitrotoluene	0.05	MCL, 62-777, FAC
Nitrobenzene	3.5	MCL, 62-777, FAC
RDX	0.3	MCL, 62-777, FAC
Diphenylamine	180	MCL, 62-777, FAC
HMX	350	MCL, 62-777, FAC
Hydrocarbons (as diesel)	5,000	MCL, 62-777, FAC
1-Methylaminoanthraquinone	10	Current permit criteria
PETN	11,900	Current permit criteria
Styrene	100	MCL, 62-550, FAC
Tetrafluoroethene*	43	Current permit criteria
Tetrazine**	91	Current permit criteria
Isopropanol	4,700	Occupational exposure value
Nitrocellulose	100	Current permit criteria
Nitroglycerin	17	Current permit criteria
Phosphorus	No GCTL	Current permit criteria
Perchlorate	4	MCL, 62-777, FAC

Notes:

* No analytical method is currently available. This analyte will be monitored when an analytical method is available and accepted by FDEP.

** No laboratory currently identified as certified to perform this analysis. This analyte will be monitored when a lab is approved by FDEP to perform this analysis.

FAC = Florida Administrative Code.
HMX = Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.
MCL = Maximum contaminant level.
PETN = Pentaerythritoltetranitrate.
RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

II.M.7
Corrective Action and Compliance Monitoring

Corrective Action

Currently soil or groundwater corrective actions are not necessary.

Compliance Monitoring

Given that a release of RDX greater than its Cleanup Target Level has been reported, COR is now conducting compliance monitoring in accordance with 40 CFR 264.99. It is our understanding that the Department will not require that COR a complete 40 CFR 264 Appendix IX sampling. Part IV - Subpart C, conditions 1 and 2 will remain in place. COR may also include a Detection Monitoring Program in accordance with 40 CFR Part 264.98 once sufficient data indicate that RDX (or any other contaminant) is less than its GCTL. The Department will not require that COR sample any additional analytes in either program.

COR proposes to monitor for the parameters listed in Section II.M.6, Table II.M.6-1 during the compliance and detection monitoring period. Concentration limits based on background groundwater quality will be based on the following:

- If there is a high temporal correlation between upgradient and compliance point concentrations of the hazardous constituents, COR will establish the concentration limit through sampling at upgradient wells each time groundwater is sampled at the compliance point.

- To determine if there is a statistically significant difference between the background and POC wells, COR will use a two-tiered statistical evaluation as described in Attachment II.M.6. This analysis will be completed within 45 days of completion of sampling.

If the groundwater protection standard is exceeded at any POC monitoring well, COR will notify FDEP in writing of these findings within seven days of discovery. The notification will specify which concentration limits have been exceeded. COR will also submit to FDEP an application for a permit modification to establish a corrective action program meeting requirements for Section 264.100 within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to FDEP under Section 264.98(h)(5). The modification application will include:

- A detailed description of corrective actions that will achieve compliance with the groundwater protection standard specified in the permit under paragraph (a) of Section 264.99

- A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action

If it is determined that the exceedance of the groundwater protection standard was due to a source other than a regulated unit, or due to error in sampling, analysis, or evaluation, a demonstration will be made to FDEP of such cause. If this demonstration is necessary, COR will notify FDEP in writing within seven days of discovery. Additionally, within 90 days, COR will submit to FDEP an application for a monitoring program at the facility and continue to monitor in accordance with the corrective action monitoring program established.

If it is determined that the corrective action monitoring program no longer satisfies the requirements of 40 CFR 264.99, COR will, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

Background values will be established through analysis of data collected from background monitoring well samples. To the extent feasible, background data will account for seasonal fluctuations in background groundwater quality. For each sample, four replicates will be obtained and analyzed. Replicate data will be averaged and the arithmetic mean used in statistical analyses, which will account for laboratory variability. Hence, replicate data will not be used as a source for statistical variance used in significance testing procedures. Background data will be added as it becomes available through quarterly sampling described in the following text.

Samples from POC and background wells will be obtained semiannually. Semiannual data will be statistically analyzed to determine if a statistically significant increase in indicator parameter concentrations has occurred once the background data base has been established.

The statistical method that will be used is the two-tiered statistical analytical method specified in Attachment II.M.6. Tier I consists of the Mann-Whitney U Test, which is used for comparing two populations based on independent random samples. Tier II consists of an intrawell correlation between constituents of potential concern at the site and other detected analytes. By combining the statistical evaluation techniques, false positive and negative results will be minimized. The methodology for each tier is discussed in Attachment II.M.6. If, after evaluation, it is determined that a statistically significant increase has indeed occurred, and it cannot be determined that another source or an error in sampling or analysis was the cause of the increase, then actions discussed previously will be taken. Results of the statistical evaluation will be reported to FDEP.

Groundwater elevations will be measured prior to every sampling episode. The groundwater flow rate and direction will be determined and reported to FDEP on an annual basis. All sampling and analysis will meet requirements of Section 264.97(d) and (e), according to the Sampling Analysis Plan and will be performed in accordance with FDEP SOPs.

II.M.8
Corrective Action Program

Currently, no corrective actions for soil or groundwater are required.

II.M.10
Additional Groundwater Monitoring Requirements

Filters will not be used when collecting groundwater samples, in accordance with the 40 CFR 264, Subpart F monitoring requirements.

A Well Construction Summary Report [DEP Form 62-730.900(2)(b)] will be submitted to FDEP when a new monitoring well associated with the OBU is installed.

II.M.11
Quality Assurance Plan

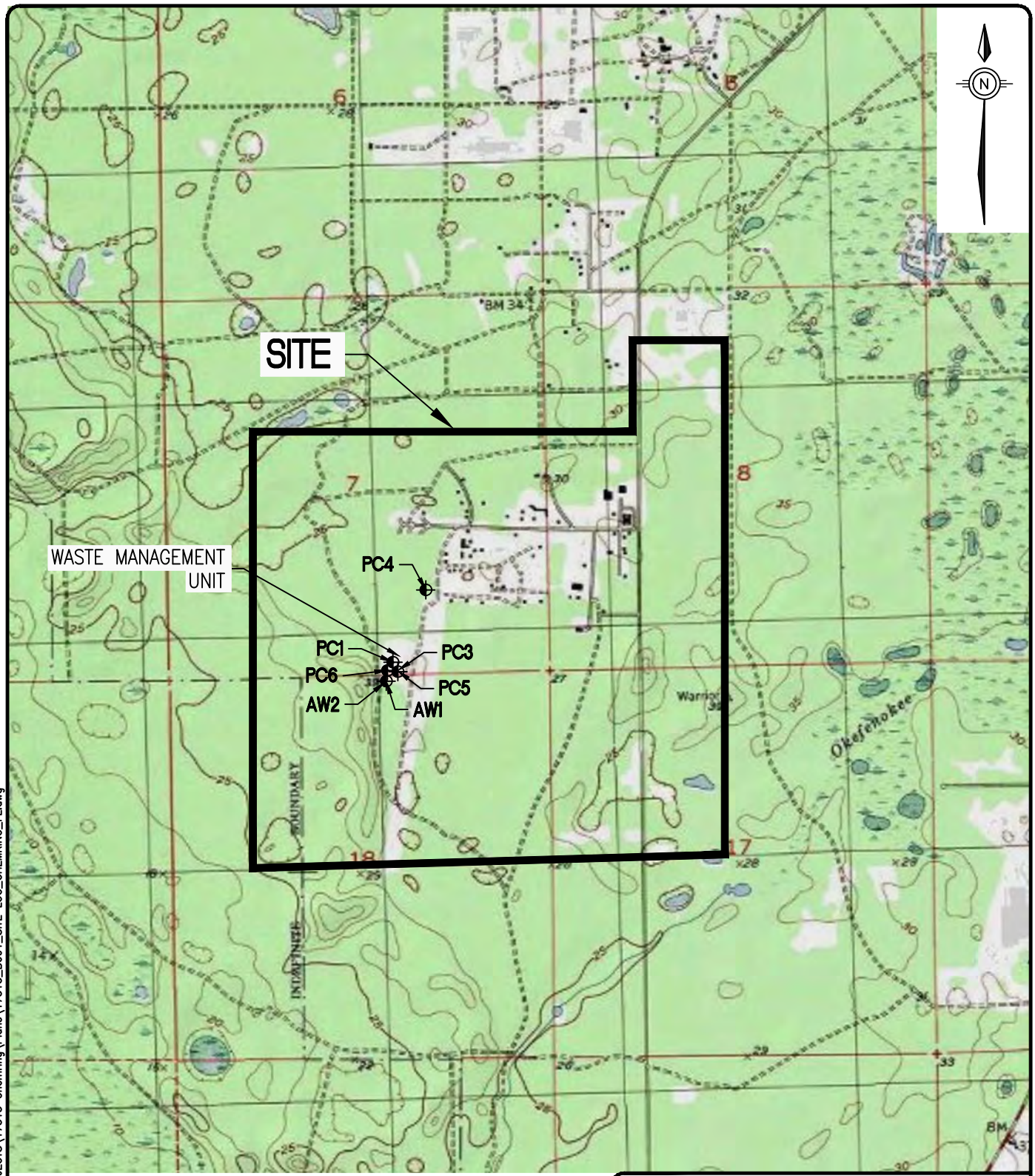
A Sampling and Analysis Plan (SAP) is not included, as Chapter 62-730, FAC no longer includes a specific requirement for a SAP.

A facility location map is provided as Figure 1-1, proposed soil sample station locations are depicted on Figure 2-1, and the location of SWMUs and AOCs are depicted on Figure 2-2. Field sampling activities will continue to follow the applicable collection and quality control protocols and requirements described in FDEP Standard Operating Procedure (DEP-SOP) FA 1000, *Regulatory Scope And Administrative Procedures For Use Of DEP SOPs*, which is incorporated by reference in Rule 62-160, FAC.

There are no changes to the SAP other than as specified in the proposed groundwater monitoring system, although methods may be modified to comply with future revisions of FDEP's published SOPs.

Figures

Tables



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MAP SOURCE:
USA_Topo_Maps – Copyright: ©2013 National Geographic Society, i–cubed

FIGURE 1–1
SITE LOCATION MAP
SUB–ATTACHMENT I.M.11–1
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/28/15
DWG NO:	17515_B001

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BACKGROUND MONITORING WELL (PC4)
AND SOIL SAMPLE BK3
LOCATED ≈ 775' NNE

PC-4

WOODED AREA

OPERATOR
BARRICADE

SAMPLING GRID
(30' SAMPLE SPACING)

b5
b5.dup
e2
e9
g2
g9
f3
PC-1
PC-2R
PC-6
PC-3
PC-5
4
3
2
1
OPEN BURN UNIT
DIRT ROAD
STORAGE
BUILDINGS
BK8

SCALE IN FEET
0 60 120 180

NOTE: Not a surveyed drawing.

KEY:

- Fence
- Shallow Point-of-Compliance Monitoring Well
- Intermediate Point-of-Compliance Monitoring Well
- Proposed Sample Station Locations (fixed)
- BK — Background Sampling Location
- Approximate Extent of the Soil Stabilization Area
- Approximate Extent of the Buffer Area

NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., ERM, 1995.

FIGURE 2–1
PROPOSED SAMPLING STATION LOCATIONS
SUB–ATTACHMENT I.M.11–1
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/28/15
DWG NO:	17515_B009

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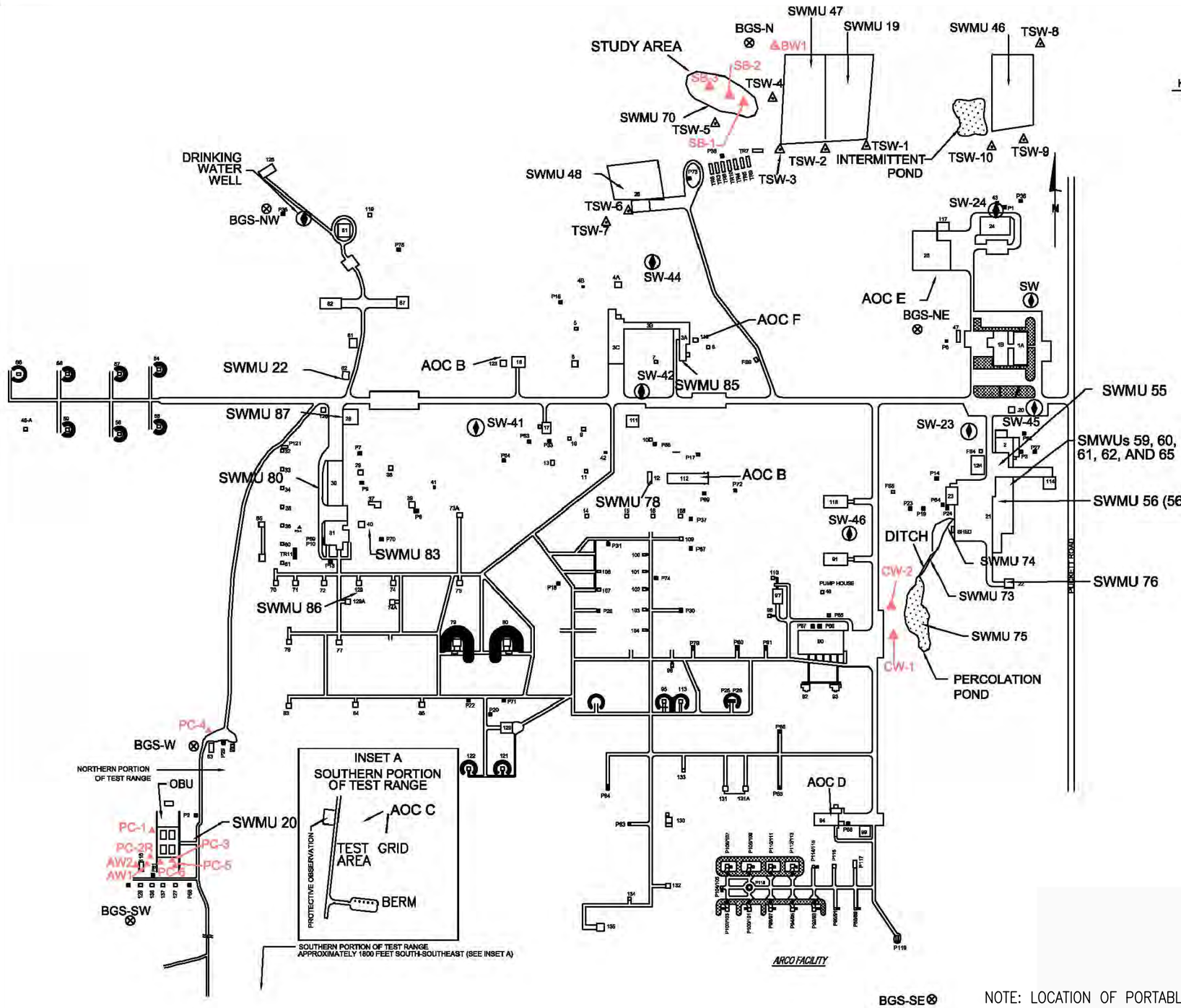
I:\CAD PROJECTS\17515 CHEMRING\PLANS\17515_B009_PROPOSED SAMPLING STATION_CHEMRING_FL.DWG



NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., AUGUST 15, 2005

FIGURE 2-2
LOCATION OF SWMUs AND AOCs
SUB-ATTACHMENT I.M.11-1
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/28/15
DWG NO:	17515_B011

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Table 3-1
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	DEP-SOP #
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[b]**	**TB**	**EB[c]**	**FD**	**Analytical Method**	**Component**
Semiannual	water	groundwater	7	X	1	1	USATHAMA	Pentarythrite tetranitrate (PETN) Tetranitrate (PETN)
Semiannual	water	groundwater	7	X	1	1	EPA 8330	Cyclotetramethylene tetranitramine (HMX)
Semiannual	water	groundwater	7	X	1	1	8270	1-methylaminoanthraquinone
Semiannual	water	groundwater	7	X	1	1	8330	Diphenylamine
Semiannual	water	groundwater	7	1	1	1	8260A	Styrene
Semiannual	water	groundwater	7	X	1	1	6010B	Arsenic
Semiannual	water	groundwater	7	X	1	1	6010B	Barium
Semiannual	water	groundwater	7	X	1	1	6010B	Boron
Semiannual	water	groundwater	7	X	1	1	6010B	Cadmium
Semiannual	water	groundwater	7	X	1	1	6010B	Chromium
Semiannual	water	groundwater	7	X	1	1	7196A	Hexavalent Chromium
Semiannual	water	groundwater	7	X	1	1	6010B	Copper
Semiannual	water	groundwater	7	X	1	1	6010B	Lead
Semiannual	water	groundwater	7	X	1	1	6010B	Magnesium
Semiannual	water	groundwater	7	X	1	1	6010B	Manganese
Semiannual	water	groundwater	7	X	1	1	7470A	Mercury
Semiannual	water	groundwater	7	X	1	1	6010B	Nickel
Semiannual	water	groundwater	7	X	1	1	6010B	Potassium
Semiannual	water	groundwater	7	X	1	1	6010B	Strontium
Semiannual	water	groundwater	7	X	1	1	6010B	Titanium
Semiannual	water	groundwater	7	X	1	1	6010B/SM 3111B	Tungsten
Semiannual	water	groundwater	7	X	1	1	6010B	Zinc
Semiannual	water	groundwater	7	X	1	1	6010B	Zirconium
Semiannual	water	groundwater	7	X	1	1	9056	Chloride
Semiannual	water	groundwater	7	X	1	1	9056	Fluoride
Semiannual	water	groundwater	9	X	1	1	9056/EPA 353.2	Total Nitrogen (as Nitrate + Nitrite)

Table 3-1
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	DEP-SOP #
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[b]**	**TB**	**EB[c]**	**FD**	**Analytical Method**	**Component**
Semiannual	water	groundwater	7	X	1	1	FL-PRO	Petroleum Hydrocarbons
Semiannual	water	groundwater	9	X	1	1	8330	RDX
[a]	water	groundwater	7	1	1	1	8260B	Acetone
[a]	water	groundwater	7	1	1	1	8260B	Isopropanol (2-propanol)
[a]	water	groundwater	7	X	1	1	USATHAMA LF03	Nitrocellulose
[a]	water	groundwater	7	X	1	1	USATHAMA	Nitroglycerine
[d]	water	groundwater	7	X	1	1	8331	Tetrazine

Notes:

DEP SOP = Florida Department of Environmental Protection Standard Operating Procedures.
EB = Equipment Blank.
EPA-1 = Methods for Chemical Analysis of Water and Waste, USEPA Cincinatti, EPA-600/4-79-020, revised March 1983 and 1979.
FD = Field duplicated.
FL PRO = Florida Petroleum Range Organics.
NELAP = National Environmental Laboratory Accreditation Program.
RDX = cyclo-1,3,5-trimethylene-2,4,5-trinitramine.
TB = Trip Blank.
USATHAMA = United States Army Toxic and Hazardous Materials Agency.
X = Not required.

[a] In accordance with permit requirements, analysis for this parameter will be performed on groundwater samples only if this parameter is identified in soil samples.
[b] Number of groundwater samples per event. Four replicate sampling events (four samples, per well, four days apart) will be conducted semi-annually.
[c] Each groundwater sampling event consists of 28 samples (four replicate events, with seven samples each). To assure that equipment blanks are collected at a 5% rate, two equipment blanks will be collected over the course of the sampling event.
[d] Tetrazine will be analyzed if a NELAP laboratory is found to conduct the analysis.

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[a]**	**TB**	**EB**	**FD**	**Analytical Method**	**Component**
Annual	water	groundwater	1	X	1	X	EPA 7041/6010B	Antimony
Annual	water	groundwater	1	X	1	X	6010B	Arsenic
Annual	water	groundwater	1	X	1	X	6010B	Barium
Annual	water	groundwater	1	X	1	X	6010B	Beryllium
Annual	water	groundwater	1	X	1	X	6010B	Cadmium
Annual	water	groundwater	1	X	1	X	6010B	Chromium
Annual	water	groundwater	1	X	1	X	6010B	Cobalt
Annual	water	groundwater	1	X	1	X	6010B	Copper
Annual	water	groundwater	1	X	1	X	6010B	Lead
Annual	water	groundwater	1	X	1	X	7470A	Mercury
Annual	water	groundwater	1	X	1	X	6010B	Nickel
Annual	water	groundwater	1	X	1	X	6010B	Selenium
Annual	water	groundwater	1	X	1	X	6010B	Silver
Annual	water	groundwater	1	X	1	X	7841/6010B	Thallium
Annual	water	groundwater	1	X	1	X	6010B	Tin
Annual	water	groundwater	1	X	1	X	6010B	Vanadium
Annual	water	groundwater	1	X	1	X	6010B	Zinc
Annual	water	groundwater	1	1	1	X	8260B	Acetone
Annual	water	groundwater	1	1	1	X	8260B	Acrolein
Annual	water	groundwater	1	1	1	X	8260B	Acrylonitrile
Annual	water	groundwater	1	1	1	X	8260B	Allyl chloride
Annual	water	groundwater	1	1	1	X	8260B	Benzene
Annual	water	groundwater	1	1	1	X	8260B	Bromodichloromethane
Annual	water	groundwater	1	1	1	X	8260B	Bromoform
Annual	water	groundwater	1	1	1	X	8260B	Carbon disulfide
Annual	water	groundwater	1	1	1	X	8260B	Carbon tetrachloride

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

Frequency	Sample Matrix	Sample Source	Quality Control Summary				Analytical Method	Component
			# Samples[a]	TB	EB	FD		
Annual	water	groundwater	1	1	1	X	8260B	Chlorobenzene
Annual	water	groundwater	1	1	1	X	8260B	Chloroethane
Annual	water	groundwater	1	1	1	X	8260B	Chloroform
Annual	water	groundwater	1	1	1	X	8260B	Chloroprene
Annual	water	groundwater	1	1	1	X	8260B	Dibromochloromethane
Annual	water	groundwater	1	1	1	X	8260B	1,2-Dibromoethane
Annual	water	groundwater	1	1	1	X	8260B	trans-1,4-Dichloro-2-butene
Annual	water	groundwater	1	1	1	X	8260B	Dichlorodifluoromethane
Annual	water	groundwater	1	1	1	X	8260B	1,1-Dichloroethane
Annual	water	groundwater	1	1	1	X	8260B	1,2-Dichloroethane
Annual	water	groundwater	1	1	1	X	8260B	1,1-Dichloroethylene
Annual	water	groundwater	1	1	1	X	8260B	trans-1,2-Dichloroethylene
Annual	water	groundwater	1	1	1	X	8260B	1,2-Dichloropropane
Annual	water	groundwater	1	1	1	X	8260B	cis-1,3-Dichloropropene
Annual	water	groundwater	1	1	1	X	8260B	trans-1,3-Dichloropropene
Annual	water	groundwater	1	1	1	X	8260B	Ethylbenzene
Annual	water	groundwater	1	1	1	X	8260B	Ethyl methacrylate
Annual	water	groundwater	1	1	1	X	8260B	2-Hexanone
Annual	water	groundwater	1	1	1	X	8260B	Methacrylonitrile
Annual	water	groundwater	1	1	1	X	8260B	Methyl bromide
Annual	water	groundwater	1	1	1	X	8260B	Methyl chloride
Annual	water	groundwater	1	1	1	X	8260B	Methylene bromide (aka dibromomethane)
Annual	water	groundwater	1	1	1	X	8260B	Methylene chloride
Annual	water	groundwater	1	1	1	X	8260B	Methyl ethyl ketone
Annual	water	groundwater	1	1	1	X	8260B	Methyl iodide
Annual	water	groundwater	1	1	1	X	8260B	Methyl methacrylate

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[a]**	**TB**	**EB**	**FD**	**Analytical Method**	**Component**
Annual	water	groundwater	1	1	1	X	8260B	4-Methyl-2 pentanone
Annual	water	groundwater	1	1	1	X	8260B	Pentachloroethane
Annual	water	groundwater	1	1	1	X	8260B	2-Picoline
Annual	water	groundwater	1	1	1	X	8260B	Propionitrile
Annual	water	groundwater	1	1	1	X	8260B	Pyridine
Annual	water	groundwater	1	1	1	X	8260B	1,1,1,2-Tetrachloroethane
Annual	water	groundwater	1	1	1	X	8260B	1,1,2,2-Tetrachloroethane
Annual	water	groundwater	1	1	1	X	8260B	Tetrachloroethylene
Annual	water	groundwater	1	1	1	X	8260B	Toluene
Annual	water	groundwater	1	1	1	X	8260B	1,1,1-Trichloroethane
Annual	water	groundwater	1	1	1	X	8260B	1,1,2-Trichloroethane
Annual	water	groundwater	1	1	1	X	8260B	Trichloroethylene
Annual	water	groundwater	1	1	1	X	8260B	Trichlorofluoromethane
Annual	water	groundwater	1	1	1	X	8260B	1,2,3-Trichloropropane
Annual	water	groundwater	1	1	1	X	8260B	Vinyl acetate
Annual	water	groundwater	1	1	1	X	8260B	Vinyl chloride
Annual	water	groundwater	1	1	1	X	8260B	Xylene
Annual	water	groundwater	1	X	1	X	8270C	Acenaphthene
Annual	water	groundwater	1	X	1	X	8270C	Acenaphthylene
Annual	water	groundwater	1	X	1	X	8270C	Acetophenone
Annual	water	groundwater	1	X	1	X	8260C	Acetonitrile
Annual	water	groundwater	1	X	1	X	8270C	2-Acetylaminofluorene
Annual	water	groundwater	1	X	1	X	8270C	4-Aminobiphenyl
Annual	water	groundwater	1	X	1	X	8270C	Aniline
Annual	water	groundwater	1	X	1	X	8270C	Anthracene
Annual	water	groundwater	1	X	1	X	8270C	Aramite

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

Frequency	Sample Matrix	Sample Source	Quality Control Summary				Analytical Method	Component
			# Samples[a]	TB	EB	FD		
Annual	water	groundwater	1	X	1	X	8270C	Benzo[a]anthracene
Annual	water	groundwater	1	X	1	X	8270C	Benzo[b]fluoranthene
Annual	water	groundwater	1	X	1	X	8270C	Benzo[k]fluoranthene
Annual	water	groundwater	1	X	1	X	8270C	Benzo[ghi]perylene
Annual	water	groundwater	1	X	1	X	8270C	Benzo[a]pyrene
Annual	water	groundwater	1	X	1	X	8270C	Benzyl alcohol
Annual	water	groundwater	1	X	1	X	8270C	Bis(2-chloroethoxy) methane
Annual	water	groundwater	1	X	1	X	8270C	Bis(2-chloroethyl) ether
Annual	water	groundwater	1	X	1	X	8270C	Bis(2-Chloro-1 methylethyl) ether
Annual	water	groundwater	1	X	1	X	8270C	Bis(2-ethylhexyl) phthalate
Annual	water	groundwater	1	X	1	X	8270C	4-Bromophenyl phenyl ether
Annual	water	groundwater	1	X	1	X	8270C	Butyl benzyl phthalate
Annual	water	groundwater	1	X	1	X	8270C	p-chloroaniline
Annual	water	groundwater	1	X	1	X	8270C	Chlorobenzilate
Annual	water	groundwater	1	X	1	X	8270C	p-chloro-m-cresol
Annual	water	groundwater	1	X	1	X	8260B/8270C	2-Chloronaphthalene
Annual	water	groundwater	1	X	1	X	8270C	2-Chlorophenol
Annual	water	groundwater	1	X	1	X	8270C	4-Chlorophenyl phenyl ether
Annual	water	groundwater	1	X	1	X	8270C	Chrysene
Annual	water	groundwater	1	X	1	X	8270C	m-cresol
Annual	water	groundwater	1	X	1	X	8270C	o-cresol
Annual	water	groundwater	1	X	1	X	8270C	p-cresol
Annual	water	groundwater	1	X	1	X	8270C	Diallate
Annual	water	groundwater	1	X	1	X	8270C	Dibenz[a,h]anthracene
Annual	water	groundwater	1	X	1	X	8270C	Dibenzofuran
Annual	water	groundwater	1	X	1	X	8270C	Di-n-butyl phthalate

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[a]**	**TB**	**EB**	**FD**	**Analytical Method**	**Component**
Annual	water	groundwater	1	X	1	X	8270C	o-Dichlorobenzene
Annual	water	groundwater	1	X	1	X	8270C	m-Dichlorobenzene
Annual	water	groundwater	1	X	1	X	8270C	p-Dichlorobenzene
Annual	water	groundwater	1	X	1	X	8270C	3,3'- Dichlorobenzidine
Annual	water	groundwater	1	X	1	X	8270C	2,4-Dichlorophenol
Annual	water	groundwater	1	X	1	X	8270C	2,6-Dichlorophenol
Annual	water	groundwater	1	X	1	X	8270C	Diethyl phthalate
Annual	water	groundwater	1	X	1	X	8270C	Phosphorothioate
Annual	water	groundwater	1	X	1	X	8270C	Dimethoate
Annual	water	groundwater	1	X	1	X	8270C	p-(Dimethylamino) azobenzene
Annual	water	groundwater	1	X	1	X	8270C	alpha,alpha-Dimethylphenethylamine
Annual	water	groundwater	1	X	1	X	8270C	2,4-Dimethylphenol
Annual	water	groundwater	1	X	1	X	8270C	Dimethyl phthalate
Annual	water	groundwater	1	X	1	X	8270C	m-Dinitrobenzene
Annual	water	groundwater	1	X	1	X	8270C	4,6-Dinitro-o-cresol
Annual	water	groundwater	1	X	1	X	8270C	2,4-Dinitrophenol
Annual	water	groundwater	1	X	1	X	8270C	2,4-Dinitrotoluene
Annual	water	groundwater	1	X	1	X	8270C	2,6-Dinitrotoluene
Annual	water	groundwater	1	X	1	X	8270C	Di-n-octyl phthalate
Annual	water	groundwater	1	X	1	X	8260B	1,4-Dioxane
Annual	water	groundwater	1	X	1	X	8270C	Diphenylamine
Annual	water	groundwater	1	X	1	X	8270C	Disulfoton
Annual	water	groundwater	1	X	1	X	8270C	Ethyl methanesulfonate
Annual	water	groundwater	1	X	1	X	8270C	Famphur
Annual	water	groundwater	1	X	1	X	8270C	Fluoranthene
Annual	water	groundwater	1	X	1	X	8270C	Fluorene

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[a]**	**TB**	**EB**	**FD**	**Analytical Method**	**Component**
Annual	water	groundwater	1	X	1	X	8270C	Hexachlorobenzene
Annual	water	groundwater	1	X	1	X	8270C	Hexachlorobutadiene
Annual	water	groundwater	1	X	1	X	8270C	Hexachlorocyclopentadiene
Annual	water	groundwater	1	X	1	X	8270C	Hexachloroethane
Annual	water	groundwater	1	X	1	X	8270C	Hexachlorophene
Annual	water	groundwater	1	X	1	X	8270C	Hexachloropropene
Annual	water	groundwater	1	X	1	X	8270C	Indeno [1,2,3-cd] pyrene
Annual	water	groundwater	1	X	1	X	8260B	Isobutyl alcohol
Annual	water	groundwater	1	X	1	X	8270C	Isodrin
Annual	water	groundwater	1	X	1	X	8270C	Isophorone
Annual	water	groundwater	1	X	1	X	8270C	Isosafrole
Annual	water	groundwater	1	X	1	X	8270C	Kepone
Annual	water	groundwater	1	X	1	X	8270C	Methapyrilene
Annual	water	groundwater	1	X	1	X	8270C	3-Methylcholanthrene
Annual	water	groundwater	1	X	1	X	8270C	Methyl methanesulfonate
Annual	water	groundwater	1	X	1	X	8270C	2-Methylnaphthalene
Annual	water	groundwater	1	X	1	X	8270C	Methyl parathion
Annual	water	groundwater	1	X	1	X	8270C	Naphthalene
Annual	water	groundwater	1	X	1	X	8270C	1,4-Naphthoquinone
Annual	water	groundwater	1	X	1	X	8270C	1-Naphthylamine
Annual	water	groundwater	1	X	1	X	8270C	2-Naphthylamine
Annual	water	groundwater	1	X	1	X	8270C	o-Nitroaniline
Annual	water	groundwater	1	X	1	X	8270C	m-Nitroaniline
Annual	water	groundwater	1	X	1	X	8270C	p-Nitroaniline
Annual	water	groundwater	1	X	1	X	8270C	Nitrobenzene
Annual	water	groundwater	1	X	1	X	8270C	o-Nitrophenol

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

Frequency	Sample Matrix	Sample Source	Quality Control Summary				Analytical Method	Component
			# Samples[a]	TB	EB	FD		
Annual	water	groundwater	1	X	1	X	8270C	p-Nitrophenol
Annual	water	groundwater	1	X	1	X	8270C	4-Nitroquinoline-1-oxide
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosodi-n-butylamine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosodiethylamine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosodimethylamine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosodiphenylamine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosodipropylamine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosomethylethylamine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosomorpholine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosopiperidine
Annual	water	groundwater	1	X	1	X	8270C	N-Nitrosopyrrolidine
Annual	water	groundwater	1	X	1	X	8270C	5-Nitro-o-toluidine
Annual	water	groundwater	1	X	1	X	8270C	Parathion
Annual	water	groundwater	1	X	1	X	8270C	Pentachlorobenzene
Annual	water	groundwater	1	X	1	X	8270C	Pentachloronitrobenzene
Annual	water	groundwater	1	X	1	X	8270C	Pentachlorophenol
Annual	water	groundwater	1	X	1	X	8270C	Phenacetin
Annual	water	groundwater	1	X	1	X	8270C	Phenanthrene
Annual	water	groundwater	1	X	1	X	8270C	Phenol
Annual	water	groundwater	1	X	1	X	8270C	p-Phenylene diamine
Annual	water	groundwater	1	X	1	X	8270C	Phorate
Annual	water	groundwater	1	X	1	X	8270C	Pronamide
Annual	water	groundwater	1	X	1	X	8270C	Pyrene
Annual	water	groundwater	1	X	1	X	8270C	Safrole
Annual	water	groundwater	1	X	1	X	9030B/EPA 376.2	Sulfide
Annual	water	groundwater	1	X	1	X	8270C	1,2,4,5-Tetrachlorobenzene

Table 3-2
Proposed Samples, Matrices, And Analytical Methods For OBU Groundwater
(Modified Addendix Ix Analysis)

The standard criteria outlined in FDEP Rule 62-550 are the detection limit criteria for this project unless otherwise stated in the permit. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

Frequency	Sample Matrix	Sample Source	Quality Control Summary				Analytical Method	Component
			# Samples[a]	TB	EB	FD		
Annual	water	groundwater	1	X	1	X	8270C	2,3,4,6-Tetrachlorophenol
Annual	water	groundwater	1	X	1	X	8270C	o-Toluidine
Annual	water	groundwater	1	X	1	X	8270C	1,2,4-Trichlorobenzene
Annual	water	groundwater	1	X	1	X	8270C	2,4,5-Trichlorophenol
Annual	water	groundwater	1	X	1	X	8270C	2,4,6-Trichlorophenol
Annual	water	groundwater	1	X	1	X	8270C	0,0,0-Triethyl phosphorothioate
Annual	water	groundwater	1	X	1	X	8270C	Sym-trinitrobenzene
Annual	water	groundwater	1	X	1	X	9012A/EPA 335.2	Cyanide

Notes:

DEP SOP = Florida Department of Environmental Protection Standard Operating Procedures.
EB = Equipment Blank.
EPA-1 = Methods for Chemical Analysis of Water and Waste, USEPA Cincinatti, EPA-600/4-79-020, revised March 1983 and 1979.
FD = Field duplicated.
FL PRO = Florida Petroleum Range Organics.
NELAP = National Environmental Laboratory Accreditation Program.
RDX = cyclo-1,3,5-trimethylene-2,4,5-trinitramine.
TB = Trip Blank.
USATHAMA = United States Army Toxic and Hazardous Materials Agency.
X = Not required.

[a] The permittee shall determine in August of each calendar year the concentration of each constituent from the 40 Code of Federal Regulations (CFR) Part 264, Appendix IX list, less pesticides, herbicides, dioxins, PCBs, and furans. This sampling shall be conducted at the point of compliance well or wells most representative of groundwater quality as approved by FDEP.

Table 3-3
Proposed Samples, Matrices, And Analytical Methods For OBU Soil Quality Monitoring

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

ALTERNATIVE FIELD PROCEDURES FOR SOIL QUALITY MONITORING (SEMIANNUAL PARTICULATE MONITORING) ARE DESCRIBED IN ATTACHMENT II.M.5 OF THE PERMIT APPLICATION. THESE PROCEDURES ARE PERMITTED UNDER PART III, SPECIFIC CONDITION 1 OF PERMIT # 16099-006-HO.

SOIL QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SCHEDULE PRESENTED IN TABLE II.M.5-11 OF THE CURRENT PERMIT APPLICATION.

			Quality Control Summary					
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[a]**	**TB**	**EB**	**FD**	**Analytical Method**	**Component**
[b]	soil	soil	18	X	2	2	USATHAMA	Pentarythrite tetranitrate (PETN) tetranitrate (PETN)
[b]	soil	soil	18	X	2	2	8330	Cyclotetramethylene tetranitramine (HMX)
[b]	soil	soil	18	X	2	2	8270B	1-methylaminoanthraquinone
[b]	soil	soil	18	X	2	2	8270B	Diphenylamine
[b]	soil	soil	18	X	2	2	6010	Antimony
[b]	soil	soil	18	1	2	2	8260A	Styrene
[b]	soil	soil	18	X	2	2	7060/6010B	Arsenic
[b]	soil	soil	18	X	2	2	6010	Barium
[b]	soil	soil	18	X	2	2	6010	Boron
[b]	soil	soil	18	X	2	2	6010	Cadmium
[b]	soil	soil	18	X	2	2	6010	Chromium
[b]	soil	soil	18	X	2	2	7196A	Hexavalent Chromium
[b]	soil	soil	18	X	2	2	6010	Copper
[b]	soil	soil	18	X	2	2	7421/6010B	Lead
[b]	soil	soil	18	X	2	2	6010	Magnesium
[b]	soil	soil	18	X	2	2	6010	Manganese
[b]	soil	soil	18	X	2	2	7471	Mercury
[b]	soil	soil	18	X	2	2	6010	Nickel
[b]	soil	soil	18	X	2	2	6010	Potassium
[b]	soil	soil	18	X	2	2	6010	Strontium
[b]	soil	soil	18	X	2	2	6010	Titanium
[b]	soil	soil	18	X	2	2	6010B/SM 3111B	Tungsten
[b]	soil	soil	18	X	2	2	6010	Zinc
[b]	soil	soil	18	X	2	2	6010	Zirconium
[b]	soil	soil	18	X	2	2	EPA-1 300.1	Chloride
[b]	soil	soil	18	X	2	2	EPA-1 340.2	Modified Fluoride
[b]	soil	soil	18	X	2	2	EPA-1 353.2/SW 9056	Modified Total Nitrogen (as Nitrate + Nitrite)
[b]	soil	soil	18	X	2	2	FL-PRO	Petroleum Hydrocarbons
[b]	soil	soil	18	X	2	2	ASTM D2216-80	Percent Moisture

Table 3-3
Proposed Samples, Matrices, And Analytical Methods For OBU Soil Quality Monitoring

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01. LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

ALTERNATIVE FIELD PROCEDURES FOR SOIL QUALITY MONITORING (SEMIANNUAL PARTICULATE MONITORING) ARE DESCRIBED IN ATTACHMENT II.M.5 OF THE PERMIT APPLICATION. THESE PROCEDURES ARE PERMITTED UNDER PART III, SPECIFIC CONDITION 1 OF PERMIT # 16099-006-HO.

SOIL QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SCHEDULE PRESENTED IN TABLE II.M.5-11 OF THE CURRENT PERMIT APPLICATION.

			Quality Control Summary					
Frequency	Sample Matrix	Sample Source	# Samples[a]	TB	EB	FD	Analytical Method	Component
[b]	soil	soil	18	1	2	2	8260A	Acetone
[b]	soil	soil	18	1	2	2	8260A	Isopropanol (2-propanol)
[b]	soil	soil	18	X	2	2	USATHAMA LF03	Nitrocellulose
[b]	soil	soil	18	X	2	2	USATHAMA	Nitroglycerin
[b]	soil	soil	18	X	2	2	USATHAMA	PETN
[b]	soil	soil	18	X	2	2	8330	RDX
[b]	soil	soil	18	X	2	2	8330	2,4-Dinitrotoluene
[b]	soil	soil	18	X	2	2	8330	Nitrobenzene
[d]	soil	soil	18	X	2	2	8331	Tetrazine
[b]	wipe	station fabric	8	X	1	1	USATHAMA	Pentarythrite tetranitrate (PETN) tetranitrate (PETN)
[b]	wipe	station fabric	8	X	1	1	8330	Cyclotetramethylene tetranitramine (HMX)
[b]	wipe	station fabric	8	X	1	1	8270B	1-methylaminoanthraquinone
[b]	wipe	station fabric	8	X	1	1	8270B	Diphenylamine
[b]	wipe	station fabric	8	X	1	1	6010	Antimony
[b]	wipe	station fabric	8	1	1	1	8260A	Styrene
[b]	wipe	station fabric	8	X	1	1	7060/6010B	Arsenic
[b]	wipe	station fabric	8	X	1	1	6010	Barium
[b]	wipe	station fabric	8	X	1	1	6010	Boron
[b]	wipe	station fabric	8	X	1	1	6010	Cadmium
[b]	wipe	station fabric	8	X	1	1	6010	Chromium
[b]	wipe	station fabric	8	X	1	1	7196A	Hexavalent Chromium
[b]	wipe	station fabric	8	X	1	1	6010	Copper
[b]	wipe	station fabric	8	X	1	1	7421/6010B	Lead
[b]	wipe	station fabric	8	X	1	1	6010	Magnesium
[b]	wipe	station fabric	8	X	1	1	6010	Manganese
[b]	wipe	station fabric	8	X	1	1	7471	Mercury
[b]	wipe	station fabric	8	X	1	1	6010	Nickel
[b]	wipe	station fabric	8	X	1	1	6010	Potassium
[b]	wipe	station fabric	8	X	1	1	6010	Strontium
[b]	wipe	station fabric	8	X	1	1	6010	Titanium

Table 3-3
Proposed Samples, Matrices, And Analytical Methods For OBU Soil Quality Monitoring

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01. LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

ALTERNATIVE FIELD PROCEDURES FOR SOIL QUALITY MONITORING (SEMIANNUAL PARTICULATE MONITORING) ARE DESCRIBED IN ATTACHMENT II.M.5 OF THE PERMIT APPLICATION. THESE PROCEDURES ARE PERMITTED UNDER PART III, SPECIFIC CONDITION 1 OF PERMIT # 16099-006-HO.

SOIL QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SCHEDULE PRESENTED IN TABLE II.M.5-11 OF THE CURRENT PERMIT APPLICATION.

			Quality Control Summary					
Frequency	Sample Matrix	Sample Source	# Samples[a]	TB	EB	FD	Analytical Method	Component
[b]	wipe	station fabric	8	X	1	1	SW 6010B/SM 3111B	Tungsten
[b]	wipe	station fabric	8	X	1	1	6010	Zinc
[b]	wipe	station fabric	8	X	1	1	6010	Zirconium
[b]	wipe	station fabric	8	X	1	1	EPA-1 300.1	Chloride
[b]	wipe	station fabric	8	X	1	1	EPA-1 340.2	Modified Fluoride
[b]	wipe	station fabric	8	X	1	1	EPA-1 353.2/SW 9056	Modified Total Nitrogen (as Nitrate + Nitrite)
[b]	wipe	station fabric	8	X	1	1	FL-PRO	Petroleum Hydrocarbons
[b]	wipe	station fabric	8	X	1	1	ASTM D2216-80	Percent Moisture
[b]	wipe	station fabric	8	1	1	1	8260A	Acetone
[b]	wipe	station fabric	8	1	1	1	8260A	Isopropanol (2-propanol)
[b]	wipe	station fabric	8	X	1	1	USATHAMA LF03	Nitrocellulose
[b]	wipe	station fabric	8	X	1	1	USATHAMA	Nitroglycerin
[b]	wipe	station fabric	8	X	1	1	USATHAMA	PETN[f]
[b]	wipe	station fabric	8	X	1	1	8330	RDX
[b]	wipe	station fabric	8	X	1	1	8330	2,4-Dinitrotoluene
[b]	wipe	station fabric	8	X	1	1	8330	Nitrobenzene
[d]	wipe	station fabric	8	X	1	1	8331	Tetrazine
[b]	water	rain water[c]	8	X	1	1	USATHAMA	Pentarythrite tetranitrate (PETN) tetranitrate (PETN)
[b]	water	rain water[c]	8	X	1	1	8330	Cyclotetramethylene tetranitramine (HMX)
[b]	water	rain water[c]	8	X	1	1	8270B	1-methylaminoanthraquinone
[b]	water	rain water[c]	8	X	1	1	8270B	Diphenylamine
[b]	water	rain water[c]	8	X	1	1	6010	Antimony
[b]	water	rain water[c]	8	1	1	1	8260A	Styrene
[b]	water	rain water[c]	8	X	1	1	7060/6010B	Arsenic
[b]	water	rain water[c]	8	X	1	1	6010	Barium
[b]	water	rain water[c]	8	X	1	1	6010	Boron
[b]	water	rain water[c]	8	X	1	1	6010	Cadmium
[b]	water	rain water[c]	8	X	1	1	6010	Chromium
[b]	water	rain water[c]	8	X	1	1	7196A	Hexavalent Chromium
[b]	water	rain water[c]	8	X	1	1	6010	Copper

Table 3-3
Proposed Samples, Matrices, And Analytical Methods For OBU Soil Quality Monitoring

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01. LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

ALTERNATIVE FIELD PROCEDURES FOR SOIL QUALITY MONITORING (SEMIANNUAL PARTICULATE MONITORING) ARE DESCRIBED IN ATTACHMENT II.M.5 OF THE PERMIT APPLICATION. THESE PROCEDURES ARE PERMITTED UNDER PART III, SPECIFIC CONDITION 1 OF PERMIT # 16099-006-HO.

SOIL QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SCHEDULE PRESENTED IN TABLE II.M.5-11 OF THE CURRENT PERMIT APPLICATION.

			Quality Control Summary					
Frequency	Sample Matrix	Sample Source	# Samples[a]	TB	EB	FD	Analytical Method	Component
[b]	water	rain water[c]	8	X	1	1	7421/6010B	Lead
[b]	water	rain water[c]	8	X	1	1	6010	Magnesium
[b]	water	rain water[c]	8	X	1	1	6010	Manganese
[b]	water	rain water[c]	8	X	1	1	7471	Mercury
[b]	water	rain water[c]	8	X	1	1	6010	Nickel
[b]	water	rain water[c]	8	X	1	1	6010	Potassium
[b]	water	rain water[c]	8	X	1	1	6010	Strontium
[b]	water	rain water[c]	8	X	1	1	6010	Titanium
[b]	water	rain water[c]	8	X	1	1	6010B/SM 3111B	Tungsten
[b]	water	rain water[c]	8	X	1	1	6010	Zinc
[b]	water	rain water[c]	8	X	1	1	6010	Zirconium
[b]	water	rain water[c]	8	X	1	1	EPA-1 300.1	Chloride
[b]	water	rain water[c]	8	X	1	1	EPA-1 340.2	Modified Fluoride
[b]	water	rain water[c]	8	X	1	1	EPA-1 353.2/SW 9056	Modified Total Nitrogen (as Nitrate + Nitrite)
[b]	water	rain water[c]	8	X	1	1	FL-PRO	Petroleum Hydrocarbons
[b]	water	rain water[c]	8	X	1	1	ASTM D2216-80	Percent Moisture
[b]	water	rain water[c]	8	1	1	1	8260A	Acetone
[b]	water	rain water[c]	8	1	1	1	8260A	Isopropanol (2-propanol)
[b]	water	rain water[c]	8	X	1	1	USATHAMA LF03	Nitrocellulose[f]
[b]	water	rain water[c]	8	X	1	1	USATHAMA	Nitroglycerin[f]
[b]	water	rain water[c]	8	X	1	1	USATHAMA	PETN[f]
[b]	water	rain water[c]	8	X	1	1	8330	RDX
[b]	water	rain water[c]	8	X	1	1	8330	2,4-Dinitrotoluene
[b]	water	rain water[c]	8	X	1	1	8330	Nitrobenzene
[d]	water	rain water[c]	8	X	1	1	8331	Tetrazine

Notes:

ASTM	=	American Society for Testing and Materials
DEP SOP	=	Florida Department of Environmental Protection Standard Operating Procedures
EB	=	Equipment Blank
EPA-1	=	Methods for Chemical Analysis of Water and Waste, USEPA Cincinatti, EPA-600/4-79-020, revised March 1983 and 1979.
FD	=	Field duplicated
FL PRO	=	Florida Petroleum Range Organics
NELAP	=	National Environmental Laboratory Accreditation Program
RDX	=	cyclo-1,3,5-trimethylene-2,4,5-trinitramine.
TB	=	Trip Blank
USATHAMA	=	United States Army Toxic and Hazardous Materials Agenc
X	=	Not required.

[a] Maximum number of groundwater samples per event. Number of samples may be reduced for certain parameters depending on the analytical suite required. Analytical suites (A and B) are listed in Tables II.M.5-7 and II.M.5-8 of the current permit application.

[b] Sampling frequency is listed in Table II.M.5-11 of the current permit application.

[c] Rainwater will be collected from the sample station (collection pans). If insufficient quantities are present for full sample analysis, field dilution should be performed using deionized water. Field recording of dilution factors is required for determining mass quantities based on laboratory results.

[d] Tetrazine will be analyzed if a NELAP laboratory is found to conduct the analysis.

Table 3-4
Proposed Samples, Matrices, And Analytical Methods For IWTP Groundwater

The approved method detection limit (MDL) and practical quantification limit (PQL) for each parameter listed below are provided in Part I.B.1 of Permit # FLA011825.

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	**DEP-SOP #**
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

			Quality Control Summary						
Frequency	**Sample Matrix**	**Sample Source**	**# Samples[b]**	**TB**	**EB**	**FD**	**Analytical Method**		**Component**
Semi-annual	water	groundwater	3	X	1	X	EPA	6010B/218.2/218.2/200.7	Total Chromium
Semi-annual	water	groundwater	3	X	1	X	EPA	160.1	Total Dissolved Solids
Semi-annual	water	groundwater	3	X	1	X	EPA	353.2/353.1/353.3	Nitrate + Nitrite (as Nitrogen)
Weekly	water	discharge wastewater	1	X	X	X	EPA	6010B/218.2/218.2/200.7	Total Chromium
Weekly	water	discharge wastewater	1	X	X	X	EPA	218.4/7196A	Hexavalent Chromium
Weekly	water	discharge wastewater	1	X	X	X	EPA	6010B/289.2/289.2/200.7	Zinc
Monthly	water	discharge wastewater	1	X	X	X	EPA	353.2/353.1/353.3	Nitrate + Nitrite (as Nitrogen)
[a]	water	groundwater	3	X	1	X		7041/6010B	Antimony
[a]	water	groundwater	3	X	1	X		6010B	Arsenic
[a]	water	groundwater	3	X	1	X		6010B	Barium
[a]	water	groundwater	3	X	1	X		6010B	Beryllium Chromium
[a]	water	groundwater	3	X	1	X		6010B	Cadmium
[a]	water	groundwater	3	X	1	X		6010B	Chromium
[a]	water	groundwater	3	X	1	X	EPA/SW	335.2/SW 9012A	Cyanide
[a]	water	groundwater	3	X	1	X		9056	Fluoride
[a]	water	groundwater	3	X	1	X		6010B	Lead
[a]	water	groundwater	3	X	1	X		7470A	Mercury
[a]	water	groundwater	3	X	1	X		6010B	Nickel
[a]	water	groundwater	3	X	1	X	EPA	353.2/353.1/353.3	Nitrate (as Nitrogen)
[a]	water	groundwater	3	X	1	X	EPA	353.3/354.1	Nitrite (as Nitrogen)
[a]	water	groundwater	3	X	1	X		6010B	Selenium
[a]	water	groundwater	3	X	1	X		6010B	Sodium
[a]	water	groundwater	3	X	1	X		7841/6010B	Thallium
[a]	water	groundwater	3	X	1	X		6010B	Aluminum
[a]	water	groundwater	3	X	1	X		9056	Chloride
[a]	water	groundwater	3	X	1	X		6010B	Copper
[a]	water	groundwater	3	X	1	X		6010B	Iron

Table 3-4
Proposed Samples, Matrices, And Analytical Methods For IWTP Groundwater

The approved method detection limit (MDL) and practical quantification limit (PQL) for each parameter listed below are provided in Part I.B.1 of Permit # FLA011825.

FIELD MEASUREMENTS WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.

PARAMETER	DEP-SOP #
pH	FT-1100
Conductivity	FT-1200
Temperature	FT-1400
Turbidity	FT-1600

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH DEP-SOP-001/01.
LABORATORY ANALYSES WILL BE CONDUCTED BY NELAP LABORATORIES.

Frequency	Sample Matrix	Sample Source	Quality Control Summary				Analytical Method		Component
			# Samples[b]	TB	EB	FD			
[a]	water	groundwater	3	X	1	X		6010B	Manganese
[a]	water	groundwater	3	X	1	X		6010B	Silver
[a]	water	groundwater	3	X	1	X	EPA-1	375.4	Sulfate
[a]	water	groundwater	3	X	1	X		6010B	Zinc
[a]	water	groundwater	4	X	2	X	EPA-1	110.2	Color
[a]	water	groundwater	5	X	3	X		2150B	Odor
[a]	water	groundwater	6	X	4	X	EPA	160.1	Total Dissolved Solids
[a]	water	groundwater	7	X	5	X		5540C	Foaming Agents

Notes:

DEP SOP = Florida Department of Environmental Protection Standard Operating Procedures
EB = Equipment Blank
EPA-1 = Methods for Chemical Analysis of Water and Waste, USEPA Cincinatti, EPA-600/4-79-020, revised March 1983 and 1979.
FD = Field duplicated
IWTP = Industrial Wastewater Treatment Plan
NELAP = National Environmental Laboratory Accreditation Program
TB = Trip Blank
X = Not required.

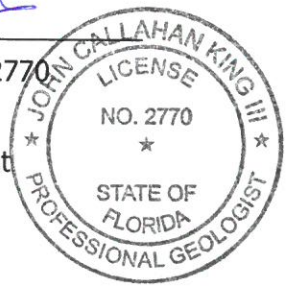
[a] Analyses to be performed 180 days prior to permit expiration.
[b] Number of groundwater samples per event

II.M.12
Professional Geologist Certification

I hereby certify that I have reviewed the information included in Part II.M of this permit renewal application in accordance with sound geological practice pursuant to Chapter 492 of the Florida Statutes.

John C. King III, P.G. PG2770
EnSafe Inc.
Project Manager/ Geologist

7/25/16
Date



Part II.O
Exposure Information

II.O.1
Potential Releases

The FDEP requires that COR identify any reasonably foreseeable potential releases from both normal operations and accidents at the unit, including releases associated with transportation to or from the OBU. COR has identified reasonably foreseeable releases both from normal operations and accidents. This attachment identifies the potential release sources, which are summarized in Table II.O.1-1. Discussions of the nature and magnitude of the potential releases are presented in Attachment II.O.3.

II.O.1.a Releases from Normal Operations

Open Burn Unit

Normal operation of the OBU results in releases of constituents to the air. These releases are in the form of gases and particulates. Between 1996 and 1997, soil and groundwater sampling was conducted quarterly at the OBU. Since 1998, soil and groundwater sampling has been conducted on a semi-annual basis at the OBU. The results of these sampling efforts are presented in Attachments II.M.5 and II.M.6. Quarterly air monitoring was conducted at the OBU before 1997 and semi-annually from 1998 to February 2000. No measurable impacts of OBU emissions to the environment were observed and the air monitoring program was discontinued in accordance with the current permit conditions.

The OBU is designed to contain the majority of particulates or partially burned materials that may be ejected from the burn pans during normal burning operations and/or that result from fallout. The design minimizes any particulate fallout that is not within the controlled borders of the unit.

Soil data collected over the last 10 years at the OBU indicate that certain impacts to the surrounding soils were caused by OBU operations. Groundwater data collected since 1998 indicate that OBU operations had minimal impact to groundwater. The results of the air assessment indicated that there were no measurable impacts to air during normal operation of the OBU.

The potential for releases to the surface or groundwater from normal operations is negligible. The closest surface water body is more than 0.95 mile southeast of the OBU. The air modeling performed in conjunction with the previous permit application demonstrated that the concentrations of any air contaminants that had the potential to reach this surface water body were relatively minor.

The surface water and groundwater are both protected from releases associated with precipitation runoff via the precipitation management procedures that have been designed into the OBU. Specifically, rainwater is prevented from contacting the burn residues through the use of covers. Both the individual burn pads and the overall OBU are covered when not in use.

Since the OBU does not operate during adverse weather conditions (i.e., winds greater than 15 mph or indications of imminent rain), there are only two opportunities for rainwater to contact residues. The first is in the event of a sudden storm prior to, during, or immediately after a burn event; the second opportunity is after a failure in the cover. In either instance, if the amount of water is less than 50 gallons it will be allowed to evaporate naturally leaving the residue behind. If the amount of water is greater than 50 gallons, then the water will be containerized and characterized for toxicity using TCLP concentrations, as listed in 40 CFR 261.24, Table 1, prior to disposal. No rainwater that has contacted the residues inside the burn unit will be discharged to the ground surface unless the test results indicate that it is non-hazardous and meets the GCTLs.

It also has been demonstrated historically, as can be seen in Part II.M, that any particulates that may land outside the containment area have not impacted the groundwater quality. In fact, the soil data indicate that the impacts on soil are limited mainly to the upper 6 inches; therefore, impacts on groundwater from the OBU operation are not anticipated.

Transportation and Storage

The normal transportation and storage practices at the facility will not result in any foreseeable releases to the environment. In the event of a spill, the spill response procedures in the contingency plan would be implemented immediately. The response procedures call for the collection of all spilled residues and any visually impacted soils.

II.O.1.b Releases from System Upsets

Open Burn Unit

Three types of system upsets at the OBU are foreseeable. These upsets include premature burning, incomplete burning, and overflow of the containment pad. In the first instance, premature burning could result in particles landing outside the containment area and thereby impacting surficial soils. Procedures are in place, as described in Attachment II.I.5, to minimize the potential for premature burning.

Incomplete burning of the wastes is uncommon, but does occasionally occur. Incomplete combustion is generally visually distinguishable. The majority of materials that are burned result in de minimis quantities of residue, residues that have undergone a color change, or residues that exhibit a physically distinguishable change (e.g., wipes). The exceptions to this are the loaded 38s and miscellaneous subassemblies; however, these materials (38s and subassemblies) are burned inside a cage and will not be released from the unit even if they do not completely burn. If for any reason it is believed that incomplete burning has occurred, then the waste residues will be re-burned.

The third type of system upset at the OBU is overflow of the containment pad. As the containment pad will be covered during rain events, it is extremely unlikely that sufficient volumes of water could enter the containment pad area. If, however, the containment system was exceeded, precautions have been taken (i.e., covers on the burn pans) to minimize the contaminants that could be carried by the precipitation runoff.

Transportation and Storage

Spills of either the waste material or the treatment residues could occur during transport to and from the OBU. These spills could present an immediate airborne release. To minimize any airborne releases, spilled materials immediately will be covered with a temporary covering (i.e., visqueen) until such time as the spilled material can be cleaned up. The amount of material that could be involved is relatively small (less than two 55-gallon drums).

Some of the reactive wastes are neutralized for transport with acetone or diesel fuel. If a spill of liquid waste occurs, the contingency plan will be implemented to minimize or eliminate impacts to groundwater and soils.

Table II.O.1-1
Potential Releases and Impacted Media

Description of Potential Release	Media Potentially Impacted			
	Groundwater	**Surface Water**	**Soils (Surficial)**	**Air**
NORMAL OPERATIONS				
Open Burning	---	---	Minimal[a]	---
Transportation/Storage	---	---	---	---
SYSTEM UPSETS				
Premature Burning	---	---	Minimal	Minimal
Incomplete Burning	---	---	---	---
Overflow	Minimal	---	Minimal	---
Transportation/Storage	---	---	---	Minimal

Notes:
[a] See Part II.M
-- = De Minimis

II.O.2
Potential Pathways

There are no changes to the potential pathways since the previous permit application submittal.

II.O.3
Potential Magnitude

Attachment II.O.1 has identified the potential releases resulting for the operation of the OBU. This attachment addresses the potential magnitude and nature of exposures that could and do exist for each media.

Air

No significant changes to the OBU operations have occurred since the application for the current permit; therefore, the potential magnitude of exposure remains as documented in the original permit application.

Soil and Groundwater

Based on historical sampling results provided in the previous permit application, magnesium is the only constituent that elevated concentrations may potentially be detected in soil. As discussed in Attachment II.M.5, magnesium is not a health concern, and therefore, should have negligible risk to human health. Chromium, magnesium, manganese, and sulfide will be the constituents of concern in groundwater. As discussed in Attachment II.M.6, manganese is not an ingredient of COR's raw materials or products and majority of the sulfide concentrations is likely to be contributed by sources other than the OBU operations; therefore, they are not considered releases from the OBU operations. Chromium has been detected at concentrations slightly above the GCTL. The exceedences were sporadic and random. No "plume" seems to have formed and there are no signs to indicate that the chromium concentrations are migrating either laterally or vertically. The shallow groundwater is extremely low yield and is not being used for water supply; therefore, magnitude of the impacts is limited.

In summary, risk-associated potential exposures to constituents of interest at the OBU are expected to be within acceptable limits.

Part II.P
Information Regarding Potential Releases From SWMUs

P. Information Regarding Potential Releases From Solid Waste Management Units

Facility Name Chemring Ordnance, Inc.

EPA/DEP I.D. No. FLD 047 966 593

Facility location Perry, Florida
city state

1. Are there any of the following solid waste management units (existing or closed) at your facility? A solid waste management unit (SWMU) is a discernable unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include all areas at a facility where solid wastes have been routinely and systematically released.

DO NOT INCLUDE HAZARDOUS WASTE UNITS CURRENTLY SHOWN IN YOUR PART B APPLICATION.

landfill	☐ Yes	☑ No
surface impoundment	☑ Yes	☐ No
land farm	☐ Yes	☑ No
waste pile	☐ Yes	☑ No
incinerator	☐ Yes	☑ No
storage tank	☐ Yes	☑ No
container storage area	☐ Yes	☑ No
injection wells	☐ Yes	☑ No
wastewater treatment units	☑ Yes	☐ No
transfer station	☐ Yes	☑ No
waste recycling operations	☐ Yes	☑ No
land treatment facility	☐ Yes	☑ No
boiler/industrial furnace	☐ Yes	☑ No
other (units not listed above)	☐ Yes	☑ No

2. If there is a "yes" answer to any of the items in one (1.) above, on separate sheet(s) of paper, provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, focus on whether or not the wastes would be considered hazardous wastes or hazardous constituents under RCRA. (Hazardous wastes are those identified in 40 CFR Part 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.) Include any available data on quantities or volumes of wastes disposed of and the dates of disposal. Provide a description of each unit and include capacity, dimensions, and location at the facility. Provide a site plan, if available, and the dates of operation of the unit [40 CFR 270.14(d)(1)].

A facility map and current information about the units is provided in Part II.Q

3. On separate sheet(s) of paper, describe all data available on all prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or may still be occurring, for each unit noted in one (1.) above and also for each hazardous waste unit in your Part B application [40 CFR 270.14(d)(2)].

   Provide the following information for each SWMU:

   a. Date of release.
   b. Specifications of all wastes managed at the unit, to the extent available.
   c. Quantity or volume of waste released.
   d. Describe the nature of the release (i.e., spill, overflow, ruptured pipe or tank, etc.)
   e. Location of the unit on the topographic map provided under 40 CFR 270.14(b)(19).
   f. Designate the type of unit.
   g. General dimensions and structural description (supply any available drawings).
   h. Dates of operation.

SEE PARTS II.M AND PART II.Q

4. On separate sheet(s) of paper, provide for each unit all analytical data that may be available which would describe the nature and extent of the environmental contamination that exists as a result of the prior releases described in three (3.) above. Focus on the concentrations of hazardous wastes or constituents present in contaminated soil or groundwater [40 CFR 270.14(d)(3)].

   Historical analytical data has been previously provided to the FDEP.

Part II.Q
Information Requirements for SWMUs

II.Q
Information Requirements for Solid Waste Management Units

COR has attempted to identify current or former solid waste management units (SWMUs) at the facility. The locations of the units are presented in Figure II.Q-1 and Table II.Q-1. In the RCRA Facility Assessment (RFA) Report (dated July 1994), 87 SWMUs and six areas of concern (AOCs) were identified at the facility (A.T. Kearney, Inc. 1994). In this report, the OBU was initially identified as SWMU 18. The RFA identified 60 SWMUs/AOCs that required no further action and three SWMUs that required integrity testing. Confirmatory sampling was conducted at 21 SWMUs/AOCs and one study area. This work is documented in the Confirmatory Sampling Report (Ecology and Environment, Inc. [E & E] 1998a). In conjunction with the Confirmatory Sampling, a RCRA Facility Investigation (RFI) was performed for eight SWMUs (E & E 1998b). The status of the SWMUs where additional sampling or investigations have been performed since 1995 is documented in Table II.Q-1 as required in 40 CFR 270.14.

Information pertaining to the releases of hazardous waste or hazardous constituents from each unit has been documented in previous submittals to the FDEP and the EPA (E & E 1998a, 1998b). These previous submittals also include the results of sampling and analysis of relevant media for each SWMU.

In addition to the identified SWMUs at the facility, at various times, COR has had piles of construction debris throughout the facility. After the completion of the construction projects, these piles are removed.

COR has completed Corrective Measures at various SWMUs throughout the facility based on the Corrective Measures Study Work Plan for the facility (E & E 2000). Table II.Q-2 provides a summary of the available information and status for each SWMU for which Corrective Measures have been completed since 2000.

References

A.T. Kearney, Inc. 1994, RCRA Facility Assessment of Martin Electronics, Inc., Perry, Florida, July 1994, EPA I.D. No. FLD047966593, submitted to the U.S. EPA Region IV, Atlanta, Georgia.

Ecology and Environment Inc. (E & E), 1998a, Confirmatory Sampling Report for the Martin Electronics, Inc. Facility, Perry, Taylor County, Florida, August 1998, E & E, Tallahassee, Florida.

— 1998b, RCRA Facility Investigation Report for the Martin Electronics, Inc., Facility, Perry, Taylor County, Florida, August 1998, E & E, Tallahassee, Florida.

— 2000, Corrective Measures Study Work Plan for the Martin Electronics, Inc., Solid Waste Management Units Perry, Taylor County, Florida, January 2000, E & E, Tallahassee, Florida.

— 2001, Final Report on Corrective Action at the Martin Electronics, Inc., Solid Waste Management Units 19, 46, 47, 48, 55, 70, 73, 74, 75, and 85, Perry, Taylor County, Florida, January 2001, E & E, Tallahassee, Florida.

Table II.Q-1
Listing of SWMUs Documented in the RCRA Facility Inventory Report or the Confirmatory Sampling Report

SWMU/AOC	TYPE OF UNIT	Years In Operation	Wastes Managed	Status
SWMUs Previously Documented in the RCRA Facility Investigation Report (E & E 1998)				
19 Former Open Burn/Test Area	Thermal Treatment Area	1968 to early 1980s	Reactive hazardous waste (DO03) and possibly residue which is hazardous due to Lead or Barium toxicity (D008 and D005 respectively).	NFA
46 Zinc Dross/Fuse Disposal Area	Disposal Area	1968-approx. 1978	Zinc dross, M204 and M206 fuses, which reportedly contain zinc and possibly lead constituents..	NFA
47 North Landfill Area	Landfill	1968 to approx. 1978	Office refuse, construction/demolition debris, rusty pieces of general metal debris, and possibly detonated pyrotechnic wastes..	NFA
48 M42 Primers Landfill	Landfill	1968-approx. 1978	Office refuse, general construction debris, and M42 primers composed of lead stefanate, barium nitrate, tetrancene, antimony sulfide, and aluminum.	NFA
70 Former Sludge Drying Trenches	Landfill	1974-1983	Zinc and chromium sludge (D007).	NFA
73 Treated Wastewater Pipeline	Underground pipeline	Possibly 1974-1993	Treated wastewater, non-contact cooling water and deburring rinsewater.	NFA
74 Wastewater Discharge Ditch	Discharge area	1969-1993	Treated wastewater, non-contact cooling water and deburring rinsewater.	NFA
75 Percolation Pond	Percolation/Evaporation Impoundment	1969-present	Untreated plating wastewater containing cyanide, chromium, and zinc, as well as caustic and acidic rinses from 1968-1974. Treated wastewater since 1974.	Active
SWMUs Previously Documented in the Confirmatory Sampling Report (E & E 1998)				
20 Former Residue Drum Storage Area	Drum Storage Area	Approx. 1987-1992	Non-hazardous burn residue as well as residue that exhibited the toxicity characteristic for barium (D005), lead (D008), and/or chromium (D007).	NFA
22 Less-Than-90-Day Drum Storage Pad	Drum storage pad	Approx. 1985-present	Various nonhazardous wastes, and wastes generated throughout the facility including D001, D004, D007, D008, D011, F002, F003, and F005.	NFA
55 Zinc Wastewater Sump	Concrete sump	Approx. 1974-1994	Nonhazardous zinc wastewater; previously managed wastewater containing cyanide.	NFA
56 Chromium Wastewater Sump	Concrete sump	Approx. 1974-1994	Characteristic hazardous waste consisting of chromium wastewater (D007).	NFA
59 Temporary Sludge Holding Tank	Aboveground tank	1974-1992	Currently managing zinc sludge and/or wastewater. Previously managed chromium hydroxide sludge (D007).	NFA
60 Interim Zinc Wastewater Holding Tanks	Aboveground tanks	1974-1994	Wastewater containing zinc, and formerly cyanide.	NFA
61 Zinc Wastewater Treatment Tank	Aboveground tanks	1974-1994	Wastewater generated from zinc electroplating operations (non-cyanide alkaline electroplating).	NFA
62 Wastewater Treatment Piping	Aboveground and Underground piping	1974-1994	Zinc wastewater and sludge, as well as chromium wastewater and sludge (characteristic hazardous wastes D007).	NFA
65 Sludge Accumulation Area	Drum storage area (<90 days)	Approx. 1983-present	Zinc and chromium sludge from wastewater treatment tanks. The chromium hydroxide sludge is characteristic hazardous waste D007.	NFA

Table II.Q-1
Listing of SWMUs Documented in the RCRA Facility Inventory Report or the Confirmatory Sampling Report

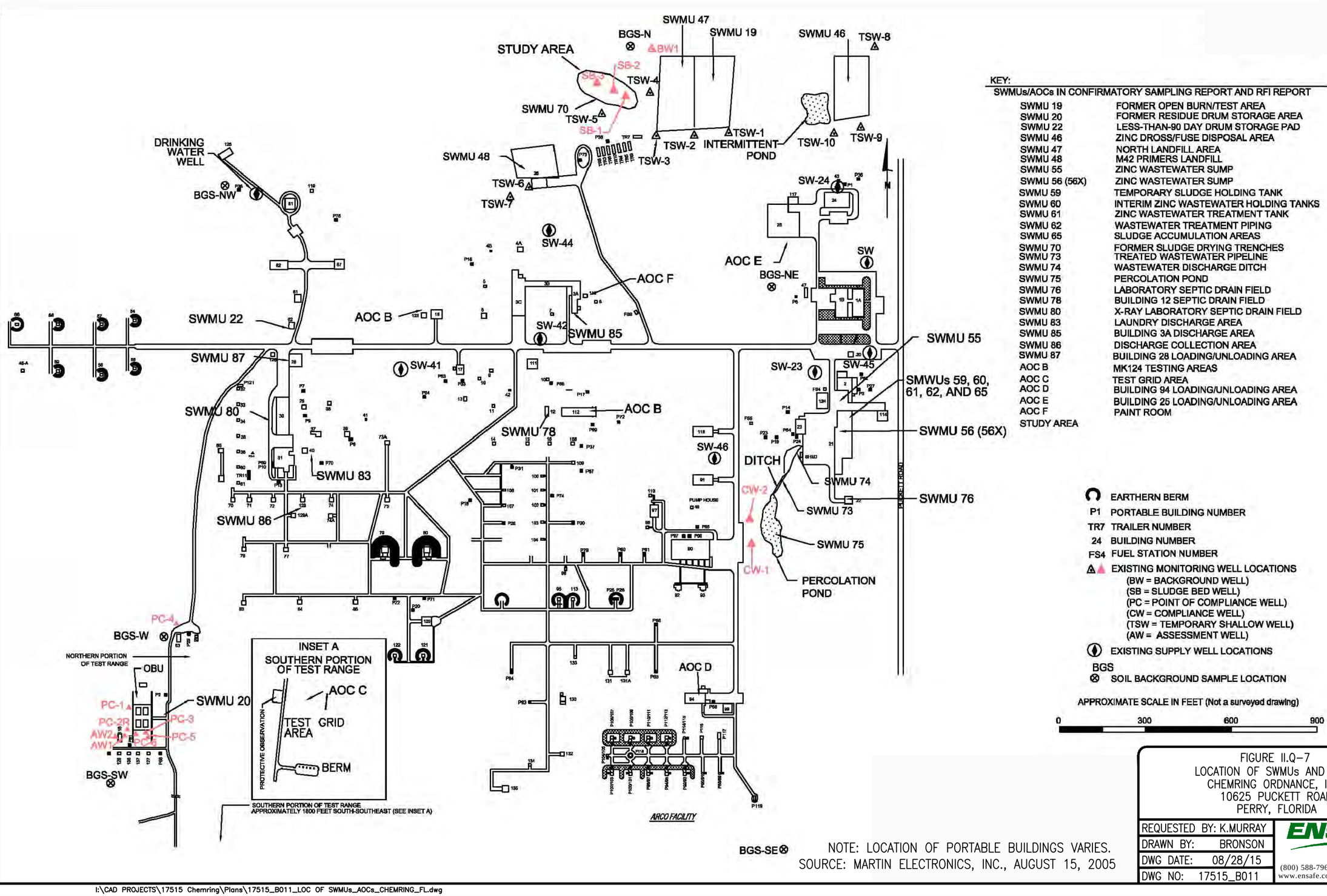
SWMU/AOC	TYPE OF UNIT	Years In Operation	Wastes Managed	Status
76 Laboratory Septic Drainfield	Septic system	1969-1992	Rinsewaters from the laboratory containing small amounts of maganese delay composition, lead azide, and RDX.	NFA
78 Building 12 Septic Drainfield	Septic system	Unknown to approx. 1992	Rinsewaters from cleaning and blending operation screens.	NFA
80 X-ray Laboratory Septic Drainfield	Septic system	Approx. 1985-1992	Wastewater from building 30 including rinsewater from developing x-rays, sanitary wastes, and possibly rinsewaters containing small quantities of nitrocellulose, phosphorous, acetone, M18 smoke dye mixes, magnesium teflon, charcoal, and sulfur.	NFA
83 Laundry Discharge Area	Discharge area and sump	1969-1992	Rinsewater possibly contaminated with lead or reactive materials.	NFA
85 Building 3A Discharge Area	Discharge Area	Approx. 1969-1992	Washwater which may have contaminated small quantities of paints, stencil ink, toluene, black powder, acetone, and nitrocellulose.	NFA
86 Discharge Collection Area	Discharge area	1969-1992	Rinsewater possibly contaminated with lead or reactive materials and rinsewaters possibly contaminated with small quantities of nitrocellulose, phosphorous, acetone, M18 smoke dye mixes, magnesium teflon, charcoal, and sulfur.	NFA
87 Building 28 Loading/Unloading Area	Loading/Unloading area	1978- present	Incoming shipments of raw materials, including solvent drums.	NFA
B MK124 Testing Areas	Product testing areas	January 1992-present	Residue from the firing of MK124 distress flares.	NFA
C Test Grid Area	Product testing area	Approx. 1990-present	Residue from the testing/detonation of the M76 flares.	NFA
D Building 94 Loading/Unloading Area	Loading/Unloading area	1991- present	Shipments of chemicals, metal and plastic parts, and smaller shipments of paints and solvents.	NFA
E Building 25 Loading/Unloading Area	Loading/Unloading area	Approx. 1985-present	Bulk shipments of chemicals, metal and plastic parts, and smaller shipments of paints and solvents.	NFA
F Paint Room	Materials management area	November 1991-present	Paints and solvents.	NFA
Study Area	Discharge area	Unknown	Waste material containing barium (D005) and chromium (D007) wastes.	NFA

Notes:
AOC = Area of Concern.
CFR = Code of Federal Regulations.
CMS = SWMU currently undergoing corrective measures.
EPA = United States Environmental Protection Agency.
FDEP = Florida Department of Environmental Protection.
NFA = No further action.
RCRA = Resource Conservation and Recovery Act.
SCTL = Soil Cleanup Target Level.
SWMU = Solid Waste Management Unit.

Table II.Q-2
Summary of Corrective Measures Completed in 2000
Chemring Ordnance, Inc., OBU Operating Permit Application

SWMU Number	SWMU Description	Prior Corrective Measures Performed	Environmental Concerns	Corrective Measures Completed in 2000 and Current Status
19	Former Open Test Burn area	Monitoring Wells Abandoned	Magnesium, titanium, and zirconium in soil in excess of background concentrations.	Evaluated facility specific background soil data for magnesium, titanium and zirconium and conducted a comparison of the concentrations detected at the site; NFA.
46	Zinc Dross/Fuse Disposal Area	Monitoring Wells Abandoned	None	NFA.
47	North Landfill Area	None	Benzo(a)pyrene and dibenzo(a,h)anthracene in soil in excess of industrial SCTLs; and Magnesium, titanium, and zirconium in soil.	Excavation and disposal of 310 tons of soil with Benzo(a)pyrene and dibenzo(a,h)anthracene in soil in excess of industrial SCTLs; confirmatory sampling performed in November and December 2000; NFA.
48	M42 Primers Landfill	Excavation and disposal of contaminated soil (~26 ft^3), confirmatory sampling, and monitoring wells abandoned	None	Excavation and disposal of ~26 cubic feet of soil with arsenic concentration in excess of industrial SCTLs; Monitoring well abandoned in July 2000; NFA.
55	Zinc Wastewater Sump	Excavation (~ 4 yd^3) and confirmatory sampling performed.	Benzo(a)pyrene and dibenzo(a,h)anthracene in soil in excess of industrial SCTLs.	Excavation and disposal of 5.8 cubic yards of soil with Benzo(a)pyrene and dibenzo(a,h)anthracene in soil in excess of industrial SCTLs; confirmatory sampling performed in August 2000; NFA.
70	Former Sludge Drying Trenches	Monitoring Wells Abandoned	None	Monitoring well abandoned in July 2000; NFA.
73	Treated Wastewater Pipeline	Excavation and disposal of pipeline debris (~20 yd^3)	None	Excavation and disposal of ~20 cubic yards of pipeline debris; NFA.
74	Wastewater Discharge Ditch	Excavation and disposal of contaminated soil (~13.5 yd^3)	Arsenic in subsurface soil in excess of industrial SCTLs.	Excavation and disposal of ~8.6 cubic feet of soil with arsenic concentration in excess of industrial SCTLs; Additional excavation and disposal of 10.6 cubic yards of soil; Confirmatory sampling performed in August 2000; NFA.
75	Percolation Pond	Excavation and disposal of contaminated soil and confirmatory sampling	Arsenic and chromium in sediments in excess of sediment quality assessment guidelines; and Continual discharge of treated wastewater to the pond from the plating operations in Building 21.	Excavation and disposal of 24.5 tons of sediments with arsenic and chromium concentrations in excess of industrial SCTLs; Confirmatory sampling performed in February 1999; The pond is still active.
85	Building 3A Discharge Area	None	None	NFA.

Notes:
BNA= Base-neutral acid extractable.
CFR= Code of Federal Regulations.
EPA = United States Environmental Protection Agency.
FDEP = Florida Department of Environmental Protection.
NFA = No further action.
RCRA = Resource Conservation and Recovery Act.
SCTL = Soil Cleanup Target Level.
SWMU = Solid Waste Management Unit



NOTE: LOCATION OF PORTABLE BUILDINGS VARIES.
SOURCE: MARTIN ELECTRONICS, INC., AUGUST 15, 2005

FIGURE II.Q-7
LOCATION OF SWMUs AND AOCs
CHEMRING ORDNANCE, INC.
10625 PUCKETT ROAD
PERRY, FLORIDA

REQUESTED BY:	K.MURRAY
DRAWN BY:	BRONSON
DWG DATE:	08/28/15
DWG NO:	17515_B011

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Part II.R
Process Vents — Subpart AA

II.R
Process Vents
Subpart AA

Subpart AA does not apply to COR. No process vents associated with distillation, fractionation, thin film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 parts per million by weight (ppmw) are present at the facility.

Part II.S
Equipment — Subpart BB

II.S
Equipment
Subpart BB

No equipment subject to Subpart BB requirements is associated with the unit that is the subject of this operating permit application.