Maryland Department of the Environment

Solid Waste Program

Controlled Hazardous Substance (CHS) Permit

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Maryland
Department of
the Environment

CHS PERMIT A-190
EPA ID No. MD3210021355

Permittee: (owner)	U.S. Army Garrison Aberdeen Proving Ground Aberdeen Proving Ground, Maryland 21005-5001

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OUTLINE OF PERMIT

Outline of Permit (continued)

Outline of Permit (continued)

Outline of Permit (continued)

ACRONYMS, SYMBOLS AND CHEMICAL NAMES

µg	microgram
A&E	ammunition and explosives
ACANF	Aberdeen Chemical Agency Neutralization Facility
ACGIH	American Conference of Governmental Industrial Hygienists
AEC	Activity Environmental Coordinator
AEGL	Acute Exposure Guideline Level
AERMOD	AMS EPA Regulatory Model
AFSS	Advanced Fragment Suppression System
AHU	Air Handling Unit
AMCR	Army Materiel Command Regulation
ANSI	American National Standards Institute
APA	Air Pathway Assessment
APE	Ammunition Peculiar Equipment
APG	Aberdeen Proving Ground
APGR	Aberdeen Proving Ground Regulation
API	American Petroleum Institute
AR	Army Regulation
ARARS	applicable or relevant and appropriate requirements
AS	analysis sheet
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATC	Aberdeen Test Center
ATEC	Army Test and Evaluation Command
BDP	biological defense program
BDV	Burster Detonation Vessel
BMBL	Biosafety in Microbiological and Biomedical Labs
BMIR	Biological Mishap or Incident Response
BRAC	Base Realignment and Closure
BRASB	Bush River Area Storage Bay
BSL3	biosafety level-3
ºC	degrees Celsius

C5ISR	Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance
CAA	Central Accumulation Area
CAIRA	Chemical Accident or Incident Response and Assistance
CARA	CBRNE Analytical Remediation Activity
CBARR	Chemical Biological Applications and Risk Reduction
CBC	Chemical Biological Center
CBR	chemical, biological, and radiological
CBRNE	Chemical Biological Radiological Nuclear and High Yield Explosives
CCTV	closed-circuit television
CDC	Centers for Disease Control and Prevention, or Controlled Detonation Chamber
CECOM	Communications Electronics Command
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CET	Certified Environmental Trainer
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CHATS	Chemical Agent Transfer System
CHS	Controlled Hazardous Substances
cm/yr	centimeters per year
CMA	Chemical Materials Activity
COMAR	Code of Maryland Regulations
COPC	chemical of potential concern
COPEC	contaminant of potential ecological concern
COR	Contracting Officer's Representative
CPR	cardiopulmonary resuscitation
CSAC	Chemical Security and Analysis Center
CSC	conical-shaped charge
CTF	Chemical Transfer Facility
CWC	Chemical Weapons Convention
CWM	chemical warfare materiel
DA	U.S. Department of the Army
DAAMS	Depot Area Air Monitoring System
DAPAM	Department of the Army Pamphlet

DAS	data analysis sheet
DB	database
DDA	Designated Disposal Authority
DDESB	Department of Defense Explosives Safety Board
DEA	Drug Enforcement Administration
DEVCOM	Combat Capabilities Development Command
DF	dispersion factor
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DO	Directorate of Operations
DoD	Department of Defense
DOT	Department of Transportation
DPW	Directorate of Public Works
DRCT	digital radiography-computerized tomography
EA	Edgewood Area
EC	emergency coordinator
ECC	Explosive Containment Chamber
ECS	Environmental Control System
ECTFE	ethylene chlorotrifluoroethylene
ED	Environmental Division
EDS	Explosive Destruction System
EE	environmental enclosure
EF	emission factor
EML	Environmental Monitoring Laboratory
EOC	Emergency Operations Center
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
EPDM	ethylene propylene diene monomer
ERA	Ecological Risk Assessment
ERP	Emergency Response Plan
ERPRP	Environmental Release, Prevention, and Response Plan
EST	Eastern Standard Time
ETO	Explosive Test Operator

°F	degrees Fahrenheit
FBI	Federal Bureau of Investigation
FHMT	Filters and Hazardous Materials Team
FM	titanium tetrachloride
FMS	Facility Management System
Fpm	feet per minute
FRP	fiber-reinforced plastic
FS	sulfur-trioxide chlorosulfonic acid solution
FSS	Fragment Suppression System
ft	feet
ft3	cubic feet
FTIR	Fourier-transform Infrared
FY	Fiscal Year
GC/MS	gas chromatograph/mass spectrometer
gpm	gallons per minute
GPOS	general-purpose operation shelter
H2O	water
HAZOX	computerized SDS system
HAZWOPER	Hazardous Waste Operations and Emergency Response
HB-LGB	High Bay Receipt Laboratory Large Glove Box
HC	Hazard Classification
HD	Hazard Division
HE	high explosives
HEGA	high-efficiency gas absorption
HEPA	high-efficiency particulate air
HHRA	Human Health Risk Assessment
HSWA	Hazardous and Solid Waste Amendments
HTH	high-test hypochlorite
HVAC	heating, ventilation, and air conditioning
HW	hazardous waste
HWTP	Hazardous Waste Training Program
HWTS	hazardous waste tracking system
I,R,I	ignitable, reactive, and incompatible

IAW	in accordance with
IBC	Intermediate Bulk Container
IC	Incident Commander
ID	identification
IEC	Installation Environmental Coordinator
IOP	internal operating procedure
JMC	Joint Munitions Command
kg/hr	kilograms per hour
lb/hr	pounds per hour
lbs	pounds
LDR	Land Disposal Restriction
LMA	Land and Materials Administration
LRC	Logistics Readiness Center
LSC	linear-shaped charge
LTM	long-term monitoring
m3	cubic meters
m/s	meters per second
MADS	Munitions Assessment Data Sheet
MAPS	Munitions Assessment and Processing System
MARB	Materiel Assessment Review Board
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MCS	Munitions Control System
MDE	Maryland Department of the Environment
mgd	million gallons per day
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MHE	material handling equipment
MIDAS	Munition Item Disposition Action System
MIEMSS	Maryland Institute for Emergency Medical Service Systems
MINICAMS	miniature continuous air monitoring system
MOP	maintenance operating procedure
mph	miles per hour

MPPEH	Material that Presents a Potential Explosives Hazard
MRC	multiple round container
MRICD	Medical Research Institute of Chemical Defense
NAAQS	National Ambient Air Quality Standards
NaOH	sodium hydroxide
ND	nondetect
NDPES	National Pollutant Discharge Elimination System
NED	National Elevation Dataset
NEMA	National Electrical Manufacturer's Association
NETA	National Environmental Training Association
NEW	net explosive weight
NFPA	National Fire Protection Association
NOAEL	no observed adverse effect level
NOX	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NRI	Net Radiation Index
NSFIH	Naval Support Facility Indian Head
NWI	National Wetlands Inventory
OAE	Organic Air Emissions
OB	open burning
OBF	Old Bombing Field
OBODM	Open Burn Open Detonation Model
OD	open detonation
OH	Hydroxide
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PDS	Personnel Decontamination Station
PDTDF	Prototype, Detonation Test and Destruction Facility
PHC	Public Health Center
PID	piping and instrumentation diagram

PLC	programmable logic controller
PM	particulate matter
POTW	Privately Owned Treatment Works
PPE	personal protective equipment
ppm	parts per million
ppmw	parts per million weight
ppt	parts per thousand
psi	pounds per square inch
psig	pounds per square inch gauge
psu	practical salinity unit
PVDF	polyvinylidene difluoride
QAPP	quality assurance project plan
QSM	Quality Systems Manual
R&D	research and development
RAIRA	Radiological Accident or Incident Response and Assistance
RBC	risk-based concentration
RCMD	Recovered Chemical Materiel Directorate
RCRA	Resource Conservation and Recovery Act
RDTE	Research, Development, Testing and Evaluation
RMO	Risk Management Office
RSL	Regional Screening Level
SAP	sampling and analysis plan
SARA	Superfund Amendments and Reauthorization Act
SAS	satellite accumulation site
SCS	site characterization study
SDS	safety data sheet
SL	screening level
SLERA	Screening Level Ecological Risk Assessment
SOP	standard operating procedure
SRF	Sample Receipt Facility
SSSF	single small-scale facility
STEL	short-term exposure limit
SUXOS	Senior UXO Supervisor

SVOC	semivolatile organic compound
TAP	toxic air pollutant
TAR	Tank Assessment Report
TC	toxicity characteristic
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TID	Turn-In Document
TNT	trinitrotoluene
TSCA	Toxic Substances Control Act
TSDF	treatment, storage, and disposal facility
TTF	Thermal Treatment Facility
TWA	time-weighted average
U.S.C.	United States Code
UFC	Unified Facility Code
UHC	underlying hazardous constituent
UPS	uninterruptible power supply
USAGAPG	U.S. Army Garrison Aberdeen Proving Ground
USAPHC	U.S. Army Public Health Center
USDA	U.S. Department of Agriculture
UXO	unexploded ordnance
UXOQP	UXO Qualified Personnel
VCS	vapor containment structure
VOC	volatile organic compound
VPTG	vertical potential temperature gradient
VSL	vapor screening level
WAP	Waste Analysis Plan
w.g.	water gauge
WMB	Waste Management Branch
WP	waste profile or white phosphorous, depending on context
WPL	worker population limit
WTP	water treatment plant
yd3	cubic yard

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Solid Waste Program

Controlled Hazardous Substance (CHS) Permit A-190

OVERVIEW

This permit authorizes the operation of hazardous waste management facilities at the United States Army Garrison, Aberdeen Proving Ground (APG). APG occupies more than 72,500 acres in Harford County, MD. Its northernmost point is marked by the confluence of the Susquehanna River and the Chesapeake Bay. On the south, it is bordered by the Gunpowder River.

The installation comprises two principal areas, separated by the Bush River. The northern area is known as the Aberdeen Area, and the southern sector, formerly Edgewood Arsenal (established in November 1917 – as a chemical weapons research, development and testing facility), is the Edgewood Area. The two areas were administratively combined in 1971. APG property not attached to the main installation includes the Churchville Test Site in Harford County and Carroll Island and Graces Quarters in Baltimore County. All of the hazardous waste management activities authorized by this permit are located in the Edgewood Area of APG, with the exception of the Old Bombing Field Open Burn and Detonation Units, which are located in the Aberdeen Area.

APG is home to 100 tenants and a host of satellite activities. Among the major tenants are the U.S. Army Combat Capabilities Development Command (DEVCOM), U.S. Army Communications and Electronics Command (CECOM), the DEVCOM Chemical Biological Center, DEVCOM Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance Center (C5ISR), U.S. Army Test and Evaluation Command (ATEC), U.S. Army Aberdeen Test Center (ATC), elements of DEVCOM Army Research Laboratory, U.S. Army Medical Research Institute for Chemical Defense (MRICD), the U.S. Army Public Health Center (PHC), the U.S. Army Chemical Materiel Agency, and the U.S. Army 20th Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Command. Most of the hazardous waste generated on the APG installation results from the research, development, testing, and evaluation (RDTE) activities performed by these tenants.

The hazardous waste management activities authorized by this permit are summarized in the following text and on the table that appears at the end of the Overview section. Individual sections of the permit (Parts III – XI) are dedicated to each of these activities. Parts I and II of the permit include standard and general conditions applicable to the waste management units covered by the unit-specific requirements of Parts III – XI of the permit.

Thermal Treatment Facility (TTF) – The thermal treatment facility closed in 1999. Sampling that was done to support the closure found that arsenic was present in soil at the site at concentrations above health-based levels. This permit requires APG to maintain an excavation advisory for the site that would warn workers of the potential presence of arsenic above health-based levels. Specific conditions related to this unit are found in Part III of this permit.

Treatment, Storage, and Disposal Facility (TSDF) – The TSDF provides storage for wastes generated on the Installation that cannot be shipped to an offsite TSDF directly from a 90-day storage area. It also provides storage capacity for wastes generated at specified offsite properties owned by the Installation. Specific conditions related to this unit are found in Part IV of this permit.

Chemical Transfer Facility (CTF) – The CTF provides container and tank storage and treatment associated with research, characterization of unknowns, laboratory operations, and the handling of suspect chemical warfare materiel (CWM). Specific conditions related to this unit are found in Part V of this permit.

N-Field Storage Facility – The N-Field Storage Facility is used to store suspect chemical, smoke, and biological munitions recovered primarily from APG ranges. The munitions are stored until they can be further characterized and treated in accordance with applicable regulations and permits. Specific conditions related to this unit are found in Part VI of this permit.

J-Field Open Detonation (OD) Unit – The J-Field OD unit is used for the treatment of waste explosives by open detonation. Items allowed to be treated at this unit are limited to conventional explosives and munitions, items that have been fully decontaminated to eliminate any possibility that they contain lethal agents, and items that have been evaluated by a formal review board and found not to contain lethal agents or similar industrial chemicals. Specific conditions related to this unit are found in Part VII of this permit.

Old Bombing Field (OBF) Open Burn (OB) and Open Detonation (OD) Units – The OBF Open Burn and Open Detonation units are used for the treatment of waste conventional explosives and propellants. Open burning of waste propellants is performed on specially constructed steel pans. Open detonation of conventional explosives is authorized in a designated 18.4-acre site, subject to operational controls specified in the permit. Specific conditions related to these units are found in Part VIII of this permit.

Sample Receipt Facility (SRF) – The SRF will be used for the temporary storage and treatment of hazardous waste in containers, tanks, and "active containment areas." Hazardous waste management requirements and controls in active containment areas are based on regulatory standards for containment buildings. The SRF is designed to support a variety of APG functions including suspect sample handling, sample analysis, treatment and storage of chemical agent-related waste, agent synthesis, storage of R&D stocks, and research and testing with biological agents. Specific conditions related to this unit are found in Part IX of this permit.

Explosive Destruction System (EDS) – The EDS is a transportable treatment system that provides a controlled method of treating chemical-filled munitions. The unit treats items on a small-batch basis. Munitions are placed in a sealed chamber that is capable of containing an explosion. Small explosive charges are used to detonate a munition's burster (if present) and breach the munition's wall to release any agent contained within the munition into the sealed chamber. Appropriate treatment and decontamination solutions are then added to the chamber to treat the chemical agent and any explosive residues, and to decontaminate residual materials. EDS units may be used at APG at a location designated in the permit, or at other locations on the

installation with the prior concurrence of the Maryland Department of the Environment. Specific conditions related to this unit are found in Part X of this permit.

Munitions Assessment and Processing System (MAPS) – The MAPS was constructed, tested, and operated under Research Development & Demonstration (RD&D) Permit 2001-01 from 2001 until 2008. In accordance with that Permit, APG and DEVCOM CBC submitted a Term Review and Evaluation Report recommending a transition to operations under a standard CHS permit. Major MAPS components include: Process Glovebox, Drill Box, Drill, Explosive Containment Chamber (ECC), and Burster Detonation Vessel (BDV). Principal supporting systems include: ventilation and filtration systems, air monitoring system, facility control system, and a chemical storage tank system (comprised of Intermediate Bulk Containers (IBCs). The MAPS is used to process range recovered munitions and to support DEVCOM CBC's national chemical/biological defense mission by providing a system capable of accessing, sampling, and/or treating (neutralizing) small to medium caliber, explosively configured chemical weapons, components, or devices recovered at other locations and brought to APG as samples for forensic evaluation. Specific conditions related to this unit are found in Part XI of this permit.

Hazardous Waste Management Activities Authorized by CHS Permit A-190

Waste Management Unit	Hazardous Waste Activities	Permit Part
Thermal Treatment Facility	Monitoring after closure	III
Treatment, Storage, and Disposal Facility (TSDF)	Container storage	IV
Chemical Transfer Facility (CTF)	Container storage	V
	Container treatment	
	Tank storage	
	Tank treatment	
N-Field Storage Facility	Container storage	VI
J-Field Open Detonation (OD) Unit	Open detonation of waste conventional explosives	VII
Old Bombing Field (OBF) Open Burn (OB) and Open Detonation (OD) Units	Open burning of waste propellants and open detonation of waste conventional explosives	VIII
Sample Receipt Facility (SRF)	Containment Building Treatment and Storage	IX
	Container Storage and Treatment	
	Tank Storage and Treatment	
Explosive Destruction System (EDS)	Contained treatment of waste munitions	X
Munitions Assessment and Processing System (MAPS)	Containment Building Treatment and Storage	XI
	Container Storage and Treatment	
	Tank Storage and Treatment	

CONTROLLED HAZARDOUS SUBSTANCE FACILITY PERMIT

Permit Number: **A-190**
Effective Dates:
Expiration Date:

Pursuant to the Provisions of Environment Article, §7-232, Annotated Code of Maryland and regulations promulgated thereunder, the Maryland Department of the Environment (the "Department" or "MDE") hereby authorizes the

U.S. Army Garrison Aberdeen Proving Ground (APG)
(EPA ID No. MD3210021355)
Aberdeen Proving Ground, Maryland 21005-5001, as owner;

and the following organizations as operators to operate the individual controlled hazardous substances (CHS) storage and treatment facilities listed below located at Aberdeen Proving Ground, Maryland, in accordance with the following standard, general and special conditions including the attachments made part hereof, and the provisions of Code of Maryland Regulations (COMAR) 26.13.

Operator Organization(s)	CHS Facility
U.S. Army Garrison Aberdeen Proving Ground (APG)	Treatment, Storage and Disposal Facility (TSDF)
U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC)	Thermal Treatment Facility (TTF)*
	Chemical Transfer Facility (CTF)
	N-Field Storage Facility (N-Field)
	Sample Receipt Facility (SRF)
	Explosive Destruction System (EDS)
	Munitions Assessment and Processing System (MAPS)
U.S. Army Aberdeen Test Center (ATC)	Old Bombing Field (OBF) Open Burn (OB) and Open Detonation (OD) units
20th Chemical Biological Radiological Nuclear and Explosive (CBRNE) Command CBRNE Analytical Remediation Activity (CARA)	J-Field Open Detonation Unit
U.S. Army Chemical Materials Activity (CMA), Recovered Chemical Materiel Directorate (RCMD) and CBC	Explosive Destruction System (EDS)

* The TTF is a closed facility. Part III of this permit contains special conditions applicable to the TTF.

This permit is based on the assumption that the information submitted in the permit applications received by the Department on August 14, 2019, December 4, 2020, and April 1, 2021 are accurate and that each CHS facility will be operated as specified in the application and this permit. Any inaccuracies found in information provided to the Department relating to this permit may be grounds for modification or termination of this permit (COMAR 26.13.07.11 and 12) and potential enforcement action.

The following table lists the parts of this permit along with the facilities and operators to which each part applies. The term Permittee shall apply to APG as the owner of all of the individual CHS facilities, and to APG and the other organizations that operate the individual CHS facilities, as indicated in the following table.

Part of Permit	Applicable CHS Facility	Applicable Operator(s)	Applicable Permittee(s)
I. Standard Conditions	All	All operators	APG, ATC, CMA, CBC, 20TH CBRNE CARA
II. General Facility Conditions	All	All operators	APG, ATC, CMA, CBC, 20TH CBRNE CARA
III. Closed Facilities	Former Thermal Treatment Facility	CBC	APG
IV. Special Conditions	TSDF	APG	APG
V. Special Conditions	CTF	CBC	APG, CBC
VI. Special Conditions	N-Field	CBC	APG, CBC
VII. Special Conditions	J-Field	CARA	APG, 20TH CBRNE CARA
VIII. Special Conditions	OBF	ATC	APG, ATC
IX. Special Conditions	SRF	CBC	APG, CBC
X. Special Conditions	EDS	CBC, CMA	APG, CBC, CMA
XI. Special Conditions	MAPS	CBC	APG, CBC

The Permittee shall inform the Department of any deviation from or changes in the information submitted in the referenced application or subsequent permit-required submissions which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

PART I
STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is allowed to manage hazardous waste in accordance with the conditions of this permit. Any management of hazardous waste not authorized in this permit is prohibited except as otherwise authorized by Code of Maryland Regulations (COMAR) 26.13, other permits authorized by COMAR 26.13, or Administrative Consent Orders issued under § 7-207(a) of the Environment Article, Annotated Code of Maryland. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Section 7003 of the Resource Conservation and Recovery Act (RCRA) (42 United States Code §6973), Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 United States Code §9606(a) commonly known as CERCLA), or any other law governing protection of public health or the environment.

I.B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in COMAR 26.13.07.11 and .12. The filing of a request for a permit modification, revocation and re-issuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit conditions.

I.C. SEVERABILITY

The provisions of this permit are severable; and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in COMAR 26.13 unless this permit specifically states otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

I.E. SIGNATORY REQUIREMENTS

All reports or other information requested by the Department shall be signed and certified as required by COMAR 26.13.07.03.

I.F. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

The Permittee shall maintain the following documents and amendments, revisions, and modifications until closure is completed and certified by an independent registered professional engineer. Table I-1 shows the locations of the following permit-required documents and records on the Aberdeen Proving Ground (APG) installation.

I.F.1. Waste Analysis Plans required by COMAR 26.13.05.02D and this permit.

I.F.2. Inspection schedules and logs required by COMAR 26.13.05.02F (2) and (4) and this permit.

I.F.3. Personnel training documents and records required by COMAR 26.13.05.02G (4) and (5) and this permit.

I.F.4. Contingency Plans required by COMAR 26.13.05.04 and this permit.

I.F.5. Operating record required by COMAR 26.13.05.05D and this permit.

I.F.6. Closure Plans required by COMAR 26.13.05.07 and this permit.

I.F.7. A copy of COMAR 26.13 and its updates. Electronic access to COMAR 26.13 satisfies this requirement.

I.F.8. A copy of applicable parts of the permit with attachments.

I.F.9. All other documents required by subsequent parts of this permit.

I.F.10. Records required by this part may be kept in an electronic format if the computer systems (including hardware and software), controls, and attendant documentation are readily available for inspection by the Department and the electronic record retention system meets the following criteria:

- It is able to readily reproduce the records accurately and completely in hard copy and electronic format if requested by a representative of the Department;
- It generates and maintains accurate and complete copies of records and documents in a form that does not allow alteration of the record without detection;
- It ensures that records are not altered throughout the records' retention period;
- It ensures that any record bearing an electronic signature contains the name of the signatory, the date and time of signature, and any information that explains the meaning affixed to the signature;
- It uses secure, computer generated, time-stamped audit trails to automatically record the date and time of operator entries and actions that create, modify, or delete electronic records;

- It retains audit trail documentation for a period at least as long as that required for the subject electronic records;
- It is capable of making audit trail documentation available for agency review;
- It ensures that records are searchable and retrievable for reference and secondary uses, including inspections, audits, legal proceedings, and third party disclosures, as required by applicable regulations, throughout the entire retention period; and
- It archives electronic records in an electronic form that preserves the context, metadata, and audit trail.

I.G. DUTIES AND REQUIREMENTS

I.G.1. Duty to Comply: The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any other permit noncompliance constitutes a violation of COMAR and is grounds for enforcement action, permit termination, revocation and re-issuance, modifications, or denial of a permit renewal application.

I.G.2. Duty to Reapply: If the Permittee wishes to continue an activity regulated by this permit after the expiration date of the permit, the Permittee shall submit a complete application for a new permit at least 180 days before this permit expires, in accordance with COMAR 26.13.07.04C.

I.G.3. Permit Expiration: This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely complete application and, through no fault of the Permittee, the Department has not issued a new permit (State Government Article, §10–226(b)).

I.G.4. Need to Halt or Reduce Activity Not a Defense: It shall not be a defense for the Permittee in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit (COMAR 26.13.07.04D).

I.G.5. Duty to Mitigate: The Permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit (COMAR 26.13.07.04E).

I.G.6. Proper Operation and Maintenance: The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.

This provision requires the operation of back-up or auxiliary facility or similar systems to maintain compliance with the conditions of this permit (COMAR 26.13.07.04F).

I.G.7. Duty to Provide Information: The Permittee shall furnish to the Department, within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit (COMAR 26.13.07.04I).

I.G.8. Inspection and Entry: The Permittee shall allow the Department, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

I.G.8.a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

I.G.8.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

I.G.8.c. Inspect at reasonable times any individual Controlled Hazardous Substance (CHS) facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit;

I.G.8.d. Sample or monitor substances or parameters at any location, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by COMAR 26.13.07.04J; and

I.G.8.e. Obtain records of inspections by photographic media, electronic media, videotape, or any other reasonable medium, consistent with national security considerations.

I.G.9. Department of the Army Training, Safety and Security Requirements:

The Permittee shall assist designated MDE personnel in meeting appropriate Department of the Army training, safety and security requirements if meeting such requirements is essential to perform inspections, sampling, or monitoring.

I.G.10. Monitoring and Records:

I.G.10.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from COMAR 26.13.02.20 or an equivalent method approved by the Department.

Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, latest edition), Standard Methods for the Examination of Water and Wastewater (latest edition) or an equivalent method as specified in the Waste Analysis Plan, Attachment II-1.

I.G.10.b. The Permittee shall retain records of all monitoring information, including all maintenance records and copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report, and record. These periods may be extended by request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

I.G.10.c. Records of monitoring information shall specify:

I.G.10.c.i. The dates, exact place, and times of sampling or measurements;

I.G.10.c.ii. The individuals who performed the sampling or measurements;

I.G.10.c.iii. The dates analyses were performed;

I.G.10.c.iv. The individuals who performed the analyses;

I.G.10.c.v. The analytical techniques or methods used; and

I.G.10.c.vi. The results of such analyses (COMAR 26.13.07.04K).

I.G.11. Reporting Planned Changes:

The Permittee shall give notice to the Department as soon as possible of any planned changes to the permitted activity, and of physical alterations or changes to an individual CHS facility that could have an effect on the permitted activity. This notice must include a description of all incidents of noncompliance reasonably expected to result from the proposed changes (COMAR 26.13.07.04M(1)).

I.G.12. Transfer of Permit:

This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to COMAR 26.13.07.10. Before transferring ownership or operation of an individual CHS facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of COMAR 26.13 and provide the new owner with a copy of this permit (COMAR 26.13.07.04M(3)).

I.G.13. Notification:

I.G.13.a. The Permittee shall report to the Department any noncompliance with this permit that may endanger health or the environment, orally within 24 hours and in writing within 5 days from the time the Permittee becomes aware of the circumstances (COMAR 26.13.07.04M(6)).

I.G.13.b. Oral and written reports required by Permit Condition I.G.13.a shall include the following:

I.G.13.b.i. Information concerning release of any hazardous waste that may endanger public drinking water supply sources;

I.G.13.b.ii. Any information of a release or discharge of hazardous waste, or of a fire or explosion at any individual CHS facility covered by this permit which could threaten human health or the environment outside the facility, with the description of the occurrence and its cause including:

- The name, address, and telephone number of the owner or operator;
- The name, address, and telephone number of the facility;
- The date, time, and type of incident (for example, a release or fire);
- The names and quantities of material(s) involved;
- The extent of injuries, if any;
- The assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
- The estimated quantity and disposition of recovered material that resulted from the incident. (COMAR 26.13.07.15D)

I.G.13.c. In addition to the information required by Permit Condition I.G.13.b, the Permittee shall include in the written report of the noncompliance:

I.G.13.c.i. A description of the noncompliance and its cause;

I.G.13.c.ii. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

I.G.13.c.iii. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. (COMAR 26.13.07.04M(6)).

I.G.13.d. The Permittee may submit the written report required by Permit Condition I.G.13.a within 15 days of becoming aware of the circumstances requiring

notification, if the Department approves the later deadline. (COMAR 26.13.07.15D(2)(g))

I.G.13.e. If the Permittee determines that any individual CHS facility covered by this permit has had a release, fire or explosion that could threaten human health, or the environment, outside the facility (Installation), or, if the release exceeds the Reportable Quantities set forth in COMAR 26.13.05.04G(4), the Permittee shall immediately notify:

I.G.13.e.i. The local designated on-scene coordinator, if any;

I.G.13.e.ii. The National Response Center at (800) 424-8802;

I.G.13.e.iii. The Department's Hazardous Waste Enforcement Division at (410) 537-3315, during working hours;

I.G.13.e.iv. The Maryland Department of the Environment Emergency Response Division at (866) 633-4686;

I.G.13.e.v. Emergency Operations Centers for Baltimore County (off-post 911) and Harford County ((410) 638-4900), if the release could threaten human health or the environment outside the APG installation; and

I.G.13.e.vi. Other appropriate local authorities, if the Installation's Emergency Coordinator determines that evacuation of local areas may be advisable. (COMAR 26.13.05.04G(4))

I.G.13.f. In the oral notification report required by Permit Condition I.G.13.e, the Permittee shall include:

I.G.13.f.i. Name and telephone number of reporter;

I.G.13.f.ii. Name and address of the facility;

I.G.13.f.iii. Time and type of incident (release, fire or explosion);

I.G.13.f.iv. Name and quantity of materials involved, to the extent known;

I.G.13.f.v. The extent of injuries, if any; and

I.G.13.f.vi. The possible hazards to human health, or the environment, outside the facility. (COMAR 26.13.05.04G(4)(b))

I.G.13.g. If a release, fire, or explosion incident occurs at any individual CHS facility covered by this permit, and the incident requires the Permittee to implement the Emergency Procedures/Contingency Plans, the Permittee shall make a written

submission to the Department within 15 days of the incident (COMAR 26.13.05.04G(10)). This submission shall include the information items listed under Permit Condition I.G.13.b (ii).

I.G.14. Other Notification:

I.G.14.a. In addition to notifications for noncompliance required under Permit Condition I.G.13, the Permittee shall notify the Department of situations that:

- have the potential to endanger human health or the environment if not corrected prior to initiating waste management operations, or
- require significant alteration or updating of structures, equipment or procedures to correct deficiencies noted by the Permittee.

I.G.14.b. For the purposes of Permit Condition I.G.14.a, "significant alteration or updating of structures, equipment or procedures" does not include routine maintenance for which the Permittee has established practices designed to ensure the continued protection of human health and the environment. The Permittee shall provide additional information regarding such situations to the Department as requested.

I.G.14.c. The Permittee may provide notification to the Department under Permit Condition I.G.14.a. by telephone, electronic mail, or any other method acceptable to the Department.

I.G.15. Other Information:

Whenever the Permittee becomes aware that the Permittee failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Department, the Permittee shall promptly submit such facts or information to the Department and state the reason for the omission or inaccuracy (COMAR 26.13.07.04M(8)).

I.H. CERTIFICATION OF CONSTRUCTION OR MODIFICATION

The Permittee may not manage hazardous waste at a new individual CHS facility or a modified portion of an existing CHS facility until:

I.H.1. The Permittee has submitted to the Department, by certified mail or hand delivery, a letter signed by the Permittee, and an independent registered professional engineer stating that the facility has been constructed or modified in compliance with this permit, and

I.H.2. Either

I.H.2.a. The Department has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of this permit; or

I.H.2.b. The Department has waived the inspection, or has not notified the Permittee within fifteen (15) days after receipt of the submission of the letter required by Permit Condition I.H.1. (COMAR 26.13.07.15C).

I.I. PERMIT FEE

Payment of the permit fee for this facility is a prerequisite to issuing this permit. Failure to pay the permit fee in a timely manner constitutes grounds for permit revocation. As specified in COMAR 26.13.07.21 the permit fee is based on the size of the facility, nature and quantity of CHS, and the anticipated costs of regulatory activities such as permit preparation, inspections, monitoring, and program development. The permit fee is $36,105.95 per year, in addition to the cost of public notices.

I.J. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date (COMAR 26.13.07.07D).

I.K FEDERAL, STATE OR LOCAL APPROVAL

This permit may be suspended or revoked upon a final, unreviewable determination that the Permittee lacks, or is in violation of, any federal, state or local approval necessary to conduct the activity authorized by this permit.

Table I-1. Location of Permit-Required Documents and Records for Individual CHS Facilities

Type of Document/Record	TSDF	CTF	N-Field Igloo	N-Field Portables**	J-Field	Old Bombing Field	SRF	EDS	MAPS
Waste Analysis Plan	TSDF	DPW ED	DPW ED	DPW ED	DPW ED	DPW ED	DPW ED	DPW ED	DPW ED
Inspection Schedules and Logs	TSDF	CTF	CTF	CBARR FHMT	CARA	ATC EO and MBS	SRF	EDS SO	MAPS
Personnel Training Plan	DPW ED	DPW ED	DPW ED	DPW ED	DPW ED	DPW ED	SRF	EDS SO	DPW ED
Personnel Training Documents and Records	TSDF	CTF*	CTF	CBARR FHMT	CARA	ATC EO	SRF*	EDS SO	MAPS
Site-Specific Contingency Plan	TSDF	CTF	CTF	CBARR FHMT	CARA	MBS	SRF	EDS SO	MAPS
ERP - Chapters 1 and 8	TSDF	CTF	CTF	CBARR FHMT	CARA	ATC EO	SRF	EDS SO	MAPS
ERP - Chapter 5 (CAIRA)	Not Required	CTF	CTF	CBARR FHMT	CARA	Not Required	SRF	EDS SO	MAPS
Operating Record	TSDF	CTF	CTF	CBARR FHMT	CARA	ATC EO	SRF	EDS SO & EML-LIMS	MAPS
Closure Plan	TSDF	CTF	CTF	CBARR FHMT	CARA	ATC EO	SRF	EDS SO	MAPS
COMAR 26.13	TSDF	CTF	CTF	CBARR FHMT	CARA	ATC EO	SRF	EDS SO	MAPS
Applicable Parts of Permit	TSDF	CTF	CTF	CBARR FHMT	CARA	ATC EO	SRF	EDS SO	MAPS

* For employees who work at the CTF and SRF, their training records will be available at one of these locations.

**Documents pertaining to the N-Field Portables other than the Waste Analysis Plan and Personnel Training Plan will be kept at CBARR FHMT and/or N-Field

ATC EO: Aberdeen Test Center, Environmental Office
CAIRA: Chemical Accident or Incident Response and Assistance
CARA: CBRNE Analytical Remediation Activity
CBARR FHMT: Chemical Biological Applications & Risk Reduction, Filters Hazardous Materials Team ([redacted])
CBRNE: Chemical Biological Radiological Nuclear Explosive CHS: Controlled Hazardous Substances
COMAR: Code of Maryland Regulations
CTF: Chemical Transfer Facility
DPW ED: Directorate of Public Works, Environmental Division
EDS SO: Explosive Destruction System Site Office
EML-LIMS: Environmental Monitoring Laboratory – Laboratory Information Management System
MBS: Mahan's Bombproof Shelter
TSDF: Treatment, Storage and Disposal Facility

PART II
GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

The Permittee shall maintain and operate the individual Controlled Hazardous Substances (CHS) facilities on the Installation to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, surface water or ground-water which could threaten human health or the environment.

II.B. GENERAL WASTE ANALYSIS

Permit Attachment II-1 is the Aberdeen Proving Ground (APG) waste analysis plan. This plan is applicable to all non-exempt waste that is sent offsite from individual CHS facilities for treatment or disposal under TSDF management. (Exempt waste may include treatability and analytical samples.)

The Permittee shall follow the procedures described in Permit Attachment II-1. The Permittee shall verify its waste analysis as part of its quality assurance program, in accordance with current Environmental Protection Agency (EPA) practices (Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, latest edition) or equivalent methods approved by the Department; and at a minimum, maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations.

II.C. SECURITY

The Permittee shall comply with the security provisions of the Code of Maryland Regulations (COMAR) 26.13.05.02E.

II.D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedules in Parts IV, V, VI, VII, VIII, IX, X and XI. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by COMAR 26.13.05.02F(3). Records of inspections shall be kept as required by COMAR 26.13.05.02F(4).

II.E. PERSONNEL TRAINING

II.E.1. The Permittee shall conduct personnel training as required by COMAR 26.13.05.02G. The Permittee shall maintain documents and records as required by COMAR 26.13.05.02G (4) and (5).

II.E.2. The training program shall follow the attached APG Training Plan, Permit Attachment II-2. The Permittee shall make the most recent versions of training documents available to the Department on request.

II.F. PREPAREDNESS AND PREVENTION

II.F.1. Required Equipment: At a minimum, the Permittee shall equip individual CHS facilities with the equipment set forth in the Permit Contingency Plans (see Permit Condition II.G.) as required by COMAR 26.13.05.03C.

II.F.2. Testing and Maintenance of Equipment: The Permittee shall test and maintain the emergency equipment as necessary to assure its proper operation in time of emergency as required by COMAR 26.13.05.03D.

II.F.3. Access to Communications or Alarm System: The Permittee shall maintain access to communications or alarm systems as required by COMAR 26.13.05.03E.

II.F.4. Required Aisle Space:

II.F.4.a. The Permittee shall maintain aisle space as required by COMAR 26.13.05.02I except in the N-Field Igloo.

II.F.4.b. In the N-Field Igloo, the Permittee may maintain less than two feet of aisle space, in accordance with COMAR 26.13.05.03F, if the arrangement of waste will allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency.

II.F.5. Arrangements with Local Authorities: The Permittee shall maintain arrangements with local authorities as required by COMAR 26.13.05.03H. If local officials refuse to enter into or renew existing preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record and immediately notify the Department in writing of the refusal.

II.G. CONTINGENCY PLAN

II.G.1. The Resource Conservation and Recovery Act (RCRA) site-specific contingency plans for the Treatment, Storage and Disposal Facility (see Part IV); Chemical Transfer Facility (see Part V); N-Field (see Part VI); J-Field Open Detonation Unit (see Part VII); Old Bombing Field Open Burn and Open Detonation Units (see Part VIII); Sample Receipt Facility (see Part IX); Explosive Destruction System (see Part X); and the Munitions Assessment and Processing System (see Part XI) may incorporate the emergency response plans applicable to the Installation as a whole. Under circumstances specified in these overall plans and in site-specific plans, the overall plans may take precedence over the RCRA site-specific plans required for the permitted facilities. Emergency response plans applicable to the installation as a whole include:

- APG's Emergency Response Plan,
- APG's Emergency Response Plan, Chapter 1- Basic Plan,
- APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan, and

The most recent versions of relevant emergency response/contingency plans applicable to the APG Installation and individual CHS facilities shall be available at all times at the locations specified on Table I-1.

II.G.2. Implementation of Plans: The Permittee shall immediately carry out the provisions of emergency response and contingency plans and follow the emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents which threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2)).

II.G.3. Amendments to Plans: The Permittee shall review and immediately amend, if necessary, the applicable emergency response/contingency plan under the circumstances identified in COMAR 26.13.05.04E (1) – (3).

II.G.4. Copies of Plans.

II.G.4.a. The Permittee shall comply with the requirements of COMAR 26.13.05.04D.

II.G.4.b. By January 31 of each calendar year, the Permittee shall submit to the Department revised copies of the site-specific contingency plans for the hazardous waste management units addressed by Parts IV through XI of this permit. If a particular site-specific contingency plan is unchanged from the previous submission, submission of a statement to that effect will be sufficient. If only minor changes have been made to a particular site-specific contingency plan, submission of change pages will be acceptable as an alternative to submission of the entire plan.

II.G.5. Emergency Coordinators: The Permittee shall comply with requirements of COMAR 26.13.05.04F.

II.H. RECORD-KEEPING AND REPORTING

II.H.1. Operating Record: The Permittee shall maintain a written operating record at permitted facilities in accordance with COMAR 26.13.05.05D.

II.H.2. Biennial Reporting: The Permittee shall comply with all applicable biennial reporting requirements of COMAR 26.13.05.05F.

II.I. CLOSURE REQUIREMENTS

II.I.1. Performance Standard: The Permittee shall close the individual CHS facilities as required by COMAR 26.13.05.07, and in accordance with facility-specific Closure Plans approved by the Department.

II.I.2. Amendment to Closure Plan: The Permittee shall amend the facility-specific Closure Plans in accordance with COMAR 26.13.05.07C(3) whenever necessary.

II.I.3. Notification of Closure: The Permittee shall notify the Department at least 45 days prior to the date the Permittee expects to begin closure at any individual CHS facility.

II.I.4. Time Allowed for Closure: After receiving the final volume of hazardous waste at an individual CHS facility, the Permittee shall remove hazardous waste and shall complete closure activities at the facility in accordance with the schedule for the individual CHS storage or treatment facility specified in the Closure Plan approved by the Department.

II.I.5. Disposal or Decontamination of Equipment: The Permittee shall decontaminate and/or dispose of all facility equipment as required by COMAR 26.13.05.07E and facility-specific closure plans approved by the Department.

II.I.6. Certification of Closure: For each individual CHS facility, the Permittee shall certify that the facility has been closed in accordance with the specifications in the Closure Plan and as required by COMAR 26.13.05.07F.

II.J. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

The Permittee shall comply with the requirements of COMAR 26.13.05.02H.

II.K. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of COMAR 26.13.05.05B, C, and G.

II.L. FLOODPLAIN STANDARD

The Permittee shall comply with the requirements of COMAR 26.13.05.02-1B.

II.M. WASTE MINIMIZATION/SOURCE REDUCTION

The Permittee shall develop and conduct a Waste Minimization/Source Reduction Program, in accordance with §7-205 of the Environment Article, Annotated Code of Maryland and COMAR 26.13.05.05F(4)(j) and (k). The Permittee, as a generator, shall not dispose of a CHS unless the Permittee demonstrates to the satisfaction of the Department that:

- Recovery possibilities have been considered; and
- The CHS cannot be reasonably treated further to reduce the volume of or the hazard that the CHS poses to the environment.

At a minimum, the program should evaluate the waste minimization/source reduction potential for all hazardous waste streams on an annual basis. The Permittee shall report waste reduction efforts in the facility biennial report and may include information on waste from other facilities owned by APG.

II.N. CONTAINERS HOLDING IGNITABLE OR REACTIVE WASTE

The Permittee shall not locate containers holding ignitable or reactive wastes within 15 meters (50 ft.) of the APG facility's property line, as required by COMAR 26.13.05.09F.

PERMIT ATTACHMENT II-1

WASTE ANALYSIS PLAN FOR ABERDEEN PROVING GROUND

NOTE: This section of the permit consists of Section II-B of the permit application (pages II.B-1 through II.B-50, Figures II.B1 and II.B.2 of the permit application, Photograph II.B.1 of the permit application, and Appendix II.B.1.1 of the permit application.

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II.B WASTE ANALYSIS PLAN FOR ABERDEEN PROVING GROUND

II.B.1 INTRODUCTION AND PURPOSE [40 CFR 264.13(B) AND (C) AND 270.14(B)(3); COMAR 26.13.07.02D(17) AND 26.13.05.02D(2)(A) AND (B)]

In accordance with Code of Maryland Regulations (COMAR) 26.13.05.02D (and 40 Code of Federal Regulations [CFR] 264.13), this plan describes how Aberdeen Proving Ground (APG) complies with waste analysis requirements under its State of Maryland-issued Controlled Hazardous Substance (i.e., hazardous waste) permit.

The plan provides the following:

- A summary of the types of activities conducted at APG that generate hazardous wastes which require on-site permitted storage and treatment;
- Brief description of the permitted facilities and the types of wastes stored and/or treated at each;
- The selected methods used to characterize wastes entering and leaving these facilities and the rationale for their selection;
- The frequency of characterization;
- Related quality assurance/quality control for waste sampling and analysis; and
- Record keeping.

II.B.2 NATURE OF ACTIVITIES CONDUCTED AT APG, AND OVERVIEW OF WASTE ANALYSIS PROCESSES [40 CFR 270.14(B)(2); COMAR 26.13.07.02D(16) AND 26.13.05.02D(1)(A)]

APG is home to thousands of scientists, engineers, technicians and administrative personnel whose activities generate various hazardous and nonhazardous waste streams throughout the Installation. These waste streams are principally generated by chemical-biological defense research and development, land combat systems test and evaluation, materials science research and development, munitions testing, portable power systems development and testing, biomedical and environmental sample analyses, quality assurance testing of products, disposal of chemicals with expired shelf lives, vehicle and facility maintenance/repair, spill cleanup/emergency response, site remediation, building demolition, performance of treatability studies, destruction of conventional and non-stockpile munitions, and other activities. These activities may produce liquid, solid, or gaseous wastes posing ignitability, corrosivity, reactivity, or toxicity hazards.

To comply with federal, state, local, and Army regulations governing treatment, storage, and disposal of waste, APG characterizes each waste stream generated according to constituents and related hazardous characteristics. Methods used to characterize wastes include using generator knowledge; obtaining information from labels, safety data sheets (SDSs) and other sources; and using the results of laboratory testing. APG relies heavily on generator knowledge, but also samples and analyzes new, changing and various bulk/high-volume waste streams.

II.B.3 PERMITTED FACILITIES AND ACTIVITIES (INCLUDES ADDITIONAL REQUIREMENTS FOR WASTE GENERATED OFFSITE [40 CFR 264.13(B)(5), 264.13(C) AND 264.73(A) AND (B); COMAR 26.13.05.02D(2)(C)(V)])

APG stores and/or treats hazardous waste (HW) at the following facilities:

- Central storage facility (herein referred to as the Treatment, Storage, and Disposal Facility [TSDF]);
- N-Field Waste Munitions Storage Facility;
- Munitions Assessment and Processing System (MAPS);
- Chemical Transfer Facility (CTF);
- Sample Receipt Facility (SRF);
- J-Field Open Detonation (OD) unit;
- Old Bombing Field (OBF) Open Burn (OB) and OD units; and
- Explosive Destruction System (EDS).

Table II.B.1 provides an overview of the waste-generating processes, types of waste treated and stored, and types of waste sent offsite for further treatment and/or disposal from APG's permitted units. The following sections provide additional unit-by-unit information; summarize wastes accepted, stored and/or treated at each; describe how both incoming and outgoing wastes are characterized to meet COMAR and APG's A-190 Controlled Hazardous Substance (CHS) permit treatment and storage requirements. Also addressed are how these facilities comply with special requirements for ignitable, reactive and incompatible wastes, with Environmental Protection Agency (EPA) organic air emissions standards, meet Land Disposal Restriction (LDR) notification requirements and manage the receipt of off-site wastes.

II.B.3.1 TSDF (GARRISON PERMITTED STORAGE)

II.B.3.1.1 Process Description

The TSDF serves as APG's principle hazardous waste storage facility. The facility receives hazardous and industrial wastes generated and/or managed at several hundred points of generation, up to 10 or 11 less than 90-day central accumulation areas (CAAs) and potentially eight other permitted units. Aside from potentially receiving and storing wastes generated almost anywhere on the Proving Ground, the TSDF serves as the central hub for all off-site waste shipments. These either physically depart from the TSDF—or in the case of direct shipments from other APG locations—are coordinated and overseen by TSDF personnel. The TSDF is limited to container storage, and consists of the following:

- Two multi-bay, 7,200-square foot waste storage buildings of identical design;
- A smaller, third 1,025-square foot building for polychlorinated biphenyl (PCB) conforming storage;
- A fenced asphalt and concrete apron area in front the two multi-bay storage buildings that can accommodate up to 10 each, 30-cubic yard roll-offs for bulk waste storage; and
- An administrative facility and disposal contractor office trailer.

Wastes typically arrive at the TSDF in drums, small containers, fiberboard boxes, totes (interim bulk containers) and cubic yard boxes. The facility can receive hazardous waste from APG's Aberdeen and Edgewood areas, and the following off-site APG properties.

- Van Bibber Water Treatment Plant,
- Hanson Reservoir,
- Atkinson Reservoir, and
- Churchville Test Area.

II.B.3.1.2 Wastes Accepted

The majority of hazardous waste received and stored at the facility can be grouped into the following categories:

- Lab packs (drums) of expired and/or excess chemicals (i.e., standards, reagents, etc.) from research and analytical laboratories;
- Small containers (<5 gal) of chemical agent decontamination wastes and similarly toxic experimental compound decontamination wastes;

- Small to medium containers of lab debris and spent laboratory solvents and solutions from research and analytical laboratories;
- Large wrapped and/or boxed filters exposed to toxic metals and/or toxic organics, or containing toxic metal catalysts;
- Universal wastes (lamps, batteries);
- Waste aerosols and cylinders;
- Waste fuels/solvents;
- Paint-related material; and
- PCB and PCB-contaminated wastes.

The TSDF serves as the central point of departure for most APG wastes shipped off-site for final treatment and disposal at commercial facilities. TSDF personnel also coordinate, oversee, inspect and sign manifests for the pickup and off-site shipment of wastes from other APG locations. Wastes directly shipped from their points of generation to off-site commercial TSDFs generally include the following:

- Remediation wastes (i.e., contaminated soil, groundwater, groundwater treatment system sludge and media);
- Bulk shipments of chemical agent decontamination wastes from the CTF (and the SRF when fully operational);
- Parts cleaning solvents (Safety Kleen); and
- Certain waste explosives/energetics not treated in one of APG's permitted OB/OD units.

Almost any waste-generating process at APG could produce waste that might be stored in one of the TSDF's three storage buildings or in roll-offs at the TSDF location. Table II.B.2 lists the processes and activities that could generate hazardous waste at APG which might be stored at the TSDF. This list of processes and activities is adapted from EPA's Source Code Group list in the *RCRA Subtitle C Reporting Instructions and Forms* (OMB #2050-0024, Expires 05/31/2020). Table II.B.3 lists the general physical and chemical characteristics these wastes could exhibit. This list is also adapted from EPA's *RCRA Subtitle C Reporting Instructions and Forms*.

Table II.B.4 lists the EPA and Maryland Department of Environment (MDE) hazardous waste codes for wastes that could be stored in all APG's TSDF storage buildings. APG requests identical codes for all three buildings and the roll-offs (with the exception of waste code D002 which is not required for the roll-offs) because PCBs could be present at regulated levels in the hazardous wastes stored in the non-PCB buildings or in the roll-offs. Similarly, the PCB wastes in the PCB storage building could exhibit hazardous characteristics or contain hazardous constituents. While it is not likely that APG will store all of the characteristic and listed wastes in a given year, the Installation requests the expansive list of codes to accommodate its broad chem-bio defense, land combat systems, communications and electronics, and biomedical research, development, test, and evaluation (RDTE) activities. APG annually generates a significant variety of listed and characteristic hazardous wastes in a given year. These wastes—and their associated waste codes—can change over time with evolving Department of Defense (DoD) RDTE priorities.

II.B.3.1.3 Waste Restrictions

Hazardous wastes with Maryland hazardous waste numbers MD02, MD03, and K99X are not stored at the TSDF unless they have been surface decontaminated, monitored to a vapor screening level (VSL) less than the short-term exposure limit (STEL) value, and/or if process knowledge and/or analytical results demonstrate that agent levels are below health-based concentrations published by the U.S. Army Public Health Center (PHC) and are therefore found acceptable for storage at the facility by APG professional safety staff.

The TSDF is not authorized to store waste explosives meeting Department of Transportation (DOT) Hazard Class 1, and does not store Drug Enforcement Administration (DEA) controlled substances requiring secure storage under the control of an authorized DEA registrant and/or the registrant's parent activity in accordance with 21 CFR 1301 and 1317.

II.B.3.1.4 Incoming Waste Characterization

Each generating activity on the installation is responsible for characterizing the hazardous waste resulting from its operations. Therefore, all hazardous wastes are characterized prior to receipt at the APG TSDF. Requirements for the characterization of wastes are determined on a case-by-case basis.

II.B.3.1.4.1 Generator Knowledge

Most APG generators rely on generator knowledge to characterize their wastes. Many waste generating processes are simple—generators have experience with resulting wastes, and can identify their listed constituents and/or hazardous characteristics. Other processes are well documented, so there is ample data available with which to adequately classify wastes as hazardous and to identify applicable waste codes. Sources of information may include standard operating procedures, SDSs, on-line resources, hazardous material labels, etc. Laboratory wastes streams include discarded commercial chemical products, lab reagents and standards of known physical and chemical properties. Added to this, APG Regulation 200-60, *Hazardous Waste Management*, requires all laboratories to maintain waste container logs to accurately identify each waste addition constituent and its quantity. Armed with this documentation, lab chemists and technicians typically have ample information with which to characterize their waste streams.

II.B.3.1.4.2 Sampling and Analysis

Not all wastes can be characterized using solely generator knowledge. Sampling and analysis is typically required for new or changing process wastes, bulk wastes (e.g., remediation wastes), chemical agent related waste streams, legacy equipment or systems close out, and PCB-related wastes. For bulk waste streams it is often critical from planning and cost perspectives to obtain accurate analytical data to ensure large quantities of wastes are not over or under characterized. Wastes generated by APG's chem-bio defense activities often require air monitoring and/or trace level laboratory analysis for chemical agents to confirm the efficacy of authorized decontamination activities and ensure safe waste handling.

For those activities that do need sampling and analysis services for waste stream characterization, the TSDF provides contract support. Generators requiring these services simply contact the TSDF, and complete a form requesting sampling and/or laboratory analysis services.

Some APG waste generators require specialized in-house sampling and analyses not available via the TSDF contract laboratory. The Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBD), for example, handles super toxic chemical agents and experimental compounds. When done with experiments and testing involving these agents/compounds, lab personnel chemically decontaminate/detoxify resulting wastes to ensure

their safe handling, storage, final treatment and disposal. To ensure the efficacy of their laboratory decontamination efforts, the Center screens and samples (via air monitoring and trace level lab analysis) chemical agent and experimental compound-related waste streams.

The U.S. Army PHC located in APG's Edgewood area provides solid waste analyses for waste streams generated in their labs, and can provide similar services to other APG tenants if so requested.

All three of the afore listed laboratories—the TSDF's contract laboratory, the DEVCOM Environmental Monitoring Laboratory (EML), and the Army PHC are compliant with ISO/IEC 17025 (*General Requirements for the Competence of Testing and Calibration Laboratories*). The TSDF's contract lab and the DEVCOM CBC EML conform to the management and technical requirements of the *Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories*.

II.B.3.1.4.3 Handling of Unknowns

When preparing for laboratory cleanout and packing services or at other times, hazardous waste generators may encounter containers with unknown contents. If the presence of toxic chemical agents is possible, the responsible activity (generator or facility operator where the unknown was recovered) will have the container first screened for chemical agents either internally (if in-house capability exists) or via the DEVCOM's CTF or SRF. Once cleared for chemical agents (or when chemical agents are not a factor), the responsible activity or the APG hazardous waste disposal contractor, will conduct fingerprint field analysis. APG's research laboratories have expertise and technologies (e.g., Fourier-transform Infrared (FTIR) Spectroscopy, Raman spectroscopy, portable gas chromatographs, etc.) and can provide qualitative screening analyses to identify or classify unknown wastes. The APG hazardous waste disposal contractor employs a written protocol that combines physical observations with a series of commercial test kits to fingerprint unknowns. This typically starts with the capture of physical data such as color, physical state, layers, apparent viscosity, etc., and is then followed by actual screening which may include checks for radioactivity, air reactivity, ignitibility & peroxides, water reactivity, pH, presence of oxidizer, and cyanide and sulfide reactivity.

During emergency responses, the APG Fire Department can provide portable field detection capabilities (e.g., portable FTIR spectroscopy, combustible gas indicator, photo ionization detector, etc.) which may identify or provide important physical and chemical data on unknown substances. If additional information is required for turn in and disposal of the waste, the generator may analyze it for organic and inorganic constituents using the results from the field screening to guide the selection of waste parameters and quantitative analytical methods. Some generators at APG are equipped to conduct these additional quantitative analyses in-house, while others rely on the APG TSDF's contract lab for such services.

II.B.3.1.5 Hazardous Waste Tracking System

APG tracks hazardous wastes from the generator to final disposition, and catalogues related characterization data using an automated hazardous waste tracking system (HWTS). Individual generators at each generation site provide waste information. Once a generator identifies waste stream constituents and/or hazardous characteristics using SDS information, label information, process information, or laboratory analysis, the generator fills in a blank Analysis Sheet (AS) in the HWTS and creates a new AS (Figure II.B.1). The generator creates a new AS for each waste stream; however, the generator may use a given AS for up to a year as long as the waste generating process is the same and the AS accurately describes the waste stream. The AS includes waste stream information (i.e., process description, form codes, chemical constituents by percentage of composition, ignitability range, pH range, and reactivity potential), and applicable EPA and MDE hazardous waste codes. APG provides training for generators on the use of its HWTS.

After the AS is completed, the generator prepares an electronic Turn-In Document (TID). The TID (Figure II.B.2) links a specific AS to the containers holding the wastes, the locations of the containers, and manifests. Generators must make ASs and TIDs available to federal and state regulators and compliance personnel on request.

Once a generator has completed a TID and AS, he/she submits them to their organization's Activity Environmental Coordinator (AEC) for review and approval. If information is lacking, the AEC will reject the TID and/or AS and request needed changes from the generator. Once approved by the AEC, the TID and/or AS is forwarded to the Installation Environmental Coordinator (IEC) at the APG TSDF for final review and approval. Only after IEC approval may a generator transfer

the wastes from the generator's satellite accumulation site (SAS), 90-day CAA, or permitted facility to the TSDF. From AS information, TSDF employees can determine proper storage requirements for each waste item.

When physically turning in wastes to the TSDF, generators provide TSDF personnel with a copy of each TID and AS. TSDF personnel compare this documentation to the waste container's labels/markings, examine waste container's condition, ensure container closures are tight and comply with 40 CFR 264 Subpart CC air emissions requirements (i.e., level 1 and/or 2 controls), confirm containers are not overfilled, weigh the containers and determine the waste segregation category to identify the correct storage location. Once stored, personnel update the container's storage location in the HWTS.

II.B.3.1.6 Compliance with Organic Air Emissions Requirements

While APG generators do characterize their hazardous wastes, they are not required to make volatile organic content determinations in accordance with 40 CFR 264.1083 to see if wastes ≥ 500 parts per million weight (ppmw) volatile organic threshold at the point of generation. In lieu of this, the Installation requires generators to ensure all liquid and gaseous waste containers greater than 0.1 cubic meter (m^3) (~26 gal) transferred to the TSDF comply with level 1 or 2 controls under 40 CFR 264 Subpart CC (i.e., containers are equipped with a tightly secured cover and closure with no visible holes or gaps that forms a continuous barrier, or the containers meet applicable DOT regulations on the packaging of hazardous materials for transportation).

II.B.3.1.7 Precautions for Ignitable, Reactive, and Incompatible Wastes

Laboratory wastes present the greatest potential threat for ignitable, reactive, and incompatible (I,R,I) hazards. APG research and analytical laboratories have chemical hygiene plans that highlight the hazards associated with handling combustible powdered metals, peroxide forming compounds, reactive Grignard reagents, cyanides, etc. Laboratory chemists at these facilities are therefore cognizant of these hazards, and can readily identify I,R,I wastes during characterization. Ignitable and reactive constituents are identified on electronic TIDs and AS in the HWTS. Trained TSDF personnel carefully review these documents during waste acceptance, and physically segregate the wastes accordingly.

The majority of these compounds in laboratories are unused reagents that are periodically lab packed by APG's hazardous waste disposal contractor. Laboratory packing activities are done at the laboratories themselves. During the laboratory packing operations, the disposal contractor's field chemists employ proprietary software and an extensive database that identifies potential ignitability and reactivity hazards. Laboratory pack crews carefully segregate these reagents by DOT hazard class to eliminate the potential for chemical incompatibilities.

II.B.3.1.8 Outgoing Waste Characterization

Commercial TSDFs require the completion and approval of waste profiles (WPs) prior to accepting wastes from APG and other off-site locations. APG's hazardous waste disposal contractor employs AS information to prepare most of these WPs (Figure II.B.3). If data in an existing WP includes or closely fits the data in a generator's waste stream AS, the installation hazardous waste contractor may use the existing WP rather than create a new one. On some occasions, the receiving off-site TSDF requires laboratory analysis. If so, the APG TSDF obtains a sample and completes the necessary analysis through its contract laboratory. The APG TSDF then signs the completed WP and forwards it with any required analysis through the waste disposal contractor to the receiving facility. The commercial TSDF reviews the information and determines whether to accept the waste for treatment and/or disposal. Once approved, the APG disposal contractor ensures all stored containers meet DOT requirements and schedules the off-site shipment.

APG TSDF personnel enter completed WP data into the HWTS. There are several hundred WPs on record in the system at any one time. APG TSDF personnel and generators review AS and WP sheets annually, and change them when a process change alters the characteristics or constituents in a waste stream. TSDF personnel must make the WP applicable to a particular waste stream available to federal and state regulators/compliance personnel on request.

II.B.3.1.9 Additional Requirements for Waste Generated Off-Site

The APG TSDF may accept waste generated at properties owned by APG but not contiguous to either Edgewood or Aberdeen. These properties include the Van Bibber Water Treatment Plant, Hanson Reservoir, Atkisson Reservoir, and Churchville Test Area. The types of wastes that could be generated at these noncontiguous properties include debris contaminated with lead or other toxic metals, solvents, asbestos-containing materials, PCB items, used oil, and scrap metal for recycling. Waste from these properties will be characterized before they are brought to the TSDF for storage.

Because the only wastes received from offsite are from properties owned by APG, compliance with COMAR 26.13.05.01(D)(1)(c)(ii) and 26.13.05.01(D)(1)(d) is achieved by requiring wastes originating offsite to be characterized before they are received onsite and by subjecting these wastes to the exact same review and approval process as wastes originating onsite. This review and approval process requires an activity and installation approval of waste analysis information to ensure that any waste received by the TSDF matches the identification of the waste on accompanying manifests or shipping papers.

II.B.3.2 N-FIELD STORAGE FACILITY

II.B.3.2.1 Process Description

The N-Field storage facility is used to store containerized, suspect chemical, smoke, and biological munitions that military explosive ordnance disposal (EOD) personnel consider safe for pretreatment storage. The facility is composed of an earth-covered igloo with six bays and three portable, steel magazines.

II.B.3.2.2 Accepted Wastes

APG uses the N-Field igloo to store munitions/weapons suspected and/or confirmed to contain chemical or biological warfare materiel and other potentially lethal or dangerous materials (e.g., highly toxic industrial chemicals). The portable magazines are used to store waste munitions containing smoke compositions (e.g., white phosphorus, sulfur-trioxide chlorosulfonic acid [FS], and titanium tetrachloride [FM]) and/or non-lethal chemical simulants such as ethylene glycol.

Table II.B.5 lists the EPA and MDE hazardous waste codes for wastes that could be stored in the N-Field igloo. Table II.B.6 lists the EPA and MDE hazardous waste codes for wastes that could be stored in the N-Field magazines.

II.B.3.2.3 Waste Restrictions

Generally, munitions that contain materials of significant toxicity (e.g., chemical agents or highly toxic industrial chemicals such as phosgene) are stored in the earth-covered igloo, which is outfitted with carbon filtration and air-monitoring equipment. Stored munitions must not exceed the facility's assigned chemical and explosives safety siting criteria and storage limits assigned by the DoD Explosives Safety Board. Copies of these documents are maintained by the APG Installation Safety Office. Explosives safety limits are also posted at the storage facility.

II.B.3.2.4 Incoming Waste Characterization

Before placing munitions in the N-Field storage facility, military EOD personnel assess these items' markings, appearance, size, weight, shape and fuzing in the field. Using expert knowledge, portable radiography and technical references they ascertain the explosive configuration of each munition and its potential to contain chemical or biological payloads. If munitions are determined to be safe for storage (from an explosives standpoint) and are suspected to contain a chemical or biological fill, they are double-wrapped in plastic, placed in sealable, steel containers, and put into the N-Field igloo awaiting further characterization by the Army Materiel Assessment Review Board (MARB).

II.B.3.2.5 Further Characterization of Stored Suspect Munitions

Specially trained technicians under the 20th Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Command employ neutron spectroscopy technology approved by the Army Chemical Materials Activity to non-intrusively determine the chemical fills in suspect munitions stored at N-Field. The results of the obtained spectra are then interpreted by a Department of Energy physicist with expertise in this area. These results are documented and forwarded for review by the MARB. In addition to neutron spectroscopy, the Chemical Materials Activity (CMA) has also furnished the 1 CBRNE's field technicians with powerful digital radiography-computerized tomography (DRCT) technology to provide enhanced images of internal munition components (e.g., explosive train and mixing vanes) and better determine liquid fill levels.

The MARB was established on March 1, 1994, under the U.S. Army Materiel Command. It is composed of subject-matter experts with years of experience in explosive ordnance disposal, the historical development and testing of chemical ordnance, munitions radiography, chemistry and neutron spectroscopy. The mission of the MARB is to make decisions for the Army on the disposition of recovered chemical munitions. The MARB bases their decisions on historical information, information gathered in the field, and provided non-intrusive characterization data (i.e., neutron spectroscopy and DRCT results) obtained from the 20th CBRNE Command. The decision of the MARB is documented in a memorandum addressed to the APG Garrison. A summary of the MARB evaluation results is documented on a Munitions Assessment Data Sheet (MADS). Both sets of documents are posted on a controlled access website for viewing by authorized parties. APG can provide copies of these reports and MADS to regulatory authorities on request.

The MARB's decision includes one of the following courses of action:

- For munitions confirmed to contain chemical warfare materiel (CWM), a significantly toxic industrial chemical (e.g., phosgene or hydrogen cyanide) or potential biological fill:
  - Treatment at the DEVCOM CBC CTF for munitions determined **not to contain energetic** components (i.e., fuze, bursting charge, etc.).
  - Treatment in the EDS or MAPS for munitions determined **to contain energetic** components. The EDS is typically employed when pre-treatment intrusive forensic analysis is not required and/or the munition's explosive stability may not be appropriate for handling within the MAPS (see Sections II.B.3.3 and II.B.3.7).
- For munitions confirmed to not contain CWM, BWM or toxic industrial chemical fill (e.g., acidic smoke compositions, white phosphorus, testing surrogates such as ethylene glycol) the decision on how to dispose of the munition is left to the Installation. At APG, such munitions are typically open detonated at J-Field (see Section II.B.3.6).

II.B.3.2.6 Compliance with Organic Air Emissions Requirements

No volatile organic content determinations in accordance with 40 CFR 264.1083 are made to see if wastes stored at N-Field ≥ 500 ppmw volatile organic threshold at the point of generation. To ensure compliance, all liquid and gaseous waste containers greater than 0.1 m3 (~26 gal) transferred to N-Field comply with level 1 or 2 controls under 40 CFR 264 Subpart CC.

II.B.3.2.7 Precautions for Ignitable, Reactive and Incompatible (I,R,I) Wastes

The obvious principal hazard associated with the storage of waste chemical/biological munitions is their explosive reactivity. Sections II.B.3.2.4 and II.B.3.2.5 address the detail with which EOD personnel and the MARB evaluate and characterize both potential explosive and chemical/biological hazards posed by these wastes.

II.B.3.2.8 Additional Requirements for Waste Generated Off-Site

The N-Field storage facility infrequently receives suspect munitions from off-site. These are items temporarily stored at the facility that are identified for *Resource Conservation and Recovery Act* (RCRA) treatability studies, forensic evaluation or RCRA treatment in one of APG's authorized, permitted facilities (i.e., CTF, MAPS, SRF or EDS). Any planned receipt of off-site munitions samples or wastes is pre-coordinated with and approved by the MDE. The characterization procedures used are essentially the same as those described in Sections II.B.3.2.4 and II.B.3.2.5. The major difference is that non-intrusive analysis (i.e., neutron spectroscopy for fill identification) and

detailed radiography is normally done off site at the point of generation or recovery to ensure safe military transport of such items to APG.

II.B.3.3 MAPS

II.B.3.3.1 Process Description

The primary function of the MAPS is to process waste chemical munitions recovered on APG and to support the DEVCOM CBC's Chemical Biological Center's national chemical/biological defense mission by providing a system capable of accessing, sampling, and/or treating (neutralizing) small to medium caliber, explosively configured chemical weapons, components, or devices recovered at other locations and brought to APG as samples for forensic evaluation. Major MAPS components include:

- Process Glovebox,
- Drill Box,
- Drill,
- Explosive Containment Chamber (ECC), and
- Burster Detonation Vessel (BDV).

Principal supporting systems include: ventilation and filtration systems, air monitoring system, facility control system, and a chemical storage tank system (comprised of Intermediate Bulk Containers [IBCs]).

Processing includes removal of chemical agent/other liquid fills from munitions, decontamination of the drained munitions, and destruction of the explosive components of the drained and decontaminated munitions. Removed fill will be sent to an appropriate facility for further management. Chemical agents and phosgene, for example, will be sent to the CTF (or to the SRF once it is fully operational) for destruction/neutralization. Other liquid fills consisting of safely transportable industrial chemicals may be shipped directly to an offsite commercial TSDF for treatment and disposal.

Drained munitions are decontaminated and are then detonated in a BDV, or at the J-Field open detonation unit to destroy any on-board energetics. Residual liquid wastes from munition and

glove box decontamination are either directly containerized, temporarily stored and then transferred to the APG TSDF, or may be temporarily stored in the site's hazardous waste tank

system. The contents of the waste tanks are eventually gravity drained to drums which are then transferred to the APG TSDF. Solid munition scrap residues removed from the BDV and solid debris (wipes, gloves, sorbent, personal protective equipment [PPE], etc.) removed from the glove box are containerized, temporarily stored and then sent to the APG TSDF.

II.B.3.3.2 Accepted Wastes

Table II.B.7 lists the EPA and MDE hazardous waste codes for wastes that could be stored at the MAPS.

II.B.3.3.3 Waste Restrictions

The MAPS is designed to process explosively stable, chemical projectiles, mortars and devices no larger than an 8-inch projectile with a net explosive weight (NEW) of less than 3.5 pounds.

II.B.3.3.4 Incoming Waste Characterization

All waste munitions processed at the MAPS undergo the same EOD and MARB evaluation previously described in Sections II.B.3.2.4 and II.B.3.2.5. Near-real time monitoring using portable gas chromatographs (i.e., the Army's miniature continuous agent monitoring system or MINICAMS) and/or the use of Draeger tubes are employed during glove box operations to ensure engineering controls are properly functioning and personnel are not exposed to toxic agents. Depot Area Air Monitoring System (DAAMS) tubes are also used, if appropriate, to confirm no agent exposures to personnel working outside engineering controls. The tubes are thermally desorbed at the DEVCOM CBC's EML and analyzed using gas chromatograph/mass spectral (GC/MS) analysis.

II.B.3.3.5 Compliance with Organic Air Emissions Requirements

The MAPS is authorized to store hazardous wastes in tanks and containers. Some wastes may contain volatile organic content triggering Subpart BB and CC requirements.

The DEVCOM CBC does not analyze wastes to determine average volatile organic content managed in the MAPS tank system. Applicability of the BB standards is determined through knowledge of hazardous wastes prior to treatment, and the chemical makeup and stoichiometric ratio of decontaminants added to chemically treat the wastes. If total organic content cannot be determined, wastes entering the tank system will be assumed to have an organic concentration of at least 10 percent by weight. The MAPS only operates intermittently, and it is not anticipated

that it would ever have organic constituents in its tank system for 300 or more hours in a given year. Operators track processing time to see if this occurs. If it does not, then tank system operations are exempt from BB standards per 40 CFR 264.1050(f).

Similarly, no volatile organic content determinations in accordance with 40 CFR 264.1083 are made to see if containerized wastes and those treated or stored in the tank system are subject to 40 CFR Subpart CC requirements. To ensure compliance, all liquid and gaseous waste containers greater than 0.1 m3 (~26 gallons) transferred to and from the MAPS will comply with level 1 or 2 controls.

With respect to the tank system, the DEVCOM CBC will determine using generator knowledge the maximum organic vapor pressure for hazardous waste to be managed in the system in accordance with 40 CFR 264.1084. Personnel assume all wastes entering the system exceed CC criteria. The MAPS hazardous waste tank system is constructed to meet level 1 and 2 controls (i.e., tank system is fully closed, any openings vent to a carbon filtration system that achieves required 95% removal efficiency based on system design calculations.)

II.B.3.3.6 Precautions for I,R,I Wastes and Additional Requirements for Waste Generated Off-Site

All munitions processed at MAPS are first evaluated through the MARB and are stored at N-Field prior to their arrival for processing at the MAPS. All explosives reactivity, ignitability and chemical incompatibility-related evaluations are therefore the same as those for N-Field. See Sections II.B.3.2.4, II.B.3.2.5 and II.B.3.2.7 for N-Field.

The MAPS infrequently receives suspect munitions from off-site. Non-intrusive analysis (i.e., neutron spectroscopy for fill identification) and detailed radiography is normally done off site at the point of generation or recovery to ensure safe military transport of such items to APG. Any planned processing of off-site munitions samples or wastes is pre-coordinated with and approved by the MDE.

II.B.3.3.7 Outgoing Waste Characterization/Handling

Chemical agent fill materials recovered at the MAPS are generally sampled by the DEVCOM CBC EML or may be transferred to the CTF or the SRF for agent destruction and neutralization. It

is also possible that recovered munitions, particularly if they contain explosives, could be sampled at MAPS and then treated in the EDS (see Section II.B.3.7).

In consultation with the MDE, certain fill materials may be transferred to another APG facility for reuse in research. Any characterization required for treatment of the chemical agents will be conducted at the CTF or the SRF (see Sections II.B.3.4 and II.B.3.7).

Spent decontamination solutions are generated throughout the MAPS process area. The process area includes, but is not limited to, the MAPS gloveboxes, drill box, plenum, explosive containment chamber, BDV, and personnel decontamination areas. Personnel collect the waste in the facility's tank system (IBCs), screen for agent, and subsequently characterize for hazardous characteristics and constituents using process knowledge and/or sampling and analysis. If an approved WP exists for the waste, it can be shipped directly from the MAPS via the APG TSDF to a commercial TSDF.

Fill materials recovered at the MAPS that are confirmed not to contain chemical agents (e.g., nitrobenzene, certain tear-producing compounds) are generally transported directly to an offsite permitted hazardous waste TSDF or transferred to an onsite permitted storage area for subsequent transportation to a permitted TSDF. In consultation with the MDE, certain fill materials may be transferred to another APG facility for reuse in research.

Potential waste solids generated by MAPS operations include munition casings/fragments, metal shavings, overpacks, packing materials, residuals from the destruction of energetic components, carbon filter trays or spent carbon, and PPE. In general, for solids generated during chemical agent-related operations known or suspected to be agent-contaminated, personnel will chemically decontaminate, characterize for RCRA constituents via process knowledge or analysis, and dispose of as hazardous wastes at a commercial TSDF.

One exception may be high cost munitions overpacks (Photograph II.B.1), which may be surface decontaminated in accordance with Army safety standards and maintained under federal

government control for reuse. Solids generated from the processing of munitions containing industrial chemicals and smoke compounds will be characterized for hazardous characteristics and listed hazardous constituents based on process knowledge and/or laboratory analysis, and they will

be appropriately disposed of based on results. If economically justified, scrap metals from non-agent operations will be segregated and recycled in accordance with 40 CFR 261.6(a)(3)(ii) and COMAR 26.13.02.06A(3)(a)(iii). If appropriate, containers may be triple rinsed in accordance with 40 CFR 261.7 and COMAR 26.13.02.07 to remove residues of acute hazardous waste.

II.B.3.3.8 Documentation

MAPS operators maintain information logs for all munitions processed. The logs show the following data to the extent they are available and relevant:

- Item identification number;
- Munitions data;
- Condition of munitions (corrosion, deformation, or other conditions that may influence the accessing or treatment operation);
- Decontamination solution used/treatment reagent used;
- Energetics destruction (size/type/configuration of donor charge used in MAPS or EDS);
- Post-detonation inspection observations; and
- The results of appropriate tests/monitoring (e.g., headspace monitoring of containerized solids) when such results are used to determine subsequent management options.

Data are kept regarding the fill material (e.g., color, consistency, M-8 and pH paper responses) and the quantity of fill material recovered from the munitions.

II.B.3.4 CHEMICAL TRANSFER FACILITY

II.B.3.4.1 Process Description

The Chemical Transfer Facility (CTF) is a research and development facility supporting a wide range of activities including research, the characterization of suspect CWM and biological samples, miscellaneous laboratory operations, and the support of counter-terrorism and similar operations. It also serves as an authorized, single small-scale facility (SSSF) under the terms of the international Chemical Weapons Convention (CWC). The CTF synthesizes test quantities of chemical agents in this capacity.

The facility receives both suspect samples (from APG and off-site locations) and non-explosively configured waste chemical/biological munitions recovered on APG. The CTF generates chemical

agent decontamination wastes through use of its laboratory hoods, gloveboxes, reaction vessels, chemical agent transfer system (specialized glovebox) and supporting hazardous waste tank system. Bulk decontamination liquids collected and stored in the hazardous waste tank system are periodically shipped off site via authorized transporters to a commercial TSDF for final treatment. Smaller quantities of lab debris are containerized and transferred to the TSDF for storage pending off-site shipment to commercial TSDFs.

II.B.3.4.2 Accepted Wastes

Table II.B.8 lists the EPA and MDE waste numbers for wastes that could be stored in containers or tanks at the CTF.

II.B.3.4.3 Waste Restrictions

The CTF does not normally receive wastes containing energetic components; however, the A-190 permit allows limited exceptions. These require the performance of a risk assessment, written acceptance of the risk by the appropriate Department of the Amy decision authority, and written pre-coordination with MDE prior to receipt of such an item.

II.B.3.4.4 Incoming Waste Characterization

The CTF receives liquid-filled, non-explosively configured waste munitions from legacy chemical operations that are without any explosive components. The absence of explosives is confirmed during the MARB characterization process discussed in Section II.B.3.2.5.

Army EOD and/or other outside agencies (e.g., U.S. Army Corps of Engineers, law enforcement and intelligence agencies) at a minimum screen non-munition samples containing unknown liquids or solids to rule out the presence of explosives prior to transfer of the sample(s) to the CTF. Depending on the nature of the sample and the circumstances surrounding its discovery, additional screening may be done in the field or at the CTF prior to accessing the sample for intrusive analysis. Pre-accessing screening prior to opening at the CTF may include the following:

- For sealed, opaque containers - radiographs and neutron spectroscopy; and
- For glass/translucent containers - RAMAN or FTIR spectroscopy.

Upon opening under engineering controls at the CTF, screening may include use of the following:

- Photoionization detector;
- Colorimetric paper chemical agent differentiators (e.g., M-8 and pH paper);
- MINICAMS;
- Depot Area Air Monitoring System or DAAMS (sorbent tube vapor collection followed by thermal desorption and gas chromatograph/mass spectral analysis);
- Spectroscopy/spectrometry; and
- Portable radioactivity detector (gross gamma, alpha and beta).

II.B.3.4.5 Compliance with Organic Air Emissions Requirements

The CTF is authorized to store hazardous wastes in tanks and containers. Some wastes may contain volatile organic content triggering Subpart BB and CC requirements.

CTF personnel determine the applicability of the BB standards through knowledge of hazardous wastes gained through pre-treatment screening and generator knowledge of treatment reagents. As a general rule, the facility does not manage hazardous wastes in the regulated hazardous waste tank system that ever come close to 10% by weight organic content. When encountering high organic content waste streams, they are treated in containers under engineering controls.

Similarly, no volatile organic content determinations in accordance with 40 CFR 264.1083 are made to see if containerized wastes and those treated or stored in the tank system are subject to 40 CFR Subpart CC requirements. To ensure compliance, all liquid and gaseous waste containers greater than 0.1 m3 (~26 gal) transferred to and from the CTF will comply with level 1 or 2 controls.

With respect to the tank system, the DEVCOM CBC will determine using generator knowledge the maximum organic vapor pressure for hazardous waste to be managed in the system in accordance with 40 CFR 264.1084. Personnel assume all wastes entering the system exceed CC criteria. The CTF hazardous waste tank system is constructed to meet level 1 and 2 controls (i.e., tank system is fully closed, any openings vent to a carbon filtration system that achieves required 95% removal efficiency based on system design calculations.)

II.B.3.4.6 Precautions for I,R,I Wastes and Additional Requirements for Waste Generated Off-Site

All munitions processed at the CTF are first evaluated through the MARB and are stored at N-Field prior to their arrival for processing. All explosives reactivity, ignitability and chemical

incompatibility-related evaluations are therefore the same as those for N-Field (see Sections II.B.3.2.4, II.B.3.2.5, and II.B.3.2.7).

Ignitability and incompatibility considerations are evaluated during incoming waste characterization described at Section II.B.3.4.4.

The CTF infrequently receives suspect samples from off-site. Item screening follows that described at Section II.B.3.4.4.

II.B.3.4.7 Outgoing Waste Characterization

The CTF generates aqueous decontamination wastes. CTF personnel screen this waste stream for chemical agent (typically via GC/MS trace analysis). Once decontamination is verified, the facility sends a sample for off-site analysis by the TSDF contract laboratory for analysis based on knowledge of the treatment process and the wastes treated. APG TSDF employees prepare a WP based upon analytical data and submit it (sometimes along with a sample if so required by the receiving off-site facility) to the commercial TSDF. Upon approval, APG ships the waste directly from the CTF (bulk quantities) via the APG TSDF to a commercial TSDF.

Smaller containers of lab debris are typically monitored via MINICAMS or DAAMS if potentially exposed to chemical agents, and then transferred to the APG TSDF for storage and subsequent off-site shipment to a commercial TSDF.

II.B.3.5 SAMPLE RECEIPT FACILITY

II.B.3.5.1 Process Description

The primary mission of the Sample Receipt Facility (SRF) is to receive samples with potential explosive, chemical, radiological, and biological constituents and to provide for characterization and proper management of the samples. The SRF is a containment building with a hazardous waste collection, storage and treatment system (glove box and hazardous waste tank system). The facility is also authorized to store containerized wastes—typically lab debris.

SRF biological wastes will be managed in accordance with Center for Disease Control (CfDC) and Prevention, and DoD guidelines. All dangerous biological wastes are inactivated/sterilized via autoclaving and/or chemical treatment. Following the inactivation procedure, some items such as glassware can be washed and reused. The inactivated solids, although provisionally exempt from MDE special medical waste regulations after onsite sterilization (COMAR 26.13.11.03E), are

appropriately packaged and disposed of via a medical waste disposal contract. Packaging of these wastes is in accordance with DOT requirements. Sharps are collected in combustible, puncture and leak-proof containers. A shipping paper accompanies all offsite waste shipments in accordance with 49 CFR 172.200–172.204. Solutions containing inactivated biologicals that meet the requirements of APG Regulation (APGR) 200-41 are discharged to the sanitary sewer or transferred to the APG TSDF for storage and subsequent off-site shipment to a commercial TSDF.

The SRF can also handle toxins, which are defined by the DoD as biological agents because they have been historically produced by living organisms such as bacteria, plants, or animals. However, the toxins themselves are non-infectious proteins or low molecular weight organic structures managed in the same manner as chemical agents. The physical and chemical measures necessary to work with and to protect against chemical agents are also effective with toxins.

SRF radioactive waste will be packaged for disposal in accordance with APG, U.S. Department of the Army, and Nuclear Regulatory Commission (NRC) requirements. An approved contract agency will collect radioactive waste periodically under the requirements of the Army's low-level radioactive waste program and will dispose of the waste in NRC-licensed disposal facilities.

Mixed waste (i.e., waste with radiological and hazardous chemical constituents), if it is generated, will be stored at the SRF, tracked in the APG HWTS, and managed in accordance with NRC and COMAR requirements. Mixed waste will be sent to a commercial treatment/disposal facility permitted to handle the chemical and radiological constituents of the waste. All efforts will be made to minimize the amount of mixed waste that is generated at the facility.

II.B.3.5.2 Accepted Wastes

Table II.B.9 lists the EPA and MDE waste codes for hazardous wastes that could be treated or stored at the SRF.

II.B.3.5.3 Waste Restrictions

While the samples received at the SRF may have explosive components, the facility is not equipped to treat them. Explosives are treated at the MAPS in the Burster Detonation Vessel, at the J-Field open detonation unit or an authorized offsite facility.

II.B.3.5.4 Incoming Waste Characterization

Incoming samples are screened via a non-intrusive evaluation similar to the MARB process employed for items stored at N-Field. Incoming waste screening techniques mimic those described for the CTF.

II.B.3.5.5 Compliance with Organic Air Emissions Requirements

The SRF is authorized to store hazardous wastes in tanks and containers. Some wastes may contain volatile organic content triggering Subpart BB and CC requirements.

SRF personnel will determine the applicability of the BB standards through knowledge of hazardous wastes gained through pre-treatment screening and generator knowledge of treatment reagents. As a rule, the facility will not manage hazardous wastes in the regulated hazardous waste tank system that ever come close to 10% by weight organic content. When encountering high organic content waste streams, they will be treated in containers under engineering controls.

No volatile organic content determinations in accordance with 40 CFR 264.1083 are made to see if containerized wastes and those treated or stored in the tank system are subject to 40 CFR Subpart CC requirements. To ensure compliance, all liquid and gaseous waste containers greater than 0.1 m^3 (~26 gal) transferred to and from the SRF will comply with level 1 or 2 controls.

With respect to the tank system, SRF personnel will determine using generator knowledge the maximum organic vapor pressure for hazardous waste to be managed in the system in accordance with 40 CFR 264.1084. Personnel assume all wastes entering the system exceed CC criteria. The SRF hazardous waste tank system is constructed to meet level 1 and 2 controls (i.e., tank system is fully closed, any openings vent to a carbon filtration system that achieves required 95% removal efficiency based on system design calculations.)

II.B.3.5.6 Precautions for I,R,I Wastes and Additional Requirements for Waste Generated Off-Site

All munitions processed at the SRF will be first evaluated through the MARB and likely stored at N-Field prior to their arrival for processing. All explosives reactivity, ignitability and chemical incompatibility-related evaluations are therefore the same as those for N-Field (see Sections II.B.3.2.4, II.B.3.2.5, and II.B.3.2.7).

Ignitability and incompatibility considerations are evaluated during incoming waste characterization described for the CTF at Section II.B.3.4.4.

The SRF will periodically receive suspect chemical/biological/radiological samples from off-site. Item screening will follow that described at Section II.B.3.4.4 for the CTF.

II.B.3.5.7 Outgoing Waste Characterization

The SRF generates aqueous decontamination wastes. APG TSDF employees prepare a WP based upon analysis data and submits it along with a sample to the commercial TSDF. Upon approval, APG ships the waste directly from the SRF (bulk quantities) or will ship the waste from the SRF via the APG TSDF to a commercial TSDF.

Smaller containers of lab debris are typically monitored via MINICAMS or DAAMS if potentially exposed to chemical agents, and then transferred to the APG TSDF for storage and subsequent off-site shipment to a commercial TSDF.

II.B.3.6 OB AND OD OPERATIONS

II.B.3.6.1 Process Description

APG has one OB unit and two OD units. The Aberdeen Test Center (ATC) operates one OB and OD unit at the OBF in the Aberdeen Area, while the 20th CBRNE Analytical and Remediation Activity (CARA) operates the second OD unit at [redacted], which is part of J-Field in the Edgewood Area.

The OBF OB and OD units are used to treat both used and unused waste munitions and propellants remaining from research and testing operations and certain munitions moved from Aberdeen area ranges or *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) sites. Excess and off-specification energetic materials are regularly culled from existing stocks that are in storage and then treated. In the case of propellants (which are open burned), treatment is necessary to prevent decomposition and a self-ignition hazard. Consistent with the Military Munitions Rule, unused propellants and munitions determined to be waste by a designated disposal authority (DDA), become wastes the moment they are removed from storage for transfer to one of APG's authorized OBOD units. Due to pre-detonation stripping of excess packaging and the large quantities of donor explosives employed, OD activities at the OBF generate little or no retrievable residue. ATC processes packaging and reusable ammunition boxes,

etc. removed prior to OD operations at its Range Residue Processing Facility. These materials are reused, recycled or sent to off-site to solid waste facilities for disposal. OB operations generate small quantities of ash that may or may not be hazardous waste depending on heavy metal(s) content.

APG uses the J-Field OD unit to open detonate small numbers of recovered munitions (e.g., munitions moved from Edgewood Area CERCLA sites) that require disposal under hazardous waste management regulations and waste munitions that have been stored in the N-Field Storage Facility. If characterization of waste munitions stored at N-Field determines that the munitions do not have a chemical or biological fills, the munitions undergo planned destruction at the J-Field OD unit. The unit may also detonate fully drained and decontaminated munitions and/or explosive devices generated at the MAPS or SRF. OD activities at J-Field generate small quantities of metallic range residue which site personnel periodically collect. These residues are containerized and subsequently disposed of at offsite, commercial TSDFs.

II.B.3.6.2 Accepted Wastes

Table II.B.10 lists the EPA waste codes for hazardous wastes that could be treated at the OBF OB and OD units and at the J-Field OD unit.

II.B.3.6.3 Waste Restrictions

Unused waste munitions are restricted to those authorized by the Army RDTE DDA for local OBOD at APG.

II.B.3.6.4 Incoming Waste Characterization

II.B.3.6.4.4 Old Bombing Field

The ATC relies on generator knowledge to characterize waste munitions identified for OBOD at the Old Bombing Field. Sources of characterization data include the Army Joint Munitions Command-hosted Munition Items Disposition Action System (MIDAS); safety data information provided by project managers, munition data cards, etc. The MIDAS is generally the best source for characterization data. It includes detailed component data on numerous munition families and subcategories of munitions within each family. Data include detailed parts lists, weights, chemical makeup of item components and drawings.

II.B.3.6.4.5 J-Field

Military EOD or authorized Army unexploded ordnance (UXO) personnel from the 20th CARA field screen all recovered waste munitions destined for OD at J-Field. Personnel rely on expert knowledge, field measurements, comparison of findings to tech data in field publications (i.e., Technical Manual 60 series) and field radiography as necessary to identify items as either suspect chemical or biological munitions, or conventional munitions (i.e., high explosive, smoke, pyrotechnic-filled, etc.). Only conventional, non-chemical/biological munitions are detonated at J-Field.

II.B.3.6.5 Outgoing Waste Characterization

The ATC regularly characters ash resulting from its OB activities for heavy metals via off-site contract laboratory.

Solid waste exposed to energetic compounds (i.e., propellants, explosives, or pyrotechnics) remaining after OD operations at the OBF and J-Field is visually inspected and certified, as necessary, for safe disposal. Waste exposed or potentially exposed to energetic compounds is known as Material that Presents a Potential Explosives Hazard (MPPEH). Designated personnel trained in EOD and ammunition inspection and handling procedures will make all MPPEH inspections and certifications.

- Inspection: All MPPEH destined for disposal will be visually inspected for the presence of energetic materials. Qualified UXO technicians or EOD personnel will mechanically or explosively open munitions and munition components to allow for the unobstructed inspection of all surface areas for the presence of residual explosives and/or propellants. Porous materials that do not allow definitive inspection will require handling as explosive-contaminated debris warranting some means of thermal treatment.

- Sampling & Analysis: If inspection uncovers visible contamination, swipe or particle samples can be collected in water to screen for explosives using commercially available colorimetric test kits or laboratory analysis (e.g., EPA methods 8330 or 8095) as needed for adequate characterization. Sampling and analysis may also be required for non-energetic fill materials such as wax and other surrogates historically used to mimic explosive fills during legacy munitions testing on APG's RDTE ranges.

- Decontamination/Treatment: Visible contamination observed during MPPEH inspection that can be physically removed from the material will be collected and thermally treated at the J-Field or OBF OD unit or in the MAPS' BDV, as

appropriate. Steam, water, and/or alkaline washout may be employed to remove residuals from munitions casings and similar MPPEH surfaces amenable to such decontamination. Materials that cannot be decontaminated and certified for safe disposal will be candidates for thermal treatment via OB/OD or the MAPS BDV.

- Certification: All MPPEH destined for offsite disposal will be certified as explosively inert by military EOD or qualified civilian UXO personnel. This certification will be verified by a second EOD technician or qualified ammunition handler or surveillance inspector employed by the U.S. government. These individuals will document and sign the dual certification/verification using the following or similar language:

  We have inspected 100 percent of the items in container XX and hereby certify to the best of our knowledge and belief that the said items do not present an explosive hazard.

All inert-certified wastes are packaged and enclosed in DOT-approved shipping containers, which will be tracked and maintained secure through the waste transfer process to protect the integrity of the inert certification and verification.

II.B.3.6.6 Long-Term Monitoring of OBOD Sites' Soils and Groundwater

APG's A-190 CHS permit requires annual groundwater monitoring and periodic (presently every 5 years) soil sampling at both the OBF OBOD areas and the J-Field OD unit. Soil sampling was last completed in mid-2016 and is due again in 2021. Analytical parameters are called out in the permit. This work is carried out via the U.S. Army PHC or contract provider.

II.B.3.7 EDS

II.B.3.7.1 Process Description

The EDS is a trailer-mounted transportable treatment unit developed by the CMA Recovered Chemical Materiel Directorate (RCMD) to destroy recovered CWM. The main subsystem of the EDS is an explosion and vapor containment vessel that contains the shock, the munitions fragments, and the chemical agent during the technology's explosives-mediated, munitions opening process. Post detonation, chemical neutralents are pumped into the same vessel for the treatment of the agent and deactivation of residual energetics, if present. The EDS trailer provides a mounting surface for major system components and an operators' work platform. During processing, a fragment suppression system surrounds the chemical munition or munitions inside

the containment vessel and protects the containment vessel from high-velocity fragments. Shaped charges are used to access the munitions' fill, thereby releasing the munitions' contents into the containment vessel; the charges are also used to deactivate the munitions' burster explosives, if present. A firing system detonates the shaped charges. A chemical feed system supplies treatment reagents and water to the containment vessel, and a waste handling system drains the spent treatment effluent from the containment vessel into waste collection drums. Toxic vapors are channeled to carbon filters.

II.B.3.7.2 Accepted Wastes

Table II.B.11 lists the EPA waste codes for wastes associated with EDS treatment operations. Table II.B.12 lists the possible fill materials of munitions that could be processed in the EDS along with a possible reagent that could be used to treat each fill. The EDS standard operating procedures (SOPs) applicable to the operation generally specify the choice of reagent. DEVCOM CBC and RCMD safety personnel may approve deviations to these SOPs. Excess amounts of treatment reagents will be used to ensure that chemical reactions go to completion.

II.B.3.7.3 Waste Restrictions

The smaller phase 1 EDS is limited to chemical, biological and smoke munitions containing up to 1.5 pounds trinitrotoluene (TNT)-equivalent NEW. The larger phase 2 unit authorized for use on APG can handle up to 9 pounds NEW.

II.B.3.7.4 Incoming Waste Characterization

Based upon the characterization performed by the MARB, the appropriate Army safety requirements and practices applicable to handling munitions in the EDS are implemented. Different Army requirements govern the handling of recovered munitions suspected of containing chemical agents, industrial chemicals, and explosive components. If a specific munition fill cannot be determined during nonintrusive characterization, the munition will be managed in accordance with procedures applicable to the most hazardous of the potential fills as determined by the circumstances associated with the discovery of the munition (e.g., recovery location and historical firing records for the site) and its design characteristics.

II.B.3.7.5 Compliance with Organic Air Emissions Requirements

The EDS is authorized to treat hazardous wastes in containers (EDS vessel and waste transfer system drums). Some wastes may contain volatile organic content triggering Subpart BB and CC requirements.

The EDS operator will determine the applicability of the BB standards through knowledge of hazardous wastes gained through pre-treatment screening and generator knowledge of treatment reagents. No volatile organic content determinations in accordance with 40 CFR 264.1083 are made to see if containerized wastes and those treated in the EDS vessel are subject to 40 CFR Subpart CC requirements. To ensure compliance, all liquid and gaseous waste containers (i.e., EDS vessel and waste transfer drums) will comply with container level 1 or 2 controls, as applicable.

II.B.3.7.6 Precautions for I,R,I Wastes and Additional Requirements for Waste Generated Off-Site

All munitions processed in the EDS will be first evaluated through the MARB and likely stored at N-Field prior to their arrival for processing. All explosives reactivity, ignitability and chemical incompatibility-related evaluations are therefore the same as those for N-Field (see Sections II.B.3.2.4, II.B.3.2.5, and II.B.3.2.7).

The EDS may infrequently receive suspect chemical munitions from off-site. Requirements are the same as those provided in Section II.B.3.2.8 for N-Field.

II.B.3.7.7 Outgoing Waste Characterization

Agent destruction will be confirmed analytically, if necessary, before waste samples are characterized for hazardous waste parameters. The specific parameters for laboratory analysis will be determined using process knowledge.

EDS neutralent and rinsewater wastes will be generated from the treatment process conducted in the containment vessel. Decontamination solutions will be generated from cleaning activities and from the EDS personnel decontamination system. Neutralent wastes will be screened for agent. All liquid wastes will be characterized for hazardous characteristics and constituents using process knowledge and/or sampling and analysis. After characterization, EDS liquid wastes will be

transported to the TSDF or to a 90-day site where it will be staged for offsite shipment. Wastes generated from EDS treatment operations may include, but are not limited to the following:

- Neutralent and rinsewater;
- Spent decontamination solution and containment pan liquids;
- Munitions casing fragments and components;
- Spent carbon;
- Used PPE;
- Miscellaneous solids such as packing material, wipes, and absorbed wastes resulting from any cleanup activities; and
- Miscellaneous liquid wastes, such as chemical or supply spill material, or other fluids, including waste oils and solvents.

Potential waste solids generated by EDS operations include munition casings/fragments, metal shavings, overpacks, packing materials, residuals from the destruction of energetic components, carbon filter trays or spent carbon, and PPE. In general, for solids generated during chemical agent-related operations known or suspected to be agent-contaminated, personnel will chemically decontaminate, characterize for RCRA constituents via process knowledge or analysis, and dispose of as hazardous wastes at a commercial TSDF. One exception may be high cost munitions overpacks, which may be surface decontaminated in accordance with Army safety standards and maintained under federal government control for reuse. Solids generated from the processing of munitions containing industrial chemicals and smoke compounds will be characterized for hazardous characteristics and listed hazardous constituents based on process knowledge and/or laboratory analysis, and they will be appropriately disposed of based on results. If economically justified, scrap metals from non-agent operations will be segregated and recycled in accordance with 40 CFR 261.6(a)(3)(ii) and COMAR 26.13.02.06A(3)(a)(iii). If appropriate, containers may be triple rinsed in accordance with 40 CFR 261.7 and COMAR 26.13.02.07 to remove residues of acute hazardous waste.

II.B.3.7.8 Documentation

EDS operators maintain information logs for all munitions processed. The logs show the following data to the extent they are available and relevant:

- Item identification number;
- Munitions data;
- Condition of munitions (corrosion, deformation, or other conditions that may influence the accessing or treatment operation);
- Decontamination solution used/treatment reagent used;
- Energetics destruction (size/type/configuration of donor charge used);
- Post-detonation inspection observations; and
- The results of appropriate tests/monitoring (e.g., headspace monitoring of containerized solids) when such results are used to determine subsequent management options.

II.B.4 ABERDEEN PROVING GROUND GUIDANCE ON CODE OF MARYLAND REGULATIONS LISTINGS AND DE-LISTINGS FOR CHEMICAL AGENT WASTES

APG has developed guidance for complying with the COMAR regulations pertaining to hazardous waste numbers applied to wastes that are derived from or that may contain chemical agents. The guidance applies to APG Garrison organizations, post tenant organizations, and contractors that generate chemical agent wastes at APG. The guidance addresses the use of COMAR military hazardous waste listings (K991-K999, MD02, and MD03) and delistings. Tenant/contractor organizations that generate chemical agent waste may develop facility-specific procedures as necessary to address facility-specific applications. MDE assisted APG in drafting its initial guidance on COMAR chemical agent listings and delistings in 2005. APG revised the guidance in 2014 and submitted the document to MDE at that time. The current version (reflecting all 2014 updates and subsequent minor edits in 2015) is dated April, 2016. Future revisions to the listing/delisting guidance will be provided to MDE for review and comment. A copy of the 2016 guidance is included as Appendix II.B.1.

II.B.5 PARAMETERS AND RATIONALE [40 CFR 264.13(B)(1); COMAR 26.13.05.02D(2)(C)(I)]

The parameters selected for analysis (e.g., pH, ignitability, toxicity characteristic leaching procedure metals, volatiles, semi-volatiles, PCBs, CWM, etc.) are determined by process knowledge, the physical state of the waste and knowledge of which parameters are required to determine waste characteristics, identify PCB waste categories, screen for toxic chemical agents, etc. The responsibility for the proper selection of analytical parameters and the rationale for their selection

rests with individual APG generators and/or their AECs. The Directorate of Public Works Environmental Division (DPW-ED) provides these individuals with initial and annual hazardous waste training that includes waste determination activities and characterization methodologies. For those generators that need it, TSDF personnel provide assistance in the selection of appropriate analytical parameters and methods.

II.B.6 TEST METHODS [40 CFR 264.13(B)(2); COMAR 26.13.05.02D(2)(C)(II)]

If analytical data are used to characterize a waste, a representative sample of the waste is first obtained following the procedures described in Section II.B.7. The TSDF contract laboratory and the DEVCOM CBC EML perform the majority of APG waste stream laboratory analyses. As noted in Section II.B.3.1.4.2, both labs are compliant with ISO/IEC 17025 and the DoD *QSM*.

The TSDF contract laboratory employs analytical methods found in the latest edition of SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods." The DEVCOM CBC EML has written methods to test for residual chemical warfare agents in waste liquids and solids generated by DEVCOM CBC operations (e.g., CTF, MAPS, SRF, and EDS). Copies of these methods are available on request.

Table II.B.13 shows the basic parameters and typical test methods used by APG to determine the chemical and physical characteristics of a waste. APG augments these parameters and test methods as necessary to identify possible hazardous constituents. Examples include the APG hazardous waste disposal contractor's field screening tools for fingerprinting of unknowns described in Section II.B.3.1.4.3, the EOD and MARB evaluation process described in Sections II.B.3.2.4 and II.B.3.2.5, or the CTF incoming waste screening described in Section II.B.3.4.4.

II.B.7 SAMPLING METHODS [40 CFR 264.13(B)(3); COMAR 26.13.05.02D(2)(C)(III)]

If APG needs to conduct analytical testing on a waste stream, they will collect representative samples according to the sampling methods outlined in Table II.B.14. APG selects sampling techniques to provide a representative sample of the waste material to be analyzed. It is the generator's primary responsibility to sample the waste stream; however, to ensure that the sampling is done in accordance with the guidance, the generator may request that a TSDF employee perform the sampling. If a TSDF employee is not available or if the nature of the

sampling is beyond the scope of the TSDF employee's training, the TSDF COR will request sampling services from the TSDF operations support contractor or the hazardous waste disposal contractor.

In most cases, the generator provides sufficient waste identification information for proper storage and disposal from an SDS, container label, or process information (generator knowledge). However, if the SDS, label, or process information is not available or is insufficient to thoroughly identify and characterize the waste stream, the waste must be sampled and a laboratory analysis done.

Due to the history and nature of operations at APG, unknown or abandoned waste may require clearance for CWM prior to laboratory analysis. This is determined on a case-by-case basis.

The APG TSDF has outlined how it manages requests for sampling assistance, waste sampling procedures, sample preservation, containers, volumes, hold times and chain of custody in an Internal Operating Procedure. The document is found in Appendix D of the TSDF Health and Safety Plan (2015).

II.B.8 FREQUENCY OF ANALYSIS [40 CFR 264.13(B)(4); COMAR 26.13.05.02D(2)(C)(IV)]

Routinely generated waste streams that rely on laboratory analysis for characterization are assessed annually to ensure that the characterization of the waste is accurate and up-to-date. In addition, waste streams that rely on laboratory analysis for characterization are sampled each time the process generating the waste or the chemical composition of the waste changes. Waste streams that are characterized using process knowledge are evaluated annually or characterized using process knowledge following a change in the process that generates the waste.

II.B.9 ADDITIONAL WASTE ANALYSIS REQUIREMENTS PERTAINING TO LAND DISPOSAL RESTRICTIONS [40 CFR 270.14(b)(3), 264.13(a)(1), 264.13(b)(6), 266.102(a)(2)(ii) and 268.7]

Trained personnel from the DPW-ED Waste Management Branch sign each hazardous waste manifest destined for shipment over public highways. This includes manifested hazardous waste shipments from APG to off-site disposal facilities, as well as those from APG's Aberdeen area or from the Proving Ground's off-site properties listed in Section II.B.3.1.1. DPW-ED employees have the responsibility to determine if the waste streams meet applicable LDR treatment

standards. They rely on generators' characterization data (analysis sheets in the HWTS or separate lab results) to identify applicable waste codes, and to identify underlying hazardous constituents (UHCs) that may apply for characteristic waste streams not treated and monitored for all constituents by the receiving TSDF. The Installation hazardous waste disposal contractors prepares waste manifests and LDR notifications which are reviewed and approved by DPW-ED employees. The LDR notifications with each waste manifest identifies the waste(s), associated waste codes and underlying hazardous constituents, as applicable. The receiving commercial TSDFs ensure the wastes are treated as required under 40 CFR 268.

Table IIB.1
Waste Generated, Stored, Treated, and Sent Off-Site from Aberdeen Proving Ground's Controlled Hazardous Substance Units

Controlled Hazardous Substance (CHS) Units	Waste Generating Processes	Types of Waste Stored for More Than 90 Days	Types of Waste Treated	Types of Waste Sent Offsite for Further Treatment/Disposal
Treatment, Storage, and Disposal Facility (TSDF)	None. The TSDF stores wastes generated by all Aberdeen Proving Ground (APG) Garrison and tenant activities	Any waste that could be generated by APG's tenants, except for excluded chemical agent wastes (i.e., agent levels > 1 VSL or otherwise deemed unsafe for storage w/o engineering controls), DOT class 1 explosives and DEA-controlled substances requiring secure storage	None	Any waste stored at the TSDF Any non-restricted waste generated at APG's permitted units, less than 90-day CAAs and/or satellite accumulation areas could be staged at the TSDF for offsite transport
Chemical Transfer Facility (CTF)	Research and development (R&D) activities, laboratory operations, characterization of samples, chemical synthesis	Liquid decontamination waste and hazardous and nonhazardous solids (including scrap metal, gloves, bags, hoses/tubing, and paper towels)	Liquid chemical agent wastes and other toxic chemicals, chemical fills from recovered munitions accessed at MAPS, and agent-exposed solids	Liquid decontamination waste from operations and hazardous and nonhazardous solids (including scrap metal, gloves, bags, hoses/tubing, and paper towels)
N-Field	None	Suspect chemical, smoke, and biological munitions that military Explosive Ordnance Disposal (EOD) personnel and/or CARA personnel consider safe for pretreatment storage	None	None
Munitions Assessment and Processing System (MAPS)	Accessing of recovered munitions; treatment of the explosively configured components of weapons, devices, samples, etc.	Liquid decontamination waste and hazardous and nonhazardous solids (including scrap metal, gloves, bags, hoses/tubing, and paper towels)	Chemical munitions. Treatment includes chemical decontamination of chemical agents and deactivation of energetic components	Liquid decontamination waste from operations and hazardous and nonhazardous solids (including scrap metal, gloves, bags, hoses/tubing, and paper towels)

Table IIB.1
Waste Generated, Stored, Treated, and Sent Off-Site from Aberdeen Proving Ground's Controlled Hazardous Substance Units

Controlled Hazardous Substance (CHS) Units	Waste Generating Processes	Types of Waste Stored for More Than 90 Days	Types of Waste Treated	Types of Waste Sent Offsite for Further Treatment/Disposal
Sample Receipt Facility (SRF)	R&D activities, laboratory operations, receipt and characterization of samples, chemical synthesis	Liquid decontamination waste and hazardous and nonhazardous solids (including scrap metal, gloves, bags, hoses/tubing, and paper towels)	Wastes derived from neutralizing chemicals and toxins, chemical fills from recovered munitions accessed at MAPS, agent-exposed solids	Liquid decontamination waste from operations and hazardous and nonhazardous solids (including scrap metal, gloves, bags, hoses/tubing, and paper towels)
J-Field Open Detonation (OD) Unit	Open detonation of waste conventional munitions	None	Waste conventional munitions typically with high explosive and smoke fills	Range residue (non-hazardous scrap metal)
Old Bombing Field (OBF) Open Burning (OB)/OD Units	Open burning and open detonation of waste conventional munitions	None	Excess, off-specification, and expired propellants and waste munition items resulting from range test and evaluation activities	Range residue and ash from open burn operations
Explosive Destruction System (EDS)	Treatment of recovered chemical munitions	None	Recovered chemical munitions	Liquid neutralent and decontamination wastes and hazardous and nonhazardous solids

Table IIB.2
Process and Activities at the Aberdeen Proving Ground that could Generate Hazardous Waste Stored at the Treatment, Storage, and Disposal Facility

Code	Source Code Group
Wastes from Ongoing Production and Service Processes (Waste from General Day-to-Day Manufacturing, Production, or Maintenance Activities)	
G01	Dip, flush, or spray rinsing (using solvents to clean or prepare parts or assemblies for further processing; e.g., painting or assembly)
G02	Stripping and acid or caustic cleaning (using caustics to remove coatings or layers from parts or assemblies)
G03	Plating and phosphating (electroplating or nonelectroplating or phosphating)
G04	Etching (using caustics or other methods to remove layers or partial layers)
G05	Metal forming and treatment (e.g., pickling, heat treating, punching, bending, annealing, grinding, and hardening)
G06	Painting and coating (e.g., manufacturing, building, or maintenance)
G07	Product and byproduct processing (e.g., direct flow of wastes from chemical manufacturing or processing)
G08	Spent process liquids or catalysts removal (e.g., bulk removal of wastes from chemical manufacturing or processing)
G09	Other production or service-related processes from which the waste is a direct outflow or result (specify in comments)
Other Intermittent Events or Processes	
G11	Discarding off-specification or out-of-date chemicals or products (unused chemicals or products; corresponds to P and U hazardous waste codes)
G12	Lagoon or sediment dragout and leachate collection (large scale operations in open pits, ponds, or lagoons)
G13	Cleaning out process equipment (periodic sludge or residual removal from enclosed processes including internal scrubbing or cleaning)
G14	Removal of tank sludge, sediments, or slag (periodic sludge or residual removal from storage tanks including internal scrubbing or cleaning)
G15	Process equipment change-out or discontinuation of equipment use (final materials and residuals removal including cleaning)
G16	Oil changes and filter or battery replacement (e.g., automotive and machinery)
G19	Other one-time or intermittent processes (specify in comments)
Code	Source Code Group
Pollution Control and Waste Management Process Residuals	
G21	Air pollution control devices (e.g., baghouse dust or ash from stack scrubbers or precipitators and vapor collection)
G22	Laboratory analytical wastes (used chemicals from laboratory operations)
G23	Wastewater treatment (sludge, filter cake, etc., including wastes from treatment before discharge by National Pollution Discharge Elimination System [NPDES] or Privately Owned Treatment Works

Table IIB.2
Process and Activities at the Aberdeen Proving Ground that could Generate Hazardous Waste Stored at the Treatment, Storage, and Disposal Facility

Code	Source Code Group
	[POTW] or by UIC disposal)
G24	Solvent or product distillation or recovery (sludge, waste solvent, and bottoms from recovery/recycling of used product)
G25	Hazardous waste management; indicate management method (for residuals from regulated hazardous waste treatment processes, enter the related H code)
G26	Leachate collection (from landfill operations or other land units)
G27	Hazardous residual from treatment or recovery of universal waste
Spills and Accidental Releases	
G31	Accidental contamination of products, materials, or containers (other than G11)
G32	Cleanup of spill residues (infrequent, not routine)
G33	Leak collection and floor sweeping (ongoing, routine)
G39	Other cleanup of current contamination (specify in comments)
Remediation of Past Contamination	
G41	Closure of hazardous waste management unit under the *Resource Conservation and Recovery Act* (RCRA)
G42	Corrective action at a solid waste management unit under RCRA
G43	Remedial action or emergency response under Superfund
G44	State program or voluntary cleanup
G45	Underground storage tank cleanup
G49	Other remediation (specify in comments)

Table IIB.3
Physical and Chemical Characteristics of Hazardous Waste that Could be Stored at the Treatment, Storage, and Disposal Facility

Code	Form Code Group
Mixed Media/Debris/Devices—Waste that is a mixture of organic and inorganic wastes, liquid and solid wastes, or devices that are not easily categorized	
W001	Lab packs from any source **not containing** acute hazardous waste
W002	Contaminated debris (see definition at 40 *Code of Federal Regulations* [CFR] 268.2(g) and requirements at 40 CFR 268.45); for example, certain paper, clothing, rags, wood, empty fiber or plastic containers, glass, piping, and other solids (usually from construction, demolition, cleaning, or remediation)
W004	Lab packs from any source **containing acute** hazardous waste
W005	Waste pharmaceuticals managed as hazardous waste
W301	Contaminated soil (usually from spill cleanup, demolition, or remediation); see also W512
W309	Batteries, battery parts, cores, and casings (lead-acid or other types)
W310	Filters, solid adsorbents, ion exchange resins, and spent carbon (usually from production, intermittent processes, or remediation)
W320	Electrical devices (e.g., lamps, fluorescent lamps, or thermostats usually containing mercury and CRTs containing lead)
W512	Sediment or lagoon dragout and drilling or other muds (wet or muddy soils); see also W301
W801	Compressed gases of any type
Inorganic Liquids—Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content	
W101	Very dilute aqueous waste containing more than 99% water (land disposal restriction defined wastewater that is not exempt under National Pollution Discharge Elimination System [NPDES] or Privately Owned Treatment Works [POTW] discharge)
W103	Spent concentrated acid (5% or more)
W105	Acidic aqueous wastes less than 5% acid (diluted but pH <2)
W107	Aqueous waste containing cyanides (generally caustic)
W110	Caustic aqueous waste without cyanides (pH >12.5)
W113	Other aqueous waste or wastewaters (fluid but not sludge)
W117	Waste liquid mercury (metallic)
W119	Other inorganic liquid (specify in comments)
Organic Liquids—Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content	
W200	Still bottoms in liquid form (fluid but not sludge)
W202	Concentrated halogenated (e.g., chlorinated) solvent
W203	Concentrated nonhalogenated (e.g., nonchlorinated) solvent
W204	Concentrated halogenated/nonhalogenated solvent mixture
W205	Oil-water emulsion or mixture (fluid but not sludge)
W206	Waste oil managed as hazardous waste
W209	Paint, ink, lacquer, or varnish (fluid, but not dried out or sludge)

Table IIB.3
Physical and Chemical Characteristics of Hazardous Waste that Could be Stored at the Treatment, Storage, and Disposal Facility

Code	Form Code Group
W210	Reactive or polymerizable organic liquids and adhesives (fluid, but not sludge)
W211	Paint thinner or petroleum distillates
W219	Other organic liquid (specify in comments)
Inorganic Solids—Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable	
W303	Ash (from any type of burning of hazardous waste)
W304	Slags, drosses, and other solid thermal residues
W307	Metal scale, filings, and scrap (including metal drums)
W312	Cyanide or metal cyanide-bearing solids, salts, or chemicals
W316	Metal salts or chemicals not containing cyanides
W319	Other inorganic solids (specify in comments)
Organic Solids—Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable	
W401	Pesticide solids (used or discarded, but not contaminated, soils - W301)
W403	Solid resins, plastics, or polymerized organics
W405	Explosives or reactive organic solids
W406	Dried paint (paint chips, filters, air filters, other)
W409	Other organic solids (specify in comments)
Inorganic Sludges—Waste that is primarily inorganic, with moderate-to-high water content and low organic content; mostly pumpable	
W501	Lime and/or metal hydroxide sludges and solids with no cyanides (not contaminated muds -W512)
W503	Gypsum sludges from wastewater treatment or air pollution control
W504	Other sludges from wastewater treatment or air pollution control
W505	Metal-bearing sludges (including plating sludge) not containing cyanides
W506	Cyanide-bearing sludges (not contaminated soils - W512)
W519	Other inorganic sludges (not contaminated muds - W 512; specify in comments)
Organic Sludges—Waste that is primarily organic with low-to-moderate inorganic solids content and water content; pumpable	
W603	Oily sludge (not contaminated muds - W512)
W604	Paint or ink sludges and still bottoms in sludge form (not contaminated muds - W512)
W606	Resins, tars, polymers, or tarry sludge (not contaminated muds - W512)
W609	Other organic sludge (specify in comments)

Table IIB.4
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Stored in any of the Treatment, Storage, and Disposal Facility Storage Buildings or Roll-Offs

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002 [a]	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity
F001-F015, F019, F020-F028, F032, F034, F035, F037-F039	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources, specifically related to explosives
MD02 [b]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under *Code of Maryland Regulations* (COMAR) 26.13.02.18
MD03 and K99X [b]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18 and described in the most recent version of *APG Guidance on Code of Maryland Listings and Delistings for Chemical Agent Wastes*
M001, MT01, MX01 [b]	Polychlorinated biphenyls (PCBs) and mixtures of soil, wastes, or debris containing PCBs resulting from a cleanup of wastes having the generic name listed in COMAR 26.13.02.19 E and G (COMAR 26.13.02.19)
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P064, P066-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123, P127, P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099,U101-U103, U105-U174, U176-U194,U196, U197, U200-U228, U230-U240,U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, off-specification species, container residues, and spill residues of these identified as toxic wastes

[a] Not requested for the roll-offs

[b] Maryland state-designated hazardous waste

Table IIB.5
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Stored in the N-Field Igloo

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Wastes exhibiting the characteristic of ignitability
D002	Wastes exhibiting the characteristic of corrosivity
D003	Wastes exhibiting the characteristic of reactivity
D004-D043	Wastes exhibiting the characteristic of toxicity
F001-F015, F019, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources related to explosives
K991-K999 [a]	Chemical surety materials listed under *Code of Maryland Regulations* (COMAR) 26.13.02.17
MD02 a	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under COMAR 26.13.02.18
MD03 [a]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [a]	Mixtures of wastes, soil, and debris contaminated with PCBs listed under COMAR 26.13.02.19D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099,U101-U103, U105-U174, U176-U194,U196, U197, U200-U228, U230-U240,U242-U249, U328, U353, U359	Discarded commercial chemical products, off-specification species, container residues, and spill residues of these identified as toxic wastes

[a] Maryland state-designated hazardous waste

Table IIB.6
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Stored in the N-Field Magazines

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Wastes exhibiting the characteristic of ignitability
D002	Wastes exhibiting the characteristic of corrosivity
D003	Wastes exhibiting the characteristic of reactivity
D004-D043	Wastes exhibiting the characteristic of toxicity
F001-F015, F019, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources related to explosives.
MD02 [a]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under *Code of Maryland Regulations* (COMAR) 26.13.02.18
MD03 [a]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [a]	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyls (PCBs) listed under COMAR 26.13.02.19D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099,U101-U103, U105-U174, U176-U194,U196, U197, U200-U228, U230-U240,U242-U249, U328, U353, U359	Discarded commercial chemical products, off-specification species, container residues, and spill residues of these identified as toxic wastes

[a] Maryland state-designated hazardous waste

Table IIB.7
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Stored in the Munitions Assessment and Processing System

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity
F001-F015, F019, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources, specifically related to explosives
K991-K999 [a]	Chemical warfare materiel (*Code of Maryland Regulations* [COMAR] 26.13.02.17])
MD02 [a]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under COMAR 26.13.02.18
MD03 [a]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [a]	Polychlorinated biphenyls (PCBs) and mixtures of soil, wastes, or debris containing PCBs resulting from cleanup of wastes having the generic name listed in COMAR 26.13.02.19 E and G (COMAR 26.13.02.19)
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123, P127-P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, off-specification species, containers residues, and spill residues; these are identified as toxic wastes

[a] Maryland state-designated hazardous waste

Table IIB.8
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Stored in the Chemical Transfer Facility

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity
F001-F015, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources, specifically related to explosives
K991-K999 [a]	Chemical warfare materials (*Code of Maryland Regulations* [COMAR] 26.13.02.17)
MD02 [a]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under COMAR 26.13.02.18
MD03 [a]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [a]	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyls (PCBs) listed under COMAR 26.13.02.19 D, F and H
P001-P005, P007, P008, P010-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P064, P066-P078, P082, P084, P085, P087-P089, P092-P099, P101-P111, P113-P116, P118-P121, P123, P127-P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U005, U007-U012, U014-U019, U021, U022, U024-U032, U034-U053, U055-U095, U097-U099, U101-U103, U105-U132, U134-U159, U161-U174, U176-U188, U190-U194, U196, U197, U200-U204, U206-U211, U213-U222, U224-U228, U230-U233, U235-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, off-specification species, container residues, and spill residues of these identified as toxic wastes

[a] Maryland state-designated hazardous waste

Table IIB.9
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Stored in the Sample Receipt Facility

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity
F001-F015, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources, specifically related to explosives
K991-K999 [a]	Chemical warfare materials (*Code of Maryland Regulations* [COMAR] 26.13.02.17)
MD02 [a]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under COMAR 26.13.02.18
MD03 [a]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [a]	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyls (PCBs) listed under COMAR 26.13.02.19 D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123, P127-P128, PP185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, off-specification species, container residues, and spill residues of these identified as toxic wastes

[a] Maryland state-designated hazardous waste

Table IIB.10
U.S. Environmental Protection Agency Hazardous Waste Codes for Waste Treated in the Old Bombing Field Open Burning and Open Detonation Units and J-Field Open Detonation Unit

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity

Table IIB.11
U.S. Environmental Protection Agency and Maryland Department of the Environment Hazardous Waste Codes for Waste Potentially Treated in the Explosive Destruction System

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity
F001-F015, F019, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources, specifically related to explosives
K991-K999 [a]	Chemical warfare materiel (*Code of Maryland Regulations* [COMAR] 26.13.02.17)
MD02 [a]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under COMAR 26.13.02.18
MD03 [a]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [a]	Polychlorinated biphenyls (PCBs) and mixtures of soil, wastes, or debris containing PCBs resulting from cleanup of wastes having the generic name listed in COMAR 26.13.02.19 E and G (COMAR 26.13.02.19)
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123	Discarded commercial chemical products, off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359	Discarded commercial chemical products, off-specification species, containers residues, and spill residues; these are identified as toxic wastes

[a] Maryland state-designated hazardous waste

Table IIB.12
Potential Explosive Destruction System Chemical Fills and
Potential Treatment Reagents

Chemical Agents/Industrial Chemicals		
Potential Fills	**Symbol**	**Potential Reagents**
Hydrogen Cyanide	AC	20 wt % NaOH
Cyanogen Chloride	CK	20 wt % NaOH
Phosgene	CG	20 wt % NaOH
Sulfur Mustards	H, HD, HS, HT	90 vol % MEA
		5 wt % NaOH
		5 wt % NaOCl
		10 wt % Ca(OCl)2
Nitrogen Mustard 3	HN-3	90 vol % MEA
Sarin Tabun Soman	GB GA GD	45 vol % MEA
		18 wt % NaOH
		5-10 wt % Na2CO3
		MeOH(45 vol %)/KOH (55 vol %)
		5 wt % NaOCl
		10 wt % Ca(OCl)2
VX	VX	90 vol % MEA/10 vol % NaOH (50 wt %)
		20 wt % NaOH
		5 wt % NaOCl
		15 wt % Ca(OCl)2
Mustard + Diphenylchloroarsine	H + DA	20 wt % NaMnO4
Mustard + Phenyldichloroarsine	H + PD	20 wt % NaMnO4
Diphenylchloroarsine	DA	95 vol %Denatured Alcohol or 100 vol % Acetone
Phenyldichloroarsine	PD	95 vol % Denatured Alcohol
Lewisite	L	20 wt % NaMnO4
		20 wt % NaOH
		5 wt % NaOCl
		10 wt % Ca(OCl)2
Arsine	SA	20 wt % NaMnO4
Phosgene, Diphenylchloroarsine	CG/DA	20 vol % NaOH
Chloroacetophenone	CN or CAP	95 vol % Denatured Alcohol
Chloroacetophenone (CN) in Benzene and Carbon Tetrachloride	CNB	50 vol % Propylene Glycol,

Table II.B.12
Potential Explosive Destruction System Chemical Fills and
Potential Treatment Reagents

Chemical Agents/Industrial Chemicals (continued)		
Potential Fills	**Symbol**	**Potential Reagents**
Chloroacetophenone (CN) and Chloropicrin (PS) in Chloroform	CNS	50 vol % Propylene Glycol, 50 vol % NaOH (20 wt %)
Chloroacetone		90 vol % MEA
Chloropicrin	PS	50 vol % Alcohol, 50 vol % NaOH (30 wt%)
Chloropicrin (PS) 80%, SnCl4 (KJ) 20%	NC	50 vol % Alcohol, 50 vol % NaOH (30 wt%)
(PS) 50%, CG 50% or PS 75%, CG 25%	PG	50 vol % Alcohol, 50 vol % NaOH (20 wt%)
Chlorine Gas	CL	20 vol % NaHSO3
Diphosgene	DP	20 wt % NaOH
Bromoacetone	BA	95 vol % Denatured Alcohol or 100 vol % Acetone
Bromobenzylcyanide	BBC or CA	100 vol % Acetone
White Phosphorous	WP	90 vol % MEA, 10 vol % NaOH (50 wt %)
Smokes		
Potential Fills	**Symbol**	**Potential Reagents**
Chlorosulfonic Acid		20 wt % NaOH
Sulfur Trioxide/ Chlorosulfonic Acid	FS	20 wt % NaOH
Titanium Tetrachloride	FM	20 wt % NaOH

Table IIB.13
Common Test Methods to be used to Measure Parameters [a]

Parameter	Test Method
pH (Corrosivity)	SW-846 Method 9040C pH Electrometric Measurement SW-846 Method 1110A Corrosivity Toward Steel
Flash point (Ignitability)	SW-846 Method 1010A Pensky-Martens Closed-Cup Method SW-846 Method 1020B Setaflash Closed-Cup Method SW-846 Method 1030 Ignitability of Solids
Reactivity Water reactivity cyanides (total and amenable) Water reactivity sulfides	EPA SW-846 Methods described in Chapter 7.3 SW-846 Method 9014 (cyanide concentration) SW-846 Method 9034 (sulfide concentration)
Inorganic analytes Organic analytes	Appropriate methods in SW-846 6000 and 7000 series Appropriate methods in SW-846 8000 series
Polychlorinated biphenyls (PCBs)	EPA SW-846 Method 8082A Gas Chromatography

[a] Parameter tests will be run in accordance with the latest U.S. Environmental Protection Agency (EPA) SW-846 methods and guidance.

Table IIB.14
Typical Sampling Methods and Equipment

Waste Type	Sampling Method	Equipment
Extremely viscous liquid	*EPA RCRA Waste Sampling Draft Technical Guidance* (2002), Chapter 7 and Appendix E	Tubing or trier
Crushed or powdered material	" " " " "	Trier, auger, scoop, or shovel
Soil or rock-like material	" " " " "	Trier, auger, scoop, or shovel
Soil-like material	" " " " "	Trier, auger, scoop, or shovel
Fly ash-like material	" " " " "	Tubing, trier, auger, scoop, or shovel
Liquid waste in drums	" " " " "	Thief or tubing for single phase Coliwasa or tubing for multi-phase
Liquid waste in tanks	" " " " "	Coliwasa, sampling port if available, bailer

Figure II.B.1 Analysis Sheet Information

Analysis Sheet Information

Status

ID: Nomenclature:

Information From: ☐Label ☐SDS ☐Generator Knowledge ☐Lab Analysis

(If Lab Analysis, please enter lab name and record here):

Activity: Office:

Generator: Generator Site:

Phone: Building:

Email: Location:

Physical

State:

Corrosive:

Flashpoint:

Layers:

Color:

Hazards

State Process:

General Properties:

☐Oxidizer ☐Water Reactive ☐Flammable Solid
☐Cyanide Bearing ☐Explosive ☐Air Reactive
☐PCB's ☐Sulfide Bearing ☐Radioactive

EPA Codes	
Code	**Description**

Chemicals			
Name	**Min**	**Max**	**Units**

Comments:

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Figure II.B.2 Turn-In Document Information

Turn-in Document Information

Status

ID: Fund Cite:

☐Non-reusable product

☐Posted for reuse, but not used by others or sold by DLA-DS

Activity: Office:

Generator: Generator Site:

Phone: Building:

Email: Location:

Data Entry: Phone:

Phone: Receiving Site:

Email: Manager:

Phone:

Email:

Analysis

ID: Nomenclature:

Containers

Form Code:

Barcode	Cntr Type	Wgt (lbs)	Building	Location

*For additional barcodes please use the continuation sheet.

Comments:

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Veolia ES Technical Solutions L.L.C.

WASTESTREAM INFORMATION PROFILE

Disposal Code

☐ Recertification

Veolia ES Location APG OFFICE APG MD 552 | 767
☐ Invoice Address OFFICE CITY ST

Veolia ES TSDF requested _____ Technology requested _____ Generator No. 420833 Generator EPA ID No. MD3210021355

1. Generator Name ABERDEEN PROVING GROUND Generator State No. _____
Address BLDG E5863 State Wastestream No. _____
City APG State MD Country US ZIP 21010 _____
NAICS(SIC) Code 9711 92811 _____ Source G44 Origin 1 Form W307 System Type _____

---

2. Waste Name EMPTY / CRUSHED FUEL OIL TANK Lab or Waste Area _____
3. Process Generating Waste
Tank removal, not from a UST program _____
4. Shipping Name HAZARDOUS WASTE, SOLID, n.o.s. _____
Hazard Class 9 UN/NA No. NA3077 PG III RQ amt 0 lb Waste: N PIH: N IH: N DNW: N P: N
RQ Des: 1. _____ 2. _____
DOT Des: 1. STEEL WITH LEAD 2. _____
5. Waste Codes D008 _____
Wastewater ____ Non Wastewater X Sub Category D008-NA Mix: N Sol: N

---

6. Physical and chemical properties:

pH	Specific Gravity	Flash Point (F)	Solids
a ____ < 2	a ____ <.8	a ____ < 80	0 - 0% suspended 0 - 0 % ash
b ____ 2 - 5	b ____ .8 - 1.0	b ____ 80 - 100	0 - 0% settleable 0 - 0 % water solubility
c ____ 5 - 9	c ____ 1.0	c ____ 100 - 140	0 - 0% dissolved 0 - 0 BTU/lb
d ____ 9 - 12.5	d ____ 1.0 - 1.2	d ____ 140 - 200	
e ____ > 12.5	e ____ > 1.2	e ____ > 200	Free Liquid 0 - 0 %
____ - ____ exact	____ - ____ exact	f X no flash ____ - ____ exact	VOC 0 - 0 %

Physical State

a ____ aerosol
c ____ cylinder
d X debris per 40 CFR 268.45
e ____ debris per U.Reg.347
b ____ filter
f ____ flowable powder
g ____ gas
l ____ limited quantity
l ____ liquid
r ____ pressurized liquid
q ____ pumpable liquid
p ____ pumpable semi-solid
m ____ semi-solid
h ____ sharps
n ____ small inner containers
s X solid

Hazardous Characteristics

a ____ air reactive
w ____ water reactive
c ____ cyanide reactive
f ____ sulfide reactive
e ____ explosive
o ____ oxidizing acid
p ____ peroxide former
r ____ radioactive or NRC regulated
s ____ shock sensitive
t ____ temp sensitive
m ____ polymerization/monomer
n ____ OSHA carcinogen
i ____ infectious
h ____ inhalation hazard
Zone: _

Odor

a none ____
b mild X
c strong ____
describe fuel oil

Halogens

Br .0 - .0 % Bromine
Cl .0 - .0 % Chlorine
F .0 - .0 % Fluorine
I .0 - .0 % Iodine

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WIP NO. 1048654

Veolia ES Technical Solutions L.L.C.

WASTESTREAM INFORMATION PROFILE

Layers: | a ___ multilayered: b ____bi-layered: c ___X single phase |

	Top Layer	Second Layer	Bottom Layer	Color
Viscosity by Layer:	___ high(syrup)	___ high(syrup)	___ high(syrup)	VAR
	___ medium(oil)	___ medium(oil)	___ medium(oil)	___
	___ low(water)	___ low(water)	___ low(water)	_____
	X solid	___ solid	___ solid	
	____gas	___ gas	___ gas	

Used oil y/n N **HOC < 1000 ppm** ___ **HOC > 1000 ppm** ____

7. Chemical Composition [M=Marine Pollutant, S=Severe Marine Pollutant, O=Ozone Depleting Substance, U=Underlying Hazardous Constituent, B=Benzene NESHAP, T=TRI Chemical, C=OSHA Carcinogen]

	Constituents	Ranges		Units
	STEEL	97.00	99.00	%
M, T,	LEAD COMPOUNDS (CHEM NAME NOT SPECIFIED)	.01	11.30	ppm
	EMPTY FUEL OIL TANK, CRUSHED.	100.00	100.00	%
	DIRT, RUST	2.00	3.00	%

Other:

8. Is the waste stream being imported into the USA? Yes___No X
9. Does the waste stream contain PCBs regulated by 40CFR? Yes___No X
   PCB Concentration_____.00 ppm
10. Is the waste stream subject to the Marine Pollutant Regulations? Yes___No X
11. Is the waste stream from an industry regulated under Benzene NESHAP? Yes___No X
    If yes:
    Is the waste stream subject to Notification/Control Requirements? Yes ___No X
    Benzene Concentration _____.00 ppm
    Does it contain >= 10% water? Yes___No X
    What is the TAB at your facility? .00 Mg/Yr
12. Is the waste stream subject to RCRA subpart CC controls? Yes ___No X
    Volatile Organic Concentration _____.00 ppmw
    CC Approved Analytical Method? Yes___No X
    Generator Knowledge? Yes X No___
13. Is the waste stream from a CERCLA or state mandated cleanup? Yes___No X

14. Container Information :

Packaging: 25YDRO Type/Size: CM 25 CUBIC YARD ROLLOFF
_____ Type/Size: ___ _____

Shipping Frequency: Units 25.00 Per Day _ Per Week _ Per Month _ Per Qtr _ Per Year X One Time _
UOM CU YDS DESCRIPTION: _____

15. Additional Information :

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Veolia ES Technical Solutions L.L.C.

WASTESTREAM INFORMATION PROFILE

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any waste shipment for purposes of recertification.

Name (Print or Type)	Phone	Date

Signature	Title
Signature on File	

If approved for management, Veolia ES has all the necessary permits and licenses for the waste that has been characterized and identified by this profile.

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Photograph II.B.1 Munition Overpacks

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APPENDIX II.B.1
APG GUIDANCE
CODE OF MARYLAND (COMAR) LISTINGS AND DELISTINGS FOR CHEMICAL AGENT WASTES
APRIL 2016

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1. OVERVIEW/SCOPE

a. This document provides US Army Garrison Aberdeen Proving Ground's (APG's) guidance for complying with the Code of Maryland (COMAR) regulations pertaining to the application of hazardous waste numbers to wastes that are derived from or that may contain chemical agents. It applies to APG Garrison activities, Garrison Supported Organizations, and contractors that generate chemical agent wastes on APG.

b. The COMAR regulations, codified at 26.13.02.17 and 26.13.02.18, apply to three categories of chemical agent wastes:

(1) Chemical agents that are wastes (K Listings),
(2) Decontamination liquids and solids from the decontamination of chemical agent materiel (MD02 Listing and Delistings), and
(3) Decontamination liquid and solids from the decontamination (treatment) of chemical agents that are wastes (MD03 Listing and Delistings).

c. All three categories of chemical agent wastes are "listed" under the COMAR and must carry the appropriate hazardous waste number, unless the wastes qualify for one of the "delistings" codified at 26.13.02.26. If the chemical agent waste falls into more than one of the categories referred to above, use all of the applicable hazardous waste numbers.

d. This guidance only addresses the use of COMAR military hazardous waste listings (K991-K999, MD02, MD03) and delistings. Other non-military hazardous waste numbers often apply to chemical agent-related waste streams. Aberdeen Proving Ground's hazardous waste training program and attendant guidance address the application of other hazardous waste numbers to APG wastes.

e. Garrison Supported Organizations/contractors that generate chemical agent waste are encouraged to develop facility-specific procedures as necessary to address particular applications. The Directorate of Public Works (DPW) Waste Management Branch (WMB) will review prepared documents for compliance with the COMAR and APG's hazardous waste management program.

2. CHEMICAL AGENTS THAT ARE WASTES – THE K LISTINGS

a. Table 1 shows the "K" hazardous waste numbers that apply to chemical agents that are wastes and their untreated liquid and solid residues. K-listed wastes are tied to specific sources. At APG, K-listed chemical agent wastes normally include recovered chemical warfare material (RCWM) and excess or contaminated research chemical agent stocks down-graded to waste status by appropriate Army authorities. Waste decontamination liquids and solids resulting from the treatment of K-listed chemical agent wastes may qualify for the MD03 listing in COMAR 26.13.02.18 or the MD03 delisting in COMAR 26.13.02.26 B. The MD03 listing and delistings are addressed in Section 4.

Table 1. K991 – K999 Listings, COMAR 26.13.02.17

Hazardous Waste Number	Chemical Agent Waste
K991	GA/Tabun
K992	GB/Sarin
K993	GD/Soman
K994	VX
K995	L/Lewisite
K996	DM/Adamsite
K997	H, HS, HD/Sulfur Mustards
K998	T
K999	Any waste substance containing GA, GB, GD, VX, L, DM, H, HS, HD, or T as their principal or active ingredients, if K991 to K998 does not apply. K999 should be used to apply to the mixture HT.

b. *Contaminated Media*: Debris, soils and cleanup materials (e.g., sorbents, wipes, etc) that have contacted waste chemical agent must carry the same K-listing as the parent waste chemical agent (see Table 1 above). Once this media is decontaminated, however, it may be eligible for the MD03 code (see Section 4).

c. *Carbon Filters*: Spent carbon used to capture emissions from the treatment and storage of K-listed chemical agent wastes will carry the K-listing at the time of disposal based on the derived from rule.[1]

3. RESIDUES FROM THE DECONTAMINATION OF CHEMICAL AGENT MATERIEL – THE MD02 LISTING AND DELISTINGS

a. MD02 Listing - COMAR 26.13.02.18:

(1) *Liquid Reaction Products*: The Maryland Department of the Environment (MDE) intended for the MD02 hazardous waste number to apply to liquid reaction products from the decontamination of the following chemical agent materiel (i.e., chemical agents not previously identified as hazardous wastes) when used in a research setting typified by many activities conducted in APG's Edgewood area laboratories:

GA/Tabun
GB/Sarin
GD/Soman
VX
L/Lewisite
DM/Adamsite
H, HS, HD/Sulfur Mustards
T (and by extension, HT)

1 See 61 FR 4910, 9 Feb 1996 and EPA/453/R-94/076b

(2) *Solids*: MDE did not intend for the MD02 hazardous waste number to apply to solids. Their assumption was that solids could be decontaminated in the laboratory shortly after their contamination. For this reason, the MD02 hazardous waste number does not apply to solid laboratory materials such as glassware, gloves, wipes, etc. used as part of a laboratory process or chemical agent experiment, as long as the decontamination step is an integral part of the process, is included in written procedures, and these materials meet all of the following conditions:

(a) Porous or highly absorbent laboratory materials such as wipes are totally immersed or soaked in appropriate decontamination solutions to ensure maximum contact with agent (normally 24 hours), and there are no agent detections at or above established short-term exposure limits (STELs) if such materials are subsequently dried prior to packaging for disposal. Such wastes may best be packaged and disposed in their immersed state; however, when this is done, these wastes and/or porous solids containing releasable amounts of liquid decontamination solution will always be assigned the MD02 hazardous waste number and will not be eligible for delisting as discussed below.

(b) They are decontaminated immediately after use in accordance with Army regulations (AR 385-61 and DA Pam 385-61).

(c) They are decontaminated where they are used.

b. MD02 Delisting - COMAR 26.13.02.26 A.

(1) *Liquid Reaction Products*: The MD02 hazardous waste number does not have to be applied to liquid reaction products from the decontamination of the compounds listed above if both of the following conditions are met.

(a) The decontamination method used is the one specified in Section 4.2 of the 1988 Chemical Research, Development and Engineering Center (CRDEC) Report entitled *Support the Delisting of Decontaminated Liquid Surety Materials as Listed Hazardous Waste from Specific Sources (state) MD02 in COMAR 10.51.02.16-1*[2], (NOTE: Turn-in documents must explicitly refer to the delisting procedure to justify omission of the MD02 hazardous waste number), and

(b) The decontamination is performed at a Chemical Biological Center (CBC) (or successor organization)-operated facility, at a Medical Research Institute of Chemical Defense (MRICD) (or successor organization)-operated facility, or at a 22nd Chemical Battalion (or successor organization) facility. (Additional organizations may become eligible to use the MD02 delisting. See Section 5 for additional information).

(2) Table 2 summarizes the COMAR hazardous waste numbers associated with the decontamination of chemical agent materiel.

2 Since the publishing of this report, the COMAR has undergone several changes and sections have been reorganized. COMAR 10.51.02.16-1 is now COMAR 26.13.02.18.

Table 2. COMAR Military Hazardous Waste Numbers Applicable to the Residue Resulting from the Decontamination of Agent Materiel

Materiel Name	Liquid Residues with Solids from the Decontamination of Materiel	Liquid Residues resulting from Decontamination of Materiel in Accordance with Approved Delisting Procedures	Decontaminated Solids Resulting from a Laboratory Process*
GA/Tabun	MD02	None**	None**
GB/Sarin	MD02	None**	None**
GD/Soman	MD02	None**	None**
VX	MD02	None**	None**
L/Lewisite	MD02	None**	None**
DM/Adamsite	MD02	MD02***	None
H, HS, HD – Sulfur Mustards	MD02	None**	None**
T (HT)	MD02	MD02***	None

* Includes only decontaminated solids without liquids per paragraph 3.a.(2)

** Turn-in documents should explicitly refer to the delisting procedure to justify omission of the MD02 hazardous waste number.

*** There are no decontamination methods for DM/Adamsite and T (and HT) specified in the 1988 CRDEC report that supports their delisting; therefore, the MD02 listing always applies to the residue and reaction products from the decontamination of these compounds.

4. RESIDUES FROM THE TREATMENT OF CHEMICAL AGENT WASTES – THE MD03 LISTING AND DELISTINGS

a. The MD03 waste number applies to residues from the decontamination and treatment of wastes K991 to K999 and is applied as follows.

(1) Liquid Residues: For liquid residues, the MD03 hazardous waste number applies if the resulting liquids have been detoxified to the point that they are no longer considered acute hazardous waste as defined in COMAR 26.13.02.09 A(2)[3]. In the absence of readily available data for comparison with State of MD toxicological values referenced in the previous COMAR entry, activities may presume their liquid residues readily meet this requirement if the agent concentration is equal to or less than the more conservative health-based hazardous waste control limits for liquid residues provided in Table 3.

3 MDE defines an acute hazardous waste as a waste "…found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC50 toxicity (rat) of less than 2 milligrams per liter, or a dermal toxicity (rabbit) of less than 200 mg/kg, or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible illness."

(2) Solid Residues: For solid residues (including sludges), the MD03 hazardous waste number applies if the K991-K999 wastes have been decontaminated to remove all but "very small insignificant amounts"[4] of these wastes from the solids' surfaces and internal matrices, and these solids are otherwise safe to ship off site for further treatment/disposal at a commercial treatment, storage and disposal facility (TSDF).

b. Activities may demonstrate via combinations of air monitoring, laboratory testing/analyses, the presentation of toxicological data from peer–reviewed scientific reports, and risk assessments that their wastes are below the MDE acute hazardous waste toxicity thresholds referenced in a.(1) above and are safe to transport off site to a commercial TSDF. Alternatively, waste generators may quantitatively characterize their wastes and compare agent concentrations in these wastes to the numerical hazardous waste control limits found in columns 3 and 4 of Table 3 below. Wastes found to contain waste chemical agent concentrations at or below those listed in Table 3 that do not exceed STEL values when air monitored are not acutely hazardous and have been determined to be safe for off-site treatment and disposal at a commercial TSDF.[5]

c. Per the MDE (ref: COMAR 26.13.02.18 MD03 Agency Note), once an MD03 waste code is assigned, the K listing from which the MD03 listing is derived is no longer applicable.

d. *MD03 Delisting of Liquid Residues*: Liquid wastes generated with the MD03 hazardous waste number are eligible for delisting under COMAR 26.13.02.26 B. This delisting is applicable to the CBC. Per the COMAR, the MD03 hazardous waste number does not have to be applied to the liquid wastes resulting from the treatment of hazardous wastes K991 to K995 or K997[6] if the following conditions are met:

(1) The decontamination method used is the one specified in Section 4.2 of the 1988 CRDEC Report entitled *Support for the Delisting of Decontaminated Liquid Surety Materials as Listed Hazardous Waste from Specific Sources (state) MD02 in COMAR 10.51.02.16-1*, (NOTE: APG requires turn-in documents to explicitly refer to the delisting procedure to justify omission of the MD03 hazardous waste number.) and

(2) The decontamination is performed at a CBC (or successor organization)-operated facility. (As discussed in Section 5, additional organizations may establish eligibility to use these delistings.)

4 Reference to language in COMAR 26.13.02.18
5 While the Army Public Health Center has determined that waste meeting the hazardous waste control limits in Table 3 are safe for handling at commercial TSDFs, these facilities may require more stringent limits. Consult with the DPW-ED Hazardous Waste Branch ([redacted]) prior to the turn in of such wastes to ensure they meet standing TSDF waste acceptance profiles.
6 K996 (Adamsite) and K998 (Agent T) are not presently eligible for delisting.

Table 3. COMAR Military Hazardous Waste Numbers Applicable to Chemical Agent Waste

Chemical Agent Waste Constituent	Hazardous Waste Number	Hazardous Waste Control Limit in Solid Matrix* (mg/kg)	Hazardous Waste Control Limit in Liquid Matrix** (mg/L)	Hazardous Waste Number for Solids Meeting these Limits
GA/Tabun	K991	680	20	MD03
GB/Sarin	K992	320	8.3	MD03
GD/Soman	K993	52	0.3	MD03
VX	K994	10	0.08	MD03
L/Lewisite	K995	37	3.3	MD03
DM/Adamsite	K996	37 ***	3.3 ***	MD03
H, HS, HD/Sulfur Mustards	K997	6.7	0.7	MD03
T	K998	6.7 ***	0.7 ***	MD03
Agent Mixtures	K999	Lowest applicable limit	Lowest applicable limit	MD03

* Values were derived by the US Army Public Health Center (formerly US Army Center for Health Promotion and Preventive Medicine – USACHPPM) and Oak Ridge National Laboratory (ORNL) using chronic toxicity criteria and a multiple pathway exposure methodology used by Region 9 of the US Environmental Protection Agency. Values assume agent contamination is uniformly dispersed throughout a soil or other porous matrix and that possible occasional exposure by civilian or DOD employees may occur at a HW treatment facility. Ref: USACHPPM/ORNL Technical Report: *Health-Based Environmental Screening Levels for Chemical Warfare Agents*, Mar 1999; and ORNL/TM 080, Watson and Dolislager "Re-Evaluation of 1999 HBESLs for CWA", 2007.

** Values derived by the US Army Public Health Center and Oak Ridge National Laboratory (ORNL) using chronic toxicity criteria and dermal absorption pathway exposure methodology used by the US Environmental Protection Agency. The inhalation pathway was considered during this analysis, but was not considered viable based on the low expected volatilization of agents from aqueous media. Values assume possible occasional exposure by civilian or DOD employees at HW treatment facility. Ref: USACHPPM/ORNL Technical Report: *Health-Based Environmental Screening Levels for Chemical Warfare Agents*, Mar 1999

*** The USA Public Health Center has not published an established hazardous waste control limit for this waste based on a paucity of chronic toxicity data. The values listed have been applied by the DPW-ED Hazardous Waste Branch and presume the toxicities of DM and T are similar to those for L & HD, respectively. This assumption is likely conservative in the case of DM and L, but believed reasonable for the T-HD comparison. The parity applied to the two sets of chemical agents (DM-L and T-HD) is based on their chemical similarities and limited toxicological references gleaned from the following sources: for the T and HD comparison, this included Chapter 38 from *A Comprehensive Guide to the Hazardous Properties of Chemical Substances*, 3rd Ed, John Wiley & Sons, 2007. For the DM and L comparison, sources included data from the Hazardous Substance Databank maintained on the National Library of Medicine's TOXNET system and information contained in *Chemical Warfare Agents* by Somani, S.M., Academic Press, 1992.

e. *MD03 Delisting of Waste Solids*: The second Agency Note at the end of COMAR 26.13.02.18 states that waste solids that no longer contain residues from the decontamination of K991-K999 wastes do not carry the MD03 hazardous waste

number. Examples of solids that can fall into this second waste category include the following:

(1) Non-porous wastes of simple construction (e.g., small metal plates) that after decontamination do not exceed the Army's Worker Protection Limit (WPL) during headspace monitoring do not need an agent waste code.

(2) Solid wastes containing *de minimus* adsorbed or absorbed agent residues after the decontamination of K-listed military hazardous wastes that are determined after trace level laboratory analysis to be at or below the non-hazardous waste control limits given in Table 4 and that do not release airborne emissions above the WPL do not need an agent waste code.

Table 4. Chemical Agent Waste Meeting Non-Hazardous Waste Control Limits

Chemical Agent Waste Constituent	Hazardous Waste Number	Non-Hazardous Waste Limit in Solid Matrix* (mg/kg)	Hazardous Waste Number for Solids Meeting These Limits
GA/Tabun	K991	68	None
GB/Sarin	K992	32	None
GD/Soman	K993	5.2	None
VX	K994	1.1	None
L/Lewisite	K995	3.7	None
DM/Adamsite	K996	**	MD03 or K997***
H, HS, HD/Sulfur Mustards	K997	0.3	None
T	K998	**	K998***
Agent Mixtures	K999	Lowest applicable limit	None, MD03 or K999, as applicable

* Values were derived by the US Army Public Health Center (formerly US Army Center for Health Promotion and Preventive Medicine – USACHPPM) and Oak Ridge National Laboratory (ORNL) using chronic toxicity criteria and a multiple pathway exposure methodology used by Region 9 of the Environmental Protection Agency. Values assume possible occasional exposure by civilian or DOD employees at non-HW (i.e., RCRA Subtitle D) disposal facility. The PHC did not derive non-hazardous waste limits for liquid matrix. Ref: USACHPPM/ORNL Technical Report: *Health-Based Environmental Screening Levels for Chemical Warfare Agents*, Mar 1999; and ORNL/TM 080, Watson and Dolislager "Re-Evaluation of 1999 HBESLs for CWA", 2007.

** The USA Public Health Center has not published an established limit for this waste.

*** Absent waste characterization and toxicological data that demonstrate these wastes are safe for handling as non-hazardous, they will carry the applicable K or MD03 listing.

f. Decontaminated waste sludges and highly porous solids that may contain more than *de minimus* amounts of absorbed or adsorbed waste agent residues in their matrices cannot be delisted.

g. As these examples show, generators have to consider a number of factors and apply their best professional judgment to determine if MD03 or no military hazardous

waste number is applicable to solid items. In applying best professional judgment, generators should consider factors such as the following:

(1) The type of operation generating the waste item.
(2) The physical properties of the waste chemical agents involved (i.e., solubility, vapor pressure, Henry's Law constant, etc.).
(3) Porosity of waste solids and their capacity to adsorb or absorb chemical agent.
(4) Shape and structure of waste solids.
(5) Procedures employed to decontaminate wastes and their efficacy as determined by headspace monitoring, swipe testing, and/or waste extraction and laboratory chemical analysis, as applicable.

h. Table 5 summarizes the COMAR hazardous waste numbers associated with the treatment and decontamination of chemical agent wastes.

i. Figures 1 and 2 at the end of this document provide logic diagrams for the application of the MD02, K9XX and MD03 hazardous waste numbers to liquid and solid agent waste streams.

*****NOTE*****

If the solid item is an empty container, the empty container may not be subject to regulation as a hazardous waste if it meets the requirements specified in COMAR 26.13.02.07, Residues of Hazardous Waste in Empty Containers. The DPW WMB encourages generators to become familiar with these requirements and to make use of the exemption whenever it is applicable.

5. ORGANIZATIONS ELIGIBLE FOR THE MD02 AND MD03 DELISTINGS

a. As promulgated, the delistings in 26.13.02.26 are limited to specific APG organizations and facilities.

b. The MD02 delisting as currently written in COMAR 26.13.02.26 A only applies to the CBC and MRICD. The MDE extended the MD02 delisting in 26.13.02.26A to the 22nd Chemical Battalion in a letter dated 5 Oct 2005.

c. The MD03 delisting in 26.13.02.26 B can only be used by CBC.

d. Aberdeen Proving Ground may provide MDE with information that would allow these delistings to be used by additional organizations and facilities. Contact the DPW WMB for additional information on these options.

Table 5. COMAR Military Hazardous Waste Numbers Associated with the Treatment and Decontamination of Agent Wastes

Waste Name	Hazardous Waste Number for Waste Chemical Agents	Hazardous Waste Number for Liquid Residues from the Decon of K-Listed Agent Wastes	Hazardous Waste Number for Liquid Residues Meeting Delisting Criteria	Hazardous Waste Number for Solids with Waste Chemical Agent Contamination	Hazardous Waste Number for Deconned Solids Meeting Non-Acute Hazardous Waste Limits	Hazardous Waste Number for Solids Meeting Delisting Criteria and Non-Hazardous Waste Limits*
GA/Tabun	K991	MD03	None**	K991	MD03	None
GB/Sarin	K992	MD03	None**	K992	MD03	None
GD/Soman	K993	MD03	None**	K993	MD03	None
VX	K994	MD03	None**	K994	MD03	None
L/Lewisite	K995	MD03	None**	K995	MD03	None
DM/Adamsite	K996	MD03	Delisting Not possible. K996 or MD03 as applicable	K996	MD03	Delisting not possible K996 or MD03, as applicable
H, HS, HD – Sulfur Mustards	K997	MD03	None**	K997	MD03	None
T	K998	MD03	Delisting Not possible. K998 or MD03 as applicable	K998	MD03	Delisting not possible. K998 or MD03 as applicable
Agent Mixtures (e.g., HT)	K999	MD03	Delisting not possible. Apply K999 or MD03 listing, as applicable	K999	MD03	Delisting not possible. Apply K999 or MD03, as applicable

* Solids exposed to chemical agent waste must, however, be assessed and decontaminated as required in accordance with Army regulations and guidance (i.e., AR 385-61 and DA Pam 385-61).

** Turn-in documents must explicitly reference the delisting procedure.

6. INSTALLATION RESTORATION OPERATIONS - While the COMAR listings and delistings for chemical agent wastes are applicable to recovered soil, water, and debris, the application of hazardous waste numbers to these media is handled on a case-by-case basis in coordination with regulators from the MDE and EPA. In these cases, existing documentation and protocols specific to the operation may impact waste coding decisions. This documentation may include sampling and analysis plans; site-specific, risk-based action levels; and decision documents prepared in accordance with environmental statutes and regulations. In designating risk-based actions levels, APG and the regulators may be assisted by the Office of the Surgeon General via the U.S. Army Public Health Center.

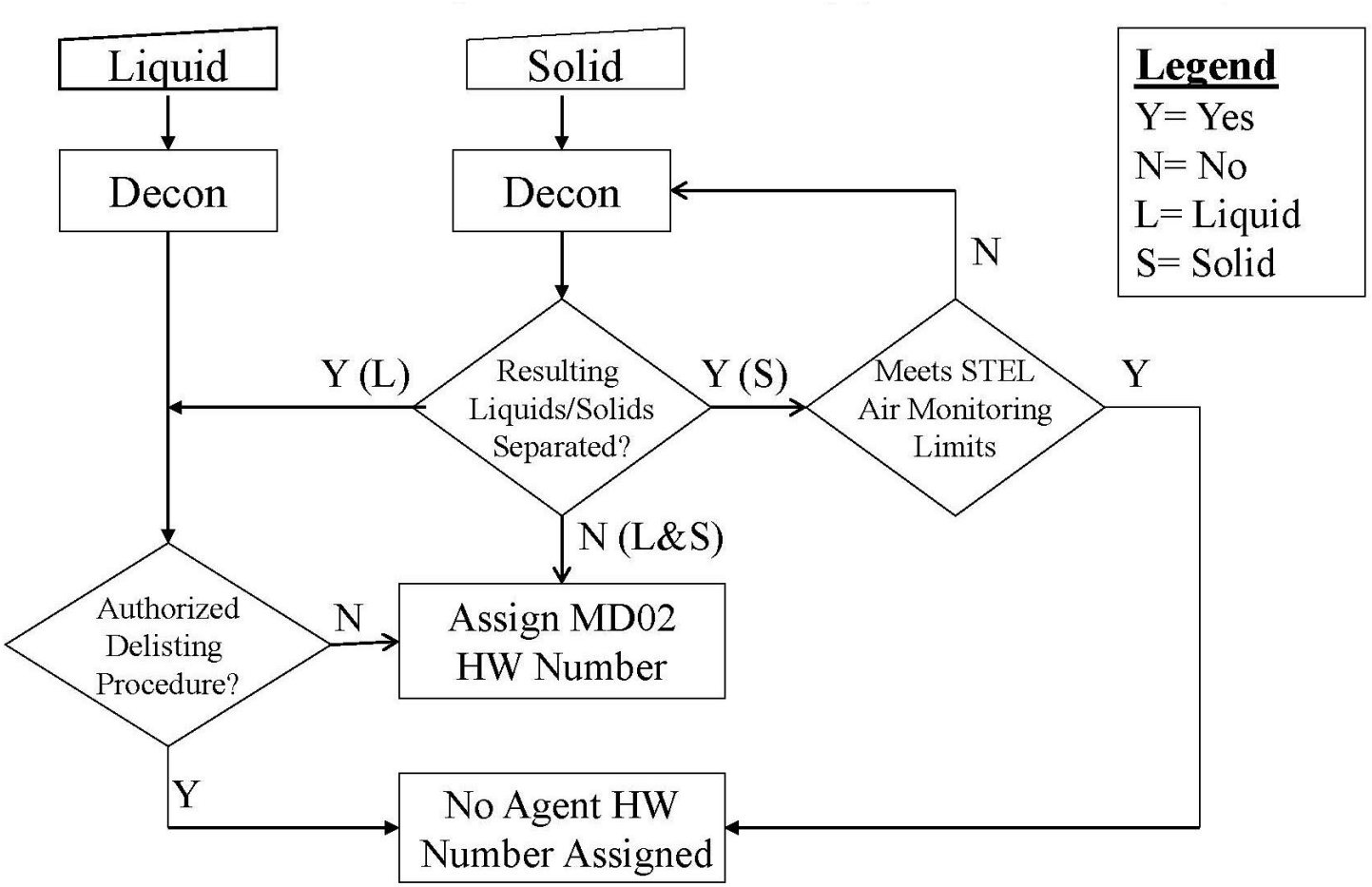

Figure 1. MD02 Listing and Delisting Logic Diagram

(Starts with small quantities of chemical agent materiel [i.e., not hazardous waste] in laboratory settings. Chemical decontamination conducted as part of the same laboratory process in same location.)

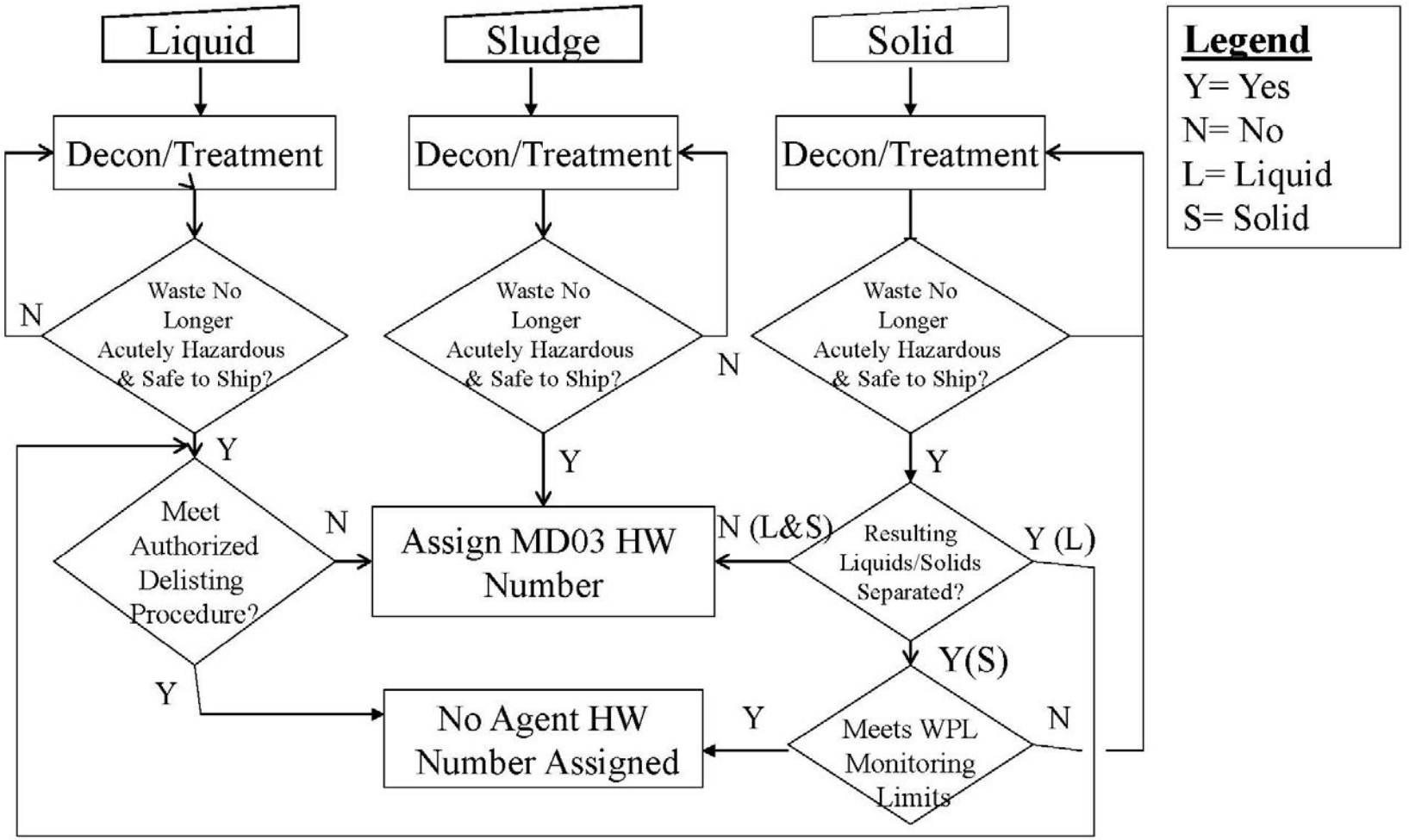

Figure 2. K9XX & MD03 Listing and Delisting Logic Diagram

(Starts with Hazardous Waste Number K9XX. Chemical treatment involves small to large quantities, and may span significant temporal and spatial separations.)

PERMIT ATTACHMENT II-2

TRAINING PLAN FOR ABERDEEN PROVING GROUND

NOTE: The material in this attachment was taken directly from the permit application. There may be some minor differences in the formatting of the material as it appears here compared to the formatting of the source document, but the text has not been changed.

II.D ABERDEEN PROVING GROUND TRAINING PLAN

II.D.1 OUTLINE OF TRAINING PROGRAM [40 CFR 270.14(b)(12), and 264.16; COMAR 26.13.07.02D(28) and 26.13.05.02G]

Treatment, Storage, and Disposal Facility (TSDF), Chemical Transfer Facility (CTF), N-Field Storage Facility, Munitions Assessment and Processing System (MAPS), Old Bombing Field (OBF), J-Field, Sample Receipt Facility (SRF), and Explosive Destruction System (EDS) personnel must be trained in accordance with Aberdeen Proving Ground (APG) regulations, the APG hazardous waste training program or equivalent, unit-specific requirements, and job-specific requirements. APG training regulations and the APG hazardous waste training program are introduced here and discussed in further detail in subsequent sections.

APG Regulation (APGR) 200-60, Hazardous Waste Management, establishes training requirements for all personnel who generate, transport, treat, or store hazardous waste at APG. This regulation includes general requirements related to trainer qualifications, training documentation, and hazardous waste worker training. It also includes specific requirements related to generators, satellite accumulation site (SAS) managers, and first-line supervisors; central accumulation area (CAA) managers and alternates; operators at permitted treatment and storage facilities; personnel who transport wastes to permitted facilities or may otherwise influence compliance at these sites; and activity environmental coordinators (AECs).

According to APGR 200-60, managers of permitted facilities must ensure that all personnel who work at these locations are properly trained in keeping with their assigned duties and job descriptions. Training must be conducted in accordance with permit conditions and the facility training plan. Untrained personnel may work at permitted facilities only under the supervision of a fully trained person. Initial training must be successfully completed within 6 months of assignment and must be followed by annual refresher training.

APG has established a single facility hazardous waste training program (HWTP) maintained by the Directorate of Public Works (DPW) Environmental Division (ED). The HWTP establishes minimum post-wide training standards for personnel who handle or manage hazardous waste and provides for uniform, centralized recordkeeping to ensure the installation's regulatory compliance.

The HWTP is described in the APG Hazardous Waste Training Program Guide (December 2018). A copy of this document is available from DPW-ED on request.

II.D.2 JOB TITLES AND DUTIES [40 CFR 264.16(d)(1) and (2); COMAR 26.13.05.02G(4)(a) and (b)]

This section presents job titles and duties related to hazardous waste management for personnel who work at the individual controlled hazardous substance (CHS) facilities covered by APG's CHS Permit A-190.

Some of the same Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) personnel operate the CTF, N-Field Storage Facility, MAPS, SRF, and the EDS. The CTF, N-Field Storage Facility, MAPS, EDS, and SRF duties of these personnel are listed separately in this plan.

The job titles presented in this section may represent generalized categories for actual job titles sharing similar duties.

II.D.2.1 Garrison Permitted Storage (aka TSDF) Personnel

Job Title: TSDF Manager

Duties:

- Manages the TSDF.
- Serves as the primary Contracting Officer's Representative (COR) for the installation hazardous waste disposal contract.
- Monitors the installation hazardous waste disposal contractor during all operations involving the handling of hazardous waste.
- Prepares delivery orders for contract hazardous waste disposal.
- May serve as Emergency Coordinator for hazardous waste activities.
- Oversees personnel involved in TSDF operations.
- Arranges for maintenance and security of the TSDF.
- Drafts and submits required reports to senior APG staff, higher headquarters, and appropriate federal and state agencies.

- Oversees the proper identification, labeling, packaging, and storage of hazardous waste in the TSDF.
- Ensures maintenance of inspection, inventory, personnel training, and other required records.
- Ensures the completion of initial and annual personnel training on the TSDF permit conditions and contingency plan.
- Reviews and approves electronic waste turn-in transactions.
- Signs manifests on behalf of the Installation Commander.
- Serves as the Installation Environmental Coordinator (IEC).

Job Title: Environmental Protection Specialist

Duties:

- Reports to the TSDF Manager
- Assists in managing TSDF operations
- May serve as COR or alternate COR for contracts
- May serve as Emergency Coordinator for hazardous waste activities
- May serve as Manager of polychlorinated biphenyl (PCB) program
- Assists in the monitoring of the installation's hazardous waste disposal contractor during all operations involving handling of hazardous waste
- Ensures that containers stored at TSDF are labeled or marked with correct information
- May be responsible for labeling waste items brought to the TSDF
- May perform daily, weekly, and monthly inspections of the TSDF
- Enters inventory information for stored hazardous waste
- Notifies Emergency Coordinator in emergency situations
- Takes emergency action on own authority in accordance with established procedures
- Assists in informal and on-the-job training of TSDF personnel
- Assists in preparing delivery orders

- May review and approve electronic waste turn-in transactions
- Signs manifests on behalf of the Installation Commander
- Assists in recordkeeping

Job Title: Environmental Scientist/Environmental Engineer/Chemical Engineer/Chemist

Duties:

- Reports to the TSDF Manager.
- Advises installation and the hazardous waste disposal contractor on the interpretation of regulations concerning hazardous waste.
- May serve as the IEC.
- May serve as COR or alternate COR for contracts (TSDF Operations Support and/or Hazardous Waste Disposal).
- Assists in managing TSDF operations.
- May serve as Manager of the polychlorinated biphenyl (PCB) program.
- Ensures that containers stored at TSDF are labeled/marked with correct information
- Ensures that containers stored at TSDF are labeled/marked with correct information.
- May be responsible for labeling waste items brought to the TSDF.
- May perform daily, weekly, and monthly inspections of the TSDF.
- Maintains inventory information for stored hazardous waste.
- Notifies Emergency Coordinator in emergency situations.
- Takes emergency action on own authority in accordance with established ***procedures.***
- May assist in preparing waste disposal delivery orders
- May review and approve electronic waste turn-in transactions.
- Signs manifests on behalf of the Installation Commander.
- Assists in recordkeeping (to include maintenance of inspection, inventory, personnel training, and other required records).

Job Title: Contractor Staff (TSDF Operations Support)

Duties:

- Report to the assigned COR.
- Assist in managing TSDF operations.
- Ensure containers stored at the TSDF are labeled or marked with correct information.
- May be responsible for labeling waste items brought to the TSDF.
- Performs daily, weekly, and monthly inspections of the TSDF.
- Reviews and approves electronic waste turn-in transactions.
- Maintain inventory information for stored hazardous waste
- Notify the Emergency Coordinator in emergency situations.
- Take emergency action per the terms of contract and the TSDF contingency plan.
- Participate in informal and on-the-job training of TSDF personnel.
- Assist in recordkeeping.

II.D.2.2 II.D.2.2 Chemical Transfer Facility Personnel

Job Title: Branch Chief, Chemical Biological Operations Branch

Duties:

- Supervises overall operation of the CTF.
- Serves as training director for the CTF.
- May serve as Emergency Coordinator for hazardous waste activities.

Job Title: Chemical Engineering Technician

Duties:

- May serve as Emergency Coordinator or alternate for hazardous waste activities.
- Maintains CTF stockroom.
- Performs necessary chemical operations and trains lower grade-level employees in operations.
- Ensures and performs first-entry monitoring of the CTF.

- Packages hazardous materials for shipment.
- Inspects all systems of the CTF.
- Performs or assists in the performance of required maintenance.
- Performs a variety of duties as assigned associated with the operation of motor vehicles, overhead cranes, and forklifts.
- Modifies and fabricates equipment to meet specific needs.
- Changes valves, tubing, and piping.
- Greases fans and bearings and changes filters.
- Transports hazardous and industrial waste for proper storage.
- Inspects storage areas to ensure that no containers are leaking.
- Conducts daily cleanup of facilities.
- Assists fellow workers to ensure that all operations within the CTF are performed safely and in compliance with standard operating procedures (SOPs)/internal operating procedures (IOPs) and other guidelines set forth by the supervisor.

II.D.2.3 N-Field Storage Facility Personnel

N-Field Storage Facility

Job Title: Branch Chief, Chemical Biological Operations Branch

Duties:

- Supervises overall operation of N-Field.
- Serves as training director for N-Field Storage Facility operations.

Job Title: Chemical Engineering Technician

Duties:

- Inspects N-Field Storage Facility and performs first-entry monitoring as required.
- Performs or assists in the performance of maintenance tasks as required.
- Maintains stored waste inventory and accompanying planographs identifying stored waste locations.
- Assists fellow workers to ensure that all operations associated with the N-Field Storage Facility are performed safely and in compliance with SOP/IOPs and other guidelines as set forth by the supervisor.

- May serve as Emergency Coordinator or alternate for hazardous waste activities.

N-Field Portable Magazines

Job Title: Operations Manager, Filters and Hazardous Materials Team

Duties:

- Supervises overall operation of the N-Field magazines.
- Serves as training director for the N-Field magazines.
- Supervises inspections of the N-Field magazines and is responsible for corrective actions.
- May serve as Emergency Coordinator for hazardous waste activities.

Job Title: Chemical Engineering Technician/Hazardous Waste Handler-Transporter (On-Post)

Duties:

- Inspects the N-Field portable magazines.
- Performs or assists in the performance of maintenance tasks as required.
- Assists fellow workers to ensure that all operations associated with the N-Field magazines are performed safely and in compliance with SOP/IOPs and other guidelines as set forth by the supervisor.
- Labels waste in accordance with the Code of Maryland Regulations (COMAR).
- Performs permit-required inspections for accountability and condition of containers.
- Maintains stored waste inventory and accompanying planographs identifying stored waste locations.
- May serve as Emergency Coordinator or alternate for hazardous waste activities.

II.D.2.4 Munitions Assessment and Processing System Personnel

Job Title: MAPS Operations Supervisor

Duties:

- Supervises overall operation of the MAPS.
- Serves as training director for the MAPS.

- Responsible for hazard management, munitions handling, and assessment.
- Drafts and submits reports to the Chemical Materials Activity Recovered Chemical Materiel Directorate, the MAPS site manager, and other agencies as required.
- Ensures that inspection, inventory, personnel training, and other required records are maintained to support meeting reporting and recordkeeping requirements.
- Establishes daily schedules and work routines.
- Oversees the proper identification, labeling, packaging, and storage of hazardous waste in the MAPS.
- May serve as Emergency Coordinator for hazardous waste activities.

Job Title: Control Room Operator/Team Leader

Duties:

- Reports to the MAPS Operations Supervisor.
- Supervises operations, safety, and training of MAPS personnel.
- Operates remotely controlled equipment within the Process Room.
- Monitors the programmable logic controller (PLC) system readouts, other facility status indicators, and operational status within the Process Room.
- Performs limited checks of Control Room equipment.
- Knows the location and purpose of all the equipment in the MAPS.
- Recognizes and takes appropriate action in response to abnormal operation conditions.
- Assists fellow workers to ensure that all operations within the MAPS are performed safely and in compliance with SOPs, maintenance operating procedures (MOPs), and other guidelines set forth by the Operations Supervisor.
- May serve as Emergency Coordinator for hazardous waste activities.
- Operates emergency personnel decontamination station, as needed.

Job Title: Process Room Operator/Chemical Engineering Technician

Duties:

- Responsible for glovebox operations (including decontamination procedures and 3X monitoring), chemical decontamination operations, Process Room hydraulic systems operations, waste handling, and general operation/and decontamination of the burster detonation vessel (BDV).

- Performs operator-level preventive and corrective maintenance on system components, conducts operational area and equipment inspection, and performs minor repairs.
- Assists fellow workers to ensure that all operations within the MAPS are performed safely and in compliance with SOPs, MOPs, and other guidelines set forth by the Team Leader or Operations Supervisor.
- Notifies Emergency Coordinator in emergency situations.
- Responds to spills, releases, and incidents involving hazardous materials and/or waste and other emergencies in accordance with established procedures.
- Operates emergency personnel decontamination station, as needed.

Job Title: Explosive Operator

Duties:

- Reports to the MAPS Team Leader.
- Receives overpacked munitions and conducts initial unpack operation; verifies munitions identity, fuze, and fuze condition; places empty munitions in the BDV; moves commercial donor explosives into the MAPS facility; wires detonators; acts as the firing officer; controls/and operates the firing system; inspects munitions remains.
- Reviews documentation for content and for consistency with operating procedures as required.
- Performs operator-level preventive and corrective maintenance on firing system components, conducts operational area and equipment inspection, and performs minor repairs.
- Assists fellow workers to ensure that all operations within the MAPS are performed safely and in compliance with SOPs, MOPs, and other guidelines set forth by the Team Leader or Operations Supervisor.
- Notifies Emergency Coordinator in emergency situations.
- Responds to spills, releases, and incidents involving hazardous materials and/or waste and other emergencies in accordance with established procedures.
- Operates emergency personnel decontamination station as needed.

II.D.2.5 Sample Receipt Facility Personnel

Job Title: Branch Chief, Chemical Biological Operations Branch

Duties:

- Supervises overall operation of the SRF.
- Serves as training director for the SRF.
- May serve as Emergency Coordinator for hazardous waste activities.

Job Title: Chemical Engineering Technician

Duties:

- May serve as Emergency Coordinator or alternate for hazardous waste activities.
- Performs necessary chemical operations and trains lower grade-level employees in operations.
- Receives samples; conducts initial unpack operations; and verifies sample identity, presence of explosives, and explosives condition.
- Performs render-safe activities on potentially explosive samples if required.
- Maintains stockroom and supplies.
- Packages hazardous materials for shipment.
- Inspects all systems of the SRF.
- Performs or assists in the performance of required maintenance.

II.D.2.6 Old Bombing Field Personnel

Job Title: High Explosives (HE) Plant Manager

Duties:

- Supervises all activities of the HE Team.
- Serves as 90-day CAA Manager.
- Leads or appoints a leader for OB/OD operations.
- May serve as Emergency Coordinator for hazardous waste operations.
- Subject matter expert for treatment of explosives/energetics.

Job Title: HE Operator

Duties:

- Follows the procedures set forth in the OBF and CAA SOPs.

- May serve as leader during hazardous waste treatment operations.
- Serves as Alternate CAA Manager.

Job Title: OB/OD Environmental Coordinator

Duties:

- Ensures all aspects of hazardous waste storage and treatment comply with all federal, state, and local regulations.
- Maintains all documentation relating to hazardous waste storage and treatment.
- Provides guidance on specific materials that may be treated at OBF.
- Serves as Alternate CAA Manager.
- Manages the satellite accumulation site for OB operations.
- Insects both the CAA and OB/OD site for compliance with COMAR 26.13 and the A-190 CHS permit, as applicable.

II.D.2.7 J-Field Personnel

Job Title: Director, 20th CBRNE Analytical and Remediation Activity (CARA)

Duties:

- Appoints qualified Unexploded Ordnance (UXO) Manager, Safety/Environmental Officer, Senior UXO Supervisors (SUXOS), and UXO Qualified Personnel (UXOQP)

Job Title: UXO Manager

Duties:

- Serves as J-Field Site Manager.
- Provides technical reach-back support to CARA SUXOS and UXOQP on questions related to identification, handling and disposition of unique waste munitions and UXO detonated at J-Field.
- Manages all CARA UXO and J-Field operations.

Job Title: Safety/Environmental Officer

Duties:

- Ensures hazardous waste treatment complies with conditions of A-190 CHS Permit.

- Conducts quarterly inspections required by APGR 200-60, and permit-required inspections of storm water controls.
- Maintains documentation relating to hazardous waste treatment including site logs, inspections reports and training certificates.
- Provides guidance to UXOQP and off-site military EOD personnel on specific wastes that may be treated at J-Field.
- Provides annual Toxic Release Inventory and biennial hazardous waste reporting inputs to Army Public Health Center (PHC) and the Garrison DPW, respectively.
- Evaluates work-related risks and develops required health and safety plan(s) to eliminate or mitigate these risks.
- Ensures SUXOS and UXOQP receive required safety (e.g., Hazardous Waste Operations and Emergency Response [HAZWOPER]) and environmental training.
- Develops and maintains site SOP and related health and safety documentation.

Job Title: Senior UXO Supervisors (SUXOS)

Duties:

- Plan, coordinate and supervise UXOQP operations at J-Field.
- Assist in the development and maintenance of site SOP and related plans.
- Review and approve all field reports from UXOQP.
- Manage collection, sorting, inert certification and turn-in of range residue.

Job Title: UXO Qualified Personnel (UXOQP)

Duties:

- Follow procedures set forth in the J-Field SOP.
- Conduct permit-required weekly and pre & post-detonation inspections.
- Coordinate site use by off-site military EOD personnel, and assure their compliance with applicable provisions of A-190 CHS permit.
- Conduct limited open detonation (treatment) operations from site preparation through collection and containerization of range residue.
- Perform permit-required backfilling of craters.
- Sort, certify inert, and turn in range residue for final disposal.

Job Title: EOD Personnel

Duties:

- Follows the procedures set forth in the CARA J-Field SOP and applicable Army technical publications.
- Conduct open detonation operations through collection, inert certification and containerization of range residue.

II.D.2.8 Explosive Destruction System Personnel

Except for the Recovered Chemical Materiel Directorate (RCMD) System Operations Manager, job titles and descriptions presented below pertain to DEVCOM CBC personnel who will operate the EDS unit at the APG site.

Job Title: RCMD System Operations Manager

Duties:

- Supervises overall operation of the EDS.
- Serves as the primary point of contact with the installation on planning destruction operations and environmental compliance.
- Responsible for the control and authority of EDS operations.
- Works with the EDS Crew Chief.
- Acts as interface with APG, Materiel Assessment Review Board (MARB), Chemical Weapons Convention (or Treaty) Compliance organizations, and RCMD management for EDS operations.
- Ensures that inspection, inventory, personnel training, and other required records are maintained to support compliance with reporting and recordkeeping requirements.
- Drafts and submits reports to the RCMD and government agencies as required.
- Determines treatment configuration of munitions and choice of treatment reagent.
- Establishes schedule and work routines.
- Serves as the EDS systems-specific training director.
- May serve as Emergency Coordinator.

Job Title: EDS Crew Chief

Duties:

- Responsible for supervising all EDS area activities and managing EDS Operators.
- Serves as the primary point of contact with the installation on day-to-day operational matters.
- Serves as the Training Director for EDS Operator hazardous waste training and Army-specific chemical agent training.
- Responsible for munitions handling at the EDS operation site.
- Oversees the proper identification, labeling, packaging, and storage of hazardous waste in the EDS less-than-90-day site.
- Recognizes and takes appropriate action in response to abnormal operational conditions.
- Ensures that EDS operations are performed safely and in compliance with the system SOPs, MOPs, and other guidelines.

Job Title: Chemical Engineering Technician

Duties:

- Operates and checks EDS and support equipment according to SOPs, MOPs, and other guidelines.
- Performs operator-level preventive and corrective maintenance on system components, conducts operational area and equipment inspection, and performs minor repairs.
- Responsible for hazardous waste handling.
- Responds to spills, releases, and incidents involving hazardous materials and/or waste and other emergencies in accordance with established procedures.
- Operates personnel decontamination station.

Job Title: EDS Explosive Operator

Duties:

- Receives overpacked munitions and conducts initial unpack operation; verifies munitions identity, fuze, and fuze condition; places munitions in fragment suppression system and attaches shaped charges; initiates firing sequence; and inspects decontaminated munitions components and fragments for explosive hazards.

- Performs operator-level preventive and corrective maintenance on firing system components; conducts operational area and equipment inspection; and performs minor repairs according to SOPs, MOPs, and other guidelines.
- Responds to spills, releases, and incidents involving hazardous materials and/or waste and other emergencies in accordance with established procedures.

II.D.3 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES [40 CFR 264.16(a)(3), 264.16(c) and 264.16(d)(3); COMAR 26.13.05.02G(3)]

TSDF, CTF, N-Field Storage Facility, MAPS, SRF, EDS, J-Field (CARA), and OBF personnel must complete an initial training program consisting of classroom instruction, informal instruction, and/or on-the-job training that teaches them to perform their duties to ensure compliance with federal and state hazardous waste regulations. This training is conducted within 6 months after the date of their employment or assignment to one of these units. Until receiving the required training, personnel in these units may only handle or manage hazardous material/waste under the direction of a fully trained individual. Refresher training is required annually.

Initial training includes instruction in procedures specific to the unit to which the person is assigned as well as general instruction in hazardous waste topics. Training for personnel working at the TSDF, CTF, N-Field Storage Facility, MAPS, SRF, EDS, J-Field (CARA), and OBF includes the following topics, as appropriate:

Hazardous waste inventory tracking and documentation in accordance with the Hazardous Waste Tracking System (HWTS).

Compatible storage, labeling, waste analysis, security, medical surveillance, site control and operations, personal protective equipment (PPE), decontamination, container handling and emergency procedures, and other operational procedures in accordance with facility operations manuals, SOPs, and related RCRA Permit- and COMAR-controlled hazardous substances requirements.

Onsite and offsite transportation of hazardous waste in accordance with APGR 200-60 and COMAR 26.13.04, Standards Applicable to Transporters of Hazardous Waste.

Hazardous waste sampling procedures, protocols, and requirements as developed for respective facilities.

II.D.3.1 Treatment, Storage, and Disposal Facility-Specific Training

TSDF personnel must be familiar with all TSDF operating procedures pertaining to the management of hazardous and nonhazardous waste. TSDF personnel become familiar with these procedures through initial and refresher training courses and by reviewing the TSDF SOPs and plans. These training courses/SOPs and plans cover:

- Identifying wastes received/stored.
- Entering container information into the inventory.
- Using emergency procedures and equipment for the facility.
- Following the TSDF contingency plan.
- Preparing and packaging waste containers for shipment and disposal, including labels, shipping names, and U.S. Environmental Protection Agency (EPA) waste codes.
- Inspecting the facility.
- Keeping records.
- Completing paperwork associated with off-site waste storage and disposal, including manifests, land disposal restriction (LDR) notifications, and analyses.
- Following the U.S. Department of Transportation (DOT) shipping requirements.
- Disposal guidelines (issued by the EPA and the specific disposal facility).
- Transportation security.

Employees who are responsible for handling and managing waste at the TSDF may not work unsupervised until they have received initial training in the following procedures:

- Occupational Safety and Health Administration (OSHA) 1910.120 (HAZWOPER),
- COMAR 26.13.05.02G (RCRA 40 CFR 264.16),
- DOT 49 CFR 172.704(a),
- Toxic Substances Control Act (TSCA) Requirements,
- A-190 CHS Permit,
- TSDF Health and Safety Plan, and
- TSDF Contingency Plan.

Depending on their job responsibilities, TSDF employees may be required to have specific training in any of the following areas:

- COR,
- Sampling,
- LDR,
- Auditing waste disposal facilities,
- Government contracts,
- Project management,
- Mixed waste,
- Superfund Amendments and Reauthorization Act (SARA) Title III, and
- Transportation security.

II.D.3.2 Chemical Transfer Facility-Specific Training

CTF personnel must be familiar with all CTF operating procedures pertaining to the management of waste in the CTF through initial and refresher training, on-the-job training, and review of SOPs. The training and SOPs cover:

- Identification of chemical surety agents by military use, classification and groups, physiological effects, symptoms, physical properties, and hazard symbols.
- Identification and/of training in appropriate self-aid and first-aid for different chemical materials.
- Methods and equipment used to overpack leaking containers.
- Use, compatibility, and storage of industrial chemicals and chemical agents.
- Choice of personal protective clothing for each operation.
- Procedures for identification, inspection, use, wear, care, storage, handling, decontamination, and maintenance of protective clothing and equipment.
- Two-person concept.
- Monitoring and alarm capabilities.

- Appropriate decontaminants for each agent, with its characteristics, hazards, and methods of application.
- Good housekeeping practices and procedures.
- Emergency response to chemical accidents.
- Methods of waste disposal, including proper environmental and accountability documentation.
- Emergency evacuation procedures.
- Proper accident reporting procedures.

II.D.3.3 N-Field-Specific Training

Specific training for the N-Field personnel responsible for the N-Field Storage Facility and the N-Field portable magazines is the same as the specific training for CTF personnel with the addition of the following training topics:

- Identification of chemical munitions and explosives by description, characteristics, color coding, marking, military use, and hazard symbols.
- Methods and equipment used to containerize leaking munitions.
- Handling, reporting, processing, and disposing of unserviceable or leaking munitions.
- Transportation, compatibility, storage, and explosive limits for munitions and explosives.

II.D.3.4 Munitions Assessment and Processing System-Specific Training

MAPS personnel must be familiar with all MAPS operating procedures pertaining to the management of waste in the MAPS, through initial and refresher training, on-the-job training, and review of SOPs. Because MAPS employees also work at the CTF, many of the topics listed below (e.g., identification of chemical surety agents) are covered by CTF training. The training and SOPs for MAPS operators cover:

- Identification of chemical surety agents by military use, classification and groups, physiological effects, symptoms, physical properties, and hazard symbols.
- Identification of chemical munitions and explosives by description, characteristics, color coding, marking, military use, and hazard symbols.

- Identification of/and training in appropriate self-aid and first aid for different chemical materials.
- Methods and equipment used to overpack leaking munitions and containers.
- Use, compatibility, and storage of industrial chemicals and chemical agents.
- Transportation, compatibility, storage, and explosives limits for munitions and explosives.
- Choice of personal protective clothing for each operation.
- Procedures for identification, inspection, use, wear, care, storage, handling, decontamination, and maintenance of protective clothing and equipment.
- Two-person concept.
- Monitoring and alarm capabilities.
- Appropriate decontaminants for each agent, with its characteristics, hazards, and methods of application.
- MAPS drilling and draining operations.
- Operation of the BDV.
- Good housekeeping practices and procedures.
- Emergency response to chemical accidents.
- Methods of waste disposal, including proper environmental and accountability documentation.
- Emergency evacuation procedures.
- Proper accident reporting procedures.

All MAPS employees must be certified by the DEVCOM Chemical Biological Explosive Board to Explosive Level II, complete the Introduction to Ammunition Course (AMMO-45), or complete an equivalent course.

MAPS Explosive Operator employees must be certified by the DEVCOM Chemical Biological Explosive Board to Chemical Level II, complete the Technical Chemical Surety Materiel Course (AMMO-61), or complete an equivalent course.

All MAPS employees who are responsible for managing waste at MAPS may not work unsupervised until they have received initial training in the following procedures:

- OSHA 29 CFR 1910.120 (HAZWOPER) (including respirator training),
- COMAR 26.13.05.02G (RCRA 40 CFR 264.16),
- MAPS permit requirements, and
- MAPS contingency plan.

II.D.3.5 Sample Receipt Facility-Specific Training

SRF personnel must be familiar with all SRF operating procedures pertaining to the management of waste in the SRF through initial and refresher training, on-the-job training, and review of SOPs. The training and SOPs cover:

- Identification of chemical surety agents by military use, classification and groups, physiological effects, symptoms, physical properties, and hazard symbols.
- Identification of/and training in appropriate self-aid and first aid for different chemical materials.
- Methods and equipment used to overpack leaking containers.
- Use, compatibility, and storage of industrial and chemical agents.
- Selection of personal protective clothing for each operation.
- Procedures for identification, inspection, use, wear, care, storage, handling, decontamination, and maintenance of protective clothing and equipment.
- Two-person concept.
- Monitoring and alarm capabilities.
- Appropriate decontaminants for each agent, with their characteristics, hazards, and methods of application.
- Good housekeeping practices and procedures.
- Emergency response to chemical accidents.
- Methods of waste disposal, including proper environmental and accountability documentation.
- Emergency evacuation procedures.

- Proper accident reporting procedures.

SRF operators who may receive samples will receive specialized training in the handling and receipt of explosives. Additional information about this training will be made available to MDE as soon as it is available.

II.D.3.6 Old Bombing Field-Specific Training

OBF personnel must be familiar with all OBF operating procedures pertaining to open burning, open detonation, and the management of waste in satellite accumulation and less-than-90-day central accumulation areas. OBF personnel become familiar with the procedures through initial and refresher training, on-the-job training, and review of SOPs. Training and/or SOPs for OBF personnel include the following topics:

- Hazardous waste management for generators,
- Hazardous waste management for permitted operations,
- OSHA 29 CFR 1910.120 (HAZWOPER),
- First Aid/cardiopulmonary resuscitation (CPR),
- Munitions Rule requirements,
- Transportation of hazardous waste, and
- Site-specific requirements for OB and OD.

II.D.3.7 Explosive Destruction System-Specific Training

EDS personnel must be familiar with EDS operating procedures through initial and refresher training, on-the-job training, and review of SOPs. The training and SOPs for EDS personnel cover the following, as applicable to their job duties and responsibilities:

- General site orientation.
- Identification and training in appropriate self-aid and first aid.
- Methods and equipment used to handle and overpack leaking munitions and containers.
- Use, compatibility, and storage of industrial chemicals and chemical agents.

- Transportation, compatibility, storage and explosives limits for munitions and explosives.
- Selection of personal protective clothing for each operation.
- Procedures for identification, inspection, use, wear, care, storage, handling, decontamination, and maintenance of protective clothing and equipment.
- Two-person concept.
- Monitoring and alarm capabilities.
- EDS operating system, addressing components and operation of the EDS system.
- Maintenance overview and procedures for inspections, use, wear, care, storage, handling, decontamination, and operator maintenance of the EDS.
- Appropriate decontaminants for each agent, with its characteristics, hazards, and methods of application.
- EDS loading, firing, treatment, decontamination, waste storage, vapor containment, sampling, and monitoring operations.
- Good housekeeping practices and procedures.
- Emergency response to chemical accident.
- Methods of waste disposal including proper environmental and accountability documentation.
- Emergency evacuation procedures.
- Proper accident reporting procedures.

All EDS Operator employees must:

- Be certified under the qualification certification program that the U.S. Army established for the EDS operators, titled EDS Work Force Qualification Certification Program.
- The EDS operators will be responsible for conducting and performing hazardous waste operations.
- Be certified by the DEVCOM Chemical Biological Explosive Board to Explosive Level II, complete Introduction to Ammunition Course (AMMO-45), or complete an equivalent course.

All EDS Explosive Operator employees must:

- Be certified by DEVCOM Chemical Biological Explosive Board to Chemical Level II, complete Technical Chemical Surety Materiel Course (AMMO-61), or complete an equivalent course.

All EDS employees who are responsible for managing EDS waste may not work unsupervised until they have received initial training in the following:.

- OSHA 29 CFR 1910.120 (HAZWOPER) (including respirator training),
- COMAR 26.13.05.02G (RCRA 40 CFR 264.16),
- EDS site permit requirements, and
- EDS site contingency plan.

II.D.3.8 J-Field Specific Training

CARA UXOQP and EOD personnel treat waste military munitions and explosively clear/demilitarize non-RCRA-regulated, range-recovered, UXO, and related materials at J-Field ([redacted]).

CARA personnel receive training on the following topics:

- Hazardous waste management for permitted operations,
- OSHA 29 CFR 1910.120 (HAZWOPER),
- First aid/CPR,
- Military Munitions Rule requirements,
- Transportation of hazardous waste,
- Site-specific requirements for OD operations, and
- Complete and maintain minimum qualifications stipulated in latest version of Department of Defense Explosive Safety Board (DDESB) Technical Paper 18, *Minimum Qualifications for Personnel Conducting Munitions and Explosives of Concern-Related Activities*.

Temporary duty military EOD personnel that intermittently use the J-Field site under the custodianship of CARA site operators, undergo specialized EOD training that generally consists of the following.

- 2-phase, in residence, basic EOD core training of approximately 7 months. The courses cover fundamentals of electronics; EOD publications and procedures; maintenance and use of EOD-specific tools and equipment; demolition materials and procedures; hazardous material transportation; EOD unit operations; use of portable x-ray units; recognition, safety, render safe and disposition of various classes and types of U.S. and foreign ground, air, improvised explosive devices, and nuclear ordnance; ordnance access, recovery and assessment; protection of personnel and property; range clearance; recognition of chemical and biological agents; use of personal protective equipment and other topics.

- Follow-on training at home stations includes short-duration in-residence courses, computer-based training, on-the-job training, study of written materials, periodic proficiency training and certification testing that provides more in-depth instruction and hands-on familiarization with service or mission-unique EOD tools and equipment; EOD organization and doctrine; demolition site operations; environmental requirements (including Military Munitions Rule); new EOD developments; OSHA HAZWOPER, etc.

In addition to the above, EOD personnel deployed to APG will receive site-specific training in APG range operations and procedures.

II.D.4 TRAINING DIRECTOR [40 CFR 264.16(a)(2); COMAR 26.13.05.02G(1)(b)]

APGR 200-60 requires that a person trained in hazardous waste management procedures direct all training programs. Trainers must be qualified by having satisfactorily completed a teacher-training program in the subjects they are expected to teach or by having the academic credentials and instructional experience necessary to teach these subjects. Trainers must demonstrate instructional skills and knowledge of the subject matter. Trainer certification for DPW-ED-sponsored courses must be based on one or more of the following criteria:

- Technical and instructional certification from recognized trade organizations; e.g., Certified Environmental Trainer (CET) in hazardous waste management from the National Environmental Training Association (NETA).

- Formal academic achievement such as a teaching degree from an accredited college or university.

- Documented experience in subject matter and instruction.

- Successful completion of an approved “Train-the-Trainer” course and completion of the course to be taught.

The TSDF Manager directs TSDF-specific training. The Branch Chief, Chemical Biological Operations Branch, directs CTF-/N-Field-/SRF-specific training. RCMD is responsible for identifying training requirements and directing EDS-specific training. DEVCOM CBC is responsible for ensuring that the EDS Operators are trained and certified for chemical/toxic operations. The MAPS Operations Supervisor directs the MAPS-specific training. The ATC High Explosive Team Leader and the OB/OD Environmental Coordinator direct OBF-specific training. The CARA Safety/Environmental Officer and Senior UXO Supervisors direct J-Field-specific training.

II.D.5 RELEVANCE OF TRAINING TO JOB POSITION [40 CFR 264.16(a)(2); COMAR 26.13.05.02G(1)(b)]

Training requirements for APG personnel are determined by their responsibilities when working at a hazardous waste operation or when responding to emergency spills or releases. The supervisor, usually with the assistance of the AEC, is responsible for identifying the hazardous waste training classification for personnel. The APG HWTP Guide contains a decision process that can be used by workers and their supervisors to determine appropriate training classifications.

In addition, the managers of the TSDF, CTF, N-Field Storage Facility, MAPS, SRF, OBF, J-Field, and EDS are responsible for determining if all facility employees or employees in specific job categories should receive training in additional areas to perform their jobs safely and in accordance with environmental requirements. Examples of specific training requirements relevant to individual job categories are presented in Section II.D.3. The managers and supervisors who determine unit-specific training requirements are identified in Section II.D.4.

II.D.6 TRAINING FOR EMERGENCY RESPONSE [40 CFR 264.16(a)(3); COMAR 26.13.05.02G(1)(c)]

Managers of the TSDF, CTF, N-Field Storage facilities, MAPS, SRF, OBF, EDS, and J-Field are responsible for ensuring that training for emergency response has been completed successfully before personnel are called upon to perform in real emergencies. Managers of these units are also required to ensure that each person remains competent to respond to the facility's emergency response plan through annual refresher training. Training for emergency response includes the following topics:

- Pre-emergency planning and coordination with outside parties,
- Personnel roles, lines of authority, and communication,
- Emergency recognition and prevention,
- Safe distance and places of refuge,
- Site security and control,
- Evacuation routes and procedures,
- Decontamination procedures,
- Emergency medical treatment and first aid,
- Emergency alerting and response procedures,
- Critique of response and follow-up, and
- Personal protective and emergency equipment.

Emergency response training may not be required for all employees of these units if enough employees are sufficiently trained or advance arrangements are made with a fully trained emergency response team.

In addition, all personnel who handle hazardous materials; generate, store, transport, treat, or in any way handle hazardous waste; respond to emergencies involving hazardous materials or hazardous waste; or work in areas where hazardous materials or hazardous wastes are stored or used, must be trained in the proper procedures to ensure their health and safety, the health and safety of other personnel, and the protection of the environment. At a minimum, these personnel receive Hazard Communication Training (29 CFR 1910.1200), addressing the physical and health hazards of hazardous chemicals in their workplace. Training includes the following:

- Information covering the training requirements of APGR 200-60.
- Location of operations where hazardous chemicals are present.
- Location and availability of the written hazard communication program, including the required lists of hazardous chemicals and required safety data sheets (SDSs)
- Training in the methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.).
- Training in the physical and health hazards of the chemicals in the work area.

II.D.7 IMPLEMENTATION OF TRAINING PROGRAM [40 CFR 264.16(b) and 264.16(d)(4); COMAR 26.13.05.02G(2) and (4)(d)]

The managers of the TSDF, CTF, N-Field Storage Facility, MAPS, SRF, OBF, EDS, and J-Field maintain documentation showing that a training program has been implemented for employees. These records contain course descriptions, job descriptions, and certifications of completed training.

As mentioned earlier (see Section II.D.3), all TSDF, CTF, N-Field Storage Facility, MAPS, SRF, OBF, EDS, and J-Field personnel are trained within 6 months after the date of their employment or assignment. Refresher training is performed annually.

All CARA UXOQP working at J-Field are trained in -site-specific operations within 3 months of assignment to J-Field. CARA personnel accompany off-site military EOD that use the site, or otherwise ensure they are familiar with and meet site specific environmental and safety requirements applicable to its operation. CARA personnel complete refresher training annually.

Training records are maintained at:

- The TSDF for TSDF employees,
- The CTF for CTF, N-Field storage Facility, and SRF employees,
- The CBARR Filters and Hazardous Materials Team Office at [redacted] (for N-Field portable magazines),
- The MAPS for MAPS employees,
- The EDS Site Office for EDS employees,
- At ATC's Environmental office for OBF employees for courses relating to hazardous waste handling and management, and
- The CARA Headquarters for J-Field operators.

Additional training records are maintained in the DPW-ED centralized recordkeeping system (see Section II.D.1)

PART III

SPECIAL CONDITIONS FOR CLOSED FACILITIES

This part identifies special conditions applicable to Controlled Hazardous Substances (CHS) facilities at Aberdeen Proving Ground (APG) that close in accordance with the Code of Maryland Regulations (COMAR) 26.13. Closed facilities include the Thermal Treatment Facility (TTF), Aberdeen Chemical Agent Neutralization Facility (ACANF), and the Bush River Area Storage Bays (BRASB). The special conditions listed below are only applicable to the former TTF. Special conditions applicable to other closed facilities may be added at a later date if such conditions are proposed by the Permittee and approved by the Department, or as may be required for protection of human health and the environment.

III.A. DESCRIPTION OF THE THERMAL TREATMENT FACILITY

From March 1983 until May 1998, the TTF was used for the destruction and removal of toxic or otherwise hazardous chemical warfare material from contaminated articles. It operated under a hazardous waste treatment permit issued by the Department and the Department's predecessor organizations within Maryland state government. The permit authorized the thermal treatment of up to 144 tons per year of hazardous waste. Processing of decontamination solutions exhibiting Environmental Protection Agency (EPA) hazardous waste codes D002 (corrosivity) or D003 (reactivity) ended in 1990. Treatment of decontaminated solids including building debris, personal protective equipment, laboratory glassware, empty drums and empty ton containers continued until facility shutdown. These solids were not hazardous waste. TTF sludges contained regulated levels of cadmium and lead.

III.B. CLOSURE OF THE THERMAL TREATMENT FACILITY

The Permittee began closure activities at the TTF in 1998 that continued until completion in August 1999. During the closure process, all residual waste was removed from the site and the facility was decontaminated and closed in accordance with a closure plan approved by the Department. Soil sampling data to support the TTF closure were delivered to the Department in a separate report. The soil sampling results showed that arsenic levels were at the upper bounds of background levels. Available data suggest that arsenic background levels in Edgewood Area soil exceed EPA Region 3 industrial risk-based screening criteria. The source of the elevated arsenic levels in the soil is unknown. Because arsenic was not present in TTF sludge at regulated levels when the TTF was in operation, it does not appear that the elevated arsenic levels in the TTF soil samples resulted from TTF operations. Cadmium and lead were present in the TTF soil samples at background concentrations.

III.C. SPECIAL CONDITIONS - THERMAL TREATMENT FACILITY

The Permittee shall maintain the following safeguards against exposure to potentially contaminated soil at the former TTF site:

III.C.1. Digging Permit. The Directorate of Public Works (DPW) or successor APG organizations shall issue a digging permit before any work involving excavation may

proceed at the site. The DPW shall use a process for issuing the digging permit that involves an examination of the health and safety concerns that must be satisfied before excavation may proceed.

III.C.2. Construction/Demolition Review Package. DPW or successor organizations shall prepare and approve a formal construction/demolition review package before the construction of a new facility or demolition of an existing facility at the former TTF site may proceed. In preparing the construction/demolition package, DPW shall evaluate the potential for contamination using historical Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation and Liability Act data. DPW shall ensure that methods to ensure worker safety are documented in an approved Health and Safety Plan.

III.C.3. Soil Sampling Data. APG shall maintain soil sampling data showing elevated arsenic levels at the former TTF site indefinitely in the APG Geographic Information System or successor systems.

PART IV
SPECIAL CONDITIONS FOR STORAGE OF HAZARDOUS WASTE IN CONTAINERS AT THE TREATMENT, STORAGE, AND DISPOSAL FACILITY

The facility referenced here as the Treatment, Storage and Disposal Facility (TSDF) consists only of hazardous waste storage units. This Part does not authorize treatment or disposal of hazardous wastes at these units. For the purposes of this Part, the Permittee is Aberdeen Proving Ground (APG) as the owner and as the operator.

IV.A. PERMITTED STORAGE AREAS

The Permittee may store containers of hazardous waste for periods longer than 90 days in the 3 TSDF Storage Buildings and in up to 10 roll-off units. Information on the TSDF Storage Buildings, and roll-off units, their secondary containment capacities, and their permitted waste storage volumes is given in Permit Conditions IV.A.1 – IV.A.4 .

IV.A.1. TSDF Multiple Bay Storage Buildings: The 2 TSDF Multiple Bay Storage Buildings (Buildings [redacted] and [redacted]) are of identical design, and each has a concrete floor and is equally divided by thick concrete walls into eight separate rooms. Each waste storage room is approximately 36 feet (ft) by 25 ft with approximately 6-inch (in.) spill containment dikes at each of the doorways. The containment capacity per room (for liquids) is, therefore, approximately 450 cubic (cu) ft (3,366 gallons [gal]). The usable interior height of each room is approximately 11 ft. The concrete floors in each building are thick and coated with an epoxy sealant.

The maximum storage capacity per room is 10,560 gallons. The maximum storage capacity per building is 1,536 55-gallon drums or equivalent. These capacities are based on a sample storage configuration provided to the Department consisting of 192 55-gallon drums on 4-ft-by-4-ft pallets, double stacked, with 2 ft of aisle space between rows of pallets and storage room walls. Based on this sample configuration, the secondary containment capacity in each room (3,366 gallons) is 32 percent of the volume of containers in the room, which is more than the 10 percent required by COMAR 26.13.05.09 (H)(1)(c). The largest containers used to store waste would be 550-gallon totes. Ten percent of the volume of containers (1,056 gallons) is more than the volume of the largest container that would be used to store liquids (550 gallons). Larger containers may be used to store chemical, biological, and radiological (CBR) filters and other bulky solids.

IV.A.2. TSDF PCB Storage Building: The TSDF PCB Storage Building (Building [redacted]) is a single-bay building with a thick, sealed concrete floor and tiled block walls. Entry and exit are permitted by one louvered door, and 6-in. sills around the floor provide secondary containment. The building is approximately 41 ft 4 in. by 25 ft 6 in. The interior of the building is approximately 10 ft 10 in high. The building can contain approximately 527 cu ft (3,941 gal). The maximum volume of waste permitted for storage at any one time is 3,300 gal. The maximum number of containers in storage is 60 55-gal drums or equivalent. The PCB Storage Building is primarily used to store polychlorinated biphenyl (PCB)-related materials, but it can also be used to store

hazardous waste with the same hazardous waste numbers as those stored in Buildings [redacted] and [redacted].

IV.A.3. Roll-off Units: The Permittee may use up to 10 hazardous waste roll-off units having a maximum combined capacity of up to 300 cu yd to store hazardous wastes that do not contain free liquid. These roll-off units will be located within the confines of the grounds outside the TSDF Multiple Bay Storage buildings. The roll-off units shall meet appropriate Department of Transportation (DOT) requirements for transport. They shall be covered to provide protection from rain, snow, and ice and to prevent run-off.

IV.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IV.B.1. Permitted Waste Codes: The Permittee may store the hazardous wastes listed in Table IV-1 in containers within the storage locations listed in Permit Condition IV.A, subject to the terms of this permit.

IV.B.2. Waste Analysis Plan: All wastes accepted for storage at the TSDF shall be characterized in accordance with the Waste Analysis Plan (Plan) included in this permit as Attachment II-1. While the Plan applies to hazardous wastes generated on the APG installation, Permit Conditions IV.B.3 – 5, below, are applicable only to wastes generated at individual Controlled Hazardous Substances (CHS) facilities covered by this permit (including wastes stored at the TSDF). Portions of the Plan that are relevant to the wastes stored at the TSDF may be amended or revised with the approval of the Department, either by modifying the permit or by using administrative procedures in accordance with the Code of Maryland Regulations (COMAR).

IV.B.3. Hazardous Waste Tracking System

IV.B.3.a. The Permittee shall use a computerized tracking system to ensure that wastes are tracked from the generator to the TSDF and final disposition. A manual system may be used for tracking if the computerized system is not operating. While a manual system is being used, the Permittee shall maintain all required records.

IV.B.3.b. The computerized system currently in use is the Hazardous Waste Tracking System (HWTS). The Permittee shall inform the Department if the HWTS is replaced with another system.

IV.B.3.c. The Permittee shall ensure that information on each waste stream accepted at the TSDF is entered onto a HWTS Analysis Sheet (AS) or an equivalent form. Each AS shall identify the waste generator, source of characterization information (e.g., generator knowledge, safety data sheet, analysis), the process producing the waste, and applicable information relating to physical state, specific gravity, ignitability range, pH range, reactivity potential, chemical composition, and Environmental Protection Agency (EPA) and MDE hazardous waste codes.

IV.B.3.d. The Permittee shall use a HWTS Turn-In Document (TID) or an equivalent form that links the waste in containers accepted by the TSDF to a AS. Each TID

shall identify the generator, type of container, number of containers, total weight of containers, and location of containers.

IV.B.3.e. The Permittee shall review and approve information entered in the HWTS for accuracy and completeness. Records of review and approval shall be tracked in the HWTS.

IV.B.3.f. The Permittee shall ensure that hazardous waste generators using the HWTS are trained in the use of the system.

IV.B.4. Waste Characterization:

IV.B.4.a. The Permittee shall ensure that generators characterize all waste brought to the TSDF to allow for continued safe storage and subsequent offsite treatment. If chemical analysis is required, the Permittee shall inform the Department if analytical results are not received within 30 calendar days of the TSDF's first acceptance of the waste, and specify:

- precautions taken for safe storage of unidentified waste for the longer period, and
- measures taken to speed up obtaining the required analytical results.

IV.B.4.b. The Permittee shall use analytical laboratories that provide reliable analytical information through the use of appropriate facilities, equipment, operating procedures, quality assurance/quality control, data validation and record keeping practices outlined in Chapter 1 of the most recent version of EPA document number SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods".

(Note: Under the provisions of 40 Code of Federal Regulations (CFR) Part 268, the Permittee is required to identify appropriate Land Disposal Restriction (LDR) treatment standards for each waste stream sent offsite for treatment and disposal and is required to comply with applicable notification and certification requirements.)

IV.B.4.c. The Permittee may receive wastes for storage at the TSDF from any of the following offsite properties:

Generator Site	EPA ID No.
Van Bibber Water Treatment Plant	MDR 000 022 244
Hanson Reservoir	MDR 000 022 228
Atkinson Reservoir	MDR 000 022 194
Churchville Test Area	MDR 000 022 202

IV.B.4.d. The Permittee shall ensure that wastes received by the TSDF from the offsite properties listed in Permit Condition IV.B.4.c. are characterized before they are transported onsite. These wastes are subject to the same waste analysis requirements as wastes generated on the APG installation.

IV.B.5. Prohibited Wastes

IV.B.5.a. The Permittee may not store hazardous wastes with Maryland hazardous waste numbers K991 to K999 and MD02 or MD03 at the TSDF if the waste is regulated under the Army Chemical Surety Program as specified in Army Regulation (AR) 50-6. Additionally, any agent-related waste stored at the TSDF shall have been decontaminated in accordance with appropriate Department of the Army procedures, or the level of agent shall be low enough for the waste to be transported, in accordance with appropriate requirements in Department of the Army Pamphlet 385-61, to a permitted hazardous waste management facility for treatment and disposal. The Permittee shall notify the Department in writing if the requirements in AR 50-6 or Department of the Army Pamphlet 385-61 change in a manner that would affect the types of hazardous wastes that may be stored at the TSDF.

IV.B.5.b. The Permittee is prohibited from storing any hazardous waste that is not identified in Table IV-1 at the TSDF.

IV.B.5.c. The Permittee is prohibited from receiving waste from offsite for storage at the TSDF unless the waste originates at one of the offsite properties listed in Permit Condition IV.B.4.c. or the waste meets the requirements in Permit Condition IV.B.5.d., below.

IV.B.5.d. The Permittee may receive waste items from offsite for storage at the TSDF if the waste items are suspected to contain or be contaminated with waste munitions or chemical warfare materiel. The TSDF may only store such items if:

- The items were discovered within the State of Maryland;
- The Permittee provides the Department with a fact sheet describing the items, where they were found, the waste codes known to be applicable to the items or suspected of being applicable to the items, possible hazards associated with the items, and the expected benefit of bringing the items to the APG Installation;
- The Permittee receives written approval from the Department; and
- Permit Condition IV.B.5.a. does not preclude the items from TSDF storage.

IV. C. CONTAINMENT

IV.C.1. Condition of Containers: If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects), or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

IV.C.2. Compatibility of Containers: The Permittee shall ensure that the ability of the container to contain the waste is not impaired, as required by COMAR 26.13.05.09C.

IV.C.3. Management of Containers:

IV.C.3.a. The Permittee shall manage containers as required by COMAR 26.13.05.09D.

IV.C.3.b. The Permittee shall maintain a minimum of two feet of aisle space between containers and shall provide sufficient aisle space to meet the requirements of COMAR 26.13.05.02I(1).

IV.C.3.c. The Permittee shall use containers free of leaks and corrosion to store wastes containing free liquid. Containers may be made of metal, glass, plastic, or equivalent nonporous materials and may consist of drums, covered pails, vials, bottles, cylinders, or equivalent containers. The containers may range in size from test tubes to 550-gal containers. Larger containers may be used to store solid, bulky items.

IV.C.3.d. The Permittee shall use containers free of leaks and corrosion to store wastes that do not contain free liquids. These containers may be made of metal, glass, plastic, cardboard, wood, fiberboard, or equivalent materials and may include drums, covered pails, vials, bottles, flasks, cylinders, boxes, cartons, bags, or equivalent containers.

IV.C.4. Containment Systems:

IV.C.4.a. The Permittee shall maintain the containment systems in permitted storage areas, as required by COMAR 26.13.05.09 H. Secondary containment is provided by the method of construction of the TSDF rooms, and shall also be provided as necessary by using spill pans and over-pack containers. Each TSDF storage building has rooms with sealed concrete floors and curbing that can contain more than 10 percent of the permitted liquid storage volume of each room.

IV.C.4.b. For PCB storage in the TSDF PCB Storage Building , the Permittee shall assure compliance with 40 CFR 761.65(b)(1)(ii), (25% secondary containment requirement), as applicable.

IV.C.4.c. The Permittee shall repair or reseal the containment surfaces as necessary to comply with COMAR 26.13.05.09H(1)(a).

IV.C.4.d. The Permittee shall remove any spilled or leaked waste from the containment system in a timely manner, in accordance with COMAR 26.13.05.09H(3).

IV.D. SPECIAL REQUIREMENTS

IV.D.1. Ignitable or Reactive Wastes:

The Permittee shall comply with all requirements of COMAR 26.13.05.03G. The Permittee shall take the following precautions to prevent ignition or reaction of ignitable or reactive wastes.

IV.D.1.a. Ignitable, reactive, and incompatible wastes shall be stored in separate rooms to minimize the potential for a reaction.

IV.D.1.b. There shall be no sources of open flames within the TSDF storage buildings and a "No Smoking" sign shall be conspicuously displayed on the inside and outside of each storage building.

IV.D.1.c. All TSDF rooms shall have ventilation grills or an equivalent source of ventilation to ensure dispersal of vapors.

IV.D.1.d. Lights and outlets in the TSDF storage rooms shall be explosion-proof.

IV.D.2. Incompatible Wastes:

IV.D.2.a. The Permittee shall dedicate each room at the facility to storage of wastes in same compatibility class, as determined by using guidelines such as EPA publication "A Method for Determining the Compatibility of Hazardous Wastes" (EPA-600/2-80-076).

IV.D.2.b. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material.

IV.D.2.c. The Permittee shall store containers of incompatible wastes in accordance with the requirements of COMAR 26.13.05.09G.

IV.D.2.d. The Permittee shall not place incompatible wastes and/or materials in the same container, unless the requirements of COMAR 26.13.05.02H (2) are met.

IV.D.2.e. The Permittee shall document compliance with COMAR 26.13.05.02 H(1) and (2), as required by COMAR 26.13.05.02H (3), and place this documentation in the operating record.

IV.E. RECORDKEEPING AND REPORTING

IV.E.1. The Permittee shall maintain the operating record at the facility until closure. All other records required by this permit shall be maintained for a minimum period of three years. The retention period of all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

IV.E.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention and disposition of records.

IV.E.3. The Permittee shall keep a copy of this part of the permit and its cited attachments at the TSDF. Table IV-2 lists the permit-required documents and records for the TSDF.

IV.F. INSPECTION

IV.F.1. Requirements: The Permittee shall inspect the container storage areas, as required by COMAR 26.13.05.09E and as specified in the TSDF inspection checklists included as Figures IV-1 through IV-7. These checklists may be amended or revised with the approval of the Department, either by permit modification or using administrative procedures in accordance with COMAR 26.13.07.

IV.F.2. Procedures:

IV.F.2.a. The Permittee shall remove any leaked or spilled waste immediately upon discovery.

IV.F.2.b. The Permittee shall repair any cracks, crevices, or deterioration in containment dikes and floors of the storage rooms in areas where waste containing free liquids are stored. Such repairs shall be made within three days of discovery or the Permittee shall otherwise ensure that secondary containment is not compromised (e.g., by moving the container to a different storage room or by providing alternative secondary containment).

IV.F.2.c. After any incident requiring the use of first aid, personnel protection, or spill control and containment supplies kept at the TSDF, information regarding the adequacy of remaining supplies and plans for replacement shall be noted in the comments section of the appropriate TSDF Daily Inspection Checklist. If additional supplies are needed, they shall be restocked within 48 hours.

IV.G. CONTINGENCY PLAN

IV.G.1. The most recent version of the following contingency plan documents shall be available at the TSDF at all times:

- TSDF RCRA Site-Specific Contingency Plan;
- APG's Emergency Response Plan, Chapter 1; and
- APG Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan

Note: Permit Attachment IV-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency plan located at the TSDF.

IV.G.2. The TSDF Emergency Coordinator shall meet the requirements listed in COMAR 26.13.05.04F as these requirements relate to the TSDF.

IV.G.3. The Permittee shall immediately carry out the provisions of the TSDF Site-Specific Contingency Plan and follow emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents that threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2))

IV.G.4. The TSDF Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, as required by COMAR 26.13.05.04E. The plan may be amended for the following reasons by notifying the Department:

- To incorporate administrative and informational changes,
- To upgrade, relocate, or replace emergency equipment listed in the contingency plan with functionally equivalent emergency equipment, or
- To change the name, telephone number, or address of the Emergency Coordinator, alternate Emergency Coordinator, or other persons, organizations, or agencies identified in the plan.

IV.H. CLOSURE PLAN

IV.H.1. At closure, the Permittee shall remove all hazardous waste and hazardous waste residues from the storage areas, and close the facility in accordance with the approved detailed closure plan. Permit Attachment IV-1 is a general closure plan showing the minimum topics to be included in the detailed closure plan.

IV.H.2. At least 90 days prior to the intended beginning of closure, the Permittee shall submit a detailed closure plan including a sampling and analysis plan to the Department for review and approval.

IV.H.3. The detailed closure plan required by Permit Condition IV.H.2. shall include at least the following elements:

- The steps necessary to perform partial and/or final closure of the facility at any point during its active life,
- A description of how each TSDF container storage unit will be closed,
- A description of how final closure of the TSDF will be conducted, identifying the maximum extent of operations during the active life of the facility,
- An estimate of the maximum inventory of hazardous wastes ever onsite over the active live of the facility and a description of the methods used to remove, transport, treat, store, or dispose of all hazardous wastes,
- A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils,
- A description of methods employed to decontaminate structures and equipment that will remain on site after closure,
- Identification of decontamination agents to be used, including chemical and physical specifications of the agents,
- Specific safety measures to be taken to control spread of contamination during the closure activity and to protect human health and the environment,
- A detailed description of other activities necessary during the closure period,

- A schedule for closure of each TSDF unit and for the final closure of the TSDF, and
- A description of how all hazardous waste and hazardous waste residues will be removed from the containment systems.

IV.H.4. The sampling and analysis plan required by Permit Condition IV.H.2. shall, at a minimum, include the following components to verify the effectiveness of decontamination activities:

- A listing and justification of sampling and analytical methods employed. The Permittee shall select and propose these methods in accordance with the EPA document Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, latest edition), as appropriate for the constituent in question, or equivalent methods acceptable to the Department,
- A description of quality assurance and quality control procedures associated with the selected sampling and analysis methods,
- A definition and justification of a Target Compound List (TCL) for which the verification samples will be analyzed,
- Identification and justification of a threshold level for each compound on the TCL list that determines a "clean" or "contaminated" condition, and
- Number and location of samples, and media or substances to be sampled.

IV.H.5. The Permittee shall decontaminate the storage areas, including the loading/unloading and staging areas and the equipment that is to remain onsite after closure, in accordance with the detailed closure plan submitted by the Permittee and approved by the Department in accordance with Permit Conditions IV.H.2 through IV.H.4.

IV.H.6. Within 60 days of the completion of the closure activities, the Permittee shall submit a:

IV.H.6.a. closure report containing results of the activities conducted in compliance with each component of the approved closure plan, including, but not limited to, the verification results demonstrating a clean closure of TSDF storage areas, and a certification of closure as required by COMAR 26.13.05.07F, or

IV.H.6.b. written request to extend the 60 day deadline including the reason for the request and a proposed timeline for completion.

IV.H.7. If the Permittee is unable to demonstrate a clean closure in accordance with Permit Condition IV.H.6, the Permittee shall inform the Department within 60 days of the completion of the closure activities, and propose measures to achieve closure performance standards, such as submission of a post-closure care plan for the Department's review and approval.

IV.I. TABLES AND FIGURES

This section of the permit presents various tables and figures referenced in Part IV of the permit.

Table IV-1. Permitted Waste Codes for the TSDF

Hazardous Waste Code	Description
D001	Wastes exhibiting the Characteristic of Ignitability
D002	Wastes exhibiting the Characteristic of Corrosivity
D003	Wastes exhibiting the Characteristic of Reactivity
D004-D043	Wastes exhibiting the Characteristic of Toxicity
F001-F015, F019-F028, F032, F034, F035, F037-F039	Hazardous wastes from nonspecific sources including spent solvents and chlorophenols
K044-K047	Hazardous wastes from specific sources related to explosives manufacturing
K991-K999	Chemical surety waste materials listed under COMAR 26.13.02.17
MD02	Reaction products and residues resulting from decontamination of specific compounds (military), as listed under COMAR 26.13.02.18
MD03	Residues from treatment or decontamination of wastes K997 and K999, as listed under COMAR 26.13.02.18
MX01, M001, MT01	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyl (PCB) listed under COMAR 26.13.02.19 D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P064, P066-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123, P127-P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species of the same, listed under COMAR 26.13.02.19 E, and identified as *acute* hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387. U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products, listed under COMAR 26.13.02.19 G, and identified as toxic, ignitable, corrosive or reactive wastes

Table IV-2. Permit-Required Documents/Records for the TSDF*

Type of Document/Record	COMAR Citation
Waste Analysis Documentation	26.13.05.02D
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Emergency Response Plan, Chapter 1	26.13.05.04
Operating Record	26.13.05.05D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I,II and IV of this Permit	26.13.07.05A and C

*All of these documents and records shall be available at the TSDF.

(PERMIT CONTINUES ON PAGE IV-12)

Date and Time								
INSPECTION ITEMS	Mark Y/N							
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7	Room 8
ACCURATE/CURRENT INVENTORY								
Is Available								
CONTAINERS								
Only 1 Bar-Code Marking Per Container								
Marked as Hazardous or Non-RCRA-C								
Markings are Visible (Facing Aisle)								
Marked with Proper Waste Codes								
Marked with Applicable Waste Name/Description								
Marked with TSDF Date Less Than 1 Year Old								
Containers are not Bulging, Rusting, or Leaking								
Caps/Bungs/Lids are Secure (Not Leaking)								
Containers (If Applicable) Meet Subpart CC Requirements								
STORAGE								
Containers are Segregated into the Correct Room According to Hazardous Class								
Containers are Stored on Pallets or Shelves in Good Condition								
At Least 2 Feet of Aisle Space Between Each Pallet of Waste								
Doors, Windows, Lighting System are Operational								
Heating System is Operational (Applicable Only During Low Temperatures)								
If any of the above requirements are not met, notify the TSDF Manager or Alternate immediately. In the comment section below, document the container number, storage room number, and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF Manager or Alternate.								
COMMENTS _____ _____ _____ _____								
PRINTED NAME OF INSPECTOR								
INSPECTOR SIGNATURE								

Figure IV-1. Daily Inspection Checklist for the Treatment, Storage, and Disposal Facility Multiple Bay Storage Buildings

Date and Time								
INSPECTION ITEMS	Mark Y/N							
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7	Room 8
ACCURATE/CURRENT INVENTORY								
Container Information Listed on the Inventory Matches the Physical Inventory 100% (Container Location, Bar-Code, Waste Description, TSDF Date, Container Type/Size, and EPA Code(s))								
EMERGENCY EQUIPMENT								
Eyewash/Shower is Functional (Sign and Date Signature Card)								

If any of the above requirements are not met, notify the TSDF Manager or Alternate immediately. In the comment section below, document the container number, storage room number, and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF Manager or Alternate.

COMMENTS

_____

_____

_____

_____

PRINTED NAME OF INSPECTOR

INSPECTOR SIGNATURE

Figure IV-2. Weekly Inspection Checklist for Treatment, Storage, and Disposal Facility Multiple Bay Storage Buildings

Date and Time								
INSPECTION ITEMS	Mark Y/N							
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7	Room 8
STORAGE ROOMS								
Fire Extinguisher Gauge Indicates That Extinguisher is Full (Initial and Date Inspection Card)								
Inventory of Spill Clean Up Supplies is Current and Supplies are Usable								
Floors/Walls do not Show Signs of Structural Damage								
STORAGE BUILDING EXTERIOR								
"No Smoking Within 50 Feet " Signs/Markings are Visible								
SECURITY FENCE								
"Danger – Authorized Personnel Only" Signs are Posted and Visible on the Outside of the Security Fence								

If any of the above requirements are not met, notify the TSDF Manager or Alternate immediately. In the comment section below, document the container number, storage room number, and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF Manager or Alternate.

COMMENTS

_____

_____

_____

_____

PRINTED NAME OF INSPECTOR

INSPECTOR SIGNATURE

Figure IV-3. Monthly Inspection Checklist for the Treatment, Storage, and Disposal Facility Multiple Bay Storage Buildings

Date and Time	**Mark Y/N**
ACCURATE/CURRENT INVENTORY	
Is Available	
PCB CONTAINERS	
Only 1 Bar-code Marking per Container	
Has Both PCB and Hazardous Waste Markings	
Markings are Visible (Facing Aisle)	
Marked With Proper Waste Codes	
Marked with Applicable Waste Name/Description	
Marked with Out of Services Date Less Than 9 (Nine) Months Old	
Containers are Not Bulging, Rusting, or Leaking	
Caps/Bungs/Lids are Secure (Not Leaking)	
STORAGE	
Containers are Stored on Pallets in Good Condition	
At Least 2 Feet of Aisle Space Between Each Pallet of Waste	
Door to the Building is Operational	
If any of the above requirements are not met, notify the TSDF Manager or Alternate immediately. In the comment section below, document the container number, storage room number, and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF Manager or Alternate.	
COMMENTS	
PRINTED NAME OF INSPECTOR	
INSPECTOR SIGNATURE	

Figure IV-4. Daily Inspection Checklist for the Polychlorinated Biphenyl Storage Building

Date and Time	Mark Y/N
ACCURATE/CURRENT INVENTORY	
Container Information Listed on the Inventory Matches the Physical Inventory 100% (Container Location, Bar-code, Waste Description, TSDF Date, Container Type/Size, and EPA Code(s))	
If any of the above requirements are not met, notify the TSDF Manager or Alternate immediately. In the comment section below, document the container number, storage room number, and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF Manager or Alternate.	
COMMENTS	
PRINTED NAME OF INSPECTOR	
INSPECTOR SIGNATURE	

Figure IV-5. Weekly Inspection Checklist for the Polychlorinated Biphenyl Storage Building

Date and Time	**Mark Y/N**
STORAGE ROOMS	
Fire Extinguisher Gauge Indicates that Extinguisher is Full (Initial and Date Inspection Card)	
Inventory of Spill Clean Up Supplies is Current and Supplies are Usable	
Floors/Walls do not Show Signs of Structural Damage	
STORAGE BUILDING EXTERIOR	
"No Smoking Within 50 Feet " Signs/Markings are Visible	
"Danger Unauthorized Personnel Keep Out" Signs are Visible	
"PCB Permitted Storage Facility " and "Caution Contains PCBs" Signs are Visible	
If any of the above requirements are not met, notify the TSDF Manager or Alternate immediately. In the comment section below, document the container number, storage room number, and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF Manager or Alternate.	
COMMENTS	
INSPECTOR SIGNATURE	
PRINTED NAME OF INSPECTOR	

Figure IV-6. Monthly Inspection Checklist for Polychlorinated Biphenyl Storage Building

Date and Time										
INSPECTION ITEMS	**Roll Off Number Mark Y/N Only**									
	1	2	3	4	5	6	7	8	9	10
Roll off is covered with no gaps or tears in cover										
Roll off is marked as hazardous or non-RCRA-C										
Markings are visible										
Marked with proper waste codes										
Marked with applicable waste name/description										
Marked with TSDF date less than one year old										
Roll off is in good condition, not bulging, rusting, or leaking										
Roll off gate is closed										

If any of the above requirements are not met, notify the TSDF manager or alternate immediately. In the comment section below, document the roll off number and descriptive comments regarding the discrepancy. Also note the corrective action(s) to be taken, as directed by the TSDF manager or alternate.

COMMENTS

_____

_____

_____

_____

_____

PRINTED NAME OF INSPECTOR

INSPECTOR SIGNATURE

Figure IV-7. Daily Inspection Checklist for Treatment, Storage and Disposal Facility Hazardous Waste Roll-offs

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ATTACHMENT IV-1
CLOSURE PLAN FOR THE TREATMENT, STORAGE, AND DISPOSAL FACILITY

This attachment presents a conceptual closure plan for the TSDF. The plan will be revised to reflect site conditions and appropriate regulatory standards before final closure begins.

CONCEPTUAL CLOSURE PLAN
FOR THE
TREATMENT, STORAGE, AND DISPOSAL FACILITY

I. General Information

This closure plan for the Treatment, Storage, and Disposal Facility (TSDF) is preliminary, and Aberdeen Proving Ground (APG) will revise it to reflect site conditions and appropriate regulatory standards at the actual time of closure. APG will submit the detailed closure plan to the Maryland Department of the Environment (MDE) before final closure begins. APG will not proceed with the final closure of any of these facilities in the absence of written confirmation from MDE that they have approved or conditionally approved the closure plan.

II. Closure Plan

II.a. Closure Performance Standard

When the TSDF is closed, all waste will be removed from all the TSDF buildings as well as from the roll-off containers. The waste will be packaged and transported to appropriate, permitted hazardous waste/polychlorinated biphenyl (PCB) management facilities. If buildings and appurtenances remain in place, they will be decontaminated until analytical tests produce negative results for the presence of all constituents of an approved Target Compound List (TCL) at a concentration level that meets an appropriate regulatory level such as the maximum contaminant level (MCL), risk-based concentration (RBC), etc. Spent wash and rinse solutions and residues generated as part of the decontamination procedures, which contain residual hazardous constituents, will be transported to appropriate, permitted waste management facilities. Any building components, appurtenances, etc., that cannot be decontaminated will be removed and disposed of in an approved manner. Once these procedures are completed, APG may refurbish and rededicate the remaining uncontaminated building shells to other purposes or demolish them, with resulting debris disposed of as conventional, non-hazardous demolition waste.

II.b. Partial and Final Closure Activities

All of the closure activities discussed in this section are final closure activities. The entire TSDF will remain open until either the entire installation closes, or the installation's mission changes such that a hazardous waste storage facility is no longer needed. Final closure activities are discussed in Section VI, Closure Procedures.

III. Maximum Waste Inventory

III.a. Treatment, Storage, and Disposal Facility Multiple Bay Storage Buildings

The maximum waste inventory for these two buildings is estimated to be 168,960 gallons. This estimate is derived by assuming that each of the 16 waste storage sections in Buildings [redacted] and [redacted] contain 10,560 gallons of waste (10,560 gallons x 16 storage rooms = 168,960

gallons). The maximum amount of waste that can be stored in any one of these storage sections is 50,560 gallons.

III.b. Treatment, Storage, and Disposal Facility Polychlorinated Biphenyl Storage Building

The maximum waste inventory of PCB-contaminated waste in the PCB storage building is estimated to be 3,300 gallons. This estimate assumes that this building would be completely full except for required aisle space.

III.c. Roll-Off Containers

There will be up to 10 roll-off containers, having a maximum combined capacity of up to 300 cubic yards (yd^3) to store hazardous wastes that do not contain free liquid.

IV. Schedule for Closure

Table 1 presents a schedule for closure of the TSDF based on the closure procedures described below.

V. Closure Timeline

V.a. Time Allowed for Closure

As shown on the closure schedule for the TSDF (Table 1, page IV-22), APG will remove all remaining hazardous waste from the TSDF within the required 90 days after initiation of closure. In addition, APG will complete all closure activities within the required 180 days after initiation of closure. APG does not expect to request an extension of time for closure of the TSDF.

V.b. Extension for Closure Time

APG does not expect to request an extension of time for closure of the TSDF; however, should it become necessary, they will submit a revised timeline for closure to MDE for approval.

VI. Closure Procedures

VI.a. Hazardous Waste Inventory

APG will remove all waste from the TSDF storage buildings and from the roll-off containers and will be properly package and transport it to appropriate, permitted waste treatment and disposal facilities.

Table 1. Closure Schedule for the Treatment, Storage, and Disposal Facility

Description of Closure Step	Number of Days Before/After Final Volume of Waste is Received
Notify Maryland Department of the Environment (MDE) of intent to close	45 days before
Notify generators who provide wastes to TSDF of intent to close	45 days before
Receive final volume of waste	0
Send all waste to appropriate permitted waste treatment and disposal facilities	20 days after
Perform first round of decontamination and send rinsate samples to laboratory for analysis	30 days after
Receive analytical results	50 days after
Perform second round of decontamination (if necessary) and send rinsate samples to laboratory for analysis	70 days after
Receive analytical results	90 days after
Perform sandblasting (if necessary)	110 days after
Send contaminated components to a permitted hazardous waste management facility	150 days after
Receive certification from the U.S. Army that closure was performed in accordance with the closure plan	165 days after
Receive certification from an independent registered professional engineer that closure was performed in accordance with the closure plan	180 days after

VI.b. Decontamination Procedures

Trained personnel, wearing appropriate protective equipment, will perform the decontamination. APG will choose decontamination procedures for each waste storage room and for the roll-off containers based on historical knowledge of the type of waste stored in each room (container). After all waste is removed, personnel will decontaminate walls, floors, and doors using appropriate physical or chemical extraction technologies (e.g., high-pressure steam and water sprays that include appropriate surfactant, acids, bases, or detergents). Initial decontamination may involve using minimal amounts of liquid to preclude diluting possible liquid samples and to minimize waste and water use. Dry vacuuming of the floors and walls will precede the application of physical or chemical extraction technologies in compartments that stored water-reactive wastes. Decontamination personnel will collect and characterizes all rinsate and vacuum debris, drum (or package appropriately) the rinsate and vacuum debris that is hazardous waste , and send it to a *Resource Conservation and Recovery Act* (RCRA)-permitted or interim status hazardous waste management facility.

Rinsate will be analyzed to determine if it shows evidence of contamination with hazardous constituents selected from *Code of Maryland Regulations* (COMAR) 26.13.02.24 in consultation with MDE and based on generator knowledge. If contamination is detected, appropriate physical and chemical extraction technologies will again be used to accomplish decontamination. In addition, technology specifications (e.g., water/steam temperature or pressure; concentration of surfactant, detergents, acids, or bases) may be adjusted to achieve appropriate results. Areas retaining contamination after a second treatment may be sandblasted until significant contamination is no longer evident; in this case, spent sand will be collected, appropriately packaged, and sent to appropriate hazardous waste management facilities. Appropriate physical and/or chemical extraction procedures may be used once again after sandblasting before decontamination is verified.

Criteria used to determine the necessity of soil sampling to detect contamination will include spill history (including previous sampling and remediation efforts and results), generator knowledge, and/or major breaches to any secondary containment as, applicable.

VI.c. Criteria for Determining Contamination

Interior and Exterior Surfaces—Surface contaminants will be considered to be present as long as contaminants (as detected in the composite sample of wash/rinse solution, wipe samples, and core samples collected as appropriate) exhibit any of the following criteria:

1. The concentration of any constituent, chosen from COMAR 26.13.02.24 and based on generator knowledge, exceeds the following:

    a. In the wash/rinse solution samples: an appropriate RBC or MCL (e.g., 10 times the MCL concentration in the latest update published by EPA; the maximum contaminant level goal [MCLG], if an MCL does not exist; or 1 milligram per liter [mg/L] if neither of the two exists);

    b. In wipe samples: a surface loading of 100 microgram per 100 square centimeters (100 μg/100 cm^2); and

c. In core samples: 0.1 of toxicity characteristic (TC) level of COMAR 26.13.02.14, or 1 mg/L for constituents not on TC list.

2. For liquids, the pH is less than or equal to 2.0, or greater than or equal to 12.5.

3. The concentration of PCBs is more than 50 parts per million (ppm).

VI.d. Decontamination of Cleanup Materials and Residues

All equipment that has come into contact with hazardous waste will be decontaminated at closure or shipped offsite to a permitted hazardous waste management facility.

VI.e. Decontamination of Soil

APG does not expect to need cleanup of soil contamination at the time of closure. Because the storage buildings are totally enclosed, accidental spills inside the buildings should not result in soil contamination. If spills occur outside during loading or unloading operations, cleanup of contaminated soil will proceed when the spill occurs, in accordance with the TSDF contingency plan.

VI.f. Documentation of Closure

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to MDE. The certification will be accompanied by appropriate documentation.

VII. Post-Closure Plan

This section is not applicable to the TSDF, because the TSDF is a storage facility, not a disposal facility.

ATTACHMENT IV-2

GENERAL CONTINGENCY PLAN FOR THE TREATMENT, STORAGE, AND DISPOSAL FACILITY

The general contingency plan for the TSDF is included behind this page. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

GENERAL CONTINGENCY PLAN
FOR THE TREATMENT, STORAGE, AND DISPOSAL FACILITY

I. General Information

The Treatment, Storage, and Disposal Facility (TSDF) is operated and managed by the Waste Management Branch (WMB) of the Environmental Division, Directorate of Public Works (DPW-ED).

The TSDF is composed of three hazardous waste storage buildings ( ), an administrative building ( ), a supply storage shed ( ) and the installation hazardous waste disposal contractor's office trailer. Aberdeen Proving Ground (APG) designed two of the storage buildings identically (&), and equipped them for storage of containerized hazardous and non-hazardous industrial waste. Each building is divided into separate and secure compartments to achieve maximum segregation of incompatible waste streams. The TSDF uses the third storage building ( ) to store polychlorinated biphenyl (PCB)-containing waste. It consists of a single compartment that provides containment in the event of a release.

The TSDF hires contractors to handle all packaging, transportation, and disposal of hazardous waste. In addition, the contractors are required to provide emergency equipment and personnel necessary for responses to spill incidents involving hazardous waste.

APG uses the following emergency resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; the Development Command Chemical Biological Center (CBC); Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below, and by coordinating their availability to the Incident Commander (IC) through the Garrison DO's Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8–Environmental Release Prevention and Response Plan—defines roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. Emergency Coordinators

The Emergency Coordinators (ECs) for the TSDF are Environmental Protection Specialists and/or Scientists trained in accordance with the TSDF training plan to ensure their knowledge and skills are sufficient to manage incidents. The ECs have a thorough understanding of the operations and materials at the TSDF, and are familiar with all aspects of this general contingency plan, the site-specific contingency plan, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. The site-specific contingency plan, which is kept on-site at the TSDF, lists the names, addresses, and contact numbers for both the primary and alternate ECs.

Site Emergency Coordinators (EC): [This information is filled in for Site-Specific Plan]

Primary:
Work:

Home:

Alternate:
Work:

Home:

Alternate:
Work:

Home:

II.a. Duties of the Emergency Coordinator

The EC must be either at the TSDF, or be able to get to the TSDF in a timely manner (on call) at all times. A list of the primary and two alternate ECs is maintained at the TSDF. The EC is responsible for coordinating all emergency response measures that concern hazardous waste. The EC functions as the on-scene coordinator until APG garrison emergency response personnel arrive and the senior responder from the DO Fire Division assumes site control.

II.b. Regulatory Requirements

In accordance with Maryland Controlled Hazardous Substances regulations (COMAR 26.13.05.04.F), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests assistance by dialing 911.

2. Identifies the amount, character, source, and extent of any discharged material.

3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.

4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.

5. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.

6. Makes sure that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.

7. Submits verbal and written reports through DPW to the Maryland Department of the Environment within 15 days of an incident containing the information listed in COMAR 26.13.05.04.G(10).

III. Criteria for Implementing Contingency Plan

The contingency plan includes actions required for emergencies involving fire, explosion, or spills of a hazardous substance. Depending on the nature of the emergency, the person observing the emergency must act immediately to initiate the contingency plan and then inform the EC, or first inform the EC, who will then decide whether to initiate the contingency plan.

IV. Emergency Response Procedures

There are various hazard characteristics associated with the waste stored at the TSDF. Before taking action to control an emergency, it is imperative that the responders know all possible risks associated with the area they are entering. Besides the measures discussed below, each bay of the TSDF is marked with a National Fire Protection Association (NFPA) diamond, prepared and marked in accordance with Section 704 of the National Fire Code. This allows fire fighters and emergency responders to see the primary chemical hazards associated with each bay at a glance.

IV.a. Identification of Hazardous Wastes

In the event of an emergency, the EC may access the current waste inventory of each storage room by either obtaining the copy of the inventory from the small mailboxes located near the front of the waste storage buildings, or by querying or downloading the inventory on the computerized hazardous waste tracking system (HWTS). The PCB building ([redacted]) is used solely for the storage of oil containing PCBs; PCB-contaminated electrical equipment; and PCB articles, containers, equipment, transformers, and wastes.

IV.b. Hazard Assessment

In performing a hazard assessment, the EC in conjunction with the IC, will review the inventory of waste near the emergency, consider the extent of the hazard, and decide if the area near the emergency should be evacuated.

To assess the hazard, the EC and the IC will consider:

- Type of hazard(s) involved and information available;
- Degree of toxicity of the material;
- Presence of toxic, irritating, or asphyxiating gases that may result from controlling a fire;
- Containment of a spill or lack of containment;
- Uncertainly as to the extent of migration of wastes or water used in fire control to either groundwater or surface waters; and
- Ability of response teams to contain the emergency.

IV.c. Control Procedures

Upon observing an emergency involving the release of a hazardous substance, a TSDF employee, contractor, or visitor will initiate the procedures listed below in sequential order:

FIRE

The person observing the emergency will:

1. Warn nearby personnel that an emergency exists verbally or by sounding an air horn.

2. Report the fire through the installation emergency telephone number, 911, giving the location, cause, and extent of the fire; note also if any liquids or gases are escaping the building.

3. If the fire is within the facility, contain it by closing the door. If it has already spread outside, make no effort to contain it.

4. Notify the EC or alternate presenting the same information as in step 2.

5. Evacuate the area to a safe distance from the fire.

The DO Fire Division will:

6. Take action to control the fire.

EOC personnel will:

7. Notify the Installation Safety Office. If the fire poses off-site risks to human health and/or includes the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 Code of Federal Regulations (CFR) Part 302, the EOC will contact the following and inform them of the incident: Maryland Department of the Environment (866-633-4686) and the National Response Center (800-424-8802).

The EC and the IC will:

8. Assess the problem and implement actions to eliminate the problem.

EXPLOSION

The person observing the emergency will

1. Evacuate the area to a safe distance from the explosion.

2. Report the explosion through the installation emergency number, 911, giving the exact location of the explosion, damage to the building, and gas or liquid discharges from the building.

3. Notify the EC or alternate presenting the same information as in step 2.

EOC personnel:

4. Notify the Installation Safety Office. If the explosion poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following and inform them of the incident: Maryland Department of the Environment (866-633-4686) and the National Response Center (800-424- 8802.

The EC and the IC will

5. Assess the problem and implement a procedure for rendering the area safe.

SPILLS CONTAINED IN A BUILDING

The person observing the emergency will

1. Warn nearby personnel that an emergency exists verbally or by sounding an air horn.

2. Close the compartment door to control unauthorized access to the spill, if possible.

3. Contact the EC with information about the substance spilled (type and location).

The EC will

4. Determine if the reporting individual will clean up the spill, if the APG hazardous waste contractor will clean up the spill, or if 911 should be called to initiate an installation response.

The EC and IC will

5. Contact MDE (866-633-4686) and National Response Center (800-424-8802) if the substance spilled equals or exceeds an RQ listed in 40 CFR 302.

SPILLS NOT CONTAINED IN A BUILDING WHICH COULD THREATEN HUMAN HEALTH OR THE ENVIRONMENT

The person observing the emergency will

1. Warn nearby personnel that an emergency exists verbally or by sounding an air horn.

2. Report the spill through the installation emergency telephone number, 911.

3. Notify the EC and provide the location and approximate quantity of the spill.

The EC will:

4. Contact the EOC.

The EOC will:

5. Contact the Installation Safety Office, MDE and National Response Center (if RQ is exceeded).

DO first responders will:

6. Report to the site of the spill and cordon off the area.

The EC and the IC will

7. Assess the situation and implement a plan to determine the source and contents of the spill, contain it, stop the flow at the source, and package spill cleanup material in drums to store in the facility.

The EC will

8. Notify the MDE that the storage facility is in compliance with COMAR 26.13.05.04.G(8)(a) and (b) before operations are resumed in the affected areas of the storage facility.

V. EMERGENCY EQUIPMENT

An inventory and monthly inspection log of all emergency equipment at the TSDF is maintained in the administrative building.

The TSDF and hazardous waste contractor maintain a full supply of spill control equipment and are capable of responding to all releases. Most point-of-use equipment and supplies are stored in the three waste storage buildings. Stocks of recovery drums are stored in the two equipment/supply storage buildings (and) located outside the TSDF's north gate.

V.a. Personal Protective Equipment at the Treatment, Storage, and Disposal Facility

Personal protective equipment (PPE), including self-contained breathing apparatus (SCBA), full-face air-purifying respirators with cartridges, nitrile and latex gloves, protective clothing (Tyvek, Saranex, booties, etc.), goggles, safety glasses, safety boots, etc., are maintained in the administrative building within the storage compound, in the supply room (room 6) of building and in the supply storage building ( ) located outside the TSDF's north gate.

First Aid and Medical Supplies

First aid kits at the facility are located in the administrative building ( ). Any casualties because of an incident would be transported to the Edgewood Area U.S. Army Health Clinic or a civilian medical facility.

Emergency Decontamination Equipment

The [redacted] and [redacted] waste storage buildings are equipped with emergency eyewash and shower stations in each room. Decontamination facilities are also available at the Edgewood Area U.S. Army Health Clinic.

V.b. Spill-Control Equipment at the Treatment, Storage, and Disposal Facility

Within the [redacted] and [redacted] storage buildings; spill-control equipment includes (at a minimum), one broom, one dustpan, and one or more spill kits. (See Attachment #1 for listing of supplies and equipment found in each storage bay, and their relative locations within the buildings at Attachment #2.). Six-inch-high sills inside each door provide separate containment in each compartment of these two buildings. A ramp allows hand truck access over the front door sill of each compartment.

The PCB storage building ([redacted]) contains, at a minimum, one broom, one dustpan, and one bag of safety absorbent. Shovels are kept in the supply shed located between the two non-PCB waste storage buildings.

V.c. Fire-Control Equipment at the Treatment, Storage, and Disposal Facility

Each storage bay contains an overhead sprinkler system, and there are readily available fire extinguishers (ABC-type 20lbs; 6-A: 120-B: C) mounted on the exterior wall near their respective entrance doorways. There is also a 30 pound type "D" extinguisher for water-reactive "Dangerous when Wet" waste normally stored (when present) in Bay 4 of [redacted]. These wastes are over-packed in waterproof containers for storage. The PCB building has one fire extinguisher located on the left just inside the building entrance. There is one fire hydrant located within the TSDF yard near the admin building, and two additional hydrants located just outside the yard to the east and north. See the first tab of Attachment #2 for hydrant locations.

V.d. Emergency Supplies and Equipment Elsewhere On the Installation

DPW-ED WMB personnel can communicate with other APG personnel via cellular telephones. Hard-wired telephones are found in the administration building.

Supplies

Pre-stocked supplies for use in oil spill operations are located at APG DPW facilities located approximately 3/4 of mile east of the TSDF in the Edgewood area. Additional supplies, as needed, can be obtained through other organizations supporting the garrison.

Pre-stocked supplies located in the DPW facilities compound include bales of straw, bags of granular clay absorbent, bales of sorbent pads (50 per bale, 4 feet by 4 feet), and bales of sorbent pads (50 per bale - 18 inches by 18 inches).

Equipment

Numerous types of equipment are available on the installation for use in spill operations. If other equipment is needed it will be obtained from DPW and other organizations that support the garrison.

V.e. Post-Emergency Equipment Decontamination/Maintenance

The TSDF will accept no additional wastes until they have decontaminated or replaced on-scene emergency equipment (fire extinguishers, spill cleanup material, containers, tools, etc.) and the EC has inspected the equipment.

DPW-ED WMB personnel shall notify MDE that emergency equipment has been decontaminated or repaired/replaced prior to resuming operations.

VI. STORAGE/DISPOSAL OF RECOVERED MATERIAL

All recovered waste containers will be stored at the TSDF in accordance with permit requirements until the hazardous waste contractor arranges for disposal. If a building is damaged or contaminated, containers of waste shall not be stored in the affected compartments until the facility is decontaminated or repaired. If the structural integrity of any of the compartments is questionable due to the emergency, containers of waste will be moved to another TSDF storage building.

The MDE will be notified immediately if a compartment storage limit is exceeded because of the movement of waste containers. Following any emergency, hazardous wastes will not be stored in the affected compartment until the DPW-ED WMB ensures that the facility is once again clean and ready for operations.

VII. COORDINATION AGREEMENTS FOR EMERGENCY SERVICES

The IC or a designated individual will control all initial emergency response actions and any follow-up actions. All records of contracts and/or memoranda of understanding (MOUs)/support are maintained as part of the installation emergency/contingency plan. Note: The TSDF is a secured facility and cannot be entered easily without authorized operational personnel.

VII.a. On-Base Arrangements

The DPW-ED WMB will keep the APG DO Fire Division and Plans/Operations Division EOC informed of:

- Hazardous wastes stored in each building,
- The general layout of each facility detailing equipment available to fight fires and to clean up spills,

- The telephone number of the DPW-ED points of contact for non-duty hour emergencies and
- Copies and revisions of this contingency plan.

The DPW-ED Director supervises interaction with MDE and the EPA regarding all emergencies and activation of the contingency plan. The DO Fire Division inspects the TSDF annually and makes recommendations to improve fire safety

The Kirk U.S. Army Health Edgewood area Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO's Fire Division can provide ambulance support from 7:00 a.m. until 11:00 p.m., Monday through Friday. The ambulance is equipped with a communication system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

VII.b. Off-Base Arrangements

In addition to on-base capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazard potential associated with certain base activities and exercises discretion in using MAA resources, especially for military/chemical incidents. In an emergency in the Aberdeen Area, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen Area Fire Division can assist its Edgewood Area counterpart in the event of an emergency at the TSDF.

There is also a MOU between APG and Harford County entitled "Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland."

A chemical casualty contingency team is maintained at EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care.

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the MD Institute for Emergency Medical Services Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

VIII. EVACUATION PLAN

VIII.a. Criteria for Determining Evacuation Option

The EC and IC may choose to evacuate the area whenever the hazards of toxic gas, fire, or explosive materials are endangering personnel, particularly those without protective gear.

VIII.b. Signals for Evacuation

Signals will be given verbally or by sounding an air horn. Personnel will be asked to leave and report to a designated assembly point upwind of the incident where a head count will be taken. The exact location will depend on wind direction. There are three visible windsocks at each gate of the compound. If DO first responders are on scene, the senior responder will give directions. If required, other base personnel will be notified by telephone.

VIII.c. Evacuation Routes

There are several routes from the facility that may be used in the event of evacuation. The particular route will depend on the incident location and wind direction. Attachment #2 depicts the evacuation routes and three designated rally points.

IX. REQUIRED REPORTS

The EC (or alternate) will note in the operation log of the facility, the time, date, and details of any incident that required implementation of the Contingency Plan. The conditions that caused the emergency and the resulting actions will also be included in this operational log entry.

The EC will provide the IC and DPW with the necessary information to make timely reports to MDE. These IC/DPW reports will include a verbal (telephone) report within 24 hours, and a written report within 5 days or a written report within 15 days, if MDE grants APG an extension. Written reports will include the information listed below.

a. Name, address, and telephone number of the owner or operator of the facility;

b. Name, address, and telephone number of the facility;

c. Date, time, and type of incident (for example, fire, explosion);

d. Name and quantity of materials involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to human health or the environment, when applicable;

g. Estimated quantity and disposition of material recovered from the incident; and

h. Name of person who first reported the incident.

This report is submitted to:

Maryland Department of the Environment
Land and Materials Administration
1800 Washington Boulevard, Suite 610
Baltimore, Maryland 21230-1719

X. AMENDMENTS TO THE PLAN

As required by COMAR 26.13.05.04D and E, the Contingency Plan must be reviewed, and immediately amended, if necessary, whenever:

1. The facility permit is revised;

2. The plan fails in an emergency;

3. The facility changes; e.g., in its design, construction, operation, maintenance, in such a way that emergency response operations are affected;

4. The list of ECs changes; or

5. The list of emergency equipment changes.

Attachment 1
Spill Supplies at the TSDF

1) The following is a list of emergency equipment on site:

a) Building [redacted]

ITEMS LOCATED IN ROOM 1	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) Air Horn 6) Acid Neutralization Absorbent (1)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Acid Absorbent can absorb up to 4 gallons
ITEMS LOCATED IN ROOM 2	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 3) PPE kits with Tyvek suit & chemical resistant gloves (2) 4) Hand brooms and dust pan 5) Emergency Eyewash/Shower 6) Air Horn 7) Base Neutralization Absorbent (1)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Base Absorbent can absorb up to 5.7 gallons
ITEMS LOCATED IN ROOM 3	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) Mercury Spill Kit (1)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Mercury Spill Kit can absorb up to 35.27 ounces of Mercury

ITEMS LOCATED IN ROOM 4	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) Solvent Spill Kit (1)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Solvent Spill Kit can absorb up to 3 gallons of solvent
ITEMS LOCATED IN ROOM 5	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) Mercury Spill Kit (1) 6) Oil Dry bags (10)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Mercury Spill Kit can absorb up to 35.27 ounces of Mercury 3) Oil Dry bags can absorb up to 30 gallons of liquid
ITEMS LOCATED IN ROOM 6 (Supply Room)	CAPABILITIES
1) Emergency Eyewash/Shower 2) Saranex and Tyvek coveralls, booties	Not applicable
ITEMS LOCATED IN ROOM 7	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) Absorbent socks (40) 6) Mercury Spill Kit (1)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Mercury Spill Kit can absorb up to 35.27 ounces of Mercury

ITEMS LOCATED IN ROOM 8	CAPABILITIES
1) Spill Kit containing spill pillows (6), disposal bags (1 roll), boom (2 large, 3 medium, 14 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons

b) Building [redacted]

ITEMS LOCATED IN ROOM 1	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) Oil Dry Bags (10)	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons 2) Oil Dry bags can absorb up to 30 gallons of liquid
ITEMS LOCATED IN ROOM 2	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons
ITEMS LOCATED IN ROOM 3	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons

ITEMS LOCATED IN ROOM 4	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons
ITEMS LOCATED IN ROOM 5	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower 5) 30 gallon metal drum of absorbent	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons
ITEMS LOCATED IN ROOM 6	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons
ITEMS LOCATED IN ROOM 7	CAPABILITIES
1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons
ITEMS LOCATED IN ROOM 8	CAPABILITIES

1) Spill Kit containing spill pillows (8), disposal bags (1 roll), boom (9 medium, 24 small), & absorbent pads (200) 2) PPE kits with Tyvek suit & chemical resistant gloves (2) 3) Hand brooms and dust pan 4) Emergency Eyewash/Shower	1) Spill Kit is 42”x30”x30” and can absorb up to 108 gallons

c) [redacted] (Capable of absorbing up to 55 gallons of liquid)

(1) Spill pillows

(2) Oil Dry Bags

(3) PPE kit with Tyvek suit & chemical resistant gloves

(4) Hand broom and dust pan

d) Building [redacted] (Supply Storage)

(1) Drums of various sizes

(2) Granular clay absorbent

e) Building [redacted] (Supply Storage)

(1) PPE (SCBA, Air Purifying Respirators)

(2) Drums & Over-packs (85 and 95 gallon)

(3) Granular clay absorbent

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PART V

SPECIAL CONDITIONS FOR STORAGE AND TREATMENT OF HAZARDOUS WASTE IN CONTAINERS AND TANKS AT THE CHEMICAL TRANSFER FACILITY

The Chemical Transfer Facility (CTF) is a research and development (R&D) facility supporting a wide range of activities, including research, the characterization of unknown samples, miscellaneous laboratory operations, the handling of suspect chemical warfare materiel (CWM) from Aberdeen Proving Ground (APG) ranges and the Installation Restoration Program, and the support of counter-terrorism and similar operations under the Domestic Preparedness and Chemical/Biological Defense Programs. In support of these activities, the CTF stores and treats wastes that are known or suspected to contain CWM, extremely toxic industrial chemicals (e.g., phosgene), and other hazardous waste constituents.

The CTF contains storage areas, a laboratory, the Chemical Agent Transfer System (CHATS) glovebox, miscellaneous reaction vessels, a chemical neutralization system, and equipment for the screening, splitting, and repackaging of samples potentially containing chemical, biological, and radiological materials (e.g., an irradiator and a biosafety level-3 [BSL3] cabinet). The hazardous waste treatment performed at the CTF, regulated under Controlled Hazardous Substances (CHS) Permit A-190, involves detoxification of chemical agents and selected industrial chemicals and pH adjustment of residuals. Table V-1 on page V-17 summarizes the CTF hazardous waste storage and treatment limits included in this Part.

The CTF is subject to regulations and requirements imposed by many organizations besides the Maryland Department of the Environment (MDE). These organizations include the United States Environmental Protection Agency (EPA), Convention on the Prohibition on the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction (CWC); the Centers for Disease Control and Prevention (CDC); the U.S. Department of Agriculture (USDA); the U.S. Department of Health and Human Services (DHHS); the U.S. Department of the Army (Army); the U.S. Department of Defense (DoD); and other organizations, as follows:

- The CTF currently serves as the United States declared single, small-scale facility (SSSF) under the CWC. In this capacity, its mission is to store the Army's stocks of chemical agent used in chemical defense R&D. CWC requirements affect the CTF's SSSF operations.
- Several rooms at the CTF are authorized for the storage of select biological agents or toxins. Activities in these rooms must comply with Army Regulation 385-69 (Biological Defense Safety Program), CDC guidance (Biosafety in Microbiological and Biomedical Labs [BMBL], 5th edition), and CDC safety/security regulations (7 *Code of Federal Regulations* [CFR] 331.11 and 42 CFR 73.11).

For the purposes of this Part, the Permittee is APG as the owner, and the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) as the operator.

V.A. PERMITTED STORAGE AND TREATMENT AREAS AND SECONDARY CONTAINMENT

V.A.1. Container Storage and Treatment. The Permittee shall use the container storage and treatment system as specified in Permit Conditions V.A.1.a through V.A.1.l.

V.A.1.a. The Permittee may store hazardous wastes in containers for longer than 90 days in any of the following rooms: [redacted].

V.A.1.b. The maximum amount of hazardous waste stored in containers in a room specified in Permit Condition V.A.1.a shall not exceed, at any time, the amount specified in Table V-1 on page V-17.

V.A.1.c. The total amount of hazardous waste in storage in containers at the CTF, that is, the sum of the amounts of hazardous waste stored in the CTF in containers in the rooms specified in Permit Condition V.A.1.a., shall not exceed 2,505 gallons at any time.

V.A.1.d. All container storage areas at the CTF shall have a containment system with sufficient capacity to contain 10 percent of the volume of containers holding free liquids or the volume of the largest container, whichever is greater. Permit Conditions V.A.1.e through V.A.1.g discuss specific containment requirements and containment capacities.

V.A.1.e. Rooms [redacted] and Rooms [redacted] are small quantity storage rooms. The Permittee shall provide secondary containment for wastes stored in these rooms as follows:

i. For Rooms [redacted]:

- Over pack all wastes that contain free liquids, and
- If a waste does not contain free liquids, either double-contain (e.g., double bag) the waste, or over pack the waste

ii. For Room [redacted], for a given waste, either over pack the waste, store the waste in a containment tray, or rely on the construction features of Room [redacted], which include sealed concrete flooring, a 3-inch concrete berm to prevent liquid from migrating out of the room, and a floor drain that empties into the sump under Room [redacted].

V.A.1.f. Room [redacted] contains the CHATS, a self-contained glovebox that shall provide secondary containment during treatment and transfer operations. The floor in room [redacted] is sloped to a floor drain that empties into a sump tank with an available 800-gallon operating capacity.

V.A.1.g. Rooms [redacted] are large-quantity storage rooms, each approximately 15 feet (ft) by 20 ft. Each room has a 1-inch (in.) high concrete berm that provides secondary containment and prevents any liquid from migrating out of the room.

The containment capacity of the bermed floor area in each room is approximately 190 gallons. Floor drains in rooms [redacted] empty into the sump tank under Room [redacted] which provides additional containment capacity.

V.A.1.h. The Permittee may treat up to 275 gallons of hazardous waste per day and up to 2,800 gallons of hazardous waste per year in containers in the CTF, subject to the limits on treatment in individual treatment rooms specified in Permit Condition V.A.1.i and Typical waste treatment operations at CTF will generally involve much smaller quantities than the daily permit limit of 275 gallons per day. This daily limit provides operational flexibility to support special projects that may generate higher volumes of waste.

V.A.1.i. The Permittee may treat in containers the following amounts of hazardous waste:

i. For Rooms [redacted], up to 100 gallons in aggregate daily, and up to 1,000 gallons in aggregate annually; and

ii. For Room [redacted], up to 175 gallons daily, and up to 1,800 gallons annually.

V.A.1.j. The Permittee may conduct treatment of hazardous waste:

i. under laboratory hoods (currently present in rooms [redacted]);

ii. in the CHATS (in room [redacted]); or

iii. in a reactor in other rooms of the CTF if the reactor used for treatment is vented to the CTF's negative pressure filtration system, and the requirements of Permit Condition V.A.1.k are met.

V.A.1.k. The Permittee shall notify the Department in writing or electronically at least 7 days before a hazardous waste treatment operation is scheduled to take place (unless the Department agrees to a shorter deadline) in a reactor vented to the CTF's negative pressure filtration system. At a minimum, the notification shall provide the Department with information on:

- the reactor (e.g., size, volume, material of construction, connection to the CTF's negative pressure filtration system), and
- the hazardous waste treatment operation.

V.A.1.l. In addition to the treatment described in Permit Conditions V.A.1.h to V.A.1.k., chemical reactions may continue to completion in closed reaction vessels in accordance with an approved CTF SOP in any of the storage areas of the CTF as long as the reaction poses no danger of explosion, excessive heat, or pressure buildup. An example of this type of reaction would be a VX reaction with water. VX reacts slowly but completely with equimolar amounts of water (corresponding to about 93% VX and 7% water by either volume or weight) to produce the corresponding phosphonic acid and 2-aminoethanethiol.

V.A.2. Tank Storage and Treatment.

V.A.2.a. The Permittee may use a tank system as described in Permit Conditions V.A.2.b – e for storage and treatment of hazardous wastes, subject to Permit Conditions V.A.2.f., V.B, V.D, and other applicable requirements of this permit.

V.A.2.b. The CTF includes storage and treatment tank systems for chemical neutralization and pH adjustment of chemical agent wastes. Detoxified waste is collected in the sump tank in Room [redacted], which is periodically discharged to the neutralization system. The neutralization system consists of two 1,450-gallon sodium hydroxide storage tanks; one 500-gal sulfuric acid storage tank; one 1,800-gallon receiving tank; one 500-gallon reaction tank; and two 1,800-gallon final holding tanks. Figure V-1 shows the process flow for the CTF Neutralization System. The sump tank, the receiving tank, the reaction tank and the final holding tanks are hazardous waste treatment and storage tanks that are regulated under this Part. Design characteristics for hazardous waste storage and treatment tanks at the CTF are identified in Tables V-2 and V-3. Figures V-2 and V-3 show the location of these tanks inside the enclosed metal building in which they are housed (except for the sump tank, which is under the floor of room [redacted]).

V.A.2.c. The feed system for the tank system consists of a sump pump for transferring waste from the sump tank in Room [redacted] to the receiving tank in the neutralization system. The waste is transferred via a carbon steel line. The tanks, piping, and valving for the pH neutralization system are manually operated.

V.A.2.d. The receiving tank, reactor tank, and final holding tanks are equipped with level probes and a high-level alarm. Automatic shutoff valves control flows between the tanks and prevent overflow. Sight glasses on the reactor tank and final holding tanks are used to verify level indications.

V.A.2.e. A heat-cured phenolic coating on structural steel surfaces and an epoxy amide coating on the carbon steel tank and piping provide external corrosion protection for the neutralization system. The entire neutralization system is housed in a metal building to protect it from precipitation.

V.A.2.f. The Permittee may not treat more than 18,000 gallons of hazardous waste annually in the tank-based neutralization systems at the CTF.

V.A.3. Ventilation and Filtration.

V.A.3.a. The Permittee shall operate and maintain the CTF ventilation and filtration systems to protect human health and prevent the release of contamination to the environment as described in Permit Conditions V.A.3.b- j.

V.A.3.b. The Permittee shall prevent the release of contamination to the environment through the use of negative pressure as described in Permit Conditions V.A.3.c and V.A.3.d.

V.A.3.c. Ventilation at the CTF shall be configured to induce and maintain air flow from areas within the facility with the least potential for contamination to areas with the highest potential. In general, this equates to flow from administrative areas towards the facility work corridor and into the individual rooms where chemical agents are transferred and treated.

V.A.3.d. Pressure differentials between treatment and transfer rooms, and work corridors and administrative areas, shall be monitored in real time. Instrumentation shall alarm both audibly and visibly when adequate negative pressure differentials are not maintained.

V.A.3.e. Linear face velocities through the working openings of chemical fume hoods used in agent operations shall be maintained between 80 and 120 linear ft per minute. A visible and audible alarm shall signal when face velocity falls below 80 linear ft per minute.

V.A.3.f. Pressure within the CHATS shall be a minimum of ¼ -in. of water gauge below the surrounding workroom. Temporary openings in the CHATS glovebox, such as during glove changes, shall maintain an inward flow of at least 90 linear ft per minute. The system shall alarm both audibly and visibly if the pressure differential or face velocities are not maintained.

V.A.3.g. Maintenance to achieve adequate pressure differentials between CTF rooms and adequate face velocities at CTF glove boxes and fume hoods shall be recorded in the CTF operating record. In addition, ventilation rates and pressure drops shall be monitored and logged weekly.

V.A.3.h. All ventilation air exhausted from the CTF shall be filtered through carbon filters of appropriate size and type to ensure chemical agent capture.

V.A.3.i. Filter media changeout or other appropriate maintenance on the filtration system shall be performed to maintain adequate work area pressure differentials and hood face velocities.

V.A.3.j. A source of backup power shall be available to ensure that the CTF's ventilation and filtrations systems remain operable at all times.

V.A.4. Monitoring.

V.A.4.a. The Permittee shall use an air monitoring system to detect airborne chemical agent concentrations inside the CTF in all areas where chemical agents are present. The air monitoring system shall comply with all current Department of the Army safety criteria.

V.A.4.b. The monitoring system shall be capable of providing sample analysis results in less than 30 minutes.

V.A.4.c. The monitoring system shall be calibrated and challenged using the appropriate chemical agent standards at least once each work day (i.e., Monday through Friday, excluding holidays) for storage rooms and laboratories when chemical agent is present at these locations.

V.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

V.B.1. The Permittee shall use acceptable knowledge (such as process knowledge and information derived from nondestructive evaluation tools) and/or sampling and laboratory analysis to identify wastes.

V.B.2. The Permittee may store and treat the hazardous wastes listed in Table V-4 in the permitted storage and treatment areas identified in Permit Condition V.A, subject to the terms of this Part.

V.B.3. The Permittee shall not store or treat at the CTF any hazardous waste not specified in Permit Condition V.B.2.

V.B.4. The Permittee shall not store, treat, or handle known or suspected explosives or pyrotechnics unless a risk assessment is performed and the risk is accepted by the appropriate Department of the Army decision authority in accordance with the CBC System Safety Engineering and Management Plan. Documentation associated with the risk assessment shall be provided to the Department before the operation commences.

V.B.5. The Permittee may receive items that are regulated as hazardous waste from offsite at the CTF only if the waste items are suspect CWM, or highly toxic industrial chemicals associated with waste munitions, and:

- The items were discovered within the State of Maryland;
- The Permittee provides the Department with a fact sheet describing the items, where they were found, the waste codes known or suspected to be applicable to the items, possible hazards associated with the items, and the expected benefit of bringing the items to the CTF;
- The Permittee receives approval from the Department; and
- Permit Condition V.B.4 does not preclude the item from storage or treatment at the CTF.

V.C. STORAGE AND TREATMENT IN CONTAINERS

V.C.1. Condition of Containers. If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall overpack the container, repair the container, transfer the hazardous waste to a container that is in good condition, or otherwise manage the waste in

compliance with the conditions of this permit. Leaking valves or plugs on ton containers may be serviced in the CHATS or in the storage areas of the CTF.

V.C.2. Compatibility of Waste with Containers.

The Permittee shall assure that the ability of the container to contain the waste is not impaired, as required by COMAR 26.13.05.09C.

V.C.3. Management of Containers.

V.C.3.a. The Permittee:

V.C.3.a.i. Shall ensure that a container holding hazardous waste is always kept closed during storage, except when it is necessary to add or remove waste; and

V.C.3.a.ii May not open, handle, or store a container of hazardous waste in a manner which may rupture the container or cause it to leak (26.13.05.09D).

V.C.3.b. The Permittee shall maintain a minimum of two feet of aisle space between containers and shall provide sufficient aisle space to meet the requirements of COMAR 26.13.05.02I(1).

V.C.3.c. The Permittee shall use containers free of leaks and corrosion to store wastes. Containers may be made of metal, glass, or plastic, or equivalent materials and may consist of ampoules, vials, bottles, "pumpkins" (5 and 15-gallon steel pressure vessels with non-removable heads [UN 1A1]), cylinders, drums, and ton containers, or equivalent. Before equivalent containers are used, the Permittee shall provide the Department with specifications (e.g., size, volume) and information on material of construction and incompatibilities.

V.C.4. Containment Systems.

V.C.4.a. The Permittee shall maintain the containment systems described in Permit Conditions V.A.1., as required by COMAR 26.13.05.09H. Secondary containment is provided by the method of construction of the CTF, or by use of overpack containers. Each bulk storage room shall be equipped with floor wells or curbing that can contain more than 10 percent of the permitted liquid storage volume or a volume equivalent to the largest container stored in the room, whichever is greater. Floors in areas of the CTF where wastes may be treated or stored shall be covered with a coating resistant to the majority of wastes handled in the area. The floors shall be free of gaps and cracks in areas where they are providing secondary containment. The Permittee shall repair flaws promptly when they are observed.

V.C.4.b. The Permittee shall repair or reseal the containment surfaces as necessary to comply with COMAR 26.13.05.09H(1)(a).

V.C.4.c. The Permittee shall remove any spilled or leaked waste from the containment system in a timely manner, in accordance with COMAR 26.13.05.09H(3).

V.C.4.d. The Permittee shall assure compliance with 40 CFR 761.65(b)(1)(ii) (25% secondary containment requirement) whenever PCB wastes are in storage, as applicable.

V.C.5. Treatment Operations.

V.C.5.a. The Permittee may conduct treatment in the CHATS located in Room [redacted]. The CHATS is a self-contained box vented to a dedicated negative pressure filtration system. Treatment in the CHATS may include drilling and draining liquid fills from non-explosively configured munitions and containers, and detoxification of batches of CWM waste and other toxic waste. Treatment in the CHATS is limited to 1,800 gallons of waste per year, or 175 gallons per day.

V.C.5.b. The Permittee may conduct hazardous waste treatment using reaction vessels. These reaction vessels include:

- 35-gallon polypropylene-lined stainless steel reaction vessels;
- 12-liter Pyrex reaction vessels; and
- Equivalent vessels.

V.C.5.c. The Permittee shall notify the Department in writing or electronically at least 7 days before equivalent vessels are used unless the Department agrees to a shorter deadline. At a minimum, the notification shall provide the Department with information on reaction vessel specifications (e.g., size, volume, material of construction, incompatibilities) and the hazardous waste treatment operation.

V.C.5.d. The reaction vessels shall be housed in a hood or glovebox that is vented to the CTF's negative pressure filtration system.

V.C.5.e. Treatment may also occur in reaction vessels designed for waste treatment that are vented to the CTF's negative pressure filtration system in accordance with Permit Condition V.A.1.k.

V.C.5.f. The Permittee shall detoxify CWM and other toxic chemicals using U.S. Army methods. Treatment shall follow an SOP developed in accordance with protocols set forth in Preparation of Standard Operating Procedures, most recent version, developed by the Edgewood Chemical Biological Center's Directorate of Program Integration, Risk Reduction Office, or CRDEC-TR-009 (Support for the Delisting of Decontaminated Liquid Chemical Surety Materials as Listed Hazardous Waste from Specific Sources (State) MD02 in COMAR 26.13.02.18 (U.S. Army Chemical Research, Development and Engineering Center, Aberdeen Proving Ground, Maryland, 1988)).

V.C.5.g. Treatment shall be controlled by one or more of the following:

- Preloading the reaction vessel with decontamination solution;
- Introducing agent to the reaction vessel below the level of the decontamination solution;
- Agitating the mixture;
- Filling the headspace of the container with an inert gas during waste transfers;
- Cooling to moderate temperature during exothermic reactions; and
- Using excess decontaminants to ensure that the reaction is completed.

V.C.5.h. The DEVCOM CBC shall provide the Department with the most recent version of Preparation of Standard Operating Procedures on request at any time.

V.C.5.i. Detailed requirements for each hazardous waste treatment operation shall be described in SOPs. A full set of current SOPs shall be available at the CTF for review by the Department at all times.

V.C.5.j. The Permittee shall treat CWM wastes so that the levels of residual CWM are low enough for the waste to be transported, in accordance with appropriate requirements in Department of the Army Pamphlet 385-61, to a permitted hazardous waste management facility for further treatment and/or disposal.

V.D. STORAGE AND TREATMENT IN TANKS

V.D.1. Secondary Containment and Integrity Assessments.

V.D.1.a. The Permittee shall operate and maintain the secondary containment system in accordance with the requirements of COMAR 26.13.05.10-4B. The 1,000-gallon sump tank is located in a 4,000-gallon concrete vault, which is sufficient to hold the entire contents of the tank. The neutralization system is located on a bermed concrete pad enclosed in a metal building. The bermed area has a holding capacity of 12,800 gallons, which is sufficient to hold the entire contents of all the tanks in the neutralization system.

V.D.1.b. The Permittee shall maintain the tanks with a minimum shell thickness of 3/16-in. to ensure sufficient structural strength. The shell thickness shall be measured and recorded in the facility operating record at least every two years as required by COMAR 26.13.05.10D(4). Ancillary equipment shall be tested for structural integrity and leaks every two years and the results recorded in the operating record.

V.D.2. Operating Requirements.

V.D.2.a. The Permittee shall not place hazardous waste in the tank systems if the waste could cause the tanks, their ancillary equipment, or their containment system to rupture, leak, corrode or otherwise fail (COMAR 26.13.05.10C(1)).

V.D.2.b. The Permittee shall prevent spills and overflows from the tank or containment systems as required by COMAR 26.13.05.10C(2). High-level alarms and level indicators shall be used to prevent overflows. Transfers shall be controlled manually to enable the operator to stop the flow of waste in the event of a spill or leak.

V.D.2.c. The tank systems provide chemical neutralization and pH adjustment of wastes resulting from the detoxification of CWM and other toxic chemicals. The hazardous wastes managed in the CTF neutralization system generally have one or more of the following EPA or Maryland state hazardous waste numbers: D002, K991-K999, MD02, MD03, and P095. The CTF neutralization system may treat up to 18,000 gals. per year of liquid waste.

V.D.2.d. The sump tank and neutralization system shall be maintained at negative pressure and vented through the CTF's filtration system whenever waste is present in the tank systems.

V.D.3. Response to Leaks or Spills.

V.D.3.a. In the event of a leak or spill from a tank system, from the secondary containment system, or if a tank system becomes unfit for continued use, the Permittee shall remove the tank system from service immediately [COMAR 26.13.05.10-6A(1)] and complete the following actions:

V.D.3.a.i. Immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release. (COMAR 26.13.05.10-6A(2)-(3))

V.D.3.a.ii. Remove waste from the system within 24 hours of the detection of the leak to prevent further release and to allow inspection and repair of the system. If the Permittee finds that it will be impossible to meet this deadline, the Permittee shall notify the Department, demonstrate that more time is required, and remove at the earliest practicable time as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system. (COMAR 26.13.05.10-6A(4))

V.D.3.a.iii. Contain visible releases to the environment. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection shall: (1) prevent further migration of the leak or spill to soils or surface water and (2) remove and properly dispose of

any visible contamination of the soil or surface water. (COMAR 26.13.05.10-6A(5))

V.D.3.a.iv. Close the system in accordance with a partial closure plan submitted by the Permittee and approved by the Department in accordance with the requirements of Permit Condition V.I., unless the following actions are taken (COMAR 26.13.05.10-6A(7)):

- For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make any necessary repairs to fully restore the integrity of the system before returning the tank system to service.
- For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system before returning it to service.
- If the Permittee replaces a component of the tank system to eliminate the leak, the Permittee shall assure that the component satisfies the requirements for new tank systems or components in COMAR 26.13.05.10-3 and 10-4.

V.D.3.a.v. For all major repairs to eliminate leaks or restore the integrity of the tank system, the Permittee shall obtain a certification by an independent, qualified, registered professional engineer in accordance with COMAR 26.13.07.03D that the repaired system is capable of handling hazardous wastes without release for the intended life of the system before returning the system to service. Examples of major repairs are: installation of an internal liner, repair of a ruptured tank, or repair or replacement of a secondary containment vault. (COMAR 26.13.05.10-6A(8))

V.E. SPECIAL REQUIREMENTS

V.E.1. Ignitable or Reactive Wastes.

V.E.1.a. The Permittee shall take the following precautions to prevent ignition or reaction of ignitable or reactive wastes.

- The Permittee shall segregate agents and wastes by type within storage rooms or in separate rooms to minimize the potential for a reaction.
- The Permittee shall ensure that the CTF ventilation system captures vapors from waste storage rooms.
- The Permittee shall ensure that laboratory and transfer room floors at the CTF are nonconductive.

- The Permittee shall ensure that there are no sources of open flames in the CTF other than the torch system used in the Rooms [redacted] to heat seal ampoules.
- The Permittee shall ensure that there is no smoking inside the CTF building.

V.E.1.b. The Permittee shall not place ignitable or reactive waste in the tank system or in the secondary containment system, unless the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that the resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste in COMAR 26.13.02.11 or .13

V.E.2. Incompatible Waste. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container, tank system, or secondary containment system.

V.F. RECORDKEEPING AND REPORTING

V.F.1. The Permittee shall maintain the CTF operating record required by Permit Condition II.H at the CTF until closure. All other records required by this permit shall be maintained for a minimum period of three years. The retention period of all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

V.F.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention, and disposition of records.

V.F.3. The Permittee shall keep on site a copy of this part of the permit and its cited attachments. Table V-5 summarizes the permit-required documents and records for the CTF.

V.G. INSPECTION SCHEDULE AND PROCEDURES

V.G.1. The Permittee shall conduct inspections of the CTF building, container storage rooms, tanks, and other equipment to ensure that no releases of waste have occurred. The Permittee shall inspect the items listed on Figure V-4 at the frequency specified and document the results of these inspections in the CTF inspection log. This schedule may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with the COMAR 26.13.07.

V.G.2. The Permittee shall inspect the container storage areas weekly as required by COMAR 26.13.05.09 E. The inspection shall include at least those items specified on the CTF container inspection checklist included as Figure V-5. This checklist may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with the COMAR 26.13.07.

V.G.3. The Permittee shall inspect the tank systems at least once each operating day as required by COMAR 26.13.05.10 D. The inspection shall include at least those items specified in the CTF tank inspection checklist included as Figures V-6 and V-7. Remote surveillance of the tank system's secondary containment area via closed circuit television, and near real-time monitors (MINICAMS) in conjunction with the automated notification of key facility personnel will meet 24-hour weekend and holiday leak detection and response requirements when tank system operators are not present. Inspection checklists may be amended or revised with the approval of the Department, either by permit modification or using administrative procedures in accordance with the requirements of COMAR 26.13.07.

V.G.4. The Permittee shall inspect personal protective clothing and equipment at the issue point and at appropriate intervals as determined by internal operating procedures. The purpose of these inspections shall be to assure serviceability and effectiveness. The Permittee shall be able to demonstrate to Department personnel (e.g., by showing stencil markings on the clothing) that personal protective clothing and equipment has been inspected.

V.G.5. The Permittee shall inspect masks monthly and ensure that masks are tested at the point of issue and at appropriate intervals as required by internal operating procedures. Masks shall be tested to assure proper fit and the lack of leaks. The Permittee shall be able to demonstrate to the Department that masks have been inspected and tested.

V.G.6. The Permittee shall make CTF monitoring system calibration and challenge records available to the Department on request.

V.H. CONTINGENCY PLAN

V.H.1. The most recent version of the following contingency plan documents shall be available at the CTF at all times:

- The CTF RCRA Site-Specific Contingency Plan,
- APG's Emergency Response Plan, Chapter 1,
- APG's Emergency Response Plan, Chapter 5 (Chemical Accident or Incident Response and Assistance [CAIRA] Plan), and
- APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan.

Note: Permit Attachment V-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency plan located at the CTF.

V.H.2. The CTF Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, as required by COMAR 26.13.05.04E. The plan may also be amended for the following reasons by notifying the Department:

- To incorporate administrative and informational changes,

- To upgrade, relocate, or replace emergency equipment listed in the contingency plan with functionally equivalent emergency equipment, or
- To change the name, telephone number, or address of the Emergency Coordinator, alternate Emergency Coordinator, or other persons, organizations, or agencies identified in the plan.

V.H.3. The CTF Emergency Coordinator shall meet the requirements listed in COMAR 26.13.05.04F as these requirements relate to the CTF.

V.H.4. The Permittee shall immediately carry out the provisions of the CTF Site-Specific Contingency Plan and follow emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents that threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2)).

V.I. CLOSURE PLAN

V.I.1. At closure, the Permittee shall remove all hazardous waste and hazardous waste residues from the storage areas and tank systems, and close the facility in accordance with the approved detailed closure plan. Permit Attachment V-1 is a general closure plan showing the minimum topics to be included in the detailed closure plan.

V.I.2. At least 90 days prior to the intended beginning of closure, the Permittee shall submit a detailed closure plan including a sampling and analysis plan to the Department for review and approval.

V.I.3. The detailed closure plan required by Permit Condition V.I.2, shall include at least the following elements:

- The steps necessary to perform partial and/or final closure of the facility at any point during its active life,
- A description of how each CTF container storage unit and tank system will be closed,
- A description of how final closure of the CTF will be conducted, identifying the maximum extent of operations during the active life of the facility,
- An estimate of the maximum inventory of hazardous wastes ever onsite over the active live of the facility and a description of the methods used to remove, transport, treat, store or dispose of all hazardous wastes,
- A detailed description of the steps needed to remove or decontaminate all hazardous wastes residues and contaminated containment system components, equipment, structures and soils,
- A description of methods employed to decontaminate structures and equipment that will remain on site after closure,

- Identification of decontamination agents to be used, including chemical and physical specifications of the agents,
- Specific safety measures to be taken to control spread of contamination during the closure activity and to protect human health and the environment
- A detailed description of other activities necessary during the closure period
- A schedule for closure of each CTF unit and for the final closure of the CTF, and
- A description of how all hazardous waste and hazardous waste residues will be removed from the containment and tank systems.

V.I.4. The sampling and analysis plan required by Permit Condition V.I.2 shall, at a minimum, include the following components to verify the effectiveness of decontamination activities:

- A listing and justification of sampling and analytical methods employed. The Permittee shall select and propose these methods in accordance with the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, latest edition), as appropriate for the constituent in question, or equivalent methods acceptable to the Department;
- A description of quality assurance and quality control procedures associated with the selected sampling and analysis methods;
- A definition and justification of a Target Compound List (TCL) for which the verification samples will be analyzed;
- Identification and justification of a threshold level for each compound on the TCL list that determines a "clean" or "contaminated" condition; and
- Number and location of samples, and media or substances to be sampled.

V.I.5. The Permittee shall decontaminate the storage areas, tank systems, and any equipment that remains onsite after closure in accordance with the detailed closure plan submitted by the Permittee and approved by the Department in accordance with Permit Conditions V.I.2 through V.I.4.

V.I.6. Within 60 days of the completion of the closure activities, the Permittee shall submit a:

V.I.6.a. Closure report containing results of the activities conducted in compliance with each component of the approved closure plan, including, but not limited to:

i. the verification results demonstrating a clean closure of CTF storage and treatment areas, and tank systems (i.e., demonstrating that the closure performance standard of COMAR 26.13.05.07B has been achieved), and

ii. a certification of closure as required by COMAR 26.13.05.07F; or

V.I.6.b. Written request to extend the 60-day deadline including the reason for the request and a proposed timeline for completion.

V.I.7. If the Permittee is unable to demonstrate a clean closure in accordance with Permit Condition V.I.6, the Permittee shall inform the Department within 60 days of the completion of the closure activities, and propose measures to achieve closure performance standards, such as submission of a post-closure care plan for the Department's review and approval.

V.J. TABLES AND FIGURES

Table V-1. Summary of CTF Hazardous Waste Storage and Treatment Limits

Type of Limit	Limit	Amount
Storage in Containers	Maximum amount of waste in all rooms	2,505 gallons (gal)
	Maximum amount of waste in any of these rooms: [redacted]	25 to 500 gallons
	Room [redacted]	500 gallons
	Rooms [redacted] and [redacted]	5 gallons per room
	Room [redacted]	25 gallons
	Room [redacted]	335 gallons
	Room [redacted]	80 gallons
	Rooms [redacted]	500 gallons per room
	Room [redacted]	25 gallons
Treatment in Containers*	Daily in rooms [redacted]	100 gallons in aggregate
	Annually in rooms [redacted]	8,340 pounds (lb)** (equivalent to 1,000 gallons using a conversion factor of 8.34 lbs per gallon, which corresponds to the density of water)
	Daily in the CHATS (room [redacted])	175 gallons
	Annually in the CHATS	1,800-gallons
Treatment in Tanks	Annually	18,000 gallons

* In addition, chemical reactions may continue to completion in accordance with approved CTF Standard Operating Procedures (SOPs) in closed reaction vessels in any of the storage areas of the CTF.

Table V-2. Design Characteristics Common to All Waste Treatment and Storage Tanks at the CTF

Design Standard	Welding Standard	Material of Construction	Shell Thickness	Liner Material	Liner Thickness
ASME Section VIII, Division 1, Boiler and Pressure Code	ANSI 31.3 and ASME BPVSEC9 welding and brazing qualifications	Carbon steel ASTM A285 Grade C	0.25 in. min.	PVDF resin	25 mils min.

Table V-3. Design Characteristics of Individual CTF Waste Treatment and Storage Tanks

Tank Name and Number	Design Capacity (gallons)	Operating Capacity (gallons)	Dimensions	Design Pressure	Operating Pressure
Sump Tank T-150-1	1,000	800	Width - 5 ft 6 in. square Height – 5 ft	-6 in. W.C. to atmospheric at 200°F	-2 in. W.C. at 100°F
Receiving Tank T-160-1	1,950	1,800	Outside Diameter – 5 ft 5 in. Length (straight shell) – 12 ft 4 in.	-6 in. W.C. to atmospheric at 150°F	-2 in. W.C. at 100°F
Reactor Tank R-170-1	550	500	Outside Diameter – 49.25 in. Length (straight shell) - 6 ft 5 in.	-6 in. W.C. to atmospheric at 200°F	-2 in. W.C. at 100°F
Final Holding Tank T-180-1A	1,950	1,800	Outside Diameter – 5 ft 4.375 in. Length (straight shell) – 12 ft 3.25 in.	-6 in. W.C. to atmospheric at 150°F	-2 in. W.C. at 100°F
Final Holding Tank T-180-1B	1,950	1,800	Outside Diameter – 5 ft 4.375 in. Length (straight shell) – 12 ft 3.25 in.	-6 in. W.C. to atmospheric at 150°F	-2 in. W.C. at 100°F

Table V-4. Permitted Waste Codes for the CTF

Hazardous Waste Code	Description
D001	Wastes exhibiting the Characteristic of Ignitability
D002	Wastes exhibiting the Characteristic of Corrosivity
D003	Wastes exhibiting the Characteristic of Reactivity
D004-D043	Wastes exhibiting the Characteristic of Toxicity
F001-F015, F024, F027	Hazardous wastes from non-specific sources
K044-K047	Hazardous wastes from specific sources related to explosives
K991-K999	Chemical surety waste materials listed under COMAR 26.13.02.17
MD02	Reaction products and residues resulting from decontamination of specific compounds (military), as listed under COMAR 26.13.02.18
MD03	Residues from treatment or decontamination of wastes K997 and K999, as listed under COMAR 26.13.02.18
MX01, M001, MT01	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyl (PCB) listed under COMAR 26.13.02.19 D, F and H
P001-P005, P007, P008, P010-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P064, P066-P078, P082, P084, P085, P087-P089, P092-P099, P101-P111, P113-P116, P118-P121, P123, P127-P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species of the same, listed under COMAR 26.13.02.19 E, and identified as *acute* hazardous wastes
U001-U005, U007-U012, U014-U019, U021, U022, U024-U032, U034-U053, U055-U095, U097-U099, U101-U103, U105-U132, U134-U159, U161-U174, U176-U188, U190-U194, U196, U197, U200-U204, U206-U211, U213-U222, U224-U228, U230-U233, U235-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products, listed under COMAR 26.13.02.19 G, and identified as toxic, ignitable, corrosive or reactive wastes

Table V-5. Permit-Required Documents/Records for the CTF *

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Chemical Accident or Incident Response and Assistance (CAIRA) Plan	26.13.05.04
Emergency Response Plan	26.13.05.04
Operating Record	26.13.05.05D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and V of this Permit	26.13.07.05A and C

*All of these documents and records shall be available at the CTF.

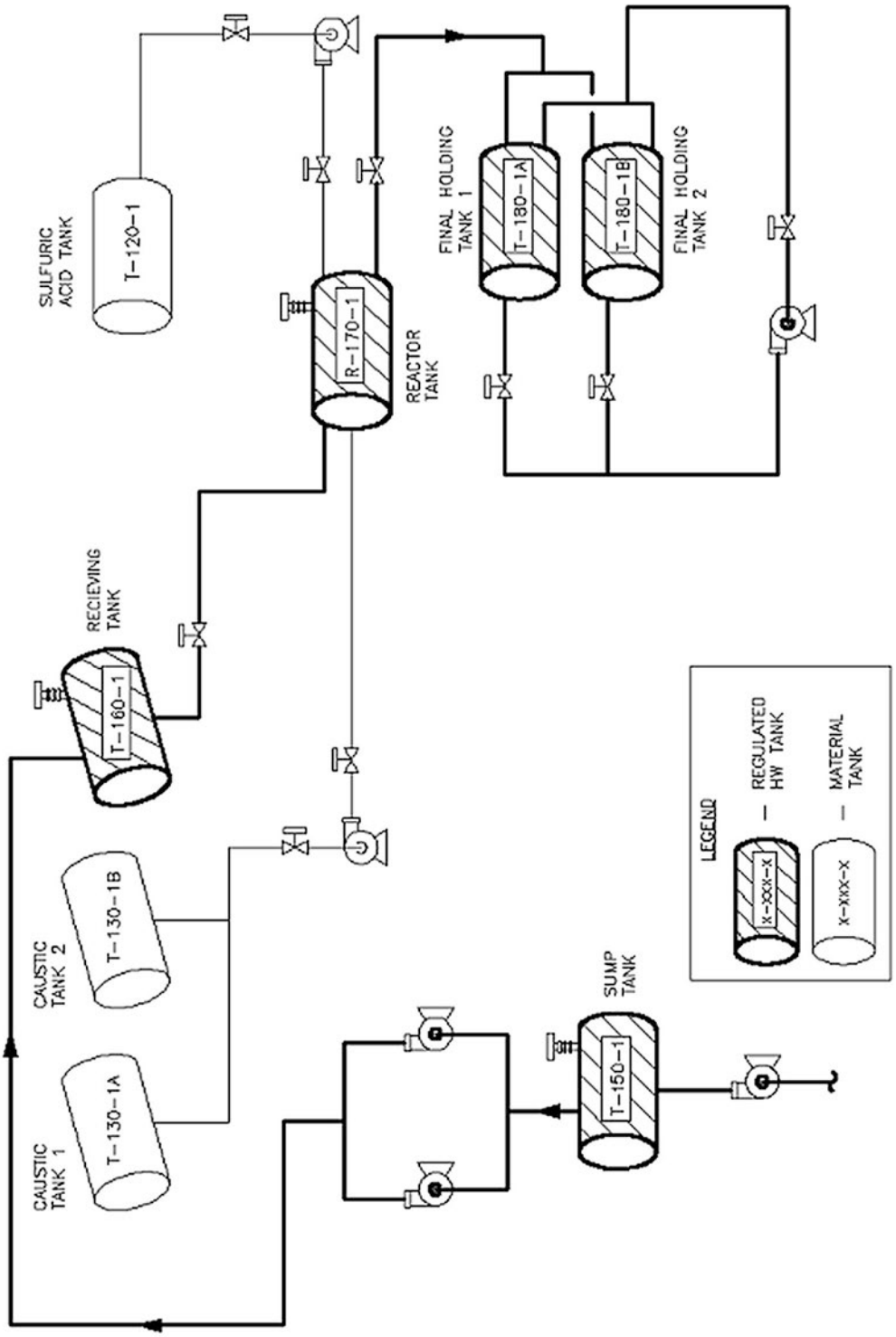

FIGURE V-1. PROCESS FLOW FOR CTF NEUTRALIZATION SYSTEM TANKS
(NOT TO SCALE)

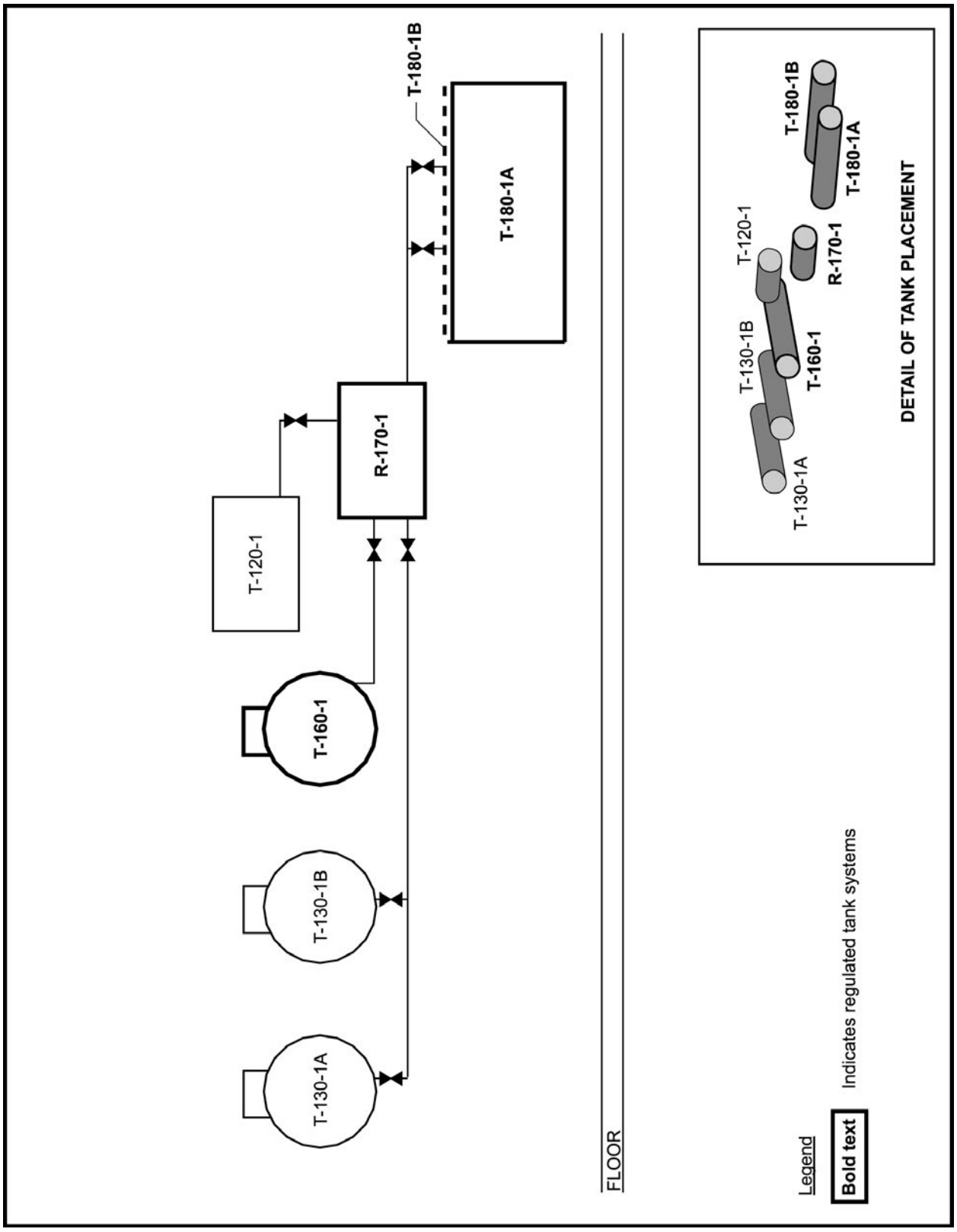

Figure V-2. Side View of CTF Neutralization System

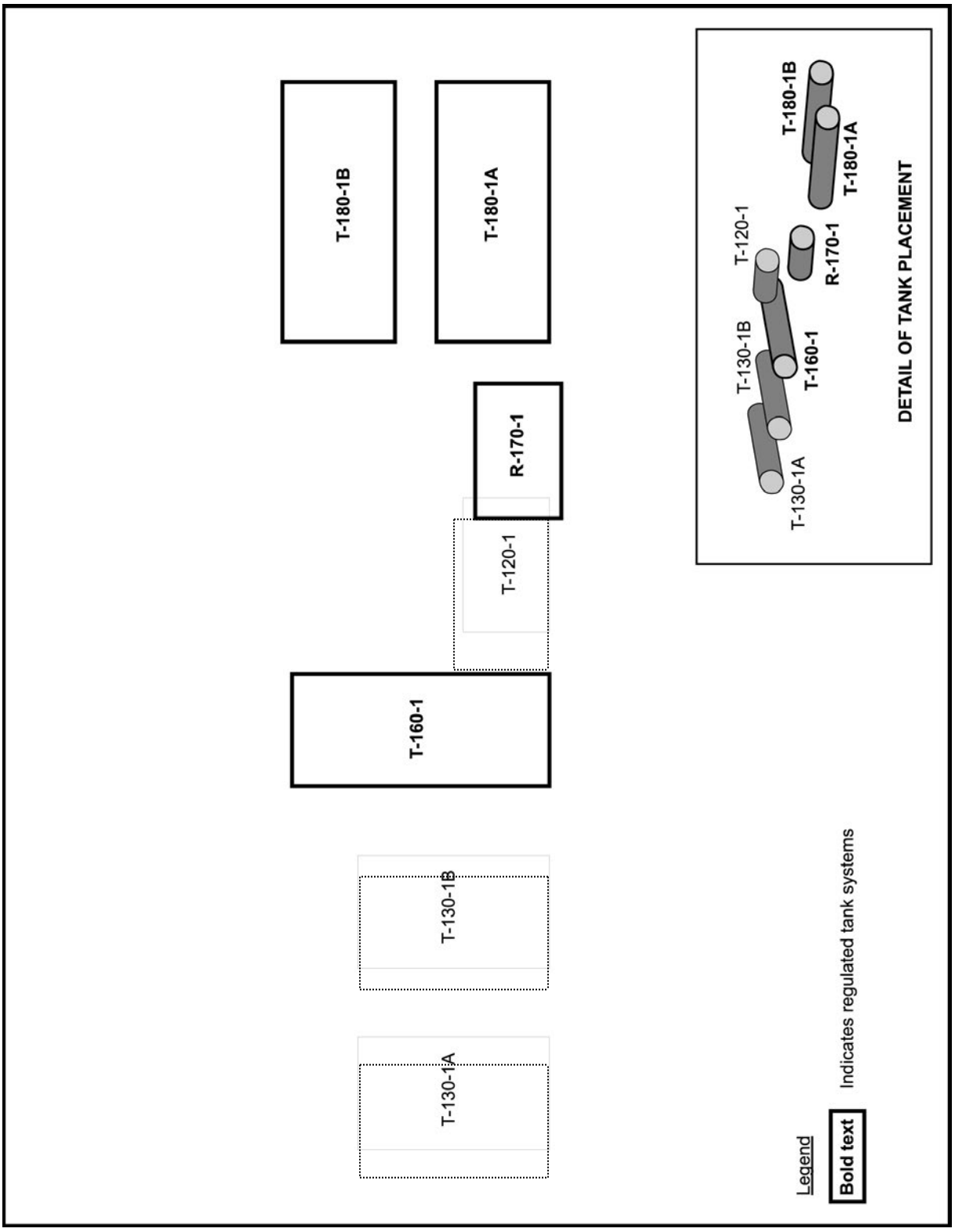

Figure V-3. Overhead View of the CTF Neutralization System Tanks

Figure V-4. Inspection Frequency for the Chemical Transfer Facility

Frequency/item	Observation
Each Work Day (Mon.-Fri. excluding holidays)	
Security:	
Storage rooms locks/doors	Integrity
Operational rooms locks/doors	Integrity
Neutralization system:	
Tank shells	Leaks
Foundation/structural supports	Cracks, deterioration, corrosion, structural damage
Dikes and curbing	Cracks, deterioration
Sump	Cracks, deterioration, wet spots
Piping, pumps, and sump pumps	Leaks, corrosion, deterioration
Valves and fittings	Leaks, corrosion, deterioration
Overfill prevention devices (level indicators and high and low level alarms)	Functional
pH monitors	Functional
Unloading area:	
Floor and curbs	Waste spills and wet spots, cracks, deterioration
Weekends and Holidays (when HW tank system is being used to manage waste)	
Hazardous Waste Tank System	CCTV remote surveillance for Visible
Leak collection sumps (Room [redacted] and Tank Farm)	leaks/Wetness
Weekly	
Storage rooms	Container condition, leaks, containers are closed and properly labeled
Safety and emergency equipment:	
Safety Shower & Eyewash	Operational
Emergency generator	Operational
Emergency Lighting	Operational
Maintenance of Negative Pressure	
Hallway and Work Rooms	Operational
CHATS Filter System	Operational
CHATS:	
Air*	Working
Electric*	Working
Motors, pumps, and belts*	Working
Sump	Working/maintenance
Neutralization system	Working/maintenance
Filter systems	Working/maintenance
Neutralization system dike	Deterioration/cracks
*These items may be inspected on an as-needed basis prior to initiating hazardous waste operations.	
Facility operating equipment:	
Telephones and intercoms	Working

Figure V-4 (Continued). Inspection Frequency for the Chemical Transfer Facility

Frequency/item	Observation
Air compressor	Drain/maintenance
Air conditioner (summer only)	Working/maintenance
Overhead roll-up door	Working/maintenance
Monthly	
Monitoring equipment:	
Chemical agent detector kits	Not expired/operational
Safety and emergency equipment:	
Nerve agent first-aid kits	Operational/not expired
Fire extinguishers	Sufficient pressure
Emergency deluge shower	Functional
Emergency eyewash	Functional
Facility operational equipment:	
Overhead cranes	Operational/cables
Quarterly	
Safety and emergency equipment:	
First-aid equipment (blankets, stretcher)	Present/good condition
Load test on emergency generator	Successful changeover
Annually	
Storage and operating equipment:	
Overhead cranes	Load tested
1-ton container tilt rack	Load tested
Lift trucks	Load tested
Carts	Load tested
Closed-vent system/CBR filter	Defects resulting in air emissions
Biennially	
Tank maintenance:	
Ultrasonic inspection of tank thickness	Minimum of 3/16 inch on top, sides, and bottom
Pipe testing for structural integrity, leaks	Structure is sound, no leaks
Integrity of secondary containment	Structure is sound, no openings or significant deterioration

Notes:
CBR = chemical, biological, and radiological
CHATS = Chemical Agent Transfer System

Container Inspection Checklist for the CTF ([redacted])

Inspection Date and Time:_____Operator Name:_____Operator Signature:_____

Room Number	Waste Present?	Waste Inventory Correct?*	Evidence of Container Deterioration?*	Waste Containers Properly Labeled: Hazardous Waste, Accumulation Start Date, etc.*	Floor/Floor Coating Free of Cracks?*	Evidence of Leaks or Spills?*	Evidence of Berm Deterioration?*
1							NA
2							NA
3							NA
4							NA
5							NA
6							NA
7							NA
8							NA
12							NA
26							
27							
28							
29							
30							
31							
32							

*Note Comments/Problems/Corrective Actions Taken by room._____

_____

Figure V-5. Container Inspection Checklist for the Chemical Transfer Facility

DATE/ TIME	INSPECTOR	EVIDENCE OF LEAKS OR SPILL (Y/N)	TANK/PIPES IN GOOD CONDITION (Y/N)	CONTAINMENT IN GOOD CONDITION (Y/N)	SYSTEM MALFUNCTIONS (Y/N)	DATE REPAIRS TAKEN	END OF DAY ROOM [redacted] SUMP (% Fill)

Figure V-6. Daily Tank Inspection Checklist for the Chemical Transfer Facility

SECURITY CCTV INSPECTION				
DATE/TIME	INSPECTOR NAME & INITIALS	LIQUID PRESENT IN OR AROUND TANK FARM LEAK COLLECTION SUMP?	LIQUID PRESENT IN SUMP TANK (RM [redacted]) LEAK COLLECTION SUMP?	RESPONSE ACTIONS IN CASE OF LEAK

COMMENTS:

Figure V-7. Weekend/Holiday Remote Surveillance Hazardous Waste Tank System Inspection Checklist – Chemical Transfer Facility

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PERMIT ATTACHMENT V-1

CONCEPTUAL CLOSURE PLAN FOR THE CHEMICAL TRANSFER FACILITY

A conceptual closure plan for the CTF follows this page. It will be revised to reflect site conditions and appropriate regulatory standards at the actual time of closure.

CONCEPTUAL CLOSURE PLAN FOR THE CHEMICAL TRANSFER FACILITY

I. General Information

This conceptual closure plan for the Chemical Transfer Facility (CTF) is preliminary and will be revised to reflect site conditions, appropriate regulatory standards, and future use plans at the actual time of closure. A detailed closure plan will be submitted to the Maryland Department of the Environment (MDE) at least 180 days before final closure is expected to begin. Aberdeen Proving Ground (APG) and the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) will not proceed with the final closure of this facility in the absence of written confirmation from MDE that the closure plan is approved or conditionally approved.

Before final closure of the facility occurs, the CTF may cease to perform some or all of the hazardous waste treatment and storage functions that currently occur there. Factors that may impact the future use of the CTF include the ability of the Sample Receipt Facility to incorporate the CTF's current hazardous waste treatment and storage functions and possible changes to the DEVCOM CBC's mission that would necessitate corresponding changes to the DEVCOM CBC's need to perform hazardous waste treatment and/or storage.

This plan addresses final closure of the facility. APG and the DEVCOM CBC will keep the MDE informed of the U.S. Army's (Army's) CTF use plans as they continue to evolve. Depending on the future use of the facility, APG may at some point request a partial closure or a delay of closure. In either case, APG would prepare a revised closure plan that addresses the situation.

II. Closure Plan

II.a. Closure Performance Standard

The CTF will be "clean closed" in a manner that

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere; and
- Complies with COMAR closure requirements for containers and tank systems.

Closure of the CTF will be accomplished by removing or decontaminating all equipment, structures, soils, or other materials that contain, or are contaminated with, hazardous waste or hazardous waste constituents exceeding clean closure target levels. For chemical agent-contaminated materials and structures, clean closure target levels will be established using the most recent versions of

- The Department of the Army Pamphlet (DAPAM) 385-61, "Toxic Chemical Agent Safety Standards,"
- US Army Public Health Center Chemical Agent Health-Based Standards for Air, Soil and Groundwater, and
- DEVCOM CBC decontamination procedures.

For other hazardous constituents, APG and the DEVCOM CBC will propose clean closure target levels from a target compound list. Clean closure target levels will be based on appropriate regulatory and/or risk-based concentrations (RBCs). Sampling and analysis will be performed in accordance with the U.S. Environmental Protection Agency's (EPA's) SW-846, most recent edition. If hazardous constituents are detected outside the building, a plan to further define the extent of contamination and remedial action will be submitted to the MDE. All clean closure target levels, target compound lists, sampling and analysis strategies, and so forth, will have to be approved by the MDE.

Spent wash and rinse solutions and residues generated as part of the decontamination procedures will be treated and disposed of at a permitted hazardous waste management facility, as required. Rinsate from highly contaminated areas will be composited separately for analysis to avoid diluting the waste. Any building components, appurtenances, etc., that cannot be decontaminated will be removed and disposed of in an approved manner.

Upon completion of these procedures, remaining building components that are not contaminated may be refurbished and rededicated to other purposes or demolished with the resulting debris disposed of in accordance with COMAR 26.13.02 and the latest versions of DAPAM 385-61 and Army PHC Chemical Agent Health Based Standards. Additionally, instrumentation and other hardware that are uncontaminated (or that can be decontaminated) will be removed and salvaged in accordance with procedures described in the latest version of DAPAM 385-61.

II.b. Partial and Final Closure Activities

All of the closure activities discussed in this section are final closure activities. As discussed above, APG will prepare a revised closure plan if it decides that a partial closure is appropriate. The entire CTF will remain open until the entire installation closes, the installation's mission changes such that a chemical transfer facility is no longer needed, or an alternative transfer facility is permitted elsewhere on the installation. Final closure activities are discussed below in Section VI, Closure Procedures.

III. Maximum Waste Inventory

The maximum inventory of waste at closure is estimated to be 3,600 gallons. This estimate is derived by assuming that all storage rooms at the CTF have been de-inventoried, the resulting liquid wastes have been treated in the neutralization system, and the final holding tanks are full to capacity when the decision to close is made.

IV. Schedule for Closure

Table 1 presents a schedule for closure of the CTF based on the following closure procedures described.

V. Closure Timeline

V.a. Time Allowed for Closure

As shown on the closure schedule for the CTF (Table 1), all remaining hazardous waste will be removed from the CTF within the required 90 days after initiation of closure. In addition, all closure activities will be completed within the required 180 days after initiation of closure. APG does not expect to request an extension of time for closure of the CTF.

V.b. Extension for Closure Time

APG does not expect to request an extension of time for closure of the CTF; however, should it be necessary, a revised timeline for closure will be submitted to the MDE for approval.

VI. Closure Procedures

VI.a. Hazardous Waste Inventory

All hazardous waste will be removed from the CTF, suitably packaged, and transported to appropriate, permitted waste treatment and disposal facilities.

Table 1. Closure Schedule for the Chemical Transfer Facility

Description of Closure Step	Number of Days Before/After Final Volume of Waste is Received
Notify the Maryland Department of the Environment (MDE) of intent to close	45 days before
Notify generators who provide wastes to the Chemical Transfer Facility (CTF) of intent to close	45 days before
Receive final volume of waste	0
Begin closure	30 days after
Remove inventory to another permitted facility	90 days after
Remove uncontaminated instrumentation	100 days after
Disassemble all equipment and associated piping, valves, pumps, air pollution control equipment, etc.	110 days after
Establish sampling protocol for each area	112 days after
Decontaminate all surfaces to 3X level of contamination	130 days after
Sample rinsate from floors, walls, equipment, and macadam area near loading/unloading area	140 days after
Receive lab results	154 days after
Dispose of components in permitted and approved hazardous waste facilities	170 days after
Obtain U.S. Army certification that closure is in accordance with the closure plan	172 days after
Obtain independent registered professional engineer certification that closure is performed in accordance with closure plan	180 days after

VI.b. Decontamination Procedures

Decontamination of all materials containing chemical agent will be performed in accordance with the DAPAM 385-61, Army PHC Chemical Agent Health Based Standards and DEVCOM CBC decontamination procedures. The facility will be monitored and/or sampled to ensure the appropriate level of decontamination. If liquid decontamination methods are used, spent decontamination solutions will be collected and pH neutralized. The sump tank and pH treatment tanks will be cleaned until no contamination can be detected. Spent wash and rinse solutions will be collected, suitably contained/packaged, and transported to an appropriate, permitted waste management facility.

After all waste is removed, walls, floors, and doors will be decontaminated using appropriate physical or chemical extraction technologies (e.g., high pressure steam and water sprays that include appropriate surfactant, acids, bases, or detergents). Initial decontamination may involve using minimal amounts of liquid to preclude diluting possible liquid samples and to minimize waste and water use. If appropriate, dry vacuuming of the floors and walls will precede the application of physical or chemical extraction technologies in compartments that stored water-reactive wastes. All rinsate and vacuum debris will be collected and characterized. Rinsate and vacuum debris that is hazardous waste will be containerized and sent to a *Resource Conservation and Recovery Act*- (RCRA)-permitted or interim status hazardous waste management facility.

The Army is continuously testing and implementing various alternatives to liquid decontamination methods. These alternatives include electrical resistance heating (for tanks) and carbon dioxide blasting (for metal parts). If any of these alternatives are successful, they may be proposed for the CTF.

Criteria used to determine the necessity of soil sampling to detect contamination will include spill history (including previous sampling and remediation efforts and results), generator knowledge, and/or major breaches to any secondary containment, as applicable.

VI.c. Criteria for Determining Decontamination

Interior Surfaces

Surface contaminants will be considered present as long as contaminants, as detected in the composite spent wash/rinse solutions, wipe samples, and core samples collected as appropriate, exhibit any of the following criteria:

- The concentration of any constituent, chosen from *Code of Maryland Regulations* (COMAR) 26.13.02.24 based on generator knowledge, exceeds the following:

    - In the wash/rinse solution samples: an RBC or an appropriate maximum contaminant level (MCL) (e.g., 10 times the MCL concentration in the latest update published by EPA; the maximum contaminant level goal [MCLG], if an MCL does not exist; or 1 milligram per liter [mg/L] if neither of the two exists);

- In wipe samples: a surface loading of 100 micrograms per 100 square centimeters (100 μg/100 cm^2); and

- In core samples: one-tenth of toxicity characteristic (TC) level of COMAR 26.13.02.14, or 1 mg/L for constituents not on TC list.

- The pH is less than or equal to 2 or more than or equal to 12.5.

- The concentration of polychlorinated biphenyls (PCBs) is more than 50 parts per million (ppm). (Analysis for PCBs will be performed only if process knowledge suggests that PCBs could be present.)

- CWM is present above appropriately applied risk-based concentrations.

VI.d. Decontamination of Tank Systems

Tank systems at the CTF that held hazardous waste or hazardous materials may be closed by rinsing the interior of the tank three times with water and by flushing associated piping with water three times. A minimum 10-percent tank volume of water will be used to rinse the tank each time. Rinsing will be performed with a device that allows access to all parts of the interior tank surface, such as a power sprayer with a flexible wand. The tank system will be considered contaminated as long as the rinse water concentrations fail the criteria established above.

If an alternate decontamination method is proposed for the closure of the CTF tanks (e.g., electrical resistance heating), APG and the DEVCOM CBC will propose an alternative method of demonstrating successful decontamination.

VI.e. Disposal of Contaminated Soil

The facility is totally enclosed to prevent contamination of the surrounding soil if there is an accidental spill in the building. Outside the building, there are areas for loading/unloading. By following the normal contingency plan operations, any discharge to the soil will be thoroughly cleaned up.

VI.f. Decontamination of Cleanup Materials and Residues

All equipment that has come into contact with hazardous waste will be decontaminated at closure or shipped offsite to a permitted hazardous waste management facility.

VI.g. Documentation of Closure

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to the MDE. The certification will be accompanied by appropriate documentation.

VII. Post-Closure Plan

This section is not applicable to the CTF, because the CTF is a storage facility, not a disposal facility.

PERMIT ATTACHMENT V-2

GENERAL CONTINGENCY PLAN FOR THE CHEMICAL TRANSFER FACILITY

The general contingency plan for the CTF follows this page. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

GENERAL CONTINGENCY PLAN FOR THE CHEMICAL TRANSFER FACILITY

I. General Information

The Combat Capabilities Development Command's Chemical Biological Center (CBC) operates and manages the Chemical Transfer Facility (CTF), on behalf of the U.S. Army (Army). The CTF is located in the Edgewood Area of Aberdeen Proving Ground (APG), Maryland. The CTF is a research and development facility supporting a wide range of activities, including handling suspect chemical warfare materiel (CWM). It is a Resource Conservation and Recovery Act (RCRA), Subtitle C treatment and storage facility.

The CTF is composed of several different parts:

- An administrative/office area;
- Rooms for the treatment and storage of chemical agents, hazardous waste, and assorted chemicals;
- Rooms containing the Chemical Agent Transfer System (CHATS) and reaction vessels;
- Miscellaneous laboratories;
- An area where security and storage areas at the CTF and the N-Field Bunker can be viewed remotely;
- A shower room and changing areas; and
- An attached annex housing the tank neutralization system.

APG's hazardous waste disposal contractor handles the transportation and subsequent disposal of liquid waste from the CTF tank neutralization system. Spill incidents resulting from waste transfer would be the primary responsibility of the hazardous waste disposal contractor.

APG uses the following emergency resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; the Development Command Chemical Biological Center (CBC); Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC). APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below, and by coordinating their availability to the Incident Commander (IC) through the Garrison DO's Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8–Environmental Release Prevention and Response Plan—defines roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. EMERGENCY COORDINATORS

The Emergency Coordinators (ECs) for the CTF are trained in accordance with the CTF training plan to ensure their knowledge and skills are sufficient to manage incidents. The ECs have a thorough understanding of the operations and materials at the CTF and are familiar with all aspects of this general contingency plan, the site-specific contingency plan, operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. The site-specific contingency plan, which is kept on-site at the CTF, lists the names, addresses, and contact numbers for both the primary and alternate ECs.

II.a. Duties of the Emergency Coordinator

The EC must be either at the CTF or on call and able to get to the CTF in a timely manner at all times. A list of the primary and two alternate ECs is maintained at the CTF. The EC is responsible for coordinating all emergency response measures that concern hazardous material. The EC functions as the on-scene coordinator until APG garrison emergency response personnel arrive and the senior responder from the DO Fire Division assumes site control.

II.b. Regulatory Requirements

In accordance with Maryland Controlled Hazardous Substances regulations (COMAR 26.13.05.04.F and G), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests assistance by dialing 911.

2. Identifies the amount, character, source, and extent of any discharged material.

3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.

4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.

5. Ensures that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.

6. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.

7. Submits verbal and written reports through DPW to the Maryland Department of the Environment within 15 days of an incident containing the information listed in COMAR 26.13.05.04 G.(10).

III. CRITERIA FOR IMPLEMENTING THE CONTINGENCY PLAN

The contingency plan includes actions required for emergencies involving fire, explosion, or spills of a hazardous substance. Depending on the nature of the emergency, the person observing the emergency must act immediately to initiate the contingency plan and then inform the EC or first inform the EC, who will then decide whether to initiate the contingency plan.

IV. EMERGENCY RESPONSE PROCEDURES

There are various hazard characteristics associated with the waste stored at the CTF. Before taking action to control an emergency, it is imperative that the responders know all possible risks associated with the area they are entering. CTF personnel are familiar with all hazardous materials used in operations and storage and maintain a safety data sheet (SDS) for such items in the office area. Prior to starting a new operation, personnel complete a hazard analysis and pre-operational survey to identify possible hazards associated with their work.

IV.a. Identification of Hazardous Wastes

The EC will be thoroughly familiar with the contents of each treatment and storage room (both stored material and hazardous waste). In an emergency, the EC can check the electronic inventory of what is in each room. This inventory is available in the administrative area of the CTF.

IV.b. Hazard Assessment

In performing a hazard assessment, the EC in conjunction with the IC will review the inventory of waste near the emergency, consider the extent of the hazard, and decide if the area near the emergency should be evacuated.

To assess the hazard, the EC and the IC will consider:

- Type of hazard(s) involved and information available;
- Degree of toxicity of impacted materials/wastes;
- Presence of toxic, irritating or asphyxiating gases that may result from fire, and/or reactions that could result from its suppression;
- Containment of a spill or lack of containment;
- Uncertainty as to the extent of migration of wastes or water used in fire control to either ground or surface waters; and
- Ability of response teams to contain the emergency.

IV.c. Control Procedures

In some situations, CTF personnel may perform spill response and cleanup without calling the installation emergency number. This can occur only when all of the following conditions are met: (Note: At no time will a CTF employee endanger his/her health and the safety, or the health and safety of others to take immediate action.)

- The spill involves only very small/small quantities of neat chemical agent(s)/solutions within a controlled operational environment (e.g., chemical fume hood) or material/solutions that are known to be free of chemical agent. Larger quantity chemical agent spills and any quantity spilled outside a controlled work environment must be reported;
- The spilled material is contained within the building and does not enter the environment directly or indirectly;
- The building ventilation/filtration and monitoring systems are working;
- The measures necessary to clean up the spill are within the scope of the training of the CTF operators who will perform the action; and
- Equipment and materials needed to clean up the spill are available within the CTF.

In the event of spill that cannot safely be controlled in the building or that needs to be reported for one or more regulatory reasons, the CTF operator discovering the spill must dial the installation emergency number, 911. By dialing 911, the DO Dispatch Center is notified and the following information is conveyed about the incident (to the extent possible) to DO response personnel:

- Name and telephone number of the reporter;
- Name and location of facility/site;
- Date, time, and type of incident;
- Name and estimated quantity of materials involved;
- Extent of injuries, if any; and
- Possible hazards to human health or the environment outside the site.

Using this information, the DO IC will activate the EOC whose members will determine which garrison and non-garrison organizations and resources will be mobilized.

Upon encountering a specific emergency, the following steps will be followed by CTF personnel. (Note: If 911 is called, the information shown below will be reported in addition to the basic requirements previously listed). The EC or alternate will be notified regardless of whether the spill is reported via 911.

FIRE

The person observing the emergency will:

1. Report the fire through the installation emergency telephone number, 911, giving the location, cause, and extent of the fire; note also if any liquids or gases are escaping the building.

2. If the fire is within the facility, contain it by closing the door; if it has already spread outside the facility, make no effort to contain it.

3. Notify the EC or alternate, providing the same information as in step 1.

The DO Fire Division will:

4. Take action to control the fire.

EOC personnel

5. Notify the Installation Safety Office, If the fire poses off-site risks to human health and/or includes the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 Code of Federal Regulations (CFR) Part 302, the EOC will contact the following and inform them of the incident: Maryland Department of the Environment (866-633- 4686) and the National Response Center (800-424-8802).

The EC will

6. Notify the CCBC CBC Risk Management Office (RMO) (436-4411).

The EC and the IC will

7. Assess the problem and implement actions to eliminate the problem.

EXPLOSION

The person observing the emergency will:

1. Evacuate the area to a safe distance from the building.

2. Report the explosion through the installation emergency number, 911, giving the exact location of the explosion, damage to the building, and gas or liquid discharges from the building.

3. Notify the EC or alternate presenting the same information as in step 2.

EOC personnel will:

4. Notify the Installation Safety Office. If the explosion poses off-site risks to human health and/or include the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 Code of Federal Regulations (CFR) 302, the EOC will contact the following and inform them of the incident: Maryland Department of the Environment (866-633-4686) and the National Response Center (800-424-8802).

The EC will:

5. Notify the DEVCOM CBC RMO (436-4411).

The EC and the IC will:

6. Assess the problem and implement a procedure for rendering the area safe.

SPILLS CONTAINED IN A BUILDING

The person observing the emergency will:

1. Close the compartment door to control unauthorized access to the spill, if possible.

2. Contact the EC with information (i.e., type and location) about the substance spilled.

The EC will:

3. Determine if the reporting individual will clean up the spill or if 911 should be called to initiate an installation response.

4. Notify the DEVCOM CBC RMO (436-4411)

The EOC will

5. Contact MDE (866-633-4686) and the National Response Center (800-424-8802) if the substance spilled equals or exceeds a RQ listed in 40 CFR 302.

SPILLS NOT CONTAINED IN A BUILDING

The person observing the emergency will:

1. Report the spill through the installation emergency telephone number, 911.

2. Notify the EC and provide the location and approximate quantity of the spill.

The EOC will:

3. Notify the Installation Safety Office, the Maryland Department of the Environment (866-633-4686) and the National Response Center (800-424-8802).

DO first responders will:

4. Report to the site of the spill and cordon off the area.

The EC and the IC will:

5. Assess the situation and implement a plan to determine the source and contents of the spill, contain it, stop the flow at the source, and package spill cleanup material in drums to store in the facility.

The EC will:

6. Notify the DEVCOM CBC RMO (436-4411).

V. EMERGENCY EQUIPMENT

An inventory and monthly inspection log of all emergency equipment at the CTF is maintained in the administrative office area.

The CTF is stocked with spill response/cleanup materials and equipment that the CTF personnel are trained to use.

V.a. PERSONAL PROTECTIVE EQUIPMENT AT THE CTF

Personal protective equipment, to include full-face respirators with cartridges, nitrile and latex gloves, protective clothing (e.g., tyvek, saranex, and booties), goggles, safety glasses, safety boots, and so forth, are maintained in the change rooms.

First Aid and Medical Supplies

Agent first-aid kits are located throughout the facility in storage rooms. Any casualties because of an incident would be transported to the Edgewood Area U.S. Army Health Clinic or a civilian medical facility.

Emergency Decontamination Equipment

Emergency eyewash and shower stations are located in various areas throughout the building. Shower stations are located in the hallway (Room [redacted]), the locker room, and the tank neutralization room. There is an eyewash station in the hallway and in the tank neutralization room. Decontamination support/facilities are also available at the Edgewood Area U.S. Army Health Clinic and through the 20th CBRNE Command).

V.b. Spill Control Equipment at the Chemical Transfer Facility

Spill control equipment stations are located in the storage rooms and in several laboratories, including rooms [redacted]. They include at a minimum:

- Overpack containers—Metal drums capable of holding materials and over packing the munitions
- Plastic bags capable of holding spill cleanup materials.
- Booms—Synthetic, capable of absorbing liquids
- Shovel—Normal shovels capable of scooping up spill cleanup materials
- Broom—Normal brooms capable of sweeping spill cleanup material
- Vermiculite—Normal absorbent material capable of absorbing liquid spill

V.c. Fire Control Equipment at the Chemical Transfer Facility

Fire extinguishers (various, rated either 4-A:60-B:C or 6-A:120-B:C) are available throughout the CTF. There are also fresh water stations in the hallways available to help control smaller fires.

V.d. Emergency Supplies and Equipment Elsewhere on the Installation

CTF personnel can communicate with other APG personnel via telephones.

Supplies

Additional sorbent and drums are available from the DPW treatment, storage, and disposal facility (TSDF). Additional supplies, as needed, can be obtained through other organizations supporting the garrison.

Pre-stocked supplies located in DPW facilities include bales of straw, bags of speedy dry clay absorbent, bales of sorbent pads (50 per bale - 4 feet (ft) by 4 ft), and bales of sorbent pads (50 per bale - 18 inches by 18 inches).

Equipment

Numerous types of equipment are available on the installation for use in spill operations. If other equipment is needed, it will be obtained from DPW and other organizations that support the garrison.

V.e. Post-Emergency Equipment Decontamination/Maintenance

During an emergency response situation, no additional wastes will be accepted at the CTF until on-scene emergency equipment (e.g., fire extinguishers, spill cleanup material, containers, and tools) have been decontaminated or replaced and inspected by the EC.

The DPW will notify the MDE when emergency equipment has been decontaminated or repaired/replaced prior to resuming operations.

VI. STORAGE/DISPOSAL OF RECOVERED MATERIAL

All recovered waste containers will be stored in accordance with permit requirements at the CTF or at the TSDF until disposal. MDE will be notified immediately if a storage limit is exceeded because of the additional waste. Following any emergency, hazardous wastes will not be stored in the affected area until the EC certifies the facility is clean and ready for operations as a treatment and storage facility.

VII. COORDINATION AGREEMENTS FOR EMERGENCY SERVICES

The IC or a designated individual will control all initial emergency response actions and any follow-up actions. All records of contracts and/or memoranda of understanding (MOUs)/support are maintained as part of the installation emergency/contingency plan. Note: The CTF is a secured building at all times and cannot be entered easily without authorized operational personnel.

VII.a. On-Base Arrangements

DEVCOM CBC will keep the APG DO informed of

- The general layout of the facility and equipment available to fight fires and to clean up spills;
- The telephone number of CTF personnel points of contact for nonduty-hour emergencies; and
- Copies and revisions of this contingency plan.

The DPW-ED coordinates interaction with MDE, EPA, and local officials regarding all emergencies and activation of the contingency plan. The EC is responsible for coordination with the DEVCOM CBC RMO.

The Kirk U.S. Army Edgewood Area Health Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO's Fire Division can provide ambulance support

from 7:00 a.m. until 11:00 p.m., Monday through Friday. The ambulance is equipped with a communication system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

VII.b. Off-Base Arrangements

In addition to on-base capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazard potential associated with certain base activities and exercises discretion in using MAA resources, especially for military/chemical incidents. In an emergency in the Aberdeen Area, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen Area Fire Division can assist its Edgewood Area counterpart in the event of an emergency at the TSDF.

There is also a MOU between APG and Harford County entitled "Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland."

A chemical casualty contingency team is maintained at EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care.

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the MD Institute for Emergency Medical Services Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

VIII. EVACUATION PLAN

VIII.a. Criteria for Determining Evacuation Option

The EC and IC may choose to evacuate the area whenever the hazards of toxic gas, fire, or explosive materials are endangering personnel, particularly those without protective gear.

VIII.b. Signals for Evacuation

The signals will be given verbally. If possible, the alarm will also be activated. CTF personnel will exit the facility as quickly and safely as possible, and the EC will take a head count at the rally point. If required, other base personnel will be notified by telephone.

VIII.c. Evacuation Routes

If the need to evacuate the facility arises, personnel will rally at the Security Guard assembly location position, outside of the CTF compound. If the Fire Division personnel are on the scene, the senior fire department personnel will give directions.

IX. REQUIRED REPORTS

The EC (or alternate) will note in the operation log of the facility, the time, date, and details of any incident that required implementation of the Contingency Plan. The conditions that caused the emergency and the resulting actions will also be included in this operational log entry.

The EC will provide the IC and DPW with the necessary information to make timely reports to MDE. These IC/DPW reports will include a verbal (telephone) report within 24 hours, and a written report within 5 days or a written report within 15 days, if MDE grants APG an extension. Written reports will include the information listed below.

- Name, address, and telephone number of the owner or operator of the facility;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (for example, fire, explosion);
- Name and quantity of materials involved;
- The` extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, when applicable;
- Estimated quantity and disposition of material recovered from the incident; and
- Name of person who first reported the incident.

This report is submitted to:

Maryland Department of the Environment
Land and Materials Administration
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

X. AMENDMENTS TO THE PLAN

As required by COMAR 26.13.05.04D and E, the contingency plan must be reviewed and immediately amended, if necessary, whenever:

- The facility permit is revised;
- The plan fails in an emergency;
- Major changes occur in facility design, construction, operation, and maintenance, in such a way that emergency response operations are affected;
- The list of ECs changes; or
- The list of emergency equipment changes.

EVACUATION PLANS

Floor plan and aerial photograph depicting CTF layout and evacuation routes removed from General Contingency Plan for operational security.

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PART VI

SPECIAL CONDITIONS FOR STORAGE OF HAZARDOUS WASTE AT THE N-FIELD STORAGE FACILITY

The N-Field Storage Facility is used to store suspect chemical, smoke, and biological munitions that military explosive ordnance disposal (EOD) personnel consider safe for pretreatment storage. The facility is composed of an earth-covered, steel-arch igloo with six bays and three portable magazines. The N-Field Igloo is used to store recovered munitions/weapons suspected and/or confirmed to contain chemical warfare material (CWM), munitions with unknown constituents, suspect biological munitions, and munitions in the Materiel Assessment Review Board (MARB) characterization process, and other potentially lethal toxic industrial chemicals such as phosgene. The portable magazines are used to store munitions that contain smoke compositions (e.g., white phosphorus, sulfur-trioxide chlorosulfonic acid solution [FS], and titanium tetrachloride [FM]) and/or non-lethal chemical simulants such as ethylene glycol.

Generally, munitions that contain materials of high toxicity and volatility are stored in the earth-covered igloo as this building is outfitted with specialized filtration and air monitoring equipment. Stored munitions must not exceed the facility's assigned chemical and explosives safety siting criteria and storage limits assigned by the Department of Defense Explosives Safety Board (DDESB). Explosive safety limits are posted at the storage facility.

Before placing munitions in the N-Field Storage Facility, military EOD personnel assess these items' marking, appearance, size, weight, shape, and fuzing in the field. Using expert knowledge, portable radiography, and technical references, they ascertain the explosive configuration of each munition and its potential to contain chemical or biological payloads. If the munitions are determined to be safe for storage (from an explosives standpoint) and are suspected to contain a chemical or biological fill, they are double-wrapped in plastic; placed in sealable, steel containers; and put into the N-Field Igloo awaiting further characterization by the ARMY MARB.

The MARB, whose members include explosive ordnance subject matter experts, characterizes and further evaluates the munitions while they are in storage. The MARB is composed of subject-matter experts with years of experience in explosive ordnance disposal, the historical development and testing of chemical ordnance, munitions radiography, chemistry, and neutron spectroscopy. The mission of the MARB is to make decisions for the ARMY on the disposition of recovered chemical munitions. The MARB bases their decisions on historical information, information gathered in the field, and provided non-intrusive characterization data, (i.e., neutron spectroscopy systems and digital radiography-computerized tomography or cyclotron radiography results) obtain from the 20th Chemical Biological, Radiological, Nuclear, and Explosive (CBRNE) Command. Neutron spectroscopy is a nonintrusive method used to analyze recovered munitions without opening or disturbing them. This portable identification technology allows for the safe handling and analysis of munitions with unknown contents.

Neutron spectroscopy uses three components to identify elements inside munitions: (1) a neutron source or generator: (2) a gamma ray detector: and (3) some type of signal processor. The

neutron source is placed near the item being analyzed. As the neutrons penetrate and interact with the munitions, gamma rays (similar to X-rays) are produced. A gamma ray detector then monitors the energies and intensities of the gamma rays. A signal processor/analyzer receives electrical impulses from the gamma ray detector. Information received by the analyzer is sorted and converted into an energy spectrum. Different elements produce characteristic energy spectra. Specialized software compares this data to a spectral library to identify the chemical fill. Physicists also review the spectra and compare the ratios of specific elements to validate the software findings.

The decision of the MARB is documented in a memorandum addressed to the APG Garrison. A summary of the MARB evaluation results is documented on a Munitions Assessment Data Sheet (MADS). Both sets of documents are posted on a controlled access website for viewing by authorized parties. APG can provide copies of these reports and MADS to regulatory authorities on request. APG determines the subsequent treatment of the recovered munitions based on the recommendations of the MARB and requirements of applicable regulations and permits. For example, explosively configured munitions with chemical fills would be candidates for treatment in the Explosive Destruction Systems (EDS) (see Section VIII). Munitions determined to not contain CWM, biological agents, or lethal industrial chemical fills (e.g., acidic smoke compositions, white phosphorus, and testing surrogates such as ethylene glycol) are typically open detonated (OD) at J-Field.

The N-Field Storage Facility is subject to regulations and requirements imposed by organizations besides the Maryland Department of the Environment (MDE). These organizations include the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction (CWC); the U.S Department of the Army; and the U.S. Department of Defense (DoD).

Munitions placed in the N-Field Storage Facility are typically the result of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal actions or are recovered incidental to range clearance or construction activities in APG's Edgewood Area. Nonetheless, based on the Resource Conservation and Recovery Act (RCRA)-permitted status of the N-Field storage facility and the permitted status of receiving on-site treatment units (i.e., the EDS, MAPS, and J-Field open detonation unit) munitions stored at N-Field remain in the RCRA regulatory system from that point forward.

The N-Field Storage Facility infrequently receives suspect munitions from off-site sources. These are items temporarily stored at the facility that are identified for RCRA treatability studies, forensic evaluation, or RCRA treatment in one of APG's authorized, permitted facilities (i.e., CTF, MAPS, SRF, or EDS). Any planned receipt of off-site munitions sample or wastes is pre-coordinated with and approved by MDE. The characterization procedures used are essentially the same as those described above. The major difference is that non -intrusive analysis (i.e., neutron spectroscopy for fill identification) and detailed radiography are normally completed off site at the point of generation or recovery to ensure safe military transport of such items to APG.

For the purposes of this Part, the Permittee is APG as the facility owner and, as operator, the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) Chemical Biological Applications and Risk Reduction (CBARR) unit.

VI.A. PERMITTED STORAGE AREAS

The Permittee may store recovered munitions for periods longer than 90 days in the N-Field Igloo and portable magazines.

VI.A.1. N-Field Igloo.

The N-Field Igloo is an earth-covered steel-arch ammunition storage magazine. It has six storage bays, each with approximately 78 square feet (ft) of floor space. Each bay has double casement-type steel doors with openings of approximately 30 in. wide by 80 in. high. Each bay is equipped with explosion-proof lights, and the entire igloo is lightning protected. The magazine's front and rear walls and individual bay floors are constructed of reinforced concrete.

The Permittee may add climate control capability to the N-Field Igloo to facilitate the subsequent processing of stored munitions. In accordance with Permit Condition I.G.11, the Permittee shall continue to keep the Department informed of changes to the permitted facility and provide additional information as requested.

The Igloo is used to store suspect chemical munitions before characterization. After characterization, munitions believed to contain chemical agents as defined in Department of the Army regulations remain in the N-Field Igloo. In addition, the N-Field Igloo may be used to store munitions with industrial chemical, biological, or other fills. In general, munitions known to contain smoke compositions (e.g., white phosphorus; sulfur-trioxide chlorosulfonic acid solution, also known as FS; titanium tetrachloride, also known as FM) and low toxicity riot control agents (e.g., tear gas) are not stored in the N-Field Igloo except under the circumstances described in Permit Condition VI.D.2

VI.A.2. N-Field Portable Magazines.

The N-Field Portable Magazines are nonstandard, above-ground Type II portable ammunition magazines constructed of hot-rolled steel. The magazine interior walls, ceilings, and doors are lined with hardwood. The floor of one of the three portable magazines is lined with hardwood, while the floors of the remaining two magazines are lined with a synthetic flooring system of equivalent mass. All interior surfaces are finished with plywood to provide a uniform nonsparking surface. The exterior surfaces of the magazines are steel plate material. Each magazine is 7 ft high by 7 ft wide by 22 ft long and has approximately 154 square ft of floor space. The approximate weight of each magazine is 20,890 lb.

The N-Field Portable Magazines are normally used to store munitions containing known smoke compositions (e.g., white phosphorus, FS, FM) and other non-chemical agent fills of relatively low toxicity. One of these magazines may be used to store limited quantities of bulk explosives.

VI.A.3. Net Explosive Weight and Hazard Class Storage Limits.

VI.A.3.a. The N-Field Igloo. The Permittee may store the following amounts of Hazard Class 1 explosive wastes in the storage bays in the N-Field Igloo:

Bays 1, 2, 3, 4, 5, and 6 – up to 490 lb net explosive weight of Hazard Division 1.2.1 munitions in each of these bays with no individual munition exceeding a net explosive weight of 24.5 lb.

VI.A.3.b. The N-Field Portable Magazines. The Permittee may store the following amounts of Hazard Class 1 explosive wastes in these buildings:

i. Portable Magazines 1 and 2 - The Permittee may store up to 343 lb net explosive weight of Hazard Division 1.2.1 with no individual munition exceeding a net explosive weight of 2.75 lb in each of these Buildings.

ii. Portable Magazine 3 – The Permittee may store up to 100 lb of Hazard Division 1.1 bulk explosives in this building.

VI.A.3.c. Conformance with Limits Set by the Department of Defense Explosives Safety Board (DDESB). If the DDESB sets limits for the N-Field Igloo and Portable Magazines that are more restrictive than the limits specified in Permit Conditions VI.A.3.a or VI.A.3.b, the Permittee shall comply with the more restrictive DDESB limits until this permit is modified to incorporate these limits.

VI.A.4. Ventilation, Filtration and Monitoring.

VI.A.4.a. Forced ventilation. The Permittee shall maintain a chemical, biological, radiological (CBR) filter system (consisting of a prefilter, high efficiency particulate air (HEPA) filter and a charcoal filter) or equivalent, and an air monitoring system, within the bays of the N-Field Igloo whenever CWM may be present.

VI.A.4.b. The Permittee shall ensure that the air monitoring system for the N-Field Igloo is challenged and calibrated once each work day (i.e., Monday through Friday, excluding holidays) using appropriate chemical agent standard material when chemical agent may be present. The air monitoring system in the N-Field Igloo shall be capable of detecting airborne concentrations of chemical agents at less than the Department of the Army's allowable exposure levels with a confidence level of greater than 95 percent. The monitoring system shall provide sample analysis results within 30 minutes.

VI.A.4.c. The N-Field Igloo shall have an emergency generator to power the ventilation, the CBR filter system, and the monitoring system in the event of power failure.

VI.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

VI.B.1. The Permittee shall characterize munitions using any combination of DoD technical literature, intrusive and nonintrusive data, other forms of acceptable generator knowledge, or sampling and analysis. The Permittee may use evaluations for suspect CWM items prepared by the MARB or successor organizations to characterize and decide on the disposition of munitions.

VI.B.2. The Permittee may store the hazardous wastes listed in Table VI-1 in containers in the storage locations listed in Permit Condition VI.A, subject to the terms of this permit.

VI.B.3. The Permittee shall not store hazardous waste that is not identified in Table VI-1 at the N-Field Storage Facility.

VI.B.4. The Permittee shall not store hazardous wastes K991-K995 or K997-K999 in the N-Field Portable Magazines.

VI.B.5. The Permittee may receive items that are regulated as hazardous waste from offsite at the N-Field Storage Facility only if the waste items are suspect CWM, or highly toxic industrial chemicals, and:

- The items were discovered within the State of Maryland;
- The Permittee provides the Department with a fact sheet describing the items, where they were found, the waste codes known or suspected to be applicable to the items, possible hazards associated with the items, and the expected benefit of bringing the items to the N-Field Storage Facility; and
- The Permittee receives approval from the Department.

VI.C. STORAGE IN CONTAINERS

VI.C.1. Condition of Containers. The Permittee shall overpack all waste munitions. Munitions that are not in good condition (e.g., severe rusting, apparent structural defects) shall have a double overpack that may consist of a combination of impermeable wrapping and a rigid outer container, or two rigid containers.

VI.C.2. Compatibility of Wastes with Containers. The Permittee shall ensure that the ability of the container to contain the waste is not impaired as required by COMAR 26.13.05.09C.

VI.C.3 Management of Containers.

VI.C.3.a. All N-Field Storage Buildings.

VI.C.3.a.i. The Permittee shall ensure that a container holding hazardous waste is always kept closed during storage, except when it is necessary to add or remove waste. (COMAR 26.13.05.09D.)

VI.C.3.a.ii. The Permittee may not open, handle, or store a container holding hazardous waste in a manner which may rupture the container or cause it to leak. (COMAR 26.13.05.09D.)

container holding hazardous waste shall always be closed during storage, except when it is
necessary to add or remove waste, and the container may not be opened, handled, or stored in a manner which may rupture the
container or cause it to leak.

VI.C.3.a.ii. Munitions that are in the characterization process shall be managed in accordance with procedures applicable to the most hazardous of the potential fills, as determined by the circumstances associated with the discovery of the munition (e.g., recovery location, historical firing records for the site, etc.), design characteristics, and any other relevant information.

VI.C.3.a.iii. The Permittee shall store all munitions in overpacks and either set them on pallets or place them in storage racks. Drip pans shall be placed under all storage racks where liquid-containing munitions are stored.

VI.C.3.a.iv. The Permittee shall not stack containers.

VI.C.3.b. The N-Field Igloo. In lieu of being held to a specific aisle space requirement, the Permittee shall maintain:

VI.C.3.b.i. A network of video surveillance cameras that allows real-time viewing of containers in storage from all sides;

VI.C.3.b.ii. An air monitoring system in compliance with condition VI.A.4 of this Permit that is always operational;

VI.C.3.b.iii. Containers in an arrangement that ensures they are readily accessible for air sampling and inspection;

VI.C.3.b.iv. Sufficient aisle space to allow the unobstructed movement of personnel wearing personnel protective equipment to physically move or handle a munition as necessary to contain and decontaminate spills or releases; and

VI.C.3.b.v. An inventory system that allows emergency responders to act in response to fires, explosions, or releases of hazardous waste or constituents with accurate knowledge of the location and characteristics of waste handled. The inventory system shall consist of inventory planographs cross-referenced to a container inventory that provides information on each munition, suspected fill, and known or suspected energetic components. All outer containers shall be labeled with munition

inventory numbers that match the planograph location system. Inventory numbers shall be large enough to be read from a distance of approximately 6 feet to allow emergency responders with normal vision to identify each stored munition from just inside the doorway of each storage bay. The planograph/container inventory shall be maintained at the CTF and available at all times to N-Field contingency responders. The Permittee may use a different inventory system if it is acceptable to the Department.

VI.C.3.c. The N-Field Portable Magazines. The Permittee shall allow sufficient aisle space to inspect containers in accordance with COMAR 26.13.05.02I(1).

VI.C.4 Containment Systems.

VI.C.4.a. All N-Field Storage Buildings.

VI.C.4.a.i. The Permittee shall overpack all waste munitions to provide secondary containment. Outer overpacks may include prop-charge cans, multiple round containers, 30- and 55-gallon drums, or equivalent rigid containers.

VI.C.4.a.ii. All overpacks shall be placed in storage racks or on pallets. Drip pans shall be placed under all storage racks containing liquid wastes.

VI.C.4.a.iii. If an overpack is not in good condition or begins to leak, the Permittee shall transfer the munition to an overpack that is in good condition; otherwise render the munition safe for continued storage; or treat the munition in accordance with the requirements of this permit, other applicable Aberdeen Proving Ground Controlled Hazardous Substances Permits, or Code of Maryland Interim Status Standards for Owners and Operators of Hazardous Waste Management Facilities.

VI.C.4.b The N-Field Igloo. The Permittee shall not place containers directly on the concrete floor.

VI.C.4.c. The N-Field Portable Magazines.

VI.C.4.c.i. The Permittee shall ensure that an appropriate sealant compatible with stored wastes has been applied to the floor and 6 in. up the walls. The doorways of these buildings shall be equipped with a 6-in. high threshold, also coated with an appropriate sealant, to provide additional containment.

VI.C.4.c.ii. The Permittee shall repair or reseal the containment surfaces as necessary to ensure that the containment system has a base underlying the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated rainfall until the collected material is detected and removed (COMAR 26.13.05.09H (1)(a)).

VI.C.4.c.iii. The Permittee shall remove any spilled or leaked waste from the containment systems in a timely manner, in accordance with COMAR 26.13.05.09H(3).

VI.D. SPECIAL REQUIREMENTS

VI.D.1. Ignitable or Reactive Wastes. The Permittee shall take the following precautions to prevent ignition or reaction of ignitable or reactive wastes:

VI.D.1.a. There shall be no sources of ignition at the N-Field storage facility.

VI.D.1.b. There shall be a fire extinguisher located on each side of the N-Field Igloo.

VI.D.1.c. There shall be a "No Smoking" sign conspicuously displayed at the N-Field Storage Facility.

VI.D.1.d. All N-Field Storage Buildings shall be equipped with lightning protection systems.

VI.D.2. Incompatible Wastes.

VI.D.2.a. Once waste munitions have been fully characterized, the Permittee shall segregate smoke munitions from munitions containing chemical agents.

VI.D.2.b. The Permittee shall comply with the requirements of COMAR 26.13.05.09G, Special Requirements for Incompatible Wastes.

VI.D.2.c. Munitions believed to contain mixtures of smoke and chemical agent fills shall be managed in accordance with procedures applicable to the most hazardous of the fills.

VI.E. RECORDKEEPING AND REPORTING

VI.E.1. The Permittee shall maintain the N-Field Storage Facility operating record required by Permit Condition II.H until closure. All other records required by this permit shall be maintained for a minimum of three years. The retention period of all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

VI.E.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention and disposition of records.

VI.E.3. The Permittee shall keep a copy of this part of the permit at the CTF, and the work location of the portable magazines supervisor. Table VI-2 summarizes the permit-required documents and records for the N-Field Storage Facility and their location.

VI.F. INSPECTION REQUIREMENTS

VI.F.1. The Permittee shall inspect the N-Field Igloo at least weekly as required by COMAR 26.13.05.09E. Weekly inspections may be performed from the CTF using remote video surveillance cameras. The results of weekly inspections shall be recorded in a logbook kept at the CTF. At a minimum the logbook entry shall include the following information: date, time, weather conditions, signs of leaks or deterioration of containers, and any unusual observations.

VI.F.2. The Permittee shall enter and inspect the N-Field Igloo at least monthly using the environmental inspection form included as Figure VI-1. The environmental inspection form may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with the requirements of COMAR 26.13.07.

VI.F.3. The Permittee shall inspect the N-Field Portable Magazines at least weekly when waste munitions are present. When waste munitions are not present, the Permittee may implement a monthly inspection schedule with up to 30 calendar days elapsing between inspections. The Permittee shall return to a weekly inspection schedule upon placement of a waste munition in any of the magazines. Weekly/monthly inspections shall be conducted using the Inspection Log included in this permit as Figure VI-2.

VI.F.4. The Inspection Log may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with the requirements of COMAR 26.13.07.

VI.G. CONTINGENCY PLAN

VI.G.1. The most recent version of the following N-Field igloo contingency plan documents shall be available at the CTF at all times:

- The N-Field Igloo RCRA Site-Specific Contingency Plan;
- APG's Emergency Response Plan, Chapter 1;
- APG's Emergency Response Plan, Chapter 5 (Chemical Accident or Incident Response and Assistance [CAIRA] Plan); and
- APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan.

Note: Permit Attachment VI-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency located at the CTF.

VI.G.2. The most recent version of the following N-Field portable magazine contingency plan documents shall be available at all times at CBARR Filters and Hazardous Materials Team (FHMT) Office:

- The N-Field Portable Magazines RCRA Site-Specific Contingency Plan;
- APG's Emergency Response Plan, Chapter 1;

- APG's Emergency Response Plan, Chapter 5 (Chemical Accident or Incident Response and Assistance [CAIRA] Plan); and
- APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan.

Note: Permit Attachment VI-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency located at the CBARR FHMT Office.

VI.G.3. The N-Field Storage Facility Site-Specific Contingency Plans shall be reviewed and immediately amended, if necessary, as required by COMAR 26.13.05.04E. The plan may be amended for the following reasons by notifying the Department.

- To incorporate administrative and informational changes,
- To upgrade, relocate, or replace emergency equipment listed in the contingency plan with functionally equivalent emergency equipment, or
- To change the name, telephone number, or address of the Emergency Coordinator, alternate Emergency Coordinator, or other persons, organizations, or agencies identified in the plan.

VI.G.4. The N-Field Storage Facility Emergency Coordinators shall meet the requirements listed in COMAR 26.13.05.04F as these requirements relate to the N-Field Storage Facility.

VI.G.5. The Permittee shall immediately carry out the provisions of the N-Field Storage Facility Site-Specific Contingency Plans and follow emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents that threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2)).

VI.H. CLOSURE PLAN

VI.H.1. At closure, the Permittee shall remove all hazardous waste and hazardous waste residues from the storage areas, and close the facility in accordance with the approved detailed closure plan. Permit Attachment VI-1is a general closure plan showing the minimum topics to be included in the detailed closure plan.

VI.H.2. At least 90 days prior to the intended beginning of closure, the Permittee shall submit a detailed closure plan including a sampling and analysis plan to the Department for review and approval.

VI.H.3. The detailed closure plan required by Permit Condition VI.H.2 shall include at least the following elements:

- The steps necessary to perform partial and/or final closure of the facility at any point during its active life,
- A description of how each N-Field container storage unit will be closed,

- A description of how final closure of the N-Field Storage Facility will be conducted, identifying the maximum extent of operations during the active life of the facility,
- An estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the facility and a description of the methods used to remove, transport, treat, store or dispose of all hazardous wastes,
- A detailed description of the steps needed to remove or decontaminate all hazardous wastes residues and contaminated containment system components, equipment, structures and soils,
- A description of methods employed to decontaminate structures and equipment that will remain on site after closure,
- Identification of decontamination agents to be used, including chemical and physical specifications of the agents,
- Specific safety measures to be taken to control spread of contamination during the closure activity and to protect human health and the environment,
- A detailed description of other activities necessary during the closure period,
- A schedule for closure of each N-Field building and for the final closure of the N-Field Storage Facility, and
- A description of how all hazardous waste and hazardous waste residues will be removed from the containment systems.
- VI.H.4. The sampling and analysis plan required by Permit Condition VI.H.2 shall, at a minimum, include the following components to verify the effectiveness of decontamination activities:
- A listing and justification of sampling and analytical methods employed. The Permittee shall select and propose these methods in accordance with the EPA publication Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, latest edition), as appropriate for the constituent in question, or equivalent methods acceptable to the Department,
- A description of quality assurance and quality control procedures associated with the selected sampling and analysis methods,
- A definition and justification of a Target Compound List (TCL) for which the verification samples will be analyzed,
- Identification and justification of a threshold level for each compound on the TCL list that determines a “clean” or “contaminated” condition, and
- Number and location of samples, and media or substances to be sampled.

VI.H.5. The Permittee shall decontaminate the storage areas and any equipment that remains onsite after closure in accordance with the detailed closure plan submitted by the Permittee and approved by the Department in accordance with Permit Conditions VI.H.2 through VI.H.4.

VI.H.6. Within 60 days of the completion of the closure activities, the Permittee shall submit a:

VI.H.6.a. closure report containing results of the activities conducted in compliance with each component of the approved closure plan, including, but not limited to:

i. the verification results demonstrating a clean closure of N-Field storage buildings (i.e., demonstrating that the closure performance standard of COMAR 26.13.05.07B has been achieved), and

ii. a certification of closure as required by COMAR 26.13.05.07F, or

VI.H.6.b. a written request to extend the 60 day deadline including the reason for the request and a proposed timeline for completion.

VI.H.7. If the Permittee is unable to demonstrate a clean closure in accordance with Permit Condition VI.H.6, the Permittee shall inform the Department within 60 days of the completion of the closure activities, and propose measures to achieve closure performance standards, such as submission of a post-closure care plan for the Department's review and approval.

(Permit continues on Page VI-13.)

VI.I. TABLES AND FIGURES

Table VI-1. Permitted Waste Codes for the N-Field Storage Facility

Hazardous Waste Code	Description
D001	Wastes exhibiting the Characteristic of Ignitability
D002	Wastes exhibiting the Characteristic of Corrosivity
D003	Wastes exhibiting the Characteristic of Reactivity
D004-D043	Wastes exhibiting the Characteristic of Toxicity
F001-F015, F019, F024, F027	Hazardous wastes from non-specific sources
K044-K047	Hazardous wastes from specific sources related to explosives
K991-K999	Chemical surety waste materials listed under COMAR 26.13.02.17
MD02	Reaction products and residues resulting from decontamination of specific compounds (military), as listed under COMAR 26.13.02.18
MD03	Residues from treatment or decontamination of wastes K997 and K999, as listed under COMAR 26.13.02.18
MX01, M001, MT01	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyl (PCB) listed under COMAR 26.13.02.19D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species of the same, listed under COMAR 26.13.02.19E, and identified as *acute* hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products, listed under COMAR 26.13.02.19G, and identified as toxic, ignitable, corrosive or reactive wastes

Table VI-2. Permit-Required Documents/Records for the N-Field Storage Facility*

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Emergency Response Plan, Chapter 1	26.13.05.04
Emergency Response Plan, Chapter 5 (CAIRA Plan)	26.13.05.04
Operating Record	26.13.05.05D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and VI of this Permit	26.13.07.05A and C

*Documents/records for the N-Field Igloo shall be located at the CTF and documents for the N-Field Portable Magazines shall be available at the CBARR Filters and Hazardous Materials Team Office.

(Permit continues on page VI-15)

Name of Inspector (Print): _____

Date and Time: _____

Weather Conditions: _____

ITEM	OBSERVATIONS (Circle)*	COMMENTS/ACTIONS
Evidence of leaks, spills, vapor contamination	Not observed Observed	
Deterioration of containers	Not observed Observed	
Hazardous waste/contents labels	Affixed on all containers Not affixed on all containers	
Secondary containment	No deterioration Deterioration	
Fire Extinguishers	Sufficient pressure Insufficient pressure	
Ventilation	Operational Not Operational	
Locks on bay doors	Operational Not operational	
Spill cleanup equipment (vermiculite, spill pillows, broom, overpack container)	Present and adequate Not present or not adequate	
Signs	Present and in good condition Not present or deteriorating	

* If problems are observed, note the location in the last column.

Figure VI-1. Monthly Environmental Inspection Form: N-Field Igloo

Figure VI-2. Weekly/Monthly[1] Inspection Form for the N-Field Portable Magazines

Inspection Log

	Activity	Building/Room		Date		Signature of Inspector (Site Manager) Circle One: Primary Alternate	
	Weekly/Monthly Inspection of Facility	SAT	UNSAT	NA	NI	Problems Observed and Location	Corrective Action (Including date of action)
Facility Integrity	Security of Fence						
	Security of Gates						
	Warning and Identification Signs						
	"No Smoking" Signs						
	No Evidence of Damage or Tampering						
Storage Conditions	Protection from Precipitation Run-On						
	Spill Containment						
	Security of Doors						
	Condition of Concrete/Epoxy						
	No Evidence of Leaks or Spills (Drums/ Containers)						
	Integrity/Condition of Containers						
	Container Markings and Labels						
	Up-to-Date Inventory of HW in Storage						
Emergency Equipment	Fire Extinguisher Inspection						
	Alarms/Communication						
	Control Equipment						

Legend: SAT = Satisfactory UNSAT = Unsatisfactory NA = Not Applicable NI = Not Inspected

[1]Inspections are normally performed weekly, but can change to a monthly schedule during periods of 60 consecutive days or more of documented disuse.

Permit Attachment VI-1

Conceptual Closure Plan for the N-Field Storage Facility Igloo and Portable Magazines

CONCEPTUAL CLOSURE PLAN FOR THE N-FIELD STORAGE FACILITY IGLOO AND PORTABLE MAGAZINES

I. General Information

This conceptual closure plan for the N-Field Storage Facility (igloo and portable magazines) is preliminary and will be revised to reflect site conditions and appropriate regulatory standards at the actual time of closure. The detailed closure plan will be submitted to the Maryland Department of the Environment (MDE) before final closure begins. Aberdeen Proving Ground (APG) and the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) will not proceed with the final closure of any of these facilities in the absence of written confirmation from the MDE that the closure plan is approved or conditionally approved.

This plan addresses final closure of the facility. APG and DEVCOM CBC will keep the MDE informed of the U.S. Army's (Army's) plans for the continued use of the N-Field Storage Facility as they continue to evolve. At some point, it is possible that all three of the N-Field portable magazines will not be needed. If that occurs, APG may request a partial closure. In this case, APG would prepare a revised closure plan addressing the partial closure of the N-Field Storage Facility.

II. Closure Plan

II.a. Closure Performance Standard

When the N-Field Storage Facility (the igloo and the magazines) is closed, all waste will be suitably packaged and transported to appropriate, permitted treatment and disposal facilities. The N-Field Storage Facility will be "clean closed" in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere; and
- Complies with *Code of Maryland Regulations* (COMAR) closure requirements for containers and tank systems.

Closure of the N-Field Storage Facility will be accomplished by removing or decontaminating all equipment, structures, soils, or other materials that contain, or are contaminated with hazardous waste or hazardous waste constituents exceeding clean closure target levels. For chemical agent-contaminated materials and structures, clean closure target levels will be established using the most recent versions of:

- The Department of the Army Pamphlet (DAPAM) 395-61, "The Army Toxic Chemical Agent Safety Program," and DEVCOM CBC decontamination procedures; and
- US ARMY Public Health Center Chemical Agent Health-Based Standards for Air, Soil, and Groundwater.

For other hazardous constituents, APG and the DEVCOM CBC will propose clean closure target levels from a target compound list. Clean closure target levels will be based on appropriate regulatory and/or risk-based concentrations (RBCs). Sampling and analysis will be performed in accordance with the U.S. Environmental Protection Agency's (EPA's) SW-846, most recent edition. If hazardous constituents are detected outside the building, a plan to further define the extent of contamination and remedial action will be submitted to the MDE. All clean closure target levels, target compound lists, sampling and analysis strategies, and so forth, will have to be approved by the MDE.

Spent wash and rinse solutions and residues generated as part of the decontamination procedures will be treated and disposed of at a permitted hazardous waste management facility, as required. Rinsate from highly contaminated areas will be composited separately for analysis to avoid diluting the waste. Any building components, appurtenances, etc., that cannot be decontaminated will be removed and disposed of in an approved manner.

Upon completion of these procedures, remaining building components that are not contaminated may be refurbished and rededicated to other purposes or demolished with the resulting debris disposed of in accordance COMAR 26.13.02 and the latest versions of DA PAM 385-61 and Army PHC Chemical Agent Health Based Standards. Additionally, instrumentation and other hardware that is uncontaminated (or that can be decontaminated) will be removed and salvaged in accordance with procedures described in the latest version of DAPAM 385-61.

II.b. <u>Partial and Final Closure Activities</u>

All of the closure activities discussed in this section are final closure activities. As discussed above, APG will prepare a revised closure plan if it decides that a partial closure is appropriate. The entire N-Field Storage Facility will remain open until the entire installation closes, the installation's mission changes such that a waste munitions storage facility is no longer needed, or alternative storage is permitted elsewhere on the installation. Final closure activities are discussed below in Section VI, Closure Procedures.

III. Maximum Waste Inventory

The maximum waste inventory for the N-Field igloo is approximately 2,940 pounds net explosive weight. This estimate is derived by assuming that each of the six igloo storage bays is filled to capacity. The maximum waste inventory for the N-Field portable magazines is 786 pounds net explosive weight for the three magazines combined, assuming they are filled to capacity. Consequently, the maximum waste inventory for the entire N-Field Storage Facility is 3,726 pounds net explosive weight.

IV. Schedule for Closure

Table 1 presents a schedule for closure of the N-Field Storage Facility based on the procedures below.

V. Closure Timeline

V.a. Time Allowed for Closure

As shown on the closure schedule for the N-Field Storage Facility (Table 1), all remaining hazardous waste will be removed from the N-Field Storage Facility within the required 90 days after initiation of closure. In addition, all closure activities will be completed within the required 180 days after initiation of closure. APG does not expect to request an extension of time for closure of the N-Field Facility.

Table 1. Schedule for Closure of the N-Field Storage Facility

Description of closure step	Number of days before/after final volume of waste is received
Notify the Maryland Department of the Environment (MDE) of intent to close	45 days before
Receive final volume of waste	0
Begin closure	30 days after
Remove inventory to another permitted facility	90 days after
Establish a sampling protocol for each area.	90 days after
Remove uncontaminated instrumentation.	120 days after
Disassemble all equipment and associated piping, valves, pumps, air pollution control equipment, etc.	130 days after
Decontaminate to approved screening level of contamination	140 days after
Transport remaining wastes to appropriate solid or hazardous waste treatment facilities	150 days after
Obtain U.S. Army certification that closure is in accordance with the closure plan	165 days after
Obtain independent registered professional engineer certification that closure is performed in accordance with closure plan	180 days after

V.b. Extension for Closure Time

APG does not expect to request an extension of time for closure of the N-Field Storage Facility. However, should it be necessary, a revised timeline for closure will be submitted to the MDE for approval**.**

VI. Closure Procedures

VI.a. Inventory, Disposal, Removal, or Decontamination of Equipment

Structures, equipment, and soils near the N-Field igloo and portable magazines will be tested prior to closure to determine the presence of chemical warfare material (CWM) or any constituents of the target compound list (TCL). If CWM or any constituents of the TCL are detected above regulatory limits or RBCs, a plan to define the extent of contamination and perform remedial action will be submitted to the MDE for approval prior to closure.

VI.b. Hazardous Waste Inventory

The N-Field Storage Facility will not be closed until a suitable disposition for all accumulated inventory is completed. APG currently has two permitted, enclosed technologies (i.e., the Explosive Destructive System [EDS] and the Munitions Assessment and Processing System [MAPS]) in its Edgewood range complex for the compliant demilitarization of waste chemical munitions, as well as one permitted open detonation unit (J-Field) for the demilitarization of waste smoke and other conventional munitions.

VI.c. Decontamination Procedures

Decontamination of all materials containing chemical agent will be performed in accordance with the DAPAM 385-61, Army PHC Chemical Agent Health Based Standards, and DEVCOM CBC decontamination procedures. The N-Field Storage Facility will be monitored and/or sampled to ensure the appropriate level of decontamination. If liquid decontamination methods are used, spent decontamination solutions will be collected and pH neutralized. Spent wash and rinse solutions will be collected, suitably contained/packaged, and transported to an appropriate, permitted waste management facility.

After all waste is removed, walls, floors, and doors will be decontaminated using appropriate physical or chemical extraction technologies (e.g., high-pressure steam and water sprays that include appropriate surfactant, acids, bases, or detergents). Initial decontamination may involve using minimal amounts of liquid to preclude diluting possible liquid samples and to minimize waste and water use. If appropriate, dry vacuuming of the floors and walls will precede the application of physical or chemical extraction technologies in compartments that stored water-reactive wastes. All rinsate and vacuum debris will be collected and characterized. Rinsate and vacuum debris that is hazardous waste will be containerized and sent to a *Resource Conservation and Recovery Act* (RCRA)-permitted hazardous waste management facility.

Criteria used to determine the necessity of soil sampling to detect contamination will include spill history (including previous sampling and remediation efforts and results), generator knowledge, and/or major breaches to any secondary containment, as applicable.

VI.d. Criteria for Determining Decontamination

Interior and Exterior Surfaces

Surface contaminants will be considered to be present as long as contaminants, as detected in the composite spent wash/rinse solutions, wipe samples, and core samples collected as appropriate, exhibit any of the following criteria:

- The concentration of any constituent, chosen from COMAR 26.13.02.24 based on generator knowledge, exceeds

  - In the wash/rinse solution samples, RBC or an appropriate maximum contaminant level (MCL) (e.g., 10 times the MCL concentration in the latest update published by EPA, or maximum contaminant level goal [MCLG], if an MCL does not exist, or 1 milligram per liter [mg/L], if neither of the two exists);

  - In wipe samples, a surface loading of 100 micrograms per 100 square centimeters (100 μg/100 cm^2), and

  - In core samples, one tenth of toxicity characteristic (TC) level of COMAR 26.13.02.14, or 1 mg/L for constituents not on TC list.

- The pH is less than or equal to 2 or greater than or equal to 12.5.

- CWM is present above appropriately applied risk-based concentrations.

VI.e. Disposal of Contaminated Soil

The facility is totally enclosed to prevent contamination of the surrounding soil if there is an accidental spill in the building. Outside the building, there are asphalt areas for loading and unloading. Under the normal contingency plan, any discharge to the soil would be thoroughly cleaned at the time of the incident.

VI.f. Decontamination of Cleanup Materials and Residues

All equipment that has come into contact with hazardous waste will be decontaminated at closure or shipped offsite to a permitted hazardous waste management facility.

Procedures, standards and regulations applicable to chemical agent safety will not be used to decontaminate the portable magazines because they are not applicable. These magazines will be decontaminated in the following manner.

After all waste is removed, the walls, floors, and doors will be decontaminated using appropriate physical or chemical extraction technologies (e.g., high-pressure water spray that

includes appropriate surfactant, acids, bases, or detergents). All rinsate and vacuum debris will be collected and characterized. Rinsate and vacuum debris that is hazardous waste will be drummed (or packaged appropriately) and sent to a RCRA-permitted status hazardous waste management facility.

Rinsate will be analyzed to determine if it shows evidence of contamination with hazardous constituents selected from COMAR 26.13.02.24, based on generator knowledge and approval from the MDE. If contamination is detected, appropriate physical and chemical extraction technologies will again be used to accomplish decontamination. Surface contamination will be considered to be present as long as the concentration of any of the hazardous constituents selected from COMAR 26.13.02.24 in the composite waste solution exceeds ten times the MCL concentration in COMAR 26.13.05.06.

VI.g. Documentation of Closure

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to the MDE. The certification will be accompanied by appropriate documentation.

VII. Post-Closure Plans

This section is not applicable because the N-Field Storage Facility is not a disposal facility.

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Permit Attachment VI-2

General and Site-Specific Contingency Plans for the N-Field Storage Facility Igloo and Portable Magazines

The general contingency plans for the N-Field igloo and portable magazines follow this page. The specific plans that are kept at the CTF includes the names, telephone numbers, and addresses of the Emergency Coordinators. This information is not included here for privacy reasons.

Contents, Permit Attachment VI-2

GENERAL CONTINGENCY PLAN FOR THE N-FIELD STORAGE FACILITY IGLOO

I. GENERAL INFORMATION

The N-Field Storage Facility is operated and managed by the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC), on behalf of the U.S. Army, and is located in the Edgewood Area of Aberdeen Proving Ground (APG), Maryland. It is used to store suspect chemical, smoke, and biological munitions that military explosive ordnance disposal (EOD) personnel consider safe for pre-treatment storage. Munitions stored in N-Field are recovered primarily from ranges on APG. The facility is made up of an earth-covered igloo with six bays and three portable (separate) magazine units. Because different personnel operate the igloo and the magazines, different contingency plans are necessary. This plan covers the igloo only which is operated by personnel from the Chemical Biological Applications & Risk Reduction (CBARR) CB Operations Branch.

The N-Field Igloo is used to store recovered chemical warfare materiel (CWM) (i.e., recovered munitions containing military chemical agents), suspect biological munitions, munitions containing highly toxic industrial compounds and munitions in the characterization process suspected to contain one of these three sets of fill materials. The igloo is outfitted with negative pressure filtration system and near-real time air monitoring equipment.

Personnel from the CBARR CB Operations Branch coordinate transportation of waste to and from the N-Field Storage Igloo, and manage on-site igloo inventory, engineering controls and monitoring. Assets from the 20th CBRNE Command double-bag, containerize and transport recovered munitions to the storage igloo, conduct any on-site non-intrusive characterization within the N-Field storage compound, and may transport items out of facility for open detonation, as appropriate, based on characterization results.

APG uses the following emergency resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; the DEVCOM Chemical Biological Center (CBC); Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below and by coordinating their availability to the Incident Commander (IC) through the Garrison DO Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan, defines roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. EMERGENCY COORDINATORS

The Emergency Coordinators (ECs) for the N-Field Igloo are trained in accordance with the APG training plan to ensure their knowledge and skills are sufficient to manage incidents. The ECs have a thorough understanding of the operations and materials at the N-Field Igloo and are familiar with all aspects of the contingency plan, operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. The site-specific contingency plan lists the names, addresses, and contact numbers for both the primary and alternate ECs. It will be kept on-site at the CBC Chemical Transfer Facility (CTF). Note: CTF personnel maintain records for the N-Field Igloo which is an unoccupied facility.

II.a. Duties of the Emergency Coordinator

The EC must be able to get to the N-Field Igloo in a timely manner (on call) at all times. A list of the primary and two alternate ECs for the N-Field Igloo is maintained at the CTF. The EC is responsible for coordinating all emergency response measures that concern hazardous material, and will remain the on-scene coordinator until APG garrison emergency response personnel arrive.

II.b. Regulatory Requirements

In accordance with Maryland Controlled Hazardous Substances regulations (COMAR 26.13.05.04.F and G), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests necessary assistance by dialing 911.
2. Identifies the amount, character, source, and extent of any discharged material.
3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.
4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.
5. Makes sure that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.
6. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.
7. Submits verbal and written reports through DPW to the Maryland Department of the Environment (MDE) within 15 days of an incident containing the information listed in COMAR 26.13.05.04 G (10).

III. CRITERIA FOR IMPLEMENTING THE CONTINGENCY PLAN

The contingency plan includes actions required for emergencies involving fire, explosion, or spills of a hazardous substance. Depending on the nature of the emergency, the person observing the emergency must act immediately to initiate the contingency plan and then inform the EC, or first inform the EC who will then decide whether to initiate the contingency plan. If necessary, the Chemical Accident or Incident Response and Assistance Plan (CAIRA) will be implemented. The CAIRA Plan is discussed in the next section.

IV. EMERGENCY RESPONSE PROCEDURES

There are various hazard characteristics associated with the waste at the N-Field Storage Facility. Before taking action to control an emergency, it is imperative that the responders know all possible risks associated with the area they are entering. CBARR personnel are familiar with all stored igloo inventory and maintain a magazine data card (MDC) for the munitions items stored at the igloo. Each bay in the igloo contains the MDC for all items stored in that bay.

In the event of an emergency, some events will trigger activating the CAIRA Plan for Surety Facilities Located at the Edgewood Area of Aberdeen Proving Ground, Maryland (CAIRA Plan). Specific duties of all affiliated parties are listed in Section 4 of the CAIRA Plan. The CAIRA Plan involves three phases: readiness, response, and recovery. The plan is applicable to the following chemical material items or systems located within the boundaries of APG:

- Confirmed release of agent from munitions
- Discovery of an actual or suspected chemical agent munition or container that may require emergency transportation/disposal
- Confirmed detection of agent above threshold concentration for any period outside engineering controls
- Actual exposure of personnel to agent above the allowable limits shown in DAPAM 385-61
- Any terrorist or criminal act directed toward chemical agent storage or laboratories

IV.a. Identification of Hazardous Wastes

The EC has access to the current inventory of each storage bay. The inventory system consists of inventory planographs that are cross-referenced to a container inventory. The container inventory provides information on all munitions, suspected fills, and known or suspected energetic components. (All of this information is kept at the CTF where it is available to the EC.) All outer containers are labeled with munition inventory numbers that match the planograph location system. These munitions can be viewed remotely from the CTF before personnel access the N-Field Igloo.

IV.b. Hazard Assessment

In performing a hazard assessment, the EC in conjunction with the IC will:

- Review the inventory of waste in storage at the time of the emergency;

- Consider the extent of the hazard from a fire, unwanted detonation and/or waste release; and
- Decide if the area near the emergency should be evacuated.

To assess the hazard, the EC and the IC will consider:

- Type of hazard(s) involved and information available;
- Degree of toxicity of the stored wastes;
- Presence of toxic, irritating or asphyxiating gases that may result from fire, and/or reactions that could result from its suppression;
- Containment of a spill or lack of containment;
- Uncertainty as to the extent of migration of wastes or water used in fire control to either ground or surface waters; and
- Ability of response teams to contain the emergency.

IV.c. Control Procedures

In the event of an emergency, the N-Field operator discovering the emergency must dial the installation emergency number, 911, and notify the EC or alternate. During the 911 call, the discoverer of the incident should convey to the APG Emergency Operations Center (EOC) the following information about the incident (to the extent possible):

- Name and telephone number of the reporter;
- Name and location of facility/site;
- Date, time, and type of incident;
- Name and estimated quantity of materials involved;
- Extent of injuries, if any; and
- Possible hazards to human health or the environment outside the site.

Using this information, the IC will activate the EOC whose members will determine which garrison and non-garrison organizations and resources will be mobilized. Upon encountering one of the specific emergencies listed below, the following additional steps will take place:

FIRE

The person observing the fire emergency will:

1. Report the fire through the installation emergency telephone number "911," giving the location, cause, and extent of the fire; and note if the fire has or may impact the igloo and any stored munitions.

2. Unless it is an incipient fire located outside the igloo that can be safely extinguished with on-site portable extinguishers, evacuate upwind a safe distance and await Fire Division response personnel.

The EC will:

3. Notify the CBC Risk Management Office (RMO) (436-4411), providing the same information as in step 1 above.

The DO Fire Division will:

4. Take action to control the fire if safe to do so.

EOC personnel will:

5. Notify the Installation Safety Office. If the fire poses off-site risks to human health and/or includes the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 Code of Federal Regulations (CFR) Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).

The EC and the IC will:

6. Assess fire impacts and implement actions to eliminate and/or mitigate them.

EXPLOSION

The person observing the explosion will:

1. Evacuate the area to a safe distance upwind from the igloo.
2. Report the explosion through the installation emergency number, 911, giving the exact location of the explosion, damage to the igloo, and any smoke or vapor discharges from the building.
3. Notify the EC or alternate presenting the same information as in step 2.

The EC will:

4. Notify the CBC RMO providing the same information as in step 2 above.

EOC personnel:

5. Notify the Installation Safety Office. If the explosion poses off-site risks to human health and/or includes the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 Code of Federal Regulations (CFR) Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).

The EC and the IC will:

6. Assess the consequences of the explosion, confer with explosive and chemical experts and implement actions to protect personnel, eliminate/minimize loss of life and render the area safe for follow-on remediation and restoration.

POTENTIAL RELEASE OF AGENT FILL

Other situations could require the implementation of this contingency plan. These include discovery of a potential release of agent fill within the igloo based on:

- Anomalous remote camera inspection results;
- Confirmed monitoring (MINICAMS) alarm; and/or
- Evidence gleaned during a monthly first entry check of stored inventory.

The decision on how to initially proceed under the aforedescribed circumstances will depend for the most part on the operation of the N-Field Igloo ventilation system. The igloo's chemical, biological, radiological (CBR) filter system is designed to prevent the release of hazardous emissions to the environment. The system runs 24/7, every day and is tied to an on-site emergency generator that supplies backup power in the event of an electrical outage. If the CBR filter system is operational and there is no evidence it has malfunctioned, the full activation of the contingency plan and 911 notification may not be necessary (i.e., the incident may be managed internally within the DEVCOM Chemical Biological Center assuming evidence retrieved during their response and investigation confirms any release was limited and any fugitive vapors were captured by the CBR filter system).

Scenario #1: Potential Agent Release When Facility Ventilation is Operational

The person discovering the potential release will:

1. Notify the EC and provide the bay location, type of munition(s) stored, and approximate maximum quantity of agent that might have been released, if this information is available.

The EC will:

2. Notify appropriate CBC personnel to respond. This includes CTF personnel, the RMO, CBARR Monitoring Branch personnel, and others, as necessary to investigate the potential release of agent within the igloo. These personnel will investigate and mitigate the situation in accordance with applicable DA, APG, DEVCOM Chemical Biological Center, COMAR, and CHS Permit A-190 requirements.

3. Notify the DPW-Environmental Division and Installation Safety Office of the situation, the outcome of investigative details obtained during in-situ inspection, and any required corrective actions taken (e.g., any decontamination required inside the igloo, container repackaging, potential cause of release, etc.)

The DPW-ED will:

4. Make appropriate notification to the MDE IAW the A-190 CHS permit.

Scenario #2: Potential Agent Release When Facility Ventilation is NOT Operational

The person discovering a potential release will:

1. Notify the EC and provide the location, type, and approximate quantity of the release, if this information is available.

The EC will:

2. Dial 911 and provide the APG EOC with the same information inform as in item #1.

The guard force will:

3. Block roads to prevent entry into hazard area (at intersection of [redacted] Road and [redacted] Road).

N-Field operators and personnel from CBARR will:

4. Respond to investigate and mitigate the situation as well as to restore ventilation. Investigation and mitigation efforts will proceed in accordance with applicable DA, APG, DEVCOM Chemical Biological Center, COMAR, and CHS Permit A-190 requirements.

V. EMERGENCY EQUIPMENT

An inventory and monthly inspection log of all emergency equipment at the N-Field Igloo is maintained in the CTF office area.

The N-Field Igloo has spill response/cleanup materials and equipment that the N-Field personnel are trained to use.

V.a. Personal Protective Equipment for the N-Field Igloo

Personal protective equipment (PPE), to include full-face respirators with cartridges, nitrile and latex gloves, protective clothing (tyvek, saranex, booties, etc.), goggles, safety glasses, safety boots, agent detection kits, and so forth, are maintained at the CTF.

First-Aid and Medical Supplies

First-aid supplies for use at N-Field is stored at the CTF and would be transported there by CTF personnel during a response. Any casualties because of an incident would be transported to the Kirk US Army Edgewood Area Health Clinic, or a civilian medical facility.

First-Aid supplies/equipment available at the CTF for use at N-Field:

- Brushes for decontamination
- First-aid kit
- Nerve agent kits
- Footbath

Emergency Decontamination Equipment:

There is no emergency shower at the N-Field Igloo. In an emergency response situation, the DO Fire Division can provide portable personnel decontamination station. Decontamination facilities are also available at the Kirk US Army Edgewood Area Health Clinic.

V.b. Spill Control Equipment at the N-Field Igloo

Spill control and cleanup supplies are stored on site in a portable shed located next to the igloo. An inventory of all supplies is maintained in the CTF administrative office area. Additional supplies are available at the CTF.

V.c. Fire Control Equipment at N-Field

There are two fire extinguishers (rated 6-A:120-B:C) available at the N-Field Storage Facility, one on the east side of the igloo, and one on the west side. See locations depicted on attached evacuation plan.

V.d. Communications and Availability of Additional Resources

N-Field personnel can communicate with other APG personnel via cellular phones and/or radios. If additional resources (munitions repackaging materials, site monitoring equipment, decontamination supplies, etc.) are required, they can be requested via the IC and the APG EOC.

V.e. Post-Emergency Equipment Decontamination/Maintenance

During an emergency response situation, no additional wastes will be accepted at the N-Field Storage Facility until on-scene emergency equipment (fire extinguishers, spill cleanup material, containers, tools, etc.) have been decontaminated or replaced and inspected by the EC.

MDE will be notified that emergency equipment has been decontaminated or repaired/replaced prior to resuming operations.

VI. STORAGE/DISPOSAL OF RECOVERED MATERIAL

All containers of non-energetic decontamination wastes and other non-munitions waste generated during contingency operations will be transported to the CTF, DEVCOM Chemical Biological Center Central Accumulation area, or the TSDF, as appropriate. Compromised munitions containing energetic components and any residual agent contamination warranting prompt treatment will be managed at the Munitions Assessment and Processing System or in the Explosive Destruction System. Fully decontaminated energetic components may be open detonated via the 20th CBRNE command at J-Field. Following any emergency, hazardous wastes will not be stored in the affected area until the EC certifies the N-Field igloo is structurally intact, clean, and with fully functional monitoring and filtration systems.

VII. COORDINATION AGREEMENTS FOR EMERGENCY SERVICES

The IC or a designated individual will control all initial emergency response actions and any follow-up actions. All records of contracts and/or memorandums of understanding (MOUs)/support are maintained as part of the installation emergency/contingency plan. Note: The N-Field Storage Facility is a secured facility at all times and cannot be entered easily without authorized operational personnel.

VII.a. On-Base Arrangements

DEVCOM CBC will keep the APG DO Fire Division and EOC informed of:

- The general layout of the facility and equipment available to fight fires and to clean up spills;
- The telephone number of N-Field personnel points-of-contact for non-duty hour emergencies; and

- Provide copies and revisions of this contingency plan.

The DPW-ED supervises interaction with MDE and EPA regarding all emergencies and activation of the contingency plan.

The Kirk U.S. Army Edgewood Area Health Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO's Fire Division can provide ambulance support from 7:00 a.m. until 11:00 p.m., Monday through Friday. The ambulance is equipped with a communication system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

VII.b. Off-Base Arrangements

In addition to on-base capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazard potential associated with certain base activities and exercises discretion in using MAA resources, especially for military/chemical incidents. In an emergency in the Aberdeen Area, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen Area Fire Division can assist its Edgewood Area counterpart in the event of an emergency at N-Field.

There is also a MOU between APG and Harford County entitled "Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland."

A chemical casualty contingency team is maintained at EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care.

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the MD Institute for Emergency Medical Services System (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS, and would be transported to the nearest medical facility available that is capable of treating such casualties.

VIII. EVACUATION PLAN

VIII.a. Criteria for Determining Evacuation Option

The EC and IC may choose to evacuate the area whenever the hazards of toxic gas, fire, or explosive materials are endangering personnel, particularly those without protective gear.

VIII.b. Signals for Evacuation

The signals for evacuation will be given verbally. N-Field personnel will exit the facility as quickly and safely as possible, and the EC will take a head count at the rally point located at Control Point (CP) 20. If required, other base personnel will be notified by telephone.

VIII.c. Evacuation Routes

In the event of a chemical agent release, personnel will evacuate from in and around the site as needed. Evacuated personnel will gather at CP 20 or, if the Fire Division personnel are on the scene, the senior fire department personnel will give directions.

In any other type of event, evacuation will be one of the following as directed by the Range Central Officer:

- Personnel will immediately proceed north without delay out of Gunpowder Neck via [redacted] Road, to Range Central and check in there.
- Upon instructions from Range Central, personnel evacuated south via [redacted] Rd may proceed to:
  - [redacted] landing to be picked up by an APG patrol boat, or
  - Proceed to H-Field and circle back north via [redacted] Road and [redacted] Road to CP20 and Range Central

See enclosed evacuation plans [Not included in the permit for reasons of operational security.]

IX. REQUIRED REPORTS

The EC (or alternate) will note in the operation log of the facility the time, date, and details of any incident that requires implementation of the contingency plan. The conditions that caused the emergency and the resulting actions will also be included in this log entry.

Within 15 days after the incident, a written report will be submitted to the MDE. The report will include the following:

- Name, address, and telephone number of the owner or operator of the facility;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (for example, fire, explosion);
- Name and quantity of materials involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, when applicable;
- Estimated quantity and disposition of material recovered from the incident; and
- Name of person who first reported the incident.

Note: The permit condition is that notification may be by telephone within 24 hours and in written form within 5 days, with an extension to 15 days if agreed to by the MDE.

The report is submitted to:

Maryland Department of the Environment
Land and Materials Administration

1800 Washington Boulevard
Baltimore, Maryland 21230-1719

X. AMENDMENTS TO THE PLAN

As required by COMAR 26.13.05.04D and E, the contingency plan must be reviewed and immediately amended if necessary, whenever:

- The facility permit is revised;
- The plan fails in an emergency;
- Major changes in facility design, construction, operation, and maintenance are made in such a way that emergency response operations are affected;
- The list of ECs changes; or
- The list of emergency equipment change.

Attachment – **Evacuation Plan**

Evacuation plans showing detailed site layout, location and range evacuation routes removed for operational security.

GENERAL CONTINGENCY PLAN FOR THE N-FIELD PORTABLE MAGAZINES

I. GENERAL INFORMATION

The N-Field Storage Facility is operated and managed by the U.S. Army Combat Capabilities Development Command Chemical Biological Center (CBC) on behalf of the U.S. Army, and is located in the Edgewood Area of Aberdeen Proving Ground (APG), Maryland. The facility is used for the storage of suspect chemical, biological, smoke and riot control munitions that military explosive ordnance disposal (EOD) personnel consider safe for pre-treatment storage. It is made up of an earth-covered igloo with six bays and three portable (separate) magazine units. Because different personnel operate the igloo and the magazines, different contingency plans are necessary. This plan covers the portable magazines only. Accordingly, while some of the information presented here will be accurate regarding the N-Field Igloo, this contingency plan is directly applicable to the portable magazines only.

The three N-Field portable magazines are identical in size and shape. Two are used for the storage of recovered munitions determined during post recovery characterization to not contain lethal chemical agents warranting monitored and filtered storage in the N-Field igloo. Rounds stored typically include acidic smoke rounds (i.e., FS--sulfur-trioxide/chlorosulfonic acid mixture; FM-- titanium tetrachloride), white phosphorous rounds, and those containing certain riot control compounds. The third magazine is designated for the storage of bare explosive charges used to support the nearby Munitions Assessment and Processing System when it is operational.

Personnel from the CBARR CB Operations Branch coordinate transportation of waste to and from the N-Field Storage Facility. Assets from the 20th CBRNE Command field assess and transport recovered munitions into the N-Field complex. Items are initially received and stored in the igloo pending detailed characterization. Items confirmed during characterization to not contain lethal chemical or suspect biological fills may then be subsequently transferred from the igloo to one of the portable magazines. Assets from the 20th CBRNE Command then remove and thermally treat the smoke and/or riot control munitions at the permitted J-Field open detonation unit. If waste munitions inventories at N-Field are low, munitions determined to contain smoke or riot control compounds may sometimes by-pass storage in the portable magazines and go directly from the igloo to open detonation.

Personnel from the Chemical Biological Applications and Risk Reduction [CBARR], Filters Hazardous Materials Team (FHMT) are responsible for the day-to-day operations of the N-Field portable magazines.

APG uses the following emergency resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; the Development Command Chemical Biological Center (CBC); Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below, and by coordinating their availability to the Incident Commander (IC) through the Garrison DO's Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8–Environmental Release Prevention and Response Plan—defines roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. EMERGENCY COORDINATORS

The ECs for the N-Field Storage Facility are trained in accordance with the APG training plan to ensure their knowledge and skills are sufficient to manage incidents. The ECs have a thorough understanding of the operations and materials at the N-Field portable magazines and are familiar with all aspects of the contingency plan, operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. The site-specific contingency plan lists the names, addresses, and contact numbers for both the primary and alternate ECs. It will be kept at the CBARR FHMT office.

II.a. Duties of the Emergency Coordinator

The EC will be able to get to the portable magazines in a timely manner (on call) at all times. The EC is responsible for coordinating all emergency response measures that concern hazardous material and will remain the on-scene coordinator until emergency response personnel arrive.

II.b. Regulatory Requirements

In accordance with Maryland Controlled Hazardous Substances regulations (COMAR 26.13.05.04.F and G), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests assistance by dialing 911.
2. Identifies the amount, character, source, and extent of any discharged material.
3. Assesses possible hazards to human health or the environment that may result from release, fire, or explosion.
4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.

5. Makes sure that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.

6. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.

7. Submits verbal and written reports through DPW to the Maryland Department of the Environment within 15 days of an incident containing the information listed in COMAR 26.13.05.04 G.(10).

III. CRITERIA FOR IMPLEMENTING THE CONTINGENCY PLAN

The contingency plan includes actions required for emergencies involving fire, explosion, and other emergencies. Depending on the nature of the emergency, the person discovering the emergency must act immediately to both initiate the contingency plan and inform the EC.

IV. EMERGENCY RESPONSE PROCEDURES

There are various hazard characteristics associated with the waste at the N-Field Storage Facility. Before taking action to control an emergency, it is imperative that the responders know all possible risks associated with the area they are entering. N-Field personnel are familiar with all hazardous materials and maintain a magazine data card (MDC//See Figure V.9) for the items stored in the portable magazines. There is an MDC for each portable magazine. Before commencing a new operation, personnel complete a hazard analysis and pre-operational survey to identify possible hazards associated with their work.

IV.a. Identification of Hazardous Wastes

The EC will be familiar with the contents of each magazine. The inventory log of each magazine is maintained at the EC's office.

IV.b. Hazard Assessment

In performing a hazard assessment, the EC in conjunction with the IC will:

- Review the inventory of waste near the emergency;
- Consider the extent of the hazard; and
- Decide if the area near the emergency should be evacuated.

To assess the hazard, the following should be considered:

- Type of hazard(s) involved and information available;
- Degree of toxicity of impacted materials/wastes;
- Presence of toxic, irritating or asphyxiating gases that may result from fire, and/or reactions that could result from its suppression;
- Containment of a spill or lack of containment;
- Uncertainly as to the extent or migration of wastes or water used in fire control to either groundwater or surface waters; and

- Ability of response teams to contain the emergency.

IV.c. Control Procedures

In the event of an emergency, the N-Field operator discovering the emergency must dial the installation emergency number, 911, and notify the EC or alternate. By dialing 911, the APG EOC is notified and the following information must be provided about the incident (to the extent possible) to EOC personnel:

- Name and telephone number of the reporter;
- Name and location of facility/site;
- Date, time, and type of incident;
- Name and estimated quantity of materials involved;
- Extent of injuries, if any; and
- Possible hazards to human health or the environment outside the site.

Using this information, the DO Fire Division IC will activate the EOC whose members will determine garrison and non-garrison resources will be mobilized. Upon encountering a specific emergency listed below, the following steps will occur:

FIRE

The person observing the fire will:

1. Report the fire through the installation emergency telephone number, 911, giving the location, cause, and extent of the fire; and note if the fire has or may impact the portable magazines and any stored munitions.

2. Only attempt to extinguish incipient fires that have not impacted stored munitions; otherwise, evacuate upwind a safe distance and await Fire Division personnel.

The EC will:

3. Notify the IC, the DEVCOM Chemical Biological Center Risk Management Office (RMO), and the DEVCOM Chemical Biological Center Environmental Quality Office, providing the same information as in step 1 above.

The DO Fire Division will:

4. Take action to control the fire.

EOC Personnel will:

5. Notify the Installation Safety Office. If the fire poses off-site risks to human health and/or includes the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 Code of Federal Regulations (CFR) Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).

The EC and the IC will:

6. Assess fire impacts and implement actions to eliminate and/or mitigate them.

EXPLOSION

The person observing the emergency will:

1. Evacuate the area to a safe distance from the magazines.
2. Report the explosion through the installation emergency number, 911, giving the exact location of the explosion, the damage to the magazine, and any indications as to whether smoke munitions have functioned and are releasing their contents.

The EC will:

3. Notify the IC and the CBC RMO, providing the same information as in step 2 above.

EOC Personnel will:

4. Notify the Installation Safety Office. If the explosion poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802

The EC and the IC will:

5. Assess the problem and implement a procedure for rendering the area safe.

RELEASE

While highly unlikely absent an explosive event, should a smoke or riot control round release a portion or all of its contents, the following are the steps to follow in establishing an appropriate response.

The person observing the emergency will:

1. Move upwind a safe distance. Dial 911 to inform the EOC of the release. Provide location (i.e., magazine number or storage yard location), current wind direction, extent of any smoke plume, type of munition (FS, FM or white phosphorous smoke, riot control agent) releasing, if known and number and type munitions stored near or with the releasing item.

The EC will:

2. Notify the DEVCOM Chemical Biological Center Risk Management Office, and Chief CBARR.
3. Immediately dispatch with other FHMT personnel to the site with a copy of the magazines' inventories and meet with responding DO Fire Division IC at CP20 or other DO-designated control point.

The guard force will:

4. Block roads to prevent entry into the hazard area (e.g., the intersection of [redacted] Road and [redacted] Road). All emergency response procedures will be in

accordance with applicable Department of the Army (DA), APG, DEVCOM Chemical Biological Center, COMAR, and CHS Permit A-190 requirements.

The IC will:

5. Request through the EOC consultation with and/or on-site response from the 20th CBRNE.
6. Formulate in consultation with munitions experts a safe response which may include letting the smoke or riot control release run its course.
7. Coordinate actions to control any associated fire (as could be the case with a white phosphorus release)
8. Contact MDE (866-633-4686) and National Response Center (800-424-8802) if the substance spilled equals or exceeds a reportable quantity as listed in 40 CFR 302.

20th CBRNE EOD will:

9. Reconnoiter the site and take any actions necessary to remove any explosive hazards or dangerous pyrophoric reaction.

The IC will:

10. Shall terminate the emergency once EOD has declared the storage site safe for re-entry.

The EOC will:

11. Contact MDE (866-633-4686) and National Response Center (800-424-8802) if the substance spilled equals or exceeds a reportable quantity as listed in 40 CFR 302.
12. Coordinate appropriate notifications to the MDE and local officials through the DPW-ED, etc. in accordance with applicable DA, APG, Center, COMAR, and CHS Permit A-190 requirements.

The EC will:

13. Initiate site cleanup and restoration.

V. EMERGENCY EQUIPMENT

An inventory and monthly inspection log of all emergency equipment at the N-Field portable magazines is maintained in the EC's office, currently the CBARR FHMT.

The N-Field personnel are trained to use the spill response/cleanup materials and equipment available at the N-Field Storage Facility.

V.a. Personal Protective Equipment

Personal protective equipment, to include full-face respirators with cartridges, nitrile and latex gloves, protective clothing (e.g., Tyvek and booties), goggles, safety glasses, safety boots, agent detection kits, and other equipment are maintained at the EC's office.

First-Aid and Medical Supplies

Any casualties that result from an incident would be transported to the U.S. Army Health Clinic in the Edgewood Area, or a civilian medical facility.

Emergency Decontamination Equipment

There is no emergency shower at the N-Field portable magazines. In an emergency response situation, the DO Fire Division can provide portable personnel decontamination station. Decontamination facilities are also available at the Kirk U.S. Army Edgewood Area Health Clinic (EA Clinic) and through the 20th CBRNE Command.

V.b. Spill Control Equipment at the N-Field Portable Magazines

The N-Field Storage Facility has three portable containers with supplies to use in the case of a spill emergency. Each portable container has the following items:

- 1 ea bag vermiculite,
- 1 ea DOT E 9618 95 gal over pack w/adsorbent material,
- 1 ea 24" push broom,
- 1 ea 18" non-sparking shovel,
- 10 spill pillows, standard white,
- 15 sorbent pads 8 ½" x 14 5/8",
- 2 pairs total body coveralls,
- 2 pairs protective gloves,
- 15 hazardous waste bags w/ties, and
- 2 pairs ANSI-approved splash goggles.

V.c. Fire Control Equipment at N-Field

There are two fire extinguishers (rated 6-A:120-B:C) available near the portable magazines. They mounted on utility poles immediately west of the portable magazines. See attached evacuation plan for locations. [Not included in the permit for reasons of operational security.]

V.d. Communications and Availability of Additional Resources

Personnel at N-Field can communicate with other APG activities via cellular phones and/or radios. If additional resources (munitions repackaging materials, decontamination supplies, etc.) are required, they can be requested via the IC and the APG EOC.

V.e. Post-Emergency Equipment Decontamination/Maintenance

During an emergency response situation, no additional munitions or wastes will be accepted at the N-Field portable magazines until on-scene emergency equipment (fire extinguishers, spill cleanup material, containers, tools, etc.) have been decontaminated or replaced and inspected by the EC.

The DPW will notify the MDE when emergency equipment has been decontaminated or repaired/replaced prior to resuming operations.

VI. STORAGE/DISPOSAL OF RECOVERED MATERIAL

All containers of non-energetic wastes generated during contingency operations will be transported to a Central Accumulation Area or the TSDF, as appropriate. Compromised munitions containing energetic components warranting prompt treatment will be detonated by the 20th CBRNE command at J-Field. Following any emergency, hazardous wastes will not be stored in the affected area until the EC certifies the magazines are structurally intact, clean, and with fully functional monitoring and filtration systems.

VII. COORDINATION AGREEMENTS FOR EMERGENCY SERVICES

The IC or a designated individual will control all initial emergency response actions and any follow-up actions. All records of contracts and/or memorandums of understanding (MOUs)/support are maintained as part of the installation emergency/contingency plan.

Note: The N-Field Storage Facility is a secured facility at all times and cannot be entered easily without authorized operational personnel.

VII.a. On-Base Arrangements

DEVCOM Chemical Biological Center will keep the APG DO Fire Division and EOC informed of the following:

- The general layout of the facility, detailing equipment available to fight fires and to clean up spills;
- The telephone number of the N-Field personnel points-of-contact for non-duty hour emergencies; and
- Copies and revisions of this contingency plan.

The DPW-ED supervises interaction with MDE and EPA regarding all emergencies and activation of the contingency plan.

The Kirk U.S. Army Edgewood Area Health Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO's Fire Division can provide ambulance support from 7:00 a.m. until 11:00 p.m., Monday through Friday. The ambulance is equipped with a communication system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

VII.b. Off-Base Arrangements

In addition to on-base capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazard potential associated with certain base activities and exercises discretion in using MAA resources, especially for military/chemical incidents. In an emergency in the

Aberdeen Area, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen Area Fire Division can assist its Edgewood Area counterpart in the event of an emergency at the N-Field.

There is also a MOU between APG and Harford County entitled "Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland."

A chemical casualty contingency team is maintained at EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care.

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the MD Institute for Emergency Medical Services Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

VIII. EVACUATION PLAN

VIII.a. Criteria for Determining Evacuation Option

The EC and IC may choose to evacuate the area whenever the hazards of toxic gas, fire, or explosive materials are endangering personnel, particularly those without protective gear.

VIII.b. Signals for Evacuation

The signals for evacuation will be given verbally. N-Field personnel will exit the facility as quickly and safely as possible, and the EC will take a head count at the rally point, Control Point 20 (CP 20). If required, other base personnel will be notified by telephone.

VIII.c. Evacuation Routes

Evacuated personnel will gather at Control Point 20 or, if DO Fire Division personnel are on the scene, the senior Fire Division official will give directions.

In any other type of event, evacuation will be one of the following, as directed by the Ranger Central Officer.

- Personnel will immediately proceed north without delay out of Gunpowder Neck, via [redacted] Road, to Range Central and check in there.
- Upon instructions from Range Central, personnel evacuated south of N-Field via [redacted] may proceed to:

- [redacted] landing to be picked up by an APG patrol boat, or
- Proceed to H-Field and circle back north via [redacted] and [redacted] Roads to CP 20 and Range Central.

IX. REQUIRED REPORTS

The EC (or alternate) will note in the operation log of the facility the time, date, and details of any incident that requires implementation of the contingency plan. The conditions that caused the emergency and the resulting actions will also be included in this log entry.

Within 15 days after the incident, a written report on the incident will be submitted to the Secretary of the MDE. The report will include:

- Name, address, and telephone number of the owner or operator of the facility;
- Name, address, and telephone number of the facility;
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- Name and quantity of materials involved;
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Note: The permit condition is that notification may be by telephone within 24 hours and written within 5 days, with an extension to 15 days if agreed to by the MDE.

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X. AMENDMENTS TO THE PLAN

As required by COMAR 26.13.05.04D and E, the contingency plan must be reviewed and immediately amended, if necessary, whenever:

- The facility permit is revised;
- The plan fails in an emergency;
- Major changes in facility design, construction, operation, and maintenance, in such a way that emergency response operations are affected;
- The list of ECs changes; or
- The list of emergency equipment changes.

Attachment – **Evacuation Plan**

Evacuation plans showing detailed site layout, location and range evacuation routes removed for operational security.

PART VII
SPECIAL CONDITIONS FOR TREATMENT OF HAZARDOUS WASTE AT THE J-FIELD OPEN DETONATION UNIT

VII.A. BACKGROUND

Aberdeen Proving Ground (APG) submitted a permit application to the Maryland Department of the Environment (MDE or the "Department") and EPA Region 3 to perform open burning (OB) and open detonation (OD) treatment operations at J-Field on November 8, 1988. On April 14, 1997, APG submitted a revised Part A application. The revision informed MDE and EPA Region 3 that the burn pan at J-Field would be removed because it had never been put into operation. The J-Field unit is only used for OD treatment operations.

In August 2006, APG submitted a request for modification to add J-Field open detonation operations to its CHS Permit A-190. The request included a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment supported by a comprehensive site characterization study that included soil and groundwater monitoring and air dispersion modeling.

APG's October 2019 permit application to renew CHS Permit A-190, including provisions for the J-Field OD unit, updated and revalidated findings from the 2006 analysis. The application included groundwater monitoring and soil characterization work performed at the site between 2009 and 2018, a new Air Pathway Analysis (air modeling), HHRA, and Ecological Risk Assessment. The permit conditions in this Part are based on the results of these analyses and assessments.

For the purposes of this Part, the Permittee is APG as the owner and, as operator, the 20th CBRNE Analytical Remediation Activity (CARA).

The CARA employs Department of the Army civilians authorized to assess, package and store both recovered chemical and conventional ordnance, and to detonate conventional munitions. While these personnel are highly trained, their actions are generally limited to the support of planned remediation actions involving pre-identified classes of waste munitions. However, their actions may extend in limited cases to emergency response as well.

Due to operational restrictions that exclude CARA personnel from managing certain munitions treatment activities, and the wide spectrum of munitions emergencies and treatment operations that can arise at APG, the Installation periodically requires military EOD response services. For almost all of the Installation's history, military EOD personnel stationed on the Proving Ground provided this support. As a result of the departure of the 22d CBRN Battalion from APG, these services now come from EOD personnel temporarily deployed to APG from other DoD installations.

Based on their off-site home-basing and the short duration (typically hours or days) and nature of response actions, it is not appropriate or feasible to assign responding off-site EOD units site operator responsibilities under APG's A-190 CHS permit. For these reasons, the CARA serves as the J-Field site operator and custodian. In this role, CARA personnel:

- may perform limited OD operations in support of APG's restoration program (with the expectation that this may expand to limited emergency response support as well);
- conduct and/or coordinate permit-required site inspections;
- manage site range residue collection and disposal;
- maintain permit-required documentation;
- coordinate the site's intermittent use by off-site military EOD personnel;
- backfill OD craters after site use; and
- coordinate with the APG Garrison for long-term site monitoring, real property site maintenance and other miscellaneous services.

VII.B. FACILITY DESCRIPTION

The J-Field OD unit is located within the Edgewood portion of APG's operational range complex. The unit lies [redacted] in the Edgewood Area at the [redacted] The location of the J-Field OD unit is depicted on maps that are on file at the Department. The J-Field OD unit is located in a restricted section of the proving ground. The unit consists of approximately 3.9 acres and is mostly devoid of vegetation except for short grasses near the edges. A constructed earthen berm encircles the entire unit except for the elevated, west access drive. Access to treatment locations within the unit is provided by a service road. Site layout diagrams are on file at the Department.

VII.C. ORIGIN OF WASTES – PERMITTED WASTE TREATMENT

VII.C.1. The J-Field OD unit is used for the open detonation of waste explosives and it is a designated safe location for the OD of munitions from emergency response and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) operations. In accordance with COMAR 26.13.10.27 (Military Munitions), wastes that are subject to the terms and conditions of this permit are those that are detonated for the purpose of waste treatment.

VII.C.2. Open detonation associated with the following activities are not subject to the terms and conditions of this permit:

VII.C.2.a. On-range open detonation associated with clearing APG ranges of live and inert rounds from earlier research, development, testing and training activities on these ranges;

VII.C.2.b. CERCLA removal actions designed to mitigate explosive or toxic hazards from high-risk munitions sites that meet the applicable substantive requirements of COMAR 26.13 and this permit;

VII.C.2.c. Emergency detonation of conventional military munitions, other explosive material, or an explosive device presenting an immediate threat to human health, public safety, property, or the environment as determined by an explosive or munitions emergency response specialist as provided in COMAR 26.13.05.01A(3)(h)(iv), irrespective of whether such conventional military munitions, explosive materials, and explosive devices originate onsite, offsite, or out-of-state; and

VII.C.2.d. Use of military munitions for their intended purpose as defined in COMAR 26.13.10.27 B(1) and (2).

VII.C.3. Open detonation of the following conventional military munitions are subject to the terms and conditions of this permit:

VII.C.3.a. Used military munitions that do not pose an immediate threat to personnel or property when found outside the operational range area, that are not being addressed in the context of a CERCLA-authorized removal or remedial action;

VII.C.3.b. Stable munitions found on-range that response personnel determine were intentionally disposed by onsite burial and that are not being addressed in the context of a CERCLA-authorized removal or remedial action, with "indications of intentional disposal by onsite burial" interpreted to include finding caches of buried munitions, munitions components, or related debris that may or may not be charred by fire (indicating a burn or disposal pit);

VII.C.3.c. Military munitions removed from the [redacted] Storage facility that the Materiel Assessment Review Board determines do not contain lethal chemical agents or similarly employed industrial chemicals (e.g., phosgene) based on a combination of characterization techniques that may include radiography, use of information in Explosive Ordnance Disposal (EOD) technical publications, and non-intrusive (e.g., neutron spectroscopy) or intrusive (e.g., drilling, sampling and analysis) chemical characterization; and

VII.C.3.d. Any other conventional munition that is a solid waste as described in COMAR 26.13.10.27B(3) or B(4) and is:

i. regulated as a hazardous waste; and

ii. not otherwise exempted from the terms and conditions of this permit.

VII.C.4. Open detonation of explosively-configured, drilled, drained, and fully decontaminated chemical or biological munitions resulting from intrusive sampling activities that are not detonated in the Explosive Destruction System or the Munitions Assessment and Processing System's burster detonation vessel due to operational

constraints (such as non-availability, munition size, funding considerations, or safety concerns) are subject to the terms and conditions of this permit. For the purpose of this permit condition, the following terms have the meanings indicated below.

- "Fully decontaminated chemical munitions" means former chemical munitions that monitor to less than or equal to the appropriate vapor screening level.
- "Fully decontaminated biological munitions" means former biological munitions that competent Department of the Army authorities determine to be free of suspect pathogenic bacteria, viruses, rickettsiae, fungi, and potentially lethal toxins. Competent Department of the Army authorities are safety, environmental, or scientific personnel with the requisite knowledge (by education or training) to evaluate the sterilization and disinfection techniques that were used to destroy the suspect bacteria, viruses, and/or toxins that could have been present in or on the munitions.

VII.C.5. The Permittee shall track the regulatory status of all items open detonated at the J-Field OD unit and distinguish between items regulated as hazardous waste under COMAR 26.13.10.27 and items and operations that are not subject to the terms and conditions of this permit and COMAR 26.13.10.27. Tracking information shall be made available to the Department on request.

VII.D. TREATMENT LIMITS

Table VII-1 presents OD treatment limits for the J-Field OD unit for conventional waste munitions that are regulated as hazardous waste under COMAR 26.13.10.27.

VII.E. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

VII.E.1. The Permittee may only detonate reactive (D003) or potentially reactive wastes at J-Field. CARA and/or EOD personnel shall determine if wastes are reactive or potentially reactive. These wastes do not have to be tested for reactivity prior to treatment. For demilitarization purposes, the Permittee may also explosively vent (i.e., blow open) non-reactive waste munition carcasses to facilitate their undisputed and safe off-site disposal and prevent the unauthorized reuse of military-unique materiel.

VII.E.2. Additional waste codes that may be applicable to the wastes detonated at J-Field are listed in Table VII-2. The Permittee shall not detonate any hazardous waste at J-Field if it contains a waste code that is not included in Table VII-2.

VII.E.3. The Permittee may characterize OD items to be detonated at J-Field using any combination of technical publications, historical documents, intrusive and non-intrusive data, and personnel expertise. The Permittee shall arrange for Department personnel to review waste characterization data on the APG Installation on request.

VII.E.4. Treatment of depleted uranium, radiological, or chemical munitions is prohibited.

VII.E.5. After each RCRA-permitted treatment activity, explosive ordnance disposal (EOD) personnel shall collect, visually inspect, and certify inert in accordance with DOD 4160.21, Volume 4, Defense Materiel Disposition: Instruction for Hazardous Property and Other Special Processing Materiel:

VII.E.5.a. All munitions debris (defined as remnants of munitions, such as fragments, penetrators, projectiles, shell casings, links, and fins) remaining after munitions use, demilitarization, or disposal); and

VII.E.5.b. Other range-related debris (such as targets, military munitions packaging, and crating material) that could be explosive.

VII.E.6. Munitions debris and other range-related debris shall be characterized and identified as hazardous waste, non-hazardous waste, or recyclable material (i.e., exempt scrap metal). It shall be packaged and labeled in accordance with APG and COMAR requirements. Hazardous and solid wastes destined for offsite disposal shall be tracked in APG's automated waste tracking system.

VII.F. UNIT-SPECIFIC OPERATING CONDITIONS

VII.F.1. Inspection and Maintenance of Flood Protection Berm and Stormwater Run-On and Run-Off Controls.

VII.F.1.a. The flood protection berm and stormwater run-on and run-off controls at the J-Field OD unit shall be maintained to conform to as constructed conditions as documented in the 2008 "as built" drawings delivered to the Department. The Department recognizes that at any given time, the berm and stormwater run-on and run-off controls may exhibit settling and normal "wear and tear" (i.e., limited minor erosion of sloped berm surfaces and the build-up of modest amounts of silt and vegetation in the sediment trap).

VII.F.1.b. The flood protection berm and stormwater run-on and run-off controls for the J-Field OD Unit shall be maintained and inspected as necessary (but at least semi-annually in accordance with Paragraph VII.F.1.c.) to prevent surface erosion and protect the berm's structural integrity.

VII.F.1.c. The eastern stormwater sediment trap, stone overflow weir, concrete inlet and outlet structures, and exterior duckbill valve shall be inspected at least semi-annually in accordance with the checklist on Figure VII-1. Preventive maintenance shall be performed as soon as practicable to address inspection findings.

VII.F.2. Treatment operations.

VII.F.2.a. The J-Field OD Unit shall be maintained and operated in accordance with relevant Department of Defense Explosive Safety Board (DDESB) and

Department of the Army requirements to minimize the possibility of a fire or unplanned explosion or release of hazardous waste or hazardous waste constituents to air, soil, or surface water. The documents most relevant to J-Field operations are DESR 6055.09 (DOD Explosives Safety Regulations), Army Regulation (AR) 385-64 (U.S. Army Explosives Safety Program) and Department of the Army Pamphlet 385-64 (U.S. Army Explosives Safety Program). The most recent version of these documents shall be made available to the Department on request.

VII.F.2.b. All waste treatment detonations shall be coordinated, as required, with Range Control to exclude unauthorized personnel from areas where they may be at risk as a result of J-Field operations.

VII.F.2.c. Due to the high-water table in the vicinity of the J-Field OD Unit, minimal excavation shall be used to set up detonations. If larger detonations require burial to control noise, this shall be accomplished by shallow excavation and mounding of soil cover.

VII.F.2.d. Treatment operations shall not be initiated if precipitation is occurring.

VII.F.2.e. Treatment operations shall not be performed during electrical storms, thunderstorms, or when electrical and/or thunderstorms are imminent.

VIII.F.2.f. The Permittee shall not conduct OB/OD operations when there is a combination of wind speed (meters per second) and mixing height (mixing depth) (meters) that is indicated with an "**X**" in the following table:

"No-Go" Conditions for OB/OD Operations			
Mixing Height (Z): →	$Z < 100$ m	$100 \leq Z < 210$ m	$210 \leq Z \leq 910$ m
Wind Speed (U) ↓			
≤ 1.0 m/s	**X**	**X**	**X**
$1.0 < U < 2.0$ m/s	**X**	**X**	
$2.0 < U < 2.5$ m/s	**X**		

(Example: OB/OD operations would be precluded when windspeed is 1.5 m/s with a mixing height of 140 m.)

VIII.F.2.g. The Permittee shall use a weather data checklist to document go/no-go OB/OD treatment decisions using the above-listed criteria, and shall also document meteorological conditions whenever OB/OD treatment is conducted, and maintain this documentation as part of the facility operating record.

VII.F.2.h. Treatment operations shall not be conducted between dusk and dawn (1/2 hour before sunset to 1/2 hour after sunrise).

VII.F.2.i. A minimum radius of 200 ft from the central detonation area shall be cleared of combustible material as a fire prevention measure before any detonation occurs. The surrounding tree line shall be maintained clear of the flood protection berm.

VII.F.2.j. Donor charges shall be appropriate to the types and quantities of waste munitions treated and shall ensure effective OD treatments.

VII.F.2.k. After each treatment day, the unit and the surrounding area shall be searched for unexploded ordnance (UXO) and the UXO shall be treated as necessary.

VII.F.2.l. Routine housekeeping of the OD unit (e.g., collection and removal of shrapnel) shall be conducted in accordance with inspection checklists.

VII.F.2.m. OD pits, trenches and craters shall be filled in at after use to prevent the accumulation of precipitation and run-on. They shall be filled in as soon as practicable whenever groundwater infiltration is visible.

VII.F.2.n. The Permittee may add and spread uncontaminated soil at J-Field as necessary to improve site drainage and build up areas where the water table is high. The Department recognizes that the J-Field OD Unit is dynamic and that ground elevations in the treatment area may fluctuate due to detonation activity, periodic regrading, and tilling to control vegetation.

VII.G. LONG-TERM ENVIRONMENTAL MONITORING

VII.G.1.APG shall maintain a long-term environmental monitoring program for the J-Field-OD unit as a follow-up to the 2003-2004 Site Characterization Study.

VII.G.2. The long-term environmental monitoring program shall involve continued groundwater and surface soil media sampling. The analytical results from the monitoring program shall be used to evaluate long-term environmental trends relative to the site characterization baseline.

VII.G.3. Within 45 days of permit issuance, APG shall submit a schedule for implementation of the long-term monitoring program to the Department. The schedule shall include annual groundwater monitoring starting the first late spring/early summer season after permit issuance (i.e., the expected period of highest groundwater levels and pollutant concentrations). The schedule shall also include one round of soil sampling conducted once every 5 years, continuing with the schedule that initiated the 5-year soil sampling in 2011 as a condition of CHS Permit A-190 issued February 15, 2010.

VII.G.4. The Permittee shall submit a Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) to the Department no later than 30 days prior to initiating field sampling activities. In developing the soil sampling plan, the Permittee shall address the potential impacts on sampling design of any importation and placement of new soils or amendments at the unit that may have occurred during the previous year. The three downgradient wells and one upgradient well used for the baseline site characterization study shall also be used for the long-term monitoring program.

VII.G.5 The following target analytes shall be used for the long-term monitoring program:

- Explosives
- Volatile organic compounds
- Semi-volatile organic compounds
- Metals
- Perchlorates
- Nitrates/nitrites (groundwater samples only)

VII.G.6. Annual summary reports of groundwater monitoring results shall be submitted to MDE within 90 days after sampling is completed. A summary report shall also be issued to MDE for each surface soil sampling event within 90 days after sampling is completed.

VII.G.7. APG's Bald Eagle Management Plan shall continue to mitigate potential impacts to eagle nests in proximity to the J-Field-OD unit. APG shall inform the Department whenever there are substantive changes to this plan that could affect eagle nests in the J-Field OD area.

VII.H. PREPAREDNESS, PREVENTION, AND BEST MANAGEMENT PRACTICES (BMPs)

VII.H.1. The Permittee shall ensure that access to the J-Field OD unit is restricted to properly cleared personnel or escorted individuals, and shall ensure that access controls (e.g., warning signs, gates) that serve to prevent unknowing entry are maintained in good condition. The Permittee shall provide the Department with specific information on the access controls and restrictions applicable to the J-Field OD unit on request.

VII.H.2. All J-Field personnel shall be equipped with communications equipment (e.g., radios, cellular phones) to communicate with Range Control operators.

VII.H.3. All operating personnel shall have access to and use personal protective equipment (PPE) appropriate to the operation (e.g., sparkproof/electrical hazard safety shoes and safety glasses).

VII.H.4. A first aid kit shall be on hand for all operations.

VII.I. INSPECTION SCHEDULES

VII.I.1. The J-Field OD Unit shall be inspected before each operation, after each operation, and weekly in accordance with the checklists included as Figures VII-2 (Pre-Operation and Post-Operation Inspections) and VII-3 (Weekly Inspection Report). These checklists may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with COMAR 26.13.07.

VII.I.2. Inspection checklists shall be kept in a log and maintained for at least three years from the date of the inspection.

VII.J. RECORDKEEPING AND REPORTING

VII.J.1. The Permittee shall maintain the J-Field OD Unit operating record required by Permit Condition II.H.1 until closure. All other records required by this permit shall be maintained for a minimum of three years. The retention period for all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

VII.J.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention, and disposition of records.

VII.J.3. The Permittee shall keep on site a copy of this part of the permit and its cited attachments. Table VII-3 summarizes the permit-required documents and records for the J-Field OD unit.

VII.K CONTINGENCY PLAN

VII.K.1.The most recent version of the following J-Field contingency plan documents shall be available at the CARA Safety Office at all times.

- J-Field RCRA Site-Specific Contingency Plan;
- APG Emergency Response Plan, Chapter 1, Basic Plan;
- APG Emergency Response Plan, Chapter 8, Environmental Release Prevention and Response Plan; and
- APG Emergency Response Plan, Chapter 11, Unexploded Ordnance (UXO) Operations.

Note: Permit Attachment VII-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency Plan.

VII.K.2.The J-Field Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, if it fails in an emergency.

VII.K.3. Solid waste containers in the J-Field shed shall be relocated well outside the 100-year flood plain if a hurricane or storm with the potential to cause site flooding is predicted.

VII.L CLOSURE PLAN

VII.L.1. Permit Attachment VII-1 is a Conceptual Closure Plan for the J-Field OD Unit. A detailed closure plan including a sampling and analysis plan shall be prepared and submitted to MDE at least 180 days before closure is expected to begin. The detailed plan shall incorporate all appropriate regulatory standards and reflect site conditions at the time of closure.

VII.L.2. The Permittee shall not proceed with closure of the J-Field OD Unit until MDE either approves or conditionally approves the detailed closure plan.

VII.M. LONG-TERM ENVIRONMENTAL MONITORING PROGRAM REVISIONS

VII.M.1. With the agreement of the Permittee, the Department may use administrative processes to revise the requirements of Permit Condition VII.G. based on the reports required by Paragraph VII.G.6 and other relevant data as long as such revisions:

- do not significantly impact human health or the environment,
- are more protective of human health and the environment, or
- are necessary or appropriate based on new data, analytical methods, or techniques.

VII.M.2. Administrative processes may not be used to revise the requirements of Permit Condition VII.G for a revision that would:

- decrease the frequency of groundwater or soil sampling,
- decrease the scope of groundwater (e.g., not taking groundwater samples from certain wells) or soil sampling, or
- eliminate target analytes from the long-term monitoring program.

(Permit continues on next page.)

VII.N. TABLES AND FIGURES

Table VII-1. J-Field Treatment Limits

(Pounds Net Explosive Weight (NEW) Including Donor Charge)

Per Pit	**1-Hour**	**24-Hours**	**Annual**
200	200	200	4,000

Table VII-2. Permitted Waste Codes for the J-Field OD Unit

Hazardous Waste Code*	Description
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004 – D043	Solid waste exhibiting the characteristic of toxicity

*Wastes detonated at J-Field must have hazardous waste code D003. They may also have any of the additional codes listed in this table.

Table VII-3. Permit-Required Documents/Records for the J-Field OD Unit**

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Chemical Accident or Incident Response and Assistance (CAIRA) Plan	26.13.05.04
Emergency Response Plan	26.13.05.04
Operating Record	26.13.05.05D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and VII of this Permit	26.13.07.05A and C

** All of these documents and records shall be available at the CARA Safety Office.

Figure VII-1. Semi-Annual Inspection Checklist for J-Field OD Unit Monitoring Wells, Flood Protection Berm and Stormwater Controls

Inspection Item	Possible Problems (Check one in each box)	Comments
Monitoring Wells are free of obvious signs of damage	Yes ☐ No ☐	
Flood Protection Berm's Earthen Surfaces are Covered with Grass or Similar Ground Cover, No Significant Surface Erosion, and Berm is Free of Encroachment from Trees and Brush (i.e., no Saplings Taking Root Within the Berm)	Yes ☐ No ☐ (Initiate work request for repair.)	
Stormwater Sediment Trap	Vegetation and, or silt are not inhibiting design functions ☐ Excess vegetation and, or silt may inhibit design functions (Initiate work request for mucking.) ☐	
General Shape and Elevation of the Stormwater Overflow Basin's Stone Overflow Weir is Maintained	Yes ☐ No ☐ Maintenance necessary to correct shape or elevation (specify)	
Concrete Inlet and Outlet Structures	No accumulated debris ☐ Removal of accumulated debris necessary ☐	
Concrete Inlet and Outlet Structures	In good repair ☐ Repairs necessary (specify) ☐	
Outlet Duckbill Valve	No degradation visible ☐ Visible degradation (specify) ☐ (Initiate work request for maintenance or replacement.)	
Outlet Duckbill Valve	Properly attached to reinforced concrete outlet pipe ☐ Not properly attached to reinforced concrete outlet pipe (Initiate work request for repair.) ☐	

Inspector _____

_____

Print Name **Signature**

Date **Time**

Figure VII-2. J-Field Pre/Post Operation Inspection Checklist

J-Field Pre/Post Operation Inspection Checklist

Pre-Operation

Inspector_____ Incident Number_____
Inspection Date_____ Time_____

	YES	NO
1. Regulatory Status of Operation: Permit Applies? (Consult Flow Chart for Determination)	☐	☐
2. Is the Gate secured, the warning flag displayed and all unauthorized personnel cleared from the area?	☐	☐
3. Has communication been established with range control?	☐	☐
4. Is vegetation and any combustible material cleared from operations area?	☐	☐
5. Are emergency equipment and PPE available and in working order?	☐	☐
6. Is special permission required for this operation? If so, was it obtained?	☐	☐
7. For treatment operations, have all weather conditions (dusk to dawn, no precipitation or electrical storms present/imminent) been met?	☐	☐

Issues/Comments:

Post Operation

Inspector_____
Inspection Date_____

	YES	NO
1. Has area been policed and all range residue collected, inspected and containerized?	☐	☐
2. Area cleared of hazardous items/UXO requiring retreatment?	☐	☐
3. Any hazardous conditions, such as fires, remain from operations?	☐	☐
4. Has range control been informed of completion of operations and given all pertinent information?	☐	☐
5. Gate, all facilities and equipment secured upon departure?	☐	☐
6. All applicable documentation* (J-Field Log, EOD Incident Report, etc.) completed?	☐	☐

Issues/Comments:

***Copy of this Report must be maintained by 20th CBRNE Cmd CARA**

Figure VII-3. J-Field Weekly Inspection Checklist

20th CBRNE COMMAND

CARA

J-FIELD
OPEN DETONATION AREA
INSPECTION REPORT

TYPE OF INSPECTION: WEEKLY

INSPECTOR: _____
NAME/TITLE (PRINT) (SIGNATURE)

DATE OF INSPECTION: _____ MONTH/DAY/YEAR

TIME OF INSPECTION: _____ MILITARY TIME

COPIES OF THE FOLLOWING DOCUMENTS AVAILABLE AT CARA OPS CTR

• J-Field Site-Specific Contingency Plan • Inspection Schedule and Logs • SOP • APG ERP Chapters 1, 8 and 11 • Training Records • Pertinent Sections of Permit • Operating Log	YES NO (circle one)

OPEN DETONATION AREA DESCRIPTION AND CONDITION:

	WEEKLY		WEEKLY
AREA FREE OF UXO & FRAGMENTS	YES ☐ NO ☐	OD PITS, TRENCHES AND CRATERS FILLED IN	YES ☐ NO ☐
BERM PROPERLY MAINTAINED. GRASS MOWED, FREE OF BRUSH	YES ☐ NO ☐	AREA BETWEEN BERM & SHORELINE POLICED FOR FRAGMENTS	YES ☐ NO ☐
BERM FREE OF SIGNS OF EROSION DAMAGE	YES ☐ NO ☐	RANGE RESIDUE SHED SECURED, CONTAINERS LABELED & IN GOOD CONDITION	YES ☐ NO ☐

PROBLEMS ENCOUNTERED:

SUGGESTED IMPROVEMENTS:

CORRECTIVE ACTION:

OTHER:

ATTACHMENT VII-1

Conceptual Closure Plan for J-Field OD Unit

I. General Information

This conceptual closure plan for the J-Field-OD unit is based on current operational plans. A detailed closure plan will be prepared and submitted to MDE at least 180 days before closure is expected to begin. The detailed plan will incorporate appropriate regulatory standards, actual operating experience, and site conditions at the time of closure. The facility owner, APG, and the facility operator, the 20th CBRNE Analytical and Remediation Activity (CARA), will not proceed with the final closure of the J-Field-OD unit until MDE either approves or conditionally approves the final closure plan.

II. Closure Plan - Closure Performance Standard

The J-Field-OD unit will be clean closed in a manner that (1) minimizes the need for further maintenance, (2) controls, minimizes, or eliminates, to the extent necessary to protect human health (based on future land use), and the environment (based on future land use), post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere, and (3) complies with COMAR requirements for the closure of miscellaneous units.

Clean closure is defined as closure to risk-based, site-specific levels as described in the March 16, 1998 EPA (Elizabeth Cotsworth) Memorandum entitled "Risk-Based Clean Closure." The baseline site characterization study (SCS) performed in 2003-2004 identified multiple human health and ecological site-related constituents of potential concern (COPCs) in the sampled media (surface and subsurface soils, sediment, surface water, and groundwater). Baseline SCS results were submitted to the Department in APG's 2006 application for modification of CHS Permit Number A-190 (US Army, 2006). The results of subsequent annual groundwater monitoring and 5-year surface soil characterization conducted as part of the current A-190 CHS permit's long-term monitoring requirements are summarized in Section IX.H of APG's August 2019 application for renewal of CHS Permit Number A-190. Table IX.H.2 in the August 2019 application for renewal of CHS Permit Number A-190 presents a summary of the COPCs, by media sampled, compiled since 2009 under the long-term monitoring program.

Human health and ecological risk assessments were performed for the J-Field unit to support this permit application. The results of these assessments are presented in Sections IX.L and IX.M of the August 2019 permit renewal application. The human health risk assessment concluded that slightly elevated risks are limited to acute and chronic air pathway exposures associated with highly conservative or improbable air emissions scenarios from detonations. Risks posed by contaminated soil and groundwater at source locations were characterized as minimal. The screening level ecological risk assessment concluded that slightly elevated risks are limited to disturbed soils impacted by OD operations, but there do not appear to be any significant impacts to ecologically sensitive locations identified immediately outside the site.

To support risk-based closure, APG would perform updated risk assessments using site monitoring data (e.g., soil and groundwater monitoring data) collected during permitted operations. Additional characterization would be performed, if necessary, to provide the data needed to perform these revised human health and ecological risk assessments.

The measures necessary to achieve risk-based clean closure would depend on the results of the site characterization, human health risk assessment, and ecological risk assessment performed at the time of closure. Soil removal or groundwater remediation could be necessary to achieve risk-based levels at the time of closure. It is also possible that implementation of best management practices, including the periodic addition of clean soils or amendments and other innovative techniques performed during permitted operations could mitigate further contamination of the unit so that further remediation is not required at closure.

III. Partial and Final Closure Activities

All of the closure activities discussed in this plan are final closure activities. APG does not envision closing the OD unit unless (1) the installation closes, or (2) a decision is made in conjunction with APG, MDE, and EPA that the J-Field-OD unit should not operate under the Resource Conservation and Recovery Act (RCRA) permit because the detonations performed there are primarily RCRA-exempt range clearance, emergency response, or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)-authorized response operations.

If the decision is made to operate the J-Field Unit in a different regulatory framework, the 20th CBRNE Command CARA and APG would work with MDE and EPA to define and comply with transition requirements. APG assumes that even if OD at J-Field at some point continues under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), RCRA "applicable or relevant and appropriate requirements" (ARARS) would have to be met.

IV. Maximum Waste Inventory/Maximum Unclosed Portion

No hazardous wastes are stored or accumulated at the J-Field-OD unit (except overnight due to weather or darkness). The maximum inventory of wastes ever present at the OD unit are the waste munitions that could be destroyed by the safety-based explosive load limit. This explosive limit cannot be exceeded at any time.

For the J-Field-OD unit, the net explosive weight (NEW) limit is 200 lb of material. This quantity would be the maximum waste inventory ever present at one time. This waste would be treated before the closure process began. The entire OD unit will remain in operation until final closure of the facility.

V. Schedule for Closure, Closure Timeline, and Extension of Time for Closure

Table 1 (at the end of the plan) presents a schedule for closure of the J-Field-OD unit based on the closure procedures described below. As shown on the closure schedule (Table 1), all remaining hazardous waste will be treated before the start of facility closure. APG does not expect to complete all closure activities within the required 180 days after initiation of closure because of the time necessary to perform a site investigation, interpret the results, and remediate the site if necessary. Consequently, APG expects to request an extension of time for closure of the OD unit. APG will keep MDE apprised of closure timelines.

VI. Closure Procedures

Hazardous Waste Inventory

All hazardous waste will be treated before the commencement of closure. Soil at the OD unit will be inspected for the presence of visible or readily identifiable unexploded ordnance (UXO) and treatment residues. The presence of debris, explosives, and other ordnance-related items will be noted. A surface sweep will be performed using an appropriate UXO detection device. Surface soil will be cleared of any UXO.

Characterization of Soils

Soil samples will be collected from the OD area in accordance with a sampling and analysis plan approved by MDE. The design of the soil sampling program for closure will be based on a review of historical soil sampling data for the unit. The samples will be taken in accordance with a sampling grid included in the approved sampling and analysis plan. The number and depth of soil samples will be based on the likelihood of contamination as determined by operating practices and the results of previous soil sampling activities. In general, the scope and detail of the sampling and analysis plan delivered to MDE as part of the J Field OD unit closure plan will be similar to that employed as part of APG's long-term monitoring program under the current permit. Results of the soil sampling at closure will be submitted to MDE.

Based on soil characterization results and the outcome of pre-coordinated assessments of human health and ecological risks, a decision will be made as to whether soil removal or other remedy will be necessary. Should remediation be required to achieve clean closure, the sampling and analysis plan will be amended to address cleanup verification, if not addressed in the initial plan.

Treatment or Removal and Disposal of Contaminated Soil

Any contaminated soil at the OD unit exceeding risk-based levels will be evaluated to determine if there are relevant and cost-effective in situ treatment options (e.g., bioremediation, alkaline hydrolysis) that can achieve risk-based levels. Contaminated soil that cannot achieve risk-based levels will be excavated using backhoes or other appropriate excavation equipment. Soil will be removed in 2 ft layers after a sweep for UXO in the OD areas. Sampling and analysis may be repeated after each layer of soil is removed to determine if cleanup goals have been attained. If the cleanup goals are not attained, additional layers of soil may be removed until closure goals are attained, or the unit will be closed as a landfill. At the present time, APG plans to close the OD areas as a treatment unit by removing contaminated soil, if remediation is necessary.

Excavated contaminated soil would likely be placed on plastic underlayment and be covered with the same material pending loading into trucks, roll-off boxes, etc., and off-site transport to authorized disposal facilities.

The requisite analyses would be performed on contaminated soils to characterize them as hazardous or nonhazardous waste. Test results would determine whether the soils would be transported to an off-site permitted hazardous waste or solid waste landfill.

Any vehicles and heavy equipment used in the removal operation would be decontaminated before leaving the remediation area and entering a clean area. If mechanical removal is not effective as determined by visual inspection, cleaning with high-pressure washer is an option for further decontamination. All removed contaminants and contaminated wastewater would be captured and placed in Department of Transportation (DOT) approved containers (e.g., drums, totes, or frac tanks) for off-site transport.

Characterization of Groundwater

The shallow aquifer underlying the J-Field-OD unit at APG consists primarily of interbedded, unconsolidated sediment with relatively low permeability. The general direction of groundwater flow is from the OD unit to the adjacent wetland and Chesapeake Bay just east of the site. The shallow aquifer is not used as a drinking water source. Existing groundwater supply wells at APG and in the region are screened at depths well below the shallow aquifer and are not within the influence of groundwater movement at the J-Field-OD unit. Therefore, migration of groundwater contaminants from OD operations is limited to the immediate vicinity of the OD unit with discharge to local surface water bodies. Further details regarding the hydrogeology of J-Field OD unit is provided in Section IX.G.5 of the permit application.

As previously noted, a baseline SCS was conducted for the J-Field-OD, OBF-OB and OBF-OD units in 2003 and 2004 (US Army, 2005). Based on groundwater monitoring results from the baseline SCS, MDE required the execution of a long-term monitoring program in the current A-190 CHS permit as a means of assessing changes over time. The permit stipulated sampling and analysis for the following analytes:

Metals
Explosives
Volatile Organic Compounds
Semi-volatile Organic Compounds
Perchlorates
Nitrates and Nitrites

Further details regarding long-term groundwater monitoring results gathered since the 2003/4 baseline SCS are provided in 2009 to 2018 annual groundwater monitoring reports referenced at the end of this section. (USACHPPM, 2009 and USAPHC 2010-2018).

The groundwater COPCs identified during long-term annual groundwater monitoring were evaluated in a human health risk assessment process (see Section IX.L of the 2019 permit application for details).

Unless advised differently by MDE, APG plans to continue with its current long-term groundwater monitoring program for the J-Field-OD unit. Groundwater sampling will occur on an annual basis. The analytical results from the long-term groundwater monitoring program will be compared to screening criteria and evaluated for long-term trends relative to the baseline SCS and previous years' monitoring data. These data can be used to determine the need for any corrective actions.

At closure, previous groundwater monitoring data (including baseline SCS and long-term monitoring data) and applicable hydrogeological investigations will be reviewed and evaluated for use to support risk-based closure. If required, additional groundwater samples will be collected at the J-Field-OD unit in accordance with the current long-term monitoring sampling and analysis plan, or a modified plan if so required by MDE.

Based on compiled groundwater monitoring results and the outcome of a pre-coordinated assessment of attendant risks to human and ecological health, a decision will be made as to whether groundwater remediation will be necessary.

Groundwater Remediation

If it is determined that groundwater is contaminated due to J-Field-OD unit operations, groundwater remediation and/or additional monitoring will be conducted. A detailed plan to address these activities would be submitted to MDE. It may also be warranted to conduct long-term (post-closure) groundwater monitoring if risk-based clean closure cannot be achieved. The long-term groundwater program would be specified in the post-closure plan submitted to MDE.

VII. Documentation of Closure

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to MDE. The certification will be accompanied by appropriate documentation.

VIII. Post-Closure Plan

This section is not applicable because APG intends to demonstrate clean closure of the J-Field-OD unit. If any portion of the facility must be closed as a land disposal unit due to soil contamination or groundwater contamination attributable to OD activities, APG will develop a post-closure plan and submit it to MDE.

TABLE 1.
CLOSURE SCHEDULE FOR THE J-FIELD-OD UNIT

Closure Activity	Cumulative Time (Days)
Receipt of final volume of waste	-90
Notify MDE of intent to close	-45
Start of closure	0
Site investigation (sampling and analysis, data interpretation)	240
Site remediation (if necessary)	270
Complete closure activities	400
Certification of closure	460

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USAPHC, 2018. *Annual Long-Term Ground Water Monitoring No. S.0056208-18, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2018.

PERMIT ATTACHMENT VII-2

GENERAL CONTINGENCY PLAN FOR THE J-FIELD OD UNIT

The general contingency plan for the J-Field Open Detonation Unit follows this page. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

NOTE: the information in this attachment was extracted from Revision 2 of the permit application, dated March 2021. The formatting and pagination differ from the source document, but the information is consistent with the permit application. The Permittee may use an alternate format for this document, as long as the substance of the alternately formatted document is consistent with the information in this attachment.

J-FIELD GENERAL
CONTINGENCY/EMERGENCY PLAN
COMPLIANCE INSTRUCTIONS

All personnel will comply with the procedures and requirements set forth in this plan. Failure to do so may result in death, personal injury, property damage, and/or harm to the environment. Individuals who fail to follow this plan may be subject to disciplinary action.

Any deviations from the procedures set forth herein are not authorized. Changes to this plan must be coordinated through the CARA Safety Officer and the APG Garrison Directorate of Public Works Environmental Division (DPW-ED).

When procedures in this plan do not adequately or specifically cover the requirements to perform a task safely, the operation or task will not be started, or if in progress, will be halted. Immediately notify the CARA Safety Officer when such circumstances arise.

Initial training on this plan will be given to newly assigned workers by their first line supervisor. After this training, the worker must sign the Employee's Statement Form in the site SOP. In addition, prior to each operation/task, the supervisor will brief workers on at least the following:

(1) Plan requirements and procedures,

(2) Individual responsibilities and safety precautions, and

(3) Any approved changes to the plan.

Annual refresher training is required for workers routinely assigned to operations/tasks. For those workers who are not routinely assigned to operations/tasks, refresher training will be the same as initial training. After each refresher training the Employee's Statement Form will be signed by each worker.

RCRA CONTINGENCY PLAN
J-FIELD/
[redacted]

I. GENERAL INFORMATION

Purpose:

The purpose of this plan is to describe actions/procedures site personnel will take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste at this site. This plan is site specific to this location and is an addendum to the CARA J-Field site SOP and Chapter 8 of the APG Emergency Response Plan, Environmental Release Prevention and Response Plan. Any use of the site by military EOD personnel during emergency response and/or treatment activities will be in accordance with applicable Army/Air Force EOD regulations/instructions, TM 60 series publications applicable to conventional munitions, and APG's Unexploded Ordnance (UXO) Plan (Chapter 11 of APG's Emergency Response Plan)

Site Description and Activities:

The J-Field open detonation (OD) unit is a 3.9 acre field located at the [redacted] in APG's Edgewood area range complex. The site is used for the OD of conventional waste military munitions (WMMs). It also serves as a designated safe location for the OD of unexploded ordnance (UXO) during emergency responses, and supports APG Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA) actions involving the removal and/or remediation of buried ordnance in APG's Edgewood area.

The J-Field unit is infrequently used. The site is limited by permit to the treatment (OD) of no more than 200 pounds net explosive weight (NEW) per 24-hr period and 4,000 pounds NEW per year. There is no hazardous waste storage at the facility. EOD and/or unexploded ordnance qualified personnel (UXOQP) transport to the site only those WMMs slated for treatment on a given day.

EOD and/or UXOQP police the site after use and place any collected munitions scrap in a metallic range residue collection shed located immediately west of the OD field along the [redacted] Road access drive. There is also a portable, steel holding magazine located on the west end of the OD field that is only used to store munitions overnight or through a weekend in the case of an unplanned operational shutdown due to electrical storm or similar event.

APG Uses the Following Emergency Resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies as needed. These organizations include the following garrison and non-garrison organizations: Directorate of Operations (DO) and Public Works (DPW); the 20th Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Command; the Development Command (DEVCOM) Chemical Biological Center (CBC); Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below and by coordinating their availability to the Incident Commander (IC) through the Garrison DO Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8–Environmental Release Prevention and Response Plan, defines roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. SITE EMERGENCY COORDINATORS

The Emergency Coordinators (ECs) for the J-Field OD unit are unexploded ordnance qualified personnel (UXOQP) and professional safety staff with experience and expertise in managing waste military munitions OD operations. Aside from their professional qualifications, they have received requisite hazardous waste training in accordance with APG's Hazardous Waste Training Program to ensure their knowledge and skills are sufficient to manage incidents at the J-Field OD unit. The ECs have a thorough understanding of the operations and wastes treated at J-Field, and are familiar with all aspects of this contingency plan. The site-specific contingency plan, which is kept at the CARA Operations Office, lists the names, addresses and contact numbers for both primary and alternate ECs.

II.A DUTIES OF THE EMERGENCY COORDINATOR

The EC is available to respond to the J-Filed OD unit in a timely manner (on call) at all times. The EC is responsible for coordinating all emergency response measures that concern hazardous waste. The EC functions as the on-scene coordinator until APG garrison emergency response personnel arrive. The senior responder from the DO Fire Division will assume site control only after CARA UXOQP and/or military EOD have removed explosive safety hazards.

II.B REGULATORY REQUIREMENTS

In accordance with Maryland Controlled Hazardous Substances regulations (COMAR 26.13.05.04.G), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests assistance by dialing 911.

2. Identifies the amount, character, source, and extent of any discharged material.

3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.

4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.

5. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.

6. Makes sure that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.

7. Submits verbal and written reports through DPW to the Maryland Department of the Environment (MDE) within 15 days of an incident containing the information listed in COMAR 26.13.05.04.G(10)

III. CRITERIA FOR IMPLEMENTING CONTINGENCY PLAN

The decision to implement the Contingency Plan depends on whether or not an imminent or actual incident could threaten human health or the environment. If an incident does not meet the criteria provided below and personnel are not at risk, an incident may be contained and abated by site personnel without plan implementation.

The EC will initiate the provisions of the Contingency Plan immediately if any of the following events identified below occur:

Fire:

- potential exists for spreading outside the OD range, or
- fire could block egress from or access to the OD site via the [redacted] Road access drive

Explosion: Any unplanned explosion that results in injury, death or damage to property.

Release: An unplanned release of hazardous waste with the potential to negatively impact human health or the environment that warrants prompt cleanup due to likely exceedance of risk-based concentrations determined acceptable during the permitting process (e.g. the release of an untreated toxic or corrosive munition fill from the munition into OD site soils due to pre-detonation leakage or incomplete detonation). NOTE: The release of a highly toxic chemical agent due to field misidentification of a munition's fill would be addressed under the APG Chemical Accident or Incident Response and Assistance (CAIRA) plan.

IV. EMERGENCY PROCEDURES

IV.A NOTIFICATION

If site operators (CARA and/or EOD personnel) encounter an imminent or actual site emergency involving fire, unplanned explosion and/or release of hazardous waste, they shall immediately halt operations, notify appropriate response authorities by dialing "911", initiate response actions if safe to do so, or otherwise evacuate the site and await assistance.

IV.B HAZARD IDENTIFICATION

Upon learning of an emergency at the J-Field OD unit, the EC will gather all necessary information to identify the character and magnitude of the event. Based on the nature of the J-Field site's use, the narrow scope of its treatment operations, the limited quantity of hazardous waste that could be present, and the constant communication between site operators and the CARA Operations Cell, it should take little time for the EC to identify the hazard(s) posed by a particular event.

IV.C HAZARD ASSESSMENT

Once the nature of the event and magnitude is defined, the EC will rapidly evaluate the potential hazards posed by the particular scenario. An unplanned explosion could be catastrophic resulting in instantaneous serious injury or loss of life. A range fire initiated by a detonation may not pose a significant immediate hazard; however, it could portend consequences for nearby Bald Eagle habitat, impact site access/egress, or affect other J-Field operations at the Prototype Detonation Test Detonation Facility (PDTDF). In sum, the EC will have to consider a multitude of operational safety and environmental factors when evaluating the hazards posed by a particular contingency scenario. The EC will not make the assessment in a vacuum, but will reach out to those reporting the incident, to Range Central to understand range operations in the area, and to the DPW-ED to size up potential environmental impacts.

IV.D CONTROL PROCEDURES

Prior to initiating the OD of WMMs, EOD and/or UXOQP personnel plan their activities; maintain constant communication with Range Central and the CARA Operations Cell; and adhere to detailed checklists, technical publications and procedures to ensure the safety of all personnel carrying out the OD operation.

In the event an emergency arises during operations, the J-Field operators will notify the APG EOC or DO Fire Division Dispatch Desk by dialing "911". If the EC is not on site or already aware of the incident, the J-Field team will also notify the EC at the CARA Operations Cell. During the 911 call, the discoverer of the incident should convey the following information about the incident (to the extent possible):

- Name and telephone number of the reporter
- Name and location of facility/site
- Date, time, and type of incident
- Name and estimated quantity of materials involved
- Extent of injuries, if any
- Possible hazards to human health or the environment outside the site

Using this information, the DO IC will activate the EOC, whose members will determine which garrison and non-garrison organizations and resources will be mobilized. Upon encountering one of the specific emergencies listed below, the following additional steps will take place:

IV.D.1 FIRE

The person observing the fire emergency will:

1. Report the fire through the installation emergency telephone number "911," giving the cause, location, extent of the fire and its potential to impact the J-Field OD area and site personnel.

2. Unless it is an incipient fire not involving a munition that can be safely extinguished with an on-site portable vehicle extinguishers, evacuate to the J-Field gate at [redacted] Road and await DO Fire Division responders.

The EC will:

3. Notify the CARA Safety Office and DPW-EC, providing the same information as in step 1 above.

The DO Fire Division (IC) will:

4. Take action to control the fire if safe to do so.

EOC personnel:

5. Notify the Installation Safety Office. Through the DPW-ED, notify the Maryland Department of the Environment (866-633-4686) and the National Response Center (800-424-8802) if the fire poses risks to human health and/or include the release of hazardous substances exceeding Reportable Quantities (RQs) listed in 40 CFR 302.

The EC and the IC will:

6. Assess fire impacts and implement actions to eliminate and/or mitigate them.

IVD.2 EXPLOSION

The person observing the explosion will:

1. Report the explosion through the installation emergency number, 911, giving the exact location of the explosion, its impacts to on site personnel and the OD facility.

2. Render assistance to injured personnel if it is safe to do so. If there is a potential for a secondary explosion or the release of toxic, irritating gases/vapors, evacuate the area a safe distance upwind. This will generally be the J-Field Gate along [redacted] Road if the explosion occurs in the OD area

3. Notify the EC or alternate presenting the same information as in Step 1

The EC will:

4. Notify the CARA SO and the DPW-ED, providing the same information as in step1 above.

EOC personnel will:

5. Depending on the scope of the incident, the EOC will contact the following and inform them of the incident: MDE, the Installation Safety Office, and local officials.

The EC and the IC will:

6. Assess the consequences of the explosion, confer with explosive and chemical experts and implement actions to protect personnel, eliminate/minimize loss of life and render the area safe for follow-on remediation and restoration.

IV.D.3 SPILL/RELEASE

The person identifying a spill/release will:

1. Report the spill/release through the installation emergency telephone number "911," giving the cause, location, type and quantity of material release.

The EC will:

2. Notify the CARA Safety Office & DPW-EC, providing the same information as in step 1 above.

The DO Fire Division (IC) will:

3. Take action to contain the spill if safe to do so. If the release involves potentially energetic materials, defer to EOD or CARA UXOQP, as appropriate.

EOC personnel will:

4. Notify the Installation Safety Office. Through the DPW-ED, notify the Maryland Department of the Environment (866-633-4686) and the National Response Center (800-424-8802) if the release poses risks to human health and/or includes a hazardous substances exceeding Reportable Quantities (RQs) listed in 40 CFR 302.

The EC and DPW-ED will:

5. Assess spill/release impacts and implement actions to cleanup and remediate the site.

IV.D.4 Prevention of Recurrence

The following are short summaries of actions J-Field site operators can take to mitigate the potential for the recurrence of fire, or unplanned explosions and releases:

Fire

- DPW to fund regular disking of the OD during growing season to minimize the presence of combustible vegetation.
- APG Fire Division can be called upon to wet the OD area during extremely dry conditions when the potential for fire from a detonation is greatest.
- EOD and UXOQP service vehicles will all carry portable fire extinguishers.
- Care will be taken when configuring detonations to minimize kick-out of hot and flaming fragments, as is feasible.

Explosion

- Strict adherence to explosive safety procedures
- Minimize personnel exposures during detonation set ups
- No operations during electrical storms
- Attention to material handling
- Police detonations and re-detonate unreacted energetics

Release

- Pay careful attention to material handling
- Check and re-check detonation set-ups and demo explosives to ensure complete detonations and minimize kick out—especially when handling canisters with submunitions.
- Carefully unpack potential liquid leakers (eg., FS or FM smoke) from their transport containers to ensure wrapping is not compromised material is not released to soil
- Police detonations to remove remaining munitions scrap and any potential unreacted kickout. Re-detonate unreacted energetics if found
- Consider contacting DPW for pre and post detonation sampling when OD operations involve dirty munitions and/or pyrotechnics (e.g., legacy test items known or suspected to contain red lead fill or large HC smoke pots that may leave significant hexachorethane residual). Remove and dispose of spot contamination as appropriate based on direction from DPW-ED.

IV.D.5 Storage and Treatment of Recovered Material

The DPW hazardous waste support contractor will pick up any recovered waste containers generated as the result of spill cleanup activities.

IV.D.6 Post Emergency Equipment Maintenance

The CARA will ensure no permitted OD operations or other uses of the J-Field unit take place until the site has been restored to normal operations, and any on site equipment and tools have been cleaned, repaired and/or replaced as needed.

The DPW-ED will notify MDE that site is fully operational and permitted OD of WMMs can resume.

V. EMERGENCY EQUIPMENT

V.A FIRE CONTROL AND EMERGENCY DECONTAMINATION EQUIPMENT

The APG DO Fire Division will provide support for fire response and field portable personnel decontamination station, as needed. ATC can provide helicopter bambi bucket support should the scope of a range fire warrant this level response. The 20th CBRNE Command also has a field PDS unit.

The DPW can provide long rakes should a release include the dissemination of unreacted white phosphorus that requires soil raking to ensure complete combustion.

V.B SPILL CONTROL EQUIPMENT/SUPPLIES

The DPW can provide drums, cubic yard boxes, and large container disposal as warranted during site cleanup. They also have ample hand shovels and backhoe available to support the excavation of contaminated soil.

V.C FIRST AID/MEDICAL SUPPORT

EOD and UXOQP carry small first aid kits in their dispatch vehicles. Any additional first aid will come from the APG DO Fire Division.

V.D EMERGENCY RESPONSE EQUIPMENT

TABLE 1-1. EQUIPMENT

Physical Description	Capabilities	Location
Shovels, Long-Handled Rakes	Contaminated soil excavation and aeration of white phosphorus	DPW
Radios/Cell Phones	Emergency Communication	Dynamic. Multiple response organizations
Ambulance	First aid and transport to medical facilities	DO Fire Div
Emergency Decon Station	Decontamination	DO Fire Div and 20th CBRNE Cmd
Drums, Cubic Yard Boxes	Fire Control	DPW Haz Waste Storage
Fire Extinguishers	Fire Control	EOD, CARA, and DO Fire Div Vehicles
Fire Truck/Pumpers	Fire Control	DO Fire Div
PPE, (SCBA, respirators, turn-out gear, Tyvek, etc.)	Fire Control and Spill Cleanup	DO Fire Div, 20th CBRNE, DPW

VI. COORDINATION AGREEMENTS FOR EMERGENCY SERVICES

On-Base Arrangements

All initial emergency response actions will be taken by internal APG assets. A copy of this plan will be maintained on site. Copies of this plan will also be submitted to the APG DO Fire Division and EOC, and DPW Environmental Division. All arrangements with outside emergency response organizations are an installation responsibility and records of contracts and/or Memorandum of Understanding/Support are maintained as part of the installation contingency/emergency plan.

Off-Base Arrangements

In addition to on-base capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazard potential associated with certain base activities and exercises discretion in using MAA resources, especially for military/chemical incidents. In an emergency in the Aberdeen Area, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen Area Fire Division can assist its Edgewood Area counterpart in the event of an emergency at the TSDF.

There is also a MOU between APG and Harford County entitled "Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland."

A chemical casualty contingency team is maintained at EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the MD Institute for Emergency Medical Services Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

VII. EVACUATION PLAN

Criteria for Determining Evacuation Option

The EC and IC may choose to evacuate the area whenever the hazards of fire, toxic contamination or explosive materials are endangering personnel, particularly those without protective gear.

Signals for Evacuation

Signals will be given verbally on site and via radio. All evacuation directions will be coordinated through the IC, Range Central and the EOC.

Evacuation Routes

Personnel will be asked to report to designated assembly points where head counts will be taken, as necessary. The initial assembly area will be along [redacted] Road at the J-Field Gate. From there, the IC (or his/her representative) will direct personnel to travel north to Range Central. In the case that evacuation north along [redacted] Road is not possible, alternatives (at the discretion of the IC and Range Central) could include water evacuation from the PDTDF area via ATC patrol boat or helicopter airlift from the PDTDF area.

VIII. REQUIRED REPORTS

The EC (or alternate) will note in the operation log of the facility, the time, date, and details of any incident that required implementation of the Contingency Plan. The conditions that caused the emergency and the resulting actions will also be included in this operational log entry. The EC will provide the IC and DPW with the necessary information to make timely reports to MDE. These IC/DPW reports will include a verbal (telephone) report within 24 hours, and a written report within 5 days or a written report within 15 days, if MDE grants APG an extension. Written reports will include the information listed below.

a. Name, address, and telephone number of the owner or operator of the facility;

b. Name, address, and telephone number of the facility;

c. Date, time, and type of incident (for example, fire, explosion);

d. Name and quantity of materials involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to human health or the environment, when applicable;

g. Estimated quantity and disposition of material recovered from the incident; and

h. Name of person who first reported the incident.

This report is submitted to:

Maryland Department of the Environment
Land and Materials Administration
1800 Washington Boulevard, Suite 610
Baltimore, Maryland 21230-1719

IX. AMENDMENTS TO THE PLAN

This contingency/emergency plan will be reviewed, and immediately amended, if necessary, whenever the:

a. Installation permit is revised.

b. Plan fails in an emergency.

c. Site changes in its design, construction, operation or other circumstances in a way that materially increases the potential for fires, explosions, or release of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.

d. List of site emergency coordinators changes.

e. List of emergency equipment changes.

f. A year has gone by since the last documented review

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Appendix A
Evacuation Route
(REDACTED)

NOTE: The plan maintained by the facility includes, at this point in the plan, a map showing the emergency evacuation route. It has been redacted from this page of the permit for security reasons.

MAP REDACTED FROM PERMIT

PART VIII
SPECIAL CONDITIONS FOR TREATMENT OF HAZARDOUS WASTE AT THE OLD BOMBING FIELD (OBF) OPEN BURN AND DETONATION UNITS

VIII.A. BACKGROUND

As part of the application process for this permit, the Permittee conducted an air pathway assessment to determine potential impacts of open burning (OB) and open detonation (OD) treatment operations for waste explosives and other energetic materials. The evaluation used air dispersion modeling calculations to estimate peak air quality impacts from OB/OD sources. The modeling results were generated from repeated model runs using 5 years of local meteorological data as inputs. The modeling utilized the U.S. Army Open Burn/Open Detonation Dispersion Model (OBODM) algorithms to define plume heights and instantaneous source dimensions for OB/OD sources. This information was then used as input to the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) to estimate peak air quality impacts from the OB/OD sources.

The AERMOD modeling results were then compared with the applicable National Ambient Air Quality Standards (NAAQS), applicable MDE Toxic Air Pollutant (TAP) screening exposure guidelines, and acute non-carcinogenic health reference concentrations. In instances when the AERMOD results demonstrated potential for exceeding either the NAAQS offsite or the acute exposure levels at the unit safety arcs onsite, the hourly model results were analyzed to determine the range of "no-go" conditions that will maintain air quality below the respective threshold levels. The "no-go" conditions have been incorporated into this permit as limiting conditions of operation for the OB/OD units.

For the purposes of this Part, the Permittee is APG as the owner and, as operator, the U.S. Army Aberdeen Test Center (ATC).

VIII.B. FACILITY DESCRIPTION

OBF OB Unit

The OBF OB unit is located in the southwest sector of the Aberdeen portion of APG's operational range complex. The unit consists of approximately 6.1 acres. There are 3 burn pans located at the unit. Each burn pan is separated from the others by approximately 150 ft and is situated on a concrete pad. The soil adjacent to the concrete pads is tilled and disked to remove vegetation and prevent the possibility of range fires. Each pan is of the same design and constructed of carbon steel. The pans consist of a steel plate bottom with welded C-channel sides (3 in. depth) that sit on a frame constructed of 2 each, 6 in.-wide, steel H-channels welded to C-channel cross members. Each pan has aluminum covers to prevent intrusion of rainwater into the pans when they are not in use. The covers are constructed in three sections per burn pan to facilitate handling the covers. Associated with each burn pan is an igniter stand upon which the lighting mechanism is channeled to the propellant that is to be treated. The igniter stand is constructed of a single piece of 2 in. angle iron used to support the detonation cord igniter line while it is attached to the propellant within the burn pan.

Other features in the vicinity of the OB site are a meteorological station, several monitoring wells, and a shelter used by site workers during burn events. Access to the burn pans is provided by a gravel service road within the unit. A site layout diagram and engineering drawings of the burn pans are on file at the offices of the Maryland Department of the Environment (the "Department").

OBF OD Unit

The OBF OD unit is located within the Aberdeen portion of APG's operational range complex, adjacent to the OBF-OB unit. The unit consists of 18.4 acres and is a level, lowland area. It contains a large flat non-grassy portion of consistent topography upon which the munitions are treated. The site is relatively flat, but gently slopes from its higher landward western boundary towards [redacted] Creek to its east. The unit is ringed to the north, east and south by a small berm. This feature, in concert with two stormwater retention basins on the north and east ends of the unit, control surface run-off. ATC personnel periodically grade the field with a bulldozer to control vegetation and promote site drainage. There are several groundwater monitoring wells around the site's perimeter. A site layout diagram is on file at the offices of the Department.

VIII.C. ORIGIN OF WASTES – PERMITTED WASTE TREATMENT

VIII.C.1. The OBF-OD unit is primarily used for the RCRA treatment (open detonation) of excess Research, Development, Test and Evaluation (RDTE) munitions inventories and waste explosives and munitions generated from research and testing operations. The OBF-OB unit is primarily used for the RCRA treatment of waste propellants and occasional small waste munitions items (e.g., pyrotechnics) from research and testing operations as well as from military training activities. OBF is also a designated safe location for the OD of munitions from emergency response and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) operations. In accordance with COMAR 26.13.10.27 (Military Munitions), wastes that are subject to the terms and conditions of this permit are those that are burned or detonated for the purpose of waste treatment.

VIII.C.2. Open burning and open detonation activities associated with the following activities are not subject to the terms and conditions of this permit unless they meet the conditions described in Permit Condition VIII.C.3:

VIII.C.2.a. On-range open detonation associated with clearing APG ranges of live and inert rounds from earlier research, development, testing and training activities on these ranges;

VIII.C.2.b. CERCLA removal actions designed to mitigate explosive or toxic hazards from high-risk munitions sites that meet the applicable substantive requirements of COMAR 26.13 and this permit;

VIII.C.2.c. Emergency detonation of conventional military munitions, other explosive material, or an explosive device presenting an immediate threat to human health, public safety, property, or the environment as determined by an explosive or munitions emergency response specialist as provided in COMAR

26.13.05.01A.(3)(h)(iv), irrespective of whether such conventional military munitions, explosive materials, and explosive devices originate onsite, offsite, or out-of-state; and

VIII.C.2.d. Use of military munitions for their intended purpose as defined in COMAR 26.13.10.27 B.(1) and (2).

VIII.C.3. Open burning and open detonation of the conventional military munitions identified in Permit Conditions VIII.C.3.a – VII.C.3.d are subject to the terms and conditions of this permit.

VIII.C.3.a. Munitions and propellants remaining from research and testing operations, including excess and off-specification energetic materials.

VIII.C.3.b. Used military munitions that do not pose an immediate threat to personnel or property when found outside the operational range area, and that are not being addressed in the context of a CERCLA-authorized removal or remedial action.

VIII.C.3.c. Stable munitions found on-range that response personnel determine were intentionally disposed by onsite burial and that are not being addressed in the context of a CERCLA-authorized removal or remedial action, with "indications of intentional disposal by onsite burial" including finding caches of buried munitions, munitions components, or related debris that may or may not be charred by fire (indicating a burn or disposal pit).

VIII.C.3.d. Any other conventional munition that is a solid waste as described in COMAR 26.13.10.27B(3) or B(4) and is:

i. regulated as a hazardous waste; and

ii. not otherwise exempted from the terms and conditions of this permit.

VIII.C.4. The Permittee shall track the regulatory status of all items open burned and open detonated at the OBF OB and OD units to distinguish between items regulated as hazardous waste under COMAR 26.13.10.27 and items and operations that are not subject to the terms and conditions of this permit and COMAR 26.13.10.27. Tracking information shall be made available to the Department on request.

VIII.D. TREATMENT LIMITS

Table VIII-1 in Permit Condition VIII.P presents OB and OD treatment limits for the OBF OB and OD units for explosives, propellants, and conventional waste munitions that are regulated as hazardous waste under COMAR 26.13.10.27.

VIII.E. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

VIII.E.1. The Permittee may only detonate reactive (D003) wastes at OBF. These wastes do not have to be tested for reactivity prior to treatment.

VII.E.2. Additional waste codes that may be applicable to the wastes detonated at Old Bombing Field are listed in Table VIII-2 in Permit Condition VIII.P. The Permittee shall not detonate any hazardous waste at Old Bombing Field if it contains a waste code that is not included in Table VIII-2.

VIII.E.3. The Permittee may characterize OB and OD items to be treated at OBF using data obtained from the Defense Ammunition Center (for standard ammunition), SDSs, customers, and other sources.

VIII.E.4. Characterization data for waste munitions that result from emergency response operations shall be the best available gleaned from pertinent DOD technical publications, historical testing documents, etc.

VIII.E.5. The Permittee shall arrange for Department personnel to review waste characterization data on the APG Installation on request.

VIII.E.6. Treatment of depleted uranium components, radiological, or chemical munitions is prohibited.

VIII.E.7. Treatment of lead-lined propellant bags is prohibited.

VIII.E.8. After each RCRA-permitted OB operation, ash shall be collected and characterized as necessary for metals regulated under the toxicity characteristic of COMAR 26.13.02.14. If precipitation contacts the ash while it is in the burn pan, the precipitation shall be considered part of the waste and it shall be removed and characterized with the ash.

VIII.E.9. After each RCRA-permitted OD operation, ATC personnel shall collect, visually inspect, and certify inert in accordance with DOD 4160.21, Volume 4, Defense Materiel Disposition: Instruction for Hazardous Property and Other Special Processing Materiel, all munitions debris (defined as remnants of munitions such as fragments, penetrators, projectiles, shell casings, links, and fins, remaining after munitions use, demilitarization, or disposal) and other range-related debris, such as, targets, military munitions packaging, and crating material, that could be explosive. When possible, such material shall be recycled for its metal content.

VIII.E.10. Munitions debris and other range-related debris shall be characterized and identified as hazardous waste, non-hazardous waste, or recyclable material (i.e., exempt scrap metal). It shall be packaged and labeled in accordance with APG and COMAR requirements. Hazardous and solid wastes destined for offsite disposal shall be tracked in APG's automated waste tracking system.

VIII.F. UNIT-SPECIFIC OPERATING CONDITIONS

VIII.F.1. Inspection and Maintenance of Flood Protection Berm and Stormwater Run-On and Run-Off Controls.

VIII.F.1.a. The flood protection berm and stormwater run-on and run-off controls at the Old Bombing Field OD unit shall be maintained to conform to as constructed conditions as documented in the 2008 "as built" drawings delivered to the Department. The Department recognizes that at any given time, the berm and stormwater run-on and run-off controls may exhibit settling and normal "wear and tear" (i.e., limited minor erosion of sloped berm surfaces and the build-up of modest amounts of silt and vegetation in sediment traps).

VIII.F.1.b. The flood protection berm and stormwater run-on and run-off controls for the Old Bombing Field OD Unit shall be maintained and inspected as necessary (but at least semi-annually in accordance with Permit Condition VIII.F.1.c.) to prevent surface erosion and protect the berm's structural integrity.

VIII.F.1.c. The stormwater sediment traps, stone overflow weirs, concrete inlet and outlet structures, and exterior duckbill valves shall be inspected at least semi-annually in accordance with the checklist on Figure VIII-1. Preventive maintenance shall be performed as soon as practicable to address inspection findings.

VIII.F.2. Treatment Operations for OB.

VIII.F.2.a. OBF burn pans shall not be used if there is evidence of deterioration that could lead to failure during use, such as separation at the seams, significant corrosion, etc.

VIII.F.2.b. OBF burn pans shall be elevated to allow for inspection of the bottom of the pans and the surface of the concrete beneath them and to enhance cooling.

VIII.F.2.c. Ejecta from OB operations shall be collected during the post-burn inspection and shall be reburned the same day.

VIII.F.2.d. Burn pan covers shall be tight fitting and remain on the burn pans during nonoperational periods to prevent accumulation of precipitation and wind dispersion of ash and residues.

VIII.F.2.e. Changes to burn pans, covers, and pads shall be coordinated with MDE. Burn pans shall be constructed of materials that can withstand the burning process and shall be of sufficient size and depth to contain residues. The Permittee may replace or remove burn pans without triggering closure or a permit modification as long as the treatment limits in Permit Condition VIII.D. are not exceeded and the OB unit will continue to operate. The Permittee shall notify MDE if burn pans taken out of operation will not be replaced.

VIII.F.2.f. The depth of energetics to be treated shall be 3 inches or less (to avoid the potential for detonation and facilitate effective treatment).

VIII.F.2.g. Dry grass, leaves, and other combustible materials shall be removed within a radius of 200 ft from the point of burning.

VIII.F.2.h. Neither dunnage nor flammable liquids shall be used to promote burning.

VIII.F.2.i. After each OB treatment event, the containment devices shall be cleaned of any residue and managed as a hazardous waste until determined otherwise based on waste analysis.

VIII.F.3. Treatment Operations for OD.

VIII.F.3.a. For subsurface detonations, the minimum charge burial depth needed to mitigate fragmentation hazards and noise impacts shall be used (because burial depth may adversely impact treatment effectiveness). Burial pits shall not exceed 5 ft in depth. Mounding shall be employed as necessary to provide minimum cover needed to mitigate noise impacts.

VIII.F.3.b. A minimum radius of 200 ft from the central detonation area shall be cleared of combustible material as a fire prevention measure before any detonation occurs.

VIII.F.3.c. Donor charges shall be appropriate to the types and quantities of waste munitions treated and shall ensure effective OD treatments.

VIII.F.3.d. After each treatment day, the unit and the surrounding area shall be searched for UXO and the UXO shall be treated as necessary.

VIII.F.3.e. Routine housekeeping of the OD unit (e.g., collection and removal of shrapnel) shall be conducted in accordance with inspection checklists.

VIII.F.3.f. OD pits, trenches and craters shall be filled in at the conclusion of each shot (or as soon as is practicable) to prevent the accumulation of precipitation and run-on. They shall be filled in as soon as practicable whenever groundwater infiltration is visible.

VIII.F.3.g. The Permittee may add and spread uncontaminated soil at the Old Bombing Field OD Unit as necessary to improve site drainage and build up areas where the water table is high. The Department recognizes that the Old Bombing Field OD Unit is dynamic and that ground elevations in the treatment area may fluctuate due to detonation activity, periodic regrading, and tilling to control vegetation.

VIII.G. AIR QUALITY MANAGEMENT AND LIMITING CONDITIONS OF OPERATION

VIII.G.1. The existence of any of the following meteorological conditions shall preclude OB/OD operations:

- Electrical storms, thunderstorms, or during periods of forecasted high probability (50 percent or greater) of electrical and/or thunderstorms.

- Precipitation or forecasted high probability (75 percent or greater) of precipitation during the proposed time of operations (defined as setup, burning or detonation, and cool-down period).
- The time of day is after dusk or before dawn (1/2 hour before sunset to 1/2 hour after sunrise).
- Periods of local air quality advisories/alerts (RED and ORANGE), with the determination of whether an air quality advisory exists based on information for the Edgewood and/or Aldino Weather stations. (OB/OD operations may be conducted under Code GREEN and YELLOW advisories).

VIII.G.2. The Permittee shall not conduct OB/OD operations when there is a combination of wind speed (meters per second) and mixing height (mixing depth) (meters) that is indicated with an "**X**" in the following table:

"No-Go" Conditions for OB/OD Operations			
Mixing Height (Z): →	Z < 100 m	100 ≤ Z < 210 m	210 ≤ Z ≤ 910 m
Wind Speed (U) ↓			
≤ 1.0 m/s	**X**	**X**	**X**
1.0 < U < 2.0 m/s	**X**	**X**	
2.0 < U < 2.5 m/s	**X**		

(Example: OB/OD operations would be precluded when windspeed is 1.5 m/s with a mixing height of 140 m.)

VIII.G.3. The Permittee shall use a weather data checklist to document go/no-go OB/OD treatment decisions using the above-listed criteria, and shall also document meteorological conditions whenever OB/OD treatment is conducted, and maintain this documentation as part of the facility operating record.

VIII.H NOISE MANAGEMENT

The Permittee shall mitigate potential noise and ground vibration impacts associated with the OBF-OD unit. The noise management program shall include the following elements: subsurface detonations for large quantity OD events, daily noise potential assessments/predictions using advanced computational tools, and routine noise monitoring.

VIII.I. LONG-TERM ENVIRONMENTAL MONITORING

VIII.I.1.APG shall continue to implement a long-term environmental monitoring program for the OBF OB and OD units.

VIII.I.2. The long-term environmental monitoring program shall involve groundwater and surface soil media sampling. The analytical results from the monitoring program shall be used to evaluate long-term environmental trends relative to the site characterization baseline.

VIII.I.3. Within 45 days of permit issuance, APG shall submit a schedule for implementation of the long-term monitoring program to MDE. The schedule will include annual groundwater monitoring starting the first late spring/early summer season after permit issuance (i.e., the expected period of highest groundwater levels and pollutant concentrations). The schedule shall also include one round of soil sampling conducted once every 5 years, continuing with the schedule that initiated the 5-year soil sampling in 2011 as a condition of CHS Permit A-190 issued February 15, 2010.

VIII.I.4. The Permittee shall submit a Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) to the Department no later than 30 days prior to initiating field sampling activities. In developing the soil sampling plan, the Permittee shall address the potential impacts on sampling design of any importation and placement of new soils or amendments at the unit that may have occurred during the previous year. The three downgradient wells and one upgradient well used at each unit for the baseline site characterization study shall also be used for the long-term monitoring program.

VIII.I.5 The following target analytes shall be used for the long-term monitoring program:

- Explosives
- Volatile organic compounds
- Semi-volatile organic compounds
- Metals
- Perchlorates
- Nitrates/nitrites (groundwater samples only)
- Dioxans/furans (surface soil samples limited to the OBF OB burn pan areas only)

VIII.I.6. Annual summary reports of groundwater monitoring results shall be submitted to the Department within 90 days after sampling is completed. A summary report shall also be issued to the Department for each surface soil sampling event within 90 days after sampling is completed.

VIII.I.7. APG's Bald Eagle Management Plan shall continue to mitigate potential impacts to eagle nests in proximity to the OBF OB and OD units. APG shall inform the Department whenever there are substantive changes to this plan that could affect eagle nests in or near the OBF OB OD unit.

VIII.J. PREPAREDNESS, PREVENTION, AND BEST MANAGEMENT PRACTICES

VIII.J.1. Access to the OBF OB and ODs unit shall be restricted to properly cleared personnel or escorted individuals and access controls (e.g., warning signs, gates) to prevent unknowing entry shall be maintained. The Permittee shall provide the

Department with specific information on the access controls and restrictions applicable to the OBF OB and OD units on request.

VIII.J.2. All OBF personnel shall be equipped with communications equipment (e.g., radios, cellular phones) to communicate with Range Control operators.

VIII.J.3. All operating personnel shall have access to and use personal protective equipment (PPE) appropriate to the operation (e.g., spark-proof/electrical hazard safety shoes and safety glasses).

VIII.J.4. A first aid kit shall be on hand for all operations.

VIII.K. INSPECTION SCHEDULES

VIII.K.1. The OBF OB and OD Units shall be inspected before each operation, after each operation, and weekly in accordance with the checklists included as Figures VIII-2 (OB Pre-Operation, Post-Operation, and Weekly Inspections) and VIII-3 (OD Pre-Operation, Post-Operation and Weekly Inspection Report), which appear in Permit Condition VIII.P. These checklists may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with COMAR 26.13.07.

VIII.K.2. Inspection checklists shall be kept in a log and maintained for at least three years from the date of the inspection.

VIII.L. RECORDKEEPING AND REPORTING

VIII.L.1. The Permittee shall maintain the OBF operating record required by Permit Condition II.H.1 until closure. All other records required by this permit shall be maintained for a minimum of three years. The retention period for all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

VIII.L.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention, and disposition of records.

VIII.L.3. The Permittee shall keep on site a copy of this part of the permit and its cited attachments. Table VIII-3 summarizes the permit-required documents and records for the Old Bombing Field OB and OD units.

VIII.M. CONTINGENCY PLAN

VIII.M.1.The most recent version of the following OBF contingency plan documents shall be available at ATC Building 700 or Mahan's Bombproof Shelter at all times:

- OBF RCRA Site-Specific Contingency Plan;
- APG Emergency Response Plan, Chapter 1, Basic Plan;

- APG Emergency Response Plan, Chapter 8, Environmental Release Prevention and Response Plan; and
- APG Emergency Response Plan, Chapter 11, Unexploded Ordnance (UXO) Operations.

Note: Permit Attachment VIII-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency located at ATC Building 700 or Mahan's Bombproof Shelter.

VIII.M.2.The OBF Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, if it fails in an emergency.

VIII.N. CLOSURE PLAN

VIII.N.1. Permit Attachment VIII-1 is a Conceptual Closure Plan for the OBF OD and OD units. A detailed closure plan including a sampling and analysis plan shall be prepared and submitted to MDE at least 180 days before closure is expected to begin. The detailed plan shall incorporate all appropriate regulatory standards and reflect site conditions at the time of closure.

VIII.N.2. The Permittee shall not proceed with closure of the OBF OB or OD unit until MDE either approves or conditionally approves the detailed closure plan.

VIII.O. LONG-TERM ENVIRONMENTAL MONITORING PROGRAM REVISIONS

VIII.O.1. With the agreement of the Permittee, the Department may use administrative processes to revise the requirements in Permit Condition VIII.I. based on the reports required by Permit Condition VIII.I.6 and other relevant data as long as such revisions:

- do not significantly impact human health or the environment,
- are more protective of human health and the environment, or
- are necessary or appropriate based on new data, analytical methods, or techniques.

VIII.O.2. Administrative processes may not be used to revise the requirements of Permit Condition VII.G for a revision that would:

- decrease the frequency of groundwater or soil sampling,
- decrease the scope of groundwater (e.g., not taking groundwater samples from certain wells) or soil sampling, or
- eliminate target analytes from the long-term monitoring program.

(Go to Page VIII-11)

VIII.P. TABLES AND FIGURES

Table VIII-1. OB and OD Treatment Limits
(Pounds Net Explosive Weight (NEW))

Source	Per pan (OB) /pit (OD)	1-Hour[(1)]	24-Hours	Annual
OBF-OB[(2), (3)]	1,000	3,000	10,000	50,000
OBF-OD[(4)]	1,000	1,000	2,000	40,000

Notes to Table VIII-1

[1]In any 1-hour period, only OB treatment or only OD treatment is allowed – not both.
[2] Based on propellant (Class 1.3). Limit of 50 lbs for explosives (Class 1.1) per pan, per event.
[3] The amount of explosive material which can be destroyed at one time in one pan shall be limited to one of the following:

- Propellant (Class 1.3) – 1,000 lb.
- Propellant (Class 1.1) – 50 lb.
- Black powder (Class 1.1) – 50 lb.
- Ignition cartridge powder (Class 1.1) – 50 lb.
- Ignition cartridges (Class 1.4) – 500 units.
- Signal flares, parachute type (Class 1.3) – 500 units.
- In the case of wet propellant, at least a 60:40 percent mixture of dry to wet propellant shall be used, not to exceed 1,000 lb.

[4]Includes donor charge.

Table VIII-2. Permitted Waste Codes for the OBF OB and OD Units

Hazardous Waste Code*	Description
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004 – D043	Solid waste exhibiting the characteristic of toxicity

*Wastes detonated at Old Bombing Field must have hazardous waste code D003. They may also have any of the additional codes listed in this table.

Table VIII-3. Permit-Required Documents/Records for the OBF OB and OD Units*

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Chemical Accident or Incident Response and Assistance (CAIRA) Plan	26.13.05.04
Emergency Response Plan	26.13.05.04
Operating Record	26.13.05.05D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and VIII of this Permit	26.13.07.05A and C

* All of these documents and records shall be available at the Aberdeen Test Center Environmental Office

Figure VIII-1. Semi-Annual Inspection Checklist for OBF OD Unit Monitoring Wells, Flood Protection Berm and Stormwater Controls

Inspection Item	Possible Problems (Check one in each box)	Comments
Monitoring Wells are free of obvious signs of damage	YES ☐ NO ☐	
Flood Protection Berm's Earthen Surfaces are Covered with Grass or Similar Ground Cover, No Significant Surface Erosion, and Berm is Free of Encroachment from Trees and Brush (i.e., no Saplings Taking Root Within the Berm)	YES ☐ NO ☐ (Initiate work request for repair.)	
Stormwater Sediment Trap	Vegetation and, or silt are not inhibiting design functions ☐ Excess vegetation and, or silt may inhibit design functions ☐ (Initiate work request for mucking.)	
General Shape and Elevation of the Stormwater Overflow Basin's Stone Overflow Weir is Maintained	YES ☐ NO ☐ Maintenance necessary to correct shape or elevation (specify)	
Concrete Inlet and Outlet Structures	No accumulated debris ☐ Removal of accumulated debris necessary ☐	
Concrete Inlet and Outlet Structures	In good repair ☐ Repairs necessary (specify) ☐ _____	
Outlet Duckbill Valve	No degradation visible ☐ Visible degradation (specify) ☐ _____ (Initiate work request for maintenance or replacement.)	
Outlet Duckbill Valve	Properly attached to reinforced concrete outlet pipe ☐ Not properly attached to reinforced concrete outlet pipe ☐ (Initiate work request for repair.)	

Inspector Name: _____ **Signature:** _____

Date: **Time:**

ATC HIGH EXPLOSIVES UNIT INSPECTION CHECKLIST FOR OD

OLD BOMBING FIELD – OPEN DETONATION AREA
INSPECTION REPORT

CHECK (x) TYPE OF INSPECTION:	WEEKLY	DAILY BEFORE OPERATIONS	DAILY AFTER OPERATIONS

INSPECTOR: _____
NAME/TITLE (PRINT) (SIGNATURE)

DATE OF INSPECTION: _____ MONTH/DAY/YEAR

TIME OF INSPECTION: _____ MILITARY TIME

COPIES OF THE FOLLOWING DOCUMENTS ARE AVAILABLE:

RCRA PART B PERMIT OBF	YES	NO	PERSONNEL TRAINING RECORDS B349	YES	NO	OPERATING LOGS B349	YES	NO	DEMIL SOP OBF	YES	NO
METEO DATA FORM B349	YES	NO	GENERAL COMMENTS:								

OPEN DETONATION AREA DESCRIPTION AND CONDITION:

	WEEKLY	DAILY BEFORE OPERATIONS	DAILY AFTER OPERATIONS
AREA FREE OF UXO & FRAGMENTS	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
BERM PROPERLY MAINTAINED GRASS MOWED, FREE OF BRUSH	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
BERM FREE OF SIGNS OF EROSION DAMAGE	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
AREA BETWEEN BERM & SHORELINE POLICED FOR FRAGMENTS	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐

PROBLEMS ENCOUNTERED:

SUGGESTED IMPROVEMENTS:

CORRECTIVE ACTION:

OTHER:

Figure VIII-2 OBF-OD Pre-Operation, Post-Operation and Weekly Inspection Report

ATC HIGH EXPLOSIVES UNIT INSPECTION CHECKLIST FOR OB

OLD BOMBING FIELD – OPEN BURNING SITE
INSPECTION REPORT

CHECK (x) TYPE OF INSPECTION:	WEEKLY	DAILY BEFORE OPERATIONS	DAILY AFTER OPERATIONS

INSPECTOR: _____
NAME/TITLE (PRINT) (SIGNATURE)

DATE OF INSPECTION: _____ MONTH/DAY/YEAR

TIME OF INSPECTION: _____ MILITARY TIME

COPIES OF THE FOLLOWING DOCUMENTS ARE AVAILABLE:

RCRA PART B PERMIT OBF	YES	NO	PERSONNEL TRAINING RECORDS B349	YES	NO	OPERATING LOGS B349	YES	NO	DEMIL SOP OBF	YES	NO
METEO DATA FORM B349	YES	NO	GENERAL COMMENTS:								

BURN PAN DESCRIPTION AND CONDITION:

	WEEKLY	DAILY BEFORE OPERATIONS	DAILY AFTER OPERATIONS
SHELL MATERIAL (STEEL)	IX YES ☐ X NO ☐	XI YES ☐ XII NO ☐	XIII YES ☐ XIV NO ☐
COVER MATERIAL (ALUMINUM)	XV YES ☐ XVI NO ☐	XVII YES ☐ XVIII NO ☐	XIX YES ☐ XX NO ☐
UNDERLYING PADS (CONCRETE)	XXI YES ☐ XXII NO ☐	XXIII YES ☐ XXIV NO ☐	XXV YES ☐ XXVI NO ☐
ASH RESIDUE HELD	YES ☐ NO ☐		

PROBLEMS ENCOUNTERED:

SUGGESTED IMPROVEMENTS:

CORRECTIVE ACTION:

OTHER:

Figure VIII-3 OBF-OB Pre-Operation, Post-Operation and Weekly Inspection Report

ATTACHMENT VIII-1

CONCEPTUAL CLOSURE PLAN FOR OLD BOMBING FIELD

I. General Information

This conceptual closure plan for the OBF-OB/OD units is based on current operational plans. A detailed closure plan will be prepared and submitted to MDE at least 180 days before closure is expected to begin. The detailed plan will incorporate appropriate regulatory standards, actual operating experience, and site conditions at the time of closure. The facility owner, APG, and the facility operator, the Aberdeen Test Center (ATC) will not proceed with the final closure of the OBF-OB/OD units until the final closure plan is either approved or conditionally approved by MDE.

II. Closure Performance Standard

The OBF-OB and OD units will be clean closed in a manner that (1) minimizes the need for further maintenance, (2) controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment (based on future land use), post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere, and (3) complies with COMAR closure requirements for the closure of miscellaneous units.

Clean closure is defined as closure to risk-based, site specific levels as described in the March 16, 1998 EPA (Elizabeth Cotsworth) Memorandum entitled "Risk-Based Clean Closure." The baseline SCS performed in 2003-2004 (US Army, 2005), and subsequent annual groundwater (USACHPPM, 2009 & USAPHC, 2010-2018) and quinquennial surface soil characterization (EA Engineering, 2011 & USAPHC, 2016) conducted since 2009, identified multiple human health and ecological site-related COPCs in the sampled media. Baseline SCS results were submitted to the Department in APG's 2006 application (US Army, 2006). The results of subsequent annual groundwater monitoring and 5-year surface soil characterization conducted as part of the current A-190 CHS permit's long-term monitoring requirements are summarized in Section IX.H. Table IX.H.3 presents a summary of the COPCs, by media sampled, compiled since 2009 for the OBF-OB unit, and Table IX.H.4 presents a summary of the COPCs identified for the OBF-OD unit.

Human health and ecological risk assessments were performed for the OBF-OB and OD units to support this permit application. The results of these assessments are presented in Sections IX.L and IX.M of the permit renewal application (Revision 2, March 26, 2021). The human health risk assessment concludes that slightly elevated risks are limited to acute and chronic air pathway exposures associated with highly conservative or improbable air emissions scenarios from detonations. Risks posed by contaminated soil and groundwater at source locations were characterized as minimal. The screening level ecological risk assessment concludes that slightly elevated risks are limited to disturbed soils impacted by OBF-OB and OD operations, but there do not appear to be any significant impacts to ecologically sensitive locations identified immediately outside the sites and adjoining areas.

To support risk-based closure, APG would perform updated risk assessments using site monitoring data (e.g., soil and groundwater monitoring data) collected during permitted

operations. Additional characterization would be performed, if necessary, to provide the data needed to perform these assessments.

The measures necessary to achieve risk-based clean closure would depend on the results of the site characterization and risk assessments performed at the time of closure. Soil removal or groundwater remediation could be necessary to achieve risk-based levels. It is also possible that implementation of best management practices, including the periodic addition of clean soils or amendments and other innovative techniques performed during permitted operations could mitigate further contamination of the unit so that further remediation is not required at closure.

III. Partial and Final Closure Activities

All of the closure activities discussed in this plan are final closure activities. ATC does not envision closing the OBF-OB or OD units unless (1) the entire installation closes, or (2) ATC's mission changes such that the performance of OB and OD activities are no longer needed. Final closure activities are discussed in the Closure Procedures section of this plan.

IV. Maximum Waste Inventory/Maximum Unclosed Portion

No hazardous wastes are stored or accumulated at the OBF-OB or OD units. The maximum inventory of wastes ever present at the OB and OD units are the safety-based explosive load limits, including explosive ignition and demolition material, for various operations. These explosive limits cannot be exceeded at any time.

For the OBF-OB unit, the maximum NEW for each of the three burn pans is 1,000 lb of Class 1.3 material and 50 lb of Class 1.1 materials in any 1-hour period. Five thousand (5,000) lb of Class 1.3 materials would be a likely full day limit. For the OBF OD unit, the 1-hour NEW limit is 1,000 lb of material, but 2,000 lb is possible in a day. These quantities would be the maximum waste inventory ever present at one time. This waste would be treated before the closure process began.

APG expects to keep all three OB burn pans in operation until closure of the facility. The entire OBF-OD unit will remain in operation until final closure of the facility.

V. Schedule for Closure, Closure Timeline, and Extension of Time for Closure

Table 1(at the end of the plan) presents a schedule for closure of the OBF-OB and OD units based on the closure procedures described below. As shown on the closure schedule (Table 1), all remaining hazardous waste will be treated before the start of facility closure. APG does not expect to complete all closure activities within the required 180 days after initiation of closure because of the time necessary to perform a site investigation, interpret the results, and remediate the site (if necessary). Consequently, APG expects to request an extension of time for closure of the OBF-OB and OD units. APG will keep MDE apprised of closure timelines.

VI. Closure Procedures

Hazardous Waste Inventory

All hazardous waste will be treated before closure begins. Surface soils will be swept for UXO and appropriately treated. Any visible munitions debris and ash waste from open burning will be analyzed and sent off-site as hazardous or nonhazardous waste in accordance with APG's Waste Analysis Plan.

Decontamination Procedures

Burn Pans and Concrete Pads in the OB unit - The burn pans and lids will be cleaned of treatment residuals and either left in place or removed from the OB/OD unit for other purposes, or sold as scrap metal. The concrete pads (or concrete pads if installed to replace the gravel pads) will be swept clean and may or may not be demolished depending on planned use of the site.

Soils Surrounding Burn Pans and in Open Detonation Area

At closure, the soils (and some gravel) surrounding the burn pans and the soil of the OD unit will be inspected for visible or readily identifiable UXO and treatment residues. The presence of debris, ash, explosives, and other ordnance-related items will be noted. A surface sweep will be performed using an appropriate UXO detection device. Surface soil will be cleared of any UXO.

Characterization of Soils

Soil samples will be collected from the OB burn pan area and the OD area in accordance with a sampling and analysis plan approved by MDE. The design of the soil sampling program for closure will be based on a review of historical soil sampling data for the units. The samples will be taken in accordance with a sampling grid included in the approved sampling and analysis plan. The number and depth of soil samples will be based on the likelihood of contamination as determined by operating practices and the results of previous soil sampling activities. In general, the scope and detail of the sampling and analysis plan delivered to MDE as part of the OBF OB/OD closure plan will be similar to that employed as part of APG's long-term monitoring program under the current permit. Results of the soil sampling at closure will be submitted to MDE.

Based on soil characterization results and the outcome of pre-coordinated assessments of human health and ecological risks, a decision will be made as to whether soil removal or other remedy will be necessary. Should remediation be required to achieve clean closure, the sampling and analysis plan will be amended to address cleanup verification, if not addressed in the initial plan.

Treatment or Removal and Disposal of Contaminated Soil

Any contaminated soil at the OD unit exceeding risk-based levels will be evaluated to determine if there are relevant and cost-effective in situ treatment options (e.g., bioremediation, alkaline hydrolysis) that can achieve risk based levels. Contaminated soil that cannot achieve risk-based

levels will be excavated using backhoes or other appropriate excavation equipment. Soil will be removed in 2 ft. layers after a sweep for UXO in the OD areas. Sampling and analysis may be repeated after each layer of soil is removed to determine if cleanup goals have been attained. If the cleanup goals are not attained, additional layers of soil may be removed until closure goals are attained, or the unit will be closed as a landfill. At the present time, APG plans to close the OB and OD areas as treatment units by removing contaminated soil, if remediation is necessary.

Excavated contaminated soil would likely be placed on plastic underlayment and be covered with the same material pending loading into trucks, roll-off boxes, etc., and off-site transport to authorized disposal facilities.

The requisite analyses would be performed on contaminated soils to characterize them as hazardous or nonhazardous waste. Test results would determine whether the soils would be transported to an off site permitted hazardous waste or solid waste landfill.

Any vehicles and heavy equipment used in the removal operation would be decontaminated before leaving the remediation area and entering a clean area. If mechanical removal is not effective as determined by visual inspection, steam cleaning with a high-pressure steam washer is an option for further decontamination. All removed contaminants and contaminated wastewater would be captured and placed in DOT approved containers for off-site shipment.

Characterization of Groundwater

The shallow aquifer underlying OBF-OB and OBF-OD units at APG consists primarily of interbedded, unconsolidated sediment with relatively low permeability. The general direction of groundwater flow is from the OB/OD units to nearby surface water discharge areas such as the Bush River. The shallow aquifer is not used for groundwater supply in the range areas. Existing ground water supply wells at the APG and the region are screened at depths well below the shallow aquifer and are not within the influence of groundwater movement at the OBF-OB and OBF-OD units. Therefore, migration of groundwater contaminants from OB/OD operations is limited to the immediate vicinity of the OB/OD units with discharge to local surface water bodies. Further details regarding the hydrogeology of the OB/OD units are provided in Section IX.G.5 of the permit application.

As previously noted, a baseline SCS was conducted for the J-Field-OD, OBF-OB and OBF-OD units in 2003 and 2004 (US Army, 2005). Based on groundwater monitoring results from the baseline SCS, MDE required the execution of a long-term monitoring program in the current A-190 CHS permit as a means of assessing changes over time. The permit stipulated sampling and analysis for the following analytes:

Metals
Explosives
Volatile Organic Compounds
Semi-volatile Organic Compounds
Perchlorates
Nitrites/Nitrates

Details regarding long-term groundwater monitoring results are provided in the 2009 to 2018 annual groundwater monitoring reports referenced at the end of this section (USACHPPM, 2009 and USAPHC 2010-2018).

The groundwater COPCs identified from the SCS and subsequent monitoring events were evaluated during the human health risk assessment process for this permit application (see Section IX.L of the permit application for details).

At closure, previous groundwater monitoring data (including baseline SCS and long-term monitoring data) and applicable hydrogeological investigations will be reviewed and evaluated for use to support risk-based closure. If required, groundwater samples will be collected at the OBF-OB and OBF-OD units in accordance with a sampling and analysis plan approved by MDE. In general, the scope and detail of the sampling and analysis plan delivered to MDE as part of the OBF-OB/OD units' final closure plan will be similar to that used for long-term monitoring.

Based on compiled groundwater monitoring results and the outcome of a pre-coordinated assessment of attendant risks to human and ecological health, a decision will be made as to whether groundwater remediation will be necessary.

Groundwater Remediation

If it is determined that groundwater is contaminated due to OBFOB/OD operations, groundwater remediation and/or additional monitoring will be conducted. A detailed plan to address these activities would be submitted to MDE. It may also be warranted to conduct long-term (post-closure) groundwater monitoring if risk-based clean closure cannot be achieved. The long-term groundwater program would be specified in the post-closure plan submitted to MDE.

VII. Documentation of Closure

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to MDE. The certification will be accompanied by appropriate documentation.

VIII. Post-Closure Plan

This section is not applicable because APG intends to demonstrate clean closure of the OBF-OB and OD units. If any portion of the facility must be closed as a land disposal unit due to soil contamination or groundwater contamination attributable to OB/OD activities, APG will develop a post-closure plan and submit it to MDE.

IX. References

U.S. Army, 2005. *OB/OD Site Characterization Study*. Aberdeen Proving Ground, MD, January 2005.

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USACHPPM, 2009. *Ground Water Consultation No. 38-EH-0BLY-09, Annual Long-Term Ground Water Monitoring at Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, July 2009.

USAPHC (U.S Army Public Health Center) (Provisional), 2010. *Ground Water Consultation No. 38-EH-0D74-10, Annual Long-Term Ground Water Monitoring at Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2010.

USAPHC (Provisional), 2011. *Ground Water Consultation No. 38-EH-0ERQ-11, Annual Long-Term Ground Water Monitoring at Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, July 2011.

EA Engineering, Science and Technology, 2011: *Site Characterization Summary Report: Long Term Environmental Monitoring Surface Soil Characterization of Open Burn and Open Detonation Sites at Old Bombing Field and Robins Point*, August, 2011

USAPHC, 2012. *Annual Long-Term Ground Water Monitoring No. S.0001987.12, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, July 2012.

USAPHC, 2013. *Annual Long-Term Ground Water Monitoring No. S.0013553-13, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June and August 2013.

USAPHC, 2014. *Annual Long-Term Ground Water Monitoring No. S.0023600-14, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2014.

USAPHC, 2015. *Annual Long-Term Ground Water Monitoring No. S.0032654-15, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2015.

USAPHC, 2015. *Old Bombing Field Open Burn/Open Detonation New Monitoring Well Installation No. S.0034354-15, Aberdeen Proving Ground, MD*, September 2015.

USAPHC, 2016a. *Annual Long-Term Ground Water Monitoring No. S.0042609-16, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2016.

USAPHC, 2016b. *Controlled Hazardous Substance A-190 Permit Periodic Long-Term Environmental Soil Monitoring Old Bombing Field and Robins Point J-Field Open Burn/Open Detonation Units, APG, MD, Tech Report No. S.0040631.2-16*, July 2016.

USAPHC, 2017. *Annual Long-Term Ground Water Monitoring No. S.0049497-17, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2017.

USAPHC, 2018. *Annual Long-Term Ground Water Monitoring No. S.0056208-18, Open Burn/Open Detonation Sites, Aberdeen Proving Ground, MD*, June 2018.

X. Closure Schedule

TABLE 1.
CLOSURE SCHEDULE FOR THE OBF-OB AND OD UNITS

Closure Activity	Cumulative Time (Days)
Receipt of final volume of waste	-90
Notify MDE of intent to close	-45
Start of closure	0
Removal of burn pans Possible removal of concrete pads	60 90
Site investigation (sampling and analysis, data interpretation)	240
Site remediation (if necessary)	365
Complete closure activities	400
Certification of closure	460

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PERMIT ATTACHMENT VIII-2

GENERAL CONTINGENCY PLAN FOR OLD BOMBING FIELD

The general contingency plan for the Old Bombing Field OB/OD Unit follows this page. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

NOTE: the information in this attachment was extracted from Revision 2 of the permit application, dated March 2021. The formatting and pagination differ from the source document, but the information is consistent with the permit application. The Permittee may use an alternate format for this document, as long as the substance of the alternately formatted document is consistent with the information in this attachment.

GENERAL
CONTINGENCY/EMERGENCY PLAN
COMPLIANCE INSTRUCTIONS

All personnel will comply with the procedures and requirements set forth in this Plan. Failure to do so may result in death, personal injury, property damage, and/or harm to the environment. Individuals who fail to follow this Plan may be subject to disciplinary action.

Any deviations from the procedures set forth herein are not authorized. Changes to this Plan must be coordinated through the ATC Safety & Occupational Health Officer and the ATC Environmental Officer.

When procedures in this Plan do not adequately or specifically cover the requirements to perform the task safely, the operation or task will not be started, or if in progress, will be halted. Immediately notify the ATC Safety & Occupational Health Officer and the ATC Environmental Officer.

Initial training on this Plan will be given to newly assigned workers by their first line supervisor. After this training, the worker must sign the Employee's Statement Form in the site Standard Operating Procedure (SOP). In addition, prior to each operation/task, the supervisor will brief workers on at least the following:

(1) Plan requirements and procedures,

(2) Individual responsibilities and safety precautions, and

(3) Any approved changes to the Plan.

Quarterly refresher training is required for workers routinely assigned to operations/tasks. For those workers who are not routinely assigned to operations/tasks, refresher training will be the same as initial training. After each refresher training the Employee's Statement Form will be signed by each worker.

GENERAL CONTINGENCY/EMERGENCY PLAN
OLD BOMBING FIELD
OPEN BURNING/OPEN DETONATION

1. The purpose of this plan is to describe actions/procedures site personnel will take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste at this site. This plan is site specific to this location and is an addendum to SOP CS-0000-J-2001. It is one of the site-specific plans falling under Chapter 8 of the APG Emergency Response Plan, Environmental Release Prevention and Response Plan.

2. **SITE EMERGENCY COORDINATORS:**

a. **Primary: This information is available onsite.**

Name:
Work Location:
Work Phone:
Home Phone:
Address:

b. **Primary Alternate(s): This information is available onsite.**

Name:
Title:
Work Location:
Work Phone:
Home Phone:
Address:

Name:
Title:
Work Location:
Work Phone:
Home Phone:
Address:

c. **Secondary Alternate(s): This information is available onsite.**

Name:
Title:
Work Location:
Work Phone:
Home Phone:
Address:

Name:
Title:
Work Location:
Work Phone:
Home Phone:
Address:

3. **Steps to take in the event of an emergency and/or spill:**

a. The individual(s) on the site will take whatever immediate actions necessary to protect human health and the environment; containing the spill, using firefighting equipment to stop non-ammunition related fires. **NOTE: At no time will an individual endanger his/her health and/or safety to take immediate actions.** Normally only solids are disposed of. If spilled, they would simply be cleaned up and the operation would continue. The person observing the emergency and/or spill must, as quickly as possible verbally warn the team supervisor and other team members of the hazards. If team members are not within earshot, he must warn them either by horn or by going to them.

b. Dial the installation emergency number "911." By dialing the installation emergency number, the Directorate of Operations (DO) is automatically notified. DO personnel will determine whether to activate the Emergency Operations Center (EOC), the Fire Division, the Police, the Directorate of Public Works, and other organizations that can provide emergency assistance. The telephone report must include:

* Name and telephone number of the reporter.
* Name and location of facility/site.
* Date, time, and type of incident.
* Name and estimated quantity of materials involved.
* Extent of injuries, if any.
* Possible hazards to human health or the environment outside the site.

c. The individual making the emergency call will ensure the emergency response personnel are met at Mahans Bomb Proof.

d. Evacuate personnel from in and around site as needed. Evacuated personnel should meet/gather at a designated location for accountability reasons. Location: Mahans Bomb Proof.

e. Contact the site emergency coordinator and activity environmental/safety personnel as needed and/or required by internal standing operating procedures (SOPs).

f. Upon arrival of emergency response personnel, the senior fire official will act as the Incident Commander (IC). Responsibilities and procedures to be followed upon arrival of emergency response personnel are outlined in Chapter 8 of the APG Emergency Response Plan, Environmental Release Prevention and Response Plan. NOTE: Each site will have a copy of Chapter 8 of the APG Emergency Response Plan, Environmental Release Prevention and Response Plan and site personnel will be familiar with the information contained therein.

g. At the conclusion of the incident, the site manager or alternate will take possession of the containerized waste and related debris. He/she will ensure the items are properly labeled stored and processed for disposal.

4. **Description of Hazardous Waste handled on-site:**

a. Only the minimum quantities of materials, consistent with safe and efficient operations, are transported to the open burning/open detonation areas at any one time.

b. No waste will be stored, pre-treated, or located in the open burning/open detonation areas. Items not destroyed will be repacked and returned to storage.

c. Maximum quantity of material that can be destroyed at one time is limited to the following: A complete listing of materials that may be destroyed at the OB/OD is at Appendix E.

Hazard Class/Division	Amount	EPA/ COMAR Code
OPEN DENONATION		
High Explosive (Class 1.1)	1 Hr 1,000 lb 24 Hr 2,000 lb CY 40,000 lb	D003
OPEN BURN		
Propellant (Class 1.3)	1 Hr 1,000 lb (per pan) 24 Hr 10,000 lb CY 50,000 lb	D003
Propellant (Class 1.1)	50 lb	D003
Black Powder (Class 1.1)	50 lb	D003

5. **Special hazards, other hazards potential hazards and other related special conditions that might affect emergency operations:**

a. Radio/Microwave Transmissions: The minimum safe distances as outlined in SOP CS-0000-J-2001 shall be adhered to by all emergency response personnel.

b. Prior to cleanup or handling of residue from burning of M-1, M-6, or M-14 single based propellants, emergency response personnel will wear properly fitted, negative-pressure respirators with high efficiency particulate filters, in addition to disposable protective gloves, and coveralls which afford effective protection. Items must not be reused or worn away from the demolition area, and must be properly disposed of after use.

6. **Arrangements with emergency response personnel:** All initial emergency response actions will be taken by internal APG assets. A copy of this plan will be maintained on site. Copies of this plan will also be submitted to the APG DO EOC and Fire Division, and the DPW Environmental Division. All arrangements with outside emergency response organizations are

APG's responsibility and records of contracts and/or Memorandum of Understanding/Support are maintained as part of the installation contingency/emergency plan.

7. **Amendments of this plan:** This contingency/emergency plan will be reviewed, and immediately amended, if necessary, whenever the:

a. Installation permit is revised.

b. Plan fails in an emergency.

c. Site changes in its design, construction, operation or other circumstances in a way that materially increases the potential for fires, explosions, or release of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.

d. List of site emergency coordinators changes.

e. List of emergency equipment changes.

f. A year has gone by since the last documented review.

8. Table 1-1 shows a listing of all emergency equipment at this site. NOTE: This list must be kept up to date. In addition, this plan must include the location and physical description of each item on the list, and a brief outline of its capabilities when appropriate.

(SEE FOLLOWING PAGE)

TABLE 1-1. EMERGENCY EQUIPMENT

Physical Description	Location	Capabilities
Fire extinguisher, (1) 20-lb ABC-Type.	S.A.S. HAZSTORE Unit	Used to fight incipient fires. At no time will operators fight ammunition and/or explosive related fires. Operators will not fight fires providing heat directly to ammunition and/or explosives.
Telephone or two-way radios.	Mahans Bomb Proof.	Telephone access via "911" post emergency number. Radio contact with Range Control who can initiate the "911" emergency response.
Bulldozer and/or Engineering Equipment.	Adjacent to Mahans Bomb Proof, entrance to Old Bombing Field or equipment storage pad located between the burn pans and demo pits.	Field excavation work. Demolition pit prep word. May be armored to perform field recovery operations or to clear fire breaks within duded areas.
[a]Container filled with water and large enough to submerge one or more leaking WP items of the type being processed.	Mahans Bomb Proof.	Prevent uncontrolled burns of leaking WP munitions.
[a]First Aid Kit containing: - Several rolls of sterile gauze. - One container of at least 5 gal. potable water. - Two sponges for personnel use. - Forceps.	Mahans Bomb Proof.	Field treatment and control of WP burns until Emergency Response personnel arrive.

[a]Only required for the emergency destruction of white phosphorus (WP) filled munitions.

NOTE: The plan maintained by the facility includes, at this point in the plan, a map showing the emergency evacuation route. It has been redacted from this page of the permit for security reasons.

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PART IX
SPECIAL CONDITIONS FOR STORAGE AND TREATMENT OF HAZARDOUS WASTE AT THE SAMPLE RECEIPT FACILITY

IX.A. GENERAL DESCRIPTION, BACKGROUND, AND APPROACH

IX.A.1. General Overview.

This Part of the permit authorizes the storage and treatment of hazardous waste in a facility located in the Edgewood Area at Aberdeen Proving Ground (APG). The facility is referred to as the "Sample Receipt Facility" (SRF).

The SRF is a specialized, all-hazards, sample screening facility for the receipt, characterization, and handling of chemical, biological, radiological, and/or explosive-containing samples in support of Department of Defense (DoD), Department of Homeland Security (DHS) and other cooperating agencies' national defense and/or homeland protection missions. It is operated by the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC).

Permitted hazardous waste treatment and storage activities within the facility are linked to residuals resulting from SRF sample handling, characterization, and decontamination processes. Permitted treatment generally involves the decontamination of chemical agents and selected industrial chemicals, as well as the pH adjustment of decontaminated residuals. Storage may take place in containers and in the facility's process waste (i.e., hazardous waste) tank system.

The sample receipt and evaluation function of the facility is not considered a waste management activity, and is not the primary focus of this Part of the permit. Rather, this Part of the permit establishes requirements concerning storage and treatment of hazardous wastes generated as a result of activities performed at the SRF.

For the purposes of this Part, the Permittee is APG as the owner and, as operator, the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC).

IX.A.2. General Facility Description.

The SRF is a building that houses laboratories, storage rooms, and support spaces. Included within the building are an explosive sample receipt room, which is a self-contained concrete chamber fit within the overall SRF footprint. An administrative area is also within the building, along with a two-story mechanical plant. The building houses high bay receipt laboratories, laboratories equipped for specialized analyses (chemical, biological, radiological, toxins, explosives, etc.), process waste handling equipment, storage areas, a control room, monitoring equipment, and support activity spaces (utilities, rest rooms, break rooms, shop). Also housed within the facility is mechanical equipment (such as air handlers and exhaust filtration systems).

IX.A.3. Background.

APG submitted an application to add the SRF to CHS permit A-190 in May 2006, prior to initiating facility construction. The Department added the facility to the permit as a major modification in May 2007. Construction of the SRF was completed in 2009, with commissioning work initiated the same year. Because the modified CHS permit A-190 was based on design information for a facility to be constructed, the permit included requirements for APG to submit follow-on, as-built data and other documentation to update the original application and certify adherence to COMAR hazardous waste related design and construction requirements. The Department tabulated these requirements in a "Required Submittals" table. APG completed most of these requirements. Those that remain, and their due dates, are shown in Table IX-7, "Required Submittals", found at the end of this section.

Between 2009 and 2016, the SRF underwent various upgrades to correct design and construction deficiencies. Information related to these updates were described in formal correspondence and periodic electronic updates submitted to the Department between 2009 and 2016.

In February 2016, the Department granted the Army approval to accumulate, store and treat hazardous waste in containers in all areas authorized by CHS permit A-190. Additionally, approval was given for the receipt of off-site samples that had been determined, prior to their arrival at the facility, to not contain energetic components. The receipt of explosives-containing samples, and the use of the hazardous waste tank system were prohibited pending receipt of final certifications by an independent professional engineer that the facility meets both containment building and facility construction requirements, and the tank system is operationally ready for hazardous waste storage and treatment operations.

Based on changes made to the facility's Explosives Sample Receipt Room ([redacted]) in 2012 and 2014, the DEVCOM CBC engaged the Army Corps of Engineers' Huntsville Engineering and Support Center in 2017 to re-evaluate the room's ability to withstand an unplanned detonation. The work was conducted in accordance with Unified Facility Code (UFC) 3-340-02, Structures to Resist the Effects of Accidental Explosions, dated December, 2008. Results indicated the facility met the UFC requirements. A copy of the report and analysis produced by the Huntsville Engineering and Support Center was submitted to the Department with APG's August 2019 application to renew the CHS permit A-190. DEVCOM CBC forwarded the report to the U.S. Army Technical Center for Explosive Safety and the Department of Defense Explosives Safety Board (DDESB) for final approval; however, the DDESB identified the need for some additional analysis, which has not yet been completed.

APG plans to forward a request to the Department requesting authorization for full use of the facility for permitted waste storage and treatment in tanks, containers and

containment building as soon as the DEVCOM CBC satisfies outstanding DDESB requirements and obtains requisite outstanding (missing) Professional Engineer certifications identified in Table IX-7.

IX.A.4. General Permitting Approach.

The primary function of the SRF is such that it is difficult to fully characterize in advance the nature of the materials that will be evaluated and processed at the facility. In light of this, the Permittee has designed the facility with robust engineering controls intended to be capable of preventing releases outside an "envelope of control."

To accommodate the Permittee's needs for flexibility in operations, while meeting MDE's responsibility to protect human health and the environment, this permit takes the general approach of viewing areas within the zone of engineering controls as "miscellaneous units" under COMAR 26.13.05.16-1. Such areas are referenced in this permit as "Active Containment Areas." For Active Containment Areas, permit conditions are based on the standards in COMAR 26.13.05.18-1 to 18-3 applicable to containment buildings. These standards are no less stringent than the U. S. Environmental Protection Agency containment building regulations (Subpart DD of Part 264 of Title 40 of the Code of Federal Regulations).

Permitted hazardous waste operations within Active Containment Areas may involve treatment, or storage of hazardous waste for more than 90 days, in hazardous waste units for which specific regulatory requirements exist (tanks and containers, for example). For such instances, permit conditions reference those specific requirements.

The overall facility design is such that some areas of the facility in which permitted hazardous waste management activities are not currently planned are, nevertheless, provided with engineering controls equivalent to those in areas designated as permitted for treatment of hazardous waste or storage of hazardous waste for more than 90 days. The permit provides an administrative mechanism for authorizing permitted hazardous waste management in such areas provided that no material alterations of the facility are required for the newly utilized area to be considered a permitted unit, the overall hazardous waste storage and treatment capacity of the facility is not increased, and the change in operations does not compromise the ability of facility controls to prevent releases to the environment.

IX.A.5. Overview of Permit Conditions.

This permit identifies areas at the SRF that are considered Active Containment Areas, and establishes conditions on their operation. The Permittee may store hazardous wastes for more than 90 days in Active Containment Areas if these areas also meet applicable COMAR requirements for permitted container or tank system storage and the conditions of this permit. The Permittee may treat waste in Active Containment Areas if these areas also meet applicable COMAR requirements for permitted container or tank system treatment and the conditions of this permit.

Table IX-1 in Permit Condition IX.M lists SRF locations considered Active Containment Areas. Table IX-1 also lists those areas within the SRF where hazardous waste may be stored for more than 90 days and/or treated provided the storage/treatment is in accordance with the requirements of COMAR 26.13 concerning permitted container treatment/storage, and tank system treatment/storage. Areas not listed on Table IX-1 are not part of the permitted unit.

Based on information provided by the Permittee, the Maryland Department of the Environment (MDE or the "Department") may revise Table IX-1 using an administrative process as described in Permit Condition IX.B.1.c. Permit Condition IX.B.1.d gives specific criteria under which such administrative approval may be granted.

IX.B. ACTIVE CONTAINMENT AREAS AND TREATMENT AND STORAGE LIMITS

IX.B.1. Identification of Active Containment Areas and Permitted Treatment/Storage Areas.

IX.B.1.a. Table IX-1 in Permit Condition IX.M identifies locations in the SRF that are considered Active Containment Areas.

IX.B.1.b. Table IX-1 also specifies the Active Containment Areas in which the Permittee may store (for more than 90 days) and/or treat hazardous waste in containers, and store (for more than 90 days) and/or treat hazardous waste in tank systems, subject to the terms of this permit.

IX.B.1.c. Subject to the criteria listed in Permit Condition IX.B.1.d, the Department may revise Table IX-1 using an administrative process of review and approval to:

i. Identify additional areas where the Permittee may treat hazardous waste and/or store hazardous waste for more than 90 days in containers; or

ii. Identify additional areas where the Permittee may treat hazardous waste and/or store hazardous waste for more than 90 days in tanks.

IX.B.1.d. The Department may revise Table IX-1 as described in Permit Condition IX.B.1.c if:

i. The Permittee demonstrates that applicable standards concerning management of hazardous waste in containers and tank systems will be met in locations proposed to be added to Table IX-1;

ii. The Permittee demonstrates that no material changes to the facility are needed as a result of the revision for the Permittee to be able to continue to operate the previously listed Active Containment Areas in accordance with the terms of this permit; and

iii. The amount of hazardous waste treated or stored at the facility will not exceed the limits established in Permit Condition IX.B.2.

IX.B.2. Treatment and Storage Limits.

Table IX-2 lists annual and daily treatment and storage limits for hazardous waste managed in container management areas and tank systems at the SRF. The Permittee shall not store and/or treat hazardous waste in excess of the maximum amounts for each type of limit on Table IX-2.

IX.C. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IX.C.1.Permitted Waste.

Table IX-3 identifies the hazardous wastes that the Permittee may treat and/or store for more than 90 days in the SRF in the SRF permitted container management and tank system areas identified in Table IX-1, subject to the terms of this permit. The referenced tables appear in Permit Condition IX.M.

IX.C.2.Prohibited Waste.

Except as otherwise authorized by COMAR 26.13, the Permittee shall not store a hazardous waste for more than 90 days at the SRF or treat a hazardous waste at the SRF unless the waste is specified in Permit Condition IX.C.1.

IX.D. DESIGN AND OPERATING STANDARDS – ACTIVE CONTAINMENT AREAS

IX.D.1. The Permittee shall ensure that the Active Containment Areas listed in Table IX-1 comply with the design and operating requirements of Permit Conditions IX.D.2 – IX.D.8.

IX.D.2. Design Criteria.

IX.D.2.a. SRF Active Containment Areas shall be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements (e.g., precipitation, wind, run-on) and to assure containment of managed wastes. (COMAR 26.13.05.18-1A.(1)(a)-(b))

IX.D.2.b. The floor and walls of SRF Active Containment Areas shall be designed and constructed of manmade materials of sufficient strength and thickness to:

i. Support themselves, the waste contents, any installed facility equipment, and any personnel and heavy equipment that operates within the unit; and

ii. Prevent failure due to:

(a) Pressure gradients, settlement, compression, or uplift;

(b) Physical contact with the hazardous wastes to which they are exposed;

(c) Climatic conditions;

(d) Stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls; and

(e) Collapse or other failure. (COMAR 26.13.05.18-1A.(2)(a)(i)-(iii))

IX.D.2.c. Any Active Containment Area surfaces that could come into contact with hazardous wastes must be chemically compatible with those wastes. (COMAR 26.13.05.18-1A.(2)(b))

IX.D.2.d. Each Active Containment Area shall have a primary barrier designed to withstand the movement of personnel, waste, and handling equipment in the unit during the operating life of the unit and be appropriate for the physical and chemical characteristics of the waste to be managed. (COMAR 26.13.05.18-1A.(4)(a)- (b))

IX.D.2.e. The SRF shall meet containment building design criteria requirements applicable to the management of free liquids (e.g., secondary containment and leak detection) (COMAR 26.13.05.18-1B) and incompatible and reactive wastes (COMAR 26.13.05.18 -2 B.(8)) by meeting COMAR requirements for container and/or tank storage and treatment. These requirements are listed in Permit Conditions IX.E and IX.F.

IX.D.3. Controls and Practices to Ensure Containment of Hazardous Waste Within the Unit - Ventilation and Filtration (COMAR 26.13.05.18-2 A).

IX.D.3.a. The Permittee shall operate and maintain the SRF ventilation and filtration systems in areas where hazardous wastes may be treated or stored to prevent the release of contamination to the environment through the use of negative pressure and filtration, as specified in Permit Conditions IX.D.3.b through IX.D.3.o.

IX.D.3.b. Ventilation at the SRF shall be configured to induce and maintain air flow from areas within the facility with the least potential for contamination to areas with the greatest potential for contamination.

IX.D.3.c. In all process areas in Active Containment Areas of the SRF, except the personnel decontamination station and around temporary openings (open doors, gloveports, etc.), containment and prevention of the spread of contamination shall be achieved by maintaining progressively negative pressure differentials from areas with the least potential for contamination to the areas with the greatest potential for contamination.

IX.D.3.d. In personnel decontamination stations and around temporary openings, containment and prevention of the spread of contamination shall be achieved by maintaining adequately high linear air velocities.

IX.D.3.e. Pressure within any glovebox shall be a minimum of 0.25 inches of water less than the pressure in the surrounding workroom. Temporary openings in any glovebox, (such as during glove changes) shall maintain an inward flow into the glovebox at a face velocity of at least 90 linear feet per minute.

IX.D.3.f. System ventilation rates and pressure drops shall be monitored and logged weekly unless a real-time alarm is set to indicate off-specification parameters.

IX.D.3.g. All ventilation air exhausted from the process areas in Active Containment Areas of the SRF shall be filtered through carbon and particulate filters of appropriate size and type to ensure chemical/biological agent capture and removal of target chemicals.

IX.D.3.h. Unless otherwise demonstrated to the satisfaction of the Department, or otherwise determined under Permit Condition IX.D.3.i, the Permittee shall presume that the expected service life of carbon filters upon installation in the SRF carbon filtration system was 20 years.

IX.D.3.i. Periodic evaluation of remaining expected service life of carbon filters.

i. Beginning 3 years after the effective date of this permit, the Permittee shall, on a 3-year cycle, evaluate whether the remaining expected service life should be reduced based on the scope of facility operations during the immediately preceding 3-year operating period, maintain these evaluations as part of the facility operating record, and make these evaluations available to the Department on request.

ii. Upon receipt of a new mission requiring the use of the SRF containment features, or at the start of a project that exceeds the assumed scope of operations used in estimating the expected service life of the carbon filters, the Permittee shall evaluate the impact of the mission or project on the remaining expected service life of the carbon filters, maintain the evaluation as part of the facility operating record, and make the evaluation available to the Department on request.

iii. If an evaluation required by Permit Condition IX.D.3.i.i or .ii indicates that the expected service life of a carbon filter should be reduced, the Permittee shall report the finding to the Department and adjust the estimated expected service life of the carbon filter accordingly.

iv. If an evaluation required by Permit Condition IX.D.3.i.i, or a similar evaluation performed at the Permitee's own initiative, indicates that the expected service life of a filter is being underestimated by the most recent

previous estimate, the Permittee may request that the Department approve a revision to the estimated remaining expected service life of the filter.

IX.D.3.j. If the end date of the estimated service life of a carbon filter is reached, the Permittee shall not conduct any operations that require a properly functioning carbon filter to ensure containment until the carbon filter has been replaced with a fully functioning unit.

IX.D.3.k. The Permittee shall perform filter media change-out or other appropriate maintenance on the filtration system to maintain adequate work area pressure differentials and hood/glovebox face velocities.

IX.D.3.l. Unless the Department approves an alternate schedule, on an annual basis, the Permittee shall change out pre-filters and HEPA filters that are part of the ventilation and filtration system required by Permit Condition IX.D.3.a, with no more than 365 days elapsing between the changeout date and the date that the filter being removed was installed, except that the Permittee may complete the change-out up to 30 days beyond the 365-day limit if:

i. unfavorable operational parameters (such as temperature or humidity) or other extenuating circumstances prevent the earlier deadline from being met; and

ii. the Permittee maintains, as part of the facility operating record, an explanation of why the additional time was needed.

IX.D.3.m. The Permittee shall perform leak testing on a HEPA filter upon replacement of the filter to verify proper seating and sealing of the filter in accordance with the procedures in the American Society of Mechanical Engineers (ASME) standard “In-Service Testing of Nuclear Air-Treatment, Heating, Ventilating, and Air-Conditioning Systems” (N511-2017 or N511-2007), or another method acceptable to the Department.

IX.D.3.n. Carbon filter leak testing. For the carbon filters that are part of the filtration system required by Permit Condition IX.D.3.a, the Permittee shall:

i. Perform leak testing in accordance with the procedures in the ASME standard “In-Service Testing of Nuclear Air-Treatment, Heating, Ventilating, and Air-Conditioning Systems” (N511-2017 or N511-2007), or another method acceptable to the Department; and

ii. Allow no more than 2 years to elapse between leak testing events for a carbon filter, except that the Permittee may perform the testing up to 30 days beyond the 2-year limit if unfavorable operational parameters (such as temperature or humidity) or other extenuating circumstances prevent the earlier deadline from being met, and the Permittee maintains, as part of the

facility operating record, an explanation of why the additional time was needed.

IX.D.3.o. If a carbon filter fails the testing required by Permit Condition IX.D.3.n, the Permittee shall not perform operations that require a properly functioning carbon filter to ensure containment until the carbon filter has been successfully repaired or replaced with a fully functioning unit, and the replacement or repaired unit has been successfully tested using the procedure specified in Permit Condition IX.D.3.n.

IX.D.4. Controls and Practices to Ensure Containment of Hazardous Waste Within the Unit – Monitoring (COMAR 26.13.05.18-2 A.)

IX.D.4.a. During SRF operations involving chemical agents, the Permittee shall use an air monitoring system to detect airborne concentrations of chemical agents and selected toxic industrial chemicals inside the facility.

IX.D.4.b. The air monitoring system shall be capable of:

i. Determining, on a near-real time basis, the airborne concentrations of G, V, H, and L-type chemical agents being handled in designated receipt, screening, forensics, and analytical labs;

ii. Detecting chemical agents and selected toxic industrial chemicals being handled at levels that require the use of personal protective equipment or require the implementation of the facility contingency plan;

IX.D.4.c. In coordination with the Department, the Permittee shall implement appropriate protective measures for situations where near-real-time air monitoring may not be effective in determining airborne concentrations of chemical agents. Such measures may be addressed in SOPs, made available to the Department for review before they are implemented, for the management of materials with unknown properties.

IX.D.4.d. The Permittee shall maintain an air monitoring plan for the SRF, with the air monitoring plan required to:

i. provide information on the number, location, type, and capabilities of air monitoring devices at the facility; and

ii. include the information required by Permit Condition IX.D.4, or specifically identify aspects of such information that will be incorporated in operation-specific or facility SOPs;

IX.D.4.e. The Permittee shall ensure the near-real-time air monitoring system is operated in accordance with the CBC air monitoring plan for the SRF that is maintained in accordance with Permit Condition IX.D.4.d.

IX.D.4.f. Air Monitoring Implementation. The Permittee:

i. Shall define monitoring requirements for operations involving chemical agent in the monitoring plan for the facility or in operation-specific SOPs;

ii. Shall ensure that the air monitoring system is calibrated and challenged each work day (i.e., Monday through Friday, excluding holidays) when chemical agent may be present using the appropriate chemical agent standard material;

iii. Shall challenge and calibrate the monitoring system at least once each day on a weekend day or holiday on which waste chemical agents are being treated or actively handled in the SRF; (NOTE: for the purposes of this Permit Condition, "actively handled" does not include storage of waste chemical agent in a vessel without material being added to or removed from the vessel.)

iv. Shall make available to the Department upon request the most recent CBC air monitoring plan information applicable to the SRF (e.g., Monitoring Plan as supplemented by SOPs); and

v. Shall notify the Department of material changes to the SRF air monitoring plan prior to implementing such changes, and shall demonstrate to the satisfaction of the Department that if the changes are implemented, the monitoring program will continue to meet the performance criteria of Permit Conditions IX.D.4.a – i.

IX.D.4.g. The Permittee shall monitor pressure differentials between areas of operation within the facility and shall alert operators if cascade ventilation is not being maintained at an adequate level to prevent the flow of contaminants from areas of higher potential contamination to areas of lower potential contamination.

IX.D.4.h. The Permittee shall monitor face velocities at openings where air flow is being relied upon to prevent the flow of contaminants to less contaminated areas and shall alert operators if adequate face velocities are not being maintained.

IX.D.4.i. The Permittee shall develop and follow written procedures concerning inspection, maintenance, calibration, quality control/quality assurance, and operation of monitoring systems to assure compliance with Permit Conditions IX.D.4.a – h.

IX.D.5. Explosion Containment. The Permittee shall ensure that:

IX.D.5.a. The explosive sample receipt room has been designed to withstand explosive blasts, overpressure and fragmentation associated with type/quantity of energetic materials anticipated for processing at the SRF;

IX.D.5.b. The Department is provided with final approval by the Department of Defense Explosive Safety Board demonstrating that the explosive sample receipt room meets blast and overpressure criteria in accordance with Unified Facility Code (UFC) 3-340-02, *Structures to Resist the Effects of Accidental Explosion* resulting from a 5-pound TNT equivalent weight detonation;

IX.D.5.c. The information required by Permit Condition IX.D.5.b is provided to the Department not later than 30 days before the processing of energetic materials begins in the sample receipt room;

IX.D.5.d. In addition to the terms of Permit Condition IX.D.5.c, explosively-configured samples are not accepted into the SRF until the Department receives Containment Building Certification and the Facility Construction Certification and supporting documentation that addresses the ability of the explosive sample receipt room's engineering controls to capture/contain exhausted toxic vapors that may result if an explosive sample detonates; and

IX.D.5.f. All items brought into the SRF are characterized in accordance with CBC SOPs to ensure that explosive or quantity limits of the explosive sample receipt room are not exceeded.

IX.D.6. Backup Power.

IX.D.6.a. The Permittee shall ensure that the SRF has a backup power supply, and an uninterruptible power supply (UPS) that is able to service critical loads, as specified in Permit Condition IX.D.6.b, during the transition to backup power.

IX.D.6.b. Critical loads for which backup power and/or uninterruptible power supply are required under Permit Condition IX.D.5a are identified in Table IX.4.

IX.D.6.c. The Permittee shall test backup power systems and UPS systems in accordance with manufacturers' instructions.

IX.D.7. Facility Acceptance Criteria

IX.D.7.a. At least 30 days before the SRF begins accepting samples, the Permittee shall brief the Department on the facility's criteria for accepting samples and on proposed methods of ensuring that samples meet these criteria before they are brought into the building.

IX.D.7.b. The Permittee shall keep the Department informed of changes to the SRF's criteria for accepting samples.

IX.D.8. Repair. The Permittee shall repair conditions that could lead to or have caused a release of hazardous waste. (COMAR 26.13.05.18-2D.)

IX.E. OPERATING STANDARDS - CONTAINER STORAGE AND TREATMENT

IX.E.1. Quantity Limits – Storage and Treatment in Containers. The Permittee may:

IX.E.1.a. store in containers up to 550 gallons of hazardous waste in the process waste room (Area [redacted]);

IX.E.1.b. store in containers an aggregate amount of up to 285 gallons of hazardous waste in all other permitted container storage areas of the SRF;

IX.E.1.c. store in containers no more than a total of 835 gallons of hazardous waste at the SRF in permitted storage areas at any time; and

IX.E.1.d. treat in containers no more than 250 gallons of hazardous waste on any day in the SRF.

IX.E.2. Condition of Containers.

IX.E.2.a. The Permittee shall use containers free of leaks and corrosion to store wastes.

IX.E.2.b. If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall overpack the container, repair the container, transfer the hazardous waste to a container that is in good condition, or otherwise manage the waste in compliance with the conditions of the permit.

IX.E.3. Compatibility of Waste with Containers. The Permittee shall use containers made of or lined with materials that do not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired (COMAR 26.13.05.09C).

IX.E.4. Management of Containers.

IX.E.4.a. The Permittee shall ensure that any container holding hazardous waste is always closed during storage, except when it is necessary to add or remove waste. A container may not be opened, handled, or stored in a manner which may rupture the container or cause it to leak (COMAR 26.13.05.09D).

IX.E.4.b. The Permittee shall maintain a minimum of two feet of aisle space between containers and shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency (COMAR 26.13.05.02 I).

IX.E.5. Containment Systems

IX.E.5.a. The Permittee shall ensure that secondary containment is provided for liquid wastes in each container management area listed on Table IX-1, in accordance with the following requirements:

i. Secondary containment may be provided by the use of overpack containers or by the physical features of the SRF, such as concrete berms and epoxy-sealed concrete floors sloped downwards toward blind sumps to capture any spills or leaks that may occur during waste handling and storage;

ii. Floors in the SRF where hazardous wastes may be treated or stored shall be covered with a coating resistant to the majority of wastes handled in the area;

iii. In areas of the SRF in which the floor is providing secondary containment for hazardous waste, the floor shall be free of cracks and gaps;

iv. The Permittee shall take action to repair flaws in a secondary containment system promptly when flaws are observed so that the requirements of COMAR 26.13.05.09H(1)(a) are met; and

v. A secondary containment system shall have sufficient capacity to contain 10 percent of the total potential volume of containers of hazardous waste that may be managed within the area served by the secondary containment system, or 100 percent of the volume of the largest container within the secondary containment system, whichever is greater (COMAR 26.13.05.09 H(1)(c)).

IX.E.5.b. The Permittee shall remove any spilled or leaked waste from the containment system in a timely manner, in accordance with COMAR 26.13.05.09H(3).

IX.E.6. Container Treatment Operations.

IX.E.6.a. The Permittee may conduct treatment in containers in the container management areas listed on Table IX-1 in Permit Condition IX.M.

IX.E.6.b. The Permittee may conduct decontamination and treatment using reaction vessels.

IX.E.6.c**.** The Permittee shall:

i. Decontaminate chemical-agent waste and other toxic chemicals using DEVCOM Chemical Biological Center-approved protocols; and

ii. Ensure that decontamination of chemical-agent waste and other toxic chemicals is implemented in a manner that does not exceed the capability of facility controls to contain the waste and the byproducts of the decontamination process, and is protective of human health and the environment.

IX.E.6.d. The Permittee shall control treatment by one or more of the following:

i. Preloading the reaction vessel with decontamination solution;

ii. Introducing agent to the reaction vessel below the level of the decontamination solution;

iii. Agitating the mixture;

iv. Filling the headspace of the container with an inert gas during waste transfers;

v. Cooling to moderate temperature during exothermic reactions; and

vi. Using excess decontaminants to ensure that the reaction is completed.

IX.E.6.e. The Permittee shall provide the Department with the most recent version of approved treatment protocols on request at any time, and, if requested by the Department, a summary of changes that have been made to a given treatment protocol.

IX.E.6.f. Detailed requirements for each hazardous waste treatment operation shall be described in SOPs. A full set of current SOPs shall be available at the SRF for review by the Department at all times.

IX.E.6.g. SOPs shall specify that treatment residuals will be analyzed periodically to ensure that treatment is successful, or they will specify the treatment steps, methods and materials that ensure successful treatment in accordance with generator knowledge.

IX.E.6.h. The Permittee shall treat and package wastes in accordance with DOD and DOT requirements and in accordance with the waste acceptance criteria of the receiving facilities.

IX.F. OPERATING STANDARDS - TANK STORAGE AND TREATMENT

IX.F.1 The Permittee may use the tank systems identified in Table IX-4 for storage and treatment of hazardous wastes. The Permittee may store up to 9,884 gallons of

hazardous waste in these tank systems. The Permittee may treat up to 24,000 gallons of waste per year in the SRF hazardous waste tank systems.

IX.F.2. Containment.

IX.F.2.a. The Permittee shall operate and maintain the secondary containment system in accordance with the requirements of COMAR 26.13.05.10-4B through 26.13.10.05-4E.

IX.F.2.b. The Permittee shall maintain each tank with a minimum shell thickness that ensures sufficient structural strength to contain the waste.

IX.F.3. Operating Requirements.

IX.F.3.a. The Permittee shall not place hazardous waste in the tank systems if the waste could cause the tanks, their ancillary equipment, or their containment system to rupture, leak, corrode or otherwise fail (COMAR 26.13.05.10C(1)).

IX.F.3.b. The Permittee shall prevent spills and overflows from the tank or containment systems as required by COMAR 26.13.05.10C(2). High-level alarms or level indicators shall be used to prevent overflows. The secondary containment for the tank systems shall be equipped with leak detection and alarms.

IX.F.3.c. The tank treatment system shall be maintained at negative pressure and vented through the SRF's filtration system whenever waste is present in the tank systems.

IX.F.3.d. The Permittee shall maintain the tank system as specified in the most recent professional engineer (PE) certified tank assessment report.

IX.F.4. Periodic Tank Evaluation

IX.F.4.a. For each hazardous waste tank system identified in Table IX-5, the Permittee shall, within 5 years of the date hazardous waste is first managed in the tank system, have an independent professional engineer perform a detailed evaluation of the condition of the tank system. This evaluation shall consider such factors as are necessary to provide a basis for:

i. An estimate of remaining tank system life; and

ii. Recommendations concerning changes needed to tank system operating conditions or design to ensure that the tank system will not rupture, leak or otherwise fail.

IX.F.4.b. The Permittee shall provide the Department with a description of the proposed inspection methodology (e.g., conducting ultrasonic testing to evaluate tank thickness, using cameras to visually inspect tank interiors) before the

inspection occurs. The Permittee shall revise the proposed inspection methodology as requested by the Department.

IX.F.4.c. The Permittee shall submit a report on each tank system evaluation within 90 days of completion of the field work that provides the basis for the evaluation, unless the Department agrees to a later deadline.

IX.F.4.d. The Permittee shall perform subsequent detailed tank system evaluations every 5 years unless the Department believes that inspection results and/or industry data suggest that such inspections should be performed on a more frequent basis. The Department may also authorize less frequent tank inspections using an administrative process of review and approval based on inspection results and/or data provided by the Permittee.

IX.F.5. Response to Leaks or Spills.

IX.F.5.a. If a tank system (i.e., a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system) becomes unfit for continued use, or if there is a leak or spill from a tank system or from the secondary containment system, the Permittee shall:

i. Remove the system from service immediately (COMAR 26.13.05.10-6A(1));

ii. Stop the flow of hazardous waste into the system and inspect the system to determine the cause of the release (COMAR 26.13.05.10-6A(2)-(3));

iii. Remove waste from the system within 24 hours of the detection of the leak to prevent further release and to allow inspection and repair of the system, or, if the Permittee finds that it will be impossible to meet this deadline, notify Department and demonstrate that more time is required (COMAR 26.13.05.10-6A(4));

iv. Contain visible releases to the environment by immediately conducting a visual inspection of all releases and, based on that inspection:

- prevent further migration of the leak or spill to soils or surface water; and
- remove and properly dispose of any visible contamination of the soil or surface water (COMAR 26.13.05.10-6A(5));

v. Close the system in accordance with COMAR 26.13.05.10-7 unless the following actions are taken: (COMAR 26.13.05.10-6A(7))

- For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make any necessary repairs before returning the tank system to service; and

- For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system before returning it to service; and

vi. Comply with the reporting requirements of COMAR 26.13.05.10-6A(6).

IX.F.5.b. For all major repairs to eliminate leaks or restore the integrity of the tank system, the Permittee shall obtain a certification by an independent, qualified, registered professional engineer in accordance with COMAR 26.13.07.03D that the repaired system is capable of handling hazardous wastes without release for the intended life of the system before returning the system to service. Examples of major repairs are installation of an internal liner, repair of a ruptured tank, or repair or replacement of a secondary containment vault. (COMAR 26.13.05.10-6A(8))

IX.G. SPECIAL REQUIREMENTS

IX.G.1. Ignitable or Reactive Wastes.

IX.G.1.a**.** The Permittee shall take the following precautions to prevent ignition or reaction of ignitable or reactive wastes:

i. Wastes shall be segregated in a manner that minimizes the potential for an unplanned reaction;

ii. A ventilation system shall be provided and operated to ensure capture of any vapors from waste treatment and storage operations;

iii. Floors in the containment building areas of the SRF, except in the explosives receipt room, shall be nonconductive; and

iv. There shall be no smoking inside the containment building areas of the SRF.

IX.G.1.b. The Permittee shall not place ignitable or reactive waste in the tank system or in the secondary containment system unless one of the following conditions is met:

i. the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that:

- the resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste in COMAR 26.13.02.11 or 14. and
- COMAR 26.13.05.02H is complied with; or

ii. the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react.

IX.G.2. Incompatible Waste. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container, tank system, or secondary containment system.

IX.H. RECORDKEEPING AND REPORTING

IX.H.1. The Permittee shall maintain the SRF operating record required by Permit Condition II.H. at the SRF until closure. All other records required by this permit shall be maintained for a minimum period of three years. The retention period of all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

IX.H.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention, and disposition of records.

IX.H.3. The Permittee shall keep on site a copy of this part of the permit and its cited attachments. Table IX-6 summarizes the permit-required documents and records for the SRF.

IX.H.4. The Permittee shall make available to the Department on request any protocol used at the SRF currently or within the most recent 3-year period for the destruction of chemical agent or other toxic chemicals.

IX.I. INSPECTION SCHEDULE AND PROCEDURES

IX.I.1. The Permittee shall conduct inspections of the SRF Active Containment Areas, container storage areas, and tank systems using inspection checklists and waste logs found in section IX.M of this permit, to ensure that no releases of waste have occurred and that wastes are being managed in accordance with the requirements of this permit and COMAR 26.13.05.18-2 E.

IX.I.2. The Permittee shall inspect the container storage areas weekly as required by COMAR 26.13.05.09E, using the checklists in section IX.M of this permit to guide the inspections.

IX.I.3. Tank System Inspections. The Permittee:

IX.I.3.a. Shall inspect the tank systems at least once each operating day (i.e., each day hazardous waste is stored and/or treated in a given tank system) as required by COMAR 26.13.05.10D;

IX.I.3.b. Shall ensure that the inspection required by Permit Condition IX.I.3.a includes at least those items specified in the SRF tank inspection checklists in section IX.M of this permit;

IX.I.3.c. May, on weekends and holidays when tank system operators are not present, employ remote surveillance of the tank system's secondary containment areas via high resolution closed circuit television for leak detection and for evaluation of the need to implement response actions; and

IX.I.3.d. Shall document remote surveillance inspections using the inspection checklist identified for this purpose in section IX.M of this permit.

IX.I.4. The Permittee shall inspect personal protective clothing and equipment at the issue point and at appropriate intervals as determined by internal operating procedures. The purpose of these inspections shall be to assure serviceability and effectiveness. The Permittee shall be able to demonstrate to Department personnel (e.g., by showing stencil markings on the clothing) that personal protective clothing and equipment has been inspected.

IX.I.5. The Permittee shall inspect chemical protective masks monthly and ensure that masks are tested at the point of issue and at appropriate intervals as required by internal operating procedures. Masks shall be tested to assure proper fit and the lack of leaks. The Permittee shall be able to demonstrate to Department personnel that masks have been inspected and tested.

IX.I.6. The Permittee shall inspect backup power systems in accordance with the inspection checklists included in section IX.M of this permit to ensure that the backup power systems meet the requirements in Permit Condition IX.D.5.

IX.J. CONTINGENCY PLAN

IX.J.1. The Permittee shall: ensure that the most recent version of each of the following contingency plan documents is available at the SRF at all times:

I.J.1.a. SRF RCRA Site-Specific Contingency Plan;

I.J.1.b. APG's Emergency Response Plan, Chapter 1;

I.J.1.c. APG's Emergency Response Plan, Chapter 5 (Chemical Accident or Incident Response and Assistance [CAIRA] Plan; and

I.J.1.d. APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan.

Note: Permit Attachment IX-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency Plan located at the SRF.

IX.J.2. Chapter 5 to the APG ERP may be amended or revised without the approval of the Department.

IX.J.3. The SRF Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, as required by COMAR 26.13.05.04E. The plan may also be amended for the following reasons by notifying the Department:

- To incorporate administrative and informational changes,
- To upgrade, relocate, or replace emergency equipment listed in the contingency plan with functionally equivalent emergency equipment, or
- To change the name, telephone number, or address of the Emergency Coordinator, alternate Emergency Coordinator, or other persons, organizations, or agencies identified in the plan.

IX.J.4. The SRF Emergency Coordinator shall meet the requirements listed in COMAR 26.13.05.04F as these requirements relate to the SRF.

IX.J.5. The Permittee shall immediately carry out the provisions of the SRF Site-Specific Contingency Plan and follow emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, unplanned explosion, or release of hazardous waste or constituents that threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2)).

IX.K. CLOSURE

IX.K.1. At closure of any permitted unit of the SRF, the Permittee shall remove all hazardous waste and hazardous waste residues from the storage areas and tank systems, and close the unit in accordance with the detailed closure plan approved in accordance with Permit Condition IX.K.3 and COMAR 26.13.05.18-3A and B.

IX.K.2. Permit Attachment IX-1 is a general closure plan showing the minimum topics to be included in the detailed closure plan.

IX.K.3. At least 90 days prior to the intended beginning of closure, the Permittee shall submit a detailed closure plan including a sampling and analysis plan to the Department for review and approval.

IX.K.4. The detailed closure plan required by Permit Condition IX.K.3 shall include at least the following elements:

- The steps necessary to perform partial and/or final closure of the facility at any point during its active life,
- A description of how each SRF container storage unit and tank system will be closed,

- A description of how final closure of the SRF will be conducted, identifying the maximum extent of operations during the active life of the facility,
- An estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the facility and a description of the methods used to remove, transport, treat, store or dispose of all hazardous wastes,
- A detailed description of the steps needed to remove or decontaminate all hazardous wastes residues and contaminated containment system components, equipment, structures and soils,
- A description of methods employed to decontaminate structures and equipment that will remain on site after closure,
- Identification of decontamination agents to be used, including chemical and physical specifications of the agents,
- Specific safety measures to be taken to control spread of contamination during the closure activity and to protect human health and the environment
- A detailed description of other activities necessary during the closure period
- A schedule for closure of each SRF unit and for the final closure of the SRF, and
- A description of how all hazardous waste and hazardous waste residues will be removed from the containment and tank systems.

IX.K.5**.** The sampling and analysis plan required by Permit Condition IX.K.3 shall, at a minimum, include the following components to verify the effectiveness of decontamination activities:

- A listing and justification of sampling and analytical methods employed, with the Permittee selecting and proposing these methods in accordance with the provisions of the EPA publication Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, latest edition), as appropriate for the constituent in question, or equivalent methods acceptable to the Department;
- A description of quality assurance and quality control procedures associated with the selected sampling and analysis methods;
- A definition and justification of a Target Compound List (TCL) for which the verification samples will be analyzed;
- Identification and justification of a threshold level for each compound on the TCL list that determines a “clean” or “contaminated” condition; and
- Number, location, media, or substances to be sampled.

IX.K.6. The Permittee shall decontaminate the storage areas, tank systems, and any equipment that remains onsite after closure in accordance with the detailed closure plan

submitted by the Permittee and approved by the Department in accordance with Permit Conditions IX.K.1 through IX.K.4.

IX.K.7. Within 60 days of the completion of the closure activities, the Permittee shall submit to the Department:

IX.K.7.a. A closure report containing results of the activities conducted in compliance with each component of the approved closure plan, including, but not limited to:

i. the verification results demonstrating a clean closure of SRF storage and treatment areas, and tank systems (i.e., demonstrating that the closure performance standard of COMAR 26.13.05.07B has been achieved); and

ii. a certification of closure as required by COMAR 26.13.05.07F; or

IX.K.7.b. A written request to extend the 60 day deadline including the reason for the request and a proposed timeline for completion.

IX.K.8. If the Permittee is unable to demonstrate a clean closure in accordance with Permit Condition IX.K.7, the Permittee shall inform the Department within 60 days of the completion of the closure activities, and propose measures to achieve closure performance standards, such as submission of a post-closure care plan for the Department's review and approval (COMAR 26.13.05.18-3 C).

IX.L SUMMARY OF SUBMITTALS

Table IX-7 in Section IX.M of this permit highlights some of the requirements to submit documents that are imposed on the Owner and Operator of the SRF in various Permit Conditions in Part IX of this permit. If a submittal that is required by this permit is not mentioned in Table IX-7, the Permittee is not absolved of the requirement.

(Permit continues on Page IX-23)

IX.M TABLES

This section contains various summary tables and tables of requirements referenced elsewhere in Part IX of this permit.

Table IX-1. "Active Containment Areas" of the SRF, and Areas Where Hazardous Waste May Be Managed in Tanks and Containers

Activity	Areas
Active Containment Areas	[redacted]
Treatment/Storage for more than 90 days of Hazardous Waste in Containers	[redacted]
Treatment/Storage for more than 90 days of Hazardous Waste in Tanks	[redacted]

Key to Area Numbers: [redacted]: Process Waste Tanks Room; [redacted]: Pump Room; [redacted]: Secure Storage Rooms; [redacted]: Chem and Toxin Lab; [redacted]: Evidence Receipt Bay; [redacted]: High Bay Receipt laboratory; [redacted]: Forensic Lab Areas; [redacted]: Decontamination Stage Rooms; [redacted]: Pump Rooms; [redacted]: Bio-Screening Lab; [redacted]: Forensic Triage Lab; [redacted]: Explosives Sample Receipt Room.

Table IX-2. Summary of SRF and CTF Hazardous Waste Storage and Treatment Limits

Activity	Location	Limit
Storage of Hazardous Waste in Containers	Process Waste Room (Area [redacted])	550 gallons
	All other areas of the SRF	285 gallons aggregate
Treatment of Hazardous Waste in Containers (Note: in addition, chemical reactions may continue to completion in accordance with approved SRF SOPs in a closed reaction vessel in Room [redacted].)	Within SRF	250 gallons per day, aggregate 1,750 gallons annually, aggregated over all treatment rooms
Storage of Hazardous Waste in Tanks	Within SRF	9,884 gallons, aggregate
Treatment of Hazardous Waste in Tanks	Within SRF	24,000 gal/year, aggregate

Table IX-3. Permitted Waste Codes for the SRF	
Hazardous Waste Code	**Description**
D001	Wastes exhibiting the Characteristic of Ignitability
D002	Wastes exhibiting the Characteristic of Corrosivity
D003	Wastes exhibiting the Characteristic of Reactivity
D004-D043	Wastes exhibiting the Characteristic of Toxicity
F001-F015, F024, F027	Hazardous wastes from non-specific sources
K044-K047	Hazardous wastes from specific sources related to explosives
K991-K999	Chemical surety waste materials listed under COMAR 26.13.02.17
MD02	Reaction products and residues resulting from decontamination of specific compounds (military), as listed under COMAR 26.13.02.18
MD03	Residues from treatment or decontamination of wastes K991 to K999, as listed under COMAR 26.13.02.18
MX01, M001, MT01	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyl (PCB) listed under COMAR 26.13.02.19D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123, P127-P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species of the same, listed under COMAR 26.13.02.19E, and identified as *acute* hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products, listed under COMAR 26.13.02.19G, and identified as toxic, ignitable, corrosive or reactive wastes

Table IX.4.
Critical Loads for Which
Backup Power and/or Uninterruptible Power Supply Are Required

Facility Systems Required to be Serviced by Backup Power and/or Uninterruptible Power Supply
1. Emergency Lighting
2. Process Control Systems
3. Lab air handling units and exhaust systems
4. Critical Power Receptacles used to power MINICAMS monitors, fume hoods and glove boxes, and process waste tank systems. (Control and air monitoring are connected to UPS)
5. Fire Alarms

Table IX-5. Identification of SRF Hazardous Waste Tank Systems

Tank and Location	Permitted Operating Capacity (gallons)	Type
Equalization Tank (T01) – Room [redacted]	2500	Carbon steel, ECTFE liner
Reactor Tank (T02) – Room [redacted]	700	Carbon steel, ECTFE liner
Storage Tank (T03) – Room [redacted]	3000	Carbon steel, ECTFE liner
Storage Tank (T04) – Room [redacted]	3000	Carbon steel, ECTFE liner
Heel Tank (T08) – Room [redacted]	500	Double-walled, Carbon steel, ECTFE liner
High Bay Lab Hood Sink (T09) – Room [redacted]	92	Carbon steel, ECTFE liner
Chem & Toxin Analysis Lab Hood Sink Tank (T10) – Room [redacted]	92	Carbon steel, ECTFE liner

Table IX-6. Permit-Required Documents/Records for the SRF *

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Chemical Accident or Incident Response and Assistance (CAIRA) Plan	26.13.05.04
Emergency Response Plan	26.13.05.04
Operating Record	26.13.05.05 D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and IX of this Permit	26.13.07.05A and C

*All of these documents and records shall be available at the SRF.

Table IX-7. Required Submittals
(Note: see Permit Condition IX.L for qualifiers regarding this table.)

Document/Briefing	Due Date
Periodic Tank System Evaluation	Conduct within 5 years of date hazardous waste first managed in tank system; submit within 60 days of completion of field work unless a later deadline is approved by the Department; conduct subsequent evaluations every 5 years unless more frequent evaluations are required.
Proposed inspection methodology for periodic tank system evaluation	Before inspection occurs
Final Containment Building Certification (for vapor containment upgrades to blast chamber vestibule & install of blast valve frag shielding)	At least 30 days before any hazardous waste is managed in the SRF
Final Facility Construction Certification (for vapor containment upgrades to blast chamber vestibule & install of blast valve frag shielding)	At least 30 days before any hazardous waste is managed in the SRF
Updated As-Built Package (CD) (Required to address repairs/updates made between 2011-2015)	Within 30 days of issuance of package
Notification concerning changes to waste destruction protocols	By January 31 of each year
Detailed closure plan	At least 90 days prior to beginning of closure
Closure report	Within 60 days of completion of closure activities

IX.N. INSPECTION CHECKLISTS

This section of the permit presents inspection checklists referenced in Permit Condition IX.I. The Pemittee may implement updates to these checklists as a minor modification of the permit with the approval of the Department, provided the changes involve revisions to maintain accuracy or amendments that result in a more restrictive or detailed inspection.

Weekly Container and Floor Inspection Checklist for the SRF

Inspection Date and Time:_____Operator Name: _____Operator Signature:_____

Room Number	Waste Present?	Waste Inventory Correct? *	Evidence of Container Deterioration?*	Waste Containers Properly Labeled: Hazardous Waste, Accumulation Start Date, etc?*	Floor/Floor Coating Free of Cracks?♣*	Evidence of Leaks or Spills?*	Evidence of Berm Deterioration?*	Two Foot minimum aisle space?*
137**								
138**								
139								
140								
147**								
148								
149**								
151								
152								
153								
154								
157								
158								
161								
162**								
165**								
166**								
167**								

♣ **Floor Inspections will be conducted to ensure there are no compromises in the epoxy as well as the caulk in the expansion joints. Any flaws found will be repaired promptly.**

*Note Comments/Problems/Corrective Actions Taken by room:

** Denotes Approved Storage Areas for more than 90 days.

Revision No.: 0
2 June 2010

Hazardous Waste Container Inventory

Room Number : _____

DATE GENERATED	CHEMICAL NAME OR DESCRIPTION	NUMBER OF CONTAINERS	TYPE/SIZE CONTAINER	QTY IN EACH	TOTAL QTY	DATE REMOVED

SRF FORM-001

Revision No.: 0
2 June 2010

Non-Regulated Waste Inventory Data

Building # _________
Room #___________

Name/Description of Waste	Type of Container	Date In	Date Out

SRF FORM-002

Non-hazardous/Industrial Waste Inventory Data Form

Rev 2 5/19/2019

ACTIVE CONTAINMENT AREA WEEKLY CHECKLIST FOR THE SRF FILTER UNIT AIR FLOW CHECKS

System	Jul	Aug	Sep	Oct
CBC BSL-3 Suite Filter Unit CFM from METASYS (Room [redacted]) (Non Containment Area for HW Permit)				
Chem & Bio Toxin Analysis Filter Unit CFM from METASYS (Room [redacted])				
FBI Forensic Labs Filter Unit CFM from METASYS (Rooms [redacted])				
FBI Evidence Receipt Filter Unit CFM from METASYS (Room [redacted])				

Rev 2 5/19/2019

ACTIVE CONTAINMENT AREA WEEKLY CHECKLIST FOR THE SRF

FILTER UNIT AIR FLOW CHECKS

System	Jul	Aug	Sep	Oct
CBC Sample Triage/Bio Screening Filter Unit CFM from METASYS (Rooms [redacted])				
Sample Receipt High Bay Filter Unit CFM from METASYS (Rooms [redacted])				
Corridor Filter Unit CFM from METASYS (Non Containment Area for HW Permit)				
Waste Tank Room Filter Unit CFM from METASYS (Room [redacted])				

Rev 1 6/1/2010

ACTIVE CONTAINMENT AREA WEEKLY CHECKLIST FOR THE SRF

FILTER UNIT AIR FLOW CHECKS

System	Jul	Aug	Sep	Oct
Blast Chamber Unit 1 Filter Unit CFM from METASYS (Room [redacted])				
Blast Chamber Unit 2 Filter Unit CFM from METASYS (Room [redacted])				

Rev 2 5/19/2019

ACTIVE CONTAINMENT AREA WEEKLY CHECKLIST FOR THE SRF

CONTAINMENT AREA PRESSURE READINGS

System	Jul	Aug	Sep	Oct
Secure Bio Storage (Room [redacted]) Manometer Reading (Non Containment Area for HW Permit)				
Secure Unknown Storage (Room [redacted]) Manometer Reading (Non Containment Area for HW Permit)				
BSL-3 Lab (Room [redacted]) Manometer Reading (Non Containment Area for HW Permit)				
Evidence Receipt Toilet/Showers, etc (Room [redacted]) Manometer Reading (Non Containment Area for HW Permit)				

Rev 1 6/1/2010

ACTIVE CONTAINMENT AREA WEEKLY CHECKLIST FOR THE SRF

CONTAINMENT AREA PRESSURE READINGS

System	Jul	Aug	Sep	Oct
High Bay Receipt Lab (Room [redacted]) Manometer Reading				
CBC Service Area Bio Analysis Suite (Room [redacted]) Manometer Reading (Non Containment Area for HW Permit)				

Rev 1 6/1/2010

ACTIVE CONTAINMENT AREA WEEKLY CHECKLIST FOR THE SRF

AIR HANDLING UNIT OPERATION

System	Jul	Aug	Sep	Oct
AHU-1 Operating Properly				
AHU-2 Operating Properly				
AHU-3 Operating Properly				
AHU-4 Operating Properly				

ACTIVE CONTAINMENT AREA WEEKLY CHECKLST FOR THE SRF

Rev 3 **Weekly SRF ( ) Filter Unit Flow Checklist** 12/1/2021

System	FILTER	Jan/Apr/Jul/Oct					Feb/May/Aug/Nov					Mar/Jun/Sep/Dec				
CBC Bio Handling Suite (Room) (Non Containment Area for HW Permit)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
Chem & Toxin Analysis (Room)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
FBI Forensic Labs (Rooms)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
FBI Evidence Receipt (Room)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															

ΔP readings are in negative (-) inches of water

ACTIVE CONTAINMENT AREA WEEKLY CHECKLST FOR THE SRF

Rev 3 **Weekly SRF ([redacted]) Filter Unit Flow Checklist** 12/1/2021

System	FILTER	Jan/Apr/Jul/Oct					Feb/May/Aug/Nov					Mar/Jun/Sep/Dec				
CBC Sample Triage/Bio Screening (Rooms [redacted])	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
Sample Receipt High Bay (Room [redacted])	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
Corridor (Non Containment Area for HW Permit)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
Waste Tank Room (Room [redacted])	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															

ΔP readings are in negative (-) inches of water

ACTIVE CONTAINMENT AREA WEEKLY CHECKLST FOR THE SRF

Rev 3 **Weekly SRF ( ) Filter Unit Flow Checklist** 12/1/2021

System	FILTER	Jan/Apr/Jul/Oct					Feb/May/Aug/Nov					Mar/Jun/Sep/Dec				
Blast Chamber Unit 1 (Rooms)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															
Blast Chamber Unit 2 (Room)	PREFILTER															
	1st HEPA															
	2nd HEPA															
	1st CARBON															
	2nd CARBON															
	OVERALL															

ΔP readings are in negative (-) inches of water

Rev 1 6/1/2010

BACKUP POWER GENERATOR WEEKLY CHECKLIST FOR THE SRF

System	Jul	Aug	Sep	Oct
Exercise Generator and Note Hours				
Fuel Tank Level Reading				

EQUALIZATION TANK (T01) INVENTORY LOG

Start Fill Date	Fill Date	Amount/Total (gal)	Empty Date	Destination of Waste	Operator

FINAL STORAGE TANK (T03) INVENTORY LOG

Start Fill Date	Fill Date	Amount / Total (gal)	Barcode	Turn in Date HWTS	Empty Date	Destination of Waste	Operator

FINAL STORAGE TANK (T04) INVENTORY LOG

Start Fill Date	Fill Date	Amount / Total (gal)	Barcode	Turn in Date HWTS	Empty Date	Destination of Waste	Operator

HEEL TANK (T08) INVENTORY LOG

Start Fill Date	Fill Date	Amount/Total (gal)	Subpart BB (<10% Y/N)	Destination of Waste	Room of Origin	Operator

HIGH BAY LAB HOOD SINK TANK (T09) INVENTORY LOG

Start Fill Date	Fill Date	Amount/Total (gal)	Subpart BB (<10% Y/N)	Destination of Waste	Room of Origin	Operator

CHEM AND TOXIN LAB HOOD SINK TANK (T10) INVENTORY LOG

Start Fill Date	Fill Date	Amount/Total (gal)	Subpart BB (<10% Y/N)	Destination of Waste	Room of Origin	Operator

DAILY TANK INSPECTION CHECKLIST FOR THE SAMPLE RECEIPT FACILITY

DATE TIME	INSPECTOR	EVIDENCE OF LEAKS OR SPILL	TANK/PIPING CONDITION	CONTAINMENT CONDITION	SOFTWARE ERRORS**	MALFUNCTIONS**	DATE REPAIRS TAKEN	SAFETY/ EMERGENCY EQUIPMENT

COMMENTS:

The following tanks and associated piping, valves, pumps, etc. are to be inspected for this checklist: Heel Tank, Equalization Tank, Reactor Tank, Caustic Tank*, Sulfuric Tank*, Custom Mix Tank*, Storage Tanks One and Two, and the hood sink tanks in rooms [redacted].

* These tanks are chemical feed tanks and are not part of the regulated Hazardous Waste System.

**Includes automated leak detection system, liquid level, high-level alarm and pressure readings.

SECURITY CCTV INSPECTION CHECKLIST FOR THE SRF

SECURITY CCTV INSPECTION				
INSPECTOR'S NAME	**DATE/TIME**	**LIQUID PRESENT IN OR AROUND TANK FARM LEAK COLLECTION SUMP?**	**LIQUID PRESENT AROUND HEEL TANK (T08); IN HIGH BAY (RM [redacted]**	**RESPONSE ACTIONS IN CASE OF LEAK**

Comments:

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ATTACHMENT IX-1

CONCEPTUAL CLOSURE PLAN
FOR THE
SAMPLE RECEIPT FACILITY (SRF)

NOTE: the information in this attachment was extracted from Revision 2 of the permit application, dated March 2021. The formatting and pagination differ from the source document, but the information is consistent with the permit application.

CONCEPTUAL CLOSURE PLAN
FOR THE
SAMPLE RECEIPT FACILITY (SRF)

I. General Information

This conceptual closure plan for the SRF is preliminary and will be revised to reflect site conditions, appropriate regulatory standards, and future use plans at the actual time of closure. A detailed closure plan will be prepared and submitted to the Maryland Department of the Environment at least 180 days before closure is expected to begin. The facility owner, U.S. Army Garrison Aberdeen Proving Ground (APG) and the facility operator, the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC), will not proceed with the final closure of the SRF until the final closure plan is either approved or conditionally approved by MDE.

II. Closure Plan

II.a. Closure Performance Standard

The SRF hazardous waste management units will be "clean closed" in a manner that (1) minimizes the need for further maintenance, (2) controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere, and (3) complies with COMAR closure requirements for containers and tank systems

Closure of the SRF hazardous waste management units will be accomplished by removing or decontaminating all equipment, structures, soils, or other materials that contain, or are contaminated with hazardous waste or hazardous waste constituents exceeding clean closure target levels. For chemical agent contaminated materials and structures, clean closure target levels will be established using the most recent versions of:

- Department of the Army Pamphlet (DAPAM) 385-61, the Army Toxic Chemical Agent Safety Program,
- U.S. Army Public Health Center (PHC) Chemical Agent Health-Based Standards for Air, Soil and Groundwater, and
- DEVCOM CBC decontamination procedures.

For other hazardous constituents, APG and DEVCOM CBC will propose clean closure target levels for a target compound list. Clean closure target levels will be based on an appropriate regulatory and/or risk-based concentrations. Sampling and analysis will be performed in accordance with the EPA's SW-846, most recent edition. If hazardous constituents are detected outside the building, a plan to further define the extent of contamination and remedial action will be submitted to MDE. All clean closure target levels, target compound lists, sampling and analysis strategies, etc. will have to be approved by MDE.

Spent wash and rinse solutions and residues generated as part of the decontamination procedures will be treated/disposed of at a permitted hazardous waste management facility, as required. Rinsate from highly contaminated areas will be composited separately for analysis to avoid diluting the waste. Any building components, appurtenances, etc., that cannot be decontaminated will be removed and disposed of in an approved manner.

Upon completion of these procedures, remaining building components that are not contaminated may be refurbished and rededicated to other purposes or demolished with the resulting debris disposed of in accordance with COMAR 26.13.02 and the latest versions of DA PAM 385-61 and Army PHC Health-Based Chemical Agent Standards. Additionally, instrumentation and other hardware that is uncontaminated (or that can be decontaminated) will be removed and salvaged in accordance with procedures described in the latest version of DAPAM 385-61.

II.b. Partial and Final Closure Activities

All of the closure activities discussed in this section are final closure activities. DEVCOM CBC does not envision closing the SRF unless (1) the entire installation closes, or (2) DEVCOM CBC's mission changes such that the sample receipt, and waste treatment and storage functions of the facility are no longer needed. Final closure activities are discussed in Sect. VI, Closure Procedures.

III. Maximum Waste Inventory

The maximum inventory of waste at closure is estimated to be 6,000 gallons. This estimate is derived by assuming that all storage rooms at the SRF have been de-inventoried, the resulting liquid wastes have been treated in the neutralization system, and two final holding tanks are full to capacity when the decision to close is made.

IV. Schedule for Closure

Table 1 presents a schedule for closure of the SRF based on the closure procedures described below.

V. Closure Timeline

V.a. Time Allowed for Closure

As shown on the closure schedule for the SRF (Table 1), all remaining hazardous waste will be removed from the SRF within the required 90 days after initiation of closure. In addition, all closure activities will be completed within the required 180 days after initiation of closure.

V.b. Extension for Closure Time

APG does not expect to request an extension of time for closure of the SRF. If necessary, however, a revised timeline for closure will be submitted to MDE for approval.

Table 1. Closure schedule for the SRF

Description of closure step	Number of days before/after final volume of waste is received
Notify MDE of intent to close	45 days before receipt of final volume of waste
Notify generators who provide wastes to SRF of intent to close	45 days before receipt of final volume of waste
Receipt of final volume of waste	0
Begin closure	30 days after final volume of waste is received
Removal of inventory to another permitted facility	90 days after final volume of waste is received
Remove uncontaminated instrumentation	100 days after final volume of waste is received
Disassemble all equipment and associated piping, valves, pumps, air pollution control equipment, etc.	110 days after final volume of waste is received
Establish sampling protocol for each area	112 days after final volume of waste is received
Decontaminate all surfaces to appropriate level	130 days after final volume of waste is received
Sample rinsate from floors, walls, equipment, and area near loading/unloading area (if applicable)	140 days after final volume of waste is received
Receive lab results	154 days after final volume of waste is received
Dispose of components in permitted and approved hazardous waste facilities	170 days after final volume of waste is received
U.S. Army certifies that closure is in accordance with the closure plan	172 days after final volume of waste is received
Independent registered Professional Engineer certifies that closure is performed in accordance with closure plan	180 days after final volume of waste is received

VI. Closure Procedures

VI.a. Hazardous Waste Inventory

All hazardous waste will be removed from the SRF, suitably packaged and transported to appropriate, permitted waste treatment and disposal facilities.

VI.b. Decontamination Procedures

Decontamination of all materials containing chemical agent will be performed in accordance with DAPAM 385-61, Army PHC Health-Based Chemical Agent Standards and DEVCOM CBC decontamination procedures. The facility will be monitored and/or sampled to ensure the appropriate level of decontamination. If liquid decontamination methods are used, spent decontamination solutions will be collected and pH neutralized. The heel tanks, equalization tank, reactor, and final storage tanks will be cleaned until no contamination can be detected. Spent wash and rinse solutions will be collected, suitably contained/packaged, and transported to an appropriate, permitted waste management facility.

After all waste is removed, walls, floors, and doors will be decontaminated using appropriate physical or chemical extraction technologies (e.g., high pressure steam and water sprays that include appropriate surfactant, acids, bases, or detergents). If appropriate, dry vacuuming of the floors and walls will precede the application of physical or chemical extraction technologies in compartments that stored water reactive wastes. All rinsate and vacuum debris will be collected and characterized. Rinsate and vacuum debris that is hazardous waste will be containerized and sent to a RCRA permitted or interim status hazardous waste management facility. The Army's non-stockpile program is testing and implementing various alternatives to liquid decontamination methods. These alternatives include electrical resistance heating (for tanks) and carbon dioxide blasting (for metal parts). If these alternatives are successful, they may be proposed for the SRF.

Criteria used to determine the necessity of soil sampling to detect contamination will include spill history (including previous sampling and remediation efforts and results), generator knowledge, and/or major breaches to any secondary containment as applicable.

VI.c. Criteria for Satisfactory Decontamination

Interior and Exterior Facility and Tank System Surfaces - Surface contaminants will be considered present as long as contaminants, as detected in the composite spent wash/rinse solutions, wipe samples, and core samples collected as appropriate, exhibit any of the following criteria:

1. The concentration of any constituent, chosen from COMAR 26.13.02.24 based on generator knowledge, exceeds

    - In the wash/rinse solution samples: a RBC or ten times the maximum contaminant level (MCL) concentration in the latest update published by EPA, or maximum contaminant level goal (MCLG), if an MCL does not exist, or one milligram per liter (mg/L) if none of the two exists,

- In wipe samples: a surface loading of 100 microgram per 100 square centimeters (100 µg/100 cm2), and

- In core samples: one tenth of toxicity characteristic (TC) level of COMAR 26.13.02.14, or one mg/L for constituents not on TC list.

2. The pH is less than or equal to 2.0 or more than or equal to 12.5.

3. The concentration of PCBs is more than 50 ppb. (Analysis for PCBs will be performed only if process knowledge suggests that PCBs could be present.)

4. CWM is present above appropriately applied risk-based concentrations.

VI.d. Decontamination of Tank Systems

Tank systems at the SRF that held hazardous waste or hazardous materials may be closed by rinsing the interior of the tank three times with water and by flushing associated piping with water three times. A minimum 10% tank volume of water will be used to rinse the tank each time. Rinsing will be performed with a device that allows access to all parts of the interior tank surface, such as a power sprayer with a flexible wand or the spray balls installed in each of the waste tanks. The tank system will be considered contaminated as long as the rinse water concentrations fail the criteria established above.

If an alternative decontamination method is proposed for closure of SRF tanks (e.g., electrical resistance heating), APG and DEVCOM CBC will propose an alternative method of demonstrating successful decontamination.

VI.e. Disposal of Contaminated Soil

The facility is totally enclosed to prevent contamination of the surrounding soil if there is an accidental spill in the building. Outside the building, there may be areas for loading/unloading. By following the normal contingency plan operations, any discharge to the soil will be thoroughly cleaned up.

VI.f. Decontamination of Cleanup Materials and Residues

All equipment that has come into contact with hazardous waste will be decontaminated at closure, or shipped offsite to a permitted hazardous waste management facility.

VI.g. Documentation of Closure

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to MDE. The certification will be accompanied by appropriate documentation.

VII. Post-Closure Plan

This section is not applicable because APG intends to demonstrate clean closure of the SRF.

Permit Attachment IX-2

General Contingency Plan for the Sample Receipt Facility

The general contingency plan for the SRF follows. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

NOTE: the information in this attachment was extracted from Revision 2 of the permit application, dated March 2021. The formatting and pagination differ from the source document, but the information is consistent with the permit application. The Permittee may use an alternate format for this document, as long as the substance of the alternately formatted document is consistent with the information in this attachment.

GENERAL CONTINGENCY PLAN FOR THE SAMPLE RECEIPT FACILITY

I. GENERAL INFORMATION

The Combat Capabilities Development Command (DEVCOM) Chemical Biological Center operates and manages the Sample Receipt Facility (SRF), which is located in the Edgewood Area of Aberdeen Proving Ground (APG). The facility is designed for the safe receipt, sampling, and analysis of suspect samples resulting from military theaters of operation, law enforcement, and/or intelligence agencies. Major features of the facility include:

- A full containment (explosive and vapor) explosive sample receipt room;
- High Bay receipt laboratory;
- Four-stage decontamination area;
- Evidence receipt and storage;
- Chem-bio screening and analysis laboratories (including a Bio-Safety Level 3 Laboratory);
- A regulated, multi-vessel, hazardous waste tank system;
- Locker rooms; and
- Administrative area.

The purpose of this contingency plan is to describe the actions/procedures site personnel will take to minimize impacts to human health and the environment in response to an unplanned release of hazardous materials, fire, or explosion.

This plan is specific to the SRF and is a supplement to information provided in the following chapters of the APG Emergency Response Plan (ERP):

- Chapter 5 - Chemical Accident or Incident Response and Assistance (CAIRA) Plan;
- Chapter 6 - Biological Accident or Incident Response and Assistance (BAIRA) Plan;
- Chapter 8 – Environmental Release Prevention & Response (ERPR) Plan; and
- Chapter 9 - Radiological Accident or Incident Response and Assistance (RAIRA) Plan.

APG's hazardous waste disposal contractor handles the transportation and subsequent disposal of liquid waste from the SRF hazardous waste tank system. Spill incidents resulting from waste transfer would be the primary responsibility of the hazardous waste disposal contractor.

<u>APG uses the following emergency resources</u>:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies, as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; the DEVCOM Chemical Biological Center (CBC); Kirk U.S. Army

Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below and by coordinating their availability to the Incident Commander (IC) through the Garrison DO Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8—Environmental Release Prevention and Response Plan, defines the roles and responsibilities for the IC and other EOC members, and specifies the organizations with the authority to commit APG resources.

II. EMERGENCY COORDINATORS

The Emergency Coordinators (ECs) for the SRF are trained in accordance with the SRF training plan to ensure their knowledge and skills are sufficient to manage incidents. The ECs have a thorough understanding of the operations and materials at the SRF and are familiar with all aspects of the contingency plan, operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. The site-specific contingency plan, which is kept on-site at the SRF, lists the names, addresses, and contact numbers for both the primary and alternate ECs.

IIa. Duties of the Emergency Coordinator

The EC must be at the SRF or on call, and be able to arrive at the SRF in a timely manner if there is an emergency. The EC is responsible for coordinating all emergency response measures that concern hazardous material, and will coordinate emergency response activities (if safe to do so) until APG garrison emergency response personnel arrive.

IIb. Regulatory Requirements

In accordance with Code of Maryland Regulations (COMAR) Controlled Hazardous Substances regulations (COMAR 26.13.05.04.F and G), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests assistance by dialing 911.
2. Identifies the amount, character, source, and extent of any discharged material.
3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.
4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.
5. Ensures that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.
6. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over

7. Submits verbal and written reports through the DPW Environmental Division (ED) to the Maryland Department of the Environment (MDE) within 15 days of an incident containing the information listed in COMAR 26.13.05.04 G.(10).

III. CRITERIA FOR IMPLEMENTING THE CONTINGENCY PLAN

Facility personnel observing a fire, explosion, or unplanned release of hazardous materials outside primary enclosures (i.e., containers, glove box, fume hoods, etc.) will immediately notify the EC, who will dial 911 and notify other SRF personnel. If the EC (or alternate) is unavailable, the individual discovering the emergency situation will initiate the alarm and dial 911.

Under the following circumstances, trained SRF personnel may perform spill response and cleanup actions without calling the installation emergency number. This can occur only when all of the following conditions are met:

1. The spill only involves very small quantities (< 10 ml) of neat chemical agent and similarly toxic substances within a controlled operational environment, or < 5 gallons of chemical solutions known to be free of chemical agent and similarly toxic constituents. (Note: Larger quantity chemical agent spills and any chemical release outside a controlled environment must be reported.)
2. Unprotected personnel have not been potentially exposed to chemical, biological, or radiological agents.
3. The spilled material is contained within the building and does not directly or indirectly enter the environment.
4. The building ventilation/filtration system is working.
5. The measures necessary to clean up the spill are within the scope of the training of the SRF operators who will perform the action.
6. Equipment and materials needed to clean up the spill are available within the SRF.

IV. PRE-CONTINGENCY PLANNING AND COORDINATION

Hazardous Materials/Wastes Handled or Stored On-Site

The SRF receives field-screened, safe to transport hazardous materials for sampling, detailed analysis, and processing. These materials, which originate from military theaters-of-operation, law enforcement-controlled crime scenes, and field intelligence operations, may include chemical, radiological, and biological agents in weaponized configurations containing explosive dissemination components, or some combination of one or more of these classes of materials. The facility is designed for the safe receipt, triage evaluation, sampling, and analysis of suspect items. Hazardous wastes generated from these operations can include corrosive and toxic decontamination solutions, waste explosives and propellants, and mixed radioactive and hazardous wastes.

Hazardous Material/Waste Characterization Data

SRF personnel are familiar with all hazardous materials used in operations and maintain Safety Data Sheets (SDSs) for these materials. Additionally, each incoming item received at the facility is accompanied by screening characterization data from SRF customers that contain basic information on the presence of energetics, liquid chemical or potential biological fills, and radionuclides. SDSs and customer screening results are maintained within the facility's administrative area.

Hazard Assessment

The CBC Risk Management Office and SRF personnel conduct hazard assessments of all unique SRF activities involving the receipt, sampling, handling, and disposition of received customer materials. This information is then shared with those involved in these activities. Copies of hazard assessments are maintained in the SRF administrative area.

In performing a hazard assessment, the EC, in conjunction with the IC, will review the inventory of waste near the emergency, consider the extent of the hazard, and decide if the area near the emergency should be activated.

To assess the hazard, the EC and IC will consider:

- Type of hazard(s) involved and information available;
- Degree of toxicity of impacted materials/wastes;
- Presence of toxic, irritating or asphyxiating gases that may result from fire, and/or reactions that could result from its suppression;
- Containment of a spill or lack of containment;
- Uncertainty as to the extent of migration of wastes or water used in fire control to either ground or surface waters; and
- Ability of response teams to contain the emergency

Emergency Supplies and Equipment

The SRF maintains in the administrative area an inventory and monthly inspection log of all emergency equipment at the SRF. This includes stocks of personal protective equipment (PPE), decontamination equipment/supplies, first aid kits, and fire extinguishers. Facility operations personnel receive periodic training in the use of these supplies and equipment. Attachment 1 includes a listing of supplies and equipment and their locations within the facility.

V. COORDINATION AGREEMENTS FOR EMERGENCY SERVICES

The IC or a designated individual will control all initial emergency response actions and any follow-up actions. All records of contracts and/or memoranda of understanding (MOUs)/support are maintained as part of the installation emergency/contingency plan. Note: The SRF is a secured building at all times and cannot be entered easily without authorized operational personnel.

V.a. On-Post Coordination

The CBC provides the APG DO Fire Division and Plans/Operations Division EOC with the following information and forward updates when significant changes occur:

1. The general layout of the facility detailing hazardous materials storage areas and the locations of equipment/supplies available to fight fires and to clean up spills.
2. The telephone number of the SRF points-of-contact for non-duty hour emergencies.
3. Copies and revisions to this Contingency Plan

The DPW-ED is responsible for all interactions with MDE and the EPA regarding SRF emergencies and activations of the contingency plan. The DO Fire Division inspects the SRF annually and makes recommendations to improve fire safety.

The Kirk U.S. Army Edgewood Area Health Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO's Fire Division can provide ambulance support from 7:00 a.m. until 11:00 p.m., Monday through Friday. The ambulance is equipped with a communication system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

V.b Off-Post Coordination

In addition to on-post capabilities, APG has Mutual Aid Agreements (MAA) with Harford, Baltimore, and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazards associated with certain post activities and exercises discretion in utilizing MAA resources, especially for military/chemical incidents. In an emergency, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen area Fire Division can assist its Edgewood area counterpart in the event of an emergency at the SRF. A Chemical Casualty Contingency Team is maintained at EA Clinic. Medical augmentation is available from Kirk US Army Health Clinic, Aberdeen area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to the Walter Reed National Military Medical Center-Bethesda for care.

APG also maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

V.c Special Hazards and Other Conditions that Might Affect Emergency Response

1. The building is secured at all times and cannot be entered easily without operating personnel.
2. Depending on current missions and workload, the building may contain chemical and biological agents that are extremely dangerous. Only knowledgeable personnel, such as the facility operators and trained/knowledgeable first responders (i.e., DO Fire Division), should enter the building

VI. RESPONSE EXECUTION

VI.a Hazardous Materials Spills

SRF personnel will report to the EC all hazardous materials releases outside primary containers and/or primary engineering controls, or to the environment. Either the EC, or the person discovering the spill if the EC is unavailable, will notify the APG EOC by dialing "911." As previously noted in Section III., the only exception to the 911 reporting rule is in the case of de minimis spills/releases of substances within the facility that do not present an acute or chronic health risk due to incidental contact or inhalation, and which can be safely cleaned up by on-site personnel. An example of this could be a spill of a 1-liter waste decontamination solution on the floor in the High Bay laboratory. The following actions will be taken in response to hazardous materials spills:

1. Notify the EC and all facility personnel of the spill via the facility intercom or other means.
2. Report the spill by dialing 911, and provide the following information: • Name and telephone number of the reporter.
   - Name and location of facility/site.
   - Date, time, and type of incident.
   - Name and estimated quantity of materials involved.
   - Extent of injuries, if any.
   - Possible hazards to human health or the environment outside the site.
3. Contain the spill/release, if safe to do so and possessing the requisite training and response resources.
4. The EC will determine whether the facility should be evacuated while awaiting DO first responders. The evacuation routes are included in Attachment 2. (*NOTE: attachment not included with this permit due to concerns over operational security.)*

5. The EC will meet DO first responders and provide the IC with information on the location, nature, and extent of the spill or release and any measures taken to stop or contain the spill or release.
6. During duty hours, the EC will notify the CBC Risk Management Office (436-4411).
7. The APG EOC, in coordination with DPW-ED and IC, will contact MDE (866-633-4686) and National Response Center (800-424-8802) if the substance spilled equals or exceeds a reportable quantity (RQ) listed in 40 CFR 302.
8. The DPW-ED will notify the MDE that the facility is in compliance with permit conditions before operations are resumed in the affected areas of the facility.

VI.b. Fires

The following actions will be taken in response to fires:

1. Notify the EC and all facility personnel of the fire via the facility intercom (or other means).
2. Report the fire through the installation emergency telephone number "911," giving the location, cause, and extent of the fire; note also if any liquids or gases are escaping the building.
3. If the fire is within the facility, extinguish and contain it (if safe to do so).
4. Evacuate the facility and await DO Fire Division response elements (see Attachment 2).
5. The Fire Division will take action to control and extinguish the fire.
6. During duty hours, the EC will notify the CBC Risk Management Office (436-4411).
7. The APG EOC will notify the Installation Safety Office. If the fire poses off-site risks to human health and/or includes the release of a hazardous substance exceeding RQs listed in 40 CFR 302, the EOC, in coordination with DPW-ED, will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).
8. The IC, in coordination with the APG EOC and other response elements, will assess the problem and implement procedures for rendering the area safe.
9. The DPW-ED will notify the MDE that the facility is in compliance with permit conditions before operations are resumed in the affected areas of the facility.

VI.c. Explosions

The following actions will be taken in response to explosions, including explosions in the explosives receipt area of the facility (which is designed to contain unintentional explosions):

1. Initiate shutdown procedures, if conducting operations, and evacuate the area to a safe distance from the building (see Attachment 2). *(NOTE: attachment is not included with this permit due to concerns over operational security.)*

2. Report the explosion through the installation emergency number "911," giving the exact location of the explosion, damage to the building, and gas or liquid discharges from the building.
3. Notify the EC (or alternate) presenting the same information as in section VI.a.2
4. During duty hours, the EC will notify the CBC Risk Management Office (436-4411).
5. The APG EOC will notify the Installation Safety Office. If the explosion poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR 302, the EOC, in coordination with DPW-ED, will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).
6. The IC, in coordination with the APG EOC and other response elements, will assess the problem and implement procedures for rendering the area safe.

VII. RECOVERY

VII.a. Post-Emergency Equipment Decontamination/Maintenance

SRF hazardous waste operations will not resume until all damaged and/or contaminated equipment have been repaired, replaced, or decontaminated; and all stocks of emergency response supplies and equipment have been replaced and inspected by the EC. The APG DPW-ED will notify MDE that all facility decontamination and emergency equipment/supplies have been repaired/replaced prior to resuming operations.

VII.b. Storage/Disposal of Recovered Wastes

SRF personnel will be responsible for the turn-in and disposal of all wastes generated on-site during emergency response activities. Waste containers will be stored at the SRF (if the capability remains) or other authorized APG waste storage facilities.

VIII. EVACUATION PLAN

VIII.a. Criteria for Determining Evacuation Option

The EC and IC may choose to evacuate the facility whenever the hazards of toxic gas, fire, or explosives may endanger personnel, particularly those without protection gear.

VIII.b Signals for Evacuation

The direction to evacuate will be given verbally via intercom and/or via fire alarm, as applicable.

VIII.c Evacuation Routes

In the event of a spill, explosion, or other incident, personnel will exit the facility through the nearest exit and assemble in the parking areas upwind from the facility; generally in the parking lots east or north of the building. The exact location will depend on wind direction. There are visible windsocks on each side of the building.

If Fire Division personnel are on the scene, they may direct personnel to an appropriate rally location. The Evacuation Plan is provided in Attachment 2. *(NOTE: attachment not included with this permit due to concerns over operational security.)*

IX. REQUIRED REPORTS

The EC (or alternate) will note in the operation log of the facility the time, date, and details of any incident that requires implementation of the contingency plan. The conditions that caused the emergency and the resulting actions will also be included in this operational log entry.

The EC will provide the IC and DPW with the necessary information to make timely reports to MDE. These IC/DPW reports will include a verbal (i.e., telephone) report within 24 hours, a written report within 5 days, or a written report within 15 days, if MDE grants APG an extension. Written reports will include the following information:

- Name, address, and telephone number of the owner or operator of the facility;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (e.g., fire, explosion, etc.);
- Name and quantity of materials involved; • The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, when applicable;
- Estimated quantity and disposition of material recovered from the incident; and
- Name of person who first reported the incident.

This report is submitted to:

Maryland Department of the Environment
Land and Materials Administration
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

X. PLAN REVIEW AND AMENDMENTS

As required by COMAR 26.13.05.04D and E, the contingency plan must be reviewed and immediately amended, if necessary, whenever:

- The facility permit is revised;
- The plan fails in an emergency;
- Major changes occur in facility design, construction, operation, and maintenance in such a way that emergency response operations are affected;
- The list of ECs changes; or The list of emergency equipment changes

ATTACHMENT 1

LIST AND LOCATIONS OF EMERGENCY EQUIPMENT

The emergency spill equipment listed below is located in Room [redacted]. Other equipment is located in the areas detailed below:

- Mobile spill cart (parked in central corridor) for 30-gallon chemical spill cleanups. Contains variety of small pads, socks, plastic bags, and nitrile gloves. Additional spill supplies (e.g., sorbents, bags, etc.) sufficient for small table-top spills are located in each laboratory.
- Overpack containers – Metal and/or poly drums capable of holding up to 65 gallons of materials and over packing a munition.
- Basic Cleanup Equipment (Room [redacted] and Room [redacted]):

    - Shovel/Pan – Normal shovels capable of scooping up spill cleanup materials.
    - Broom – Normal brooms capable of sweeping spill cleanup material.
    - Vermiculite - Normal absorbent material capable of absorbing liquid spill.

- Emergency Eyewash and/or Emergency Shower Stations – Located in central corridor and all wet laboratories (i.e., Rooms [redacted] [Decon Area Shower]).
- Fire Extinguishers – ABC type, capable of controlling most types of fire. Two are located in the central work corridor, three in the administration area, and four in the utility mezzanine area (at the exits).
- Personal Protective Equipment (individual laboratories).
- First Aid Kits (central work corridor).

NOTE: A floor plan showing the locations of emergency equipment is part of the general contingency plan. It has not been reprinted as part of this permit due to security considerations. Similarly, a diagram that shows emergency evacuation routes has not been reprinted as part of this permit due to security considerations.

PART X

SPECIAL CONDITIONS FOR TREATMENT OF HAZARDOUS WASTE IN THE EXPLOSIVE DESTRUCTION SYSTEM

The Explosive Destruction System (EDS) is a transportable treatment system mounted on a trailer. It is designed to destroy chemical-filled munitions with or without explosive components. Munitions are treated in a containment vessel that is part of the system. The treatment process employs shaped charges to detonate a munition's burster (if present) and breach the munition wall, exposing the chemical fill within the system's containment vessel. A predetermined amount of reagent is added to treat the chemical fill and any explosive residue. Agitation with heating (if required) follows. After chemical treatment, the waste materials are removed from the containment vessel, placed in containers, and managed in accordance with less-than-90-day central accumulation rules pending transfer to a permitted treatment, storage, and disposal facility (TSDF)

The EDS process involves:

- Loading recovered munitions into the EDS Containment Vessel;
- Accessing fill and energetic components (using explosive shaped charges);
- Treating the fill and explosive residues;
- Decontaminating/rinsing munition fragments and the interior of the Containment Vessel;
- Removing liquid and solid waste from the Containment Vessel for subsequent offsite treatment and/or disposal; and
- Drawing vapor emissions from the Containment Vessel and Environmental Enclosure that surrounds the treatment system, through a carbon filtration system.

All EDS operations are performed in a manner designed to control and eliminate escape of hazardous waste and hazardous constituents into the environment. Beyond the primary containment provided by the process equipment, additional protection is provided by conducting EDS operations at Aberdeen Proving Ground inside an Environmental Enclosure. The Environmental Enclosure is comprised of a ceiling, sides, and flooring that will protect the EDS from precipitation and run-on as well as prevent the creation of any contaminated runoff. Engineering and administrative controls such as approved operating procedures, trained operators, an air filtration system with carbon filtration and other measures all contribute to controlling, minimizing or eliminating the possibility of contamination to groundwater, surface water or the atmosphere.

Operations at APG involving the EDS would typically be conducted at the Prototype Detonation, Test and Demonstration Facility (PDTDF) location in [redacted], but could be conducted at an

alternate location on the installation. An alternate location might be considered if the distance to the PDTDF site poses a risk that could only be mitigated by relocating the EDS for the operation.

For example, an alternate location could be considered if one or more unstable chemical munitions were recovered and a hazard analysis determined that vehicular transport of these munitions to the PDTDF location would be unsafe. Under this scenario, the EDS and ancillary equipment, including an environmental enclosure, could be moved closer to the recovery area for the duration of the operation. Any plan relating to the use of the EDS in an alternate location would be thoroughly coordinated by the Permittee with the Maryland Department of the Environment before implementation.

On concluding every treatment operation, procedures are followed for inspecting, servicing, cleaning, disassembling, and decontaminating (if necessary) EDS components to acceptable (Army-published) levels for closeout so that the EDS may be reused for subsequent or future operations at the same location or mobilized to a new location.

There are two models of EDS units that could be used at Aberdeen Proving Ground (APG): the Phase 1 and the Phase 2. The smaller Phase 1 unit is currently rated to safely contain repetitive detonations of up to 1.5 pounds trinitrotoluene (TNT)-equivalent explosive energy. The Phase 2 model is authorized by the Department of Defense Explosive Safety Board (DDESB) to contain up to 9 pounds TNT-equivalent NEW.

Each EDS unit contains the following system components:

- Trailer subsystem,
- Containment vessel subsystem,
- Hydraulic nut subsystem,
- Rotary agitation subsystem,
- Waste transfer subsystem,
- Electrical subsystem,
- Explosive opening subsystem,
- Helium supply and leak detection subsystem
- Clamp hanger subsystem (Phase 2 only), and
- Lift Assist Subsystem (an add-on option for Phase 2 only).

For the purposes of this Part, the Permittee is:

- APG as the owner; and
- As co-operators:
  - the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC), and
  - the U.S. Army Chemical Materials Activity (CMA), Recovered Chemical Materiel Directorate (RCMD)

X.A. PERMITTED TREATMENT

X.A.1. The Permittee may use up to two EDS units at any time to destroy suspect chemical, biological, or smoke munitions. Items to be treated may include an explosive component, or may be free of an explosive component.

X.A.2. A Phase 1 EDS may be used to detonate munitions with up to 1.5 pounds of trinitrotoluene (TNT)-equivalent explosives (donor charges and any energetics in the munition(s) to be treated) in each operation.

X. A.3. A Phase 2 EDS may be used to detonate munitions with up to 9 pounds of TNT-equivalent explosives (donor charges and any energetics in the munition(s) to be treated) in each operation.

X.A.4 The TNT-equivalent explosive limits of the Phase 1 and the Phase 2 EDS units may be increased by MDE using administrative procedures if the Permittee submits acceptable information (such as ASME Guidelines or Army test results) justifying such increases to MDE along with documentation that the DDESB has approved the increase. An increase in net explosive weights will not change the general treatment process.

X.A.5. Based on the current net explosive weight limits at the time this permit is issued, the maximum amount of TNT-equivalent explosives that can be treated annually in EDS units located at APG is estimated to be 936 pounds.

X.B. EDS LOCATION

X.B.1. The primary operational location for one or both EDS units shall be at the PDTDF site located [redacted] in the [redacted] APG's Edgewood Area range complex.

X.B.2. The Permittee may site one or both EDS units in alternate locations on the APG installation with the prior concurrence of the Maryland Department of the Environment (the "Department").

X.C. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

X.C.1. The Permittee shall use acceptable knowledge (such as process knowledge and information derived from nondestructive evaluation tools) to identify wastes.

X.C.2. While the Permittee may treat any of the hazardous wastes listed in Table X-1 in a Phase 1 or a Phase 2 EDS unit, the primary purpose of the EDS is to treat recovered munitions that may contain chemical warfare materiel and toxic industrial chemicals that are not safe for offsite transport.

X.C.3. The Permittee shall not treat any hazardous waste that is not specified in Table X-1 in an EDS unit.

X.C.4. The Permittee may treat items that are regulated as hazardous waste from offsite in an EDS unit only if the waste items are suspect CWM, or industrial chemicals associated with munitions, and:

- The items were discovered within the State of Maryland;
- The Permittee provides the Department with a fact sheet describing the items, where they were found, the waste codes known or suspected to be applicable to the items, possible hazards associated with the items, and the expected benefit of treating them in the EDS; and
- The Permittee receives approval from the Department.

X.D. WASTE TREATMENT

X.D.1. Environmental Enclosure.

X.D.1.a. When the EDS is operated at the PDTDF location, it shall be operated in an environmental enclosure, such as a general-purpose operation shelter, or a vapor containment structure. The environmental enclosure shall be capable of providing secondary vapor containment if a release occurs during munition loading.

X.D.1.b. The environmental enclosure shall be equipped with multiple doors for entrance and egress, connected to ventilation and carbon filtration systems, and equipped with a floor to prevent precipitation run-on.

X.D.1.c. The size and type of the carbon filter unit used for any operation shall be more than adequate to capture and adsorb any agent vapor or emission that could be released from leaking munitions.

X.D.2. Monitoring System for Suspect Chemical Agents and Highly Toxic Industrial Chemicals.

X.D.2.a. All EDS waste treatment operations involving suspect chemical agents and highly toxic industrial chemicals shall have a monitoring plan and a monitoring system appropriate to the operation and the expected fills of the items to be destroyed. At a minimum, the monitoring system shall be capable of detecting releases of the chemical agents and/or toxic industrial chemicals being treated, with detection limits less than or equal to levels of concern for worker safety and levels that are protective of unprotected individuals potentially subject to exposure to emissions from the waste treatment operation.

X.D.2.b. EDS monitoring plans shall be made available to the Department on request.

X.D.3 Treatment Process.

X.D.3.a. Every waste treatment operation shall be performed in accordance with an RCMD-approved SOP or an SOP approved by successor organizations. Approved operation SOPs shall be made available to the Department on request.

X.D.3.b. Waste treatment shall occur in an EDS Containment Vessel. Munition holders, fragment suppression systems, and shaped charges shall be appropriate to the munition(s) being treated.

X.D.3.c. Before initiating a firing sequence, the Permittee shall perform an annular space vacuum test to confirm the integrity of the door seal. In accordance with the EDS SOP, the annular space vacuum as indicated on the helium leak detector or helium leak detector remote control must be stable for approximately 5 minutes in order to proceed with the treatment operation. If the annular space vacuum level does not stabilize, either the vessel door will be opened and appropriately resealed to the stipulated criteria, or approval to proceed with the firing sequence will be obtained from the RCMD after their determination that the obtained seal does not pose unacceptable safety risks to site personnel consistent with U.S. Department of the Army Pamphlet 385-61, *Toxic Chemical Agent Safety Standards*.

X.D.3.d. Before the Containment Vessel door is opened after treatment, a headspace vapor sample shall be taken to confirm that the vapor concentration in the Containment Vessel is at an acceptable level based on the chemical agent being treated and US Department of the Army Pamphlet 385-61, *Toxic Chemical Agent Safety Standards*.

X.D.4 Containers.

X.D.4.a. After treatment, waste liquids and waste solids shall be transferred to suitable waste containers/drums. All waste containers/drums shall be DOT-approved.

X.D.4.b. The EDS Containment Vessel and waste handling system containers/drums shall be maintained in good condition.

X.D.4.c. The EDS Containment Vessel and waste handling system containers/drums shall be inspected before and after each use.

X.D.4.d. EDS waste handling system containers/drums shall be:

i. compatible with the hazardous wastes to be stored;

ii. kept closed except when it is necessary to add or remove waste; and

iii. marked with the words “Hazardous Waste,” an accumulation start date, and information as to contents.

X.D.5. Equipment Leaks, System Damage, and Repair.

X.D.5.a. In the event an EDS Containment Vessel becomes unfit for continued use, the Permittee shall place all EDS components in a safe configuration and remove the EDS from service. Examples of events that would require removing the EDS from service include experiencing a major release or incident that results in an impairment to the EDS Containment Vessel integrity requiring repair that goes beyond expected maintenance. Before the unit is placed back into operation, the Permittee must notify the MDE of the incident and provide a description of corrective measures implemented.

X.D.5.b The contents of a non-serviceable waste container/drum shall be transferred to non-leaking containers.

X.D.5.c. Leaking equipment such as conveyance hose lines or pumps shall be repaired or replaced as soon as operationally feasible and prior to processing the next item.

X.D.6. Secondary Containment.

X.D.6.a. Each liquid waste container/drum used in an operation shall be staged in a spill containment pallet capable of holding the entire contents of the container/drum.

X.D.6.b.The trailer on which the EDS is mounted shall be equipped with a secondary containment pan that can be drained to waste containers/drums. The secondary containment pan shall be sufficient to contain leaks from the EDS Containment Vessel or reagent and water tanks.

X.D.7. Additional Operating Requirements.

X.D.7.a. Each EDS unit shall be equipped with an emergency power generating system capable of providing backup power to critical and essential loads (i.e., monitoring equipment, lighting) in the event of a power outage.

X.D.7.b. At least 2 ft of aisle space shall be maintained around EDS equipment during treatment operations to allow for unobstructed movement of personnel and fire protection, spill control, and decontamination equipment in response to an emergency during treatment operations.

X.D.7.c. Every operational SOP shall specify the protective clothing and equipment required to perform the operation.

X.D.7.d. Major changes in treatment process chemistry such as a new treatment reagent or a change in the physical design of the EDS unit requires notification to MDE before the change can be implemented.

X.D.7.e. MDE shall be notified of any changes to the EDS design or operations that

require a notification to the Department of Defense Explosives Safety Board (DDESB) or the Combat Capabilities Development Command Data and Analysis Center (DEVCOM-DAC).

X.E. SPECIAL REQUIREMENTS

X.E.1. Ignitable or Reactive Wastes.

X.E.1.a. Ignitable wastes generated during operations or maintenance activities shall be stored in permitted or less-than-90-day storage areas.

X.E.1.b. Smoking is prohibited at the EDS location except in designated smoking areas.

X.E.1.c. Open flames, smoking, cutting welding hot surfaces, excessive frictional heat, sparks, and radiant heat are prohibited in the Environmental Enclosure and surrounding work areas when munitions are present.

X.E.1.d. Reactive wastes (i.e., explosives in the energetic components) are treated in the EDS. Explosives operators shall be trained to minimize handling of items to be treated in the EDS to reduce the potential for dropping.

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X.E.2. Incompatible Waste.

The Permittee shall not place incompatible wastes or materials in the same waste container.

X.F. RECORDKEEPING AND REPORTING

X.F.1. The Permittee shall record results from leak tests and monitoring and make this information part of the EDS operating record. Until certification of closure is submitted by the Permittee and found to be acceptable by the Department, in accordance with COMAR 26.13.05.07, the Permittee shall maintain, at the EDS Site Office, all documents included in the EDS operating record required by Permit Condition II.H, with the exception of the EDS monitoring and analytical data. The Permittee may store monitoring and analytical data for permitted EDS operations on the Chemical Biological Center Environmental Monitoring Laboratory (EML) automated laboratory information management system (LIMS). Data stored or archived in the EML-LIMS shall be maintained until closure and shall be made available to the Department upon request. All other records required by this permit shall be maintained for a minimum period of three years. The retention period of all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

X.F.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention, and disposition of records.

X.F.3. The Permittee shall keep on site a copy of this part of the permit and its cited attachments. Table X-2 summarizes the permit-required documents for the EDS.

X.F.4. The Permittee shall provide the Department with information regarding usage of the EDS for operations on request.

X.G. INSPECTION SCHEDULE AND PROCEDURES

X.G.1. The Permittee shall conduct inspections of the EDS daily when it is in use in accordance with the checklist provided on Figure X-1. This checklist may be amended or revised as appropriate in accordance with COMAR 26.13.07.

X.G.2. The Permittee shall inspect the EDS PDTDF location monthly in accordance with the checklist provided on Figure X-2. This checklist may be amended or revised with the approval of the Department either by permit modification or using administrative procedures in accordance with COMAR 26.13.07.

X.H. CONTINGENCY PLAN

X.H.1. The most recent version of the following contingency plan documents shall be available at the EDS PDTDF location whenever the EDS is located there:

- The EDS RCRA Site-Specific Contingency Plan;
- APG's Emergency Response Plan, Chapter ;
- APG's Emergency Response Plan, Chapter 5 (Chemical Accident or Incident Response and Assistance [CAIRA] Plan); and
- APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan.

Note: Permit Attachment X-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency Plan located at the EDS PDTDF.

X.H.2. The EDS Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, as required by COMAR 26.13.05.04E. The plan may also be amended for the following reasons by notifying the Department:

- To incorporate administrative and informational changes,
- To upgrade, relocate, or replace emergency equipment listed in the contingency plan with functionally equivalent emergency equipment, or
- To change the name, telephone number, or address of the Emergency Coordinator, alternate Emergency Coordinator, or other persons, organizations, or agencies identified in the plan.

X.H.3. The EDS Emergency Coordinator shall meet the requirements listed in COMAR 26.13.05.04F as these requirements relate to the EDS.

V.H.4. The Permittee shall immediately carry out the provisions of the EDS Site-Specific Contingency Plan and follow emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents that threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2)).

X.I. EDS OPERATION CLOSE-OUT AND EDS PROGRAM CLOSURE

X.I.1. On concluding every treatment operation, RCMD-approved close-out procedures shall be followed for servicing, cleaning, disassembly, and decontaminating (if necessary) EDS components to acceptable Army-published levels so that the EDS may be reused for subsequent or future operations at the same APG location, a new APG location, or mobilized to a location off-site.

X.I.2 At the end of operating life for an EDS unit present at APG or end of program life of the EDS, the Permittee shall close the EDS in accordance with the approved closure plan provided as Permit Attachment X-1.

X.I.3. Within 60 days of completing activities described in the approved closure plan, the Permittee shall submit a closure report describing the closure activities conducted in compliance with each component of the approved closure plan. The closure report shall include, but not be limited to:

- Verification results demonstrating that a clean closure of the EDS (i.e., demonstrating that the closure performance standard of COMAR 26.13.05.07B has been achieved), and
- Closure certification as required by COMAR 26.13.05.07F.

X.I.4. If the Permittee is unable to demonstrate a clean closure in accordance with the approved closure plan (Permit Attachment X-1), the Permittee shall inform the Department within 60 days of completing closure activities and submit a post-closure care plan for review and approval.

X.J. TABLES AND FIGURES

Table X-1. Permitted Waste Codes for the Explosive Destruction System

U.S. Environmental Protection Agency (EPA) Hazardous Waste Number[a]	Waste Type
D001	Solid waste exhibiting the characteristic of ignitability
D002	Solid waste exhibiting the characteristic of corrosivity
D003	Solid waste exhibiting the characteristic of reactivity
D004-D043	Solid waste exhibiting the characteristic of toxicity
F001-F015, F019, F024, F027	Hazardous waste from nonspecific sources
K044-K047	Hazardous waste from specific sources, specifically related to explosives
K991-K999 [b]	Chemical warfare materiel (*Code of Maryland Regulations* [COMAR] 26.13.02.17)
MD02 [b]	Reaction products and residues resulting from the decontamination of specific compounds (military) as listed under COMAR 26.13.02.18
MD03 [b]	Residues from the treatment of wastes K991 through K999, as listed under COMAR 26.13.02.18
M001, MT01, MX01 [b]	Polychlorinated biphenyls (PCBs) and mixtures of soil, wastes, or debris containing PCBs resulting from cleanup of wastes having the generic name listed in COMAR 26.13.02.19 E and G (COMAR 26.13.02.19)
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123	Discarded commercial chemical products, off-specification species, container residues, and spill residues; these are acute hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U228, U230-U240, U242-U249, U328, U353, U359	Discarded commercial chemical products, off-specification species, containers residues, and spill residues; these are identified as toxic wastes

[a]Waste codes that are not generally associated with chemical munitions are listed because the munitions to be treated are recovered and they may contain unexpected chemical products associated with testing or research.

[b]Maryland state-designated hazardous waste

Table X-2. Permit-Required Documents/Records for the EDS*

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Chemical Accident or Incident Response and Assistance (CAIRA) Plan	26.13.05.04
Emergency Response Plan	26.13.05.04
Operating Record	26.13.05.05 D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and X of this Permit	26.13.07.05A and C

*All of these documents/records shall be available at the EDS Site Office.

EDS Operation Day: 1 2

Inspected By: _____ **Date:** _____

Signature: _____ **Time:** _____

#	Activity	Yes, No, or Not Applicable (NA)?	Corrective Action Required? If Yes, provide detail below.
EDS Containment Vessel (Interior and Exterior)			
1	Are there any spills, leaks, or liquids in the area?		
2	Does the exterior – tubing and valves - show any signs of corrosion, leakage, or other physical damage, such as tears, stresses, gouges rips, cracks, loose screws, etc ?		
3	Does the interior show any signs of physical damage, such as gouges and dimples?		
4	Are the waste handling system hoses/connections from the vessel door to liquid waste containers in good condition?		
EDS Waste Handling			
5	Are containers in good condition, i.e., no signs of deterioration, rust, corrosion, or leaking (Subpart CC)?		
6	Is there adequate aisle spacing between containers and walls of the environmental enclosure?		
7	Does the secondary containment (drum tubs) show signs of cracks, flaking, chips, gouges, or obvious wear?		
8	Does the secondary containment (drum tubs) have signs of drips, spills, or leaks or any accumulated liquids?		
9	Are there any visible cracks, holes, gaps, or open spaces into the container when the cover and closure devices (e.g., lid, bungs) are secured in the closed position (Subpart CC)?		
10	Does the container meet DOT requirements (Subpart CC)?		
11	Are any repairs required to containers (Subpart CC)?		
EDS Trailer Secondary Containment Pan			
12	Does the secondary containment system show liquids, leakage or signs of corrosion, or other physical damage, such as cracks, gaps or holes?		
Lift Assist (EDS Phase 2) – IF THE LIFT ASSIST IS NOT BEING USED, DO NOT COMPLETE THIS SECTION.			
13	Does the jib crane show signs of physical damage such as cracking, bending, deformity, or corrosion?		
14	Does the jib crane have freedom of rotation? Is hook operable?		
15	Are all jib crane mechanisms (sheaves, brakes, and locking mechanism) operable and in good condition?		

Comments/Discrepancies/Remedial Work Required: _____

Date Corrective Action Completed: _____ Verified by: _____

Title: _____

Figure X-1. EDS Daily (when in Use) Operational RCRA Inspection Checklist

Name of Inspector (Print):

Date and Time:

Weather Conditions:

ITEM	**OBSERVATIONS (Circle)***	**COMMENTS/ACTIONS**
Fire Extinguishers	Sufficient pressure Insufficient pressure	
PDTDF Fence and Lock	Good Integrity/Operational Damaged/Not operational	
Spill cleanup equipment (vermiculite, spill pillows, broom, overpack container)	Present and adequate Not present or not adequate	
Signs	Present and in good condition Not present or deteriorating	

*****If problems are observed, note the location in the last column.

Figure X-2. Monthly Environmental Inspection Form for the EDS at the PDTDF Location

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Permit Attachment X-1
Closure Plan for the Explosive Destruction System

NOTE: most of the information in this attachment was extracted from Revision 2 of the permit application, dated March 2021. The formatting and pagination differ from the source document, but the information is consistent with the permit application, except as follows. Some information has been carried over from the permit that this Permit replaces, namely, the closure strategy in Section 3, and Attachment 1 of the Conceptual Closure Plan (EDS Procedures for Monitoring, Decontamination, and Breakdown).

CLOSURE PLAN
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EXPLOSIVE DESTRUCTION SYSTEM AT ABERDEEN PROVING GROUND CONCEPTUAL CLOSURE PLAN

1. GENERAL INFORMATION

The Explosive Destruction System (EDS) is a transportable system mounted on a trailer. It is designed to destroy chemical munitions with or without explosive components. The system employs explosive shaped charges to detonate a munition's burster (if present) and breach the munition's wall, exposing the chemical fill. A predetermined amount of reagent is added to treat the chemical fill and explosive residues. Agitation with heating (if required) follows. After chemical treatment, the waste materials are removed from the containment vessel and transported to an offsite permitted treatment, storage, and disposal facility for final treatment or disposal.

The EDS process involves:

- Loading recovered munitions into the EDS Containment Vessel
- Accessing fill and energetic components (using explosive shaped charges)
- Treating the fill and explosive residues
- Decontaminating/rinsing munition fragments and the interior of the Containment Vessel
- Removing liquid and solid waste from the Containment Vessel for subsequent offsite treatment and/or disposal
- Drawing vapor emissions from the containment vessel and Environmental Enclosure (EE) that surrounds the treatment system, through a carbon filtration system.

There are two EDS units that could be used at Aberdeen Proving Ground (APG). The Phase 1 unit is capable of safely withstanding a detonation of up to 1.5 pounds of trinitrotoluene (TNT)-equivalent explosives. The Phase 2 unit is capable of safely withstanding a detonation of up to 9 pounds of TNT-equivalent explosives. Both EDS units will be used at the Prototype Detonation Test and Destruction Facility (PDTDF) site located [redacted] APG's Edgewood Range Complex. APG may use either one or two EDS units at the PDTDF location.

The EDS is a mobile treatment unit that can be used onsite at locations besides the PDTDF, and at offsite locations. Resource Conservation and Recovery Act (RCRA) closure will occur when APG decides that waste treatment in the EDS (Phase 1 or Phase 2) will no longer occur at the PDTDF location [redacted]. There may be long periods (years) when no EDS unit is located at APG; this does not necessarily mean that closure is imminent.

This closure plan for the EDS is preliminary, and will be revised to reflect site conditions and appropriate regulatory standards at the actual time of closure. The detailed closure plan will be submitted to the Maryland Department of the Environment (MDE) before final closure begins. APG will not proceed with the final closure of the EDS in the absence of written confirmation from the MDE that the closure plan is approved or conditionally approved.

2. CLOSURE PERFORMANCE STANDARD

Code of Maryland Regulations (COMAR) 26.13.05.07 B. requires the owner or operator of a permitted hazardous waste management facility to "close the facility in a manner that minimizes the need for further maintenance and controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the groundwater, surface waters, or the atmosphere."

Closure of the EDS will not occur until all planned treatment activities have been completed in accordance with operation-specific standard operating procedures (SOPs). EDS SOPs also address decontamination of the EDS containment vessel and trailer for movement to another location. The same decontamination procedures that apply to a temporary relocation of the EDS would apply if APG decides that the EDS will no longer be used at the APG PDTDF location.

The general purpose operation shelter (GPOS) and the vapor containment structure (VCS) that are currently used to house the EDS at the PDTDF location may also be used to house other, non-RCRA technologies. Following use with the EDS, the GPOS, VCS, and other support equipment at the PDTDF location will be decontaminated, if necessary, in accordance with relevant procedures. Following decontamination, this equipment could be used to support other equipment at the PDTDF location, equipment located elsewhere on the APG installation, or equipment at other U.S. Department of Defense facilities. This equipment may also be disposed of if repairs or relocation are not cost-effective.

3. CLOSURE STRATEGY

Based on the general EDS operating information provided previously, when the EDS is "closed" and will no longer operate at APG, the independent Professional Engineer will review operating records to:

- Confirm and evaluate any spills, releases, cleanup activities noted.
- Confirm that the EDS procedures for closeout (servicing, cleaning/decontaminating, and preparing the EDS and associated equipment for subsequent use or demobilization) were followed.
- Confirm the EDS was monitored to verify adequacy of cleaning/decontamination.
- Confirm air monitoring results were documented and that values met the required levels established for subsequent use or demobilization.

- Confirm that wastes generated from closeout operations were shipped offsite to an approved treatment, storage, and disposal facility (TSDF).

It is possible that one or more EDS units will not be present at APG when closure occurs because the units may be needed elsewhere. If that is the case, the Department will be notified and the closure certification report will be written addressing this fact accordingly.

4. PARTIAL AND FINAL CLOSURE ACTIVITIES

All of the closure activities discussed in this section are final closure activities. APG expects that EDS treatment of chemical munitions could continue until the

- Entire installation closes,
- Treatment of hazardous waste munitions in the EDS at APG is no longer necessary, or
- Functions of the EDS are replaced with alternative technologies

5. MAXIMUM WASTE INVENTORY

Munitions are brought to the PDTDF location for treatment in the EDS just before treatment is scheduled to occur. Consequently, there is no inventory of waste munitions being stored at the PDTDF location. The waste products of EDS daily operations are generally transported from the PDTDF location on the same day they are generated. Consequently, there is no inventory of EDS treatment residues stored at the EDS location.

The maximum inventory of waste that could be present at the PDTDF location is the amount of waste that could be generated from one treatment event in each of two Phase 2 EDS units (if two Phase 2 EDS units are present at the PDTDF location). **Table 1** shows the maximum amount of waste that is generated by Phase 1 and Phase 2 EDS units. If two Phase 2 EDS are present at the time of closure, the maximum amount of waste that could be present is 1,840 gallons.

Table 1. Maximum Inventory of Waste Generated in Phase 1 and Phase 2 EDS Units per Event

Location	EDS Phase 1 (gallons)	EDS Phase 2 (gallons)
Containment Vessel	50	160
Liquid Waste Drums (4)	220	220
Trailer Secondary Containment	130	170
Platform Secondary Containment	100	100
Debris Pan (1)	50	50
Drum Pallet Pan (4)	220	220
TOTAL	**771**	**920**

Note:
EDS = Explosive Destruction System

6. SCHEDULE FOR CLOSURE AND CLOSURE TIMELINE

Table 2 provides a sequence for EDS closure.

As shown on the closure schedule for the EDS, all hazardous waste resulting from the closure of the EDS at APG would be removed within the required 90 days after initiation of closure. In addition, all closure activities would be completed with the required 180 days after initiation of closure. APG does not expect to request an extension of time for closing the EDS.

7. CLOSURE PROCEDURES FOR INVENTORY, DISPOSAL, REMOVAL, OR DECONTAMINATION OF EQUIPMENT

Closure procedures relevant to the disposal, removal, or decontamination of potentially agent-contaminated equipment are based on the requirements found in Chapter 5 of the U.S. Department of the Army Pamphlet (DA Pam) 385-61, Toxic Chemical Agent Safety Standards. In accordance with this guidance, tools, equipment, supplies and facilities may be considered clean if the item never contacted a liquid agent or experienced a chemical agent aerosol environment and meets one of the following conditions:

(1) If in a continuously controlled environment where the environment is documented to never have had exceeded the STEL (VSL) concentration when the item was present.
(2) If in a continuously controlled environment where the environment is documented to never have had exceeded the Immediately Dangerous To Life and Health (IDLH) concentration when the item was present, the item may be considered clean based on a risk assessment addressing the following factors as a minimum:
    (a) Temperature of the environment (e.g., condensation of vapors).
    (b) Type of process, operation, or task.

(c) Concentration of agent and durations of exposure.

(d) Materials composition (for example, porosity, density, organic, inorganic, metallic, and crystalline).

(e) Historical documentation for similar operations and items.

(f) Type of equipment (e.g., wrench, rubber mat, process equipment, an auxiliary equipment).

(g) Location of object considering source of vapor and airflow direction.

Tools, supplies, equipment, and facilities will require decontamination of disposal if any of the following conditions is met:

(1) Contacted liquid chemical agent.

(2) In a chemical agent aerosol environment.

(3) In a continuously controlled environment and exposed above IDLH concentration for any period of time.

(4) In an uncontrolled environment where monitoring has indicated the environment exceeded the STEL (VSL) concentration.

(5) In an uncontrolled environment involving the storage, use, or presence of chemical agent and where physical factors (for example, discolorations, stains, and so forth) indicate possible exposure to chemical agent.

Equipment/areas that have been exposed to agent vapor above 1 VSL, but below the immediately dangerous to life and health (IDLH) level (the IDLH levels depends on the agent), could be considered clean based on a risk assessment finding that agent vapor could not have condensed in the area.

Equipment/areas that are potentially contaminated are decontaminated using processes that depend on the type and route of exposure. For example, vapor-only-contaminated equipment may be air washed and then monitored for clearance. Equipment that was liquid- or aerosol-contaminated may be decontaminated with water, bleach, dilute Whistle, or other approved solutions; examined to ensure that there were no occluded spaces that could entrap liquid agent; and then monitored after an appropriate hold time.

Table 2. Schedule of EDS Closure Activities

Activity	Day Completed
Initiate Closure Activities	Day 0
Identify contaminated EDS equipment	Day 1
Perform decontamination of EDS equipment and enclosure (if necessary); if decontamination is necessary, collect wastes generated from decontamination operations.	Day 2
Complete confirmatory sampling and analysis of EDS equipment and enclosure (if decontamination conducted)	Day 4
Review and evaluate sample analysis results	Day 12
Complete decontamination of EDS and associated equipment for reuse	Day 13
Remove EDS from Enclosure Structure (if EDS is present)	Day 14
Demobilize EDS (if EDS is present)	Day 16
Demobilize Enclosure (if applicable)	Day 18
Transport wastes generated from closure to an onsite storage facility or an offsite permitted hazardous waste TSDF	Day 21
Complete all closure activities	Day 22
Submit Closure Certification to the MDE	60 days after completion of closure

Notes:

EDS = Explosive Destruction System
MDE = Maryland Department of the Environment
TSDF = Treatment, Storage, and Disposal Facility

7.1 Decontamination Procedures

EDS decontamination procedures will be provided at the time of closure. The CMA maintains detailed EDS decontamination and breakdown procedures in form of SOPs. These are currently reviewed and updated annually. Copies of current procedures updates can be made available to MDE upon request. The same procedures or similar would be proposed to decontaminate, breakdown and remove the EDS at the time of closure.

Because EDS operations are completely enclosed, it should not be necessary to decontaminate and sample the asphalt pad under the GPOS/VCS or the underlying soil. Criteria used to determine the necessity of asphalt pad/soil sampling to detect contamination will include spill history (including previous sampling and remediation efforts and results), generator knowledge, and/or the occurrence of major breaches to any secondary containment.

7.2 Criteria for Determining Decontamination

APG uses the chemical agent decontamination criteria contained in DA PAM 385-61 and the most recent health-based standards available from the US Army Public Health Center. For any items, equipment, or contaminated media remaining at the EDS operational site, clean closure levels of non-agent hazardous constituents will be chosen based on U.S. Environmental Protection Agency (USEPA) and MDE-recommended risk based constituent concentrations, considering background levels and the future use of the location.

7.3 Hazardous Waste Inventory

The EDS does not have its own inventory; the EDS is used to treat munitions. The EDS will not close if there is an inventory of hazardous waste munitions in the N-Field Storage Facility that have no alternative disposition.

8. CLOSURE DOCUMENTATION AND CERTIFICATION

After the closure of the EDS, a copy of the certification by the owner/operator and the independent, registered Professional Engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to the MDE. The certification will be accompanied by appropriate documentation.

9. POST-CLOSURE PLAN

This section is not applicable because the EDS is a treatment unit, not a disposal facility.

ATTACHMENT X-1, Appendix 1
EDS PROCEDURES FOR MONITORING, DECONTAMINATION, AND BREAKDOWN

PROCEDURE 19
MONITOR AND DECONTAMINATE THE EDS

The purpose of this procedure is to provide operating procedures for monitoring and decontaminating the EDS to acceptable levels for EDS closeout.

PRECONDITIONS:

1. PPE IAW Annex I.
2. Air monitoring operational.

WARNINGS

PPE LEVELS WORN ACCORDING TO TASK BEING PERFORMED AND MONITORING RESULTS IAW ANNEX I.

VERIFY PERSONNEL ARE CLEAR OF THE VESSEL BEFORE ROTARY AGITATION SUBSYSTEM IS STARTED.

CLOSING VESSEL DOOR PRESENTS CRUSHING AND PINCHING HAZARDS. BE AWARE OF BODY POSITION WHILE PERFORMING THE FOLLOWING STEPS.

REMOVE CLAMP CONTROL KEY BEFORE ATTEMPTING TO PRY APART THE CLAMP HANGER ASSEMBLIES OR BEFORE USING THE SCREW DRIVE WHEEL.

FAILURE TO DON LEATHER GLOVES MAY CAUSE RUBBER GLOVES TO BE COMPROMISED WHEN IN CONTACT WITH SHARP EDGES.

USE TWO OPERATORS WHEN CLOSING VESSEL DOOR.

EXERCISE EXTREME CAUTION WHEN WORKING WITH HYDRAULIC NUTS AND HOSES UNDER HYDRAULIC TENSION.

NEVER ATTEMPT TO GRASP LEAKING HOSE UNDER PRESSURE WITH HANDS. THE FORCE OF ESCAPING HYDRAULIC FLUID COULD CAUSE SERIOUS INJURY.

NEVER STAND OR PLACE ANY PARTS OF THE BODY IN LINE WITH THREADED RODS WHEN HYDRAULIC NUTS ARE BEING PRESSURIZED.

BECAUSE STRESS MAY DAMAGE HOSE AND CAUSE INJURY, NEVER USE A HOSE TO MOVE EQUIPMENT.

FAILURE TO COMPLY MAY RESULT IN PERSONAL INJURY.

1.0 **VERIFY** EDS equipment disassembled, serviced, and re-assembled IAW Procedures 17 and 18.

CALLOUT: Announce name of components disassembled, serviced, and decontaminated.

2.0 **MONITOR** CONTAINMENT VESSEL and vessel door for chemical agent contamination.

2.1 **PLACE** plastic sheeting or large bags over vessel opening and door.

2.2 **SEAL** plastic sheeting or bags with duct tape or equivalent.

2.3 **BAG** individual items that may have become contaminated during operation. These items include:

- Vessel door parts
- Operational solids waste
- Tools
- Vessel hoe
- PPE
- Waste drum fittings
- Debris and rinse pans
- Munition loading table.

2.4 **ALLOW** sealed items to remain undisturbed for 4 hours at a minimum of 21°C (70°F) in a sealed and unventilated condition.

Note

Monitor item IAW local monitoring program.

2.5 **PERFORM** monitoring inside plastic sheeting or bags to determine if further decontamination necessary.

3.0 **DECONTAMINATE** any items with positive results.

3.1 **WIPE** contaminated item with 5 percent bleach solution. When item sensitive to 5 percent bleach solution, **USE** general-purpose detergent.

3.2 **RINSE** item with water and **ALLOW** item to air dry.

3.3 **PLACE** decontamination waste into open-head waste drum or liquid waste drum, as required.

3.4 **CLOSE** open-head waste drum.

3.5 **MONITOR** decontaminated item for chemical agent contamination.

3.5.1 **BAG** item, **CLOSE**, and **SEAL** bag.

3.5.2 **ALLOW** bagged item to remain sealed and undisturbed for 4 hours at a minimum of 21°C (70°F) in an unventilated condition.

Note

Monitor item IAW local monitoring program.

3.5.3 **MONITOR** inside bag and **PROCEED** as follows:

3.5.3.1 When monitoring results show chemical agent not present, **PROCEED** to Step 4.0.

3.5.3.2 When monitoring results show chemical agent present, **RETURN** to Step 3.0.

CALLOUT: Describe which items were individually bagged, if any, for agent monitoring.

4.0 **CLOSE** CONTAINMENT VESSEL door for transport.

4.1 **VERIFY** all valves on valve panel, REAGENT SUPPLY Panel, and vessel door are CLOSED.

4.2 **PREPARE** sealing surfaces IAW O&M Manual for EDS P2U1 and P2U2, Table 4-2, Pre-Op PMCS No. 3.

4.3 **VERIFY** training/shipping metal seal properly installed.

4.4 **VERIFY** clamps positioned so as not to interfere with vessel door movement.

4.5 **CHECK** vessel door sealing surfaces and Grayloc metal seal and **VERIFY** no foreign material present that could compromise vessel seal.

4.6 **DON** leather gloves and **REMOVE** threaded rods cover, if present.

4.7 **CLOSE** vessel door.

5.0 **SECURE** CONTAINMENT VESSEL door clamp.

5.1 **VERIFY** three PROCESS SHUTDOWN buttons are out.

5.2 **VERIFY** hydraulic nuts fully retracted.

5.3 Simultaneously **ROTATE** clamp hanger adjustment wheels to left (Raise) until door clamps fully raised.

Notes

Clamp control key is same key used in vessel rotation control panel.

Use of clamp hanger control pendant may be required when local control mode is not operating correctly. See Annex F.

When closing containment vessel door, it may be necessary for an operator to maintain pressure on door until door clamps are closed.

5.4 **INSERT** and **TURN** Clamp Control Key in LOCAL/OFF/PENDANT switch to LOCAL position.

5.5 **TURN** amber speed switch on HANGER OPERATION Panel to SLOW.

5.6 **PUSH** and **HOLD** green IN button (light illuminates) on HANGER OPERATION Panel.

5.6.1 When CLAMP DRIVE MOTOR operating correctly, **RELEASE** IN button when CLAMP HANGER LEAD SCREW stops rotating. **PROCEED** to Step 5.7.

5.6.2 When CLAMP DRIVE MOTOR not operating correctly, **TURN OFF** and **REMOVE** Clamp Control Key. **PERFORM** the following:

5.6.2.1 **TURN** lead screw hand wheel to free CLAMP HANGER LEAD SCREW.

5.6.2.2 **INSERT** and **TURN** Clamp Control Key in LOCAL/OFF/PENDANT switch to LOCAL position.

5.6.2.3 **PUSH** and **HOLD** green IN button on HANGER OPERATION Panel. **PROCEED** as follows:

5.6.2.3.1 When CLAMP DRIVE MOTOR operating correctly, **RELEASE** IN button when CLAMP HANGER LEAD SCREW stops rotating. **PROCEED** to Step 5.7.

5.6.2.3.2 When CLAMP DRIVE MOTOR not operating correctly, **TURN OFF** and **REMOVE** Clamp Control Key. **PROCEED** as directed.

5.7 **PUSH** and **HOLD** green OUT button on HANGER OPERATION Panel and when clamp pin drive followers centered in CLAMP HANGER ASSEMBLY cutouts, **RELEASE** OUT button.

5.8 **TURN OFF** and **REMOVE** Clamp Control Key.

5.9 **VERIFY** all four hydraulic nuts and spherical faced washers fully flush and in contact with clamp half.

6.0 **TIGHTEN** hydraulic nuts on CONTAINMENT VESSEL door clamp.

6.1 **DON** leather gloves.

Caution

Top and bottom gaps of clamp faces must be within 1/4-inch difference and closed to 2-1/2 inches or less. Inconsistent gaps may damage hydraulic nuts and result in seal leakage.

6.2 Using a wrench or by hand, evenly **TIGHTEN** the four 5-inch hex nuts. **VERIFY** top and bottom gaps between clamp faces are 2-1/2 inches or less with top and bottom gaps no more than 1/4-inch difference (green HANGERS CLOSED light illuminates).

6.3 Simultaneously **ROTATE** clamp hanger adjustment bolts to right (Lower) until clamps rest on vessel door.

Note

Hydraulic Nut Subsystem will not operate unless green Hangers Closed light on Hose Docking Station is illuminated.

7.0 **START** HYDRAULIC NUT SUBSYSTEM.

7.1 **VERIFY** Hydraulic Pump Hose connected hydraulic manifold.

7.2 **VERIFY** all three hydraulic nut hoses and Hydraulic Pump Hose securely connected to hydraulic nut quick-connects and not leaking and red OFF button on HYDRAULIC NUT PUMP Panel illuminated.

7.3 **TURN** red PRESSURE switch on VESSEL CONTROL Panel to LOW.

7.4 **PRESS** green ON button on HYDRAULIC NUT PUMP Panel to start hydraulic pump and **MONITOR** all four hydraulic nuts.

7.5 **VERIFY** personnel clear of hydraulic nut and hydraulic hoses.

Caution

Do not exceed 3,200 psig hydraulic pump pressure to avoid possible damage to sealing surfaces during movement.

7.6 **MONITOR** all four hydraulic nuts. **PUSH** and **HOLD** ADVANCE button on HYDRAULIC NUT PUMP Panel until pressure reaches 3,000 psig and then **RELEASE** ADVANCE button.

7.7 **TURN** locking ring clockwise on each hydraulic nut until hand tight.

7.8 **PUSH** and **HOLD** RETRACT button on HYDRAULIC NUT PUMP Panel to release hydraulic pressure.

7.9 **VERIFY** that pump pressure gauge reads approximately 0 psig.

8.0 **STOP** HYDRAULIC NUT SUBSYSTEM.

8.1 **PRESS** red OFF button on HYDRAULIC NUT PUMP Panel to stop hydraulic pump and **PRESS** red OFF button on VESSEL ROTATION CONTROL Panel.

8.2 **DISCONNECT** Hydraulic Pump Hose from hydraulic manifold and **CONNECT** it to Hose Docking Station.

8.3 **VERIFY** clamp hanger adjustment bolts have been rotated to the right (Lower) so that clamp hanger rails clear of clamp slide locks.

Notes

Clamp control key is same key used in vessel rotation control panel.

Use of clamp hanger control pendant may be required when local control mode is not operating correctly. See Annex F.

8.4 **INSERT** and **TURN** Clamp Control Key in LOCAL/OFF/PENDANT switch to LOCAL position.

8.5 **TURN** amber speed switch on HANGER OPERATION Panel to FAST.

8.6 **PUSH** and **HOLD** green OUT button on HANGER OPERATION Panel and when CLAMP HANGER ASSEMBLIES approximately 6 inches from each end of the linear bearing rod, **RELEASE** OUT button.

8.7 **TURN** amber speed switch on HANGER OPERATION Panel to SLOW.

8.8 **PUSH** and **HOLD** green OUT button on HANGER OPERATION Panel, and when green HANGERS STOWED light on Hose Docking Station illuminates, **RELEASE** OUT button.

8.9 **TURN OFF** and **REMOVE** Clamp Control Key.

Caution

Loose tools or other hardware left on top of or underneath rotating vessel may be damaged.

Note

Containment vessel will only stop during normal operations in HOME, DRAIN, or FILL position after rotating in a counterclockwise direction.

9.0 **POSITION** CONTAINMENT VESSEL for transport.

9.1 **VERIFY** three PROCESS SHUTDOWN buttons are out and green VESSEL ROTATION CONTROL ON light on VESSEL CONTROL Panel illuminated.

9.2 **VERIFY** five green INTERLOCKS READY lights on the Hose Docking Station illuminated.

9.3 **VERIFY** green CLAMPS STOWED light on Hose Docking Station illuminated.

Notes

Vessel rotation control key must be inserted and turned to AUTO or MANUAL position before containment vessel will rotate.

Vessel will not rotate unless all six interlock lights are illuminated and vessel door is closed. However, vessel will rotate if placed in BYPASS mode. Vessel will continue to rotate even if one of the Hose Docking Station positions comes open after rotation starts.

9.4 **INSERT** and **TURN** Vessel Rotation Control Key in AUTO/OFF/MAN switch to AUTO position (green AUTO READY light and red HALT button illuminate).

9.5 **VERIFY** INTERLOCKS key switch set to ON.

9.6 **VERIFY** green INTERLOCKS READY light on VESSEL CONTROL Panel illuminated and **PROCEED** as follows:

9.6.1 When green INTERLOCKS READY light illuminated, **PROCEED** to Step 9.7.

9.6.2 When green INTERLOCKS READY light not illuminated, **PERFORM** the following:

9.6.2.1 **VERIFY** all hoses in Hose Docking Station are secure.

9.6.2.2 **VERIFY** green HANGERS STOWED light on Hose Docking Station illuminated and **PROCEED** as follows:

9.6.2.2.1 When green INTERLOCKS READY light illuminated, **PROCEED** to Step 9.7.

9.6.2.2.2 When green INTERLOCKS READY light not illuminated, **REQUEST** permission to turn Interlocks Control Key to BYPASS position (BYPASS light illuminates).

9.7 **PUSH** green ROTATE button to start vessel rotation.

9.8 When door hinge at 6 o'clock position, **PUSH** red HALT button to stop vessel in TRANSPORT position.

9.9 **TURN OFF** and **REMOVE** Vessel Rotation Control Key.

10.0 **SECURE** Screw Jack to support frame to prevent movement during transport.

Note

Refer to the Sampling and Analysis Plan for labeling details.

11.0 **LABEL** all waste IAW laboratory protocols and all local and federal requirements. **COMPLETE** and **ATTACH** chain-of-custody documents to packed sample(s).

12.0 **PROCEED** to Procedure 20.

SPECIAL REQUIREMENTS:

1. Buddy system used for safety.
2. Bleach solution can be corrosive to metal. Thoroughly rinse metal surfaces, dry, and lubricate (if necessary) after being decontaminated.
3. All waste generated during EDS closeout properly packaged and analyzed.

EQUIPMENT, TOOLS, AND SUPPLIES:

ITEM:	QUANTITY:
Bleach solution (5 percent)	as required
Water	as required
General-purpose detergent	as required
Absorbent towels	as required
Scrub brushes	as required
Waste containers	as required
Plastic bags	as required
Duct tape or equivalent	as required
Plastic sheeting	as required
Open-head waste drum(s)	as required
Vessel rotation/clamp control key	1 each
EDS operator log	1 each
Indelible ink pen	1 each
Training/shipping metal seal	1 each
Leather gloves	as required

PROCEDURE 20
BREAK DOWN EDS OPERATIONS AREA

The purpose of this operation is to provide a checklist (Table 20-1) that can be used as a job performance aid to assist operators in removing EDS supplies and components from the operations area.

PRECONDITIONS:

1. Procedure 19 (Monitor and Decontaminate the EDS) of this SOP completed.
2. PPE IAW Annex I.

Table 20-1. Checklist for EDS Closeout

No.	ACTIVITY	See Table 4-8 in the O&M Manual for EDS P2U1 and P2U2	Yes	No
1.	**COORDINATE** with site Safety and Monitoring personnel to determine decontamination level necessary IAW Site Monitoring Plan.	N/A		
2.	**DISASSEMBLE** EDS vessel door components IAW Procedure 17.	N/A		
3.	**CLEAN** vessel door components IAW Procedure 17.	N/A		
4.	**REASSEMBLE** vessel door IAW Procedure 17.	N/A		
5.	**DECONTAMINATE** contaminated areas to approved levels IAW SMP.	N/A		
6.	**COORDINATE** with Monitoring to verify decontamination level has been obtained IAW Department of the Army Pamphlet 385-61.	N/A		
7.	**REMOVE** AFSS/DFSS.	EDS Closeout Procedure No. 1		
8.	**INSPECT** vessel for damage.	EDS Closeout Procedure No. 2		
9.	**FLUSH** vessel door.	EDS Closeout Procedure No. 3		
10.	**CLOSE** vessel door for shipment.	EDS Closeout Procedure No. 4		
11.	**POSITION** vessel for transport.	EDS Closeout Procedure No. 5		
12.	**INSPECT** vessel support and motor mount assemblies.	EDS Closeout Procedure No. 6		
13.	**INSPECT** Rotary Agitation Subsystem.	EDS Closeout Procedure No. 7		
14.	**SECURE** loading tables.	EDS Closeout Procedure No. 8		
15.	**COMPLETE** EDS Firing System shutdown and **SECURE** Fireset.	EDS Closeout Procedure No. 9		
16.	**DISASSEMBLE** Helium Supply and Leak Detection Subsystem.	EDS Closeout Procedure No. 10		
17.	**INSPECT** Reagent Supply Subsystem.	EDS Closeout Procedure No. 11		
18.	**DISASSEMBLE** Reagent Supply Subsystem.	EDS Closeout Procedure No. 12		
19.	**DISCONNECT** air supply from trailer.	EDS Closeout Procedure No. 13		

Table 20-1. Checklist for EDS Closeout (Continued)

No.	ACTIVITY	See Table 4-8 in the O&M Manual for EDS P2U1 and P2U2	Yes	No
20.	**DISCONNECT** water supply from trailer.	EDS Closeout Procedure No. 14		
21.	**INSPECT** Lift Assist.	EDS Closeout Procedure No. 15		
22.	**REMOVE** Lift Hoist Assembly.	EDS Closeout Procedure No. 15.1		
23.	**PACKAGE** Lift Hoist.	EDS Closeout Procedure No. 15.2		
24.	**DISASSEMBLE** Waste Transfer Subsystem.	EDS Closeout Procedure No. 16		
25.	**DISCONNECT** electrical power from trailer and **INSPECT** electrical cables.	EDS Closeout Procedure No. 17		
26.	**INSTALL** vessel shipping brace and tie-down straps.	EDS Closeout Procedure No. 18		
27.	**FOLD UP** and **SECURE** Reagent Supply Platform.	EDS Closeout Procedure No. 19		
28.	**FOLD UP** EDS Trailer platform extensions.	EDS Closeout Procedure No. 20		
29.	**FOLD UP** and **SECURE** EDS Trailer side and rear steps.	EDS Closeout Procedure No. 21		
30.	**INSTALL** tarp on EDS Trailer.	EDS Closeout Procedure No. 22		
31.	**CONNECT** tow vehicle to EDS Trailer.	EDS Closeout Procedure No. 23		
32.	If waste was removed, **BREAK DOWN** waste staging area.	N/A		
33.	**PACKAGE** remaining supplies, equipment, and tools for transport.	N/A		
34.	**CERTIFY** EDS Trailer and equipment are decontaminated for transport.	N/A		
35.	**COORDINATE** with site manager prior to vacating the EDS site.	N/A		

Signature: EDS Crew Supervisor _____ Date _____

Signature: RCMD Representative _____ Date _____

SPECIAL REQUIREMENTS:

This checklist used by EDS crew members trained in EDS operations.

EQUIPMENT, TOOLS, AND SUPPLIES:

ITEM:	QUANTITY:
Clipboard	as required
Indelible ink pen	as required
O&M Manual for EDS P2U1 and P2U2	1 each
EDS operator log	1 each

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Permit Attachment X-2

General Contingency Plan for the Explosive Destruction System

The general contingency plan for the EDS follows this page. The site-specific plan that is kept at the EDS PDTDF location includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

NOTE: the information in this attachment was extracted from Revision 2 of the permit application, dated March 2021. The formatting and pagination differ from the source document, but the information is consistent with the permit application. The Permittee may use an alternate format for this document, as long as the substance of the alternately formatted document is consistent with the information in this attachment.

GENERAL CONTINGENCY PLAN FOR THE EXPLOSIVE DESTRUCTION SYSTEM

The general contingency plan for the EDS follows. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the Emergency Coordinators. This information is not included here for privacy reasons.

1. General Information

The Explosive Destruction System (EDS) is a trailer-mounted transportable treatment unit developed by the U.S. Army Chemical Materials Activity (CMA) Recovered Chemical Materiel Directorate (RCMD) to destroy recovered chemical warfare materiel (CWM). The EDS is operated by personnel from the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC). The main subsystem of the EDS is an explosion and vapor containment vessel. The containment vessel contains the shock, munitions fragments, and chemical agents present during a munitions opening process, and then serves as a closed container for the subsequent chemical treatment of the agent and deactivation of energetics, if present. The EDS trailer provides a mounting surface for major system components and an operator's work platform.

During processing, a fragment-suppression system houses the chemical munitions inside the containment vessel and protects the containment vessel from high-velocity fragments after detonation. Explosive shaped charges are used to cut open the munitions, thereby releasing their agent fill into the containment vessel. Shaped charges are also used to destroy the munitions bursting explosive (if present). A remote firing system detonates the shaped charges. A chemical feed system supplies treatment reagents and water to the containment vessel, and a waste handling system drains the treated effluent.

Based on schedule and availability, there are two EDS models (Phase 1 and Phase 2) that could be used at Aberdeen Proving Ground (APG). The Phase 1 is rated to contain overpressure and fragments from a detonation of up to 1.5 lbs of trinitrotoluene (TNT)-equivalent, and the Phase 2 is rated for up to 9.0 lbs of TNT-equivalent. The EDS will normally be used near the Prototype Detonation Test and Destruction Facility (PDTDF) at [redacted], but it could be used at other waste chemical munitions recovery locations whenever these munitions are deemed unsafe to store in the N-Field Storage Facility or to transport by vehicle to the [redacted] location.

Personnel from the 20th Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Command or CBC transport recovered munitions to the EDS site. The CBC transfers hazardous wastes generated by EDS site operations to the Directorate of Public Works (DPW) Waste Management Branch (WMB), which arranges for off-site contract disposal.

Scope of this Plan

This Contingency Plan outlines responsibilities and procedures for minimizing hazards to human health and the environment from unplanned releases of hazardous materials, fires, and

explosions. Additional information on APG and EDS [redacted] contingency planning and emergency response is given in the following documents:

- APG Emergency Response Plan, Chapter 1, Basic Plan;
- Chapter 5 of the APG Emergency Response Plan, "Chemical Accident or Incident Response and Assistance (CAIRA) Plan;"
- Chapter 8 of the APG Emergency Response Plan, "Environmental Release Prevention and Response Plan;" and
- Specific standing operating procedures (SOPs) that address emergency operations.

APG uses the following emergency resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies, as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; the Development Command Chemical Biological Center (CBC); Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Command (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below and by coordinating their availability to the Incident Commander (IC) through the Garrison DO Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan, defines the roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. EMERGENCY COORDINATORS

The Emergency Coordinators (ECs) for the EDS will be trained in accordance with the training plan to ensure their knowledge and skills are sufficient to manage incidents until emergency response assistance arrives. The ECs will have a thorough understanding of the operations and materials at the EDS site, and will know the location and characteristics of waste handled, the location of all records for the facility, and the facility layout.

NOTE: contact information for emergency coordinators that appears at this point in the plan has been redacted from the permit document due to privacy and security concerns. The information is part of the plan copy maintained by the Permittee.

II.a. Duties of the Emergency Coordinator

The EC must either be at the EDS site or on call and able to arrive at the EDS site in a timely manner if there is an emergency. The EC is responsible for coordinating all emergency response measures that involve hazardous material. The EC functions as the on-scene coordinator until APG garrison emergency response personnel arrive and the senior responder from the DO Fire Division assumes site control.

II.b Regulatory Requirements

In accordance with Maryland Controlled Hazardous Substance regulations (COMAR 26.13.05.04G), the EC performs the following actions in the event of an emergency:

1. Notifies facility personnel and installation emergency response personnel of emergencies and requests assistance by dialing 911.
2. Identifies the amount, character, source, and extent of any discharged material.
3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.
4. Takes all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes stored at the facility.
5. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.
6. Makes sure that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.
7. Submits verbal and written reports through DPW to the Maryland Department of the Environment (MDE) within 15 days of an incident containing the information listed in COMAR 26.13.05.04.G(10).

III. CRITERIA FOR IMPLEMENTING CONTINGENCY PLAN

EDS operations personnel observing a fire, unplanned explosion, or the release of hazardous materials outside a primary enclosure (e.g., container or primary engineering controls such as the EDS or environmental enclosure) will immediately notify the EC, who, in turn, will dial 911 and notify other EDS personnel. If the EC (or alternate EC) is not immediately available, the individual discovering the emergency will initiate the contingency plan and dial 911. If APG emergency response personnel are summoned, the IC will determine if it is necessary to implement the CAIRA Plan.

IV. EMERGENCY RESPONSE PROCEDURES

Adequate response to contingences such as fire, explosions, or the release of hazardous materials require pre-event planning, an organized emergency response, and appropriate recovery actions. These three phases of activities—planning, response, and recovery—are addressed below.

IV.a. Planning

There are various hazard characteristics associated with the materials and wastes stored or treated at the EDS site. Before taking action to control an emergency, it is imperative that the responders are aware of potential risks associated with the area they are entering. EDS personnel are familiar with all hazardous materials used in operations and maintain safety data sheets (SDSs) for hazardous materials. Materiel Assessment Review Board (MARB) data sheets contain information (presence of energetics, identification of liquid fills) on munitions received

for treatment at the EDS site. SDSs and MARB data sheets are maintained in the EDS Site Office.

APG emergency responders have several sources for determining what specific hazards are present at the EDS site. These include the following:

- Pre-fire emergency planning information maintained by the DO Fire Division on the types and locations of hazardous materials stored throughout APG, and the floor plans of key facilities (including the EDS site);
- Information from Range Control, which tracks the daily status of waste munitions processing activities;
- Placards on the outside of the EDS environmental enclosure that provide responders with information on whether explosives are present and which agents are being handled; and
- Information conveyed from the EC or other on-site personnel.

Additional aspects of pre-planning (i.e., hazard assessment, equipment and supplies, and coordination) applicable to the EDS are described below.

Hazard Assessment

The Installation Safety Office and the Department of Defense Explosives Safety Board (DDESB) must review and approve the explosives safety aspects of the EDS siting and operation. This allows explosive and chemical hazards associated with EDS operations to be identified early in the planning process, allowing risks to be eliminated or minimized. Pre-operational surveys are conducted prior to EDS operations to ensure personnel are aware of site and operational hazards and have the resources and training necessary to safely manage them.

During an actual contingency, the EC, in conjunction with the IC, will evaluate the extent of the hazard, and decide if the area near the emergency should be evacuated.

To assess the hazard(s), the EC and the IC will consider:

- Type of hazard(s) involved and information available;
- Potential presence of unreacted energetics (i.e., explosives)
- Degree of toxicity of impacted materials/wastes;
- Presence of toxic, irritating or asphyxiating gases that may result from fire, and/or reactions that could result from its suppression;
- Containment of a spill or lack of containment;
- Uncertainty as to the extent or migration of wastes or water used in fire control to either groundwater or surface waters; and
- Ability of response teams to contain the emergency.

Emergency Equipment

An inventory and monthly inspection log of all emergency equipment at the EDS site will be maintained in the EDS Site Office. During operations, the EC and personnel decontamination station (PDS) area will contain spill kits that hold response/cleanup materials and equipment that EDS personnel are trained to use. Spill kits will typically include overpack containers (i.e., drums), plastic bags, sorbent materials, shovels, and brooms.

Personal Protective Equipment

Personal protective equipment (PPE) for chemical hazards will be stored at the EDS site. APG emergency responders would bring any other necessary PPE with them.

First Aid and Medical Supplies

A first-aid kit is located in the EDS Site Office for the immediate treatment of minor injuries. Kits are also located in the PDS and at other locations during operations, as required by the Site Health and Safety Plan (HASP). Any casualties resulting from an incident would be transported to the Edgewood Area Clinic or a civilian medical facility.

Emergency Decontamination Equipment

A PDS will be located directly outside the environmental enclosure at the personnel entry/exit door to decontaminate personnel and PPE. The PDS will be equipped with step pans, brushes, and a garden sprayer containing soapy water solution. Personnel believed to have been exposed to hazardous materials or substances will be required to process through the PDS using standard procedures that they have been trained on. The procedure is described in the EDS operations HASP.

Fire Control Equipment

The EDS site is equipped with portable fire extinguishers to put out small fires. They are located in the PDTDF building, EDS Site Office, at the fuel tank, emergency generator, the EDS and PDS (during operations) and in other locations as required by the site SOP. A list of the extinguishers and each's rating is maintained in the EDS Site Office. There are also four 2,500-gallon water tanks on the second story of the PDTDF. These tanks are checked periodically to ensure they contain sufficient water to address emergencies until DO Fire Division personnel arrive.

Emergency Supplies and Equipment Elsewhere on the Installation

EDS personnel can communicate with other APG personnel via telephones and radios to request additional equipment and supplies. Pre-stocked supplies for use in oil spill operations are located at DPW facilities and are available to the DO. These supplies include bags of granular clay absorbent and bales of sorbent pads of different sizes (e.g., 4 feet [ft] × 4 ft and 18 inches × 18 inches). Other APG organizations, contractors, or the EOC may also provide additional equipment and supplies.

Coordination Agreements for Emergency Services

The APG DO is the primary provider of emergency response services to Fire, Explosions and HAZMAT releases under the APG Emergency Response Plan.

On-Post Coordination

The EDS Crew Chief will keep the APG DO updated and informed of the following:

- The general layout of the facility, detailing hazardous materials storage areas and the locations of equipment/supplies available to fight fires and to clean up spills;
- The telephone number of the EDS points-of-contact for non-duty hour emergencies; and
- Copies and revisions of this contingency plan.

The DPW-ED supervises interaction with U.S. Army higher headquarters, MDE, U.S. Environmental Protection Agency (EPA), National Response Center, and local environmental authorities regarding all emergencies and activation of the contingency plan. The EC is responsible for coordination with the CBC Risk Management Office (RMO).

The Kirk U.S. Army Edgewood area Health Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO Fire Division can provide ambulance support from 7:00 a.m. until 11:00 a.m., Monday through Friday. The ambulance is equipped with a communication system to access the Maryland Institute for Emergency Medical Services System (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA Clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

Off-Post Coordination

In addition to on-post capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore and Cecil Counties for fire-fighting and emergency services. APG recognizes the special/unique hazards associated with certain post activities and exercises discretion in using MAA companies, especially for military/chemical incidents.

A chemical casualty contingency team is maintained at EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care.

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication

system to access the MD Institute for Emergency Medical Services Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

Evacuation Plan

The EC and/or the IC may choose to evacuate the EDS site whenever the hazards of toxic gas, fire, or explosive materials are endangering personnel, particularly those without protective gear. Signals for evacuation will be given verbally via radio, bullhorn, or cell phone, or audibly with an air horn. EDS personnel will exit the area as quickly and safely as possible, and the EC will take a head count at the rally point. If required, other base personnel will be notified by telephone. An emergency/evacuation plan, showing the evacuation routes from the EDS site, will be provided to the MDE before hazardous waste treatment operations begin.

A site diagram [not included in the permit out of concern for operational security] is attached at the end of this document showing the escape routes and rally points.

IV.b. Response Execution

This section describes response procedures for hazardous materials spills, fires, and explosions.

Hazardous Materials Spills

EDS personnel will report to the EC all hazardous materials releases outside primary containers and/or primary engineering controls or to the environment. Either the EC or the person discovering the spill if the EC is unavailable will notify the APG EOC by dialing 911. The only exception to the 911 reporting rule is in the case of de minimis spills/releases of substances within the facility that do not present an acute or chronic health risk due to incidental contact or inhalation and that can be safely cleaned up by on-site personnel using equipment on hand. An example of this could be a small spill of a neutralization reagent during a transfer operation in the environmental enclosure.

The following actions will be taken in response to hazardous materials spills.

The person observing the spill will:

1. Notify the EC and all facility personnel of the spill via telephone, radio, or other means.
2. Report the spill by dialing 911. When reporting spills to the EOC, the caller must include, if possible, the following:
    - Name and telephone number of the reporter,
    - Name and location of facility/site,
    - Date, time, and type of incident,
    - Name and estimated quantity of materials involved,
    - Extent of injuries, if any, and
    - Possible hazards to human health or the environment outside the site.

3. Contain the spill/release, if safe to do so and the responding personnel possess the requisite training and response resources.

The EC will:

4. Determine whether the facility should be evacuated while awaiting DO first responders.
5. Meet DO first responders and provide the IC with information on the location, nature, and extent of the spill or release and any measures taken to stop or contain the spill or release.
6. Advise the DPW-ED.
7. If an operation is taking place, take other necessary steps, as required by the operation's SOP (i.e., shutting down operations, notifying the Risk Management Office, etc.).

The APG EOC, in coordination with DPW-ED, will:

8. Notify the Installation Safety Office, If the spill poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).

The DPW-ED will:

9. Notify the MDE that the facility is in compliance with permit conditions before operations are resumed in the affected areas of the facility.

Fires

The following actions will be taken in response to fires.

The person observing the fire will:

1. Notify the EC and all facility personnel of the fire via radio or verbal announcement.
2. Report the fire through the installation emergency telephone number (911), giving the location, cause, and extent of the fire; note also if any liquids or gases are escaping the building.
3. If the fire is small and within the work trailers or environmental enclosure, extinguish and contain it if safe to do so.
4. Evacuate the EDS site and await DO Fire Division.

The DO Fire Division will:

5. Take action to control and extinguish the fire.

The EC will:

6. Notify the U.S. Chemical Materials Activity Risk Management Directorate and the DPW-ED.
7. If an operation is taking place, take other necessary steps, as required by the operation's SOP (i.e., shutting down operations, notifying the CBC Safety Office and Environmental Quality Office, etc.).

The APG EOC, in coordination with DPW-ED, will:

8. Notify the Installation Safety Office. If the fire poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802

The DPW-ED will:

9. Notify the MDE that the facility is in compliance with permit conditions before operations are resumed in the affected areas of the facility.

Explosions

The following actions will be taken in response to explosions outside the EDS explosive containment vessel.

The person observing the explosion will:

1. Evacuate the EDS site to the rally point that is a safe distance from the area.
2. Report the explosion through the installation emergency number, 911, giving the exact location of the explosion, damage to the site, and noting any potential gas or liquid discharges outside engineering controls.
3. Notify the EC or alternate presenting the same information as in Step 2.

The EC will:

4. Notify the U.S. Chemical Materials Activity Risk Management Directorate and the DPW-ED.
5. If an operation is taking place, take other necessary steps, as required by the operation's SOP (i.e., shutting down operations, notifying the Safety Office and the Environmental Quality Office, etc.).

The APG EOC, in coordination with DPW-ED, will:

6. Notify 20 CBRNE Command to secure as-needed military EOD support manage any potential residual explosive hazard.

7. Notify the Installation Safety Office. If the explosion poses potential off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).

The IC, in coordination with the APG EOC and other response elements, will:

8. Assess the problem and implement a procedure for rendering the area safe.

IV.c. Recovery

Post-Emergency Equipment Decontamination/Maintenance

EDS hazardous waste operations will not resume until all damaged and/or contaminated equipment has been repaired, replaced, or decontaminated, and all stocks of emergency response supplies and equipment have been replaced and inspected by the EC or designee. The APG DPW-ED will notify the MDE that all facility decontamination and emergency equipment and supplies have been repaired or replaced prior to resuming operations.

Storage/Disposal of Recovered Wastes

EDS personnel will be responsible for the turn-in and disposal of all wastes generated on-site during emergency response activities. Waste containers will be stored at an authorized APG waste storage facility pending disposal. Following any emergency, waste management operations will not resume until the DPW-ED certifies the EDS site is clean and ready for operations as a treatment facility.

V. REQUIRED REPORTS TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

The EC (or alternate) will note in the operation log of the facility the time, date, and details of any incident that required implementation of the contingency plan. The conditions that caused the emergency and the resulting actions will also be included in this operational log entry.

The APG EOC and the EC will provide the DPW-ED the necessary information to make required and timely reports to the MDE. These reports include a verbal (telephone) report within 24 hours, a written report within 5 days, or a written report within 15 days, provided that MDE grants APG an extension. Written reports will include the following information:

- Name, address, and telephone number of the owner or operator of the facility;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (e.g., fire, explosion, etc.);
- Name and quantity of materials involved;
- The extent of injuries, if any;

- An assessment of actual or potential hazards to human health or the environment, when applicable;
- Estimated quantity and disposition of material recovered from the incident; and
- Name of the person who first reported the incident.

This report is submitted to:

Maryland Department of the Environment
Land and Materials Administration
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

VI. AMENDMENTS TO THE PLAN

As required by COMAR 26.13.05.04D and E, the contingency plan must be reviewed and immediately amended (but not submitted to MDE), if necessary, whenever:

- The facility permit is revised;
- The plan fails in an emergency;
- Major changes in facility design, construction, operation, and maintenance in such a way that emergency response operations are affected;
- The list of ECs changes; and
- The list of emergency equipment changes.

Note: for reasons of operational security, a site plan depicting site layout, location and evacuation routes has been from the copy of this plan that has been made part of this permit.

PART XI

SPECIAL CONDITIONS FOR STORAGE AND TREATMENT OF HAZARDOUS WASTE AT THE MUNITIONS ASSESSMENT AND PROCESSING SYSTEM (MAPS)

XI.A. GENERAL DESCRIPTION AND APPROACH

XI.A.1. General Overview.

This Part of the permit authorizes the storage and treatment of hazardous waste in the Munitions Assessment and Processing System (MAPS) facility located in the Edgewood Area at Aberdeen Proving Ground (APG). The MAPS is a multi-component technology designed to drill, drain, decontaminate, and detonate waste chemical munitions and similar items within engineering controls such that there is no release to the environment. For the purposes of this Part, the Permittee is APG as the owner and, as operator, the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC).

The facility's current mission involves providing as-needed support to the DEVCOM CBC's national chemical/biological defense program. In this capacity, the MAPS provides the Center with a system capable of accessing, sampling, and/or treating (neutralizing) small to medium caliber, explosively configured chemical weapons, components, or devices recovered at other locations and brought to APG as samples for forensic evaluation. The system is also capable of processing APG range-recovered chemical munitions in the event that local restoration activities require this support.

Due to the presence of similar and/or complementary systems on APG, the Permittee forecasts that use of the facility will involve the intermittent activation and operation of all or portions of the MAPS' constituent technologies. When the facility is not in use, the Permittee may maintain the system in layaway status pending call-to-service for as-needed use.

XI.A.2. General Facility Description.

The MAPS is comprised of gloveboxes for munition opening and decontamination, an Explosive Containment Chamber (ECC) for contained drilling (accessing) operations, and a Burster Detonation Vessel (BDV) for the enclosed detonation of emptied and surface decontaminated munition carcasses containing explosive bursting charges and/or fuzing. The MAPS facility will generally handle munitions or similar devices less than 3.5 lbs TNT-equivalent explosive weight. Munitions are drilled remotely in the Process Room's ECC, which has been tested to withstand repeated blasts of up to 13 lbs TNT without vapor release. A blast would only occur in the ECC in the event of an accidental detonation during the drilling process. Explosive materials associated with munitions that have been drained of agent and decontaminated will be detonated in the BDV using an estimated maximum amount of 3.25 lbs TNT-equivalent donor explosive. The BDV is a spherical explosion containment vessel located in a reinforced concrete room adjacent to the Process Room. System operators remotely detonate items

in the BDV from the facility's Process Control Room. The BDV was designed and constructed to withstand numerous blasts equivalent to 8.5 lbs of TNT, and to contain toxic vapors by ensuring their capture in the system's dedicated negative pressure filtration system. Dynamic testing and modeling of the BDV show that it can be safely operated for thousands of explosive cycles without fatigue failure. Use and proper maintenance of a fragmentation liner is required to ensure long-term vessel integrity.

Chemical fills removed from munitions are characterized, re-containerized, and sent to appropriately permitted onsite or offsite facilities for further management. Residues and decontamination wastes are collected, characterized, and sent to appropriate waste management facilities.

CBC, the system operator, utilizes the facility to support its national chemical-biological defense mission. The MAPS will complement the Center's Sample Receipt Facility (SRF), which is charged with safely accessing and sampling a variety of potentially lethal chemical, biological, radiological, and/or energetically-configured devices for laboratory analysis. During the course of this work, the SRF will generate waste explosives that may require safe detonation in the MAPS's BDV. Additionally, the MAPS's drill, drain, decontamination, and/or storage capabilities may be used to process explosively configured devices brought to APG for forensic analysis.

XI.A.3. General Permitting Approach.

The MAPS facility design incorporates various engineering controls, including air pressure differentials in a cascading ventilation system, air monitoring and release detection systems, and filtration of facility exhaust ventilation, to create a safe operating envelope for hazardous waste handling, storage and treatment at the facility. The safe operating envelope provided by the engineering controls, along with operational procedures implemented at the facility, are the principal means through which it is assured that facility operations are protective of human health and the environment.

The general approach that the Department has used to establish permit conditions for the MAPS facility is to consider areas within the facility's zone of engineering control to be regulated as "miscellaneous units" under COMAR 26.13.05.16-1. The permit designates particular areas within the facility's zone of engineering control as "Active Containment Areas". Permit conditions for Active Containment Areas have been established based on performance standards specified in the regulations for miscellaneous units, and design and operating standards for containment buildings in COMAR 26.13.05.18, .18-1, and .18-2. In addition, for areas within Active Containment Areas where hazardous waste will be managed in units that are subject to unit-specific regulatory requirements (such as tanks or containers), permit conditions addressing those unit-specific requirements have been included. The engineering controls and operating procedures required by the permit conditions assure the required level of protectiveness for facility operations.

The permit is intended to accommodate the Permittee's need for flexibility in operations while meeting MDE's responsibility to protect human health and the

environment. The protections provided by the facility's safe operating envelope and the permit requirements associated with Active Containment Areas make it possible for some changes at the individual operation level to be implemented without potentially compromising the overall protectiveness of facility controls. Because of this, internal equipment changes and modifications that do not increase storage or treatment capacity beyond permitted limits (or introduce wholly new technologies) may be handled by the Department as minor modifications of this permit rather than as major modifications.

XI.A.4. Overview of Permit Conditions.

This permit identifies areas at the MAPS that are considered Active Containment Areas, and establishes conditions for their operation. The Permittee may treat and/or store hazardous wastes for more than 90 days in Active Containment Areas if these areas also meet applicable COMAR requirements for permitted container or tank system treatment/storage and the conditions of this permit.

NOTE: Throughout the remainder of Part XI of the permit, references are made to Tables XI-1 through XI-7. These tables are found in Section XI.M.

XI.B. ACTIVE CONTAINMENT AREAS AND TREATMENT AND STORAGE LIMITS

XI.B.1. Identification of Active Containment Areas and Permitted Treatment/Storage Areas.

XI.B.1.a. Table XI-1 identifies locations in the MAPS that are considered Active Containment Areas. Areas not listed on Table XI-1 are not part of the permitted unit.

XI.B.1.b. Table XI-1 also specifies the hazardous waste management activities requiring a permit that the Permittee may conduct in each of the Active Containment Areas. These activities are required to be conducted in accordance with the requirements of COMAR 26.13 and subject to the terms of this permit.

XI.B.2. Treatment and Storage Limits.

Table XI-2 lists the daily and annual waste munition/item processing limits for explosively and non-explosively configured items that may be processed in the MAPS. Table XI-3 lists waste container and tank system treatment/storage limits by volume (liquids) and weight (solids). The Permittee shall not store and/or treat hazardous waste in excess of the maximum amounts for each limit specified in Tables XI-2 and XI-3.

XI.C. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

XI.C.1. Permitted Waste. The Permittee may manage the hazardous wastes listed in Table XI-4 as specified in Permit Conditions XI.B.1, subject to the terms of this permit.

XI.C.2. Prohibited Waste. If a hazardous waste is not listed in Table XI-4, the Permittee shall not, at the MAPS:

a. store that waste for more than 90 days; or

b. treat that waste unless otherwise authorized to do so by COMAR 26.13.

XI.D. OPERATING STANDARDS – ACTIVE CONTAINMENT AREAS

XI.D.1. The Permittee shall ensure that the Active Containment Areas listed in Table XI-1 comply with the operating requirements of Permit Conditions XI.D.2 through XI.D.6.

XI.D.2. Controls and Practices to Ensure Containment of Hazardous Waste Within the Unit - Ventilation and Filtration (COMAR 26.13.05.18-2 A.)

XI.D.2.a. The Permittee shall operate and maintain the MAPS ventilation and filtration systems in areas where hazardous wastes may be treated or stored to prevent the release of contamination to the environment through the use of negative pressure and filtration, as specified in Permit Conditions XI.D.2.b through XI.D.2.g, below.

XI.D.2.b. Ventilation at the MAPS shall be configured to maintain progressively negative pressure differentials, inducing air flow from areas within the facility with the least potential for contamination to areas with the greatest potential for contamination.

XI.D.2.c. In personnel decontamination stations and around temporary openings, containment and prevention of the spread of contamination shall be achieved by maintaining adequately high linear air velocities.

XI.D.2.d. Pressure within any glovebox shall be a minimum of 0.25 inches of water less than the pressure in the surrounding workroom. When there is a temporary opening in any glovebox, (such as during glove changes) an inward flow into the glovebox of at least 90 linear feet per minute shall be maintained.

XI.D.2.e. All ventilation air exhausted from the process areas in Active Containment Areas of the MAPS shall be filtered through carbon and particulate filters of appropriate size and type to ensure chemical agent capture and removal of target chemicals.

XI.D.2.f. System ventilation rates and pressure drops shall be monitored and logged weekly unless a real-time alarm is set to indicate off-specification parameters.

XI.D.2.g. Filter media changeout or other appropriate maintenance on the filtration system shall be performed to maintain adequate work area pressure differentials and glovebox face velocities.

XI.D.3. Controls and Practices to Ensure Containment of Hazardous Waste Within the Unit – Monitoring (COMAR 26.13.05.18-2 A.)

XI.D.3.a. During MAPS operations involving chemical agents, the Permittee shall use an air monitoring system to detect airborne concentrations of chemical agents and selected toxic industrial chemicals inside the facility. The air monitoring system shall be capable of:

i. Determining the airborne concentrations of G, V, H, and L-type chemical agents being handled on a near-real time basis;

ii. Detecting chemical agents and selected toxic industrial chemicals being handled at levels that require the use of personal protective equipment or require the implementation of the facility contingency plan;

iii. Immediately detecting breakthrough after the initial carbon filter bed(s) of the facility's main ventilation and filtration system; and

iv. Monitoring for chemical agents in the exhaust stack(s) of the facility's main ventilation and filtration system.

XI.D.3.b. In coordination with the Department, the Permittee shall implement appropriate protective measures for situations where near-real-time air monitoring may not be effective in determining airborne concentrations of chemical agents. Such measures may be addressed in SOPs, made available to the Department for review before they are implemented, for the management of materials with unknown properties.

XI.D.3.c. The Permittee shall assure that the near-real-time air monitoring system is operated in accordance with the CBC air monitoring plan for the facility.

XI.D.3.d. The Permittee:

i. Shall perform orderly shutdown of processing operations followed by carbon filter change out if breakthrough is detected and confirmed at risk-based thresholds after the initial carbon filter bed of any negative pressure filtration system;

ii. Shall define monitoring requirements for operations involving chemical agent in the monitoring plan for the facility or in operation-specific SOPs; and

iii. May employ a monitoring plan for operations involving chemical agent that does not require near-real time monitoring for agent immediately after the initial carbon bed(s) of the facility's main ventilation/filtration system or in the exhaust stack(s) of the facility's main ventilation/filtration system

if the Permittee can demonstrate that the remaining adsorption capacity of the facility's carbon filter(s) are capable of preventing a release of chemical agent from the facility's ventilation/filtration system exhaust stack(s) considering the scope and extent of planned operations.

XI.D.3.e. The Permittee shall ensure that the air monitoring system is challenged and calibrated each operating day (i.e., Monday through Friday, excluding holidays, when the facility is operational) using the appropriate chemical agent standard material when chemical agent may be present. In addition, the Permittee shall challenge and calibrate the monitoring system at least once each day on a weekend day or holiday on which waste chemical agents are being treated or actively handled in the MAPS. For the purposes of this Permit Condition, "actively handled" does not include storage of waste chemical agent in a vessel without material being added to or removed from the vessel.

XI.D.3.f. The Permittee shall make available to the Department upon request the most recent CBC air monitoring plan information applicable to the MAPS (e.g., Monitoring Plan as supplemented by SOPs.)

XI.D.3.g. The Permittee shall notify the Department of material changes to the MAPS air monitoring plan prior to implementing such changes, and shall demonstrate to the satisfaction of the Department that if the changes are implemented, the monitoring program will continue to meet the performance criteria of Permit Conditions XI.D.3.a-e.

XI.D.3.h. The Permittee shall monitor pressure differentials between areas of operation within the facility and shall alert operators if cascade ventilation is not being maintained at an adequate level to prevent the flow of contaminants from areas of higher potential contamination to areas of lower potential contamination.

XI.D.3.i. The Permittee shall monitor face velocities at openings where air flow is being relied upon to prevent the flow of contaminants to less contaminated areas and shall alert operators if adequate face velocities are not being maintained.

XI.D.3.j. The Permittee shall develop and follow written procedures concerning inspection, maintenance, calibration, quality control/quality assurance, and operation of monitoring systems to assure compliance with Permit Conditions XI.D.3.a-i.

XI.D.4. Explosion Containment.

XI.D.4.a. The Permittee shall characterize all incoming items to the facility in accordance with CBC SOPs to ensure items do not exceed explosive or quantity limits of the BDV or ECC.

XI.D.4.b. The Permittee shall maintain the ECC, BDV, and associated vapor containment protections (e.g., blast valves, seals, etc.) in accordance with CMA-developed procedures and manuals to ensure containment and filtration of explosive blasts and toxic vapors.

XI.D.4.c. The Permittee shall repair any significant damage (i.e., those requiring welding or liner replacement) to the BDV fragmentation liner noted during required post-use inspections in accordance with the manufacturer's operations and maintenance specifications. The Permittee shall notify the Department before implementing such repairs, providing information on the nature of the damage and the proposed repair. The Permittee shall thoroughly document all such repairs in the facility's operating record, and provide the Department with copies of this data upon request.

XI.D.4.d. The Permittee shall hydrostatically test the BDV after every 25 uses and/or after every liner removal/replacement to assess the vessel's vapor containment capacity and locate potential hidden damage to the vessel liner and instrumentation pass-throughs. The Department may approve alternate testing and/or scheduling if the Permittee demonstrates to the satisfaction of the Department an equivalent or better methodology.

XI.D.5. Backup Power.

XI.D.5.a. The Permittee shall ensure that the MAPS has a backup power supply, and an uninterruptible power supply (UPS) that is able to service critical loads, as specified in Permit Condition XI.D.5.b, during the transition to backup power. For the purposes of this Permit Condition, a critical load is an electrical circuit or device for which it is essential that electrical power be provided on a continuous basis in order to assure that the "safe operating envelope" of the facility is not compromised and hazardous chemical, biological and/or radiological substances are not released to the environment.

XI.D.5.b. Critical loads for which an uninterruptible power supply is required under Permit Condition XI.D.5.a are identified in Table XI-5.

XI.D.5.c. Backup and UPS systems shall be tested in accordance with manufacturers' recommendations.

XI.D.6. Repair. The Permittee shall repair conditions that could lead to or have caused a release of hazardous waste. (COMAR 26.13.05.18-2D.)

XI.E. OPERATING STANDARDS - CONTAINER STORAGE AND TREATMENT

XI.E.1. Quantity Limits – Storage and Treatment in Containers. The Permittee may treat and store in containers and tank system up to the limits specified in Tables XI-2 and XI-3.

XI.E.2. Condition of Containers. If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall overpack the container, repair the container, transfer the hazardous waste to a container that is in good condition, or otherwise manage the waste in compliance with the conditions of the permit.

XI.E.3. Compatibility of Waste with Containers. The Permittee shall ensure use of containers made of or lined with materials that do not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired (COMAR 26.13.05.09C).

XI.E.4. Management of Containers.

XI.E.4.a. The Permittee shall ensure any container holding hazardous waste is always closed during storage, except when it is necessary to add or remove waste. A container may not be opened, handled, or stored in a manner which may rupture the container or cause it to leak (COMAR 26.13.05.09 D).

XI.E.4.b. The Permittee shall maintain a minimum of two feet of aisle space between containers and shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency (COMAR 26.13.05.02I).

XI.E.4.c. The Permittee shall use containers free of leaks and corrosion to store wastes.

XI.E.5. Containment Systems.

XI.E.5.a. The Permittee shall ensure that secondary containment is provided for liquid wastes in the Process Room and the Process Storage Room. Secondary containment is provided by the use of overpack containers or the method of construction of the rooms, which are equipped with epoxy-sealed concrete floors sloped downwards toward blind sumps to capture any spills or leaks that may occur during waste handling and storage. Floors in the MAPS where wastes may be treated or stored are covered with a coating resistant to the majority of wastes handled in the area. These floors shall be free of gaps and cracks in areas where they are providing secondary containment. The Permittee shall take action to repair flaws promptly when they are observed.

XI.E.5.b. The Permittee shall ensure that the secondary containment system of each area in which hazardous waste is managed in a container has sufficient

capacity to contain 10 percent of the total volume of containers of hazardous waste that may be managed within the area, or 100 percent of the volume of the largest container that may be managed within the area, whichever is greater (COMAR 26.13.05.09H(1)(c)). If an area where hazardous waste in a container is managed is also used for the management of a hazardous waste in a tank, the area is also subject to the secondary containment requirement of Permit Condition XI.F.3.

XI.E.5.c. The Permittee shall repair or reseal the containment surfaces as necessary to ensure that the base underlying the containers is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated rainfall until the collected material is detected and removed (COMAR 26.13.05.09H(1)(a)).

XI.E.5.d. The Permittee shall ensure that spilled or leaked waste and accumulated precipitation is removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system (COMAR 26.13.05.09H(3)).

XI.E.6. Container Treatment Operations.

XI.E.6.a. The Permittee shall decontaminate chemical agent waste and other toxic chemicals using CBC approved protocols.

XI.E.6.b. Detailed requirements for each hazardous waste treatment operation shall be described in SOPs. A full set of current SOPs shall be available at the MAPS for review by the Department at all times.

XI.E.6.c. SOPs shall specify that treatment residuals will be analyzed periodically to ensure that treatment is successful, or they will specify the treatment steps, methods and materials that ensure successful treatment in accordance with generator knowledge.

XI.E.6.d. The Permittee shall treat and package wastes in accordance with DOD and DOT requirements and in accordance with the waste acceptance criteria of the receiving facilities to which the wastes are being sent.

XI.F. OPERATING STANDARDS – TANK STORAGE AND TREATMENT

XI.F.1 The Permittee may use the statically-configured Interim Bulk Containers (IBCs) identified in Table XI-6 as hazardous waste tanks for storage and treatment of hazardous wastes. The Permittee may store/treat hazardous wastes in the hazardous waste tanks up to the limits listed on Table XI-3.

XI.F.2. Secondary Containment. The Permittee shall operate and maintain the secondary containment system in accordance with the requirements of COMAR 26.13.05.10-4B through 26.13.05.10-4E.

XI.F.3. Operating Requirements.

XI.F.3.a. The Permittee shall not place hazardous waste in the tank system if the waste could cause the tanks, their ancillary equipment, or their containment system to rupture, leak, corrode or otherwise fail (COMAR 26.13.05.10C(1)).

XI.F.3.b. The Permittee shall prevent spills and overflows from the tank or containment systems as required by COMAR 26.13.05.10C(2). High-level alarms or level indicators shall be used to prevent overflows.

XI.F.3.c. The tank treatment system shall be maintained at negative pressure and vented through the MAPS's filtration system whenever waste is present in the tanks.

XI.F.3.d. The Permittee shall maintain the tank system (IBCs, support structure, and associated piping) as specified in the most recent professional engineer (PE) certified tank assessment report.

XI.F.4. Periodic Tank System Integrity Assessments.

XI.F.4.a. The Permittee shall have an independent PE periodically assess the condition of the hazardous waste tanks and ancillary equipment in accordance with COMAR 26.13.05.10D(4). The frequency of the assessments shall be based on the schedule recommended in the initial PE assessment report and subsequent assessments. The assessments shall consider such factors as are necessary to provide a basis for:

i. The estimated remaining life of the hazardous waste tanks and ancillary equipment; and

ii. Recommendations concerning changes needed to the tanks and ancillary equipment to assure that the tank system(s) will not rupture, leak or otherwise fail.

XI.F.4.b. The Permittee shall document assessments of tank system integrity in the facility's operating record within 90 days of the completion of field work, and provide the Department with a report that describes the results of each integrity assessment at the time that the documentation for the assessment is entered into the facility operating record. The assessments shall describe in detail the results of the tank system(s') evaluation; summarize the assessment methodology(ies) employed; reference industry and/or professional standards upon which the assessment methodology(ies) was based; assess remaining tank system(s') service life; identify any needed repairs; and recommend a schedule for these repairs and subsequent system assessments.

XI.F.5. Response to Leaks or Spills

XI.F.5.a. The Permittee shall detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or

accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time if the Permittee can demonstrate to the Department that existing detection technologies or site conditions will not allow detection of a release within 24 hours of the release (COMAR 26.13.05.10-4B(6)).

XI.F.5.b. In the event of a leak or spill from a tank, ancillary equipment, and/or the secondary containment system, or if a tank or ancillary equipment becomes unfit for continued use, the Permittee shall:

i. Remove the impacted system(s) and ancillary equipment from service immediately (COMAR 26.13.05.10-6A(1));

ii. Stop the flow of hazardous waste into the impacted tank system/equipment and inspect it to determine the cause of the release (COMAR 26.13.05.10-6A(2) – A(3));

iii. Remove waste from the system within 24 hours of detection to prevent further release and to allow inspection and repair of the system (COMAR 26.13.05.10-6A(4));

iv. Contain visible releases to the environment by immediately conducting a visual inspection of the release and, based on that inspection:

- prevent further migration of the leak or spill to soils or surface water; and
- remove and properly dispose of any visible contamination of the soil or surface water (COMAR 26.13.05.10-6A(5));

v. Close the tank system unless the following actions are taken (COMAR 26.13.05.10-6A(7)):

- For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make any necessary repairs before returning the tank system to service; and
- For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system before returning it to service; and

vi. Comply with the reporting requirements of COMAR 26.13.05.10-6A(6).

XI.F.5.c. For all major repairs to eliminate leaks or restore the integrity of a tank system used to manage hazardous waste, the Permittee shall obtain a certification by an independent, qualified, registered professional engineer in accordance with COMAR 26.13.07.03D that the repaired system is capable of handling hazardous wastes without release for the intended life of the system before returning the system to service (COMAR 26.13.05.10-6A(8)). Examples of major repairs are: off-site reconditioning of IBCs, repair/replacement of significant portions of ancillary equipment, and repairs to secondary equipment requiring partial demolition and/or pouring of

concrete. Minor repairs, such as replacement in kind of IBCs or valves, sealing of concrete sumps, etc., do not require PE certification.

XI.G. INTERMITTENT SYSTEM USE AND LAYAWAY STATUS

XI.G.1. The Permittee may intermittently use portions or all of the MAPS constituent technologies (i.e. BDV, gloveboxes, ECC, etc.) in short duration campaigns of days or weeks, after which the system may be inactivated and placed in layaway status to reduce operating and manpower requirements. This mode includes continued operation of the system's ventilation system and limited environmental controls.

XI.G.1.a. During periods of disuse, the facility may be inactivated following CBC protocols developed for extended system shutdown and layaway. Layaway preparation activities include, but are not limited to the following:

i. Monitoring and, as needed, decontamination of the glovebox, ECC, BDV, and plenum area,

ii. Draining and flushing decontaminant and waste lines and hazardous waste tanks,

iii. Adjusting HVAC set points,

iv. Turning off unneeded portions of the process control system, and

v. Shutdown of the air monitoring system.

XI.G.1.b. The Permittee shall not place the facility into layaway status unless all system processing equipment and waste management systems (tanks and containers) are emptied and adequately cleaned to remove potential airborne vapor hazards to facility workers in accordance with Army safety and/or applicable industry (e.g., ACGIH) time-weighted average thresholds. Because no wastes will be contained within the facility during layaway, the facility is not considered as 'operating' and inspection schedules are reduced to monthly in accordance with Inspection Checklists 1-5, 7, 8, and 10-17 (Section XI.N. of this permit).

XI.G.1.c. When in layaway status, the Permittee shall maintain the MAPS and major facility support systems to facilitate their return, as needed, to active, permitted service. This includes:

i. the operation and maintenance of the MAPS support building and its climate controls to prevent damage to the facility and equipment;

ii. operation and maintenance of the ventilation system at a level to protect motor components and ensure free movement of moving parts;

iii. periodic checks and maintenance of system treatment and storage equipment (gloveboxes, BDV, ECC, reagent storage and waste tank system); and

iv. periodic calibration and/or checks of control systems, backup power and test, measurement and diagnostic equipment such as balances and manometers.

XI.G.1.d. When use of the facility is planned, the Permittee is authorized to activate only those portions of the facility's engineering controls, monitoring platforms, control systems, etc. needed to safely process an item.

XI.G.1.e. Reactivation and startup testing is required for all major processing and support subsystems prior to bringing the MAPS facility or any system back into fully operational status.

XI.G.1.f. The Permittee shall notify the Department at least 7 calendar days before reactivating the facility from layaway status, unless the Department agrees to a less restrictive deadline on a case-by-case basis. As part of the notification, the Permittee shall provide an estimate of the duration of the operational campaign that necessitated the reactivation of the facility.

XI.H. SPECIAL REQUIREMENTS

XI.H.1. Ignitable or Reactive Wastes.

XI.H.1.a**.** The Permittee shall take the following precautions to prevent ignition or reaction of ignitable or reactive wastes:

i. Wastes shall be segregated in a manner that minimizes the potential for an unplanned reaction.

ii. A ventilation system shall be provided and operated to ensure capture of any vapors from waste treatment and storage operations.

iii. Floors in the Active Containment Areas of the MAPS shall be nonconductive, except in the BDV room, which is equipped with conductive flooring and lighting protection to prevent accidental ignition of a munition/device's explosives or an applied donor charge from static discharge and accidental detonation.

iv. There shall be no smoking inside the containment building areas of the MAPS.

XI.H.1.b. The Permittee shall not place ignitable or reactive waste in the tank system or in the secondary containment system unless one of the following conditions is met:

i. the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that:

- the resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste in COMAR 26.13.02.11 or 13; and
- COMAR 26.13.05.02H is complied with; or

ii. the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react.

XI.H.2. Incompatible Waste

The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container or tank.

XI.I. RECORDKEEPING AND REPORTING

XI.I.1. The Permittee shall maintain the MAPS operating record required by Permit Condition II.H. at the MAPS until closure. All other records required by this permit shall be maintained for a minimum period of three years. The retention period of all records shall be extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Department.

XI.I.2. The Permittee shall comply with the requirements of COMAR 26.13.05.05E concerning availability, retention, and disposition of records.

XI.I.3. The Permittee shall keep on site a copy of this part of the permit. Table XI-7 summarizes the permit-required documents and records for the MAPS.

XI.J. INSPECTION SCHEDULE AND PROCEDURES

XI.J.1. Inspection Checklists referenced below are included in section XI.N. of this permit.

XI.J.2. The Permittee shall conduct inspections of the BDV Room using Inspection Checklist 2 to ensure explosive containment requirement of Permit Condition XI.D.4.b.

XI.J.3. The Permittee shall conduct inspections of the Process Room using Inspection Checklist 3 to ensure explosive containment requirement of Permit Condition XI.D.4.b.

XI.J.4. The Permittee shall conduct inspections of the MAPS containment building areas, container storage areas, and tank system to ensure that no releases of waste have occurred and that wastes are being managed in accordance with the requirements of this permit and COMAR 26.13.05.18-2E using Inspection Checklists 1-10 and 15-17.

XI.J.5. The Permittee shall inspect the container management areas weekly as required by COMAR 26.13.05.09E using Checklists 1-3 and 9, except as specified under Permit Condition XI.G.

XI.J.6. The Permittee shall inspect the tank system at least once each operating day as required by COMAR 26.13.05.10D using Checklist 1 when hazardous wastes are in the tank system.

XI.J.7. The Permittee shall inspect personal protective clothing and equipment at the issue point and at appropriate intervals as determined by internal operating procedures. The purpose of these inspections shall be to assure serviceability and effectiveness. The Permittee shall be able to demonstrate to Department personnel (e.g., by showing stencil markings on the clothing) that personal protective clothing and equipment have been inspected.

XI.J.8. The Permittee shall inspect chemical protective masks monthly if kept at the MAPS and ensure that masks are tested at the point of issue and at appropriate intervals as required by internal operating procedures. Masks shall be tested to assure proper fit and leak tightness. The Permittee shall be able to demonstrate to Department personnel that masks have been inspected and tested.

XI.J.9. The Permittee shall inspect backup power systems to ensure they meet the requirements in Permit Condition XI.D.5 using Checklist 11.

XI.K. CONTINGENCY PLAN

XI.K.1. The Permittee shall:

XI.K.1.a. Assure that the most recent version of each of the following contingency plan documents is available at the MAPS at all times:

- MAPS RCRA Site-Specific Contingency Plan;
- APG's Emergency Response Plan, Chapter 1;
- APG's Emergency Response Plan, Chapter 5 (Chemical Accident or Incident Response and Assistance [CAIRA] Plan; and
- APG's Emergency Response Plan, Chapter 8 – Environmental Release Prevention and Response Plan.

Note: Permit Attachment XI-2 is a general contingency plan that provides a general overview of the topics included in the Site-Specific Contingency Plan located at the MAPS.

XI.K.2. Chapter 5 to the APG ERP may be amended or revised without the approval of the Department.

XI.K.3. The MAPS Site-Specific Contingency Plan shall be reviewed and immediately amended, if necessary, as required by COMAR 26.13.05.04E. The plan may also be amended for the following reasons by notifying the Department:

- To incorporate administrative and informational changes,
- To upgrade, relocate, or replace emergency equipment listed in the contingency plan with functionally equivalent emergency equipment, or
- To change the name, telephone number, or address of the Emergency Coordinator, alternate Emergency Coordinator, or other persons, organizations, or agencies identified in the plan.

XI.K.4. The MAPS Emergency Coordinator shall meet the requirements listed in COMAR 26.13.05.04F as these requirements relate to the MAPS.

XI.K.5. The Permittee shall immediately carry out the provisions of the MAPS Site-Specific Contingency Plan and follow emergency procedures described by COMAR 26.13.05.04G whenever there is an imminent or actual fire, unplanned explosion, or release of hazardous waste or constituents that threatens or could threaten human health or the environment (COMAR 26.13.05.04B(2)).

XI.L. CLOSURE

XI.L.1. At closure of any permitted unit of the MAPS the Permittee shall remove all hazardous waste and hazardous waste residues from the storage areas and tank system, and close the unit in accordance with the detailed MAPS closure plan approved in accordance with Permit Condition XI.L.3 and COMAR 26.13.05.18-3A and B.

XI.L.2. Permit Attachment XI-1 is a general closure plan that highlights certain details of facility operations that the Permittee shall take into account in developing the detailed MAPS closure plan under Permit Conditions XI.L.3 and 4.

XI.L.3. At least 90 days prior to the intended beginning of closure, the Permittee shall submit a detailed MAPS closure plan including a sampling and analysis plan to the Department for review and approval.

XI.L.4. The detailed closure plan required by Permit Condition XI.L.3 shall include at least the following elements:

- The steps necessary to perform partial and/or final closure of the facility at any point during its active life,
- A description of how each MAPS container storage unit and tank system will be closed,
- A description of how final closure of the MAPS will be conducted, identifying the maximum extent of operations during the active life of the facility,
- An estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the facility and a description of the methods used to remove, transport, treat, store or dispose of all hazardous wastes,
- A detailed description of the steps needed to remove or decontaminate all hazardous wastes residues and contaminated containment system components, equipment, structures and soils,
- A description of methods employed to decontaminate structures and equipment that will remain on site after closure,
- Identification of decontamination agents to be used, including chemical and physical specifications of the agents,

- Specific safety measures to be taken to control spread of contamination during the closure activity and to protect human health and the environment,
- A detailed description of other activities necessary during the closure period,
- A schedule for closure of each MAPS unit and for the final closure of the MAPS, and
- A description of how all hazardous waste and hazardous waste residues will be removed from the containment and tank system.

XI.L.5. The sampling and analysis plan required by Permit Condition XI.L.3 shall, at a minimum, include the following components to verify the effectiveness of decontamination activities:

- A listing and justification of sampling and analytical methods employed. The Permittee shall select and propose these methods in accordance with the EPA document Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, latest edition), as appropriate for the constituent in question, or equivalent methods acceptable to the Department,
- A description of quality assurance and quality control procedures associated with the selected sampling and analysis methods,
- A definition and justification of a Target Compound List (TCL) for which the verification samples will be analyzed,
- Identification and justification of a threshold level for each compound on the TCL list that determines a "clean" or "contaminated" condition, and
- Number, location, media or substances to be sampled.

XI.L.6. The Permittee shall decontaminate the storage areas, tank system, and any equipment that remains onsite after closure in accordance with the detailed MAPS closure plan submitted by the Permittee and approved by the Department in accordance with Permit Conditions XI.L.1, XI.L.3 and XI.L.4.

XI.L.7. Within 60 days of the completion of the closure activities, the Permittee shall submit:

XI.L.7.a. A closure report containing results of the activities conducted in compliance with each component of the approved closure plan, including, but not limited to:

i. the verification results demonstrating a clean closure of MAPS storage and treatment areas, and tank system (i.e., demonstrating that the closure performance standard of COMAR 26.13.05.07B has been achieved), and

ii. a certification of closure as required by COMAR 26.13.05.07F; or

XI.L.7.b. A written request to extend the 60 day deadline including the reason for the request and a proposed timeline for completion.

XI.L.8. If the Permittee is unable to demonstrate a clean closure in accordance with Permit Condition XI.L.7, the Permittee shall inform the Department within 60 days of the completion of the closure activities, and propose measures to achieve closure performance standards, such as submission of a post-closure care plan for the Department's review and approval (COMAR 26.13.05.18-3C).

XI.M. TABLES

This section contains various summary tables and tables of requirements referenced elsewhere in Part XI of this permit.

Table XI-1. "Active Containment Areas" of the MAPS, and Areas Where Hazardous Waste May Be Managed in Tanks and Containers

Active Containment Areas	Permitted Activity
Process Storage Room, Process Room, BDV Room	• Treatment of hazardous waste in containers • Storage of hazardous waste in containers in excess of 90 days
Process Storage Room	• Treatment of hazardous waste in tanks • Storage of hazardous waste in tanks in excess of 90 days

(Note: apart from the hazardous waste management activities at the MAPS authorized by this permit, the Permittee may separately accumulate hazardous waste at the facility as provided in the provisions for generators of hazardous waste in COMAR 26.13.03.)

Table XI-2. Waste Item Processing Limits

Category	Quantity (no. of items)	per	Time Period
Full-up, liquid-filled, explosively-configured item	5	per	day
	50	per	year
Full-up, liquid-filled, non-explosively-configured item	5	per	day
	50	per	year
Empty, decontaminated item with explosives	10	per	day
	50	per	year

Table XI-3
Waste Treatment and Storage Limits

Hazardous Waste Stream	Maximum Quantity	Process Codes *	Time Period
Storage and treatment in tank systems	3,000 gallons	S02, T01	Year
Storage and treatment in containers	5,000 pounds (solids) 2,500 gallons (liquids)	S01, T04	Year
Storage in containers and tanks in Process Storage Room	5,760 gallons	S01, S02	Maximum at any time
Storage in containers in Process Room	Limited based on 1,520 gallon secondary containment capacity	S01	Maximum at any time
Storage and treatment in containment buildings	5,000 pounds (solids) 2,500 gallons (liquids)	S06, T94	Year
Maximum Total Annual Waste Generation from MAPS Operations	5,500 gallons (liquids) 5,000 pounds (solids)	S01, S02, T01, T94, S06, T04	Year

* Process Code Definitions
S01 – Storage in containers
S02 – Storage in tanks
S06 – Storage in containment buildings
T01 – Treatment in tanks
T04 – Other treatment (treatment in containers)
T94 – Treatment in containment buildings

Table XI-4. Permitted Waste Codes for the MAPS

Hazardous Waste Code	Description
D001	Wastes exhibiting the Characteristic of Ignitability
D002	Wastes exhibiting the Characteristic of Corrosivity
D003	Wastes exhibiting the Characteristic of Reactivity
D004-D043	Wastes exhibiting the Characteristic of Toxicity
F001-F015, F024, F027	Hazardous wastes from non-specific sources
K044-K047	Hazardous wastes from specific sources related to explosives
K991-K999	Chemical surety waste materials listed under COMAR 26.13.02.17
MD02	Reaction products and residues resulting from decontamination of specific compounds (military), as listed under COMAR 26.13.02.18
MD03	Residues from treatment or decontamination of wastes K991 to K999, as listed under COMAR 26.13.02.18
MX01, M001, MT01	Mixtures of wastes, soil, and debris contaminated with polychlorinated biphenyl (PCB) listed under COMAR 26.13.02.19D, F and H
P001-P018, P020-P024, P026-P031, P033, P034, P036-P051, P054, P056-P060, P062-P078, P082, P084, P085, P087-P089, P092-P099, P101-P116, P118-P123, P127-P128, P185, P188-P192, P194, P196-P199, P201-P205	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification species of the same, listed under COMAR 26.13.02.19E, and identified as *acute* hazardous wastes
U001-U012, U014-U053, U055-U099, U101-U103, U105-U174, U176-U194, U196, U197, U200-U211, U213-U228, U230-U240, U242-U249, U328, U353, U359, U364, U367, U372-U373, U387, U389, U394-U395, U404, U409-U411	Discarded commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products, listed under COMAR 26.13.02.19G, and identified as toxic, ignitable, corrosive or reactive wastes

TABLE XI-5. Critical Loads – Service by an Uninterruptible Power Supply Required

Facility Systems Required to be Serviced by an Uninterruptible Power Supply
6. Air Monitoring Stations (MINICAMS units and vacuum pumps)
7. Control Systems (PLC, CPUs and Monitors in Control and Monitoring Rooms, Door Interlocks, ECC Lights and Cameras)
8. Intercom System
9. Emergency Lighting
10. Environmental Control System (Critical Dampers for ventilation system closure and controlled transfer to backup power or shutdown)
11. Security System

Table XI-6. Tank System (IBC Inventory) and Locations in the Storage Rack

Top Row (left to right, corresponding to location in rack)					
Tank	207 Haz waste tank (316SS)*	204 Bleach tank with agitator (composite)	205 Haz waste bleach tank with agitator (composite)*	208 Haz waste tank (composite)*	209 Haz waste tank (316SS)*
Function	Receives wastes from two sumps, 5& 6 in the Process Room and sump 7 in Process Storage Room.	Distributes decon solution to gloveboxes, ECC, plenum, and BDV.	Receives wastes from gloveboxes, ECC, plenum, BDV, and Scrubber.	Receives wastes from sumps 1 through 3 in PDS stations 1 through 3.	Receives wastes from sump 4 in PDS station 4.
Bottom Row (left to right, corresponding to location in rack)					
Tank	203 Spare tank (316SS)	210 Haz waste tank (316SS)*	202 NaOH tank (316SS)	201 Spare tank (316SS) with external heating jacket	206 Bleach tank (composite)
Function		Receives wastes from gloveboxes, ECC, plenum, BDV, and scrubber.	Distributes decon solution to gloveboxes, ECC, plenum, and BDV.	Can be filled with alternate reagent such as monoethanolamine	Distributes decon solution to PDS station 1.

***Permitted hazardous waste tanks (note: hazardous waste tanks indicated by bold borders.)**

Table XI-7. Permit-Required Documents/Records for the MAPS *

Type of Document/Record	COMAR Citation
Inspection Schedules and Logs	26.13.05.02F (2)
Personnel Training Documents and Records	26.13.05.02G (4) and (5)
Site-Specific Contingency Plan	26.13.05.04
Chemical Accident or Incident Response and Assistance (CAIRA) Plan	26.13.05.04
Emergency Response Plan	26.13.05.04
Operating Record	26.13.05.05 D
Closure Plan	26.13.05.07
Copy of COMAR 26.13	26.13.07.05A and C
Parts I, II and XI of this Permit	26.13.07.05A and C

*All of these documents and records shall be available at the MAPS.

XI.N. INSPECTION CHECKLISTS

This section contains, beginning with the following page, inspection checklists referenced in sections XI.J. and XI.G.1.b. of this permit.

MAPS Inspection Checklist 1
Normal Operations: Daily // Warm Layaway: Monthly
Process Storage Room

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Waste Tank System (Waste IBCs & Piping)				
• Are the IBCs, waste piping and IBC structural support systems in good condition and not leaking?*	Y	N	Y	N
• Are IBCs labeled correctly (i.e., "Hazardous Waste," waste name, accumulation start date)?	Y	N	Y	N
• Are overfill controls (i.e., level indicators and alarms) working properly?	Y	N	Y	N
• Is the agitator (A-202) in good condition and working properly?	Y	N	Y	N
• Are there signs of structural damage or deterioration of floor or sump?	Y	N	Y	N
• Are there any accumulated liquids in this area? (i.e., within secondary containment)	Y	N	Y	N
• With respect to BB stds for VO air emissions, is facility determining and documenting in operating log whether waste streams meet or exceed 10% VO concentration applicability threshold?	Y	N	Y	N
• For waste streams =/> 10% VO content, is facility counting hours for equipment contacting these wastes to ensure they do not exceed the 300 hour annual threshold?	Y	N	Y	N
• Has all equipment that contacts 10% or greater VO waste been identified by list or location and documented in facility operating log?	Y	N	Y	N
• Are waste tank level 2 CC controls (i.e., cover vented to carbon adsorption system) functioning properly based on visual inspection of tanks, piping and pressure gauges?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____ Date Corrective Action Completed:_____

Description of Corrective Action:_____

_____

_____

Supervisor Signature_____ Inspector Signature_____

Comments:_____

_____

***Only highlighted entries are checked monthly during layaway status. System should be empty during layaway**

MAPS Inspection Checklist 1 (Continued)
Normal Operations: Weekly // Warm Layaway: No Inspection Required*
Process Storage Room

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Waste Containers				
• Are the containers in good condition?	Y	N	Y	N
• Are they labeled correctly (i.e., "Hazardous Waste," waste name, accumulation start date)?	Y	N	Y	N
• Is aisle space adequate (> 2 ft)?	Y	N	Y	N
• Are the containers closed?	Y	N	Y	N
• Do containers holding liquids w/VO concentration >500 ppmw meet applicable Level 1 controls (i.e., in closed and DOT-compliant containers, or containers equipped with a cover and closure devices that forms a continuous barrier over the container openings so that there are no visible holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured)?	Y	N	Y	N
Are there signs of structural damage or deterioration of the floor or sump?	Y	N	Y	N
Are there any accumulated liquids in the area?	Y	N	Y	N
Is the total number of waste containers consistent with capacity limits?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

*** No inspection of waste containers required during layaway if no waste present**

MAPS Inspection Checklist 2
Normal Operations: Daily // Warm Layaway: Monthly
BDV Room

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Is there evidence of deterioration or damage to the BDV vessel?*	Y	N	Y	N
Is there evidence of structural damage to the fragmentation shield?	Y	N	Y	N
Is a stable and correctly sized munition cradle in place to support the waste munition to be processed in the BDV?	Y	N	Y	N
Is the BDV exhaust fan (EF-601) operating properly?	Y	N	Y	N
Is the piping to and from the BDV free of evidence of leakage?	Y	N	Y	N
Is there evidence of leakage from the BDV waste solution pump (P-601)?	Y	N	Y	N
Are there any accumulated liquids in the BDV Room?	Y	N	Y	N
Are there signs of structural damage or deterioration of the BDV Room floor?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

_____

*** Only highlighted entries are checked monthly during layaway status. Other items not checked during layaway**

MAPS Inspection Checklist 3
Normal Operations: Daily // Warm Layaway: Monthly
Process Room

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide details below.	
Gloveboxes A & B				
• Is the HVAC system operating?	Y	N	Y	N
• Do the pressure gauges indicate adequate negative pressure within the gloveboxes?*	Y	N	Y	N
Plenum				
• Is there evidence of structural deterioration or corrosion?	Y	N	Y	N
Drill Box				
• Is there evidence of structural deterioration or corrosion?	Y	N	Y	N
• Does the pressure gauge indicate adequate negative pressure within the drill box?	Y	N	Y	N
• Is the nitrogen bottle operating properly? Is there adequate nitrogen supply to the drill box?	Y	N	Y	N
Trolley/Cradle				
• Is there evidence of structural deterioration or corrosion?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

* **Only highlighted entries are checked monthly during layaway status**

MAPS Inspection Checklist 3 (Continued)
Normal Operations: Daily // Warm Layaway: Monthly
Process Room

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Does the Explosion Containment Chamber (ECC) show evidence of structural deterioration or corrosion?*	Y	N	Y	N
Is the piping to and from the glovebox, plenum, and ECC free of evidence of leakage?	Y	N	Y	N
Do the sumps show evidence of deterioration or corrosion?	Y	N	Y	N
Are there any accumulated liquids in the area?	Y	N	Y	N
Are there signs of structural damage or deterioration of the Process Room floor or sumps?	Y	N	Y	N
Is there evidence of leakage from the waste transfer pumps:				
• Drill box agent removal pump (P-101A)	Y	N	Y	N
• Drill box decon/rinse pump (P-101B)	Y	N	Y	N
• Glovebox B agent removal pump (P-101C)	Y	N	Y	N
• Glovebox A decon pump (P-102)	Y	N	Y	N
• Glovebox B decon pump (P-103)	Y	N	Y	N
• Plenum decon pump (P-104)	Y	N	Y	N
• ECC decon pump (P-105)	Y	N	Y	N
Does the munition transport cart show evidence of deterioration or lack of integrity?	Y	N	Y	N
Do the lifting slings show evidence of deterioration?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

*** Only highlighted entries are checked monthly during layaway status. Other items not checked during layaway**

MAPS Inspection Checklist 4
Normal Operations: Daily // Warm Layaway: Monthly
Personnel Decontamination Station (PDS)

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Does the floor and curbing in PDS Stages 1-4 show evidence of failure of the protective coating or evidence of spills or leaks?*	Y	N	Y	N
Is there evidence of leakage from the PDS waste piping and valves?	Y	N	Y	N
Do the decon area sumps (Sumps 1-4) show evidence of structural deterioration or corrosion?	Y	N	Y	N
Are there any accumulated liquids in the area?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

*** Only highlighted entries are checked monthly during layaway status**

MAPS Inspection Checklist 5
Normal Operations: Daily // Warm Layaway: Monthly
Scrubber

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Are the scrubber level indicators and alarms working properly?	Y	N	Y	N
Is the scrubber pH probe working properly?	Y	N	Y	N
Is there evidence of leakage from the Scrubber Reservoir (V-106), Venturi (EV-101), or Packed Bed Scrubber (F-101)?	Y	N	Y	N
Is there evidence of leakage from the scrubber piping and valves?	Y	N	Y	N
Is there evidence of leakage from the scrubber pump (P-110)?	Y	N	Y	N
Is there evidence of structural deterioration or corrosion to the scrubber vessel supports?*	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

* **Only highlighted entries are checked monthly during layaway status. Scrubber should be drained and empty during layaway, and must be re-checked prior to operations.**

MAPS Inspection Checklist 6
Normal Operations: Daily // Warm Layaway: Monthly*
Spill/Decontamination Equipment

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Are the spill/decontamination carts parked in the proper locations and supplies available?*	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

*** Re-check prior to operations.**

MAPS Inspection Checklist 7
Normal Operations: Daily // Warm Layaway: Monthly
Cascade Air Supply

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Is the Cascade Air Trailer available for use and working properly?	Y	N	Y	N
Are air supply hoses available for use and working properly?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____
Description of Corrective Action:_____
_____
_____

Date Corrective Action Completed:_____
Supervisor Signature_____
Inspector Signature_____

Comments:_____
_____
_____

MAPS Inspection Checklist 8
Normal Operations: Daily //Warm Layaway: Monthly
Air Monitoring Systems

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
MINICAMS				
• Are monitors accounted for & in good physical condition?*	Y	N	Y	N
• Is there an absence of error alarm indication?	Y	N	Y	N
• Are sample lines and connections intact?	Y	N	Y	N
• Are there signs of sample line wear or improper connection?	Y	N	Y	N
• Is the sample line heat trace functional?	Y	N	Y	N
• Is there proper ventilation for exhaust?	Y	N	Y	N
• Have MINICAMS challenges and calibration satisfied the LCOs?	Y	N	Y	N
• Is the timing of the stream selector correct?	Y	N	Y	N
DAAMS				
• Are DAAMS tubes available for use?	Y	N	Y	N
• Have DAAMS challenges satisfied the LCOs?	Y	N	Y	N
Are colorimetric tubes available for use (if applicable)?	Y	N	Y	N
Are dosimeter badges available for use (if applicable)? Are expiration dates current?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

*** Only highlighted entries are checked monthly during layaway status**

MAPS Inspection Checklist 9
Normal Operations: Weekly // Warm Layaway: No Inspection*
Process Room and BDV Room

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Waste Containers				
• Are the containers in good condition?	Y	N	Y	N
• Is aisle space adequate (> 2 ft)?	Y	N	Y	N
• Are the containers closed?	Y	N	Y	N
• Are they labeled correctly (i.e., "Hazardous Waste," waste name, accumulation start date)?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

*** If no waste present**

MAPS Inspection Checklist 10
Normal Operations: Weekly // Warm Layaway: Monthly
HVAC System

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Is there a negative pressure reading of -0.25 IWG or lower in the Process Room?	Y	N	Y	N
Is there a negative pressure reading of -.1 IWG or lower in the BDV Room?	Y	N	Y	N
Is there a pressure reading of zero or positive for Corridor – 1?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Inspection Checklist 10 (Continued)
Normal Operations: Weekly //Warm Layaway: Monthly
HVAC System

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Are the Process Area filter fans (EF-402A/B, EF-403A/B) operating properly (no evidence of overheating, excessive vibration, lack of flow through stack)?	Y	N	Y	N
Are the Process Train filter fans (EF-401A/B) operating properly (no evidence of overheating, excessive vibration, lack of flow through stack)?	Y	N	Y	N
Is the overall pressure differential across Filter F-401 less than 10 IWG?	Y	N	Y	N
Is the overall pressure differential across Filter F-402 less than 10 IWG?	Y	N	Y	N
Is the overall pressure differential across Filter F-403 less than 12 IWG?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Inspection Checklist 12
Normal Operations: Weekly // Warm Layaway: Monthly
Emergency Generator

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Has the fuel supply level light/indicator in the control room been verified to be in alarm?	Y	N	Y	N
Has the generator been tested for proper performance by operating in the loaded configuration this week?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Weekly Inspection Checklist 13
Normal Operations: Weekly // Warm Layaway: Monthly
Security and Communication Systems

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Is the public address system working properly?	Y	N	Y	N
Are the vehicle gates operable to ensure capability for emergency ingress/egress?	Y	N	Y	N
Are unused gates locked?	Y	N	Y	N
Is the integrity of fences maintained to prevent intrusion or obstruction (no intrusion or obstruction by vegetation, no gaps at fence base, no damaged fencing)?	Y	N	Y	N
Is facility lighting functioning properly?	Y	N	Y	N
Are the security cameras working properly?	Y	N	Y	N
Are perimeter warning signs posted, legible from a distance, and free from evidence of tampering?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Monthly Inspection Checklist 14
Emergency Equipment

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Have portable fire extinguishers been checked for full charge and defects?*	Y	N	Y	N
Have the safety showers been tested this month to ensure emergency operation?	Y	N	Y	N
Do spill/decontamination carts have sufficient quantity of the following materials?				
Do spill/decontamination carts have sufficient quantity of the following materials? • Decon solution • Decon sprayer • Flashlight • Emergency blanket • Brushes/sponges • M8 detection paper • Manual pump • Absorbent/ Spill socks • Step pan	Y	N	Y	N
Does PPE inventory include an adequate stock of masks, gloves, boots, suits, and SCBA?**	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Quarterly Inspection Checklist 15
Detection Alarm System Equipment

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Have site security personnel completed their inspection of the intrusion detection alarm system?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Semiannual Inspection Checklist 16
Fire Protection Equipment & Organic Air Emission Control Device Malfunctions

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Fire Protection Equipment				
Does the fire control panel indicate proper operation of MAPS fire alarms?	Y	N	Y	N
Is the FM200 fire suppression system working properly?	Y	N	Y	N
Organic Air Emissions Control Device Malfunction Reporting				
If tank level 2 organic air emissions control devices operated in non-compliance for any 24-hour period or longer during the previous 6 month period, was report filed with EPA Regional Administrator per 40 CFR 264.1090(c)?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Annual Inspection Checklist 17
Miscellaneous

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Has the annual functional test been completed for the munition hoist?	Y	N	Y	N
Has the annual functional test been completed for the jib crane?	Y	N	Y	N
Has the annual inspection of the UPS batteries for evidence of corrosion or leakage been completed?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

MAPS Annual Inspection Checklist 18
40 CFR 264, Subpart CC Requirements
Waste Tank System (IBCs)

Inspector Name _____ Date of Inspection: _____

Signature: _____ Time of Inspection: _____

ITEMS TO BE INSPECTED	RESULTS		CORRECTIVE ACTION REQUIRED? If yes, provide detail below.	
Have hazardous waste IBCs been in use for more than 1 year?	Y	N	Y	N
If so, have the IBCs' closed vent systems been visually inspected to ensure they are free of defects (e.g., all joints and seams permanently sealed) that could result in air pollutant emissions?	Y	N	Y	N
If defects or leaks were found, were repairs initiated within 5 days of detection and controlled within 15 days?	Y	N	Y	N

CORRECTIVE ACTION:

Date:_____

Description of Corrective Action:_____

_____

_____

Date Corrective Action Completed:_____

Supervisor Signature_____

Inspector Signature_____

Comments:_____

_____

_____

ATTACHMENT XI-1

MAPS CONCEPTUAL CLOSURE PLAN

CONCEPTUAL CLOSURE PLAN
FOR THE
MUNITIONS ASSESSMENT AND PROCESSING SYSTEM

I. GENERAL INFORMATION

This conceptual closure plan is for the Munitions Assessment and Processing System (MAPS). The MAPS is a system for the treatment of explosively-configured chemical munitions and devices. It includes stainless glove boxes, a double wall steel explosive containment chamber (ECC), a steel detonation vessel (BDV), negative air pressure carbon-filtration ventilation system and hazardous waste storage. Waste storage consists of a tank system comprised of several fixed interim bulk containers (IBCs) with ancillary piping as well as portable 55-gallon drums and smaller containers. The MAPS is housed in an 11,755 square foot steel and masonry structure with monolithic concrete foundation and epoxy-sealed floor slab. The facility is designed to operate intermittently one to several weeks in a given year.

This is a conceptual plan and will be revised to reflect site conditions, appropriate regulatory standards, and future use plans at the actual time of closure. A detailed closure plan will be submitted to the Maryland Department of the Environment (MDE) at least 180 days before final closure is expected to begin. Aberdeen Proving Ground (APG) and the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) will not proceed with the final closure of this facility in the absence of written confirmation from MDE that the closure plan is approved or conditionally approved.

Before final closure of the facility occurs, the MAPS may cease to perform some or all of the hazardous waste treatment and storage functions for which it was designed and constructed. Factors that may impact the future use of the MAPS and its various treatment and/or storage components include: the operational tempo of the Sample Receipt Facility (SRF) which will provide the MAPS with waste munitions/devices requiring detonation in the facility's Burster Detonation Vessel (BDV); possible changes to the DEVCOM CBC's mission that would necessitate corresponding changes to the MAPS operations; and the outlook for Department of Defense or Army changes to buried munitions remediation policies that could negate the need for one or more of the MAPS storage and treatment components or even accelerate facility closure depending on financial and operational circumstances at APG.

This plan addresses final closure of the MAPS facility and partial closure of waste IBCs that may have to be changed out before final closure based on their condition. APG and the DEVCOM CBC will keep the MDE informed of the Army's planned uses of the MAPS as they continue to evolve. APG will prepare a revised closure plan to address changes should they develop.

II. CLOSURE PERFORMANCE STANDARD

The MAPS facility will be "clean closed" in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or waste decomposition products to the ground or surface waters or to the atmosphere; and
- Complies with COMAR closure requirements for containment buildings, containers and tank systems.

Closure of the MAPS hazardous waste management units will be accomplished by removing or decontaminating all equipment, structures, or other materials that contain, or are contaminated with hazardous waste or hazardous waste constituents exceeding clean closure target levels. For chemical agent contaminated materials and structures, clean closure target levels will be established using the most recent versions of:

- Army Regulation (AR) and Department of the Army Pamphlet (DAPAM) 385-61, The Army Toxic Chemical Agent Safety Program, and
- DEVCOM CBC decontamination procedures.

For other hazardous constituents, APG and DEVCOM CBC will propose clean closure target levels for a target compound list derived from a historical review of wastes processed at the facility. Clean closure target levels will be based on appropriate regulatory and/or risk-based concentrations. Sampling and analysis will be performed in accordance with the EPA's SW-846, most recent edition, and DEVCOM CBC chemical agent analysis and monitoring protocols. If a review of site operations indicates hazardous materials or wastes were released or potentially released outside the building, a plan to further define the extent of contamination and remedial action will be submitted to MDE. All clean closure target levels, target compound lists, sampling and analysis strategies, etc. will have to be approved by MDE.

Spent wash and rinse solutions and residues generated as part of the decontamination procedures will be treated/disposed of at a permitted hazardous waste management facility, as required. Rinsate from highly contaminated areas will be composited separately for analysis to avoid diluting the waste. Any building components, appurtenances, etc., that cannot be decontaminated will be removed and disposed of in an approved manner.

Upon completion of these procedures, remaining building components that are not contaminated may be refurbished and rededicated to other purposes or demolished with the resulting debris disposed of in accordance with standing State solid waste regulations. Additionally, instrumentation and other hardware that is uncontaminated (or that can be decontaminated) will be removed and salvaged in accordance AR and DAPAM 385-61.

III. PARTIAL AND FINAL CLOSURE ACTIVITIES

All closure activities described in this plan are projected to be final with the possible exception of waste interim bulk containers (IBC) that make up the MAPS hazardous waste tank system. Depending on the outcome of periodic leak and/or integrity tests, one or more IBCs may be taken out service (closed) and replaced prior to final MAPS closure. There is also uncertainty as to how much actual use the MAPS' drill and drain components (i.e., glove boxes, drill box and explosive containment chamber) may receive over the life of the current A-190 permit; however, partial closure activities are not currently anticipated for these components unless a firm and permanent change of use occurs for the facility and partial closure activities are appropriate.

IV. MAXIMUM WASTE INVENTORY

The maximum waste inventory is estimated to be the physical storage capacity of the Process Storage Room. The maximum number of waste IBCs in use at any one time is five 300 to 350-gallon capacity intermediate bulk containers (IBCs). In addition, up to fifty 55-gallon drums of spent decontamination waste (i.e., spent decontamination liquid waste that has been transferred from IBCs, and drums of waste solids from the BDV and glove boxes) could be stored awaiting transport to another facility. MAPS may also store small DOT containers (1 to 15 gallons) of recovered chemical fill material (industrial chemicals, smokes) in active containment areas. A maximum of 300 gallons of the small DOT containers would be stored at any one time. The combined storage capacity of the waste containers and tank system (IBCs, 55-gallon drums, small DOT containers) managed in the Process Storage Room, Process Room and BDV room is approximately 6,000 gallons of liquids and an estimated 5,500 pounds of drummed solids though the waste inventory of the facility will be limited to the storage capacity of the Process Storage Room (5,500 gal liquids and 5,000 lbs solids).

This closure estimate assumes that closure activities will not begin until the last waste chemical munition or device has been fully processed (i.e., accessed, drained, decontaminated and detonated) and any associated chemical fill has been removed from the facility and sent to the DEVCOM CBC Chemical Transfer Facility for decontamination.

V. SCHEDULE FOR CLOSURE, TIME ALLOWED FOR CLOSURE, AND EXTENSION OF CLOSURE TIME

As shown on the closure schedule (Table 1), all remaining hazardous waste will be removed from the MAPS facility within the required 90 days after initiation of closure. In addition, APG will attempt to perform all closure activities within 180 days after initiation of closure. Based on Army project programming and procurement lag times associated with the hiring of experienced contractors to perform closure related activities, APG may have to request an extension to the closure time-line.

Table 1. Closure schedule for the MAPS Facility.

Description of closure step	Number of days before/after final volume of waste is received
Notify MDE of intent to close	45 days before the final munition to be accessed/detonated in the MAPS enters the facility
Notify Munitions Assessment Review Board (MARB) that the MAPS facility can no longer be used to access recovered munitions	45 days before receipt of final munition for accessing or detonation
Access and decontaminate the final recovered munition	0
Begin closure	30 days after the final munition is accessed, detonated and/or decontaminated
Removal of decontamination wastes in IBCs to another permitted facility	90 days after final munition is accessed, detonated and/or decontaminated
Remove uncontaminated instrumentation	100 days after final munition is accessed, detonated and/or decontaminated
Disassemble all equipment and associated piping, valves, pumps, air pollution control equipment, etc.	110 days after final munition is accessed/detonated and/or decontaminated
Establish sampling protocol for each area	120 days after final munition is accessed, detonated, and/or decontaminated
Decontaminate all surfaces to clean closure target levels of contamination	130 days after final munition is accessed, detonated, and/or decontaminated
Sample rinsate or wipe samples from floors, walls, equipment, and loading/unloading areas	140 days after final munition is accessed, detonated and/or decontaminated
Receive lab results	154 days after final munition is accessed, detonated and/or decontaminated
Dispose of components in permitted and approved hazardous waste facilities	170 days after final munition is accessed, detonated, and/or decontaminated
U.S. Army and independent registered professional engineer certifies that closure is in accordance with the closure plan	180 days after final munition is accessed, detonated and/or decontaminated

VI. CLOSURE PROCEDURES

These procedures describe how all hazardous waste and hazardous waste residues will be removed from the MAPS, suitably packaged and transported to appropriate, permitted waste treatment and disposal facilities. They also describe the evaluation, decontamination, removal and disposition of equipment, structures and media that may have contacted hazardous wastes during facility operation.

Removal and Disposal of Hazardous Waste Inventory

All hazardous waste-containing IBCs will be drained to DOT-approved drums or portable totes. These containers, as well as DOT-approved containers of waste solids and other liquid chemical wastes will be appropriately labeled, marked and transported to appropriate, permitted hazardous waste management facilities. Unused decontamination chemicals will be:

- Transported to other facilities on the Installation where they are needed, or
- Declared waste, appropriately containerized and transported to a permitted treatment and/or disposal facility.

Review of System Operational History and Identification of Areas Requiring Decontamination

During closure planning, the DEVCOM CBC will convene a team to evaluate the operational history of the facility. The review will exam the facility's operating record, materiel assessment data sheets for items processed, past sampling and monitoring records and other pertinent information to determine areas of potential contamination and chemicals of potential concern. This data will be used to develop a detailed decontamination regimen and proposed clearance levels for approval by the MDE.

Decontamination Procedures

Sequence of Operations:

Facility and system decontamination will generally proceed in the following order.

- System monitoring (air monitoring of process equipment and other suspect areas)
- Decontamination of tank system (IBCs) and ancillary piping
- Decontamination of process equipment (BDV, glove boxes, connecting plenum and ECC)
- As required spot decontamination of walls, floors and sumps
- Decontamination of ventilation system
- Soil/media cleanup (if required)

General Description of Decontamination Operations:

Prior to actual decontamination, areas of concern will be monitored to guide the decontamination effort and ensure workers are appropriately protected for these operations. Decontamination of all equipment and structures contaminated or potentially contaminated with chemical agents will be performed in accordance with DA PAM 385-61, The Army Toxic Chemical Agent Safety Program, and DEVCOM CBC decontamination procedures. Typical decontaminants employed will likely include bleach/caustic solutions, solvents, water rinses and other methods identified as appropriate and approved by the MDE at the time of closure.

Decontaminated areas will be air monitored and/or sampled to ensure the appropriate level of decontamination is achieved. In general, near-real time gas chromatograph and/or laboratory evaluation of collected Depot Agent Air Monitoring System (DAAMS) sorbent tubes or their equivalent will be used to evaluate the efficacy of decontamination activities for chemical agent contaminated equipment and structures. Porous media such spent carbon (from filtration system) or soils (if contamination outside the facility is suspected or confirmed) will be evaluated via traditional sample collection, extraction and laboratory analysis. Wipe sampling methods may also be employed for non-porous surfaces.

Spent decontamination solutions and rinses will be collected, containerized, characterized via laboratory analysis and shipped to appropriately permitted, waste management facilities. Most of these wastes will likely be shipped to authorized, off-site incineration facilities, but some liquid wastes—especially in larger volumes—may be sent to an appropriately permitted wastewater treatment facility. Bulky equipment or structural components identified for disposal will likely be shipped to an authorized hazardous waste landfill if they cannot be cost-effectively broken down for incineration. Non-hazardous wastes may be shipped to either Subtitle C or Subtitle D solid waste facilities.

Hazardous Waste Tank System

After hazardous waste treatment campaigns, the tank system piping is flushed with excess water to reduce chlorine residuals from bleach decontamination solutions that can degrade stainless steel piping. Chemical contamination is therefore not anticipated to be significant.
After the emptying of residual wastes from IBCs in preparation for closure, the IBCs will be isolated from the piping and ventilation systems. Their interiors may be monitored to determine pre-decontamination contamination levels. They will be flushed with appropriate decontaminants (i.e., bleach/caustic solution followed by multiple water rinses of adequate volume) using high pressure spray equipment rotated to thoroughly wash all interior surfaces. Afterwards, they will be fully drained, monitored to ensure they meet target closure criteria, and removed from their rack support structure. IBCs identified for disposal will be cut to ensure they can no longer be used, appropriately containerized and shipped off site for disposal at a permitted waste management facility. Those identified for reuse on APG will be transferred to the designated reuse location. Decontaminants may include bleach/caustic solution and multiple water rinses.

During the course of MAPS operations and prior to final facility closure, one or more IBCs may fail periodical tightness or integrity tests. Under this scenario, the individual IBC (tank) will be closed and may be replaced IAW COMAR 26.13.05.10 and applicable subsections regulating hazardous tank design, installation, certification and closure requirements.

After the completion of tank removal, ancillary piping, valves and pumps will be decontaminated. Portions of the system identified to remain for some approved alternate use, will be flushed, drained and partially monitored at designated break points to ensure they have been adequately decontaminated. Upon achieving target decontamination levels, the piping will be reconnected and left in place. For piping designated for disposal, personnel will break and isolate the piping at pre-designated locations. Each isolated section will be flushed and monitored to ensure it has been adequately decontaminated. Rinsate from flushing operations will be captured in containers, characterized and shipped to an appropriate waste management facility along with the decontaminated, wrapped and containerized pipe sections. This operation will proceed until all piping is cleared and removed.

Process Equipment

The assumption going in to closure is that the process equipment will likely not require a significant decontamination effort based on ongoing decontamination activities built into system operations and the relatively clean nature of processing operations that do not involve any significant handling of chemical agents outside primary containers.

The interiors of the gloveboxes are by design locations that will contact small amounts of liquid chemical agent or agent vapors. The interior of the BDV may at times also see agent vapors, but most often will be contaminated with explosive residues and the products of incomplete combustion. The interior of the stainless steel plenum which connects the glove boxes and ECC could also see vapor contamination for very short periods of time (i.e., minutes) under certain upset conditions (e.g., temporary loss of adequate ventilation). The ECC, barring loss of ventilation or an unplanned detonation of a munition during a drilling operation, should not see agent contamination.

Based on these conditions, significant contamination levels at closure are not anticipated. Glove boxes and BDV interior surfaces are repeatedly decontaminated during operations via a combination air flow from the negative pressure ventilation system and spot chemical decontamination that takes place after each treatment campaign. Additionally, any contamination in the plenum, ECC or other area outside engineering controls due to system failure or unplanned explosive release would be addressed at the time of the event.

In any case, at the time of closure, all interior volumes of processing equipment will be carefully monitored and interior surfaces will be wiped down with appropriate decontaminants. Contaminated or potentially contaminated gloves, non-metallic gaskets and any other organic components will be removed, containerized and disposed of at an appropriate hazardous waste treatment and disposal facility. Additional wipe sampling may be performed to augment and corroborate air monitoring data—especially if reuse for other work is pursued at that time.

The decision on whether to pursue reuse, cannibalization for partial reuse, or off-site disposal of process equipment will be made at closure, and will be addressed in the detailed closure plan at that time. In all cases, decontamination and monitoring to the approved and appropriate vapor screening level consistent with DA PAM 385-61 and DEVCOM CBC protocols will be executed. Important considerations to be looked at when planning final closure are sizes and construction of some of the processing equipment. To remove the ECC from the facility, a portion of the facility's roof will have to be deconstructed or demolished before it can be extricated from the facility. The glove boxes and plenum can be dismantled and removed via existing facility doorways. The BDV can be removed from the facility via a removable overhead roof section that can be reset in place should the Army desire to maintain the MAPS building for other uses.

Miscellaneous Decontamination of Walls, Floors and Sumps

Depending on the facility's operational records, additional decontamination may also be required for the process room, process waste storage room, BDV room, and the 4-stage decontamination area. The decision of whether to perform more than a simple wet mopping of floors in these areas will be based on the review of the facility's operational history and air monitoring results. Of all of these areas, careful scrutiny will likely be focused on the sumps in the process waste storage room and 4-stage decon areas. Any indication of the potential for agent contamination will drive the decision to decontaminate a particular area.

Ventilation System Decontamination

The most prominent features of the ventilation system are its overhead ductwork and the large fan motors and filtration units. Minimal or no contamination is anticipated in facility ductwork based on the 7 days x 24 hour exposure of interior surfaces to constant air flow. The level of monitoring and decontamination chosen will depend to a great extent on the decision on whether to reutilize the facility or demolish it at the time of actual closure.

Under the reuse scenario, the CBC will propose a limited authoritative monitoring regimen that would focus on areas within the ventilation system most likely to harbor contamination such as transition points nearer the glove boxes and the BDV. If monitoring at key points gives no indications of contamination, then no further action will be proposed. Removable bag in and bag out carbon filter sections will be removed, wrapped in plastic, monitored and disposed of via an authorized hazardous waste treatment and disposal facility.

In the case of facility demolition, monitoring and as needed decontamination will be performed on discrete sections as they are taken down. Sections will be monitored at key points, removed, decontaminated as needed, wrapped and re-monitored to appropriate target vapor screening levels to ensure they are safe for off-site transport to an appropriately permitted, hazardous waste disposal facility. Carbon filter sections will be removed, wrapped, monitored to the appropriate vapor screening level and disposed of via a permitted treatment and disposal facility.

The sequencing of ventilation system decontamination will be carefully planned to maximize the use of remaining ductwork, blowers and filters for engineering controls during system deconstruction and decontamination within the building shell. If required, a portable filtration

system and tenting can be employed to provide make-shift engineering controls during final stage decontamination work if required outside the main structure's shell on the covered filtration system pad. A full description of these operations will be addressed in the detailed closure plan submitted for MDE approval at final closure.

Soil/Media Clean-Up and Disposal

Soil or media cleanup are not anticipated at MAPS closure based on system design and mode of operation. All munitions and devices received at MAPS for processing are pre-evaluated to ensure they are safe for transport and arrive in double containment. Additionally, all waste processing takes place within primary and secondary engineering controls. Based on these factors and the robust construction of the building, only a catastrophic event such as an explosion outside the ECC or BDV (or outside the facility itself), or the spillage of process wastes during pickup for off-site shipment could reasonably be expected to release hazardous wastes or their constituents to the environment. Absent these scenarios, DEVCOM CBC will not propose environmental sampling outside the facility at closure. If there are any indications that such a release occurred during the operational life of the facility and cleanup sampling and analysis associated the event are found missing or inadequate, additional environmental sampling, analysis and as needed media remediation will be addressed in the detailed closure plan. Any hazardous waste contaminated media delineated under the release scenario would be excavated and disposed of via an off-site, permitted hazardous waste treatment and disposal facility.

VII. DOCUMENTATION OF CLOSURE

After the closure of the unit is complete, a copy of the certification by the owner/operator and the independent registered professional engineer, stating that the facility was closed in accordance with the approved closure plan, will be submitted to MDE. The certification will be accompanied by appropriate documentation.

VIII. POST CLOSURE PLAN

This section is not applicable because APG intends to demonstrate clean closure of the MAPS.

PERMIT ATTACHMENT XI-2

GENERAL CONTINGENCY PLAN FOR THE MUNITIONS ASSESSMENT AND PROCESSING SYSTEM (MAPS)

The general contingency plan for the MAPS follows. The site-specific plan that is kept at the facility includes the names, telephone numbers, and addresses of the emergency coordinators. This information is not included here for privacy reasons.

GENERAL CONTINGENCY PLAN
FOR THE
MUNITIONS ASSESSMENT AND PROCESSING SYSTEM (MAPS)

I. GENERAL INFORMATION

The Munitions Assessment and Processing System (MAPS) is operated and managed by the Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) on behalf of the United States Army. It is located in the Edgewood Area of Aberdeen Proving Ground (APG), MD. It is designed to access, drain, and decontaminate recovered, explosively configured munitions with suspect chemical agent, smoke, and industrial chemical fills. MAPS processing involves:

- Collecting the liquid fills from munitions in appropriate containers for subsequent handling and treatment,
- Decontaminating residual chemicals following drainage
- Detonating the energetics in drained munition casings in a burster detonation vessel (BDV),
- Decontaminating process areas to the extent necessary to allow continued operations, and
- Storing process chemicals and decontamination wastes.

Personnel from the Chemical Biological Applications & Risk Reduction (CBARR), Chemical Biological (CB) Operations Branch handle transportation of hazardous materials and wastes to and from the MAPS Facility. At times, explosive ordnance disposal (EOD) personnel from the 20th Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Command may be asked to assist in handling/transportation of waste munitions into the MAPS facility, and personnel from the APG Directorate of Public Works (DPW) Environmental Division (ED) and their contractors may be involved in the transportation of wastes from the MAPS facility.

Scope of this Plan

This contingency plan outlines responsibilities and procedures for minimizing hazards to human health and the environment from unplanned releases of hazardous materials, fires and explosions. Additional information on APG and MAPS facility contingency planning and emergency response are given in the following documents.

- APG Emergency Response Plan (Basic Plan)
- Chemical Accident or Incident Response and Assistance (CAIRA) Plan for Surety Facilities Located at the Edgewood Area of Aberdeen Proving Ground, Maryland
- APG ERP, Chapter 8, Environmental Release Prevention and Response Plan
- Safety, Health and Emergency Response Plan for the Munitions Assessment and Processing System
- Standing Operating Procedures addressing Other-Than-Normal Operations

Aberdeen Proving Ground uses the following emergency resources:

APG uses multiple organizations that have access to specialized equipment and resources to respond to emergencies as needed. These organizations include the following garrison and non-garrison organizations: Garrison Directorates of Operations (DO) and Public Works (DPW); the 20th CBRNE Command; Kirk U.S. Army Health Clinic (KUSAHC); the Logistics Readiness Center (LRC); and the Aberdeen Test Center (ATC).

APG organizations participate in emergency response activities by providing the personnel, equipment, and material resources described below and by coordinating their availability to the Incident Commander (IC) through the Garrison DO's Plans and Operations Division Emergency Operations Center (EOC). The APG Emergency Response Plan, Chapter 8, Environmental Release Prevention and Response Plan, defines roles and responsibilities for the IC and other EOC members and specifies the organizations with the authority to commit APG resources.

II. EMERGENCY COORDINATORS

The Emergency Coordinators (ECs) for the MAPS are trained in accordance with the APG Training Plan to ensure their knowledge and skills are sufficient to manage incidents until emergency response assistance arrives. The ECs have a thorough understanding of the operations and materials at the MAPS and are familiar with all aspects of this contingency plan, operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout.

II.a. Duties of the Emergency Coordinator

The EC must either be at the MAPS, or on call, and be able to arrive at the facility in a timely manner if there is an emergency. The EC is responsible for coordinating all emergency response measures that concern hazardous material, and will coordinate emergency response activities (if safe to do so) until relieved by APG garrison emergency personnel. In accordance with Maryland Controlled Hazardous Substance regulations (COMAR 26.13.05.04.F and G), the EC performs the following actions in the event of an emergency:

1. Notifies facility and installation emergency response personnel and requests necessary assistance by dialing 911.
2. Identifies the amount, character, source, and extent of any discharged material.
3. Assesses possible hazards to human health or the environment that may result from a release, fire, or explosion.
4. Takes all reasonable measures to that ensure fires, explosions, and releases do not occur, recur, or spread to other hazardous materials stored at the facility.
5. Makes sure that waste incompatible with the released material is not stored in the affected areas of the facility until cleanup procedures are completed and all emergency equipment is cleaned and/or replaced before operations are resumed.

6. Arranges for storage or disposal of recovered waste, contaminated soil or surface water, or debris after the emergency is over.

7. Submits verbal and written reports through the DPW Environmental Division (ED) to the Maryland Department of the Environment (MDE). The timing and contents of reports submitted to MDE are described in Section V (Required Reports) of this contingency plan.

III. CRITERIA FOR IMPLEMENTING CONTINGENCY PLAN

MAPS personnel observing a fire, unplanned explosion or the release of hazardous materials outside a primary enclosure (i.e., container or primary engineering controls) will immediately notify the EC who, in-turn, will dial 911 and notify other MAPS facility personnel. If the EC (or alternate EC) is not immediately available, the individual discovering the emergency situation will initiate the contingency plan and dial 911. If APG emergency response personnel are summoned, the IC will determine if it is necessary to implement the CAIRA Plan.

IV. EMERGENCY RESPONSE PROCEDURES

Adequate response to contingences such as fire, unplanned explosions or the release of hazardous materials require pre-event planning, an organized emergency response, and appropriate recovery actions. These three phases of activities — planning, response and recovery — are addressed below.

IV.a. Planning

There are various hazard characteristics associated with the materials and wastes stored at the MAPS. Before taking action to control an emergency situation, it is imperative that the responders are aware of potential risks associated with the area they are entering. MAPS personnel are familiar with all hazardous materials used in operations and maintain Safety Data Sheets (SDSs) for hazardous materials. Materiel Assessment Review Board (MARB) data sheets contain information (presence of energetics, possible liquid fills) on munitions received in the MAPS facility. SDSs and MARB data sheets are maintained in the MAPS control room.

APG emergency responders would have several sources for determining what specific hazards are present inside the building. These include the following:

• Pre-fire emergency planning information maintained by the DO on the types and locations of hazardous materials stored throughout APG and floor plans of key facilities (including MAPS);

• Information from Range Central, which tracks the daily status of waste munitions processing activities;

• Placards on the outside of the MAPS building that provide responders with information on whether explosives are present and which agents are being handled; and

• Information conveyed from the EC or other on-site personnel.

Additional aspects of pre-planning (hazard assessment, equipment and supplies, and coordination) applicable to the MAPS are described below.

Hazard Assessment – The U.S. Army Chemical Materials Agency (CMA), Recovered Chemical Materiel Directorate (RCMD) sponsored an independent system hazard analysis (SHA) of the MAPS design. Hazards associated with the design were identified early in the design process allowing risks to be eliminated or minimized.

Emergency Equipment – An inventory and inspection log of all emergency equipment at the MAPS as prescribed in the A-190 permit's checklist #12 is maintained in the administrative office area. The MAPS is stocked with spill response/cleanup materials and equipment that the MAPS personnel are trained to use.

Personal Protective Equipment – Personal protective equipment (PPE) for chemical hazards is stored at the MAPS facility. APG emergency responders would bring any other necessary PPE with them.

First Aid and Medical Supplies – First aid kits for immediate treatment are located in the control room and monitoring room at the MAPS facility. Any casualties as a result of an incident would be transported to the Edgewood Area Clinic or a civilian medical facility.

Emergency Decontamination Equipment – There is a 4-stage personnel decontamination station (PDS) that can be used, as necessary, to decontaminate personnel and PPE. There are also emergency eye-wash/shower stations in the process room and waste storage room and an eye wash station in the monitoring room. Decontamination support/facilities are also available at the Edgewood Area U.S. Army Health Clinic and through the 20th CBRNE Command.

Spill Control Equipment – Spill control equipment stations are located in the process room and process storage room. Each station includes overpack containers (drums), plastic bags, sorbent materials, shovels, and brooms that can be used to control and pick up spilled liquids and solids.

Fire Control Equipment - The MAPS facility is equipped with a combination of fixed fire suppression/control systems and portable fire extinguishers. The drill box in the process room can provide a nitrogen blanket inerting atmosphere while drilling. This atmosphere prevents ignition from sparking and inhibits chemical reactions from certain air-reactive smoke munition fills. The air monitoring room has an FM-200 fire suppression system. There are portable fire extinguishers throughout the facility. The location of the fire extinguishers is shown on the attached Emergency/Evacuation Plan. [*NOTE: not included with this permit out of concern for operational security*.]

Emergency Supplies and Equipment Elsewhere on the Installation – MAPS personnel can communicate with other APG personnel via telephones and radios to request additional equipment and supplies. Pre-stocked supplies of drums, speedy dry clay absorbent, and sorbent pads of different sizes are available from the DPW. Other APG organizations, contractors, or the EOC may also provide additional equipment and supplies.

Coordination Agreements for Emergency Services - The IC or a designated individual will control all initial emergency response actions and any follow-up actions. All records of contracts and/or memoranda of understanding (MOUs)/support are maintained as part of the installation emergency response plan.

On-Post Coordination – DEVCOM CBC will keep the APG DO Fire Division and Plans/Operations Division EOC informed of:

- The general layout of the facility detailing hazardous materials storage areas and the locations of equipment/supplies available to fight fires and to clean up spills.
- The telephone number of the MAPS facility points-of-contact for non-duty hour emergencies.
- Copies and revisions of this Contingency Plan.

The DPW-ED Director supervises interaction with MDE, EPA, and local officials regarding all emergencies and activation of the contingency plan. The EC is responsible for coordination with the DEVCOM CBC Risk Management Office (RMO).

The Kirk U.S. Army Edgewood Area Health Clinic (EA Clinic) is operational from 8:00 a.m. until 4:00 p.m., Monday through Friday. The DO's Fire Division can provide ambulance support from 7:00 a.m. until 11:00 p.m., Monday through Friday. The ambulance is equipped with a communications system to access the Maryland Institute for Emergency Medical Service Systems (MIEMSS). The DO's Fire Division has a portable decontamination station (PDS) it can deploy at an incident within minutes of arrival. In addition, the EA clinic has a decontamination station equipped to decontaminate and stabilize affected personnel prior to their transfer to the appropriate medical facility.

Off-Post Coordination – In addition to on-base capabilities, APG has mutual aid agreements (MAAs) with Harford, Baltimore, and Cecil Counties for firefighting and other emergency services. APG recognizes the special/unique hazards associated with certain base activities and exercises discretion in utilizing MAA resources, especially for military/chemical incidents. In an emergency in the Aberdeen Area, off-site fire companies could serve as backup to the APG DO Fire Division. The Aberdeen Area Fire Division can assist its Edgewood Area counterpart in the event of an emergency at the MAPS.

There is also a MOU between APG and Harford County entitled "Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland."

A chemical casualty contingency team is maintained at the EA Clinic. Medical augmentation is available from Kirk U.S. Army Health Clinic in the Aberdeen Area. The team includes physicians, mid-level health care providers, registered nurses, and enlisted personnel to respond in the event of a chemical incident. This team will assist in the treatment and stabilization of affected personnel. APG personnel with chemical exposure and injuries requiring observation beyond several hours or inpatient care are transferred to either a local hospital or to Walter Reed National Military Medical Center-Bethesda for care.

APG maintains agreements with local civilian hospitals for the treatment of personnel injured during contingencies. APG DO Fire Division ambulances are equipped with a communication system to access the MD Institute for Emergency Medical Services Systems (MIEMSS). In the event of an accident resulting in casualties from exposure to industrial chemicals, all casualties

would be covered under the MIEMSS and be transported to the nearest medical facility available that is capable of treating such casualties.

Evacuation Plan – The EC and/or the IC may choose to evacuate the MAPS area whenever the hazards of toxic gas, fire, or explosive materials are endangering personnel, particularly those without protective gear. Signals for evacuation shall be given verbally, via radio, or cell phone. If possible, the alarm will also be activated. MAPS personnel will exit the facility as quickly and safely as possible, and the EC will take a head count at the rally point. If required, other base personnel will be notified by telephone. The attached Emergency/Evacuation Plan [*NOTE: not included in the permit out of concern for operational security*] shows the evacuation routes from the facility. If the need to evacuate the facility arises, personnel will rally at the MAPS north gate where a head count will be taken. At that point, personnel will proceed to the CP-20 rally point (located approximately one-half mile northwest of the facility) or to Range Central (located approximately 2 miles north). If DO personnel are on the scene, the IC will give directions.

IV.b. Response Execution

This section describes response procedures for hazardous materials spills, fires and explosions.

Hazardous Materials Spills – MAPS personnel will report to the EC all hazardous materials releases outside primary containers and/or primary engineering controls or to the environment. Either the EC, or the person discovering the spill if the EC is unavailable, will notify the APG EOC by dialing "911". The only exception to the 911 reporting rule is in the case of de minimis spills/releases of substances within the facility that do not present an acute or chronic health risk due to incidental contact or inhalation, and which can be safely cleaned up by on-site personnel. An example of this could be a small spill of a neutralization reagent during a drum transfer operation in the process storage room. The following actions will be taken in response to hazardous materials spills:

1. Notify the EC and all facility personnel of the spill via the facility intercom or other means.

2. Report the spill by dialing 911. When reporting spills to the DES, the caller must include, if possible, the following:

   - Name and telephone number of the reporter.
   - Name and location of facility/site.
   - Date, time and type of incident.
   - Name and estimated quantity of materials involved.
   - Extent of injuries, if any.
   - Possible hazards to human health or the environment outside the site.

3. Contain the spill/release if safe to do so and possessing the requisite training and response resources.

4. The EC will determine whether the facility should be evacuated.

5. The DO first responders will report to the facility.

6. The EC will meet DO first responders and provide the IC with information on the location, nature and extent of the spill or release and any measures taken to stop or contain the spill or release.

7. The EC will advise the CBARR CB Operations Branch Chief, DEVCOM CBC Risk Management Office, and the DPW-ED.

8. The APG EOC will contact the Installation Safety Office, MDE (866-633-4686) and National Response Center (800-424-8802) if a spill poses an off-site risk to human health or the environment, and/or if the substance spilled equals or exceeds a reportable quantity as listed in 40 CFR 302.

9. The DPW-ED will Notify the MDE that the facility is in compliance with permit conditions before operations are resumed in the affected areas of the facility.

Fires – The following actions will be taken in response to fires.

1. Notify the EC and all facility personnel of the fire via the facility intercom or other means
2. Report the fire through the installation emergency telephone number "911", giving the location, cause, and extent of the fire; note also if any liquids or gases are escaping the building.
3. If the fire is within the facility, extinguish and contain it if safe to do so.
4. Evacuate the facility and await DO response elements.
5. The DO Fire Division will take action to control and extinguish the fire.
6. The EC will notify the CBC Risk Management Office and the DPW- ED.
7. The APG EOC will contact the Installation Safety Office. If the fire poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).
8. The DPW-ED will notify the MDE that the facility is in compliance with permit conditions before operations are resumed in the affected areas of the facility.

Explosions – The following actions will be taken in response to explosions including unplanned/unintentional explosions in the Explosion Containment Chamber (which is designed to contain unintentional explosions). These actions do not apply to intentional detonations within the BDV.

1. Evacuate the area to a safe distance from the building.
2. Report the explosion through the installation emergency number "911", giving the exact location of the explosion, damage to the building, and gas or liquid discharges from the building.
3. Notify the EC or alternate presenting the same information as in 2.

4. The EC will Notify the DEVCOM CBC Risk Management Office and the DPW-ED.
5. The APG EOC will notify the Installation Safety Office. If the explosion poses off-site risks to human health and/or includes the release of hazardous substances exceeding RQs listed in 40 CFR Part 302, the EOC will contact the following, and inform them of the incident: Maryland Department of the Environment (866-633-4686) and National Response Center (800-424-8802).
6. The IC, in coordination with the APG EOC and other response elements, will assess the problem and implement a procedure for rendering the area safe.

IV.c. Recovery

Post-Emergency Equipment Decontamination/Maintenance – MAPS facility operations will not resume until all damaged and/or contaminated equipment have been repaired, replaced or decontaminated; and all stocks of emergency response supplies and equipment have been replaced and inspected by the EC. The APG DPW-ED will notify MDE that all facility decontamination and emergency equipment/supplies have been repaired/replaced prior to resuming operations.

Storage/Disposal of Recovered Wastes – DEVCOM CBC will be responsible for the turn-in and disposal of all wastes generated on-site during emergency response activities. Waste containers will be stored at the MAPS (if capability remains) or other authorized APG waste storage facility pending disposal. Following any emergency, waste management operations will not resume until the DPW-ED certifies the facility is once again clean and ready for operations as a treatment and storage facility.

V. REQUIRED REPORTS TO MDE

The EC (or alternate) will note in the operation log of the facility, the time, date, and details of any incident that required implementation of the Contingency Plan. The conditions that caused the emergency and the resulting actions will also be included in this operational log entry.

The APG EOC and the EC will provide the DPW-ED the necessary information to make necessary and timely reports to MDE. These reports include a verbal (i.e., telephone) report within 24 hours, a written report within 5 days, or a written report within 15 days (provided that MDE grants APG an extension). Written reports will include the following information:

1. Name, address, and telephone number of the owner or operator of the facility.
2. Name, address, and telephone number of the facility.
3. Date, time, and type of incident (for example, fire, explosion).
4. Name and quantity of materials involved.
5. The extent of injuries, if any.

6. An assessment of actual or potential hazards to human health or the environment, when applicable.
7. Estimated quantity and disposition of material recovered from the incident.
8. Name of person who first reported the incident.

This report is submitted to:

Maryland Department of the Environment
Land and Materials Administration
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

VI. AMENDMENTS TO THE PLAN

As required by COMAR 26.13.05.04D and E, the Contingency Plan must be reviewed, and immediately amended, if necessary, whenever:

1. The facility permit is revised.
2. The plan fails in an emergency.
3. Major changes in facility design, construction, operation, and maintenance, in such a way that emergency response operations are affected.
4. The list of Emergency Coordinators changes.
5. The list of emergency equipment changes.

Evacuation Plan

(Note: for reasons of operational security, a detailed floor plan and and area site plan showing range evacuation routes have been removed from the copy of the contingency plan included with this permit.)

Signature Section, Controlled Hazardous Substance (CHS) Permit A-190
U.S. Army Aberdeen Proving Ground

CHS Permit A-190 consists of the following Parts and Attachments:

Part I: Standard Conditions

Part II: General Facility Conditions

- Attachment II-1, Waste Analysis Plan
- Attachment II-2, Aberdeen Proving Ground Training Plan

Part III: Special Conditions for Closed Facilities

Part IV: Special Conditions for Storage of Hazardous Waste in Containers at the Treatment, Storage, and Disposal Facility

- Attachment IV-1, Closure Plan for the Treatment, Storage, and Disposal Facility
- Attachment IV-2, Contingency Plan for the Treatment, Storage, and Disposal Facility

Part V: Special Conditions for Storage and Treatment of Hazardous Waste in Containers and Tanks at the Chemical Transfer Facility

- Attachment V-1,Conceptual Closure Plan for the Chemical Transfer Facility
- Attachment V-2, General Contingency Plan for the Chemical Transfer Facility

Part VI: Special Conditions for Storage of Hazardous Waste at the N-Field Storage Facility

- Attachment VI-1, Conceptual Closure Plan for the N-Field Storage Facility Igloo and Portable Magazines
- Attachment VI-2, General and Site-Specific Contingency Plans for the N-Field Storage Facility Igloo and Portable Magazines

Part VII: Special Conditions for Treatment of Hazardous Waste at the J-Field Open Detonation Unit

- Attachment VII-1, Conceptual Closure Plan for the J-Field OD Unit
- Attachment VII-2, General Contingency Plan for the J-Field OD Unit

Part VIII: Special Conditions for Treatment of Hazardous Waste at the Old Bombing Field Open Burn And Detonation Units

- Attachment VIII-1, Site Specific RCRA Contingency/Emergency Plan, Open Burning/Open Detonation, Old Bombing Field
- Attachment VIII-2, Conceptual Closure Plan For Old Bombing Field

Part IX: Special Conditions for Storage and Treatment of Hazardous Waste at the Sample Receipt Facility

- Attachment IX-1, Conceptual Closure Plan for the Sample Receipt Facility

Part X: Special Conditions for Treatment of Hazardous Waste in the Explosive Destruction System

- Attachment X-1, Closure Plan for the Explosive Destruction System
- Attachment X-2, General Contingency Plan for the Explosive Destruction System

PART XI: Special Conditions for Storage and Treatment of Hazardous Waste at the Munitions Assessment and Processing System (MAPS)

- ATTACHMENT XI-1. MAPS Conceptual Closure Plan
- ATTACHMENT XI-2. General Contingency Plan for the MAPS

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Kaley Laleker, Director — Date

Land and Materials Administration

Maryland Department of the Environment