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Susan Mosier, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

December 18, 2015

Mr. Jerry L. Galloway
Director, Maintenance, Environmental & Pilot Projects
Munitions & Government
Day & Zimmermann
Highway 82 West
Texarkana, TX 75505

**RE: Kansas Hazardous Waste Management Permit – Final Decision
Day & Zimmermann, Kansas LLC, Parsons, Kansas
EPA RCRA ID No. KSR000511964**

Dear Mr. Galloway,

This letter is to notify you that a final decision has been made to re-issue the Kansas Hazardous Waste Management Facility Permit to Day & Zimmerman, Kansas LLC for the above referenced facility. A copy of the final Permit is enclosed along with a copy of the responsiveness summary prepared in response to the comments received by the Kansas Department of Health and Environment (KDHE) during the public comment period for the draft Permit. The updated fact sheet and the mailing list of record are also enclosed.

Since comments were filed on the Hazardous Waste Management Facility Permit, the Permit will not become effective until midnight, thirty (30) days after the date of this letter in accordance with 40 CFR 124.15(b). A petition for review of the Permit may be filed to the Secretary of Health and Environment (Secretary), in accordance with K.S.A. 65-3440 and K.S.A. 77-601 *et.seq.* All petitions for review of the Permit must be received by the Secretary no later than fifteen (15) days from the date of this letter.

In accordance with Permit Condition I.E.19.b., the facility must submit a certification of acknowledgement of receipt and review of the Permit within thirty (30) days of receiving the Permit. Additionally, the facility must submit:

- (1) Optimization Evaluation Report of the groundwater monitoring systems at the OD Area, SWMU Group 9 and SWMU Group 10 within one-hundred twenty (120) calendar days from the effective date of the Permit, in accordance with Permit Condition V.F.3.d. and VI.D.1.; and
- (2) Description of Current Conditions Report (DCC) within ninety (90) calendar days from the effective date of the Permit, in accordance with Permit Condition VI.C. and VI.G.

If you have any questions or require additional information, please contact me at (785) 296-1609.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Kamal', followed by a period.

Mostafa Kamal, PE, CPM
Chief, Hazardous Waste Permits Section

Enclosures:
Final RCRA Permit
KDHE Responsiveness Summary
Fact Sheet
Facility Mailing List

cc: David Homer – Tetra Tech
Ken Herstowski – EPA Region VII - RCRA Branch
Victoria O'Brein – DEA/SEDO/Waste Programs
Bill Bider – BWM (w/o enclosures)

STATE OF KANSAS

DEPARTMENT OF HEALTH AND ENVIRONMENT
DIVISION OF ENVIRONMENT

Hazardous Waste Management Facility Permit

In accordance with the provisions of Kansas Statutes Annotated (K.S.A.) 65-3430 *et seq.* permission is hereby granted for hazardous waste Storage in Containers and Thermal Treatment to:

Facility Name: Day & Zimmermann Kansas LLC

Operator: Day & Zimmermann Kansas LLC

Owner: Day & Zimmermann Kansas LLC
23102 Rush Road
Parsons, KS 67357-8403

Location: 21017 Scott Road
Parsons, KS 67357

EPA Identification Number: KSR000511964

This Permit is being issued in accordance with rules and regulations of the Kansas Department of Health and Environment (KDHE) and the following-named conditions and requirements to wit: The Permittee must comply with all terms and conditions in Section I through Section VI of this Permit. The Permit consists of the conditions contained herein, including those in any attachments, the permit application and all applicable hazardous waste regulations contained in Kansas Administrative Regulations (K.A.R.) 28-31-4 through 28-31-279a in effect on the date of issuance of this Permit. This Permit also contains provisions for corrective action as necessary to protect human health and the environment to address any release(s) of hazardous waste(s) or hazardous constituent(s) from any solid waste management unit (SWMU), area of concern (AOC), or release at the Facility, or that which may have migrated beyond the facility boundary.

This Permit shall become effective at 12:01 a.m. on 01/18/2016 and shall remain in effect until 01/18/2026 unless revoked and reissued, or terminated or continued in accordance with K.A.R. 28-31-124b.

Done at Topeka, this 18 day of December 2015



A handwritten signature in blue ink, appearing to read "Susan Mosier".

Susan Mosier, MD, Secretary
Kansas Department of Health and Environment

FACILITY DESCRIPTION

Since March 1, 1970 Day & Zimmermann Kansas LLC (DZKLLC), a Private Company, has continuously operated a portion of the United States Department of Defense (USDOD) owned Kansas Army Ammunition Plant located in Parsons Kansas. In July, 2013 DZKLLC became the owner of this portion of the Kansas Army Ammunition Plant, which was originally constructed in 1941-1942. Former DZKLLC operations included loading of various bombs and artillery ammunition, manufacturing associated components and reworking fired cartridge cases under contract with the USDOD.

The facility covers approximately 4,000 acres, contains 27.4 miles of roadway, and 9.25 miles of railroad. It has over 954,574 square feet of building and storage areas, and the Union Pacific Railroad serves the facility.

Currently there are two munitions manufacturing areas and three storage areas located at the facility. Current operations include loading, assembling, and packing munitions. Demilitarization of items shipped to the facility as a product has occurred in the past. The facility does not currently manufacture propellants, explosive or pyrotechnic (PEP) components, but does assemble them in munitions. The facility has the capability to produce the explosive KDNBF (Potassium Dinitrobenzofuran).

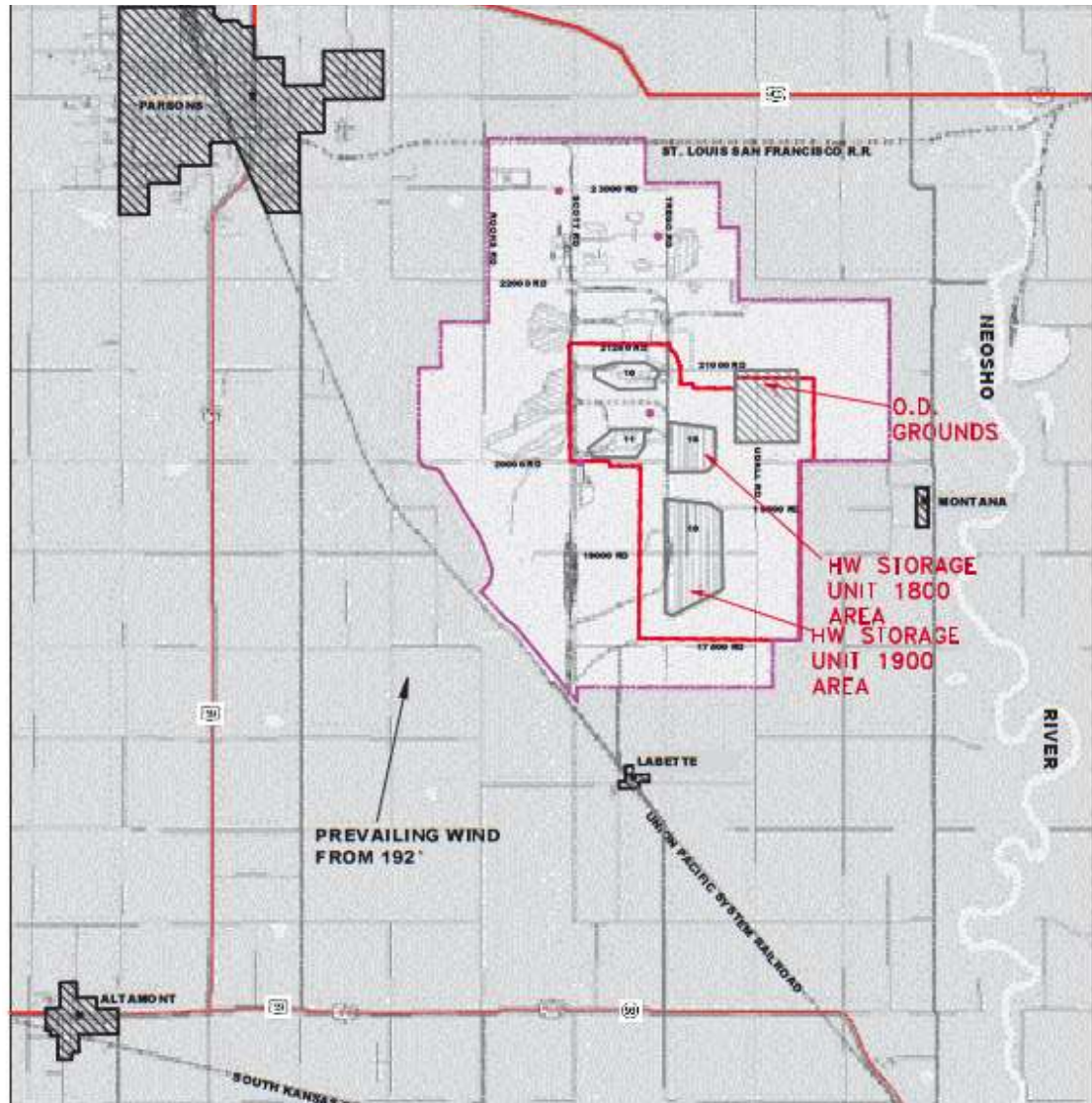
The facility operates hazardous waste container storage areas that store wastes for more than 90 days. The permitted storage units consist of eleven igloo structures located in the 1900 and 2700 Areas, and one magazine structure located in the 1800 Area. In addition, the facility provides onsite thermal treatment by Open Detonation (OD) in the area known as the OD 2700 Area for reactive hazardous wastes for which no other treatment method has been developed due to safety considerations. These reactive hazardous wastes either result from the facility's munitions filling and manufacturing operations or from the packing of explosive items for shipment, and include propellants, explosives and pyrotechnics (PEP) components, reject munitions with PEP components, or other reactive hazardous wastes which cannot be treated off-site. These materials may also originate from off-site USDOD munitions received for demilitarization and if required thermal treatment.

The two munitions manufacturing areas located in the 1000 and 1100 areas have also been used for demilitarization of munitions when received as a nonhazardous waste from other USDOD locations. In the future if the facility has the opportunity to receive off-site munitions for demilitarization, any hazardous waste generated from their disassembly and processing for recycling will be stored for off-site treatment and disposal. If no off-site treatment or disposal option is available for specific reactive hazardous waste generated onsite, the waste will be thermally treated at the OD 2700 Area. The facility may only receive off-site reactive wastes from other company owned facilities for thermal treatment in the OD 2700 Area.

The facility has been addressing groundwater monitoring, soil contamination and other corrective action requirements in accordance with its Part II RCRA permit, issued, July 11, 2013

by the United States Environmental Protection Agency Region VII (EPA). The EPA's July 11, 2013 Part II RCRA permit will expire and be terminated upon the effective date of this KDHE issued permit.

Day & Zimmermann Kansas LLC



**HAZARDOUS WASTE FACILITY PERMIT
DAY & ZIMMERMANN KANSAS LLC
PARSONS, KANSAS
EPA I.D. #KSR000511964**

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ACRONYMS AND ABBREVIATIONS

ACL	Alternate Concentration Limit
ANPR	Advanced Notice of Proposed Rulemaking
AOC	Area of Concern
AR	Administrative Record
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
ATSDR	Agency for Toxic Substances and Disease Registry
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BMP	Best Management Practice
BWM	Bureau of Waste Management
CA	Corrective Action
CAMU	Corrective Action Management Unit
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFR	Code of Federal Regulations
CM	Corrective Measures
CMCC	Corrective Measures Construction Completion
CMC	Corrective Measures Completion
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
COC	Contaminant of Concern
CQA	Construction Quality Assurance
CS	Confirmatory Sampling
CSM	Conceptual Site Model
CUP	Continuous Use Program
DCC	Description of Current Conditions
DCFD	Dodge City Fire Department
DNAPL	Dense Non-Aqueous Phase Liquid
DOD	Department of Defense
DOE	Department of Energy
DOT	U.S. Department of Transportation
DQO	Data Quality Objective
EC	Engineering Control
EDD	Electronic Data Deliverable
EI	Environmental Indicator
EPA	U.S. Environmental Protection Agency
FA	Financial Assurance
FDRTC	Final Corrective Measures Decision and Response to Comments

FSP	Field Sampling Plan
ft	feet
GIS	Geographic Information System
GPS	Global Positioning System
GWPS	Groundwater Protection Standard
HSP	Health and Safety Plan
HI	Hazard Index
HHRA	Human Health Risk Assessment
HSWA	Hazardous and Solid Waste Amendments of 1984
HWIR	Hazardous Waste Identification Rule
HWMU	Hazardous Waste Management Unit
IC	Institutional Control
IM	Interim Measure
KAL	Kansas Action Level
K.A.R.	Kansas Administrative Regulations
KDHE	Kansas Department of Health and Environment
KGS	Kansas Geological Survey
kg	Kilogram
kPa	Kilopascals
K.S.A	Kansas Statutes Annotated
lb	Pound
LDR	Land Disposal Restriction
LNAPL	Light Non-Aqueous Phase Liquid
MCL	Maximum Contaminant Level
µg/L	micrograms per liter
µg/kg	micrograms per kilogram
µg/m ³	micrograms per cubic meter
mg/L	milligrams per liter
mg/kg	milligrams per kilogram
MTR	Minimum Technology Requirements
NAPL	Non-Aqueous Phase Liquid
NCP	National Contingency Plan
NELAC	National Environmental Laboratory Accreditation Conference
NEW	Net Explosive Weight
NIOSH	National Institute for Occupational Safety and Health
OD	Open Detonation
OD 2700 Area	Open Detonation Treatment Unit
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PAH	Polycyclic Aromatic Hydrocarbon
PAR	Preliminary Assessment Report
PEP	Propellants, Explosives, Pyrotechnics
PID	Photoionization Detector

PMP	Project Management Plan
POTW	Publicly-Owned Treatment Works
ppb	parts per billion
ppm	parts per million
ppmw	parts per million by weight
PR	Preliminary Review
psi	pounds per square inch
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAGS	Risk Assessment Guidance for Superfund
RAL	Removal Action Level
RAO	Remedial Action Objective
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RSK	Risk-Based Standards for Kansas
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SLERA	Screening Level Ecological Risk Assessment
SOP	Standard Operating Procedures
SOW	Scope of Work
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TPH	Total Petroleum Hydrocarbons
TPH-DRO	TPH-Diesel-Range Organics
TPH-GRO	TPH-Gasoline-Range Organics
TSDF	Treatment, Storage, and Disposal Facility
TU	Temporary Unit
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
USDOD	U. S. Department of Defense for the Army
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VSI	Visual Site Inspection
WAP	Waste Analysis Plan
WMU	Waste Management Unit

SECTION I - STANDARD PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

Day & Zimmermann Kansas LLC, Operator and Owner, herein referred to as the Permittee, is permitted to store and thermally treat hazardous waste in accordance with the terms and conditions of this Permit and Kansas Administrative Regulations (K.A.R.) 28-31-4 through 28-31-279a. Any treatment, storage or disposal of hazardous waste not authorized in this Permit is strictly prohibited. This Permit consists of the terms and conditions contained herein, including those in any attachments; as the approved permit application (Part A and Part B); and the applicable regulations contained in 40 Code of Federal Regulations (CFR) Parts 124, 260 through 264, 266, 268, and 270, as such applicable regulations are adopted and modified by K.A.R. 28-31-4 through 28-31-279a. Applicable regulations are those in effect on the date of issuance of this Permit. [40 CFR 270.32(c)] All citations to federal regulations are for the sake of convenience. Some modifications to federal regulations by applicable state regulations are noted in this Permit, but all modifications to federal regulations by state regulations are incorporated herein. To the extent that state regulations exclude any sections of applicable federal regulations, those sections shall not be in effect. In the instance of inconsistent language or discrepancies between permit conditions, state regulations, or federal regulations, the language of the more stringent provision shall govern; otherwise, state law governs.

Subject to 40 CFR 270.4, compliance with this Permit constitutes compliance, for purposes of enforcement, with Kansas Statutes Annotated (K.S.A.) 65-3430 *et seq.* and K.A.R. 28-31-4 through 28-31-279a and Subtitle C of the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). Issuance of this Permit does not convey any 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 law or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013, or 7003 of RCRA; Sections 106(a), 104, or 107 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. 9606 *et seq.*, commonly known as CERCLA); or, any other law providing for the protection of public health or the environment. [40 CFR 270.4 and 270.30(g)]

I.B. PERMIT ACTIONS

I.B.1. Permit Modification, Revocation and Reissuance, and Termination

This Permit may be modified, revoked and reissued, or terminated for cause, as specified in 40 CFR 270.41, 270.42, and 270.43. If cause exists, the Secretary may modify or revoke and reissue this Permit in accordance with 40 CFR 270.41. When this Permit is modified, only the conditions subject to the modification are

reopened. If this Permit is revoked and reissued, the entire Permit is reopened and subject to revision, and may be reissued for a new term.

The Secretary will, upon request by the Permittee, approve or deny modifications to this Permit in accordance with 40 CFR 270.42. The modification will become an enforceable part of this Permit. The filing of a request for permit modification, revocation and reissuance, 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 condition. [40 CFR 270.4(a) and 270.30(f)]

Failure to submit the information required by the conditions within this Permit, or falsification of any submitted information, is grounds for termination of the Permit in accordance with 40 CFR 270.43, and for an enforcement action pursuant to Permit Condition I.E.

I.B.2. Permit Renewal

This Permit may be renewed as specified in 40 CFR 270.30(b) and Permit Condition I.E.3. Review of any application for a permit renewal shall consider improvements in the area of control and measurement technology, as well as changes in applicable regulations. [40 CFR 270.30(b)]

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. [40 CFR 124.16(a)]

I.D. DEFINITIONS

For purposes of this Permit, terms presented in Attachment 1 of this Permit and used herein shall have the same meaning as those in K.S.A. 65-3430 and K.A.R. 28-31-260a, and in 40 CFR Parts 124, 260, 262, 264, 266, 268, and 270, as adopted by applicable state regulations, unless this Permit specifically provides otherwise. When the same word is defined in the Kansas statutes or regulations and in the federal regulations and the definitions are not identical, the definition in the Kansas statutes or regulations shall control [K.A.R. 28-31-260a(b)]. “Secretary” means the Secretary of the Kansas Department of Health and Environment (KDHE), or a designee or authorized representative of KDHE. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

I.E. DUTIES AND REQUIREMENTS

I.E.1. Duty to Comply

The Permittee shall comply with all conditions of this Permit, except as to the extent and for the duration such noncompliance is authorized by an emergency permit (see 40 CFR 270.61). Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application. [40 CFR 270.30(a)]

I.E.2. Compliance Schedules

Any schedule of compliance established subsequent to the issuance of this Permit shall be adopted by reference as a condition of permit compliance as if fully set forth herein. Furthermore, all plans and schedules, as required by this Permit (upon written approval from KDHE), shall similarly be incorporated into this Permit. Any noncompliance with such approved plans and schedules shall be deemed noncompliance with this Permit. The Permittee shall only receive extension(s) of the specified compliance schedule due date(s) for the submittal(s), required by this Permit, upon written approval from KDHE.

I.E.3. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee shall submit a complete application for a new permit at least one-hundred and eighty (180) days before this Permit expires, unless permission for a later submission date has been granted by the Secretary. [40 CFR 270.10(h) and 270.30(b)]

I.E.4. Permit Expiration

Pursuant to 40 CFR 270.50, this Permit shall be effective for a fixed term not to exceed ten (10) years. As long as KDHE is the permit-issuing authority, this Permit and all conditions herein will remain in effect beyond the Permit's expiration date, if the Permittee has submitted a timely, complete application (see 40 CFR 270.10, 270.13 through 270.29) and, through no fault of the Permittee, the Secretary has not issued a new permit, as set forth in 40 CFR 270.51.

I.E.5. Corrective Action Obligations

The corrective action obligations contained in this Permit shall continue regardless of whether the Permittee continues to operate, or ceases operation and closes the Facility. The Permittee is obligated to complete facility-wide corrective

action under the conditions of this Permit regardless of the operational status of the Facility. The Permittee must submit an application for a new permit at least one-hundred and eighty (180) days before this Permit expires pursuant to 40 CFR 270.10(h), unless the Permit has been modified to terminate the corrective action, and the Permittee has been released from financial assurance requirements for corrective action.

I.E.6. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit. [40 CFR 270.30(c)]

I.E.7. Duty to Mitigate

In the event of noncompliance with the Permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. [40 CFR 270.30(d)]

I.E.8. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all Facility systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with 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 facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit. [40 CFR 270.30(e)]

I.E.9. Duty to Provide Information

The Permittee shall furnish to the Secretary, within a time period specified by the Secretary, any relevant information which the Secretary 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 Secretary, upon request, copies of records required to be kept by this Permit. [40 CFR 264.74(a) and 270.30(h)]

I.E.10. Inspection and Entry

Pursuant to 40 CFR 270.30(i) and K.A.R. 28-31-12, the Permittee shall allow the Secretary, or an authorized representative, upon the presentation of credentials

and other documents as may be required by law to conduct any of the activities set forth in K.A.R. 28-31-12(a)(1-10).

I.E.11. Monitoring and Records

I.E.11.a. Pursuant to 40 CFR 270.30(j)(1), samples and measurements taken, to comply with this Permit, for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the medium to be analyzed for a given hazardous constituent must be the appropriate method from Appendix I of 40 CFR Part 261 or equivalent method approved by the Secretary. Laboratory methods must be those specified in the latest revision of U.S. Environmental Protection Agency (EPA) Publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," or an equivalent method as specified in the Waste Analysis Plan (WAP) contained in the approved Part B application. All constituent chemical analysis shall be performed by a laboratory certified by KDHE in accordance with K.A.R. 28-31-264a(f).

I.E.11.b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, the certification required by 40 CFR 264.73(b)(9), and records of all data used to complete the application for this Permit, for a period of time as specified in Permit Condition I.J. of this Permit. This period may be extended by request of the Secretary at any time and is automatically extended during the course of any unresolved enforcement action regarding this Facility. [40 CFR 264.74(b) and 270.30(j)(2)]

Furthermore, the Permittee shall maintain records from all past, present, and future groundwater monitoring wells and associated groundwater surface elevations, for the active life of the Facility and corrective action period. All raw data (such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken, pursuant to the permit conditions in Section VI of this Permit) shall be maintained at the Facility, or other such location as approved by KDHE, in accordance with Permit Condition I.J. of this Permit. Such information shall be made available to KDHE upon request.

I.E.11.c. Records of monitoring information shall specify:

- i. The dates, exact place, and times of sampling or measurements;
- ii. The individual(s) who performed the sampling or measurements;

- iii. The dates analyses were performed;
- iv. The individual(s) who performed the analyses;
- v. The analytical techniques or methods used; and
- vi. The results of such analyses;

I.E.12. Reporting Planned Changes

The Permittee shall give notice to the Secretary twenty (20) days prior to any planned physical alterations or additions to the permitted Facility. This includes advance notice to KDHE of any planned physical alterations or additions which may affect any hazardous waste management units (HWMUs), solid waste management units (SWMUs), areas of concern (AOCs), contaminated media or debris, or existing institutional controls (ICs) or engineering controls (ECs). The replacement of worn or broken parts need not be reported as long as replacement is with an equivalent component, which does not adversely affect the designed operating procedures or performance of the Facility. [40 CFR 270.30(l)(1)]

I.E.13. Reporting Anticipated Noncompliance

The Permittee shall give notice to the Secretary twenty (20) days prior to any planned changes in the permitted Facility or activity which may result in noncompliance with permit requirements. Such notification does not waive the Permittee's duty to comply with this Permit pursuant to Permit Condition I.E.1. [40 CFR 270.30(l)(2)]

I.E.14. Transfer of Permit

Before transferring ownership or operation of the Facility or any part of the Facility, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270 and this Permit. At least ninety (90) calendar days prior to the anticipated date of transfer, the new owner and/or operator shall submit to KDHE a certification that the new owner or operator has read this Permit, understand its requirements and will comply with the terms and conditions herein. If the property transfer involves subdividing the property to more than one owner or operator, a map and legal description shall be provided to the Secretary that identifies the properties to be occupied by each new owner. [40 CFR 264.12(c)]

An owner or operator's failure to notify the new owner or operator of the requirements of this Permit in no way relieves the new owner or operator of his obligation to comply with all applicable requirements. [40 CFR 264.12]

The Permit will be modified or revoked and reissued in accordance with 40 CFR 270.40(b) or 270.41(b)(2), respectively. The Secretary may incorporate such other

requirements as may be necessary under RCRA as part of the modification to this Permit. [40 CFR 270.30(l)(3)]

In order to transfer the Facility or any part of the Facility, the new owner and/or operator shall submit a revised permit application no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. A written agreement containing a specific date for transfer of permit responsibility between the Permittee and new Permittee(s) must also be submitted no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. [40 CFR 270.40(b)]

- I.E.14.a. Whenever this Permit is transferred to a new Permittee, the old Permittee shall maintain compliance with the requirements of 40 CFR Part 264, Subpart H, (Financial Requirements) until the new Permittee has demonstrated compliance with the requirements of that subpart. The new Permittee shall demonstrate compliance with 40 CFR Part 264, Subpart H, within six (6) months of the date of the transfer of this Permit. Upon the new Permittee's demonstration of compliance with 40 CFR Part 264, Subpart H, the Secretary shall notify the old Permittee that maintaining financial assurances pursuant to that subpart (40 CFR 270.40(b)) is no longer necessary.
- I.E.14.b. Whenever this Permit is transferred to a new Permittee, the old Permittee shall maintain compliance with the requirements of Permit Condition II.M., until such time as the new Permittee has demonstrated compliance with these requirements. The new Permittee shall demonstrate compliance with the requirements of Permit Condition II.M. within six (6) months of the date of the transfer of this Permit. Upon the new Permittee's demonstration of compliance with Permit Condition II.M., the Secretary shall notify the old Permittee that maintaining financial assurances is no longer required pursuant to Permit Condition II.M.
- I.E.14.c. In the case of bankruptcy of the Permittee pursuant to Title 11 of the United States Code, the bankruptcy Trustee shall provide the required notices to the Secretary and shall ensure the new owner and/or operator submits a revised permit application no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. A written agreement containing a specific date for transfer of permit responsibility between the Court and/or the old Permittee and new Permittee(s) must also be submitted no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. The new Permittee shall demonstrate compliance with 40 CFR Part 264, Subpart H and/or Permit Condition II.M. within six months of the date of the transfer of this Permit. Upon the new Permittee's

demonstration of compliance with 40 CFR Part 264, Subpart H, and/or Permit Condition II.M., the Secretary shall notify the old Permittee that maintaining financial assurances pursuant to that subpart (40 CFR 270.40(b)) and/or Permit Condition II.M. is no longer necessary.

I.E.15. Twenty-Four Hour Reporting

- I.E.15.a. Pursuant to 40 CFR 270.30(l)(6), the Permittee shall report to the Secretary any noncompliance with the Permit which may endanger health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The report shall include the following:
- i. Information concerning release of any hazardous waste which may cause an endangerment to public drinking water supplies; and
 - ii. Any information of a release or discharge of hazardous waste or of a fire or explosion from the hazardous waste management facility, which could threaten the environment or human health outside the Facility.
- I.E.15.b. The description of the occurrence and its cause shall include:
- i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the Facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of materials involved;
 - v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazard to the environment and human health outside the Facility, where this is applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- I.E.15.c. A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; 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 steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Secretary may waive the five-day written notice requirement in favor of a written report within fifteen (15) days. [40 CFR 270.30(l)(6)]

I.E.16. Other Noncompliance

The Permittee shall report all instances of noncompliance not otherwise required to be reported above in Permit Conditions I.E.12. thru I.E.15., at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition I.E.15. of this section. [40 CFR 270.30(l)(10)]

I.E.17. Information Repository

As set forth at 40 CFR 270.30(m), KDHE may require the Permittee to establish and maintain an information repository at any time, based on the factors set forth in 40 CFR 124.33(b). The information repository will be governed by the provisions in 40 CFR 124.33(c) through (f).

I.E.18. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in an application or in any report to the Secretary, the Permittee shall promptly submit such facts or information. [40 CFR 270.30(l)(11)]

I.E.19. Other Requirements

- I.E.19.a. The Permittee shall defend, indemnify, and hold harmless the State of Kansas, its officers, agents, and employees, officially or personally, against all actions, claims, and demands whatsoever which may arise from or on account of the issuance of this Permit or the construction or maintenance of any facilities hereunder.
- I.E.19.b. Within thirty (30) calendar days after receipt of the final permit, the Permittee shall submit a certification that the applicant has read the permit in its entirety and understands all permit conditions contained herein and agrees to operate the hazardous waste storage facility within the conditions of this Permit.
- I.E.19.c. All sample collection and analysis shall be performed in compliance with the approved work plan(s), including scheduling of analyses, documentation of sample collection, handling and analysis. Specifically, unless otherwise directed or approved by KDHE, all corrective action-related work plans of an assessment or investigative nature shall include both a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP).
- I.E.19.d. The Permittee shall ensure its analytical data meet the data quality objectives (DQOs) stated in the corresponding QAPP. DQOs shall be

prepared consistent with available EPA guidance documents: *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4, EPA/240/B-06/001, February 2006); *Guidance for Developing Quality Systems for Environmental Programs* (EPA QA/G-1, EPA/240/R-008, November 2002); and any subsequent revisions or editions, or as otherwise directed or approved by KDHE. QAPPs shall be prepared consistent with EPA guidance document titled *EPA Requirements for Quality Assurance Project Plans* (EPA QA/R-5, March 2001), and any subsequent revisions or editions, or as otherwise directed or approved by KDHE.

- I.E.19.e. To demonstrate protection of human health and the environment, the detection limit for each hazardous waste constituent shall be less than or equal to the corresponding screening or threshold level as directed or approved by KDHE. If the detection limit cannot be achieved due to matrix interference or other analytical limitations (provided that appropriate supporting documentation is provided to KDHE), the affected sample and associated chemical analysis may be exempted from this requirement. Such an exemption does not, however, in any way relieve the Permittee from achieving corrective action objectives.
- I.E.19.f. Any deviation from the procedures and methods set forth in these documents must be approved by KDHE prior to use. The Permittee shall notify KDHE within five (5) working days of notice or knowledge of a potential deviation from prescribed procedures and methods. Such notice shall provide information as to the nature of the deviation, if known, and outline a proposed investigation to determine whether the sample or results are representative or should not be considered valid. If the results cannot be validated by evaluation of the quality assurance/quality control (QA/QC) procedures, historical data and/or laboratory protocol, the Permittee will re-sample if directed to do so by KDHE.
- I.E.19.g. The Permittee shall use the quality assurance, quality control, and chain-of-custody procedures specified in the QAPPs which are part of the work plan(s), for all sample collection and analysis performed pursuant to this Permit, unless otherwise agreed to by KDHE.

I.F. SIGNATORY REQUIREMENT

All applications, reports or other information submitted to or requested by the Secretary, a designee, or authorized representative, shall be signed and certified in accordance with 40 CFR 270.11 and 270.30(k). All plans, reports, notifications, and other submissions to KDHE, as required by Section VI of this Permit, shall be similarly signed and certified. In addition, as required by the Kansas State Board of Technical Professions, pursuant to

K.S.A. 74-7001 and K.A.R. 66-6-4, the Permittee shall ensure that all work products that constitute the practice of geology, engineering, architecture, or surveying will be sealed, signed, and dated by a professional licensed by the Kansas State Board of Technical Professions to practice in the State of Kansas.

I.G. WASTE MINIMIZATION

I.G.1. Pursuant to 40 CFR 264.73(b)(9), and Section 3005(h) of RCRA, 42 U.S.C. 6925(h), the Permittee must record and maintain in the facility operating record, at least annually, a waste minimization certification that:

I.G.1.a. Specifies the Permittee has a program in place to reduce the volume and toxicity of all hazardous waste and/or hazardous constituents generated by the Facility's operation to the degree determined by the Permittee to be economically practicable; and

I.G.1.b. The proposed method of treatment, storage or disposal is the practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.

I.G.2. The Permittee shall maintain copies of this certification and supporting documents in the facility operating record as required by Permit Condition I.J.4. and 40 CFR 264.73(b)(9).

I.H. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE SECRETARY

One (1) hard copy and one (1) electronic copy of all reports, notifications, or other submissions which are required by this Permit shall be reported or sent directly to:

**Chief, Hazardous Waste Permits Section
Kansas Department of Health and Environment
Bureau of Waste Management
1000 SW Jackson, Suite 320
Topeka, Kansas 66612-1366
Telephone Number (785) 296-1600**

In addition, one (1) hard copy and one (1) electronic copy of all reports, notifications or other submissions shall be submitted to:

**U.S. Environmental Protection Agency Region 7
Attn: Chief, Waste Remediation and Permitting Branch
Air and Waste Management Division
11201 Renner Boulevard
Lenexa, KS 66219**

I.I. CONFIDENTIAL INFORMATION

In accordance with 40 CFR 270.12 and K.S.A. 65-3447, the Permittee may claim confidential any information required to be submitted by this Permit. This claim must be asserted at the time of submission. Such claims shall be evaluated pursuant to K.S.A. 65-3447.

I.J. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the Facility, through the term of the Permit, in accordance with Permit Condition I.E.4., or for a minimum of three (3) years, whichever is longer, the following documents and amendments, revisions and modifications to these documents:

- I.J.1. A copy of this Permit, including all approved permit modifications.
- I.J.2. A copy of the approved Part A and Part B applications including, but not limited to the following:
 - I.J.2.a. Waste Analysis Plan, as required by 40 CFR 264.13 and this Permit.
 - I.J.2.b. Inspection schedules and documents, as required by 40 CFR 264.15(b) and this Permit.
 - I.J.2.c. Contingency Plan, as required by 40 CFR 264.53(a) and this Permit.
 - I.J.2.d. Closure Plan, as required by 40 CFR 264.112(a) and this Permit.
 - I.J.2.e. Waste Characterization as required by 40 CFR 270.14(b)(2) and (3), and this Permit.
 - I.J.2.f. Corrective action documents as required by this Permit. These documents must be maintained for at least three (3) years after KDHE has deemed the corrective action process terminated, remedial activities completed, and/or no further action required.
- I.J.3. Personnel training documents and records as required by 40 CFR 264.16(d) and (e), and this Permit. The training records on former employees must be kept for at least five (5) years from the date the employee last worked at the Facility.
- I.J.4. Operating record, as required by 40 CFR 264.73 and this Permit.
- I.J.5. Annually adjusted cost estimate for facility closure and/or corrective action as required by 40 CFR 264.142(d), 40 CFR 264.101, and this Permit.

I.J.6. All other documents required by Permit Condition I.E.11.

I.K. PENALTIES

Failure to comply with the terms of this Permit may subject the Permittee to an administrative and/or civil penalty, a criminal penalty and/or an action to suspend or revoke this Permit. Failure to minimize or mitigate any adverse impact on the environment resulting from noncompliance may serve to increase the severity of such penalties. [K.S.A. 65-3444 and 65-3446]

I.L. PROPERTY RIGHTS

This Permit does not convey any property rights of any sort, nor any exclusive privilege. [40 CFR 270.30(g)]

I.M. DISPUTE RESOLUTION

If the Permittee takes exception to any disapproval, modification, or other decision or directive made by KDHE pursuant to provisions of the Permit, the Permittee shall follow the dispute resolution procedures outlined in Permit Conditions I.M.1. and I.M.2.

I.M.1. If the Permittee disagrees, in whole or in part, with any disapproval, modification, or other decision or directive made by KDHE pursuant to provisions of this Permit, the Permittee shall notify KDHE in writing, in accordance with Permit Condition I.H., of any objections and basis for them within fifteen (15) calendar days of receipt of KDHE's disapproval, decision, or directive. The notice shall set forth specific points of the dispute, the position the Permittee maintains should be adopted as consistent with the requirements of this Permit, the basis for the Permittee's position, and all matters the Permittee considers necessary for KDHE's determination. The Permittee and KDHE shall then have an additional thirty (30) calendar days from KDHE's receipt of the Permittee's objection to attempt to resolve the dispute. If agreement is reached, the resolution will be reduced to writing by KDHE and shall become part of this Permit. If the parties are unable to reach agreement within this 30-day period, KDHE shall issue its final decision on the dispute, in writing. The Permittee reserves its right to appeal any decision to the Secretary in accordance with K.S.A. 65-3440, and the Secretary shall notify the Permittee in writing of the final resolution of the dispute, and the reasons for this resolution. The final resolution of such dispute shall be incorporated into and made an enforceable part of this Permit.

I.M.2. The existence of a dispute as defined herein and the Secretary's consideration of such matters as placed in dispute shall not excuse, toll, or suspend any obligation or deadline required pursuant to this Permit, that is not the subject of dispute, during pendency of the dispute resolution process.

SECTION II - GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

The Permittee shall design, construct, maintain, and operate the Facility to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment (40 CFR 264.31). This includes adherence to operating conditions and procedures, and emergency shutdown procedures specified in the permit application and in this Permit.

In addition, the Permittee currently doing contract work for the USDOD or for any other military branch in the future must comply with all current applicable policies, procedures, and guidance documents published by those military branches, including but not limited to: Army AR 75-15, Policy for Explosive Ordnance Disposal; DOD Ammunition and Explosives Safety Standards MANUAL NUMBER 6055.09-M, Volume 1-8; DOD Contractor's Safety Manual For Ammunition and Explosives MANUAL NUMBER 4145.26-M; DOE STANDARD EXPLOSIVES SAFETY DOE-STD-1212-2012; OSHA 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals; ATF Part 555 Subpart K, Storage Requirements for Explosive Materials.

II.B. REQUIRED NOTICES

II.B.1. Hazardous Waste Imports

The Permittee is not authorized to import hazardous waste from a foreign source.

II.B.2. Hazardous Waste from Off-Site Sources

The Permittee is authorized to receive off-site hazardous waste from only Day & Zimmermann, Inc. owned facilities. The Permittee must inform the generator in writing that he has the appropriate permits, and will accept the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the operating record. [40 CFR 264.12(b)]

II.B.3. Transferring Ownership or Operation

Before transferring ownership or operation of the Facility during its operating life, the owner or operator must notify the new owner or operator in writing of the requirements of K.A.R. 28-31-124a(b), 40 CFR Parts 264 and 270, and this Permit. [40 CFR 264.12(c)]

II.B.4. Notice in Deed to Property

Pursuant to K.A.R 28-31-264a(b), the facility property owner shall record, in accordance with Kansas law, a notice with the register of deeds in the county where the property is located. The notice shall include the following information:

- a. The land has been used to manage hazardous waste.
- b. All records regarding permits, closure, or both are available for review at the department.

II.B.5. Restrictive Covenant and Easement

Pursuant to K.A.R 28-31-264a(c), as required by the Secretary, the facility property owner shall file a restrictive covenant or easement with the register of deeds in the county in which the Facility is located that specify the uses that may be made of the property after closure, and shall include all requirements of K.A.R. 28-31-264a(c).

II.C. GENERAL WASTE ANALYSIS

The Permittee shall follow the waste analysis procedures required by 40 CFR 264.13, as described in the Waste Analysis Plan (WAP), Section C-2 of the approved Part B application. At a minimum, the Permittee shall maintain proper functioning instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations for nonreactive hazardous wastes. If the Permittee uses a contract laboratory to perform the analyses, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis conditions set forth in this Permit. A copy of the written notification between the Permittee and its contract laboratory must be maintained at the Facility. Analytical data provided for waste determination must be performed by a Kansas Certified Laboratory.

The Permittee must maintain documentation of known constituents and ballistic properties for each reactive hazardous waste stored or thermally treated that is not analyzed by a laboratory because of characterization by published information as described in the WAP Section C-2 and Table's C-1, C-2, C-3A, C-3B, C-4 and C-6.

II.C.1. The Permittee shall follow, for each analytical parameter, the sampling methods and analytical procedures in accordance with the WAP Section C-2 and Table's C-7, C-9, and C-12 of the approved Part B application. [40 CFR 264.13(2)]

II.C.2. The Permittee shall verify the analysis of each waste stream annually as part of its quality assurance program in compliance with the WAP found in Section C-2d and Table C-11 of the approved Part B application. [40 CFR 264.13(3)]

II.C.3. Samples collected in Permit Condition II.C.1. and II.C.2. shall be analyzed at a Kansas Certified Laboratory with an approved SW-846 analytical method [K.A.R. 28-31-4(b)(3)(A)]. The records of analytical data must be retained in compliance with Permit Conditions I.E.11.b. and I.E.11.c.

II.C.4. The Permittee shall keep a copy of the current WAP at the Facility.

II.D. SECURITY

The Permittee shall comply with the security provisions of 40 CFR 264.14(a) (b)(1) and b)(2) the Preparedness and Prevention Plan, Section F-1 of the approved Part B application.

II.E. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedules set out in Section F-2 and Table's F-1, F-2 and F-3 of the approved Part B application. The Permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by 40 CFR 264.15(c). Records of inspection shall be kept, as required by 40 CFR 264.15(d).

II.E.1. Inspection for Malfunctions and Deterioration

The Permittee shall inspect the Facility as required by 40 CFR 264.15 and the Inspection Schedules, Section F-2 and Table's F-1, F-2 and F-3 of the approved Part B application, for malfunctions and deterioration, operator errors and discharges which may be causing or may lead to (1) release of hazardous waste constituents to the environment, or (2) a threat to human health.

II.E.2. Schedule of Inspections

The Permittee shall follow the written schedule in the Inspection Schedules, Section F-2 and Table's F-1, F-2 and F-3 of the approved Part B application for the inspection of monitoring and remediation equipment, safety and emergency equipment, security devices, and operating, remediation, and structural equipment that are for the purpose of preventing, detecting, or responding to environmental or human health hazards. The Permittee shall keep this schedule at the Facility.

II.E.3. Records of Inspections

The Permittee shall record inspections required by Permit Condition II.E.2. in an inspection log or summary in accordance with Section F-2 and Figure's F-1, F-2 and F-3 of the approved Part B application. The log or summary shall be kept for at least three (3) years from the date of inspection. At a minimum, the items to be inspected must include those identified in the inspection plan contained in Section F-2 of the approved Part B application. The logs must include the date and time

of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

II.E.4. Remedial Action Resulting from Inspections

The Permittee shall remedy any observed deterioration or malfunction of equipment or structures to ensure that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.

II.F. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by 40 CFR 264.16. This training shall be in accordance with Personnel Training, Section H of the approved Part B application. The Permittee shall maintain training documents and records, as required by 40 CFR 264.16(d) and (e).

II.G. LOCATION STANDARDS

The Facility is not located within a 100-year flood plain and, therefore, is not required to meet the requirements of 40 CFR 264.18(b)(1). In addition, the Facility is not listed in Appendix VI of 40 CFR 264.

II.H. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of 40 CFR 264.17. The Permittee shall follow the procedures for handling ignitable, reactive, and incompatible wastes set forth in Sections C-2f and F-5 of the approved Part B application.

II.I. PREPAREDNESS AND PREVENTION

II.I.1. Required Equipment

At a minimum, the Permittee shall maintain at the Facility the safety and emergency equipment set forth in the Contingency Plan, Section G-5 and Appendix G-1 of the approved Part B application, as required by 40 CFR 264.32.

II.I.2. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.I.1., as necessary, to assure its proper operation in time of emergency, as required by 40 CFR 264.33 set forth in Section F-3a(5) and Table F-2 of the approved Part B application.

II.I.3. Access to Communications or Alarm System

The Permittee shall maintain access to the communications or alarm system, as required by 40 CFR 264.34 and Section F-3a(6) of the approved Part B application.

II.I.4. Arrangements with Local Authorities

The Permittee shall maintain arrangements with state and local authorities, as required by 40 CFR 264.37. If state or local officials refuse to enter into preparedness and prevention arrangements, the Permittee must document the refusal in the operating record.

II.J. CONTINGENCY PLAN

II.J.1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the Contingency Plan, Section G of the approved Part B application, whenever there is a fire, explosion, or release of hazardous waste or constituents which could threaten human health or the environment.

II.J.2. Copies of Plan

Copies of the contingency plan and all revisions to the plans must be:

- II.J.2.a. Maintained at the Facility; and
- II.J.2.b. Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services. [40 CFR 264.53]

II.J.3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan, as required by 40 CFR 264.54. Amendments to the Contingency Plan are subject to the permit modification provisions of 40 CFR 270.41 and 270.42.

II.J.4. Emergency Coordinator

A trained Emergency Coordinator shall be available at all times in case of an emergency, as required by 40 CFR 264.55. The Emergency Coordinator shall have the authority to commit the resources needed to carry out the contingency plan.

The names, addresses, and telephone numbers of all persons qualified to act as Emergency Coordinators shall be listed in the Contingency Plan. [40 CFR 264.52(d)]

II.J.5. Emergency Procedures

Whenever there is an imminent or actual emergency situation, the Permittee shall immediately comply with the requirements of 40 CFR 264.56.

II.K. RECORDKEEPING AND REPORTING

In addition to the recordkeeping and reporting requirements specified elsewhere in this Permit, the Permittee shall do the following:

II.K.1. Operating Record

The Permittee shall maintain a written operating record at the Facility, in accordance with 40 CFR 264.73.

II.K.2. Availability, Retention, and Disposition of Records

The Permittee shall comply with the maintaining, retention, and disposition of all records in accordance with the requirements of 40 CFR 264.74.

II.K.3. Biennial Report

The Permittee shall comply with the biennial report requirements of 40 CFR 264.75 and 270.30(l)(9) and any other annual reporting requirement of the Secretary.

II.K.4. Manifests

Whenever a shipment of hazardous waste is initiated from the Facility, the Permittee shall comply with the generator requirements in K.A.R. 28-31-4 and 40 CFR 264.71(c).

II.K.5. Manifest Discrepancy Report

If a significant discrepancy in a manifest is discovered, the Permittee must attempt to reconcile the discrepancy. If not resolved within fifteen (15) days, the Permittee must submit a letter report, including a copy of the manifest, to the Secretary. (See 40 CFR 264.72) [40 CFR 270.30(l)(7)]

II.K.6. Unmanifested Waste Report

A report must be submitted to the Secretary within fifteen (15) calendar days of receipt of unmanifested hazardous waste. (See 40 CFR 264.76) [40 CFR 270.30(l)(8)]

II.L. GENERAL CLOSURE REQUIREMENTS

II.L.1. Performance Standard

The Permittee shall close the Facility, as required by 40 CFR 264.111, 264.112(a) and (b), 264.178, and 264.197 and in accordance with the Closure Plan, Section I of the approved Part B application.

II.L.2. Amendment to Closure Plan

The Permittee shall amend the Closure Plan, in accordance with 40 CFR 264.112(c), whenever necessary. Amendment of the closure plan is subject to the permit modification requirements of 40 CFR 270.42.

II.L.3. Notification of Closure

The Permittee shall notify the Secretary in writing at least forty-five (45) days prior to the date on which they expect to begin final closure of the Facility, as required by 40 CFR 264.112(d).

II.L.4. Time Allowed for Closure

After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the unit or Facility, all hazardous waste and shall complete closure activities, in accordance with 40 CFR 264.113 and the schedules specified in the Closure Plan, Section I and Appendix I-1 and I-2 and of the approved Part B application.

II.L.5. Disposal or Decontamination of Equipment, Structures, and Soils

The Permittee shall decontaminate and/or dispose of all contaminated equipment, structures, and soils, as required by 40 CFR 264.114 and the Closure Plan, Section I of the approved Part B application.

II.L.6. Certification of Closure

The Permittee and an independent Kansas Professional Engineer shall certify that the Facility has been closed in accordance with the specifications in the Closure Plan, Section I of the approved Part B application, as required by 40 CFR 264.115.

II.M. FINANCIAL REQUIREMENTS

II.M.1. Cost Estimate for Closure

- II.M.1.a. The Permittee's current cost estimate for closure, prepared in accordance with 40 CFR 264.142(a), is contained in the Closure Cost Estimate, Section I Appendix I-1 and I-2 of the approved Part B application. The cost estimate must be based on the plan implementation cost, in current dollars, assuming that a third party performs the work.
- II.M.1.b. The Permittee shall adjust the closure cost estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with 40 CFR 264.143.

If using the financial test and corporate guarantee demonstration, the Permittee shall adjust the closure cost estimate for inflation within thirty (30) days after the close of the firm's fiscal year and before submission of updated information to the Secretary.

The adjustment shall be made by either recalculating the maximum cost of closure or by using an inflation factor derived from the most current quarterly Implicit Price Deflator for Gross Domestic Product published by the U.S. Department of Commerce in its Survey of Current Business. [40 CFR 264.142(b)]

- II.M.1.c. The Permittee shall revise the closure cost estimate in the approved Part B application whenever there is a change in the Facility's closure plan as required by 40 CFR 264.142(c) and Permit Condition II.L. This type of revision is subject to the permit modification requirements of 40 CFR 270.41 and 270.42 and Permit Condition I.B.1.
- II.M.1.d. The Permittee shall keep at the Facility the latest adjusted closure cost estimate as required by 40 CFR 264.142(d) and Permit Condition I.J.5.

II.M.2. Cost Estimate for Corrective Action

- II.M.2.a. Within thirty (30) calendar days after the effective date of this Permit or within thirty (30) calendar days after KDHE has approved a new work plan for Additional Work under Permit Condition VI.O., the Permittee shall prepare a cost estimate for the completion of any corrective action required under this Permit for SWMUs, AOCs, and releases in order to provide financial assurance for completion of corrective action as required under 40 CFR 264.90(a)(2) and 264.101.

Such cost estimate shall be based upon the cost of assessment of all affected media and the design, installation, operation, inspection, monitoring, and maintenance of the corrective action system to meet the requirements of 40 CFR 264.101 and this Permit to include any treatment system necessary for all affected media. Such cost estimate will include the full cost (100 percent) of corrective action as defined by Permit Condition I.E.5. of this Permit. The cost estimate will also cover the total third party cost of implementing the corrective action, including any necessary long-term corrective action costs. Third-party costs are described in 40 CFR 264.142(a)(2) and shall include all direct costs and also indirect costs (including contingencies) as described in EPA Directive No. 9476.00-6 (November, 1986), Volume III, Chapter 10. The cost estimate shall contain sufficient details to allow it to be evaluated by KDHE. KDHE may prescribe the specific form of the cost estimate to be completed by the Permittee. The cost estimate shall not incorporate any salvage value that may be realized from the sale of wastes, facility structures or equipment, land or other assets associated with the Facility.

- II.M.2.b. The Permittee shall adjust the corrective action cost estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with 40 CFR 264.101.

If using the financial test and corporate guarantee demonstration, the Permittee shall adjust the corrective action cost estimate for inflation within thirty (30) days after the close of the firm's fiscal year and before submission of updated information to the Secretary.

The adjustment shall be made by either recalculating the maximum cost of corrective action or by using an inflation factor derived from the most current quarterly Implicit Price Deflator for Gross Domestic Product published by the U.S. Department of Commerce in its Survey of Current Business.

- II.M.2.c. The Permittee shall revise the corrective action cost estimate whenever there is a change in the Facility's corrective action as required by 40 CFR 264.101. This type of revision is subject to the permit modification requirements of 40 CFR 270.41 and 270.42 and Permit Condition I.B.1.
- II.M.2.d. The Permittee shall keep at the Facility the latest adjusted corrective action cost estimate as required by 40 CFR 264.142(d) and Permit Condition I.J.5.

II.M.3. Liability Requirements for Sudden Accidental Occurrences

The Permittee shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the Facility. The Permittee shall maintain liability coverage for sudden accidental occurrences in the amount of at least one million dollars (\$1,000,000) per occurrence with an annual aggregated amount of at least two million dollars (\$2,000,000), exclusive of legal defense costs. [40 CFR 264.147(a) as modified in accordance with K.A.R. 28-31-264(c) and K.A.R. 28-31-264a(a)]

II.M.4. Facility Financial Assurance

The Permittee shall demonstrate continuous compliance by providing documentation of financial assurance, as required by 40 CFR 264.101, 264.143 and 264.147, in at least the amount of the closure and corrective action cost estimates required by Permit Conditions II.M.1. and II.M.2. The Permittee shall maintain documentation demonstrating the Permittee's financial assurance in Section I-5 Appendix I- 3, I-4 and I-5 of the approved Part B application, in accordance with 40 CFR 264.101, 264.143 and 264.147.

Changes in financial assurance mechanisms and coverage amount must be approved by the Secretary pursuant to 40 CFR 264.101, 264.143 and 264.147.

In accordance with K.A.R. 28-31-264(c), modifications shall be made to 40 CFR 264. Additional state financial assurance requirements must be met as established in K.A.R. 28-31-264a(a).

II.M.5. Incapacity of Owners or Operators, Guarantors, or Financial Institutions

The Permittee shall comply with 40 CFR 264.148 whenever necessary.

II.M.6. Monitoring Fees

The Permittee shall pay the annual monitoring fee in accordance with K.A.R. 28-31-10.

II.M.7. Cost Recovery for Clean-up/Corrective Action

The Permittee shall reimburse KDHE costs as defined herein, pursuant to K.S.A. 65-3453(a)(4), K.S.A. 65-3453(a)(6), and K.S.A. 65-3455 for all clean-up/corrective action activities performed under this Permit.

SECTION III - STORAGE IN CONTAINERS

III.A. DESCRIPTION OF STORAGE FACILITIES

The Facility operates eleven earth-covered concrete bunkers and one aboveground warehouse with a total permitted container storage capacity of 260,920 gallons. Hazardous waste generated onsite from munitions manufacturing, reworking fired cartridge cases, and demilitarization operations and hazardous waste permitted to be received from offsite Day & Zimmermann, Inc. owned facilities for thermal treatment are stored at nine of these locations in the 1800 and 1900 Areas. These wastes are either transported offsite for treatment and/or disposal at appropriate permitted facilities or in the case of certain reactive onsite and offsite hazardous wastes containing explosives and/or explosive loaded equipment are thermally treated onsite at the OD 2700 Area.

There are three container storage areas for hazardous waste referred to as Area 1800, Area 1900, and Area 2700; each with a different number of individual storage units. Area 1800 has only one container storage unit, a warehouse building referred to as Magazine 1816. It is constructed of wood columns and tiles pilasters with 8-inch thick tiles walls on a 6-inch reinforced concrete floor slab over fill on grade. The roof is a pitched roof, laid over a wood truss system spanning the width of the building. Roofing materials are asbestos shingles over 2-inch tongue and groove sheathing, laid on 2-foot by 8-foot joists and stringers. Twelve metal ventilators are installed along the peak of the roof. The dimensions of the magazine are 216-foot by 50-foot for an approximate floor area of 10,800 square feet. No liquid wastes are stored at this location.

Storage Area 1900 consist of 8 individual earth-covered concrete bunker container storage units referred to as Igloos 1934, 1935, 1936, 1942, 1967, 1969, 1970, and 1979. They have identical construction of poured concrete with arched ceilings. The concrete walls vary in thickness from eight to 16 inches, and rest on a concrete foundation. The six-inch thick floor slabs are 60-feet and 8-inches long by 25-foot and 6-inches wide, for an approximate floor area of 1,547 square feet. Each is earth-covered to a minimum depth of two feet with 2:1 side slopes. The concrete floors are pitched one-half inch from the center line to the troughs on the side of the igloos for drainage. The drainage troughs are four-inches wide by two-inches deep and run the length of each igloo. A ventilator is installed in an 18-inch square concrete shaft at the rear of each storage igloo. In addition to the ventilator, two lightning arresters are located at the front and rear of each igloo. Each lightning arrestor is tied into the wire reinforcement rods of the concrete walls in each igloo. No liquid waste may be stored in igloo's 1970 and 1979.

Storage Area 2700 consist of 3 individual earth-covered concrete bunker container storage units referred to as Igloos 2707, 2708, and 2709. They have identical construction of poured reinforced concrete. The reinforced concrete slab walls are six-inches thick and

rest on an eight-inch reinforced concrete slab floor poured on fill on grade. The floor dimensions of each igloo are 6-foot by 6-foot, for a total floor space of 36 square feet. Ceiling height within the igloos is seven feet. Each igloo is earth-covered to a minimum depth of two feet with 1:1 grass-covered side slopes. Each has a secondary containment consisting of a 2.5-inch concrete sill at the entrance.

The Permittee is authorized to store a total of 260,920 gallons of hazardous waste in containers, as described in Section D-1a(2) of the approved Part B application. Subject to the requirements of Permit Condition III.B., the Permittee may store hazardous waste generated onsite and offsite in the storage units covered by this Permit.

III.B. PERMITTED AND PROHIBITED WASTE

- III.B.1. The Permittee is allowed to store the hazardous wastes identified in Section C, Tables C-1, C-2, C-3a, C3b, and C-4 of the approved Part B application in the container storage areas described in Section III.A. of this Permit
- III.B.2. The Permittee is prohibited from storing hazardous wastes identified in Section C, Table C 5 of the approved Part B application.
- III.B.3. The Permittee is allowed to store only the hazardous waste with the waste codes identified in Attachment 2 of this Permit and Section C, Table C-8 of the approved Part B application. The Permittee is prohibited from the storage of hazardous waste with waste codes that are not identified in Attachment 2 of this Permit and Section C, Table C-8 of the approved Part B application.

III.C. OPERATION AND MAINTENANCE

The Permittee shall operate and maintain the container storage facilities in accordance with 40 CFR 264, Subpart I and the specifications and design criteria contained in Section D-1 of the approved Part B application.

III.D. CONTAINER STORAGE FACILITY CAPACITIES

The Permittee is allowed to store a maximum volume of 260,920 gallons of hazardous waste in the storage areas described in Section III.A. subject to the terms of this Permit. The Permittee shall limit the storage of liquids and the maximum container storage capacities for each individual storage unit in accordance with the following table.

Storage Facility	Maximum Number of 55-gallon Containers to be Stored in Facility	Capacity of Containers (Gallons)	Secondary Containment (Gallons)	Maximum Net Explosive Weight (NEW) (Pounds)	Liquid Storage Permitted
1816	2,160	118,800	NA	0	NO
1934	320	17,600	3,500	100,000	YES
1935	320	17,600	3,500	100,000	YES
1936	320	17,600	3,500	100,000	YES
1942	320	17,600	3,500	100,000	YES
1967	320	17,600	3,500	100,000	YES
1969	320	17,600	NA	100,000	NO
1970	320	17,600	NA	100,000	NO
1979	320	17,600	3,500	100,000	YES
2707	8	440	56	50	NO
2708	8	440	56	50	NO
2709	8	440	56	50	NO

NA Not applicable, no liquid waste stored at this unit.

No palletized container unit stored in any storage area may be stacked in greater than two tiers. Various sized containers, as described in Section D-1 Table D-1 of the approved Part B application, may be used provided the conditions of 40 CFR 264, Subpart I and all other provisions of this Permit are met. The volume of the largest container of any kind stored in any of the container storage areas shall not exceed the net secondary containment volume listed in the above table and calculated in the approved Part B application for each area or the maximum stack height allowed by the National Fire Protection Association for the type of waste being stored in each area.

III.E. 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. [40 CFR 264.171]

III.F. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall use a container made of or lined with materials which will 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. [40 CFR 264.172]

III.G. MANAGEMENT OF CONTAINERS

- III.G.1. The Permittee shall keep all containers closed during storage, except when it is necessary to add or remove waste, and shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak. [40 CFR 264.173]
- III.G.2. The Permittee shall comply with all the applicable requirements of 40 CFR 264, Subpart CC and Section V of this Permit in accordance with the approved Part B application Section O-1.

III.H. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the container storage units at least weekly, in accordance with the Inspection Schedule contained in Section F-2 and Table F-1 of the approved Part B application, to detect leaking containers and the deterioration of containers and containment systems caused by corrosion and other factors. [40 CFR 264.174]

III.I. CONTAINMENT SYSTEMS

- III.I.1. The Permittee shall maintain the containment systems in accordance with the plans and specifications contained in Section D-1a(3) and Figure D-7 of the approved Part B application. [40 CFR 264.175]
- III.I.2. The Permittee shall remove spilled or leaked waste and accumulated precipitation from the secondary containment system within (24) hours or in as timely a manner as possible. [40 CFR 264.175(b)(5)]

III.J. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE OR REACTIVE WASTE

- III.J.1. The Permittee shall not locate containers holding ignitable or reactive waste within fifteen (15) meters (50 feet) of the Facility's property line. [40 CFR 264.176]
- III.J.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste and follow the procedures specified in Section F-5 of the approved Part B application. [40 CFR 264.17(a) and 264.176]

III.K. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTE

- III.K.1. The Permittee shall not place incompatible wastes, or wastes and incompatible materials, in the same container unless 40 CFR 264.17(b) is complied with. [40 CFR 264.177(a)]
- III.K.2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material. [40 CFR 264.177(b)]
- III.K.3. The Permittee shall not place containers of incompatible wastes within the same secondary containment area unless precautions are taken to prevent the accidental mixing of incompatible waste should a container leak, spill, or otherwise release its contents. [40 CFR 264.177(c)]

III.L. RECORDKEEPING

The Permittee shall place the results of all waste analyses, trial tests, and any other documentation showing compliance with the requirements of 40 CFR 264.17(c) and 264.177 in the facility operating record. [40 CFR 264.73]

III.M. CLOSURE

- III.M.1. At closure of a container storage area, the Permittee shall remove all hazardous waste and hazardous waste residues from the containment systems, in accordance with the procedures in the Closure Plan, Section I of the approved Part B application, and Section II.L. of this Permit. [40 CFR 264.178]
- III.M.2. The Permittee shall begin closure by submitting a Closure Work Plan, including SAP and QAPP consistent with the requirements found in Section I of the approved Part B application at least forty-five (45) days prior to beginning closure implementation. Following the receipt of department approval of the Closure Work Plan, including SAP and QAPP, the Permittee shall implement closure in accordance with the closure schedule approved in the Closure Work Plan.
- III.M.3. If the Permittee demonstrates that not all contaminated soils and groundwater can be practically removed or decontaminated, in accordance with the Closure Plan, then the Permittee shall close the container storage system and perform post-closure care following 40 CFR 264.117 through 264.120.

SECTION IV – THERMAL TREATMENT IN OPEN DETONATION UNIT

IV.A. DESCRIPTION OF THERMAL TREATMENT OPEN DETONATION UNIT

The Open Detonation (OD) 2700 Area occupies approximately 1,070,900 square feet and is fully enclosed by a 6-foot chain link fence. The area consists of 20 earthen mounds aligned in several east-west oriented rows. The mounds average 5 to 8 feet in height, and are approximately 150 feet long and 50 feet wide. Sections B and D of the approved Part B application illustrate the layout of the OD 2700 Area. Aisles between the rows are kept clear of debris and vegetation for access by earth moving and other equipment. Detonation pits are excavated by mechanized equipment on the south sides of the mounds to a depth of no less than four feet. Explosives and charges are placed in the pits according to procedures outlined for various explosive types in the Standard Operating Procedures (SOP's) located in Appendix D-3 in Section D of the approved Part B application. The pits are then backfilled with the excavated material. Detonations are triggered by a remote operator via an electrical ignition train. Section D of the approved Part B application depicts the treatment process.

Certain reactive hazardous wastes containing explosives and/or explosive loaded equipment are thermally treated onsite at the OD 2700 Area. There is a maximum thermal treatment rate of five hundred (500) pounds per day (ten [10] individual charges containing a maximum total explosive charge of 50 pounds each). The OD 2700 Area operation is limited to 100 days per year. Therefore, the Maximum Yearly Quantity of reactive hazardous wastes containing explosives that can be thermally treated in the OD 2700 Area is 50,000 pounds (Net Explosives Weight) which may consist of TNT only, RDX only or a combination of TNT and RDX. These quantities may be revised pending further regulatory review of the DRAFT FINAL HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT, THE OPEN DETONATION UNIT DATED APRIL 2015. The three small earth-covered concrete bunkers in the 2700 Area are for staging, preparing and storing items to be thermally treated onsite in the OD 2700 Area.

IV.B. PERMITTED AND PROHIBITED WASTE

- IV.B.1. The Permittee is allowed to thermally treat hazardous wastes in the OD 2700 Area identified in Table C-4 located in Section C of the approved Part B application, subject to the terms of this Permit.
- IV.B.2. The Permittee is prohibited from thermally treating hazardous wastes in the OD 2700 Area identified in Table C-5 located in Section C of the approved Part B application.

- IV.B.3. The Permittee is prohibited from thermally treating hazardous waste not identified in Permit Condition IV.B.1. unless a permit modification allowing thermal treatment of other wastes has been approved in accordance with 40 CFR 270.42 and Permit Condition I.B.1.
- IV.B.4. The Permittee is allowed to thermally treat the hazardous waste codes identified in Attachment 2 of this Permit. The Permittee is prohibited from the thermal treatment of hazardous waste codes that are not identified in Attachment 2 of this Permit.
- IV.B.5. Addition of hazardous waste codes to Permit Condition IV.B requires modification of Attachment 2 to this Permit as specified in 40 CFR 270.42 and Permit Condition I.B.1.

IV.C. OPERATION AND MAINTENANCE

The Permittee shall operate and maintain the OD 2700 Area in accordance with 40 CFR 260.10, 264, Subpart X, 266, Subpart M, and 268 and the specifications and design criteria contained in Section D-8 and the SOP's located in Appendix D-3 of the approved Part B application.

IV.D. THERMAL TREATMENT CAPACITIES

The Permittee may thermally treat only the following hazardous wastes, as indicated by EPA hazardous waste code, in the table below and subject to the prohibitions of Permit Conditions IV.B.1 and IV.B.2. The Permittee shall not thermally treat more than 100 days per year. The Permittee shall not exceed the maximum Net Explosive Weight (NEW) for each daily event or total quantities per year as listed below:

MAXIMUM HAZARDOUS WASTE THERMAL TREATMENT CAPACITIES

EPA Hazardous Waste Code	Maximum Daily* (NEW lb)	Maximum Yearly* (NEW lb)
D003	500 (10 – 50 lb Charges)	50,000 (1000 – 50 lb Charges)

*Quantities may be revised pending additional regulatory review of the *Human Health and Ecological Risk Assessment for the Open Detonation Unit Day & Zimmerman Kansas LLC Parsons, Kansas* located in Section D, Appendix D-4 of the approved Part B application.

IV.D.1. Addition of hazardous waste codes to Permit Condition IV.B requires modification of the permit as specified in 40 CFR 270.42 and Permit Condition I.B.1.

IV.D.2. The Permittee shall comply with the waste compatibility requirements of 40 CFR 264.17.

IV.E. OPERATING REQUIREMENTS

IV.E.1. To meet the performance standards of KAR 28-31-270.23(b) and 40 CFR 264.601 for the OD 2700 Area, the Permittee shall adhere to the site specific SOP's located in Appendix D-3 in Section D of the approved Part B application and the "Policy for Explosive Ordnance Disposal" (AR 75-15) written by the U.S. Army.

IV.E.2. Operations shall be conducted only within the secure area of the OD 2700 Area with controlled access. At a minimum, Air Force Manual (AFM 91-201), "Explosives Safety Standards", shall be used to dictate safe separation distances from the demolition pits to external receptors.

IV.E.3. The OD 2700 Area shall be posted with warning signs to keep unauthorized personnel out. Warning flags shall fly and access roads shall be barricaded and posted during operations in accordance with SOP B-4 in Appendix D-3 located in Section D of the approved Part B application.

IV.E.4. During OD 2700 Area operations, telephone or two-way radio contact shall be maintained with support personnel, including security and fire fighting units in accordance with SOP B-16 in Appendix D-3 located in Section D of the approved Part B application.

IV.E.5. The integrity of the OD 2700 Area and support equipment shall be determined through regular inspections and in accordance with the inspection plan in Section F-2 and Table's F-1, F-2, F-3 in Section F of the approved Part B application and SOP D in Appendix D-3 of the approved Part B application. Inspection records shall be maintained at the facility in accordance with Permit condition II.E.3.

IV.E.6. A training plan shall be followed by all operators of the OD 2700 Area in accordance with Permit Condition II.F. The training program shall include operational practices and site- specific hazardous waste handling procedures.

IV.E.7. Prior to treatment at the OD 2700 Area, meteorological data including wind

speed and direction, approach of storms (including electrical storms), precipitation, cloud cover, visibility and inversions (temperature with altitude) shall be monitored in accordance with Section D-8-1d(3) and SOP C in Appendix D-3, both located in Section D of the approved Part B application to ensure that treatment is not conducted under adverse weather conditions. Meteorological data shall be recorded for each detonation and maintained in the facility operating record in accordance with Permit Condition II.K.1.

- IV.E.8. Hazardous wastes shall be thermally treated within 24 hours of receipt at the OD 2700 Area.
- IV.E.9. Prior to thermal treatment, waste munitions shall be inspected to ensure that only hazardous waste defined in Permit Condition IV.B. is detonated.
- IV.E.10. Within 24 hours after each detonation operation, personnel shall inspect the OD 2700 Area for ejected material and untreated waste in accordance with SOP 16 in Appendix D-3 located in Section D of the approved Part B application. Any untreated waste shall be immediately retreated or saved for treatment the following day in accordance with SOP-15 in Appendix D-3 in Section D of the approved Part B application. When feasible, ejected metal materials shall be stored for recycling.
- IV.E.11. Residues from detonation, such as explosive residues, surface exposed scrap metal, casings, fragments and related items shall be collected after each event and daily in accordance with SOP D in Appendix D-3 in Section D of the approved Part B application
- IV.E.12. The donor charge and placement geometry for OD 2700 Area operations shall be optimized to minimize the generation of un-detonated waste and residue in accordance with the SOP's in Appendix D-3 located in Section D of the approved Part B application. All re-detonations shall be recorded in the facility operating record in accordance with Permit Condition II.K.1.
- IV.E.13. The OD 2700 Area operations shall not generate noise or ground vibration at levels that will have an adverse effect on nearby onsite and offsite receptors. Copies of completed AFMC Form 3514, *Noise Complaint*, in SOP E in Appendix D- 3 located in Section D of the approved Part B application shall be recorded in the operating record in accordance with Permit Condition II.K.1 and submitted to the Secretary in accordance with Permit Condition I.H.
- IV.E.14. In accordance with Permit Condition 1.B.1, the Secretary may require the Permittee to develop a noise prediction, mitigation and management program in accordance with the *Operational Noise Manual, An Orientation For Department*

of Defense Facilities (U.S. Army Center for Health Promotion and Preventive Medicine, November 2005) which can be downloaded at <http://chppm-www.apgea.army.mil/dehe/morenoise/>

- IV.E.15. The Permittee shall have available, during each detonation, adequate fire protection equipment and containment measures to assure the confinement and control of any fire resulting from the OD 2700 Area operations.
- IV.E.16. The Permittee shall operate the OD 2700 Area to prevent unacceptable risk of cancer and non-cancer effects to on-site workers and off-site residents and to minimize significant effects to the ecosystem surrounding the OD 2700 Area in accordance with the *Human Health and Ecological Risk Assessment for the Open Detonation Unit Day & Zimmerman Kansas LLC Parsons, Kansas* located in Section D, Appendix D-4 of the approved Part B application..
- IV.E.17. The Permittee shall update the information in the *Human Health and Ecological Risk Assessment for the Open Detonation Unit Day & Zimmerman Kansas LLC Parsons, Kansas* located in Section D Appendix D-4 of the approved Part B application as necessary in accordance with Permit Condition IV.J.5.
- IV.E.18. The Permittee shall provide an updated *Human Health and Ecological Risk Assessment for the Open Detonation Unit Day & Zimmerman Kansas LLC Parsons, Kansas* including the latest Census Data in accordance with Permit Condition IV.J.5.
- IV.E.19. The Facility must comply with all the applicable air emission requirements of 40 CFR 264 Subpart CC in accordance with Section V of this Permit and Section O of the approved Part B application.

IV.F. GROUNDWATER MONITORING

Groundwater contamination was originally detected in the OD Area during the RCRA Facility Investigation (RFI) phase of the corrective action process. Long Term Monitoring (LTM) was selected as the preferred remedy in the November 2005 Statement of Basis, thus providing the initial framework for groundwater monitoring. Groundwater monitoring of the OD Area has since been performed under the purview of the selected remedy, LTM, throughout interim status operation. Upon issuance of this Permit, previously established LTM requirements shall be superseded by the requirements set forth in this permit. The Secretary has determined the site monitoring program shall consist of groundwater monitoring to ensure that any release of hazardous waste or hazardous constituents from the OD Area to the uppermost aquifer beneath the OD Area is sufficiently monitored, that upon detection of release the monitoring program be continued/expanded to verify no statistically-significant increase at the point of

compliance has occurred, and, as necessary, all releases addressed through corrective action. The groundwater monitoring requirements established in this section are derived from 40 CFR 264 Subpart F, but have been tailored as detailed herein to the unit-specific risks and circumstances posed by this Subpart X unit. The Permittee shall operate and maintain the groundwater monitoring program, as detailed in applicable elements of Section E of the approved Part B application and this section, to comply with 40 CFR 264.601 through 264.603 and applicable requirements of 40 CFR 264 Subpart F. [40 CFR 264.90(d)] Any references herein to particular 40 CFR 264 Subpart F requirements do not imply that the full Subpart F standards are applicable.

IV.F.1.Groundwater Protection Standard

- IV.F.1.a. The Groundwater Protection Standard (GWPS) establishes the threshold levels for hazardous constituents in the groundwater at and beyond the point of compliance during the term of this Permit. The hazardous constituents and threshold levels specified in Permit Condition IV.F.1.b. constitutes the GWPS for the OD Area. The listed hazardous constituents identified in Permit Condition IV.F.1.b. have been detected in the groundwater beneath and beyond the subject area and/or are expected to be in or derived from waste thermally treated in the OD Area. [40 CFR 264.92]
- IV.F.1.b. The following hazardous constituents and their threshold levels comprise the GWPS for the OD Area.

Table 1 – Constituents of Concern

Constituent	KDHE Tier 2 RSK (Residential)	KDHE Tier 2 RSK (Non- residential)
Arsenic	10 ug/L	10 ug/L
Cadmium	5 ug/L	5 ug/L
Chromium (total)	100 ug/L	100 ug/L
Lead	15 ug/L	15 ug/L
RDX	7.72 ug/L	25.9 ug/L
Tetryl	62.4 ug/L	407 ug/L
TNT	7.77 ug/L	50.7 ug/L
HMX	782 ug/L	5,110 ug/L
2,4-Dinitrotoluene	2.67 ug/L	8.98 ug/L
Vinyl Chloride	2 ug/L	2 ug/L
Trichloroethene	5 ug/L	5 ug/L
Tetrachloroethene	5 ug/L	5 ug/L
1,1-Dichloroethene	7 ug/L	7 ug/L
Perchlorate*	10.9 ug/L	70.9 ug/L

* Depending on current and future land use, the Permittee may be required to reassess the corresponding perchlorate threshold level with consideration of relative source contribution.

- IV.F.1.c. The threshold levels for the GWPS hazardous constituents listed in Permit Condition IV.F.1.b. are based on the protection of human health and the environment and were derived from the October 2010 *KDHE Risk-Based Standards for Kansas (RSK) Manual* (Revised March 2014). Risk management decisions will be based on the residential Tier 2 levels with consideration of current and anticipated future land use. As necessary, an Institutional Control Plan shall be implemented as described in Permit Condition VI.P.
- IV.F.1.d. To demonstrate protection of human health and the environment, the detection limit for each hazardous waste constituent shall be less than or equal to the GWPS concentration limit. If the detection limit cannot be achieved due to matrix interference or other analytical limitations (provided that appropriate supporting documentation is provided to the Secretary), the affected sample and associated chemical analysis may be exempted from this requirement. Such an exemption does not, however, in any way relieve the Permittee from complying with the GWPS concentration limit.
- IV.F.1.e. The Permittee may make a demonstration to the Secretary, at any time during the term of this Permit, for establishment of an Alternate Concentration Limit (ACL) in lieu of the GWPS concentration limit contained herein. Any such demonstration shall ensure that any ACL proposed in lieu of the GWPS concentration limit is protective of human health and the environment in accordance with the requirements of 40 CFR 264.94(b). In proposing the ACL, the Permittee shall consider and formally address the factors listed in 40 CFR 264.94(b)(1) and (2). Any ACL approved by the Secretary shall require a permit modification in accordance with 40 CFR 270.42.

IV.F.2.Point of Compliance

At the ground surface, the point of compliance is defined by a dashed line connecting the compliance point wells identified in Permit Table 2. In the subsurface, the point of compliance is a vertical surface that extends the dashed line connecting the compliance point wells perpendicularly downward into the uppermost aquifer underlying the facility. [40 CFR 264.95] This definition is based upon the nature of the hazardous waste managed in the unit and the existing data from the current sampling and monitoring at the site. Groundwater contamination at and beyond the point of compliance which exceeds the GWPS concentration limits shall be subject to corrective action pursuant to 40 CFR 264.100.

Based on available information and current hydrogeologic conditions at the site, the wells specified in Permit Table 2 will serve as the point of compliance wells at the locations specified in Section E of the Part B application. This list may be modified based on the Optimization Evaluation Report conducted pursuant to Permit Condition IV.F.3.d. or as new information becomes available.

Table 2 – Point of Compliance Monitoring Wells

WELL I.D.
15-7
18-3
19-3
20-3

IV.F.3.Groundwater Monitoring Program

During the term of this Permit, the Permittee shall establish and maintain a groundwater monitoring program to demonstrate compliance with the GWPS. Groundwater monitoring shall be conducted to comply with the general requirements specified below which are in compliance with that portion of 40 CFR 264.97 applicable to groundwater monitoring programs conducted in accordance with 40 CFR 264.99.

IV.F.3.a. The groundwater monitoring system consists of one (1) background monitoring well four (4) compliance monitoring wells, and three (3) supplemental monitoring wells as specified in Permit Table 3.

Table 3 – Groundwater Monitoring Well Network

Well I.D.	Monitoring Frequency	Monitoring Well Network Association	Gradient Location
17-3	Semi-annually	Background	Upgradient
15-7	Semi-annually	Compliance	Downgradient
18-3	Semi-annually	Compliance	Crossgradient
19-3	Semi-annually	Compliance	Downgradient
20-3	Semi-annually	Compliance	Downgradient
10-1	Semi-annually	Supplemental	Crossgradient
17-7	Semi-annually	Supplemental	Downgradient
16-7	Semi-annually	Supplemental	Downgradient

- i. The sampling locations specified in Permit Table 3 and depicted in Figure 1-5 of the Field Sampling Plan, Section E of the approved Part B application will serve as the groundwater monitoring system.
 - ii. Should the Secretary determine that the wells designated to monitor groundwater passing the point of compliance are not adequate, the Permittee shall propose a Permit modification in accordance with 40 CFR 270.42 to install/establish additional and/or alternate monitoring wells.
 - iii. The Permittee shall report the surveyed elevation of the monitoring wells to the nearest 0.01 foot when the wells are installed. The total depth of wells and elevation of the following should be reported: top of casing reference mark, ground surface and/or concrete apron, the protective casing, and the top and bottom of the well screen, gravel pack, and well seals.
 - iv. All groundwater monitoring wells in the OD Area shall be maintained at locations specified in the Field Sampling Plan, Section E of the Part B Permit Application.
- IV.F.3.b. The groundwater monitoring system shall consist of a set of monitoring wells designed, installed, and operated to collect samples from the uppermost aquifer and that meet the following objectives:
- i. Is adequate to intercept transmissive zone(s) within the uppermost fractured or weathered bedrock aquifer, as applicable;
 - ii. Is adequate to support collection of representative groundwater samples for comparison to the GWPS;
 - iii. Is adequate to detect significant evidence of increased/decreased contamination of groundwater at the point of compliance;
 - iv. Is adequate to detect the rate of migration and three-dimensional extent of all groundwater contaminant plumes at and beyond the point of compliance (including beyond the facility property boundary, if necessary).
- IV.F.3.c. If the Secretary or Permittee determines that the groundwater monitoring program does not adequately meet the objectives as

specified by Permit Condition IV.F.3.b., the Permittee shall implement the following:

- i. Submit, within ninety (90) days of the date of the determination that Permit Condition IV.F.3.b. has not been met, an application for a permit modification to make appropriate changes to the groundwater monitoring program in accordance with 40 CFR 264.99(j) and 270.42.
- ii. The Permittee must continue to monitor in accordance with the groundwater monitoring program established in Permit Condition IV.F.3.a. until the permit modification is approved.

IV.F.3.d. Within one-hundred twenty (120) days of the effective date of this Permit, the Permittee shall submit an Optimization Evaluation Report of the OD Area groundwater monitoring system. At a minimum, the evaluation shall include a determination that the groundwater monitoring program is sufficient to meet the objectives established in Permit Condition IV.F.3.b. If the groundwater monitoring system is determined to be insufficient, the Permittee shall request a permit modification, subject to KDHE approval, to make appropriate changes to the groundwater monitoring system to meet the objectives of Permit Condition IV.F.3.b. and in a manner consistent with Permit Condition IV.F.3.c.

IV.F.3.e. Inspection and Maintenance of Monitoring System

- i. The Permittee shall implement an inspection and maintenance program for the groundwater monitoring system identified in Permit Condition IV.F.3.a. These wells are to be inspected and maintained in accordance with Permit Conditions IV.F.3.e.ii. through IV.F.3.e.vii. This program shall be designed to ensure the structural integrity of all wells during the term of this Permit.
- ii. Above ground well integrity inspections shall be performed at the time of each sampling event and shall be documented in the inspection log. The evaluation for each monitoring well shall include a visual inspection of the outer protective casing, inner casing riser, concrete apron, well cap, and locking mechanism to document any damage or deterioration. The ground surface in the immediate vicinity of each monitoring well and the annular space between the outer protective casing and inner casing riser shall

be inspected for visible anomalies (e.g., collection or ponding of water, ground subsidence, etc.).

- iii. Subsurface well integrity inspections shall be performed annually for all wells and shall be documented in the inspection log. Subsurface well integrity inspections shall consist of one or more of the following: total well depth measurements, ground water turbidity measurements, in-situ hydraulic conductivity tests, casing caliper logs, down-hole video camera surveys, and/or other methods capable of verifying the subsurface integrity of the well casing and screen.
- iv. The Permittee shall perform an annual wellbore siltation evaluation to assess downwell siltation and well screen occlusion for all monitoring wells. This evaluation shall be designed to ensure the representative nature of the required groundwater sample analysis and field measurement results through minimization of sampling and measurement interferences (e.g., turbidity, excessive well screen occlusion, etc.).
- v. Wells demonstrating well screen occlusion equal to or in excess of 10% of the well screen length shall be redeveloped prior to the next scheduled sampling event.
- vi. The Permittee shall perform well-specific surface and subsurface integrity inspections within seven (7) days following any contact of wells by flood waters.
- vii. Monitoring well repairs shall be undertaken within thirty (30) days of identification of any surface or subsurface well integrity problem. If adverse weather or site conditions preclude the Permittee from gaining access to and repairing wells within thirty (30) days, then the Permittee shall take appropriate action with respect to this requirement as soon as practicable. Written justification for any delay, completed well inspection log sheets, a narrative description of any well repairs and before/after photographic documentation (in case of visible surface well repairs) shall be provided to the Secretary as part of the Annual Groundwater Monitoring Reports required by Permit Condition IV.F.4.

IV.F.3.f. Modifications to Monitoring System

- i. Any modification in the number and/or location of the monitoring wells established in Permit Condition IV.F.3.a. for the OD Area shall require a Permit modification approved by the Secretary in accordance with 40 CFR 270.42 and Permit Condition IV.F.8.
- ii. Any new groundwater monitoring well(s) installed by the Permittee to meet the requirements of this Permit shall be designed and installed in accordance with the requirements of 40 CFR 264.97, the objectives of the groundwater monitoring program specified in Permit Condition IV.F.3.b., and well-specific plans and specifications approved by the Secretary.
- iii. The Permittee shall contact the Secretary at least twenty (20) working days prior to conducting any field work associated with the construction or modification of the groundwater monitoring system required by this Permit. Notification of field activities shall be conducted in a manner consistent with Permit Condition VI.T. The Secretary shall have the option of observing any portion of the system's construction or modification.
- iv. New or additional wells shall be inspected and maintained in accordance with procedures outlined in Permit Condition IV.F.3.e., the Field Sampling Plan, Section E of the approved Part B application, and 40 CFR 264.97.
- v. All wells deleted from the monitoring system shall be plugged and abandoned in accordance with Kansas Regulatory requirements contained in K.S.A. 82a-1213 and K.A.R 28-30-7. Well plugging and abandonment methods and certification shall be submitted to the Secretary within thirty (30) days from the date the wells are removed from the monitoring system.

IV.F.3.g. The Permittee shall perform groundwater sampling and analysis and field measurement of the groundwater-related parameters listed in Permit Table 4 to monitor compliance with the GWPS in the OD Area according to the schedule in Permit Table 4.

Table 4 –Groundwater Monitoring, Sampling, Analysis, and Parameter Measurements Schedule

Parameters	Type of Measurement	Frequency
Expanded Constituent List ⁽¹⁾	Fixed Laboratory Analyses	Every Five Years
GWPS Constituents ⁽²⁾	Fixed Laboratory Analyses	Semi-Annually
Static Water Levels ⁽³⁾	Field Measurement	Semi-Annually
Total Well Depth	Field Measurement	Annually

⁽¹⁾ Permit Attachment 14

⁽²⁾ Permit Table 1

⁽³⁾ Groundwater potentiometric surface measurements shall be collected at the time of each regularly scheduled sampling event from all monitoring wells in the OD Area, including those which are not being sampled regularly.

IV.F.3.h. The Permittee shall determine the groundwater surface elevation, total well depths, and immiscible layer measurements at each of the existing wells listed in Permit Table 3 in accordance with procedures specified in the Field Sampling Plan, Section E of the approved Part B application and the following:

- i. The Permittee shall obtain groundwater surface elevations semi-annually and total well depths annually for the monitoring wells established in Permit Condition IV.F.3.a.
- ii. Groundwater surface elevations and total well depth measurements, when required, shall be obtained prior to well purging.

IV.F.3.i. The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from groundwater monitoring wells established in Permit Condition IV.F.3.a.

- i. Samples shall be collected by the techniques described in the Field Sampling Plan, Section E of the approved Part B application.
- ii. Samples shall be preserved and shipped for analysis, in accordance with the procedures specified in the Field Sampling Plan, Section E of the approved Part B application.
- iii. Samples shall be analyzed according to the procedures specified in the Field Sampling Plan, Section E of the approved Part B application.

- iv. Samples shall be tracked and controlled using the chain-of-custody procedures specified in the Field Sampling Plan, Section E of the approved Part B application.
 - v. All constituent chemical analyses shall be performed by a laboratory certified by KDHE in accordance with K.A.R. 28-31-264a(e).
- IV.F.3.j. The Permittee shall determine the concentrations of the hazardous constituents specified in Permit Condition IV.F.1.b, throughout the term of this Permit to demonstrate conformance with the GWPS. The Permittee shall determine the concentration of the hazardous constituents specified in Permit Condition IV.F.1.b for each sampling location specified in Permit Table 3, at least semi-annually.
- IV.F.3.k. Within six (6) months of the effective date of this Permit and every five (5) years thereafter, the Permittee shall sample and analyze groundwater from a subset of two (2) wells listed in Permit Table 3, as chosen by the Secretary, for the expanded constituent list (Permit Attachment 14) to determine the concentrations of hazardous constituents present in the uppermost aquifer.
- i. If the Permittee finds additional hazardous constituents present (i.e., not listed in Permit Table 3), their concentrations shall be reported to the Secretary in writing within seven (7) days from completion of the analyses. The results of the analyses must be submitted to the Secretary within sixty (60) days of the sample collection date.
 - ii. If hazardous constituents are identified in the groundwater, which are not currently specified in the GWPS, the Permittee may resample the groundwater to confirm detection within thirty (30) days from notifying the Secretary. The results of the resample analyses must be submitted to the Secretary within sixty (60) days of the sample collection date. If the Permittee's subsequent groundwater analyses confirm the presence of additional hazardous constituents, then the Permittee shall have thirty (30) days from the date KDHE receives the results to propose a Permit modification in accordance with 40 CFR 270.42 to add the confirmed hazardous constituents to the GWPS (Permit Table 3) and the groundwater monitoring program.

- IV.F.3.1. The Permittee shall statistically compare the measured concentration of each monitored hazardous constituent with its concentration limit in the GWPS each time groundwater quality is determined. When evaluating the monitoring results to determine compliance with the GWPS, the Permittee shall determine whether there is statistically significant evidence of an exceedance or compliance with the GWPS at each monitoring well at the completion of each sampling analysis. Statistical procedures must comply with the requirements of 40 CFR 264.99 and 40 CFR 264.97(h). The Permittee shall perform the statistical evaluation within thirty (30) days from the completion of the sampling analysis. The sampling analysis must be completed within forty (40) days of the sample collection date. The Permittee shall notify the Secretary in writing within seven (7) days of completion of the analysis if the groundwater protection standard has been exceeded at any monitoring well.

IV.F.4. Groundwater Reporting Requirements

- IV.F.4.a. The Permittee shall prepare and submit on an annual basis for the preceding calendar year, a Groundwater Monitoring Report providing a comprehensive evaluation of the groundwater monitoring program including a narrative discussion of the nature and evolution of the program as well as the overall adequacy of the program. Any conclusions concerning inadequacies in the groundwater monitoring program shall be accompanied by a discussion of proposed amendments. Specific details concerning any proposed amendments should be further developed outside the scope of these reports and/or as otherwise specified in this Permit. The Permittee's Annual Groundwater Monitoring report shall be submitted to the Secretary by March 1 for each preceding calendar year. [40 CFR 264.97(j)]
- IV.F.4.b. The Permittee's Annual Groundwater Monitoring Reports shall evaluate the adequacy of the groundwater monitoring program including, but not limited to, the following:
- i. A comparison of the levels of each hazardous constituent measured at each sampling location during the previous calendar year, to the associated concentration limit. The hazardous constituents and concentration limits required by the Groundwater Protection Standard (GWPS) are specified in Permit Table 3.

- ii. An evaluation of the rate and direction of groundwater movement in the underlying aquifer and potential effects on any component of the groundwater monitoring program to determine compliance with the GWPS.
- iii. An evaluation of the horizontal and vertical extent and concentrations of any hazardous constituents in groundwater throughout the OD Area as determined from the data collected from the Permittee's groundwater monitoring system.
- iv. An analysis of trends in the levels of hazardous constituents from year to year based on sampling results to determine whether there is significant evidence of increased contamination. If there is an increasing trend for any of the hazardous constituents at any well, the report must contain an evaluation of the source of the increased contamination and provide conclusions as to whether a new release from a regulated unit has occurred.
- v. An evaluation of surface and/or subsurface monitoring well integrity including identification of any actual or potential problems that may influence the groundwater data or efficiency of the groundwater monitoring program.

IV.F.4.c. The Annual Reports shall comprehensively address technical requirements of 40 CFR Part 264 Subpart F, as applicable, and this Permit. The Permittee shall summarize relevant groundwater monitoring information and shall present this information in the form of narrative discussions, groundwater flow calculations, and/or diagrammatic illustrations (i.e., tabular groundwater and statistical data summaries, hydrogeologic and potentiometric contour maps/cross-sections, chemical parameter trend graphs, calculated rate(s) of contaminant migration, contaminant isoconcentration maps/cross-sections, fence/isometric diagrams, groundwater flow nets, etc.), and other information as appropriate.

IV.F.4.d. The Annual Monitoring Reports shall provide sampling results including, but not limited to, the following:

- i. A description of the monitoring activities and operation and maintenance performed including recommendations, if necessary, for the groundwater monitoring system,

- ii. Semi-annual groundwater monitoring laboratory analytical reports, including quality assurance/quality control data,
- iii. Semi-annual groundwater static water level measurements,
- iv. Photocopies of the field forms and laboratory chain of custody forms,
- v. A digital copy of the Annual Groundwater Monitoring Report including tables, figures, and appendices.

IV.F.5.Groundwater Monitoring Well Installation Reporting Requirements

IV.F.5.a. The Permittee shall submit a well installation report to the Secretary within sixty (60) days from the date the field activities were completed with the following information:

- i. A discussion summarizing the field activities,
- ii. Detailed boring logs with descriptions of soils and geologic formations encountered during the drilling activities,
- iii. Detailed as-built monitoring well diagrams,
- iv. Well records,
- v. A copy of the report submitted by the Registered Land Surveyor; and
- vi. A copy of the field notes documentation.

IV.F.5.b. The Permittee shall provide a summary of all well installation activities performed during the year in the Annual Groundwater Monitoring Report.

IV.F.6.Recordkeeping

The Permittee shall enter all monitoring, testing, and analytical data collected according to Permit Condition IV.F.3., in the operating record. The data must include all computations, calculated means, variances, and results of the statistical tests that the Secretary has specified. [40 CFR 264.73(b)(6)]

IV.F.7.Requirements if the Groundwater Protection Standard is Exceeded

- IV.F.7.a. The Permittee shall notify the Secretary in writing within seven (7) days of the groundwater protection standard exceedance at any groundwater monitoring well. The notification must identify the hazardous constituent(s), the concentration(s), and the monitoring wells where the groundwater protection standard has been exceeded. [40 CFR 264.99(h)(1)] The Permittee may include a request to demonstrate that exceedance of the groundwater protection standard was due to sources other than the OD Area or errors in sampling, analysis, or evaluation. [40 CFR 264.99(i)(1)]
- IV.F.7.b. Demonstration of Other Sources
- i. The Permittee must submit a report to the Secretary, within ninety (90) days, that demonstrates a source other than the regulated units caused exceedance of the groundwater protection standard or was a result of an error in sampling, analysis, or evaluation.[40 CFR 264.99(i)(2)]
 - ii. If the Permittee demonstrates the exceedance of the groundwater protection standard was due to a source other than the regulated units or was a result of an error in sampling, analysis, or evaluation, the Permittee may continue groundwater monitoring in accordance with Permit Section IV.F.; otherwise, the Permittee shall submit an application for a permit modification to establish a corrective action program in accordance with Permit Condition IV.F.7.c.
 - iii. The Permittee must continue to monitor in accordance with the groundwater monitoring program established in Permit Section IV.F. until the Secretary determines the demonstration specified in Permit Condition IV.F.7.b. is acceptable. [40 CFR 264.99(i)(4)]
- IV.F.7.c. If an exceedance is confirmed, the Permittee shall implement the Release Detection Soil Sampling Program (RDSSP) as specified in Permit Condition IV.H.1. and submit an application for a permit modification to establish a corrective action program meeting the requirements of 40 CFR 264.100 within 180 days. The application must at a minimum include the following information:

- i. A detailed description of corrective actions that will achieve compliance with the GWPS specified in Permit Condition IV.F.1.
- ii. A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action.

IV.F.8.Request for Permit Modification

If the Permittee or the Secretary determines that the groundwater monitoring program established in this section no longer satisfies the requirements of 40 CFR 264.601 through 264.603 and/or applicable requirements of 40 CFR 264 Subpart F, the Permittee shall submit an application for a permit modification within ninety (90) days of the date of this determination detailing changes to the compliance monitoring program.[40 CFR 264.99(j)] The request for permit modification must be made in accordance with Permit Condition I.B.1.

IV.G. AMBIENT AIR MONITORING

The Secretary has determined that air monitoring is not necessary at this time. The permit may be modified at some future time if the Secretary determines that air monitoring is necessary.

IV.H. SOIL MONITORING

The Secretary has determined the site monitoring program shall consist of soil monitoring to ensure that any release of hazardous waste or hazardous constituents from the OD 2700 Area to the surface and subsurface soils is sufficiently monitored, that upon detection of release the soil monitoring program be continued/expanded to determine the location of the release, and, as necessary, all releases to the soil are addressed through corrective action.

IV.H.1.Soil Monitoring Program

- IV.H.1.a. Within ninety (90) days of the effective date of this Permit, the Permittee shall submit a Soil Monitoring Plan for KDHE review and approval. The Soil Monitoring Plan shall meet the Confirmatory Sampling (CS) Work Plan requirements of Permit Condition VI.H.1. and establish a soil monitoring program comprised of the following components:
 - i. A Release Detection Soil Sampling Program (RDSSP) shall be developed that is adequate to detect any releases to the surface

and/or subsurface soils within the OD Area. The RDSSP shall be implemented upon an exceedance in the GWPS as specified in Permit Condition IV.F.7.c.

- ii. A Dispersion Model Soil Sampling Program (DMSSP) shall be developed that is adequate to demonstrate that thermal treatment within the OD Area is conducted in a manner that prevents deposition of hazardous constituents upon surface soils within a one-thousand (1,000) foot radius surrounding the OD Area. The DMSSP shall be implemented every five (5) years. If the DMSSP program reveals a release to surface soils has occurred, KDHE may require further investigation to evaluate potential impacts of the release on surface water and sediment.

IV.H.1.b. The Permittee shall prepare and submit a Soil Monitoring Report to KDHE within forty-five (45) days of sample collection. The Soil Monitoring Report shall meet the CS Report requirements of Permit Condition VI.H.5.

IV.H.1.c. Based on the results of the Soil Monitoring Report, KDHE shall determine the need for further investigation, interim measure, and/or corrective measure activities to address the release(s) covered in the Soil Monitoring Report. If KDHE determines such activities are needed, the Permittee shall be required to prepare and implement a plan for such as outlined in Permit Condition VI.I., VI.J., and/or VI.K. If applicable, KDHE will notify the Permittee of any no further action decisions related to the specific release being evaluated.

IV.I. INSPECTION SCHEDULES AND PROCEDURES

IV.I.1. The integrity of the OD 2700 Area and support equipment shall be determined through regular inspections in accordance with the inspection plan in Section F-2 and Table's F-1, F-2, and F-3 of the approved Part B application. The Permittee shall conduct inspections of the OD 2700 Area on each day of thermal treatment to document all requirements in Permit Condition IV.E. Inspection records shall be maintained at the facility. [40 CFR 264.602]

IV.I.2. The Permittee shall document compliance with Permit Condition IV.I.1 and place this documentation in the facility operating record. [40 CFR 264.602]

IV.J. RECORDKEEPING AND REPORTING

The recordkeeping and reporting requirements of this section are in addition to the recordkeeping and reporting requirements specified elsewhere in this Permit. With the exception of permit condition IV.J.5, the Permittee shall submit by March 31 of each year, for the previous year ending December 31, a report containing the following:

- IV.J.1. The types and quantity of wastes that were thermally treated at the OD 2700 Area during the previous calendar year.
- IV.J.2. Certification that thermally treating waste at the OD 2700 Area during the previous calendar year is the most technically practicable method currently available to the Permittee to minimize the present and future threat to human health or the environment from that waste.
- IV.J.3. Evaluation of available alternative treatment technologies to replace thermal treatment at the OD 2700 Area. The evaluation shall include analysis of viable alternatives according to technical feasibility, economic feasibility, impact to employee health and safety, and whether the alternative will reduce releases and discharges. Alternatives that are not viable shall be identified with the rationale for the rejection.
- IV.J.4. The Permittee shall maintain information in Permit Condition IV.J in the Operating Record at the facility in accordance with 40 CFR 264.73.
- IV.J.5. Beginning on the effective date of this permit; the Permittee shall submit a report to the Secretary every five (5) years that evaluates the effectiveness of the OD 2700 Area operating requirements, including soil and groundwater monitoring requirements for the unit, over the previous five (5) year period. As a part of completing this 5-year review report, the permittee shall update the information in the Human Health and Ecological Risk Assessment for the Open Detonation Unit Day & Zimmerman Kansas LLC Parsons, Kansas located in Section D, Appendix D-4 of the approved Part B application. The evaluation shall be consistent with available guidance as approved by EPA and KDHE. Upon review of this report, the Secretary may require additional investigation and/or modify the permit as necessary, as provided by 40 CFR 270.41. Modifications to the permit shall be completed in accordance with Permit Condition I.B.1.

IV.K. CLOSURE AND POST-CLOSURE CARE

- IV.K.1. At closure of the OD 2700 Area, the Permittee shall remove all hazardous waste and hazardous waste residues, in accordance with the procedures in the Closure Plan, Section I of the approved Part B application, and Section II.L. of this Permit. [40 CFR 264.178]
- IVK.2. The Permittee shall begin closure by submitting a Closure Work Plan, including SAP and QAPP consistent with the requirements found in Section I of the approved Part B application at least forty-five (45) days prior to beginning closure implementation. Following the receipt of department approval of the Closure Work Plan, including SAP and QAPP, the Permittee shall implement closure in accordance with the closure schedule approved in the Closure Work Plan.
- IV.K.3. If contaminated soils and groundwater cannot be completely removed or decontaminated during closure, then the Permittee shall submit an application for a permit modification to establish a post-closure care program meeting the requirements of 40 CFR 264.601. The Permittee must specify the procedures that will be used to satisfy this requirement in the Post-Closure Plan as required by 40 CFR 264.118. [40 CFR 264.603]

SECTION V - AIR EMISSION STANDARDS

V.A. AIR EMISSION STANDARDS FOR CONTAINERS (SUBPART CC)

The Permittee shall comply with all applicable requirements of 40 CFR 264 Subpart CC and, Section O of the approved Part B application.

V.A.1. Waste Determination

Waste determination (volatile organic concentration) is only required when a unit is NOT using required air emission controls. Initial waste determinations are required with updates at least once every twelve (12) months. A new waste determination is required if the process generating the waste changes such that it is likely to cause the volatile organic concentration to be at or above 500 ppm by weight (ppmw). Knowledge of the waste may be used. Knowledge of the waste can include organic material balances, test data, manifest, etc. Documentation of any waste determination must be kept in the facility operating records.

V.A.2 Requirements Applicable to Containers

40 CFR 264 Subpart CC regulations applicable to containers of hazardous wastes are found in 40 CFR 264.1086 and 265.1087. There are three levels of air emissions controls for containers based on container size, contents and whether the container is used in a waste stabilization process. Table 1 of Attachment 3 provides a matrix for determining the applicable control level for a container. The term "in light material service" means the container is used to manage a hazardous waste for which both of the following conditions apply: the vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals kPa at 20degrees C; and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20 degrees is equal to or greater than 20 percent by weight. 0.3 kPa is approximately 0.043 pounds per square inch (psi). There are three levels of acceptable controls. Table 2 of Attachment 3 provides a matrix for determining requirements for all three container levels (Container Standards). Requirements for all three container levels are summarized in the following paragraphs:

V.A.2.a Container Level 1 controls require that the hazardous waste is stored in (1) an approved Department of Transportation (DOT) container, (2) a container equipped with a cover and closure devices for each opening, or (3) an open top container with an

organic-vapor suppressing barrier, such as a tight fitting trap or an organic-vapor suppressing foam. Method 21 testing is not required for Level 1 containers.

V.A.2.b Container Level 2 controls require that the hazardous waste is stored in (1) an approved DOT container, (2) a container that operates with no detectable organic emissions as tested using Method 21 of 40 CFR Part 60, Appendix A, or (3) a demonstrated vapor-tight container using 40 CFR Part 60, Appendix A, Method 27.

V.A.2.c Container Level 3 controls require that the hazardous waste is stored in a container that is either vented directly to an air emission control device or located inside an enclosure that is vented through a closed vent system to a control device. The Level 3 enclosure must be designed and Container Level 3 controls require that the hazardous waste is stored in a container that is either vented directly to an air emission control device or located inside an enclosure that is vented through a closed vent system to a control device. The Level 3 enclosure must be designed and operated in accordance with criteria for a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, Appendix B.

V.A.2.d Additional requirements applicable to containers

If hazardous waste is in a container when the Facility first accepts it, the Facility must perform a visual inspection of the container within 24 hours after its arrival and at least once a year thereafter. Repairs of defects must be completed within five (5) days of detection or the contents of the container must be transferred to a container that is in compliance with the 40 CFR 264 Subpart CC regulations.

For containers using Level 3 control, recordkeeping requirements include: (1) design documentation for enclosures, and (2) records for closed-vent system and control device in accordance with 40 CFR 264 Subpart CC requirements.

The owner or operator of containers without air emission controls shall prepare and maintain the facility operating log fulfilling 40 CFR 264 Subpart CC requirements.

SECTION VI – CORRECTIVE ACTION FOR SWMUs/AOCs/RELEASES

The objective of the corrective action program at a hazardous waste management facility is to evaluate the nature and extent of releases of hazardous waste and/or hazardous constituents and, if necessary, implement corrective measures to protect human health and the environment. KDHE may require corrective action, as specified in the following permit conditions, for any previously or newly identified, known or suspected, SWMU/AOC/release pursuant to the following:

- 40 CFR 264.101 which specifies corrective action requirements associated with SWMUs for an owner or operator seeking a permit for the treatment, storage or disposal of hazardous waste;
- 40 CFR 270.32(b)(2) which provides for establishment of permit conditions, on a case-by-case basis, related to permit duration, schedules of compliance, and monitoring, including the establishment of corrective action requirements for AOCs and releases
- K.S.A. 65-3453 which provides the Secretary certain statutory authority concerning clean-up activities including, but not limited to, reimbursement of KDHE oversight costs; and,
- K.S.A. 65-3455 which describes responsibilities associated with payment of clean-up costs, and those actions necessary to recover such costs.

The Permittee shall implement corrective action activities as specified in this Permit, and in a manner consistent with available guidance as directed or approved by KDHE. Furthermore, pursuant to 40 CFR 264.101, the Permittee shall provide assurances of financial responsibility for completing such corrective action activities as required under Permit Condition II.M.

All corrective action activities contemplated or performed pursuant to Section VI of this Permit shall be conducted subject to the approval of KDHE in accordance with the terms of this Permit and consistent with the standards, specifications, and schedules approved by KDHE as contained in the attachments to this Permit. Unless otherwise specified in this Permit, and/or as approved or directed by KDHE, corrective action activities will be accomplished through implementation of the process steps detailed in Permit Conditions VI.G. through VI.M., as required. All documents submitted to KDHE pursuant to this Permit shall be considered draft documents until approved by KDHE. Any documents, reports, plans, specifications, schedules, and/or attachments required by this Permit, upon approval by KDHE, and any KDHE documents granting such approval, shall be deemed incorporated into this Permit. Upon KDHE approval, the Permittee shall implement the tasks detailed in the subject work plan in accordance with the corresponding implementation schedule.

If KDHE determines that further actions beyond those provided by Section VI of this Permit, or changes to permit conditions stated herein, are warranted, KDHE shall modify the permit conditions in Section VI, in accordance with this Permit Condition I.B.1.

VI.A. CORRECTIVE ACTION REQUIREMENTS

VI.A.1. Corrective Action at the Facility

The Permittee shall institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste(s) or hazardous constituent(s) from any SWMU or AOC at the Facility, regardless of the time the waste was placed in such unit(s). [40 CFR 264.101(a)]

VI.A.2. Corrective Action beyond the Facility Boundary

The Permittee shall institute corrective action beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to KDHE's satisfaction that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the Facility boundary where access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided. [40 CFR 264.101(c)]

VI.A.3. Additional Corrective Action Requirements

In addition to those corrective action requirements, as specified under Permit Conditions VI.A.1. and VI.A.2., the Permittee shall institute corrective action in accordance with all terms and conditions established in this Permit, as KDHE has determined necessary to protect human health and the environment. [40 CFR 270.32(b)(2)]

VI.B. APPLICABILITY

The permit conditions of this section apply to:

- VI.B.1. The SWMUs/AOCs/releases identified by the initial RCRA Facility Assessment (RFA), any subsequent investigations, or other means, are listed in Permit Condition VI.C. Unless otherwise specified in this Permit, all currently known SWMUs/AOCs/releases identified herein, shall be addressed individually at the point of unit closure or in total at the time of facility closure, whichever occurs first. However, if new information becomes available to indicate an imminent

threat to human health or the environment, or off-site contaminant migration is occurring or is likely to occur, KDHE may direct the Permittee in writing to immediately conduct corrective action activities.

VI.B.2. Any additional SWMUs/AOCs/releases discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means. As used in this Section of the Permit, the terms "discover", "discovery", or "discovered" refer to the date on which the Permittee or a KDHE representative either (1) visually observes evidence of a new SWMU/AOC/release (2) visually observes evidence of a previously unidentified release of hazardous constituents to the environment, or (3) receives information which suggests the presence of a new release of hazardous waste or hazardous constituents to the environment.

VI.C. IDENTIFICATION OF SOLID WASTE MANAGEMENT UNITS (SWMUs), AREAS OF CONCERN (AOCs), AND/OR RELEASES

A RCRA Facility Assessment (RFA) was completed for the Kansas Army Ammunition Plant (KAAP) facility in March 1989 in which one-hundred sixty (160) SWMUs and AOCs were identified. In Part II of the 1989 Permit, the SWMUs and AOCs were divided into SWMU Groups to facilitate planning and implementation of the RCRA Facility Investigation (RFI). A table correlating SWMU Groups to RFA SWMU numbers is included as Permit Attachment 4A. Approximately 4,000 acres of the KAAP facility was transferred to DZI in 2013. The following list, based on currently available information, represents the SWMU Groups and AOCs that have been retained on the DZI property. Attachment 4B of this Permit includes a map which identifies the location of each SWMU Group and AOC identified below. A generalized description of each SWMU Group and AOC is presented in Attachment 5 to this Permit.

SWMU Group

9	1000 Area SWMUs
10	1100 Area SWMUs
17	Open Detonation Field
21	Closed Container Storage Areas 1813, 1914, 1915, 1916, 1917, 1958, 1961, 1974 and 1976 Container Storage Areas 1816, 1934, 1935, 1936, 1942, 1967, 1969, 1970, and 1979 to begin operation upon permit issuance Container Storage Areas 2707, 2708, and 2709
24	Burn Pad 6

AOC

1	Water Tower 4
2	Mercury Fulminate Disposal Site
3	Old Ammunition Storage Area
4	Quarry Operation

Within ninety (90) days of the effective date of this Permit, the Permittee shall submit a Description of Current Conditions (DCC) Report in accordance with Permit Condition VI.G. and Permit Attachment 6. In addition to the scope of work provided in Permit Attachment 6, the DCC Report shall provide a complete list of SWMU Groups, individual SWMUs and AOCs located within the DZI property boundary along with a summary of all associated historical investigations and/or corrective action activities. Upon KDHE review and approval of the DCC Report, a permit modification will be initiated to update the list of SWMU Groups, individual SMWUs and AOCs provided herein as well as the SWMU/AOC descriptions provided in Attachment 5.

VI.D. DESCRIPTION OF PAST AND/OR ON-GOING GROUNDWATER CORRECTIVE ACTION ACTIVITIES

Groundwater contamination was originally detected in the 1000 Area and 1100 Area (SWMU Groups 9 and 10, respectively) during the RFI phase of the corrective action process. Long Term Monitoring (LTM) was selected as the remedy in the November 2005 Statement of Basis, thus providing the existing framework for groundwater monitoring within these areas. Pending determinations made pursuant to Permit Condition VI.D.1., the Permittee shall continue groundwater monitoring at SWMU Groups 9 and 10 in accordance with the procedures described in *Site Wide Groundwater Corrective Measures Decision Implementation Sampling and Analysis Plan*, Section E-1 of the approved Part B Application.

VI.D.1. Optimization Evaluation Report

Within one-hundred twenty (120) calendar days of the effective date of this Permit, the Permittee shall submit an Optimization Evaluation Report of SWMU Groups 9 and 10 groundwater monitoring systems. At a minimum, the evaluation shall include a determination that the groundwater monitoring program is sufficient to meet the following objectives:

- a. Is adequate to intercept any more transmissive zone(s) within the uppermost fractures or weathered bedrock aquifer, as applicable;
- b. Is adequate to support collection of representative groundwater samples for comparison to the GWPS;
- c. Is adequate to detect significant evidence of increased/decreased contamination of groundwater;

- d. Is adequate to detect the rate of migration and three-dimensional extent of all groundwater contaminant plumes (including beyond the facility property boundary, if necessary).

If the groundwater monitoring system for SWMU Groups 9 and/or 10 is determined to be insufficient, the Permittee shall request a permit modification, subject to KDHE approval, to make appropriate changes to the groundwater monitoring system to meet the objectives listed above.

VI.E. NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY-IDENTIFIED OR SUSPECTED NEW SOLID WASTE MANAGEMENT UNITS (SWMUs), AREAS OF CONCERN (AOCs), AND RELEASES

- VI.E.1. No later than fifteen (15) calendar days from discovery, the Permittee shall notify KDHE in writing of any newly-identified or suspected new SWMU/AOC/release as discovered under Permit Condition VI.B.2. The notification shall include, at a minimum, a unique sequential identification number, the location of the newly-identified or suspected new SWMU/AOC/release in relation to other SWMUs/AOCs/releases, and all available information pertaining to the nature of the release including, but not limited to, suspected or known wastes, hazardous constituents released, media affected, magnitude of release, etc.
- VI.E.2. The Permittee shall prepare and submit to KDHE, within thirty (30) calendar days of notification provided per Permit Condition VI.E.1., a SWMU/AOC/Release Preliminary Assessment Report (PAR) for each SWMU/AOC/release identified under Permit Condition VI.B.2. At a minimum, the PAR shall provide the following information as applicable:
 - a. Unique sequential identification for the SWMU/AOC/release;
 - b. Location of unit(s) in relation to SWMUs/AOCs/releases on a topographic map of appropriate scale such as required under 40 CFR 270.14(b)(19);
 - c. Designation of type and function of unit(s);
 - d. General dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);
 - e. Period during which the unit(s) was operated;
 - f. Past and present operating practices;
 - g. Previous uses of the area occupied by the SWMU/AOC/release;
 - h. Amounts and specifications of waste managed;
 - i. Drainage areas and/or drainage patterns near the SWMU/AOC/release;

- j. Physical and chemical properties of all wastes, including any available data on hazardous constituents in the wastes, that have been managed at/in the unit(s) to the extent available; and,
- k. All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (including results of any sampling and analysis conducted, such as groundwater, soil, air, surface water, and/or sediment).
- l. Recommendations, if any, for additional sampling/data collection, investigation, and/or interim measure activities.

VI.E.3. Based on the information presented in the PAR for each SWMU/AOC/release identified under Permit Condition VI.B.2., KDHE shall determine the need for and timing of confirmatory sampling, investigation, and/or interim measures for each newly-identified or suspected SWMU/AOC/release. If KDHE determines that such additional corrective action-related activities are necessary, the Permittee shall be required to prepare and implement a work plan as outlined in Permit Conditions VI.H., VI.I., and/or VI.J. KDHE will notify the Permittee in writing of the final determination as to the status of the newly-identified or suspected SWMU/AOC/release and any specific corrective action requirements.

VI.F. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES FROM PREVIOUSLY IDENTIFIED SOLID WASTE MANAGEMENT UNITS (SWMUs) AND AREAS OF CONCERN (AOCs)

- VI.F.1. Within fifteen (15) calendar days from discovery, the Permittee shall notify KDHE in writing of any newly-discovered releases(s) of hazardous waste or hazardous constituents from previously-identified SWMUs or AOCs, as described in Permit Conditions VI.B.1. and VI.B.2. The notification shall include, at a minimum, a unique sequential identification number, location of SWMU/AOC/release, and all available information pertaining to the nature and extent of the release (e.g., media affected, hazardous constituent(s) released, magnitude of release, etc.).
- VI.F.2. Based on the information presented in the Permittee's notification, KDHE shall determine the need for and timing of confirmatory sampling, investigation and/or interim measures for each newly-discovered release(s) from previously-identified SWMUs/AOCs. If KDHE determines that such additional corrective action-related activities are necessary, the Permittee shall be required to prepare and implement a plan as outlined in Permit Conditions VI.H., VI.I. and/or VI.J. KDHE will notify the Permittee in writing of the final determination as to the status of the newly-discovered release(s) from previously identified SWMUs/AOCs and any specific corrective action requirements.

VI.G. DESCRIPTION OF CURRENT CONDITIONS REPORT

- VI.G.1. As required, within ninety (90) calendar days from date of a written request from KDHE, the Permittee shall submit to KDHE a Description of Current Conditions (DCC) Report providing background information pertinent to the Facility. The DCC Report shall include information gathered during any previous investigations, inspections, corrective action/interim measure activities, and any other relevant data, to facilitate identification of potential contamination sources and to characterize current site conditions. In addition, the DCC Report shall determine whether or not current human exposures and migration of contaminated groundwater are under control. Specifically, the DCC Report must evaluate whether current human exposure to environmental contamination is occurring at unacceptable levels, and assess migration of existing groundwater contaminant plumes to verify whether or not expanding or adversely affecting nearby surface water bodies.
- VI.G.2. The DCC Report shall meet the requirements of Attachment 6 unless otherwise directed or approved by KDHE in writing. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Attachment 6. Such omissions or deviations are subject to the approval of KDHE.

VI.H. CONFIRMATORY SAMPLING (CS)

- VI.H.1. Within forty-five (45) calendar days of written KDHE notification, the Permittee shall prepare and submit a Confirmatory Sampling (CS) Work Plan to KDHE for each newly-identified or suspected SWMU/AOC/release per Permit Condition VI.E.3., or for each newly-discovered release(s) from previously-identified SWMUs/AOCs per Permit Condition VI.F.2. The CS Work Plan shall include:
- a. Schedule(s) of implementation;
 - b. Sampling and analysis program description of specific actions and parameters necessary to determine whether or not a release of hazardous waste and/or hazardous constituents to the environment has occurred, or is occurring, and to determine whether the release is harmful to human health or the environment;
 - c. Discussion of DQOs;
 - d. QAPP to demonstrate the sampling and analysis program is capable of yielding representative samples of all affected or potentially affected environmental media (e.g., groundwater, surface and subsurface soil, sediment, surface water, and/or air);

- e. Available existing data, with appropriate supporting documentation for KDHE consideration, to partly or wholly satisfy the confirmatory sampling requirement.
- VI.H.2. The CS Work Plan must be approved by KDHE, in writing, prior to implementation. KDHE shall specify the start date of CS Work Plan implementation in the written approval letter. If KDHE disapproves the CS Work Plan, consistent with Permit Condition VI.U., KDHE shall either: (1) notify the Permittee in writing of the CS Work Plan's deficiencies and specify a due date for submission of a revised CS Work Plan; (2) revise the CS Work Plan and notify the Permittee of the revisions; or, (3) conditionally approve the CS Work Plan and notify the Permittee of the conditions.
- VI.H.3. The Permittee shall implement the confirmatory sampling in accordance with the approved CS Work Plan.
- VI.H.4. The Permittee shall provide notification of all CS-related field activities in accordance with Permit Condition VI.T.
- VI.H.5. The Permittee shall prepare and submit to KDHE in accordance with the schedule in the approved CS Work Plan, a Confirmatory Sampling (CS) Report summarizing confirmatory sampling activities and identifying all SWMUs/AOCs/releases where release of hazardous waste or hazardous constituents into the environment is confirmed. The CS Report shall include all data, including raw data, and a summary and analysis of the data that supports the above determination. If submission of the CS Report coincides with submission of the RCRA Facility Investigation (RFI) Report, then the CS Report and the RFI Report may be combined into one submission.
- VI.H.6. Based on the results of the CS Report, KDHE shall determine the need for further investigation, interim measure, and/or corrective measure activities to address the SWMUs/AOCs/releases covered in the CS Report. If KDHE determines that such activities are needed, the Permittee shall be required to prepare and implement a plan for such as outlined in Permit Condition VI.I., VI.J., and/or VI.K. If applicable, KDHE will notify the Permittee of any no further action decision related to the specific SWMUs/AOCs/releases being evaluated.

VI.I. RCRA FACILITY INVESTIGATION (RFI)

The Permittee shall conduct an RFI, as deemed necessary by KDHE, to determine the nature and extent of known and suspected releases of hazardous waste(s) and/or hazardous waste constituent(s) from each SWMU/AOC/release at the Facility, identified

in accordance with Permit Condition VI.B. of this Permit, and to gather data to facilitate risk management decisions, and support development of a Corrective Measures Study (CMS) or Presumptive Remedy Design Concept. The Permittee shall conduct the RFI in accordance with the approved RFI Work Plan, completed per current EPA guidance documents (*RCRA Facility Investigation Guidance, Volumes I through IV*, or equivalent). The RFI Work Plan(s) shall meet the requirements of Attachment 7 unless otherwise directed or approved by KDHE. The Permittee shall conduct the RFI for each SWMU/AOC/release, in accordance with the Facility Submission Summary in Permit Condition VI.V. of this Permit.

VI.I.1. RFI Work Plan

- VI.I.1.a. The Permittee shall prepare and submit to KDHE, within sixty (60) calendar days of written notification by KDHE, an RFI Work Plan for those SWMUs/AOCs/releases identified under Permit Condition VI.C., or as otherwise directed by KDHE. The RFI Work Plan(s) shall be developed to meet the requirements of Permit Condition VI.I. Specifically, the RFI Work Plan(s) shall describe in detail all proposed activities and procedures to be conducted and the overall technical and analytical approach to completing all actions necessary to achieve investigation objectives.
- VI.I.1.b. The RFI Work Plan(s) shall include schedules of implementation and completion of specific actions necessary to delineate and fully characterize the nature, and lateral and vertical extent of contamination for all known and suspected contaminants of concern (COCs) for all affected or potentially affected environmental media at the site. As a component of delineation/characterization efforts, the RFI is required to also fully assess any and all secondary contamination issues (e.g., resulting from mobilization of naturally-occurring elements/substances in the presence of site-related contamination, degradation byproducts, etc.).

The Permittee must provide sufficient justification and associated documentation that a release is not probable or has already been characterized if a unit or a media/pathway associated with a unit (groundwater, surface water, soil, subsurface gas, or air) is not included in the RFI Work Plan(s). Such deletions of a unit, media or pathway from the investigation are subject to the approval of KDHE. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Attachment 7. Such omissions or deviations are subject to the approval of KDHE. In addition, the scope of the RFI Work Plan(s) shall include

all investigations necessary to ensure compliance with 40 CFR 264.101(c).

- VI.I.1.c. The RFI Work Plan(s) must be approved by KDHE, in writing, prior to implementation. KDHE shall specify the start date of the RFI Work Plan schedule in the letter approving the RFI Work Plan(s). If KDHE disapproves the RFI Work Plan, consistent with Permit Condition VI.U., KDHE shall either: (1) notify the Permittee in writing of the RFI Work Plan's deficiencies and specify a due date for submission of a revised RFI Work Plan; (2) revise the RFI Work Plan and notify the Permittee of the revisions; or, (3) conditionally approve the RFI Work Plan and notify the Permittee of the conditions.

VI.I.2. RFI Implementation

- VI.I.2.a. The Permittee shall implement the RFI(s) in accordance with the approved RFI Work Plan(s) and Attachment 7.
- VI.I.2.b. The Permittee shall provide notification of all RFI-related field activities in accordance with Permit Condition VI.T.

VI.I.3. RFI Reporting

- VI.I.3.a. The Permittee shall prepare and submit to KDHE Draft and Final RFI Report(s) for the investigations conducted pursuant to the RFI Work Plan(s) submitted under Permit Condition VI.I.1. The Draft RFI Report(s) shall be submitted to KDHE for review in accordance with the schedule in the approved RFI Work Plan(s). The Final RFI Report(s) shall be submitted to KDHE within thirty (30) calendar days of receipt of KDHE's final comments on the Draft RFI Report. The RFI Report(s) shall include an analysis and summary of all required investigations of SWMUs/AOCs/releases and their results. The summary shall describe the type and extent of contamination at the Facility, including sources and migration pathways, identify all hazardous constituents present in all media, and describe actual or potential receptors. The RFI Report(s) shall also describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area. If the Draft RFI Report is a summary of the initial phase investigatory work, the Report shall include a work plan for the final phase investigatory actions required based on the initial findings. Implementation of any final phase work plan, as approved by KDHE, shall be carried out in accordance with Permit Condition VI.I.2. The objective of this task shall be to ensure that the

investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a CMS, if necessary.

- VI.I.3.b. The Permittee shall prepare and submit to KDHE, along with the Draft and Final RFI Report(s), screening levels for each of the hazardous constituents reported in Permit Condition VI.I.3.a. Screening levels shall be based on the most current version of KDHE's *Risk-Based Standards for Kansas (RSK) Manual*, the latest EPA guidance, or as otherwise directed or approved by KDHE.
- VI.I.3.c. KDHE will review the RFI Report(s), including the screening levels described in Permit Condition VI.I.3.b. KDHE shall notify the Permittee of the need for further investigation if necessary and, if appropriate at this juncture of the investigative process, inform the Permittee, if not already notified, of the need for a CMS to meet the requirements of Permit Condition VI.K. and 40 CFR 264.101. KDHE will notify the Permittee of any no further action decision. Any further investigation required by KDHE shall be conducted in accordance with a schedule specified by KDHE and as approved in accordance with Permit Condition VI.I.1.
- VI.I.3.d. If the time required to conduct the RFI(s) is greater than one-hundred eighty (180) calendar days, the Permittee shall provide KDHE with quarterly RFI Progress Reports (at 90-day intervals) beginning ninety (90) calendar days from the start date specified by KDHE in the RFI Work Plan approval letter. The Progress Reports shall contain the following information at a minimum:
 - i. A description of the portion of the RFI completed;
 - ii. Summaries of findings;
 - iii. Summaries of any deviations from the approved RFI Work Plan during the reporting period;
 - iv. Summaries of any significant contacts with local community public interest groups or other state/local government entities;
 - v. Summaries of any problems or potential problems encountered during the reporting period;
 - vi. Actions taken to rectify problems;
 - vii. Changes in relevant personnel;
 - viii. Projected work for the next reporting period; and
 - ix. Copies of daily reports, inspection reports, data, etc.

VI.I.4. Assessment of Risk

- VI.I.4.a. At a minimum, consistent with Permit Condition VI.I.3.b., the Permittee shall assess the potential excess human health risk posed by site-related COCs through direct comparison to the Tier 2 Levels as provided in KDHE's RSK Manual, or as otherwise directed or approved by KDHE. In addition, the Permittee shall perform a rapid assessment of ecological risk using the EPA Region 6 *Ecological Exclusion Criteria Worksheet* and *Ecological Assessment Checklist*, included as Attachment 8 of this Permit.
- VI.I.4.b. Alternatively, as directed or approved by KDHE, the Permittee shall perform a site-specific quantitative baseline human health risk assessment (HHRA) and screening level ecological risk assessment/baseline ecological risk assessment (SLERA/BERA) to determine whether and the extent to which corrective action is required and arrive at cleanup goals for a site. Any site-specific baseline risk assessment (i.e., HHRA and SLERA/BERA) must be performed consistent with available EPA risk assessment guidance titled *Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Parts A-F* (1989 & 2009), and any subsequent revisions or editions; and, *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments – Interim Final* (1997), and any subsequent revisions or editions; or, as otherwise directed and approved by KDHE.
- VI.I.4.c. Prior to performing a site-specific baseline risk assessment, the Permittee shall submit HHRA and SLERA/BERA Work Plans and, upon completion of site-specific risk assessment activities, the Permittee shall submit HHRA and SLERA/BERA reports, for KDHE approval. All work plans and reports are subject to the provisions of Permit Condition VI.U.

VI.J. INTERIM MEASURES (IM)

If KDHE determines, during the course of any activity initiated in compliance with the permit conditions of Section VI of this Permit, that a release or potential release of hazardous waste(s) and/or hazardous waste constituent(s) from a SWMU/AOC poses a threat to human health or the environment, KDHE may require the Permittee to perform specific interim measures. Interim measures shall be used whenever necessary to achieve the goal of stabilization, which is to control or abate immediate threats to human health and the environment, and to prevent or minimize the spread of contamination while long-

term corrective remedies are being evaluated. Alternatively, subject to KDHE approval, the Permittee may propose interim measures implementation.

VI.J.1. IM Work Plan/Design

- VI.J.1.a. Within thirty (30) calendar days of written KDHE notification, the Permittee shall prepare and submit an IM Work Plan/Design for any SWMU/AOC/release, as determined necessary by KDHE, or as Permittee-proposed/KDHE-approved for implementation. The IM Work Plan/Design shall meet the requirements of Attachment 9 unless otherwise directed or approved by KDHE. Such interim measures may be conducted concurrently with investigations required under the terms of this Permit.
- VI.J.1.b. The Permittee shall notify KDHE within twenty-four (24) hours of becoming aware of the need for IM implementation to mitigate or stabilize an emergency situation. In the case of such an emergency, the Permittee may initiate interim measures at a SWMU/AOC/release concurrent with this notification to KDHE. KDHE may request the Permittee perform additional mitigative measures, request submission of an IM Work Plan/Design per Permit Condition VI.J.1.a., and/or request submission of an IM Report per Permit Condition VI.J.3.
- VI.J.1.c. The IM Work Plan/Design shall ensure that the interim measures are designed to mitigate any current or potential threat(s) to human health or the environment and are consistent with and integrated into any long-term solution at the Facility. The IM Work Plan/Design shall include: the interim measures objectives, procedures for implementation (including any designs, plans, or specifications), and schedules for implementation.
- VI.J.1.d. The IM Work Plan/Design shall be approved by KDHE, in writing, prior to implementation. KDHE shall specify the start date of the IM Work Plan/Design schedule in the letter approving the IM Work Plan/Design. If KDHE disapproves the IM Work Plan/Design, consistent with Permit Condition VI.U., KDHE shall either: (1) notify the Permittee in writing of the IM Work Plan/Design's deficiencies and specify a due date for submission of a revised IM Work Plan/Design, (2) revise the IM Work Plan/Design and notify the Permittee of the revisions and the start date of the schedule within the approved IM Work Plan/Design, or (3) conditionally approve the IM Work Plan/Design and notify the Permittee of the conditions.

VI.J.2. IM Implementation

- VI.J.2.a. The Permittee shall implement the interim measures in accordance with the approved IM Work Plan/Design and Attachment 9.
- VI.J.2.b. The Permittee shall provide notification of all IM-related field activities in accordance with Permit Condition VI.T.
- VI.J.2.c. Final approval of corrective action required under 40 CFR 264.101 which is achieved through interim measure implementation shall be in accordance with 40 CFR 270.41 and Permit Condition 1.B.1. as a permit modification.

VI.J.3. IM Reporting

- VI.J.3.a. If the time required for completion of interim measure implementation is greater than one (1) year, the Permittee shall provide KDHE with progress reports at intervals specified in the approved IM Work Plan or semi-annually for Permittee-initiated interim measures. The Progress Reports shall contain the following information at a minimum:
 - i. A description of the portion of the IM completed;
 - ii. Summaries of findings;
 - iii. Summaries of any deviations from the IM Work Plan during the reporting period;
 - iv. Summaries of any problems or potential problems encountered during the reporting period; and
 - v. Projected work for the next reporting period.
- VI.J.3.b. The Permittee shall prepare and submit to KDHE, within ninety (90) calendar days of completion of interim measures conducted under Permit Condition VI.J., an IM Report. The IM Report shall contain the following information at a minimum:
 - i. A description of interim measures implemented;
 - ii. Summaries of results;
 - iii. Summaries of all problems encountered;
 - iv. Summaries of accomplishments and/or effectiveness of IM; and
 - v. Copies of all relevant laboratory/monitoring data, etc. in accordance with Permit Condition I.E.11.

- VI.J.3.c. When KDHE fulfills the public participation requirements for proposed and final remedy selection, KDHE will concurrently notify the public of interim actions completed or being conducted, and invite the public to consider these actions at the time.
- VI.J.3.d. KDHE may, if warranted, require the Permittee perform additional interim measures and/or corrective action activities to ensure permit requirements are fully met.

VI.K. CORRECTIVE MEASURES STUDY (CMS)

Based on the results of the RFI, as required by KDHE under Permit Condition VI.I.3.c., the Permittee shall identify, screen, and develop the alternative(s) for removal, containment, treatment and/or other remediation of the contamination. The Permittee shall conduct the CMS in accordance with an approved CMS Work Plan, completed per current guidance documents from EPA (*RCRA Corrective Action Plan* (EPA/520-R-94-004), or equivalent). The CMS Work Plan(s) shall meet the requirements of Attachment 10 unless otherwise directed or approved by KDHE. KDHE may require the Permittee to evaluate as part of the CMS one or more additional potential corrective measures. These corrective measures may include a specific technology or combination of technologies that, in KDHE's judgment, achieves protection of human health and the environment.

As appropriate, with detailed justification for an alternate approach and subject to KDHE approval, the Permittee may develop a Presumptive Remedy Design Concept without the comparative alternatives analysis element typical of a CMS. All other CMS-related requirements contained in Permit Condition VI.K. apply to design concept development and implementation.

Where interim measures have been implemented and are anticipated to constitute the final remedy, subject to KDHE approval, the Permittee may prepare a Focused CMS following the general CMS outline in Permit Conditions VI.K.1. through VI.K.4. below. Within the Focused CMS, the Permittee shall propose the final corrective remedy for the Facility, a justification of why the proposed corrective action (i.e., interim measures having occurred or are occurring) are protective of human health and the environment, and proposed criteria for KDHE to determine when the proposed corrective action shall be considered complete.

- VI.K.1. The Permittee shall prepare and submit to KDHE a CMS for those SWMUs/AOCs/releases where hazardous constituents have come to be located at concentrations exceeding those appropriate for the protection of human health and the environment. The CMS shall be developed to meet the requirements of Permit Condition VI.K. The Permittee may seek approval from KDHE for concurrent RFI/CMS. The CMS may be performed concurrent with the RFI

process if KDHE determines that sufficient investigative details are available to allow concurrent action.

- VI.K.2. The CMS shall meet the requirements of Attachment 10 of this Permit at a minimum. The CMS shall include schedules of implementation and completion of specific actions necessary to complete a CMS. The Permittee must provide sufficient justification and/or documentation for any unit deleted from the CMS.

Such deletion of a unit is subject to the approval of KDHE. The scope of the CMS shall include all investigations necessary to ensure compliance with 40 CFR §§264.101, 264.552, and 270.32(b)(2). The Permittee shall implement corrective actions beyond the facility boundary, as set forth in Permit Condition VI.A.2.

- VI.K.3. The Permittee shall submit the draft CMS no later than ninety (90) calendar days of written notification by KDHE that a CMS is required.
- VI.K.4. KDHE shall either approve or disapprove, in writing, the CMS. If KDHE disapproves the CMS, consistent with Permit Condition VI.U., KDHE shall either (1) notify the Permittee in writing of the CMS's deficiencies and specify a due date for submission of a revised CMS, (2) revise the CMS and notify the Permittee of the revisions, or (3) conditionally approve the CMS and notify the Permittee of the conditions. This modified CMS becomes the approved CMS.

VI.L. CORRECTIVE MEASURES SELECTION AND PERMIT MODIFICATION

KDHE will select corrective measure(s) that will (1) protect human health and the environment; (2) attain media cleanup standards set by KDHE; (3) control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases that may pose a threat to human health and the environment; and, (4) meet all appropriate state and federal requirements. Before selecting corrective measures, KDHE will prepare a Statement of Basis that identifies the preferred corrective measure or measures and provides the reasons for the selection. KDHE will make a Final Remedy Decision after public notice and public review of the Statement of Basis, and review of all public comments. If necessary, KDHE will initiate a permit modification pursuant to 40 CFR 270.41 to require implementation of the preferred corrective measure or measures. Alternatively, this Permit may be modified by the Permittee pursuant to 40 CFR 270.42(c) for the implementation of the KDHE-selected corrective measure or measures.

- VI.L.1. A corrective measures decision shall be selected from the remedial alternatives evaluated in the CMS. It will be based at a minimum on protection of human health and the environment, as per specific site conditions and existing

regulations. The selected remedy may include any interim measures implemented to date.

- VI.L.2. KDHE will provide the public an opportunity to review and comment on the Statement of Basis. Pursuant to 40 CFR 270.41, a permit modification will be initiated by KDHE after recommendation of a remedy under Permit Condition I.B.1. This modification will serve to incorporate a final remedy and remedy implementation schedules into this Permit. The permit modification shall include a schedule and date for remedy construction.
- VI.L.3. Following the public comment period, KDHE may approve the CMS Report and select a final corrective measure(s) or require the Permittee to revise the CMS Report and/or perform additional CMS activities.
- VI.L.4. KDHE will notify the Permittee of the final corrective measure selected by KDHE in the Final Decision and Response to Comments. The notification will include KDHE's reasons for corrective measure selection.
- VI.L.5. Upon the effective date of the permit modification approving the selected remedy, the Permittee shall implement the approved remedy per the CMS remedy implementation schedule. The Permittee shall submit the corrective measures implementation and/or final remedy effectiveness reports annually to KDHE in accordance with Permit Condition VI.M.3.c.
- VI.L.6. Within one-hundred and twenty (120) calendar days after this Permit has been modified for remedy selection, the Permittee shall provide cost estimates and demonstrate financial assurance for completing the approved remedy in accordance with Permit Condition VI.M. Thereafter, the Permittee shall review the remedy cost estimates, adjust the financial assurance instrument, and submit to the KDHE any necessary changes in the cost estimates and adjustments to the financial assurance instrument annually. The mechanism for financial assurance shall be one that is described and allowable under 40 CFR 264.140 through 264.151 Subpart H.

VI.M. CORRECTIVE MEASURES IMPLEMENTATION

Within sixty (60) calendar days of selection by KDHE of a final remedy/corrective measure, the Permittee shall submit a Corrective Measures Implementation (CMI) Work Plan to implement the selected corrective measure(s). The CMI Work Plan shall meet the requirements of Attachment 11, unless otherwise directed or approved by KDHE. All CMI-related activities shall be conducted in a manner consistent with available EPA guidance (*RCRA Corrective Action Plan*, EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994).

- VI.M.1. The CMI Work Plan shall be approved by KDHE, in writing, prior to implementation. KDHE shall specify the start date of the CMI Work Plan schedule in the letter approving the CMI Work Plan. If KDHE disapproves the CMI Work Plan, consistent with Permit Condition VI.U., KDHE shall either: (1) notify the Permittee in writing of the CMI Work Plan's deficiencies and specify a due date for submission of a revised CMI Work Plan, (2) revise the CMI Work Plan and notify the Permittee of the revisions and the start date of the schedule within the approved CMI Work Plan, or (3) conditionally approve the CMI Work Plan and notify the Permittee of the conditions.
- VI.M.2. The Permittee shall implement the corrective measures in accordance with the approved CMI Work Plan and Attachment 11. The Permittee shall provide notification of all CMI-related field activities in accordance with Permit Condition VI.T. KDHE may, if warranted, require the Permittee perform additional corrective action measures to ensure permit requirements are fully met.

VI.M.3. CMI Reporting

- VI.M.3.a. If the time required for completion of corrective measure implementation is greater than one (1) year, the Permittee shall provide KDHE with progress reports at intervals specified in the approved CMI Work Plan. The Progress Reports shall contain the following information at a minimum:
- i. A description of the portion of the corrective measures completed;
 - ii. Summaries of findings;
 - iii. Summaries of any deviations from the CMI Work Plan during the reporting period;
 - iv. Summaries of any problems or potential problems encountered during the reporting period; and
 - v. Projected work for the next reporting period.
- VI.M.3.b. The Permittee shall prepare and submit to KDHE, in accordance with the approved CMI Work Plan schedule, a Corrective Measures Construction Completion (CMCC) Report. The CMCC Report shall contain the following information at a minimum:
- i. Description of purpose of the CMCC Report;
 - ii. Synopsis of the corrective measure, design criteria, and certification that the corrective measure was constructed in

accordance with the final plans and specifications as contained in the CMI Work Plan;

- iii. Explanation and description of any modifications to the KDHE-approved CMI Work Plan and why these were necessary for the project;
- iv. Results of any operational testing and/or monitoring, indicating how initial operation of the corrective measure compares to the design criteria;
- v. Summary of significant activities that occurred during construction, including a discussion of problems encountered and how they were addressed;
- vi. Summary of any inspection findings (include copies of key inspection documents in appendices); and,
- vii. As-built drawings, process flow diagrams, and photographs depicting the constructed corrective measures.

VI.M.3.c. The Permittee shall submit a Corrective Measures Implementation (CMI) Annual Report to KDHE no later than March 1 of each year of the prior year's performance of the corrective measures above, including institutional controls (ICs). The CMI Annual Report shall include documentation of all samples and data collected and their analysis, and an evaluation of both the short-term and long-term effectiveness of the corrective measures. The CMI Annual Report shall include any deficiencies or violations of engineering controls (ECs) or ICs determined from the inspection, maintenance, and monitoring required in the Corrective Measures Work Plan. Based upon KDHE's review of the report, KDHE may require the Permittee to conduct additional investigation, study, and/or work in order to modify an existing corrective measure or to select a new corrective measure or measures. If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, KDHE may require the Permittee to implement Interim Measures pursuant to Permit Condition VI.J.

VI.M.3.d. Every five (5) years, the Permittee shall submit a report to KDHE which evaluates the effectiveness and performance of corrective measures implementation. Within sixty (60) days after the five-year anniversary of KDHE approval of the CMCC Report, the Permittee shall submit to KDHE for review and approval a Five-Year Corrective Measures Performance Evaluation Report. The evaluation shall be consistent with the *CERCLA Comprehensive Five-Year Review Guidance*, *OSWER9355.7-03B-P*, and any subsequent revisions or

additions, or as otherwise directed by KDHE, and include the following:

- i. Annual reports required in the CMI Work Plan.
- ii. Effectiveness of corrective measures in protecting human health and the environment as planned in the Statement of Basis.
- ii. Effectiveness of ECs and ICs in protecting human health and the environment as planned in the Statement of Basis.
- iii. Results of sampling and analysis to determine the effectiveness and performance of the corrective measures.
- iv. Any changed circumstances that render the corrective measures, including ECs and ICs, ineffective.
- v. Possible modifications to the corrective measures to provide necessary protection.
- vi. Any other reporting requirements included in the KDHE-approved CMI Work Plan.

Based upon KDHE's review of the report, KDHE may require the Permittee to conduct additional investigation, study, and/or work in order to modify an existing corrective measure or to select a new corrective measure(s). If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, KDHE may require the Permittee to implement interim measures pursuant to Permit Condition VI.J.

VI.M.3.e. The Permittee shall submit a Corrective Measures Completion (CMC) Report to KDHE within ninety (90) calendar days of the completion of all remedial activities required by Permit Condition VI.M. The purpose of the CMC Report is to fully document how the corrective measure completion criteria have been satisfied and to justify why the corrective measure and/or monitoring may cease. The CMC Report shall, at a minimum, include the following elements:

- i. Purpose;
- ii. Synopsis of the corrective measure;
- iii. Corrective Measure Completion Criteria: Describe the process and criteria for determining when corrective measures, maintenance and monitoring may cease.
- iv. Demonstration that the completion criteria have been met. Include results of testing and/or monitoring, indicating how operation of the corrective measure compares to the completion criteria;

- v. Summary of work accomplishments (e.g., performance levels achieved, total treated and/or excavated volumes, nature and volume of wastes generated, etc.);
- vi. Summary of significant activities that occurred during operations. Include a discussion of problems encountered and how they were addressed;
- vii. Summary of inspection findings (include copies of key inspection documents in appendices);
- viii. Summary of total operation and maintenance costs; and
- ix. Determination of whether ECs and/or ICs are required to continue to be maintained.

KDHE will review the CMC Report for approval in accordance with the procedures set forth in Permit Condition VI.U. The Permittee shall also submit an electronic copy of the report in a format and on a media approved by KDHE that incorporates all changes and/or revisions required for approval. Upon approval of the CMC Report, KDHE shall notify the Permittee in writing of release from financial assurance obligations.

VI.N. CHANGE IN PROPERTY USE

If property use restrictions are included as a part of the KDHE-selected corrective measures, before the property use can be changed, the Permittee shall submit a request for a permit modification to include a new risk assessment, as determined necessary by KDHE, and corrective measures study, or equivalent, that addresses potential exposures associated with the proposed property use. KDHE will review the permit modification supporting documentation for approval in accordance with the procedures set forth in Permit Condition VI.U. Changes in corrective measures shall be selected in accordance with procedures in Permit Condition VI.L. Upon final selection and modification into the Permit, the Permittee shall implement any new corrective measures.

VI.O. ADDITIONAL WORK

If at any time during implementation of corrective action under this Permit KDHE determines that additional work is necessary to accomplish the corrective action required under this Permit, KDHE will provide written notification to the Permittee of the requirement for additional work to be performed by the Permittee. KDHE may determine that certain tasks, including, but not limited to, investigatory work or engineering evaluation are necessary in addition to the tasks and deliverables already required under this Permit. KDHE will specify the basis and reasons for its determination that the additional work is necessary and will request submittal of a draft work plan to perform the additional work. Within sixty (60) days of KDHE's written request, the Permittee

shall submit a draft work plan for KDHE review and approval pursuant to Permit Condition VI.U. Upon KDHE approval, the Permittee shall perform the additional work according to the KDHE-approved work plan. The completion of the additional work, as specified in this permit condition, shall be documented by the Permittee in accordance with the approved schedule for the additional work.

VI.P. INSTITUTIONAL CONTROL (IC) REQUIREMENTS

- VI.P.1. If contamination will remain onsite at levels that do not allow for unrestricted use and unlimited exposure at the Facility, the Permittee and any subsequent owners or operators, shall implement ICs to ensure protection of human health and the environment by minimizing the potential for exposure to contamination that remains on the Facility property. At a minimum, ICs shall ensure the facility property is not developed, used, or operated in a manner incompatible with the KDHE-approved corrective action. Required ICs shall be maintained for the duration of this Permit and any subsequent modifications or renewals, or as otherwise directed by KDHE.
- VI.P.2. The Permittee, and any subsequent owner or operator, shall implement ICs to meet the requirements of Permit Condition VI.N., pursuant to Kansas statutes and regulations, to prevent unacceptable exposures to human health and the environment.
- VI.P.3. The Permittee must propose to KDHE in a detailed IC Plan, the ICs to be implemented if unrestricted use of and unlimited exposure at the Facility is not attainable. The IC Plan must be submitted within thirty (30) calendar days following the determination that unrestricted use and unlimited exposure cleanup standards have not been reached, or as otherwise directed by KDHE.
- VI.P.4. The ICs shall be consistent with available EPA guidance as approved by KDHE, including but not limited to, *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, EPA-540-R-09-001, OSWER 9355.0-89, December 2012; *Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites*, EPA-540-R-09-002, OSWER 9200.0-77, December 2012; and, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000.
- VI.P.5. The Permittee shall provide a detailed IC Plan for the establishment of enforceable ICs. The IC Plan shall include:

- a. Drafts of all proposed IC documents and/or instruments;
- b. Specifications and schedule for monitoring, review and reporting on the effectiveness of the IC(s); and
- c. A schedule for the implementation of the IC Plan, and a title search report for the Facility.
- d. KDHE will review the IC Plan for approval in accordance with the procedures in Permit Condition VI.U. Upon approval of the IC Plan by KDHE, the Permittee shall implement the IC Plan in conformance with the schedule contained therein and in a form acceptable to or as provided by KDHE.
- e. The Permittee shall record all instruments approved by KDHE with the register of deeds in the county where the property is located. The Permittee shall submit, to KDHE, a copy of the recorded instrument with the notarized signature of the applicant and the seal of the register of deeds indicating the agreement has been recorded.
- f. The requirements for ICs shall be maintained as specified in this Permit and shall not be terminated until KDHE has determined that the concentration of hazardous constituents in the soil and groundwater are at such levels to allow for unlimited use and unrestricted exposure. Before ICs are terminated or modified, KDHE must agree in writing to any modification or termination of ICs.

VI.Q. CORRECTIVE ACTION SCHEDULE OF COMPLIANCE MODIFICATION

- VI.Q.1. If at any time KDHE determines that modification of the corrective action Schedule of Compliance is necessary, KDHE may initiate a modification to the corrective action Schedule of Compliance.
- VI.Q.2. Modifications that are initiated and finalized by KDHE will be in accordance with the applicable provisions of 40 CFR Part 270. The Permittee may also request a permit modification in accordance with 40 CFR Part 270 to change the corrective action Schedule of Compliance.

VI.R. WORK PLAN AND REPORT REQUIREMENTS

- VI.R.1. All work plans and schedules shall be subject to approval by KDHE prior to implementation to assure that such work plans and schedules are consistent with the requirements of this Permit and with applicable regulations. Any approved schedule of implementation contained in any work plan, addendum, or additional phases becomes part of the Permit. The Permittee shall revise all

submissions and schedules as specified by KDHE. Upon approval, the Permittee shall implement all work plans and schedules as written.

- VI.R.2. All work plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submissions may be granted by KDHE based on the Permittee's demonstration that sufficient justification for the extension exists.
- VI.R.3. If the Permittee at any time determines that the corrective action work having been or being performed no longer satisfy the requirements of 40 CFR 264.101 or this Permit for prior or continuing releases of hazardous waste or hazardous constituents from SWMUs and/or AOCs, the Permittee shall submit an amended work plan(s) to KDHE within ninety (90) calendar days of such determination.
- VI.R.4. One (1) hard copy of all reports and work plans and an electronic version of the same reports/work plans shall be provided by the Permittee to KDHE as described in Permit Condition I.H.

VI.S. REIMBURSEMENT OF KDHE CORRECTIVE ACTION COSTS

The Permittee shall reimburse KDHE costs as defined herein, pursuant to K.S.A. 65-3453(a)(4), K.S.A. 65-3453(a)(6), and K.S.A. 65-3455, for all corrective action activities performed under this Permit:

- VI.S.1. "KDHE costs" shall mean all direct and administrative costs and expenditures incurred by or on behalf of KDHE to conduct or support corrective action activities at the Facility. The term "direct costs" shall include, but is not limited to, employee or contractor time related to oversight, sampling, investigation work, corrective action work, document review and preparation, negotiation and preparation of enforcement documents and actions, internal and external discussions, travel expenses, and public involvement activities; equipment used; and other costs directly associated with, or incurred at or in relation to, the Facility. The term "administrative costs" shall include, but is not limited to, overhead and general administrative expenses.
- VI.S.2. As described herein, a quarterly invoice shall be prepared for all KDHE costs incurred during each calendar quarter. On a per annum basis, the quarterly invoice amount shall be subtracted from the credited corrective action cost reimbursement balance until no balance remains of the annual post-closure monitoring fee. Costs incurred by KDHE thereafter shall be billed on a quarterly basis as described in the paragraphs below. There shall be no carry-over from one year to the next of any residual post-closure monitoring fee credited towards corrective action cost reimbursement.

KDHE costs incurred from the effective date of the Permit until the end of the next calendar quarter shall be billed forty-five (45) days following the end of the calendar quarter. Thereafter, KDHE shall bill the Permittee for all KDHE costs incurred during each calendar quarter forty-five (45) days following the end of the calendar quarter. Unless the Permittee disagrees with the KDHE costs pursuant to Permit Condition VI.S.5., payment of the invoice is due upon receipt for which the Permittee shall remit a check for the full amount of those KDHE costs made payable to the Kansas Department of Health and Environment. Failure to pay the total invoice due within thirty (30) days of issuance of the invoice shall be considered a violation of the Permit. An exemplar of the invoice to be used may be found as Attachment 12.

- VI.S.3. Payment for all KDHE costs assessed to the Permittee shall be made to the attention of the program contact and address noted on the invoice:

Kansas Department of Health and Environment
Bureau of Waste Management
1000 SW Jackson Street, Suite 320
Topeka, KS 66612-1366

A copy of the check and transmittal letter shall be sent to KDHE as outlined in Permit Condition I.H.

- VI.S.4. KDHE costs that have been invoiced to the Permittee and that are past-due and owing shall be subject to interest if KDHE initiates a civil action to enforce the cost reimbursement requirements in this Permit. KDHE shall notify the Permittee in writing of its past-due requirements to pay KDHE's costs before filing a civil action to enforce any cost reimbursement requirements. Interest shall be calculated pursuant to K.S.A. 16-201 and K.S.A. 16-204, as applicable.
- VI.S.5. In the event the Permittee disagrees with any cost invoiced under this Permit, the Permittee shall, within fifteen (15) days of receipt of the applicable invoice, send written notice of cost disagreement to KDHE, as described in Permit Condition I.H., stating the specific terms of the disagreement, and providing copies of relevant information.
- VI.S.5.a. Within thirty (30) days of receipt of any such notice of cost disagreement from the Permittee, KDHE and the Permittee shall meet by telephone or in person to attempt to reach agreement on the matter. If the parties cannot reach agreement by consent during this period, KDHE shall issue a final written decision on the cost disagreement.

- VI.S.5.b. In the event that the Permittee seeks resolution of cost disagreement concerning an invoice, the date for payment of the invoice shall be extended for a period equal to and running concurrent with the delay resulting from the invocation of the cost disagreement resolution provision. However, such extension does not alter the schedule for performance of completion of any other tasks required by this Permit, including but not limited to timely payment of preceding and subsequent invoices.
- VI.S.5.c. In the event that the Secretary determines that resolution of cost disagreement was not sought in good faith, the Permittee shall be responsible for all additional KDHE costs incurred as a result of the Permittee invoking resolution of cost disagreement.

VI.T. CORRECTIVE ACTION FIELD ACTIVITIES NOTIFICATION

The Permittee shall provide KDHE at least twenty (20) calendar days advance written notification before conducting any investigation and/or corrective action, or other ancillary activities related to such measures, whether conducted pursuant to this Permit or to a request, requirement, or order from any other federal, state, or local regulatory authority where the resultant data or information would be used in part or in full to satisfy requirements of this Permit. Failure to provide advance written notification may result in KDHE rejecting the data obtained or work performed by the Permittee. Once the Permittee is formally notified of web-based form availability, advance written notification shall be provided by the Permittee by completing the *KDHE-BWM Hazardous Waste Permitting Section Field Activities Notification Form* on the KDHE website for each activity as distinguished by separate field mobilizations. Until the point of such formal notification, or if internet or website access is not available, the Permittee shall submit the *KDHE-BWM Hazardous Waste Permitting Section Field Activities Notification Form* (Attachment 13) to KDHE, as described in Permit Condition I.H.

VI.U. CORRECTIVE ACTION DOCUMENT SUBMITTAL AND WORK PERFORMANCE REQUIREMENTS

VI.U.1. Document Submission and Modification Process

As outlined in Permit Conditions I.H. and VI.V., the Permittee shall submit identified or requested documents to KDHE within the timeframes established in this Permit, or as otherwise approved or specified by KDHE. KDHE shall review the document and send a written letter to the Permittee indicating approval, approval with comment, denial, or such other designation as KDHE

determines appropriate. If a written response and/or document revision is requested, the Permittee shall provide such in the form and by the due date specified in KDHE's written letter.

VI.U.2. Inadequate Document Modification – Notice to Correct

In the event that the Permittee does not respond to KDHE's written letter request or if KDHE finds that a document submitted pursuant to this Permit is inadequate, KDHE will issue a Notice to Correct to the Permittee requesting that the Permittee make specific modifications to any document required by this Permit. The Notice to Correct sets out the deficiencies in the work, describes the necessary modifications to address the deficiencies and provides an expected timeframe to correct the deficiencies. Failure to revise, correct or otherwise respond to the Notice to Correct shall be a violation of this Permit and may subject the Permittee to additional tasks or penalties.

VI.U.3. Work Takeover – Notice

If the Permittee fails to revise, correct or otherwise respond to KDHE's Notice to Correct for inadequate document modification or work performance in accordance with the schedule specified in the Notice to Correct, or if KDHE determines the Permittee, either: 1) has ceased implementation of any of the work, 2) is seriously or repeatedly deficient or late in its performance of the work, or 3) is implementing the work in a manner which may cause an endangerment to human health or the environment, KDHE at its discretion, may assume or arrange for a contractor or contractors to assume the performance of all of any portions of the work as KDHE determines necessary. If KDHE determines that such a work takeover is necessary, it will send the Permittee a Notice of Work Takeover specifying a date upon which KDHE may assume or arrange for a contractor or contractors to assume the performance of all or any portions of the work. In the event of work takeover, pursuant to K.S.A. 65-3453(a)(4) and K.S.A. 65-3453(a)(6), the Permittee shall pay for all KDHE costs incurred by KDHE and any contractor who performs work pursuant to this Paragraph.

VI.U.4. Additional Tasks May Be Required

KDHE may determine that tasks may be required that are in addition to those specified in the approved work plans or associated documents/reports, as identified in Permit Condition VI.V. of this Permit. In the event KDHE makes such a determination, it shall notify the Permittee in writing that additional tasks are necessary in order to meet the goals and objectives of this Permit, to assess risk in accordance with Permit Condition VI.I.4. for any additional

contaminant(s) detected, to conform to applicable laws, and/or to protect public health or safety or the environment. If such tasks are required, they shall be completed as specified by KDHE and within the timeframes established by KDHE.

VI.U.5. Failure to Comply

Failure to comply with any of the terms and conditions of this Permit shall be considered a violation of this Permit and may subject the Permittee to such administrative actions and penalty provisions as set forth in this Permit or otherwise authorized by law.

VI.V. FACILITY SUBMISSION SUMMARY

The following is a summary table of the required facility submissions/reporting pursuant to Section VI of this Permit.

SUBMISSION REQUIREMENTS	DUE DATE	PERMIT CONDITION
Optimization Evaluation Report	Within one-hundred twenty (120) calendar days from effective date of Permit	IV.F.3.d VI.D.1.
Notification of Newly-Identified or Suspected New SWMUs/AOCs/Releases	No later than fifteen (15) calendar days from discovery	VI.E.1.
SWMU/AOC/Release Preliminary Assessment Report	Within thirty (30) calendar days of notification per Permit Condition VI.E.1.	VI.E.2.
Notification of Newly-Discovered Releases from Previously Identified SWMUs/AOCs	No later than fifteen (15) days from discovery	VI.F.1.
DCC Report	Within ninety (90) calendar days from effective date of Permit	VI.C. VI.G.
CS Work Plan	Within forty-five (45) calendar days from date of written KDHE request	VI.H.1.
CS Report	According to the schedule contained in approved CS Work Plan	VI.H.5.
RFI Work Plan	Within sixty (60) calendar days from date of written KDHE request	VI.I.1.a.
RFI Report	According to schedule contained in approved RFI Work Plan and/or any RFI Work Plan addenda	VI.I.3.a.
Quantitative Baseline HHRA and SLERA/BERA	As directed or approved by KDHE	VI.I.4.
IM Work Plan/Design	Within thirty (30) calendar days from date of written KDHE request	VI.J.1.a.

SUBMISSION REQUIREMENTS	DUE DATE	PERMIT CONDITION
IM Report	Within ninety (90) calendar days of IM completion	VI.J.3.b.
CMS	Within ninety (90) calendar days from date of written KDHE request	VI.K.3.
CMI Work Plan	Within sixty (60) calendar days of KDHE selection of final remedy/corrective measure	VI.M.
CMCC Report	According to schedule contained in approved CMI Work Plan	VI.M.3.b.
CMI Annual Report	No later than March 1 of each year reporting on prior year's effectiveness and performance of corrective measures	VI.M.3.c.
CMI 5-Year Review Report	Within sixty (60) days of the 5-year anniversary of KDHE's approval of the CMCC Report	VI.M.3.d.
CMC Report	Within ninety (90) calendar days of the completion of all remedial activities	VI.M.3.e.
Cost Estimate for Corrective Action Work	Within thirty (30) calendar days after the permit effectiveness date. For Additional Work, within thirty (30) calendar days after KDHE has approved a new work plan	II.M.2.a.
Adjustment of the estimated cost of the work for inflation	Annually within sixty (60) days prior to the anniversary date of KDHE's initial approval of such estimated cost of the work, or within thirty (30) days after fiscal year close if financial test and corporate guarantee demonstration used.	II.M.2.b.
Financial Assurance for Completing the Work	Within thirty (30) days after KDHE has approved the initial and any subsequent Estimated Cost of Work	II.M.4.
Quarterly Progress Reports	As approved or as otherwise directed by KDHE	VI.I.3.d. VI.J.3.a. VI.M.3.a.

ATTACHMENT 1 DEFINITIONS

For purposes of this Permit, as provided under Permit Condition I.D., terms used herein shall have the same meaning as those in 40 CFR Parts 124, 260, 261, 264, 266, 268, and 270, unless this Permit specifically provides otherwise; where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

“Ancillary equipment” means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage container, between hazardous waste storage areas prior to shipment for disposal off-site or on-site thermal treatment.

“Annually” means one time per calendar year such that at least eleven (11) months and no more than thirteen (13) months have elapsed since the last annual event.

“Area of Concern” or “AOC” means any area of the facility under the control or ownership of the owner or operator where a release to the environment of hazardous waste(s) or hazardous constituents has occurred, is suspected to have occurred, or may occur, regardless of the frequency or duration of the release.

“BWM” means the Bureau of Waste Management within the KDHE – Division of Environment.

“Closure Plan” means the closure plan set forth in Section I of the approved Part B application, and any subsequent KDHE-approved revisions or modifications to the closure plan.

“Contingency Plan” means the contingency plan discussed in Section G of the approved Part B application, and any subsequent KDHE-approved revisions or modifications to the contingency plan.

“Daily” means once each calendar day, unless expressly stated to be a working day. “Working day” means a day other than a Saturday, Sunday or State of Kansas holiday. In computing any period of time under this Permit where the last day would fall on a Saturday, Sunday or holiday recognized by the State of Kansas, the period shall run until the end of the next working day.

“Data Quality Objectives (DQOs)” means performance and acceptance criteria that clarify study objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions. Unless otherwise approved by KDHE, the DQOs shall be prepared consistent with EPA Guidance documents; *Guidance on Systematic Planning Using the Data Quality Objectives Process EPA QA/G-4, EPA/240/B-06/001*, February 2006; *Guidance for Developing Quality Systems for Environmental Programs EPA QA/G-1, EPA/240/R-008*, November 2002; and any subsequent revisions or editions.

“Day” or “Days” means a calendar day(s) unless otherwise specified.

“Engineering Controls” means any mechanism used to contain or stabilize contamination that ensures the effectiveness of a remedial action and acts as a physical barrier between the contamination and contact with humans or the environment.

“EPA” means the United States Environmental Protection Agency.

“Facility” means the Permittee’s facility located at, 21017 Scott Road Parsons, KS, and all contiguous property at this location under the control of the Permittee.

“Hazardous Constituent” means any constituent identified in Appendix VIII of 40 CFR Part 261 or any constituent identified in Appendix IX to 40 CFR Part 264.

“Hazardous Waste” means any solid waste as defined at 42 U.S.C. 6903 (27) and 40 CFR 261.2 which also meets any of the criteria of a hazardous waste as listed in 42 U.S.C. 6903 (5) and 40 CFR 261.3.

“HSWA” means the Hazardous and Solid Waste Management Act of 1984.

“In gas/vapor service” means that the piece of equipment contains or contacts a hazardous waste stream that is in the gaseous state at operating conditions.

“In heavy liquid service” means that the piece of equipment is not in gas/vapor service or in light liquid service.

“In light liquid service” means that the piece of the equipment contains or contacts a waste stream where the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kilopascals (kPa) at 20 degree C, the total concentration of the pure organic components having a vapor pressure greater than 0.3 kilopascals (kPa) at 20 degree C is equal to or greater than 20 percent by weight, and the fluid is a liquid at operating conditions.

“Inspection Schedule” means the inspection schedule set forth in Section F, Table F-2 of the approved Part B application, and any subsequent KDHE-approved revision or modification to the Inspection Schedule.

“Institutional Controls” means administrative and/or legal mechanisms that help limit exposure to humans from contamination and/or protect the integrity of the remedy.

“Interim Measures” means those actions taken to immediately control or abate threats or potential threats to human health or the environment from releases or potential releases of hazardous waste or hazardous constituents, which can be initiated before implementation of the

final corrective measures for a facility, or in an emergency situation for an operating facility only.

“KDHE” means the Kansas Department of Health and Environment.

“Monthly” means twelve (12) times per year (once per calendar month) such that at least fifteen (15) days and no more than forty-five (45) days have elapsed since the last monthly event.

“PDF format” means the Adobe Portable Document Format developed by Adobe Systems Incorporated, or Permittee may use any other electronic format as agreed upon between the Permittee and KDHE. Reference herein to an “electronic copy” refers to PDF format, or in an electronic format as otherwise agreed.

“Permit Application” means the Permit Application originally submitted 10/17/2013, modified by subsequent amendments dated 7/27/2015 including the Part A application dated 7/27/2015 and any subsequent revisions or modifications.

“Quality Assurance Project Plan” means a plan of the same name prepared consistent with the EPA guidance document titled *EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)*, and any subsequent revisions or editions.

“Quarterly” means four times per calendar year such that at least two (2) months and no more than four (4) months have elapsed since the last quarterly event.

“RCRA” means the Resource Conservation and Recovery Act of 1976, as amended by HSWA in 1984.

“RCRA Corrective Action Plan” means the document of the same name dated May 1994 and given the OSWER Directive Number 9902.3-2A and EPA Document Number 520-R-94-004, and any subsequent revisions or editions.

“RCRA Facility Investigation Guidance” means the document of the same name dated May 1989 and given the OSWER Directive Number 9502.00-6D and the EPA Document Number 530/SW-89-031, and any subsequent revisions or editions.

“Release” means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes and/or hazardous constituents.

“RSK Manual” means the KDHE *Risk-Based Standards for Kansas Manual – 5th Version* (October 2010), and any subsequent updates/revisions.

“Secretary” means the Secretary of the Kansas Department of Health and Environment (KDHE), or a designee or authorized representative of KDHE.

“Semi-Annually” means two times per calendar year such that at least five (5) months and no more than seven (7) months have elapsed since the last semi-annual event.

“Site” means the real property, buildings, structures and fixtures located at 21017 Scott Road Parsons, KS and shall include all areas and media from which hazardous constituents or wastes, and any other contamination or pollution connected with the real property, buildings, structures and fixtures have been released and/or have migrated or emanated.

“Solid Waste Management Unit” or “SWMU” means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released.

“Stabilization” means actions to control or abate threats to human health and/or the environment from releases at RCRA facilities, and/or to prevent or minimize the further spread of contamination while long-term remedies are pursued.

“Standard Operating Procedure” or “SOP” means a document that establishes or prescribes methods to be followed in the operation of hazardous waste storage, treatment and disposal activities. All SOPs must be signed by a responsible corporate officer and include the certification in 40 CFR 270.11(d)(1) . The responsible corporate officer shall be as defined in 40 CFR 270.11(a).

“Waste Analysis Plan” means the waste analysis plan set forth in Section C of the approved Part B application, and any subsequent KDHE-approved revisions or modifications to the waste analysis plan.

“Weekly” means fifty-two (52) times per calendar year such that no fewer than five (5) days and no more than ten (10) days have elapsed since the last weekly event.

**ATTACHMENT 2
PERMIT WASTE CODES**

The Day and Zimmerman Kansas LLC, Parsons, Kansas, facility may accept for storage and thermal treatment the following RCRA waste codes, as defined in 40 CFR 261 Subparts C and D, subject to the terms of this Permit.

Waste Codes Allowed for Storage at the Container Storage Area

D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 D018 D022 D029 D030
D035 F001 F002 F003 F005 K044 K045 K046 K047 P065 U036 U122 U132

Waste Codes Allowed for Thermal Treatment in the OD 2700 Area

D003

ATTACHMENT 3 SUBPART CC CONTAINER STANDARDS

Table 1 – Determination of Applicable Level of Control for Containers of Hazardous Waste Subject to Subpart CC Regulations

Container Design Capacity	Containers in Light Material Service	Does Waste Stabilization Occur in the Container?	Level of Control
<0.1 m ³ (approx. 26 gals.)	Yes	Yes	Exempt
	No	No	Exempt
	No	Yes	Exempt
	Yes	No	Exempt
≥0.1 m ³ and <0.46 m ³ (approx. 122 gals.)	Yes	Yes	Container level 3
	No	No	Container level 1
	No	Yes	Container level 3
	Yes	No	Container level 1
≥0.46 m ³	Yes	Yes	Container level 3
	No	No	Container level 1
	No	Yes	Container level 3
	Yes	No	Container level 2

Table 2 - Container Standards: Container standards apply to containers greater than 0.1 m³ (about 26 gallons). There are 3 levels of acceptable controls:

<u>LEVEL 1</u> Containers <0.46 m ³ (122 gal) or containers >0.46 m ³ (122 gal) but not in light material service	<u>LEVEL 2</u> Containers not meeting Level 1 criteria of size and waste type	<u>LEVEL 3</u> Containers > 0.1m ³ used for waste stabilization
Use container that meets DOT regulations or	Use container that meets DOT regulations or	Place the open container inside a total enclosure vented directly to a control device or
Use covered container or	Use container that operates with no detectable organic emissions as tested using Method 21 of 40 CFR Part 60 or	Vent the container opening directly to a control device
Use organic suppression barrier	Use container that is vapor tight as tested using Method 27 of 40 CFR Part 60	

“Light material service” means the vapor pressure of one or more of the organic constituents is >0.3 kPa at 20 degrees C AND the total concentration of pure organic constituents with vapor pressures >0.3 kPa at 20 degrees C ≥ 20% by weight.

ATTACHMENT 4A
Correlation of SMWU Groups to RFA SWMU Numbers

RFI SWMU Group No.¹	Description¹	RFA SWMU No.¹
SWMU Group 1	Building 112 sump Building 112 ditch Building 112 oxidation pond	1 124
SWMU Group 2	200 Area oil/water separator	8
SWMU Group 3	200 Area oil land farm	6
SWMU Group 4	Building 314 waste oil/toluene tank	16
SWMU Group 5	300 Area sumps 300 Area ditches 300 Area pink-water ditches 300 Area oxidation ponds	10-13 125-127
SWMU Group 6	500 Area sumps 500 Area ditches	19-21
SWMU Group 7	800 Area sumps 800 Area ditches	47-48
SWMU Group 8	900 Area sumps 900 Area ditches 900 Area pink-water ditches 900 Area oxidation ponds	50-54 130-132
SWMU Group 9	1000 Area sumps 1000 Area ditches 1000 Area pink-water ditches 1000 Area oxidation ponds	57-59 133-135
SWMU Group 10	1100 Area sumps 1100 Area ditches 1100 Area oxidation pond	65-67 138
SWMU Group 11	Open burning pads No. 1-4	110-113
SWMU Group 12	100 Area classification area	148
SWMU Group 13	Closed/inactive landfill	139
SWMU Group 14	200 Area closed/inactive landfill and refuse burn pits	140-140
SWMU Group 15	Active landfill, including asbestos/grenade body disposal area	146-147
SWMU Group 16	Closed/inactive landfill near open detonation area	149-160
SWMU Group 17	Active open detonation field	114
SWMU Group 18	Sludge drying beds	96-97
SWMU Group 19	Coal-pile run-off catchment device and associated ditches	None
SWMU Group 20	Explosive waste incinerator	105-107

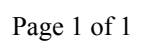
ATTACHMENT 4A
Correlation of SMWU Groups to RFA SWMU Numbers

RFI SWMU Group No.¹	Description¹	RFA SWMU No.¹
SWMU Group 21	Hazardous waste container storage units	71-85 98-101
SWMU Group 22	Contaminated waste processor (explosives-contaminated waste)	102-104
SWMU Group 23	Burning cages No. 14, 17, and 22	115-117
SWMU Group 24	Open burning pads No. 5 and 6	108-109
SWMU Group 25	700 Area sumps, ditches, and ponds	25-44 128-129

¹RFI SWMU Group Nos., Description, and RFA SWMU Nos. were taken directly from Table 2-2 of the August 1994 Phase I RCRA Facility Investigation.

Note: SWMU Groups containing one or more SWMUs located within the D&Z property boundary are identified with **bold** font.

DRAWING NUMBER
A-GEN-271
 SHEET
10 OF
13



ATTACHMENT 5

SWMU AND AOC DESCRIPTIONS

SWMU 9. 1000 Area. The 1000 Area is located in the northwestern portion of the D&Z facility south of Area 900. It was originally used as a load and pack (LAP) facility for the 105 mm shell. In 1952, three facilities (Buildings 1064, 165, and 1066) were added and the line was converted to a facility for loading the 105 millimeter (mm) artillery round with Composition B. Building 1008 was being used to treat wastewater from another area prior to discharge. The line was then used in the production of 60 mm mortar and M795 projectiles (TechLaw 2006). Prior to construction of the industrial wastewater treatment system in the 1000 Area, wastewater was discharged into the unlined ditches and oxidation ponds.

An RFA was completed in 1989. The Phase I RCRA Facility Investigation (RFI) was completed in August 1994 and the Phase II RFI was completed in June 1998. Metals and explosives were detected in the soil in the 1000 Area during these investigations. Groundwater investigations completed in the 1000 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2011 Data Gap Study and a 2004 Data Gap Study. Analytical data indicated that groundwater in the 1000 Area had not been impacted by explosives.

In 1991-1992 petroleum underground storage tanks (UST's) #16 and #17, both with 17,111 gallon capacity were removed under the direction of the Kansas Department of Health and Environment's Bureau of Environment (Facility ID #24006). They were replaced by Aboveground Storage Tanks (AST's) #32 (5,000 gallon Diesel Fuel), #33 (15,000 gallon No. 5 Fuel Oil) and #47 (2,000 gallon No. 2 Fuel Oil)

Contaminated soil was removed from the 1000 Area in the spring of 2003. During that removal, trinitrotoluene (TNT) and cyclotrimethylenetrinitramine (RDX) contaminated soils were removed to industrial clean-up standards of 21 milligrams per kilogram (mg/kg) and 6 mg/kg, respectively. The closure report for this removal shows unrestricted use levels were attained in all excavated areas. There are four locations outside the limits of excavation where arsenic remains above unrestricted use levels; however these concentrations are below the site-specific background levels (5-year report).

In the Corrective Measures Decision (CMD) prepared by the EPA in April 2006 the corrective measures selected from the 1000 Area included contaminated soil removal, long-term monitoring (LTM), and land use controls (LUC) of industrial land use and a restriction against the use of groundwater.

There are currently nine monitoring wells that are used to assess the groundwater at this site - MW 2-3, MW 3-3, MW 4-3, MW 16-5, MW 17-5, MW 18-5, MW 47S, MW 5-7D, and MW 1-14. The general direction of groundwater flow was south across the central part of the 1000 Area, southeast in the southeastern portion of the area, and southwest in the southwest portion of the 1000 Area during the spring 2012 and fall 2012 sampling events. The 1000 Area monitoring wells are located on the south slope of a low, broad topographic rise. The hydraulic gradient was approximately 0.007 ft/ft (37 ft/mi) in spring 2012 and approximately

0.011 ft/ft (58 ft/mi) in fall 2012. (USACE 2013) The groundwater in the 1000 Area has been impacted with several explosives; however, the contaminate levels in the groundwater have decreased between 1992 and 2012. The fall 2012 sampling event showed only two analytes at concentrations exceeding their respective cleanup goals. The detections from Monitoring Well MW 18-5, 2012 spring and fall events - 3.1 µg/L and 2.7 µg/L, respectively, exceeded the RDX CMD Cleanup Goal of 0.61 µg/L. Cadmium was the only metal detected above the CMD action level (5 µg/L) in the fall 2012 event, at a concentration of 19 µg/L in MW 2-3. No VOCs were detected in any of the wells during the 2012 sampling events. Land Use Controls (LUCs) for groundwater are required. A minimum of five more years of LTM is expected for the 1000 Area. Once LTM is completed, the wells will be abandoned.

LUCs for the 1000 Area include the following: industrial use of the land only, no use of the groundwater, enrollment in the “Kansas Environmental Use Control Program,” and deed restrictions and access provisions.

SWMU 10. 1100 Area The 1100 Area is located in the south central portion of the D&Z facility, north of Road 4. This area occupies approximately 124 acres of land and is currently used for the production of Sensor Fuzed Weapons (SFW). The 1100 Area was originally used as a bomb line. In 1968, it was converted to a LAP facility for loading the cluster bomb unit with Composition B. In 1984, the line underwent conversion to produce combined effects munition (CEM) for the United States Air Force and several buildings were demolished (TechLaw 2006).

An RFA was completed in 1989. The Phase I RFI was completed in August 1994 and the Phase II RFI was completed in June 1998. Metals and explosives were detected in the soil in the 1100 Area during these investigations. Groundwater investigations completed in the 1100 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2011 Data Gap Study and a 2003 Supplemental Groundwater Investigation. Analytical data indicated that groundwater in the 1100 Area had been impacted by explosives, including RDX and related volatile organic compounds (VOC) in excess of the action levels for groundwater.

In 1991-1992 petroleum underground storage tanks (UST's) #18 and #19, both with 17,111 gallon capacity were removed under the direction of the Kansas Department of Health and Environment's Bureau of Environment (Facility ID #24006). They were replaced by Aboveground Storage Tanks (AST's) #34 (15,000 gallon No. 5 Fuel Oil), #35 (15,000 gallon No. 5 Fuel Oil), #36 (5,000 gallon Diesel Fuel) and #46 (1,000 gallon No. 2 Fuel Oil).

Contaminated soil was removed from the 1100 Area in May of 2003. At that time approximately 1,200 cubic yards (cy) of metals-contaminated soil and 1,000 cy of explosive contaminated soil was removed. During that removal, arsenic, TNT and RDX contaminated soils were removed to industrial clean-up standards of 23 mg/kg, 21 mg/kg, and 6 mg/kg, respectively. The closure report for this removal shows unrestricted use levels were attained in all excavated areas. There are six locations outside the limits of excavation where arsenic (two sites) or RDX (four sites) remain above unrestricted use levels.

In the CMD prepared by the EPA in April 2006 the corrective measures selected from the 1100 Area included contaminated soil removal, LTM for explosives-contaminated groundwater, and LUCs of industrial land use and a restriction against the use of groundwater.

There are currently 23 monitoring wells that are used to assess the groundwater at this area - MW 7-3, MW 9-3, MW 10-3, MW 19-5, MW 20-5, MW 215, MW 6-7, MW 7-7, MW 1-9, MW 2-9, MW 4-9, MW 5-9, MW 7-12, MW 8-12, MW 9-12, MW 10-12, MW 11-12, MW 12-12, MW 1-13, MW 4-13, MW 5-13, MW 8-13, and MW 12-13. The general direction of groundwater flow was to the south- southwest during the spring 2012 and fall 2012 sampling events. The 1100 Area is located on the south flank of a low topographic rise that trends from southwest to northeast. The ground surface over most of the 1100 Area slopes to the south, and this topography influences groundwater flow at the site (USACE 2013). A PCE plume was discovered during the installation of additional monitoring wells delineating the explosive plume during 2009. Additional investigations have not identified a specific source for this plume. The most current monitoring results detected 1, 1-Dichloroethene in Monitoring Well MW 12-12 at 10 µg/L (Spring 2012) and 29 µg/L (Fall 2012) above the CMD Cleanup Goal of 7.0 µg/L. Tetrachloroethylene was detected in Monitoring Well MW 12-12 at 420 µg/L (Spring) and 630 µg/L (Fall) above the CMD Cleanup Goal of 5.0 µg/L. The RDX detections in all 1100 Area monitoring wells except for MW 12-12 (spring and fall) exceeded the CMD Cleanup Goal of 0.61 µg/L. No other constituents were identified in the groundwater water above either background or the CMD Cleanup goal (USACE 2013).

LTM and LUCs for no groundwater use and industrial land use are required for this SWMU group. LTM is currently planned for an additional 25 years unless concentrations attenuate to levels below groundwater remediation goals (prior to that time. Once LTM is completed, the wells will be abandoned.

LUCs for the 1100 Area include the following: industrial use of the land only, no use of the groundwater, enrollment in the “Kansas Environmental Use Control Program,” and deed restrictions and access provisions.

SWMU 17. Open Detonation Field is approximately 20 acres in size and is located in the central part of the D&Z facility in the 2700 Area. The Demolition grounds have been used since 1942 and are currently being operated under interim status. An RFA was completed in 1989. An RFI Phase I was completed in August 1994, and the RFI Phase II was completed in June 1998. Groundwater Monitoring began in March 1999.

In August of 2009, approximately 160 soil samples were collected from 60 borings locations within the OD Grounds. The soil samples were analyzed for explosives, total metals, and perchlorates. According to the analytical results, levels of 2,4,6-Trinitrotoluene (TNT) and RDX were found in seven samples at concentrations exceeding the CMD Cleanup Goals. The concentrations of TNT above the CMD cleanup goal of 16 milligrams per kilogram (mg/kg) ranged from 19 mg/kg to 300 mg/kg. The concentrations of RDX above the CMD cleanup goal of 4.4 mg/kg ranged from 5 mg/kg to 260 mg/kg. Cadmium was detected in two of the

soil samples at concentrations exceeding the CMD cleanup goal of 37 mg/kg. The cadmium concentrations above the cleanup goal were reported at 38.8 mg/kg and 78.9 mg/kg. Perchlorate was not detected above the EPA regional screening level (RSL) for industrial soil (Open Detonation Grounds Baseline Survey Report, ARA for USACE, January 2010). Currently seven monitoring wells are used to assess the groundwater at this site - MW 10-1, MW 17-3, MW 18-3, MW 19-3, MW 20-3, MW 15-7, and MW 16-7. The most recent groundwater monitoring results from the OD Grounds reported the general direction of groundwater flow was from the northwest to the southeast across the site during the spring 2012 and fall 2012 sampling events. The hydraulic gradient was approximately 0.02 ft/ft (105 ft/mi) in spring 2012 and approximately 0.019 ft/ft (101 ft/mi) in fall 2012. No VOCs or explosives were detected at SWMU 17 during the spring or fall 2012 sampling events. Although several metals were detected in the groundwater samples, none of the metals detections were above their respective CMD Cleanup Goals for metals (USACE).

In a separate investigation, perchlorate was detected in groundwater but at levels well below the Kansas Department of Health and Environment (KDHE) Risk-Based Standard for Kansas (RSK) value of 11 parts per billion (ppb).

In the fall sampling event of 2013, RDX was detected in MW 20-3 at 0.639 ug/L which was exceeded the CMD Cleanup Goal of 0.61ug/L.

SWMU 21. Container Storage Area's 2707, 2708 and 2709: Container Storage Areas 2707, 2708, and 2709 store hazardous wastes that are to be thermally treated at the OD grounds. All three igloos are of identical construction. These storage igloos are constructed of poured reinforced concrete. The reinforced concrete slab walls are six-inches thick and rest on an eight-inch reinforced concrete slab floor poured on fill on grade. The floor dimensions of each igloo are 6-foot by 6-foot, for a total floor space of 36 square feet. Ceiling height within the igloos is seven feet. Each igloo is earth-covered to a minimum depth of two feet with 1:1 grass-covered side slopes. The igloos are used to store containers with no free liquids; although, each igloo has a secondary containment consisting of a 2.5-inch concrete sill at the entrance. These igloos are small in size and provide only limited storage space. Due to the limited space in each igloo, a 2-foot wide aisle is maintained for inspection purposes and to allow for moving containers in and out of the igloos. These igloos were permitted in 1989 and will continue to be permitted under this new permit.

SWMU 21. Container Storage Area 1813: Magazine 1813 was permitted in 1989 for the storage of hazardous wastes. The unit is currently undergoing closure. The magazine is constructed of wood columns and pilasters with 8-inch thick tiled walls on a 6-inch reinforced concrete floor slab poured over fill on grade. The roof is a pitched roof, laid over a wood truss system spanning the width of the building (i.e., there are no interior columns). Roofing materials are asbestos shingles over 2-inch tongue and groove sheathing, laid on 2-foot by 8-foot joists and stringers. Twelve metal ventilators are installed along the peak of the roof. The dimensions of the magazine are 216-foot by 50-foot and 1-inch, for an approximate floor area of 10,800 square feet. The closure report for this unit was approved on July 10, 2015 and no further action will be necessary unless the property use changes from industrial to residential.

SWMU 21. Container Storage Area 1816: Magazine 1816 will be permitted for the storage of hazardous wastes upon issuance of this permit.

SWMU 21. Container Storage Area Igloos 1914, 1915, 1916, 1917, 1958, 1961, 1974, and 1976: Igloos 1914, 1915, 1916, 1917, 1958, 1961, 1974, and 1976 were permitted for the storage of hazardous wastes in 1989. Each of these igloos is constructed of poured concrete with arched ceilings. Each igloo's concrete walls vary in thickness from eight to 16 inches, and rest on a concrete foundation. Each six-inch thick floor slab is 60-feet and 8-inches long by 25-foot and 6-inches wide, for an approximate floor area of 1,547 square feet. Each igloo is earth-covered to a minimum depth of two feet with 2:1 side slopes. The concrete floors in the igloos are pitched one-half inch from the center line to the troughs on the side of the igloos for drainage. The drainage troughs are four-inches wide by two-inches deep and run the length of each igloo. Igloos 1914, 1915, 1916, 1917, 1958, and 1976 were utilized for storing containers with free liquids, and thus were constructed with a secondary spill containment system. Igloos 1961 and 1974 were utilized for storing containers with solids. The closure report for these units was approved on July 10, 2015 and no further action will be necessary unless the property use changes from industrial to residential.

SWMU 21. Container Storage Area Igloos 1934, 1935, 1936, 1942, 1967, 1969 1970, and 1979: Igloos 1934, 1935, 1936, 1942, 1967, 1969, 1970, and 1979 will be permitted for the storage of hazardous wastes upon issuance of this permit.

SWMU 24. Burn Pad 6: Burn Pad 6 is located in the north east edge of the D&Z facility adjacent to the permitted OD 2700 Area. It is located within a fenced perimeter that also contains Burn Pad 5 which is not part of the D&Z facility. Burn Pad 6 measured approximately 350 feet long by 200 feet wide. It was surrounded on the east, north, and west sides by earthen berms approximately 5 feet high and approximately 30 feet wide. It is underlain by native soil and limestone bedrock at an average depth of approximately 48 inches on the eastern edge of burn pad to a depth of approximately 12 feet on the western edge of burn pad.

Burn Pad 6 was used for remote burning of explosive hazardous wastes within metal burn pans. The burn pad was put into service in 1967, and was used to burn explosive contaminated materials and waste that was too large for the Contaminated Waste Processor. In 2006, the installation cleared the vegetation from the berms of Burn Pads 5 and 6 through a controlled burn. With the vegetation removed, they discovered a significant amount of waste debris from the burn pad operations. The explosives safety officer indicated the debris could consist of materials potentially presenting an explosive hazard (MPPEH); including but not limited to, ICM or sub-munitions, fuses, detonators, boosters, propellant, blasting caps, and grenade bodies. Personnel walked the berms and picked up the debris from the surface of the berms. The burn pad was deactivated in 2007.

It is believed that in the early days of facility operation these areas were used to open

burn the “*off-spec*” munitions, but were not surrounded by earthen berms. At some point it was decided that these areas should be surrounded by berms (it is assumed for safety reasons). It is thought that soil was dozed from either side of the burn pad(s) to form the existing berms. Based on finding the munitions debris (MD) on the berms in 2006, it is thought that previously burned munitions were not properly disposed of prior to constructing the berms. This may have resulted in the previously burned munitions debris to become incorporated throughout the berm soils (USACE, 2010).

The entire D&Z facility’s December 1989 RCRA permit issued to the Department of the Army after the Solid Waste Amendments (HWSA) of 1984 were enacted contained provisions for addressing releases of hazardous waste or hazardous constituents from Solid Waste Management Units (SWMUs). EPA completed a Resource Conservation and Recovery Act (RCRA) Facility Assessment in March 1989 that identified Burn Pad 6 as a SWMU requiring further investigation to determine the nature and extent of releases of hazardous waste or hazardous constituents. The Department of the Army completed all Phase I and Phase II RCRA Facility Investigations including Burn Pad 6 in May 1998.

In 2008 the Department of the Army ceased its operations at the D&Z facility as part the Base Realignment and Closure (BRAC) Committee recommendations. A large portion of the property determined by KDHE and EPA not to be impacted by hazardous waste operations or SWMUs was transferred to the Kansas Department of Wildlife and Parks in Parsons. The remaining land where permitted hazardous waste operations occurred began either clean closure activities for transfer to the GDPA or transferring the existing hazardous waste management permit will be to a private entity for these operations to continue. The US Army Corps of Engineers submitted a closure plan for Burn Pad 6 in April 2009.

The US Army Corps of Engineers submitted a final closure plan for Burn Pad 6 in April 2010 Which was approved on May 24, 2010 which included adjacent areas identified using digital geophysical mapping (DGM) during a survey conducted in 2010. Twelve various sized trenches were excavated to remove the same materials removed from Burn Pad 6. Trench numbers 2, 3, 4, and 5 were located to the east of Burn Pad 6; trench numbers 6, 7, 8, 9, and 10 were located to the south of Burn Pad 6; and trench numbers 11, 12, and 13 were located to the west of the burn pad.

Currently, the U.S. Army Corps of Engineers is responsible for collecting and analyzing samples from the groundwater monitoring wells associated with Burn Pad 6 quarterly for one year. After that time, the data will be reviewed and the U.S Army will make a recommendation on whether these wells should be included in the LTO/LTM for Burn Pad 6.

AOC Water Tower. Water Tower #4. : Water Tower #4 is one of four Water Towers that was built in 1941 and currently still used for water storage. The tower is enclosed within a secured fence. The ground surface at the base is covered with a 1- to 2-inch layer of gravel which was placed beneath the tower at the time of construction. As part of routine maintenance, the tower was periodically sandblasted and repainted. The tower reportedly was sandblasted in 1968 and 1982, with each sandblasting episode lasting approximately four weeks. As a result of the sandblasting operations, lead-based paint residue may have accumulated at the base of the towers.

Lead investigations and removal actions have been conducted at each of the water towers. The investigation of lead for the water towers is described in *Phase II, RFI Investigation Report* (LAW Engineering and Environmental Services, Inc. [LAW], 1998) and the interim removal action in the *Final Closure Report, Interim Soils Removal* (Environmental Chemical Corporation [ECC], 2004).

In January 2012 a *Corrective Measures Implementation (CMI) Report* was submitted by Cape Environmental Management Inc. (CAPE) on behalf of the U.S. Army Corps of Engineers and approved by BER, Surface soils were removed if the composite grid sampling results exceeded the Industrial use standard of 1000 mg/kg for lead until a 400 mg/kg level off contamination was obtained. , Surface soils were not removed if the composite grid sampling results did not exceed the Industrial use standard of 1000 mg/kg for lead.

AOC Mercury Fulminate Disposal Site. Mercury Fulminate Disposal Site.: The Mercury Fulminate Disposal Site is a reported disposal area from interviews of former employees thought to be located just northwest of the OD range, between the OD 2700 Area and an old landfill adjacent to approximately the center of the north property boundary (between SWMUs 17 & 16). No evidence has been found to support the employee claims.

AOC Old Ammunition Storage Area. Old Ammunition Storage Area.: As described in the 2006 Historical Records Review (HRR), the Old Ammunition Storage Area [identified as parcel 48(7)X on the ECP map] was identified in the range inventory as comprising 3.02 acres of land located in the central portion of KSAAP; however, based on an Oct. 19, 2005 HRR site visit and review of aerial photography, the location and acreage of the Old Ammunition Storage Area appears to have been misrepresented during the range inventory. Although a road/track appears to lead into the location of the phase 3 identified site, storage activity does not appear to have occurred in that location due to the vegetation and the lack of visible access to the area. The actual location of the area appears to extend further to the west, is closer to the fence of the igloo area, and comprises approximately 26.76 acres.

This site was used as a storage area for munitions returned after World War II (WWII). According to the range inventory, this site was used as a storage area for munitions returned to the United States following WWII. Containers of munitions were placed in

open storage at the site. KSAAP began using the area in 1945, but how long the containers of munitions were stored there is not known. An installation assessment of KSAAP, dated August 1978, mentioned an area east of the 1900 Area as being used for open storage. The area was known as the ARO (ammunition returned from overseas). Based on the 1978 installation assessment, the area was used as a storage area for high explosive (HE) munitions returned after WWII. The munitions were reportedly stored on gravel pads. According to the 1978 installation assessment, the area was considered contaminated due to deterioration of the shipping containers and spreading of the munitions around the area, and soil cultivation was restricted due to suspected UXO.

The 1978 installation assessment referred to a photograph and a figure depicting the location of the storage area; however, these were not located during the research for the 2006 HRR. An aerial photograph, dated June 8, 1956, shows the area that was used as the Old Ammunition Storage Area. The area is crossed by what appear to be several dirt tracks that lead into three distinct areas. There appears to be U-shaped features within each of the three areas; however, there does not appear to be any items stored at the site by 1956.

Munitions were reportedly stored at the site long enough for the shipping and storage containers to decompose. The range inventory report stated that munitions were scattered throughout the site due to the decomposition of the containers; however, the types of munitions stored at the Old Ammunition Storage Area could not be identified by KSAAP personnel at the time of the range inventory.

The Old Ammunition Storage Area is still used for cattle grazing, but the area has been fenced. During the HRR site visit conducted in October 2005, the site appeared as undeveloped and access to the area was limited by a closed gate and fence. According to interviews conducted at KSAAP for the HRR, interviewees stated that they had driven through the site, but discarded military munitions (DMM) or scrap was not observed. In addition, personnel stated that no work had been conducted to address munitions issues at the site.

Based on the HRR findings, further SI activities, including geophysical surveys and soil sampling, were conducted in Y07. Results of the SI field effort confirmed buried metal anomalies, but soil sampling did not reveal the presence of explosives. In Y09 tests trenches were advanced in the area of the geophysical anomalies. These test trenches uncovered only cultural debris such as nails and high iron containing soils. No MEC was unearthed during this investigation. A no further action (NFA) report has been approved by EPA and BER.

AOC Quarry Operation, Quarry Operation.: This historical quarry operation will require further actions in accordance with Section VIE. of this Permit.

ATTACHMENT 6
DESCRIPTION OF CURRENT CONDITIONS REPORT
SCOPE OF WORK

PURPOSE

The purpose of a Description of Current Conditions (DCC) Report is to document pertinent background information to facilitate identification of potential contamination sources and to characterize current site conditions. The DCC Report shall include information gathered during any previous investigations, inspections, corrective action/interim measure activities, and any other relevant data/information (e.g., institutional controls). In addition, as applicable, the DCC Report shall determine whether or not current human exposures and migration of contaminated groundwater are under control. Specifically, the DCC Report must evaluate whether current human exposure to environmental contamination is occurring at unacceptable levels, and assess migration of existing groundwater contaminant plumes to verify whether or not expanding or adversely affecting nearby surface water bodies. As required, development and submittal of a DCC Report may be accomplished in advance of or during the RCRA Facility Investigation (RFI). Independent of the RFI, the Kansas Department of Health and Environment (KDHE) may also request submission of a DCC Report to baseline or update current conditions at the site (e.g., to supplement RCRA Part B permit renewal application).

SCOPE

As required, the Permittee/Respondent shall submit for KDHE approval a DCC Report providing the following information:

A. Facility Background

The DCC Report shall summarize the regional location, pertinent boundary features, general site physiography, hydrogeology, and historical use of the site for the treatment, storage, or disposal of solid and hazardous waste. At a minimum, the report shall include:

- 1) Map(s) of sufficient detail and accuracy, consistent with the requirements set forth in 40 CFR 270.14, depicting:
 - a. General geographic location;
 - b. Property lines, with the owners of all adjacent property clearly indicated;
 - c. Topography (with an appropriate contour interval and scale of 1 inch = 100 feet), showing all waterways, wetlands, floodplains, water features, drainage patterns, and surface water containment areas;
 - d. All tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;
 - e. All solid or hazardous waste treatment, storage, or disposal areas active after November 19, 1980;
 - f. All known past solid or hazardous waste treatment, storage, or disposal areas regardless of whether active on November 19, 1980;

- g. All known past spill, fire, or other accidental release locations;
 - h. All known past and present product/waste underground tanks or piping;
 - i. Surrounding land uses (e.g., residential, commercial, industrial, agricultural, recreational, etc.);
 - j. Location of all past and present injection, production, and groundwater monitoring wells, at and in the vicinity of the site, with wells clearly labeled, and ground surface and top of casing elevations included on map or as table summary (well construction details may be included as attachment); and,
 - k. Wind rose and meteorology data.
- 2) History and description of ownership and operation, solid and hazardous waste generation, and, treatment, storage and disposal activities at the site;
 - 3) Approximate dates or periods of past product and waste spills, identification of materials spilled, amount spilled, location where spilled, and description of response actions conducted, including any inspection/technical reports generated as a result of response; and,
 - 4) Summary of past permits requested and/or received, any enforcement actions taken and subsequent outcomes/responses, and a list of documents and studies prepared related to the site.

B. Nature and Extent of Contamination

The DCC Report shall present existing information on the nature and extent of contamination. At a minimum, the report shall include:

- 1) Summary of all possible source areas of contamination (i.e., all regulated units, solid waste management units (SWMUs), areas of concern (AOCs), spill areas, and other suspected source areas of contamination) with identification of the following for each unit/area:
 - a. Location of unit/area (depicted on a facility map);
 - b. Quantities of solid and hazardous wastes (both managed and spilled/released);
 - c. Type of hazardous waste or hazardous constituents (both causing or potentially causing contamination), to the extent known;
 - d. Identification of areas where additional information is necessary; and,
 - e. Proposal/schedule for acquisition of additional information.
- 2) Preliminary assessment and description of the existing degree and extent of contamination including:
 - a. Available monitoring/sampling data for all media, and evaluation of contaminant transport mechanisms between environmental media;
 - b. General assessment of data quality and indication of whether off-site contaminant migration has occurred;

- c. Qualitative, or definitive (if available), depiction of locations and levels of contamination at the site (both onsite and offsite) on a map(s) showing sampling locations in relation to potential source areas, as well as contaminant distribution;
- d. All potential migration pathways including information on geology, soils, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality;
- e. Potential impact(s) on human health and the environment, including demography, identification of possible sensitive subpopulations (e.g., schools, nursing homes, hospitals, ecosystems, etc.) groundwater and surface water use, and land use; and,
- f. Brief description of all previous investigations at the site including date, purpose, and results.

C. Implementation of Interim Measures

The DCC Report shall document all Interim Measures (IMs) which were, or are, being undertaken at the site. At a minimum, the report shall include:

- 1) Objectives of IM implementation with discussion of how each measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the site;
- 2) Design, construction, and operation and maintenance (O&M) requirements for each IM;
- 3) Schedule for design, construction, monitoring, progress reporting of each IM; and,
- 4) Data in support of the potential need for future IMs or related to any assessment undertaken to determine the need for future IM.

D. Establishment of Institutional Controls

The DCC Report shall provide a summary of all Institutional Controls (ICs) which are currently in place for the site. In addition, copies of relevant documents and declarations (e.g., deed restriction, Environmental Use Control Agreement (EUCA), etc.) shall be included as an attachment to the DCC Report.

E. Environmental Indicator Assessment

The DCC Report shall include an assessment of whether the current data supports achievement of the following U.S. Environmental Protection Agency (EPA) Environmental Indicators: *Current Human Exposures Under Control, and Migration of Contaminated Groundwater Under Control*. Unless otherwise directed or approved by KDHE, the assessment shall be performed in accord with EPA guidance available at <http://www.epa.gov/osw/hazard/correctiveaction/eis/>.

ATTACHMENT 7 RCRA FACILITY INVESTIGATION SCOPE OF WORK

PURPOSE

The purpose of a RCRA Facility Investigation (RFI) is to determine the nature, extent, direction, rate, movement, and concentration of releases of hazardous wastes or hazardous constituents from regulated units, solid waste management units (SWMUs), areas of concern (AOCs), and other source or release areas at the site. The information gathered during the RFI is used to determine potential human health and ecological risks, and to support development and implementation of interim measure (IM) and/or corrective measure (CM) activities, as necessary. The RFI should be tailored to the site-specific conditions and focused on the units, releases, and exposure pathways of concern. Subject to Kansas Department of Health and Environment (KDHE) approval, the RFI may be implemented in a phased manner based on site-specific needs as long as all RFI objectives are fully and timely satisfied. For clarification, the term “site” as used throughout this attachment means the subject facility, in addition to all areas and media to which hazardous waste and/or hazardous constituents, and any other contamination or pollution connected with the subject facility, have been released and/or migrated.

OBJECTIVES

The RFI must meet the following primary objectives:

- 1) Determine and describe current site conditions, as required;
- 2) Identify and fully evaluate the known and suspected primary origin(s) or source(s) of contamination at the site, including identification of all chemicals used and wastes generated/managed/stored/disposed, to facilitate determining the mechanisms of release, estimating the quantities of release, and determining whether these releases are ongoing or inactive;
- 3) Delineate and fully characterize the nature, and lateral and vertical extent of contamination for all known and suspected contaminants of concern (COCs) for all affected or potentially affected environmental media at the site;
- 4) Characterize the environmental setting, including regional and local geology, hydrogeology, and hydrology, particularly as those physical characteristics may pertain to contaminant transport and fate mechanisms or may affect the evaluation, selection, and design of corrective action alternatives for the site;
- 5) Characterize the physiochemical properties of all known and suspected COCs, their mobility and persistence in the environment, and their important fate and transport mechanisms as they relate to the physical characteristics of the site;

- 6) Identify and evaluate all potential human and ecological receptors that may be threatened or affected by all COCs associated with the site;
- 7) Develop a conceptual site model (CSM) of site conditions depicting what is known or suspected about the sources, releases and release mechanisms, contaminant fate and transport, exposure pathways and potential receptors, and human health and ecological risks;
- 8) Revise/update the CSM as more information becomes available to determine the need for additional investigation, to support risk-based decisions, and to aid in identification and design of potential corrective action alternatives;
- 9) Utilize KDHE's October 2010 *Risk-Based Standards for Kansas RSK Manual – 5th Version* (RSK Manual), and any subsequent updates, and/or other applicable KDHE-approved threshold levels, to perform rapid assessment of human health risk, and to facilitate determination of cleanup goals for the site;
- 10) Utilize U.S. Environmental Protection Agency (EPA) Region 6 Ecological Exclusion Criteria Worksheet and Ecological Assessment Checklist to perform a rapid assessment of ecological risk, and to facilitate determination of cleanup goals for the site;
- 11) As determined necessary, perform a site-specific quantitative baseline human health risk assessment (HHRA) and screening level ecological risk assessment/baseline ecological risk assessment (SLERA/BERA) to determine whether and the extent to which the site requires corrective action;
- 12) Perform bench- or pilot-scale treatability study testing, as necessary, to support development of potential corrective action alternatives and/or corrective action design;
- 13) Develop a preliminary list of site-specific corrective action objectives and corresponding potential corrective action alternatives; and,
- 14) Evaluate the need for IM implementation for source control purposes and/or to mitigate imminent threats to human health and/or the environment consistent with KDHE's *RCRA Interim Measures Scope of Work* (Attachment 9).

Besides all known or suspected discharges, releases, or spills, the RFI is required to also fully assess any and all secondary contamination issues (e.g., daughter/degradation products, from mobilization of naturally-occurring elements/substances in the presence of site-related contamination, etc.). In addition, if there is any uncertainty in site history and potential release mechanisms, KDHE may require a broader, more robust sampling and analytical program up front to ensure complete identification/quantification of all known and suspected site-related COCs. Also, consideration of current and anticipated future land use may result in a more rigorous sampling and analytical program. Initial RFI results will be used to focus, to the extent possible, any future sampling and analysis associated with the site.

SCOPE

After a Corrective Action Agreement Meeting¹ to establish framework, objectives, criteria, and expectations; identification of SWMUs, AOCs, and other source or release areas (or conduct of an RCRA Facility Assessment (RFA), as necessary); and, an RFI Scoping Meeting¹, an RFI will be developed and implemented consisting of the following steps:

STEP 1: DESCRIPTION OF CURRENT CONDITIONS (as required)

As required, prior to or as a component of the RFI Work Plan, the Permittee/Respondent shall submit for KDHE approval a Description of Current Conditions (DCC) Report providing the background information pertinent to the site. Consistent with KDHE's *Description of Current Conditions Report Scope of Work* (Attachment 6), the DCC Report shall include information gathered during any previous investigations, inspections, interim measure activities, and any other relevant data, which helps to identify potential sources of contamination and characterize the current site conditions.

STEP 2: RFI WORK PLAN DEVELOPMENT AND IMPLEMENTATION

An RFI Work Plan describing in detail all activities proposed to satisfy the RFI objectives must be prepared and submitted to KDHE for review and approval before any investigation activities commence, unless otherwise requested or approved by KDHE. The RFI Work Plan shall minimally include the following project- or site-specific components: 1) field sampling plan; 2) quality assurance project plan (QAPP); and, 3) health and safety plan. A detailed RFI working schedule, presented graphically in the form of a milestone chart (e.g., Gantt chart) to show the duration and interdependencies of the various activities must be included in the RFI Work Plan.

A field sampling plan provides the guidance for all fieldwork by defining in detail the sampling and data gathering methods and standard operating procedures (SOPs) to be used. The field sampling plan should be written so that a field sampling team unfamiliar with the site would be able to gather the required samples and field information. A QAPP describes the policy, organization, functional activities, and quality assurance and quality control protocols necessary to achieve the data quality objectives dictated by the intended use of the data. KDHE requires that QAPPs be prepared in general accord with available EPA guidance titled *Requirements for Quality Assurance Project Plans* (QA/R-5) (EPA 2001) and *Guidance for Quality Assurance Project Plans* (G-5) (EPA 2002). EPA has compiled a set of helpful references pertaining to data quality at www.epa.gov/quality/index.html. Key components of a QAPP include quality assurance objectives for data, sample custody and handling, data generation and acquisition, standard operating procedures, report and data management, project management elements, laboratory QAPP, and data validation and usability. It is often necessary to update the QAPP throughout a project's lifecycle to ensure that the document encompasses all site-related activities. A health and safety plan prepared to support the field effort must conform to the Permittee's or contractor's health and safety program, which must, in turn, be in compliance with requirements of the Occupational Safety and Health Administration (OSHA). Although submittal is necessary for completion of the Administrative Record (AR) file for a given site,

please note that KDHE does not customarily review and approve the Permittee's health and safety plan.

In general, a detailed description of field activities to satisfy the primary objectives of the RFI must be included in the RFI Work Plan. RFI activities may include any of several components including, but not limited to, the following: investigation of waste, soil, groundwater, surface water, sediment, air or biota; geotechnical evaluations; inspection and tightness testing of tanks, pipelines, sewers, etc.; geophysical surveys; land elevation surveys; personnel interviews; etc. All data gathered during the investigation must be included in the RFI Report. Sufficient biased/unbiased grid sampling must be proposed to ensure meeting RFI objectives. With KDHE's advance approval, the RFI may be implemented in a phased manner; however, the expectation is that the total duration of the investigative effort be limited to the extent possible, generally within six months to a year. If a phased investigation program is proposed, the initial work plan submittal should describe the anticipated scope and schedule of each investigative phase to avoid unnecessary delays in the investigation process. In addition, KDHE may require interim reports/memoranda to support a phased implementation prior to submittal of the RFI Report.

The RFI Work Plan shall at a minimum include a review of available information and documented findings including, but not limited to, the following: description of physical location, including legal description, and street address; complete summary of ownership/operational history of the source facility and ownership status of other nearby affected properties; facility layout identifying operational features and chemical/waste management/storage/disposal areas or units (e.g., vapor degreaser, sumps, etc.); description of all past and present activities/operations conducted (i.e., nature of business operations, chemicals used, wastes generated, chemical and waste disposal methods, and records or descriptions of all known discharges, releases, spills, etc.); a description of the physical site characteristics (e.g., geology, hydrogeology, surface water hydrology, meteorology, past/present land use, etc.); a detailed description of the type(s) of contaminants/wastes involved, release characteristics and contaminated media; evaluation or investigation objectives; and, detailed procedures for determining waste distribution as well as the nature and extent of contamination, and evaluating all exposure pathways of concern. Environmental permits issued relative to past or present business operations should be identified. Descriptions of any previous environmental investigations conducted at the site and summaries of the significant findings of those investigations should be included. While acceptance and use of data for the purposes of the RFI is subject to KDHE approval, KDHE does encourage consideration of previously collected data or investigation results for the sake of focusing or optimizing the proposed RFI effort. However, if those previous data collection or investigation efforts were collected without KDHE oversight, then verification sampling may be required at key locations to corroborate the earlier data/results.

The RFI Work Plan must summarize available historical records (including drawings, aerial photographs, plot plans, as-builts) encompassing the entire site history to ensure comprehensive identification of all known or potential COCs; provide a listing and corresponding map of chemical/waste management/storage/disposal areas and wastewater management units; and, provide a written summary of all wastes generated and management/storage/disposition methods. Focus should be on known and suspected source areas such as, but not limited to, the following:

pits; holding ponds, waste ponds or surface impoundments; drains, oil/water separators; vapor degreasers; drum storage areas; loading docks or racks; earthen mound, fill and soil disturbance areas; landfill, landfarm or land application areas; conveyance piping; tanks; stained soil and standing liquid areas; septic tank and lateral field areas; and, any other chemical/waste management/storage/disposal areas and wastewater management units.

Through conduct of the RFI at a given site, besides assessing the distribution of any wastes present, the lateral and vertical extent of contamination for all known and suspected COCs shall be fully delineated for all affected or potentially affected environmental media. Potential media to be investigated include surface and subsurface soils, groundwater, surface water, sediment, air, including the vapor intrusion into indoor air pathway, and biota. To accomplish these activities, this component of the RFI may include monitoring well or piezometer installation, soil boring/sampling, soil or groundwater probing/sampling, field and laboratory analyses, geophysical surveys, hydrogeological evaluations, surveying, computer modeling, and biota studies, among others. Analytical data must be collected of appropriate data quality and quantity to facilitate comparison to applicable threshold levels as established in KDHE's *Risk-Based Standards for Kansas RSK Manual* (RSK Manual) or support a more thorough evaluation of risks posed through conduct of a quantitative baseline risk assessment (i.e., HHRA and SLERA/BERA), if one is to be performed, and to support the evaluation of potential remedial alternatives. In addition, a rapid assessment of ecological risk using the EPA Region 6 Ecological Exclusion Criteria Worksheet and Ecological Assessment Checklist shall be performed at this stage.

All data should be validated at the appropriate field or laboratory quality control level to determine whether it is appropriate for its intended use. Data quality is of critical importance because decisions about how to appropriately manage the relative risk to human health and the environment depend on the quality of data collected for a project. Quality Control (QC) samples are collected during each sampling event to help evaluate data quality and usability. The number and types of QC samples collected is typically specified in the QAPP and will vary depending on the types of sampling being performed, types of equipment used, number of samples collected, analytical methodology, and intended use of the data. The following are the most common types of QC samples collected and analyzed during an RFI: field duplicate samples; equipment rinsate samples; trip blank samples; field blank samples; matrix spike and matrix spike duplicate samples; performance evaluation samples; split samples; laboratory control and laboratory control duplicate samples; and, method blank samples.

STEP 3: BASELINE RISK ASSESSMENT (as required/optional)

Information and environmental data collected and validated as representative of site conditions are used to qualitatively or quantitatively assess the potential excess human health risk and/or ecological risk posed by the site in the absence of remediation. For simplicity, this is typically accomplished through direct comparison to the Tier 2 Levels which become the default cleanup goals for a site, or through other methods of analysis, as provided in KDHE's RSK Manual. However, in lieu of such direct comparison or simplified tier analysis, a site-specific quantitative baseline risk assessment (i.e., HHRA and SLERA/BERA) may either be proposed by the Permittee or requested by KDHE to evaluate human health and ecological risk and facilitate

determination of cleanup goals for a site. If KDHE determines that the completion of a quantitative risk assessment is appropriate, the Permittee may, at their option, perform such risk assessment for submittal to KDHE for review and approval. KDHE typically utilizes an outside contractor to support technical review and discussion of risk assessment documents. Alternatively, the Permittee may elect to have KDHE, utilizing outside contractor support, perform the risk assessment. In either case, KDHE's direct and indirect costs associated with oversight or conduct of risk assessment activities will be at the Permittee's expense.

Prior to performing the risk assessment, the Permittee must submit a baseline risk assessment work plan that, among other items, provides a site-specific exposure conceptual model, which either graphically illustrates or clearly identifies the impacted media and all the primary and secondary exposure pathways, lists all contaminants of concern, standard exposure parameters, current and future land use assumptions, methodologies for determining reasonable maximum exposure point concentrations, proxy determinations, and other statistical considerations. The quantitative baseline risk assessment must be performed in accordance with KDHE policy in a manner consistent with available EPA guidance at www.epa.gov/oswer/riskassessment/risk_superfund.htm and www.epa.gov/risk/. All risk assessment work plan documentation must be approved by KDHE prior to commencing risk assessment activities. Resultant risk assessment reports must then be submitted to KDHE for review and approval. Coordination with KDHE is required throughout the risk characterization process and cleanup goal determination process. However, early on scoping discussions between KDHE and the Permittee as part of work plan development will be critical to the overall success of the risk assessment effort. Ultimately, KDHE will make all final risk management decisions related to the site.

STEP 4: TREATABILITY STUDIES/MODELING/ADDITIONAL DATA ACQUISITION (as required/optional)

To keep the RFI process on schedule, it may be appropriate to identify and initiate any bench- or pilot-scale treatability study testing necessary to evaluate corrective action alternatives early in the RFI process. Treatability studies are conducted to provide sufficient data to allow treatment alternatives to be fully developed and evaluated during the corrective measures study (CMS) process and to support the subsequent remedial design of the corrective action alternative ultimately selected by KDHE. Treatability studies also serve to reduce cost and performance uncertainties to acceptable levels for treatment alternatives under consideration to allow a more reliable remedy selection process. Examples of treatability data gathering activities that might be performed during the RFI include aquifer pumping tests, soil vapor extraction pilot tests, or bench- or pilot-scale applications of innovative technologies to evaluate their applicability to site wastes and contamination. All treatability studies/modeling/additional data acquisition activities must be completed in a manner consistent with available KDHE policy and guidance. If there is a desire or need to conduct such activities, the Permittee must first submit an appropriate work plan for KDHE review and approval. At KDHE's discretion, reporting associated with treatability study/modeling/additional data acquisition activities may be reported separately or incorporated into the RFI Report. Similar to baseline risk assessments, KDHE typically utilizes an outside contractor to support technical review and discussion of environmental modeling documents (e.g., groundwater fate and transport model work plan and report). KDHE's direct

and indirect costs associated with oversight or conduct of environmental modeling activities will be at the Permittee's expense.

STEP 5: RFI REPORT

Upon completion of all investigative/evaluation activities necessary to fully achieve the RFI objectives, an RFI Report must be submitted to KDHE, in a timeframe consistent with the implementation schedule in the approved RFI Work Plan, for review and approval. The RFI Report must include all information and data collected during the investigation and describe in detail the work performed to accomplish the objectives as set forth within this scope of work (SOW) attachment. The RFI Report format shall be consistent with this SOW attachment and include appropriate tables, figures, well logs, laboratory analytical data, references, appendices, etc. to effectively portray the data generated during the investigation and to support any conclusions drawn in the RFI Report. The RFI Report shall present the results of the RFI including, but not limited to, the following:

- 1) Summary of site investigation/evaluation work completed with relevant presentation of the data in figures and tables (including appendices with all ancillary documentation such as field notes; photographs; chain-of-custody records; laboratory reports; survey reports; data validation summary; etc.).
- 2) Description of all COCs, including a discussion and summary of data collected (with appropriate QA/QC and data validation information);
- 3) An evaluation of possible exposure pathways including areal extent of all COCs;
- 4) A preliminary list of corrective action objectives, corresponding potential corrective action alternatives and initial identification of key regulatory requirements that may have bearing on corrective action implementation;
- 5) Comparison of data collected to appropriate threshold levels (e.g., Tier 2 Levels in the RSK Manual); and,
- 6) Conclusions and recommendation(s) for further investigation or interim measure activities.

Once samples have been collected and data reported by the laboratory, it is important to consider the quality of the data to ensure it is precise, accurate, representative, complete, and comparable before relying on it to support project decisions. The procedures and thresholds for evaluating data quality are typically laid out in the QAPP. It is KDHE's general expectation that data validation be performed in accord with EPA Contract Laboratory Program's *National Functional Guidelines for Superfund Organic Methods Data Review* (EPA 2008) and *National Functional Guidelines for Superfund Inorganic Methods Data Review* (EPA 2010a), or as otherwise approved by KDHE. Together, these documents identify methods for evaluating and documenting the quality of analytical data for the majority of contaminants encountered at sites in Kansas. In all cases, data validity must be incorporated into reporting documentation in the

form of a data validation summary. The data validation summary should describe all data validation activities and discuss, in detail, the results of analysis of quality control samples and their effect on primary data. The summary should provide an overall assessment of the data evaluated with respect to precision, accuracy, representativeness, completeness, comparability, and the general acceptability and usability of the data.

Upon successful completion of the RFI effort, KDHE will determine the path forward for future site activities to be conducted by the Permittee, including further investigation, development of a presumptive remedy design concept, detailed evaluation/comparative analysis of cleanup alternatives through a separate CMS process, interim measure design/implementation, and/or implementation of the remedy selected by KDHE with consideration of public input on the Statement of Basis.

¹Face-to-face meetings or teleconferences between KDHE and Permittee/Respondent are strongly encouraged to facilitate achieving consensus on approach and overall streamlining of the corrective action process.

ATTACHMENT 8

ECOLOGICAL EXCLUSION SCREENING

SCOPE OF WORK

INTRODUCTION

With minor modification, the Kansas Department of Health and Environment (KDHE) has adopted the ecological exclusion screening methodology developed by the U.S. Environmental Protection Agency (EPA) Region 6 to help facilities and regulators determine whether or not further ecological evaluation is necessary at an affected property where corrective action is contemplated. The methodology includes use of an Ecological Exclusion Criteria Worksheet and an Ecological Assessment Checklist to facilitate such determinations.

Utilizing the Ecological Exclusion Criteria Worksheet, the ecological screening process involves initial collection of general information about the facility, its operation, physical site characteristics, ecological habitats and receptors. A determination is then made as to whether incomplete or insignificant exposure pathways exist at the affected property thereby eliminating the need for further ecological evaluation.

If an area cannot be excluded from further evaluation, more detailed information about ecological areas will be collected utilizing the Ecological Assessment Checklist to assist in determining the need for further ecological risk evaluations. If the affected property meets the exclusion criteria, then the facility should document the site conditions and justification for how the criteria have been met within the rapid assessment of risk section of the RCRA Facility Investigation (RFI) Report. Upon review and approval of the exclusion by KDHE, further evaluation of ecological risk will not be required.

If the affected property does not meet the exclusion criteria, then a screening level ecological risk assessment/baseline ecological risk assessment (SLERA/BERA) may be warranted. Additional ecological risk screening/assessment should be conducted following EPA's *Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* dated June 5, 1997 and *Guidelines for Ecological Risk Assessment (EPA/630/R-95/002F)* dated April 1998, or other guidance for ecological risk evaluation as approved by KDHE.

ECOLOGICAL EXCLUSION CRITERIA WORKSHEET

The Ecological Exclusion Criteria Worksheet is intended to facilitate determination of whether or not further ecological evaluation is necessary at an affected property where corrective action is contemplated. Exclusion criteria refer to those conditions at an affected property which preclude the need for a formal ecological risk assessment (i.e., SLERA/BERA) because there are incomplete or insignificant ecological exposure pathways due to the nature of the affected property setting and/or the condition of the affected property media. The worksheet is designed for general applicability to all affected property; however, there may be unusual circumstances which require professional judgment or technical support (e.g., consultation with U.S. Fish and Wildlife Service) in order to determine the need for further ecological evaluation (e.g., cave-

dwelling receptors). In these cases, it is strongly encouraged to contact KDHE for additional guidance before proceeding.

The worksheet consists of three major parts: Part 1, identification of the affected property and background information, Part 2, the actual exclusion criteria and supportive information, and Part 3, a qualitative summary statement and certification of the information submitted. Answers to the worksheet should reflect existing conditions and should not consider future remedial actions at the affected property. Completion of the worksheet should lead to a logical conclusion as to whether further detailed ecological evaluation is warranted.

Part 1: Affected Property Identification and Background Information

- 1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area.

_____ Topo map _____ Aerial photo _____ Other _____ (specify)

- 2) Identify the environmental media known or suspected to contain contaminants of concern (COCs) at the present time. Check all that apply:

<u>Known/Suspected Impacted Media</u>	<u>Based on sampling data?</u>
_____ Soil < 5 ft below ground surface	_____ Yes _____ No
_____ Soil > 5 ft below ground surface	_____ Yes _____ No
_____ Groundwater	_____ Yes _____ No
_____ Surface Water/Sediment	_____ Yes _____ No

Explain (previously collected information may be referenced):

Part 2: Exclusion Criteria and Supporting Information

Subpart A. Surface Water/Sediment Exposure

- 1) Regarding the affected property where a response action is being contemplated, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, groundwater seepage, etc.?

Exclude: wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit.

Also exclude: conveyances, decorative ponds, and those portions of the process facilities which are:

- a. Not in contact with surface waters of the State or other surface waters which are ultimately in contact with surface waters of the State; and
- b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

_____ Yes _____ No

Explain: _____

If the answer is “Yes” to Subpart A above, the affected property does not meet the exclusion criteria. (However, complete the remainder of Part 2 to determine if there is a complete and/or significant soil exposure pathway, and then complete Part 3, Qualitative Summary and Certification).

If the answer is “No” to Subpart A above, go directly to Subpart B.

Subpart B. Affected Property Setting

In answering “Yes” to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). Further consultation with management agencies may be required.

- 1) Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, or other surface cover or structure, or otherwise disturbed ground?

_____ Yes _____ No

Explain: _____

If the answer is “Yes” to Subpart B above, the affected property meets the exclusion criteria, assuming the answer to Subpart A was “No”. (Skip Subparts C and D and complete Part 3, Qualitative Summary and Certification).

If the answer is “No” to Subpart B above, go directly to Subpart C.

Subpart C. Soil Exposure

- 1) Are COCs which are in the soil of the affected property solely below the first 5 feet beneath ground surface, or does the affected property have a physical barrier present to prevent exposure to receptors to COCs in the surface soil?

_____ Yes _____ No

Explain: _____

If the answer is “Yes” to Subpart C above, the affected property meets the exclusion criteria, assuming the answer to Subpart A was “No”. (Skip Subpart D and complete Part 3, Qualitative Summary and Certification).

If the answer is “No” to Subpart C above, go directly to Subpart D.

Subpart D. DeMinimus Land Area

In answering “Yes” to the question below, it is understood that all of the follow conditions apply:

- Affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (*Will likely require consultation with wildlife management agencies*).
- Similar but unimpacted habitat exists within a half-mile radius.
- Affected property not known to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (*Will likely require consultation with wildlife management agencies*).
- No reason to suspect COCs associated with the affected property will migrate such that the affected property will become larger than one acre.

Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all the conditions described above?

_____ Yes _____ No

Explain how the conditions are/are not met:

If the answer is “Yes” to Subpart D, then no further ecological evaluation is needed at the affected property, assuming the answer to Subpart A was “No”. (Complete Part 3, Qualitative Summary and Certification).

If the answer is “No” to Subpart D, Proceed to an Ecological Risk Evaluation (i.e., SLERA/BERA).

Part 3. Qualitative Summary and Certification (Complete in all cases)

Attach a brief statement (one page or less) summarizing the information provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet the exclusion criteria. The facility should make the initial decision regarding the need to conduct further ecological evaluation based on the results of this worksheet. However, KDHE will make a final determination on the need for further detailed ecological assessment.

Note: The facility has the continuing obligation to re-enter the SLERA/BERA process if changing circumstances result in the affected property not meeting the exclusion criteria requirements presented in this worksheet.

Completed by: _____ (Typed Name)

_____ (Title)

_____ (Date)

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.

_____ (Typed Name of Person)

_____ (Title of Person)

_____ (Signature of Person)

_____ (Date Signed)

Definitions (applicable to Exclusion Worksheet)

Affected property - entire area (i.e., all affected environmental media at on-site and off-site locations) containing releases of contaminants of concern at concentrations equal to or greater than the assessment level applicable for the land use (i.e., residential or non-residential) and groundwater classification, or other threshold level for each affected media.

Assessment level - critical protective concentration level for a contaminant of concern used for affected property assessments where the human health protective concentration level is established by State regulation or guidance.

Bedrock - solid rock (i.e., consolidated, coherent, and relatively hard naturally formed material that cannot normally be excavated by manual methods alone) that underlies gravel, soil, or other surficial material.

Contaminant of concern - any contaminant that has the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity.

Community - assemblage of plant and animal populations occupying the same habitat in which the various species interact via spatial and trophic relationships (e.g., a desert community or a pond community).

Complete exposure pathway - exposure pathway where a human or ecological receptor is exposed to a contaminant of concern via an exposure route (e.g., incidental soil ingestion, inhalation of volatiles and particulates, consumption of prey, etc).

De Minimis - description of an area of affected property comprised of one acre or less where the ecological risk is considered to be insignificant due to small extent of contamination, absence of protected species, availability of similar unimpacted habitat nearby, and lack of adjacent sensitive environmental areas.

Ecological protective concentration level - concentration of a contaminant of concern at the point of exposure within an exposure medium (e.g., soil, sediment, groundwater, or surface water) which is determined to be protective for ecological receptors. These concentration levels are intended to be protective for more mobile or wide-ranging ecological receptors and, where appropriate, benthic invertebrate communities within waters of the State. These concentration levels are not intended to be directly protective of receptors with limited mobility or ranges (e.g., plants, soil invertebrates, and small rodents), particularly those residing within active areas of a facility, unless these receptors are threatened/endangered species or unless impacts to these receptors result in disruption of the ecosystem or other unacceptable consequences for the more mobile or wide-ranging receptors (e.g., impacts to an off-site grassland habitat eliminate rodents which causes a desirable owl population to leave the area).

Ecological risk assessment - process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors; however, as used in this context, only chemical stressors (i.e., COCs) are evaluated.

Environmental medium - material found in the natural environment such as soil, (including non-waste fill materials), groundwater, air, surface water, and sediment, or a mixture of such materials with liquids, sludges, gases or solids, including hazardous waste which is inseparable by simple mechanical removal processes, and is made up of primarily natural material.

Exclusion criteria - those conditions at an affected property which preclude the need to establish a protective concentration level for an ecological exposure pathway because the exposure pathway between the contaminant of concern and the ecological receptors is not complete or is insignificant.

Exposure medium - environmental medium or biological tissue in which or by which exposure to contaminants of concern by human or ecological receptors occurs.

Facility - installation associated with the affected property where the release of contaminants of concern has occurred.

Functioning cap – low-permeability layer or other approved cover meeting its design specifications to minimize water infiltration and chemical of concern migration, and prevent ecological or human receptor exposure to contaminants of concern, where design requirements are routinely maintained.

Landscaped area - area of ornamental, introduced, commercially installed, or manicured vegetation, which is routinely maintained.

Off-site property - all environmental media which is outside the legal boundaries of the on-site property.

On-site property - all environmental media within the legal boundaries of a property that has become subject to corrective action, either through voluntary action, permit or order.

Physical barrier - any natural or manmade structure or system that prevents exposure or prevents physical migration of contaminants of concern to points of exposure.

Point of exposure - location within an environmental medium where a receptor will be assumed to have a reasonable potential to come into contact with contaminants of concern. The point of exposure may be a discrete point, plane, or an area within or beyond some location.

Protective concentration level - concentration of a contaminant of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk based exposure limit considering cumulative risk and hazard index for both carcinogenic and non-carcinogenic effects respectively, or ecological protective concentration level at the point of exposure for that exposure pathway.

Release - any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, with the exception of:

- a release that results in an exposure to a person solely within a workplace, concerning a claim that the person may assert against the person's employer;
- an emission from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, pipeline pumping station engine;
- a release of source, by product, or special nuclear material a nuclear incident, as those terms identified by the Atomic Energy Act of 1954, as amended (42 USC 2201 et. seq.); if the release area is subject to requirements concerning financial protection established by the Nuclear Regulatory Commission under Section 170 of that Act;
- for the purpose of the environmental response law Section 104, as amended, or other response action, release of source, by-product, or special nuclear material from a processing site designated under Section 102(a)(1) for Section 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978 (42 USC Section 7912 and Section 7942) as amended; and,
- normal application of fertilizer.

Sediment - non-suspended particulate material lying below surface waters such as bays, oceans, rivers, streams, lakes, ponds, or other similar surface water body (including intermittent streams). Dredged sediments which have been removed from surface water bodies and placed on land shall be considered soils.

Sensitive environmental areas - areas that provide unique and often protected habitat for wildlife species. These areas are typically used during critical life stages such as breeding, hatching, rearing of young, and overwintering. Examples include: critical habitat for threatened and endangered species, wilderness areas, parks and wildlife refuges.

Source medium - environmental medium containing contaminants of concern which must be removed, decontaminated and/or controlled in order to protect human health and the environment. The source medium may be the exposure medium for some exposure pathways.

Stressor - any physical, chemical, or biological entity that can induce an adverse response; however, as used in this context, only chemical entities apply.

Subsurface soil - for human health exposure pathways, represents portion of soil zone between base of surface soil and top of groundwater-bearing unit(s). For ecological exposure pathways, represents portion of soil zone between 0.5 feet and 5 feet in depth.

Surface cover - layer of artificially-placed utility material (e.g., gravel).

Surface soil - for human health exposure pathways, represents soil zone extending from ground surface to 15 feet in depth for residential land use, and from ground surface to 5 feet in depth for non-residential land use; or to the top of the uppermost groundwater-bearing unit or bedrock, whichever is less in depth. For ecological exposure pathways, represents soil zone extending from ground surface to 0.5 feet in depth.

Surface water - any water meeting the definition of surface water in Kansas.

ECOLOGICAL ASSESSMENT CHECKLIST

The evaluation associated with the checklist is intended to be a screening-level survey of the developed and undeveloped ecological portions of the site. Answers to the checklist should reflect existing conditions and should not consider future remedial actions at the site.

In general, the checklist is designed for applicability to all sites; however, there may be unusual circumstances which require professional judgment or technical assistance in order to determine the need for further detailed ecological evaluation. Sources and general information available for the identification of ecological receptors and habitats may include: the U.S. Fish and Wildlife Service, Kansas Department of Wildlife and Parks, United States Geological Service (USGS), Kansas Geological Survey, National Wetland Inventory Maps, National Audubon Society, Kansas Biological Survey, national and local wildlife clubs, National and State Heritage Programs, State and National Parks System, and tribal organizations.

Section 1. Site Description

1) Site Name: _____

Location: _____

County/Parish: _____ City: _____ State: _____

Type of Facility: _____

2) Latitude: _____ Longitude: _____

3) What is the approximate area of the site? _____

4) Is this the first site visit? Yes ____ No _____. If "No", attach trip report of previous site visit(s), if available. Date(s) of previous site visit(s): _____

5) Please attach to the checklist USGS topographic map(s) of the site, if available.

6) Are aerial or other site photographs available? Yes ____ No _____. If "Yes", please attach any available photo(s) to the site map at the conclusion of this section.

7) The land use on the site is:

_____ % Urban
_____ % Rural
_____ % Residential
_____ % Industrial __ light __ heavy
_____ % Agriculture

(Crops: _____)

_____ % Recreational

(Describe; note if it is a park, etc.)

_____ % Undisturbed

_____ % Other

The area surrounding the site is:

_____ mile radius

_____ % Urban
_____ % Rural
_____ % Residential
_____ % Industrial __ light __ heavy
_____ % Agriculture

(Crops: _____)

_____ % Recreational

(Describe; note if it is a park, etc.)

_____ % Undisturbed

_____ % Other

8) Has any movement of soil taken place at the site? Yes ____ No ____ . If “Yes”, please identify the most likely cause of this disturbance:

_____ Agricultural Use _____ Heavy Equipment _____ Mining
_____ Natural Events _____ Erosion _____ Other

Please describe:

9) Do any potentially sensitive environmental areas exist adjacent to or in proximity to the site, e.g., Federal and State parks, National and State Monuments, wetlands, prairie potholes? *Remember, flood plains and wetlands are not always obvious; do not answer “No” without confirming information.*

10) What type of facility is located at the site?

_____ Chemical _____ Manufacturing _____ Mixing _____ Waste Disposal
_____ Other (specify) _____

11) What are the suspected contaminants of concern at the site? If known, what are their maximum concentration levels? _____

12) Check any potential routes of off-site migration of contaminants observed at the site:

☐ Swales ☐ Depressions ☐ Drainage Ditches
☐ Runoff ☐ Windblown Particulate ☐ Vehicular Traffic
☐ Other (specify) _____

13) If known, what is the approximate depth to the water table? _____

14) Is the direction of surface runoff apparent from site observations? Yes ___ No ___. If “Yes”, to which of the following does the surface runoff discharge? Mark all that apply.
☐ Surface water ☐ Groundwater ☐ Sewer ☐ Collection impoundment

15) Is there a navigable waterbody or tributary to a navigable waterbody? Yes ___ No ___.

16) Is there a waterbody anywhere on or in the vicinity of the site? If “Yes”, also complete Section 3: Aquatic Habitat Checklist - Non-Flowing Systems and /or Section 4: Aquatic Habitat Checklist - Flowing Systems.

Yes ___ (approximate distance _____) No _____

17) Is there evidence of flooding? Yes ___ No _____. *Wetlands and flood plains are not always obvious; do not answer “No” without confirming information.* If “Yes”, complete Section 5: Wetland Habitat Checklist.

18) If a field guide was used to aid any of the identifications, please provide references. Also, estimate the time spent identifying the fauna. (Use a blank sheet if additional space is needed for text).

19) Are any threatened and/or endangered species (plant or animal) known to inhabit the area of the site? Yes ___ No _____. *If “Yes”, you are required to verify this information with the U.S. Fish and Wildlife Service.* If species identities are known, please list them in the text. _____

20) Are any species in need of conservation (plant or animal) known to inhabit the area of the site? Yes ___ No _____. *If “Yes”, you are required to verify this information with the Kansas Department of Wildlife and Parks.* If species identity known, please list them in the text. _____

21) Record weather conditions at the time this checklist was prepared:

Date: _____

_____ Temperature (⁰C /⁰F)

_____ Normal daily high temperature

_____ Wind (direction/speed)

_____ Precipitation (rain,snow)

_____ Cloud cover

Section 1A. Summary of Observations and Site Setting

Completed by _____ Affiliation _____

Additional Preparers _____

Site Manager _____

Date _____

Section 2. Terrestrial Habitat Checklist

Section 2A. Wooded

1) Are there any wooded areas on the site? Yes _____ No _____. If “No”, go to Section IIB: Shrub/Scrub.

2) What percentage of the area of the site is wooded? (_____ % _____ acres) Indicate the wooded area on the site map which is attached to a copy of this checklist. Please identify what information was used to determine the wooded area of the site. _____

3) What is the dominant type of vegetation in the wooded area?
(Circle one: Evergreen/Deciduous/Mixed) Provide a photograph(s) if available.
Dominant plant, if known: _____

4) What is the predominant size of the trees at the site? Use diameter at breast height.
_____ 0-6 inches _____ 6-12 inches _____ > 12 inches

5) Specify type of understory present, if known. Provide a photograph(s), if available.

Section 2B. Shrub/Scrub

- 1) Is shrub/scrub vegetation present at the site? Yes ____ No _____. If “No”, go to Section IIC: Open Field.
- 2) What percentage of the site is covered by shrub/scrub vegetation? (____ % ____ acres)
Indicate the acres of shrub/scrub on the site map. Please identify what information was used to determine this area.

- 3) What is the dominant type of shrub/scrub vegetation, if known? Provide a photograph(s) if available. _____
- 4) What is the approximate average height of the shrub/scrub vegetation?
____ 0-2 feet ____ 2-5 feet ____ > 5 feet
- 5) Based on site observations, how dense is the shrub/scrub vegetation?
____ Dense ____ Patchy ____ Sparse

Section 2C. Open Field

- 1) Are there open (bare, barren) field areas present at the site? Yes ____ No _____. If “Yes”, please indicate the type below:
____ Prairie/plains ____ Savannah ____ Old field ____ Other (specify) _____

- 2) What percentage of the site is open field? (____ % ____ acres) Indicate the open field areas on the site map.
- 3) What is/are the dominant plant plants? Provide a photograph(s) if available. _____

- 4) What is the approximate average height of the dominant plant? _____
- 5) Describe the vegetation cover: ____ Dense ____ Sparse ____ Patchy

Section 2D. Miscellaneous

- 1) Are other types of terrestrial habitats present at the site, other than woods, shrub/scrub, and open field? Yes _____ No _____. If “Yes”, identify and describe below.

- 2) Describe the terrestrial miscellaneous habitat(s) and identify these areas on the site map.

- 3) What observations, if any, were made at the site regarding the presence and/or absence of insects, fish, birds, mammals, etc?

- 4) Review the questions in Section I to determine if any additional habitat checklists should be completed for this site.

Section 3. Aquatic Habitat Checklist – Non-Flowing Systems

Note: Aquatic systems are often associated with wetland habitats. Please refer to Section 5, Wetland Habitat Checklist.

- 1) What type of open-water, non-flowing system is present at the site?

_____ Natural (pond or lake)

_____ Artificially created (lagoon, reservoir, canal, impoundment)

- 2) If known, what is the name(s) of the waterbody(ies) on or adjacent to the site?

- 3) If a waterbody is present, what are its known uses (e.g., recreation, navigation, etc.)?

- 4) What is the approximate size of the waterbody(ies)? _____ acre(s)

- 5) Is any aquatic vegetation present? Yes ____ No _____. If "Yes", please identify the type of vegetation present, if known.
 ____ Emergent ____ Submergent ____ Floating
- 6) If known, what is the depth of the water? _____
- 7) What is the general composition of the substrate? Check all that apply.
 ____ Bedrock ____ Sand ____ Muck (fine/black)
 ____ Boulder (>10 inch) ____ Silt (fine) ____ Debris
 ____ Cobble (2.5-10 inch) ____ Marl (shells) ____ Detritus
 ____ Gravel (0.1-2.5 inch) ____ Clay (slick) ____ Concrete
 ____ Other (specify) _____
- 8) What is the source of water in the waterbody?
 ____ River/Stream/Creek ____ Groundwater ____ Other (specify) _____
 ____ Industrial discharge ____ Surface runoff
- 9) Is there a discharge from the site to the waterbody? Yes ____ No _____. If "Yes", please describe this discharge and its path.

- 10) Is there a discharge from the waterbody? Yes ____ No _____. If "Yes", and the information is available, identify from the list below the environment into which the waterbody discharges.
 ____ River/Stream/Creek ____ onsite offsite ____ Distance _____
 ____ Groundwater ____ onsite offsite ____
 ____ Wetland ____ onsite offsite ____ Distance _____
 ____ Impoundment ____ onsite offsite ____
- 11) Identify any field measurements and observations of water quality that were made. For those parameters for which data were collected provide the measurement and the units of measure below:
 ____ Area
 ____ Depth (average)
 ____ pH
 ____ Dissolved Oxygen
 ____ Salinity
 ____ Turbidity (clear, slightly turbid, turbid, opaque) (Secchi disk depth ____)
 ____ Other (specify) _____

12) Describe observed color and area of coloration.

13) Mark the open-water, non-flowing system on the site map attached to this checklist.

14) What observations, if any were made at the waterbody regarding the presence and/or absence of benthic macroinvertebrates, fish, birds mammals, etc.?

Section 4. Aquatic Habitat Checklist – Flowing Systems

Note: Aquatic systems are often associated with wetland habitats. Please refer to Section 5, Wetland Habitat Checklist.

1) What type(s) of flowing water system(s) is (are) present at the site?

☐ River	☐ Stream	☐ Creek
☐ Dry wash	☐ Arroyo	☐ Brook
☐ Artificially Created (ditch, etc.)	☐ Intermittent Stream	☐ Channeling
☐ Other (specify) _____		

2) If known, what is the name of the waterbody? _____

3) For natural systems, are there any indicators of physical alteration (e.g., channeling, debris, etc.)? Yes ☐ No ☐. If “Yes”, please describe indicators that were observed.

4) What is the general composition of the substrate? Check all that apply.

☐ Bedrock	☐ Sand	☐ Muck (fine/black)
☐ Boulder (>10 inch)	☐ Silt (fine)	☐ Debris
☐ Cobble (2.5-10 inch)	☐ Marl (shells)	☐ Detritus
☐ Gravel (0.1-2.5 inch)	☐ Clay (slick)	☐ Concrete
☐ Other (specify) _____		

5) What is the condition of the bank (e.g., height, slope, extent of vegetative cover)?

- 6) Is the system influenced by tides? Yes ____ No _____. What information was used to make this determination?

- 7) Is the flow intermittent? Yes ____ No _____. If "Yes", please note the information that was used in making this determination.

- 8) Is there a discharge from the site to the waterbody? Yes ____ No _____. If "Yes", please describe the discharge and its path.

- 9) Is there a discharge from the waterbody? Yes ____ No _____. If "Yes", and the information is available, please identify what the waterbody discharges to and whether the discharge is onsite or off site.

- 10) Identify any field measurements and observations of water quality that were made. For those parameters for which data were collected, provide the measurement and the units of measure in the appropriate space below:

_____ Width (feet)
_____ Depth (feet)
_____ Velocity (specify units)
_____ Temperature (depth of the water at which the temperature was taken)
_____ pH
_____ Dissolved Oxygen
_____ Salinity
_____ Turbidity (clear, slightly turbid, turbid, opaque) (Secchi disk depth _____)
_____ Other (specify) _____

- 11) Describe observed color and area of coloration.

12) Is any aquatic vegetation present? Yes ____ No _____. If "Yes", please identify the type of vegetation present, if known.

_____ Emergent

_____ Submergent

_____ Floating

13) Mark the flowing water system on the attached site map.

14) What observations were made at the waterbody regarding the presence and/or absence of benthic macroinvertebrates, fish, birds, mammals, etc.?

Section 5. Wetland Habitat Checklist

1) Based on observations and/or available information, are designated or know wetlands definitely present at the site? Yes ____ No _____. Please note the sources of observations and information used (e.g., USGS Topographic maps, National Wetland Inventory, Federal or State Agency, etc.) to make this determination.

2) Based on the location of the site (e.g., along a waterbody, in a floodplain) and site conditions (e.g., standing water; dark, wet soils; mud cracks; debris line; water marks), are wetland habitats suspected? Yes ____ No _____. If "Yes", proceed with the remainder of the wetland habitat identification checklist.

3) What type(s) of vegetation are present in the wetland?

_____ Submergent

_____ Emergent

_____ Shrub/Scrub

_____ Wooded

_____ Other (specify) _____

4) Provide a general description of the vegetation present in and around the wetland (height, color, etc.). Provide a photograph of the known or suspected wetlands, if available.

- 5) Is standing water present? Yes ____ No _____. If "Yes", is this water: Fresh ____
Brackish ____ What is the approximate area of the water (sq. ft.)? _____

Please complete questions 4, 11, 12 in Checklist 3 - Aquatic Habitat -- Non-Flowing
Systems.

- 6) Is there evidence of flooding at the site? What observations were noted?
____ Buttressing ____ Water marks ____ Mud cracks
____ Debris line ____ Other (describe) _____

- 7) If known, what is the source of water in the wetland?
____ Stream/River/Creek/Lake/Pond ____ Groundwater
____ Flooding ____ Surface Runoff

- 8) Is there a discharge from the site to a known or suspected wetland? Yes ____ No _____.
If "Yes", please describe.

- 9) Is there a discharge from the wetland? Yes ____ No _____. If "Yes", to what waterbody
is the discharge released?
____ Surface Stream/River ____ Groundwater ____ Lake/pond ____ Marine

- 10) If a soil sample was collected, describe the appearance of the soil in the wetland area.

Circle or write in the best response.

Color (blue/gray, brown, black, mottled) _____

Water content (dry, wet, saturated/unsaturated) _____

- 11) Mark the observed wetland area(s) on the attached site map.

ATTACHMENT 9 INTERIM MEASURES SCOPE OF WORK

PURPOSE

This Kansas Department of Health and Environment (KDHE) scope of work (SOW) establishes the general framework for implementation of interim measure activities at a site. The primary purpose of an interim measure is to achieve the goal of stabilization, which is to control or abate immediate threats to human health and the environment, and to prevent or minimize the spread of contamination while long-term corrective action remedies are being evaluated. When a release or potential release of hazardous waste(s) and/or hazardous waste constituent(s) from regulated units, solid waste management units (SWMUs), areas of concern (AOCs), and other source or release areas at the site, poses a threat to human health or the environment, KDHE may require interim measure implementation. Alternatively, subject to KDHE approval, the Permittee/Respondent may propose interim measure implementation as long as the interim measure(s) is/are consistent with and integrated into any long-term corrective action solution at the site.

Interim measures may be warranted in either an emergency or non-emergency situation. In the case of an emergency, the Permittee/Respondent may initiate interim measures with concurrent notification of KDHE, no later than twenty-four (24) hours of becoming aware of the need for interim measure implementation to mitigate or stabilize an emergency situation.

For clarification, the term “site” as used throughout this attachment means the subject facility, in addition to all areas and media to which hazardous waste and/or hazardous constituents, and any other contamination or pollution connected with the subject facility, have been released and/or migrated. Face-to-face meetings or teleconferences between KDHE and Permittee/Respondent are strongly encouraged to facilitate achieving consensus on approach and overall streamlining of the corrective action process.

DEFINITION AND APPLICABILITY

In general, an interim measure is defined as a set of short-term actions or activities taken to quickly prevent, mitigate, or remedy unacceptable risk(s) posed to human health and the environment by an actual or potential release of a hazardous substance, pollutant, or contaminant. An interim measure is generally a less complex type of remedial response, requiring minimal design effort, and somewhat presumptive in nature, thereby negating the need for rigorous treatability study or pilot testing. An interim measure may be warranted in either an emergency (immediate response) or non-emergency situation to manage the source(s) of contamination, control the exposure pathway(s), and/or control the hazard(s) to human and environmental receptors. An interim measure may be conducted without extensive investigation at any time during the investigation or corrective action alternatives evaluation process with KDHE approval. Minimally, implementation of an interim measure must be conducted in a manner consistent with the concept of best management practices (BMPs) wherein overall

improvement in site conditions is achieved. Depending upon site-specific circumstances or conditions, one or more interim measures may be determined necessary.

Factors to be considered in assessing the need for interim measure implementation include the following:

- Actual or imminent threat of exposure to hazardous substances, pollutants, or contaminants by nearby human populations, ecological receptors or ecosystem food web;
- Actual or imminent threat of contamination to drinking water supplies or sensitive ecosystems;
- Hazardous substances or wastes in drums, barrels, tanks, piles, or other bulk storage containers that may pose an imminent threat of release;
- High levels of hazardous substances, pollutants, or contaminants in predominantly surface soils that may readily migrate;
- Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released;
- Threat of fire or explosion; and,
- Other situations or factors that may pose imminent threats to public health or welfare or the environment.

In order to assess the relative magnitude of an actual or imminent threat to human health and the environment and the need for possible interim measure implementation, KDHE will consider all applicable federal and state regulatory standards or threshold screening levels for the media of interest including, but not limited to, the following:

- U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs);
- EPA numeric removal action levels (RALs) for contaminated drinking water sites;
- Tier 2 screening levels as provided in the KDHE *Risk-Based Standards for Kansas RSK Manual* (RSK Manual), as revised; and,
- Kansas surface water quality standards.

If gross measurable or visible contamination to the environment is evident (e.g., catastrophic release of separate phase liquid waste), this may serve as a threshold criterion for interim measure implementation as required by KDHE.

The intent in allowing interim measure implementation is not to circumvent the more linear RCRA corrective action process: investigation, alternatives evaluation, and corrective action design/ implementation. However, if site characteristics suggest circumstances are amenable to interim measures designed to control or abate imminent threats, or prevent or minimize the further spread of contamination, KDHE may consider the appropriateness of interim measure implementation as an element of the final corrective action remedy.

GOALS/OBJECTIVES AND TIMING

The ultimate goal of an interim measure is to control or abate threats to human health and/or the environment from releases of or exposures to hazardous substances, pollutants, or contaminants,

and to prevent or minimize the further spread of contamination while long-term remedies are evaluated. An interim measure is intended to provide a partial, albeit more immediate, solution while being consistent with the final site remedy. Implementation of an interim measure often results in significant overall reduction in cost and scope of the final remedy. In some instances, the interim measure may prove to be all that is necessary to achieve site-wide corrective action goals should all significant threats to human health and the environment be mitigated or eliminated. In terms of timing, an interim measure is generally conducted before the investigation and evaluation of remedial alternatives are completed. However, for an active facility, this timing preference is largely irrelevant in the case of a new or newly-discovered release warranting immediate action.

PROCESS ELEMENTS AND EXAMPLES

Again, an interim measure is intended to be a generally less complex type of remedial response requiring only focused characterization, as necessary; simplified target receptor identification and exposure pathway analysis; focused interim measure identification/selection; and, minimal design effort with emphasis on “off-the-shelf” remedial system components. Since somewhat contrary to the overall purpose of interim measure implementation, the scope and duration of treatability study or pilot-testing activities is expected to be limited. A typical interim measure may include, but is not limited to, one or more of the following:

- Removal of abandoned drums or other waste containers;
- Excavation of contaminated soil “hot spots”;
- Hydraulic control of groundwater contaminant plume;
- Removal of non-aqueous phase liquid (NAPL) from groundwater;
- Provision of alternate water supply or point-of-use treatment;
- Installation of indoor air vapor mitigation systems;
- Construction of perimeter fencing to limit uncontrolled site access;
- Construction of surface (e.g., dike or berm for runoff/runoff control) or subsurface barriers (e.g., French drain or interceptor trench); and/or,
- Receptor point monitoring (e.g., periodic residential well or public water supply sampling).

PLAN/DESIGN AND REPORTING REQUIREMENTS

Whether conducted in an emergency or non-emergency situation, the decision process leading to the selection and implementation of an interim measure, and the resultant action itself, must be appropriately documented. As part of the initial notification to KDHE, the Permittee/Respondent must provide a brief proposal consisting of a description, implementation schedule and justification for the emergency interim measure proposed to be taken. Upon completion of the emergency interim measure, the Permittee/Respondent will be required to provide a final summary report of the emergency action taken while noting any deviations from the original proposal. KDHE may request the Permittee/Respondent perform additional investigative or mitigative measures, and/or submit a more formal work plan or report.

For all non-emergency interim measures, an Interim Measure Work Plan/Design must be submitted for KDHE review and approval. This Work Plan/Design may vary in detail depending on program requirements. The Work Plan/Design will include, at a minimum, a summary of available site information and available investigation results; a detailed description of the proposed interim measure; justification and benefit of interim measure implementation including interim corrective action objectives; depending on the complexity of the interim measure, complete design specifications and drawing/schematics, including any relevant figures and/or site system engineering layouts (e.g., process flow diagram, piping and instrumentation diagram, etc.) and engineering design basis; cost estimate; and, a detailed working schedule presented graphically in the form of a milestone chart (e.g., Gantt chart) to show the duration and interdependencies of the various activities. Depending on the complexity of the proposed interim measure and specific program requirements, the Interim Measure Work Plan/Design may need to address operation and maintenance (O&M) as well as performance monitoring needs. Attachment A provides an example outline of an Interim Measure Work Plan/Design package. Attachment A is not intended to be prescriptive in nature, rather a model from which to work. The exact elements and content of any Interim Measure Work Plan/Design package will be determined by KDHE dependent upon the overall complexity of the anticipated interim measure while being consistent with specific program requirements.

Once the non-emergency interim measure is determined by KDHE to be complete (e.g., alternate water supply provided) or fully operational and functional (e.g., soil vapor extraction system installed in accordance with the KDHE-approved design and achieves performance expectations), the Permittee/Respondent must submit an Interim Measure Report documenting the nature of the threat, the action(s) taken and the success in mitigating the threat. KDHE will determine the appropriate form or content of the Interim Measure Report. If the interim measure continues as an on-going effort (e.g., subsurface interceptor trench operation), then the Permittee must submit a monitoring/progress report at a frequency specified in the KDHE-approved Interim Measure Work Plan/Design (e.g., quarterly).

PUBLIC INVOLVEMENT

Given that interim measure implementation will normally precede the final corrective action remedy and any associated decision documents (i.e., Statement of Basis), KDHE may prepare a fact sheet describing the interim measure and distribute to interested parties in the immediate site vicinity. This is not for the intent of soliciting public comment on a proposed interim measure, but rather to keep local government officials and area residents informed as to site activities. Depending on the site-related complexities or sensitivities, conduct of a public availability session may be warranted, as determined necessary by KDHE. In such instance, KDHE may request Permittee/Respondent to prepare supporting documents or presentation materials.

Attachment A
Interim Measure Work Plan/Design Package
Example Outline

- I. Site Background
- II. Previous Investigations and Summary of Results
- III. Description of Proposed Interim Measure
- IV. Interim Measure Corrective Action Objectives
- V. Interim Measure Design
 - a. Design Basis
 - b. Design Specifications
 - c. Drawings/Schematics
 - d. Cost Estimate
 - e. Detailed Working Schedule (to be periodically updated)

APPENDICES

Appendix A – Data Acquisition Plan (optional)

Appendix B – Quality Assurance Project Plan (or reference existing document)

Appendix C – Treatability Study Testing Plan (optional)

Appendix D – Health and Safety Plan (or reference existing document)

Appendix E – Operations and Maintenance Plan

Appendix F – Community Relations Plan

ATTACHMENT 10

CORRECTIVE MEASURES STUDY

SCOPE OF WORK

INTRODUCTION

Undertaken by the Permittee/Respondent, the Corrective Measures Study (CMS) provides an objective and standardized process for evaluating, comparing, and contrasting potential corrective measure alternatives. The primary objectives of the CMS are to:

- 1) Evaluate the feasibility, effectiveness, and cost of at least two (2) potential corrective action alternatives based on the findings of the RCRA Facility Investigation (RFI), and to compare and contrast those alternatives to each other and the "no action" alternative;
- 2) Recommend and justify a specific corrective action for the site; and,
- 3) Determine the benefits and consequences of the recommended corrective action.

The individual corrective action alternatives selected for evaluation as part of the CMS process must be plausible and not skew or bias the evaluation process. The alternatives considered must be capable of achieving cleanup objectives while, to the maximum extent practicable, contemplating permanent solutions and treatment technologies. Depending upon project needs, the alternatives to be evaluated are typically broken out on a media-specific basis, or sometimes on a geographic basis. For example, if contaminant impacts are to be addressed in groundwater and soil, a minimum of two corrective action alternatives (in addition to the no action alternative) for each media of concern are evaluated in most circumstances. If interim measures have been implemented or other actions taken in the past at a site, those do not necessarily need to be subjected to a comparative analysis at the time of CMS development; however, they must be described/justified in detail within the CMS Report itself with an estimate of associated implementation costs, to the extent available. The overall intent is that any interim measures taken not be inconsistent with the final selected site remedy.

CMS EVALUATION PROCESS

This guidance and scope of work (SOW) attachment outlines the primary activities to be completed as part of the CMS process necessary to satisfy the objectives stated above. At KDHE's discretion, this general process may be streamlined and focused to best serve project needs. In general, the evaluation of corrective actions alternatives must include:

- Description of the contaminants of concern (COCs) and media affected;
- Identification of human and ecological targets and an evaluation of all direct and indirect exposure pathways;
- Description of the site-specific corrective action objectives (CAOs);
- Detailed individual analysis of each alternative;
- Tabular summary of regulatory requirements and relevant guidance for each alternative; and,
- Comparative analysis of each of the proposed corrective action alternatives.

The detailed evaluation of potential corrective action alternatives provides the basis for recommending and supporting a specific remedial action or group of remedial actions for the site. Notably, any remedy selected for a site absolutely, unequivocally must satisfy the four identified threshold criteria identified in Figure 1. The seven balancing criteria represent the primary criteria upon which the CMS evaluation/comparative analysis is based.

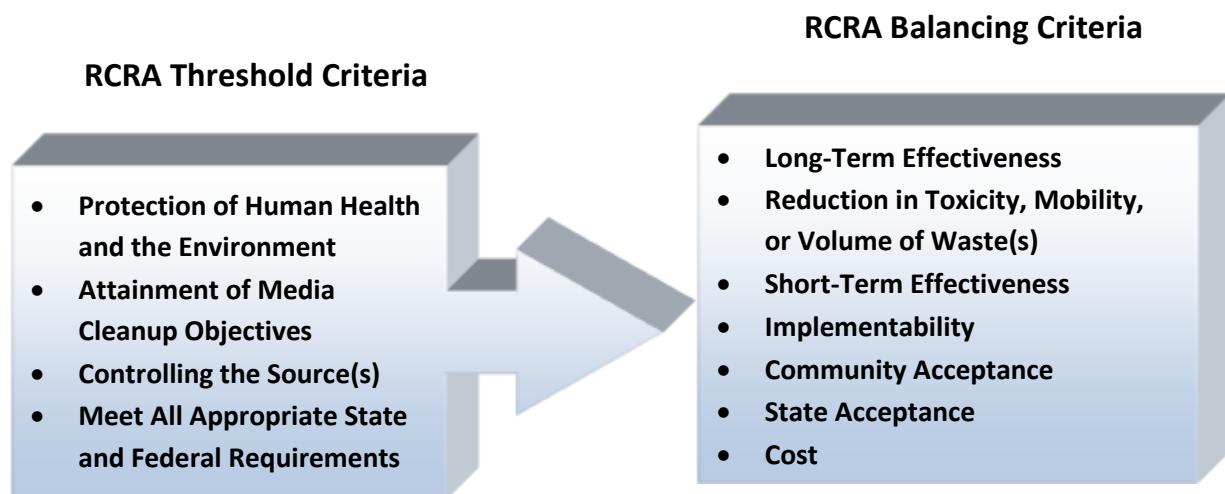


Figure 1: Criteria for evaluation of corrective action alternatives

Face-to-face meetings or teleconferences between KDHE and Permittee/Respondent are strongly encouraged to facilitate achieving consensus on approach and overall streamlining of the corrective action process. By doing such, in most cases, submission of a CMS Work Plan can be avoided. However, if additional data gathering is warranted following completion of the RFI in order to evaluate potential corrective action alternatives, KDHE may require submission of a CMS Work Plan for review and approval.

The exact content requirements of any CMS Work Plan should be developed in consultation with KDHE. A detailed CMS working schedule, presented graphically in the form of a milestone chart (e.g., Gantt chart) to show the duration and interdependencies of the various activities must be included in any required CMS Work Plan. In addition, any analytical data collected must be of appropriate data quality and quantity to facilitate comparison to applicable threshold levels as established in KDHE's *Risk-Based Standards for Kansas RSK Manual* (RSK Manual), or as otherwise approved or required by KDHE, or to support the evaluation of potential corrective action alternatives.

In some cases, the Permittee/Respondent may propose or KDHE may require implementation of bench- or pilot-scale treatability study testing to demonstrate the efficacy of a particular technology where there might be some uncertainty in the viability or suitability to site conditions. Treatability studies are conducted to provide sufficient data to allow treatment alternatives to be fully developed and evaluated during the CMS process and to support the subsequent remedial design of the corrective action alternative ultimately selected by KDHE.

Treatability studies also serve to reduce cost and performance uncertainties to acceptable levels for treatment alternatives under consideration to permit a more reliable remedy selection process. All treatability studies/modeling/additional data acquisition activities must be completed in a manner consistent with available KDHE policy and guidance. If there is a desire or need to conduct such activities, the Permittee/Respondent must first submit a treatability study work plan for KDHE review and approval. At KDHE's discretion, reporting associated with treatability study/modeling/additional data gathering activities may be reported separately or incorporated into the CMS Report.

CMS REPORTING

A CMS Report must be submitted to KDHE for review and approval, in a timeframe consistent with the implementation schedule in the approved CMS Work Plan, or as otherwise directed by KDHE. The CMS Report must include all information and data collected during the investigation and describe in detail the work performed to accomplish the objectives as set forth within this attachment. The CMS Report shall include: 1) a brief summary of the findings of previous environmental investigations, including the findings of a risk assessment, if performed; 2) a description of the site-specific CAOs, including any media cleanup or risk-based standards for the protection of human health and the environment; 3) a detailed description of each corrective action alternative evaluated, including the "no action" alternative; 4) a detailed discussion of each corrective action alternative evaluated relative to the threshold and balancing criteria identified above; 5) a comparative analysis of one alternative versus the others in both narrative and tabular form; 6) a recommendation for corrective action at the site which provides a clear basis for recommending and supporting a specific corrective action or group of corrective actions for the site; and, 7) any supporting background information or literature which was used to evaluate each corrective action alternative (to be included in an appendix).

All elements of the recommended corrective action as proposed in the CMS Report must be fully substantiated. Specifically, sufficient data must be available and presented in the CMS Report to support the recommended alternative consistent with available state and federal policy and guidance. KDHE may also require identification of a contingent remedy up front in the event the selected remedy is not able to achieve CAOs or if there is uncertainty as to the efficacy of that being proposed. Once KDHE has reviewed and approved the CMS Report, a Statement of Basis will be prepared that identifies KDHE's preferred remedy for the site. The draft decision document will be made available for public comment before KDHE issues a final remedy decision. At this juncture, the Permittee/Respondent will be required to design and perform corrective action activities under KDHE oversight.

STEP 1: Identification and Development of Corrective Measure Alternatives

Based on RFI results, the Permittee/Respondent shall identify, screen, and develop the alternatives for removal, containment, treatment and/or other remediation of the contamination based on established media cleanup objectives. At a minimum, all corrective actions concerning groundwater releases from RCRA regulated units shall be consistent with, and as stringent as, those required under 40 CFR 264.100. In general, the media cleanup objectives, established in conjunction with KDHE, shall be based upon available KDHE and EPA guidance, public health

and environmental criteria, information gathered during the RFI, and generally include the following components:

- Cleanup levels which are media-specific concentrations that achieved before the final remedy is considered complete;
- Point(s) of compliance representing where the media-specific cleanup levels are to be achieved; and,
- Remedy construction timeframe and estimate of time needed to achieve media-specific cleanup levels at the point(s) of compliance.

Multiple technologies (e.g., treatment train) can be combined to constitute the overall corrective action alternative being carried through the evaluation. Again, each of the alternatives being considered must be screened against the threshold criteria shown in Figure 1. If a given alternative does not meet all of the threshold criteria, then the alternative does not warrant further consideration.

STEP 2: Detailed Evaluation of Corrective Measure Alternatives

For those alternatives that satisfy the threshold criteria screening in Step 1, the Permittee/Respondent must fully describe and evaluate each alternative and its individual components relative to the balancing criteria depicted in Figure 1.

Long-Term Effectiveness

The Permittee/Respondent shall demonstrate the expected long-term effectiveness, reliability, and risk of failure of the alternatives in terms of:

- Effectiveness of the alternative under analogous site conditions;
- Potential impact resulting from alternative failure, including failures from uncontrollable changes affecting the site (e.g., heavy precipitation events, off-site pumping well influences, etc.); and,
- Estimates of alternative projected useful life, including any component technologies.

Reduction in Toxicity, Mobility, or Volume of Waste(s)

In general, the preference is for remedies capable of eliminating or substantially reducing the potential for wastes in the contaminated media to cause future environmental releases or other risks to human health and the environment. For the sake of the CMS evaluation, the Permittee/Respondent must estimate how much or to what extent the corrective measure alternatives will reduce the toxicity, mobility, or volume of waste. The assessment must include a comparison of initial site conditions to anticipated post-corrective measure conditions.

Short-Term Effectiveness

Short-term effectiveness has particular bearing when the remedial activities will be occurring in densely populated areas, or where waste characteristics pose a high risk to workers/environment

necessitating special protective measures during the implementation. Typical factors to be considered in the CMS evaluation include, but are not limited to, fire, explosion, exposure to hazardous substances and potential threats associated with treatment, excavation, transportation and redisposal, or containment of the waste material.

Implementability

The Permittee/Respondent shall fully describe the implementability of each alternative, including the relative ease of installation (or constructability) within the context of time required to achieve an anticipated result (e.g., hydraulic containment achieved). The following specific information shall be considered and included in the CMS Report:

- Administrative activities (e.g., permits, off-site approvals) needed to implement the alternative, and the length of time needed to accomplish these activities;
- Constructability, implementation time, and time for beneficial results;
- Availability of adequate off-site treatment, storage capacity, disposal services, needed technical services and materials; and,
- Availability of prospective technologies for each corrective measure alternative.

Community Acceptance

The Permittee/Respondent is responsible for involving and supporting community involvement activities as an ongoing part of the corrective action. The CMS Report shall include a discussion of any concerns raised by the community during the conduct of corrective action activities to that point in time (e.g., investigation and interim measures). In addition, the CMS Report shall discuss any aspects associated with an alternative for which there is a potential for community concerns and objections.

State Acceptance

The Permittee/Respondent shall include a discussion in the CMS Report of how the specific corrective measure activities will be conducted in compliance with all applicable state regulations (i.e., permit requirements), and KDHE policy and guidance relevant to the proposed corrective measures implementation.

Cost

The Permittee/Respondent shall develop a cost estimate for each corrective measure alternatives. Cost estimates shall include costs for engineering, site preparation, construction, materials, labor, sampling/analysis, waste management/disposal, permitting, health and safety measures, training, operation and maintenance, long-term monitoring, etc.

STEP 3: Corrective Measure(s) Recommendation

The Permittee/Respondent shall fully justify and recommend a corrective measure(s) for implementation with a detailed summary of how the measure(s) satisfy each of the threshold criteria and why the measure(s) appears most favorable based on the balancing criteria comparative analysis evaluation. This recommendation shall include summary tables presenting the alternatives in an easily understood manner and specifically highlighting tradeoffs among the balancing criteria factors for the alternatives considered/evaluated. KDHE will then identify a proposed corrective measure(s) in the Statement of Basis. With consideration of public comment on the Statement of Basis, KDHE will make a final selection of the corrective measure(s) to be implemented.

ATTACHMENT 11

CORRECTIVE MEASURES IMPLEMENTATION

SCOPE OF WORK

INTRODUCTION

The Final Corrective Measure(s) Decision and Response to Comments (FDRTC) issued by the Kansas Department of Health and Environment (KDHE) identifies the remedial action(s) that will be implemented to address residual waste and contamination of environmental media, and prevent or eliminate exposure to human and ecological receptors from site-related contaminants of concern (COCs). The selected remedy is planned, designed, constructed, and implemented during the Corrective Measures Implementation (CMI) stage, comprised of the Corrective Action Plan (CAP) and Corrective Action (CA) phases, with oversight provided by KDHE. Face-to-face meetings or teleconferences between KDHE and Permittee/Respondent are strongly encouraged to facilitate achieving consensus on approach and overall streamlining of the corrective action process.

CMI (CAP/CA) OBJECTIVES

The primary objectives of the CAP phase are described as follows:

- 1) To provide a CMI Work Plan consisting of a preliminary design of the CA and a description of the tasks necessary to implement the corrective action consistent with the FDRTC;
- 2) To obtain additional data, if necessary, to support the development of the detailed design plans and specifications;
- 3) To provide detailed intermediate, pre-final and final design plans and specifications including an Operations and Maintenance (O&M) Plan for the remedial system;
- 4) To provide a Contingency Plan, as required by KDHE, that identifies an alternative corrective action to be implemented in the event of a significant failure of the remedial system;
- 5) To identify and obtain necessary easements and permits required for the implementation of the corrective action; and,
- 6) To provide a Site Monitoring and Performance Evaluation Plan to monitor the effectiveness of the corrective action.

The CMI Work Plan and associated design documents may vary in detail and delivery strategy (e.g., preliminary (10%), intermediate (30-50%), pre-final/final (90-100%)) depending on project-specific needs. For example, in the case of complex design efforts, preliminary and/or intermediate design submittals may be appropriate in advance of the pre-final/final design stage. For a simple remedy, it may only be necessary to submit a draft and final CMI Work Plan where no up-front design is explicitly warranted; instead, a report is provided after CA implementation/installation fully documenting the effort with any as-builts. Often times, the first design submittal seems to actually be the pre-final/final design equivalent. At the discretion of KDHE, instead of submitting with the CMI Work Plan and associated design package, the O&M Plan as well as the Site Monitoring and Performance Evaluation Plan may be submitted after CA

implementation/start-up with the as-builts. KDHE may also require upfront or later submittal of a Contingency Plan, primarily if identified explicitly in the FDRTC, or as project needs might dictate based on site-wide and performance monitoring. Typically, in these circumstances, the expectation is that a contingency be identified in general terms only with a Contingency Plan developed if/when the need arises at a later date as requested by KDHE. If the contingent remedy represents a fundamental change from the original selected remedy, then community involvement activities and/or decision document amendment may be necessary.

The primary objectives of the CA phase are described as follows:

- 1) To implement the CMI Work Plan and associated design documents as approved by KDHE;
- 2) To operate and maintain the corrective action system as described in the approved O&M Plan;
- 3) To evaluate and monitor the performance of the corrective action as described in the approved Site Monitoring and Performance Evaluation Plan;
- 4) To determine whether corrective action objectives (CAOs) or media cleanup goals have been attained, or are likely to be attained;
- 5) To confirm attainment of CAOs or media cleanup goals by conducting post-corrective action monitoring as described in the approved Site Monitoring and Performance Evaluation Plan;
- 6) To implement the approved Contingency Plan, as required by KDHE, to design, install and operate additional or alternative corrective action measures in the event the implemented corrective action is unable to attain corrective action goals within a reasonable timeframe as determined by KDHE;
- 7) To document and report to KDHE all activities performed pursuant to the corrective action; and,
- 8) To submit a final report to KDHE for approval which briefly describes the corrective action implemented at the site, and provides the appropriate data documenting that site-specific corrective action goals have been attained.

Depending on the complexity of the selected corrective action, the CMI Work Plan and associated design documents may need to address operation and maintenance via an O&M Plan as well as remedial system performance monitoring and site-wide monitoring (e.g., plume control) via a Site Monitoring and Performance Monitoring Plan. As discussed above, KDHE may also require upfront or later submittal of a Contingency Plan.

CMI (CAP/CA) PLANNING/IMPLEMENTATION/REPORTING

CMI Work Plan/Design—In general, the CMI Work Plan and associated design documents will include, at a minimum, a summary of available site information and available investigation results; a detailed description of the proposed corrective action; CAOs or media cleanup goals; depending on the complexity of the proposed corrective action, complete design specifications and drawing/schematics, including any relevant figures and/or site system engineering layouts (e.g., process flow diagram, piping and instrumentation diagram, etc.) and engineering design basis; cost estimate; and, a detailed working schedule presented graphically in the form of a milestone chart (e.g., Gantt chart) or critical path diagram to show the duration and

interdependencies of the various activities. As necessary, the detailed working schedule must be updated and submitted to KDHE as part of the routine reporting requirements.

The exact elements, content and delivery strategy of the CMI Work Plan and all associated design documents will be determined by KDHE in consultation with the Permittee/Respondent. Typically, a preliminary (10%) design package will minimally include a design delivery strategy, preliminary construction schedule, specifications outline, preliminary drawings, design basis report, and a detailed statement of how all applicable regulatory requirements will be met. An intermediate (30-50%) design package will include an updated construction schedule, preliminary specifications, intermediate drawings, updated design basis report, and updated requirements evaluation. A pre-final/final (90-100%) design package will include updates of the above-mentioned items plus pre-final/final design specifications/drawings and design basis report/design analysis. Unless submitted separately, the CMI Work Plan/Final Design Package must address O&M and performance monitoring needs as well as shakedown testing and startup procedures. There may also be a need for development of a Construction Quality Assurance Plan and a separate Health and Safety Plan for CA implementation.

The Permittee must describe in detail all tasks necessary to acquire additional data to support the development of a CMI Work Plan/Final Design Package and to construct, implement, and monitor the performance of the corrective action. All necessary tasks shall be documented and described in adequate detail to clearly state the manner in which they will be implemented and reported. The tasks shall address obtaining appropriate easements, permits, etc. and, where wastes or hazardous substances, pollutants, or contaminants will remain on site at concentrations that disallow unlimited use and unrestricted exposure, include those tasks necessary for establishing institutional controls as approved by KDHE.

Additional Data Acquisition Plan (Optional)—If additional data collection is needed to prepare the CMI Work Plan or support the design effort, an Additional Data Acquisition Plan must be submitted in advance for KDHE approval. The intent of any additional data acquisition is to provide sufficient data to support the subsequent remedial design and/or start-up of the KDHE selected remedy. All data gathering activities must be completed in a manner consistent with available KDHE policy and guidance. Analytical data must be collected of appropriate data quality and quantity to facilitate comparison to applicable threshold levels as established in KDHE's *Risk-Based Standards for Kansas RSK Manual* (RSK Manual). All data should be validated at the appropriate field or laboratory quality control level to determine whether it is appropriate for its intended use. At KDHE's discretion, reporting associated with additional data gathering activities may be reported separately, incorporated into the CMI Work Plan/Final Design Package or incorporated into the CMI Report.

Site Monitoring And Performance Evaluation Plan—Whether included in the CMI Work Plan/Final Design Package described above or prepared separately, a Site Monitoring and Performance Evaluation Plan is intended to document the activities necessary to evaluate the effectiveness of the corrective action, in terms of remedial system performance monitoring and site-wide monitoring, as appropriate. At a minimum, the Site Monitoring and Performance Evaluation Plan shall include:

- a description of the site-specific CAOs or media cleanup goals;
- a description of the remedial system operations that will be evaluated and identification of criteria that will be used to evaluate system performance;
- frequency, methods, and rationale for site monitoring;
- a description of the environmental media to be monitored (groundwater, surface water, soil, soil vapor, indoor air, etc.);
- a description of quality assurance/quality control (QA/QC) considerations for the laboratory and field;
- identification of institutional controls that will be inspected/monitored;
- a plan for evaluating changes in land use of impacted areas that may alter the effectiveness of the corrective action; and,
- a description of reporting methods, format, and frequency.

O&M Plan—Whether included in the CMI Work Plan/Final Design Package described above or prepared separately, an O&M Plan must be submitted for KDHE review and approval. To facilitate preparation of an O&M Plan, please refer to available U.S. Environmental Protection Agency (EPA) guidance entitled *Operation and Maintenance in the Superfund Program* (OSWER 9200.1-37FS; EPA540-F-01-004; May 2001), or as approved by KDHE. The intent is for any operator to be able to use the O&M Plan and clearly understand O&M procedures to be followed, documentation requirements and corrective measures to be taken dependent upon anticipated circumstances or upset conditions. Proper planning and advance contingencies are appropriate considerations to minimize remedial system downtime.

CA Implementation and Reporting—The corrective action selected for the site shall be implemented in accordance with the KDHE-approved CMI Work Plan/Final Design Package. Implementation of the corrective action shall proceed according to the KDHE-approved schedule. The Permittee/Respondent shall conduct a pre-construction inspection and meeting as well as routine inspections during CA implementation. Depending on the complexity and duration of the corrective action effort, KDHE may require submission of interim status reports on a periodic basis (e.g., weekly, bi-monthly, monthly, etc.) documenting CA activities. When construction is complete, Permittee/Respondent shall notify KDHE for the purposes of conducting a final inspection consisting of a walk-thru of the project site.

A Final CMI Report that documents the corrective action constructed or implemented at the site shall be submitted to KDHE for review and approval. KDHE should be consulted to determine the appropriate form or content of the Final CMI Report. Submission of the Final CMI Report should not be construed to constitute fulfillment of all obligations on the part of the Permittee/Respondent at a given site. Instead, the Final CMI Report more typically represents reporting of the remedial actions taken to that point in time, predominantly a reporting of the constructed or engineered systems. Depending on project needs, CMI-related reporting may also necessitate submission of a Corrective Measures Construction Complete (CMCC) Report and/or Corrective Measures Completion (CMC) Report.

Site Monitoring and Performance Evaluation Reporting—The effectiveness of the corrective action shall be monitored as specified, including schedule and frequency, in the KDHE-approved Site Monitoring and Performance Evaluation Plan. Site Monitoring and Performance Evaluation

Reports must be submitted to KDHE in accordance with the KDHE-approved Site Monitoring and Performance Evaluation Plan. The Site Monitoring and Performance Evaluation Reports must contain all of the information and data as described within the Site Monitoring and Performance Evaluation Plan, including a narrative description and/or graphic evaluation of the effectiveness of the corrective action as compared to the site-specific CAOs or media cleanup goals.

If the site monitoring and performance evaluation program demonstrates that the implemented corrective action is incapable of achieving corrective action goals within a reasonable timeframe as determined by KDHE, the Site Monitoring and Performance Evaluation Report should recommend modifications or augmentation to the existing remedial system that will enable the system to achieve the media cleanup goals. KDHE must be notified within seven days of any significant changes that may diminish the effectiveness of the implemented corrective action to protect human health and the environment.

At a minimum, the Site Monitoring and Performance Evaluation Reports shall include:

- a narrative description and graphic illustration of the effectiveness of the corrective action;
- a description of system operations and performance;
- a system startup report and “as built” drawings of the remedial system (required for the first Site Monitoring and Performance Evaluation Report unless approved by KDHE to be reported separately);
- a description of repairs or modifications made to the corrective action system during the reporting period, as appropriate;
- laboratory analytical data including copies of laboratory reports and summary tables;
- contaminant isoconcentration maps;
- a tabular comparison of the current monitoring data to previous monitoring results;
- a figure illustrating the site and associated monitoring wells or other sample point locations;
- static water elevation measurements;
- a contour map of the water level elevation;
- a description of any deviations from the approved sampling procedures;
- results of QA/QC data and an evaluation of the validity of the analytical data;
- logs of any newly constructed site wells;
- an evaluation of the effectiveness of institutional controls implemented for the corrective action (monitoring frequency will be identified in the approved Site Monitoring and Performance Evaluation Plan);
- an evaluation of land use of the impacted area (monitoring frequency will be identified in the approved Site Monitoring and Performance Evaluation Plan);
- specific conclusions and recommendations (for further action or change) based on historical site monitoring and performance data trends; and, all other relevant site data collected during the reporting period.

ATTACHMENT 12
FORM OF INVOICE FOR OVERSIGHT COSTS
(Payroll and Expense Detail Entries are for Example Purposes Only)

KDHE/Bureau of Waste Management
Attn: **Ryan Pfeiffer**
1000 SW Jackson Street, Suite 320
Topeka, KS 66612-1366

Period: XX/XX/XX through XX/XX/XX
Date: XX/XX/XX

Payment Due in 30 days

Bill To: XXXXXXXXXX
XXXXXXX
XXXXXXX
XXXXXXX

This invoice is for costs incurred by or on behalf of KDHE for the referenced project. Please make check payable to the Bureau of Waste Management and enclose a copy of the invoice with payment to the above address to ensure your account is credited appropriately. Questions regarding this invoice should be directed to **Ryan Pfeiffer at (785) 291-3132 or rpfeiffer@kdheks.gov.**

Project Name: XXXXXXXXXXXXXXXXXXXXXXXX

Consent Order: KDHE Case No. XX-E-XX

Cost Acct:

XXXXXXXXXX

Project Code: EPA ID No. KSXXXXXXXXXX

Payroll Details:

Title	Hourly Rate	Category	Total Hours
Environmental Scientist II	\$ XX.XX	Site Visit/Inspection and/or Field Oversight/Sampling	X.XX
Professional Geologist IV	\$ XX.XX	Letter/Document Preparation/Review and/or Approval	X.XX
Total Payroll Costs			\$ XXX.XX

Expense Details:

Travel Expenses	(Description)	\$ XXX.XX
Lab Analysis	(Description)	\$ XXX.XX
Other 3 rd Party Costs	(Description)	\$ XXX.XX

Summary:

Payroll Costs: \$ XXX.XX
Other Costs: \$ XXX.XX
Administrative Costs: \$ XXX.XX

TOTAL DUE: \$ XXX.XX

Please Note: The Kansas Department of Health and Environment's (KDHE) administrative office expenses included with this invoice are computer use, rent, utilities and other support services. This amount equals 40% of the payroll and other costs totals, except for contractual, field supplies, KDHE equipment use, and lab analysis, which are computed at 12.5%.

THIS IS AN INVOICE

ATTACHMENT 13
KDHE/BUREAU OF WASTE MANAGEMENT (KDHE/BWM)
RCRA CORRECTIVE ACTION FIELD ACTIVITIES NOTIFICATION FORM

This field notification form is only applicable to certain facilities/sites managed by the Hazardous Waste Permits Section and is **not** intended for use by other programs. Specifically, the form is to be used solely for notification of RCRA corrective action-related field activities. Please provide advance written notification by completing this form and faxing to 785-296-1592. If you have any problems completing this form, please call the assigned KDHE/BWM Project Manager, or 785-296-1602 for assistance. Note: If you are amending or canceling a previous notification, please enter the date of that previous notification (if known).

- ☐ I want to submit a new notification.
- ☐ I want to amend a previous notification. (Enter date if known)_____
- ☐ I want to cancel a previous notification. (Enter date if known)_____

(*denotes required fields)

*Project Name:_____

*KDHE Project Manager:_____

Location of work:

*County:_____

*City (or nearest city):_____

Anticipated dates and duration of work:

*Start Date (mm/dd/yy):_____

*Duration of work (days):_____

☐ Check this box if work is expected to occur on any weekend or holiday days.

Primary Field Contact:

*Name:_____

*Affiliation/Company:_____

*Primary Phone Number:_____Alternate Phone Number:_____

Email Address:_____

Alternate Contact:

*Name:_____

*Affiliation/Company:_____

*Primary Phone Number:_____Alternate Phone Number:_____

Email Address:_____

***Brief Description of Work to be Performed:**

ATTACHMENT 14
EXPANDED CONSTITUENT LIST

Constituent(s)	Analytical Test Method(s)
Energetics	SW-846 Method 8330 modified or Method 8321
Total RCRA Metals	SW-846 Method 6010B, Method 7470
Other semivolatiles (i.e., base, neutral and acid extractables)	SW-846 Method 8270C
Cyanide	SW-846 Method 9010B
Volatile organic compounds	SW-846 Method 8260B
Nitrates/nitrites	EPA 353.3

**KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT
RESPONSIVENESS SUMMARY**

**For
Day & Zimmermann Kansas LLC
Parsons, Kansas
December 18, 2015
EPA I.D. Number KSR000511964**

This responsiveness summary, in accordance with 40 CFR 124.17, is a response to the comments received concerning the draft Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Facility Permit for the Day & Zimmermann Kansas LLC facility in Parsons, Kansas. This document summarizes comments and changes made to the draft permit. The permit consists of hazardous waste operations and corrective action requirements for Solid Waste Management Units (SWMUs), Areas of Concern (AOCs), and/or Releases.

The public comment period began on September 21, 2015 and ended on November 6, 2015. Written comments received during the public comment period are included as Attachment 1. A [Redline](#)/~~strike-out~~ copy of the revised Permit pages is included as Attachment 2 to denote changes made to the Draft Permit.

To assist the reader, public comments are italicized followed by KDHE's response. Minor changes were made to the draft permit as a result of the public comments and to maintain permit language consistency. A list of changes made to the Permit is presented at the end of this Responsiveness Summary.

COMMENTS FROM PUBLIC COMMENT PERIOD

Comments received from Day & Zimmermann Kansas LLC (D&Z) during the Public Comment Period:

1. **Section IV.A. Description of Thermal Treatment Open Detonation Unit:** *The draft permit currently states that the “Maximum Yearly Quantity of reactive hazardous wastes containing explosives that can be thermally treated in the OD 2700 Area is 50,000 pounds (Net Explosives Weight) which may consist of TNT only, RDX only or a combination of TNT and RDX. These quantities **may be revised** pending further regulatory review (emphasis added)....”*

*However, **Section IV.D. Thermal Treatment Capacities** includes a table titled Maximum Hazardous Waste Thermal Treatment Capacities, and the footnote to this table states “Quantities **may be adjusted downward** pending additional regulatory review (emphasis added). . .”*

*For consistency across permit conditions, and more importantly for future flexibility, Day and Zimmermann respectfully requests that the footnote to the Section IV.D. table be corrected to state that “**quantities may be revised**....” instead of “quantities may be adjusted downward.”*

KDHE Response:

This change was made to the final permit language in Section IV.D as requested.

2. **Section IV.F. Groundwater Monitoring:** *The draft permit states that “Upon issuance of this Permit, previously established LTM requirements shall be superseded by the requirements set forth in this permit.”*

Day and Zimmermann respectfully requests further discussion with KDHE concerning the above-referenced statement in Section IV. F. It is not clear to Day and Zimmermann how the LTM requirements established by the Corrective Action Decision Document can be superseded, particularly when Section VI. identifies the OD unit as SWMU #17 that is (and has been) subject to corrective action activities. Additionally, the SWMU 17 description in Attachment 5 does not reflect the LTM remedy decision made by EPA for this SWMU in May, 2006.

KDHE Response #2:

As stated in the Permit, the U.S. Environmental Protection Agency (EPA) selected long term monitoring (LTM) as the preferred remedy for groundwater corrective action at the Open Detonation (OD) Area in the November 2005 Statement of Basis. KDHE understands this remedy decision was based, in part, on the anticipated closure of the OD Area as part of the 2005 Base Realignment and Closure (BRAC) effort. Furthermore, LTM was selected under the authority of the corrective action requirements of 40 CFR 264.101 (corrective action for solid waste management units [SWMUs]). The groundwater monitoring program established in Permit Condition IV.F. was developed under the authority of Subpart X

requirements (40 CFR 264.601) as a component of the OD Area operations intended to ensure that any release of hazardous waste or hazardous constituents is sufficiently monitored. Thus, the groundwater monitoring requirements established in the Permit (as part of the OD operating requirements) supersede the groundwater monitoring requirements previously established (as part of the corrective action requirements). No changes were made to the Permit language as a result of this comment; however, additional language has been added to the SWMU-17 description in Permit Attachment 5 to reflect the November 2005 LTM remedy decision and explain the rationale for the newly established groundwater monitoring requirements.

3. **Section VI.C**, top of page 64 of 89: *This permit condition currently states “Within ninety (90) days of the effective date of this Permit, the Permittee shall submit a Description of Current Conditions (DCC) Report in accordance with Permit Condition VI.G and Permit Attachment 6.” However, Permit Condition VI.G.1. states “As required, within ninety (90) calendar days from the date of a written request from KDHE, the Permittee shall submit to KDHE a Description of Current Conditions Report...”*
Day and Zimmermann respectfully requests Permit Conditions VI.C and VI.G be revised to be consistent with each other.

KDHE Response #3:

As stated above, Permit Condition VI.G.1. requires submittal of a Description of Current Conditions (DCC) Report within ninety (90) days from the date of a written request from KDHE. Often times, the written request from KDHE would come in the form of a letter following issuance of the Permit; however, KDHE identified the need for a DCC Report prior to issuance of the Permit, as indicated in Permit Condition VI.C. As such, KDHE considers the language in Permit Condition VI.C. to be the “written request” referred to in Permit Condition VI.G.1. No change to the permit was made in response to this comment.

SUMMARY OF CHANGES TO DRAFT PERMIT

1. Permit Title Page
Deleted the word “Draft” from the Permit title.
2. Permit Condition IV.D.
Language was revised for consistency across permit conditions.
3. Permit Attachment 5 – SWMU and AOC Descriptions
The following sentence was deleted from the last sentence of the second paragraph in the SWMU 9 description: *Analytical data indicated that groundwater in the 1000 Area had not been impacted by explosives.* This statement was in conflict with a statement later in the same section that indicated the groundwater in the 1000 Area had been impacted with several explosives.
4. Permit Attachment 5 – SWMU and AOC Descriptions
Language was added to the SWMU-17 description to reflect the November 2005 LTM remedy decision and explain the rationale for the newly established groundwater monitoring requirements.

ATTACHMENT 1
Written Comments Received During Public Comment Period



TETRA TECH

November 5, 2015

Mr. Mostafa Kamal, Chief
Hazardous Waste Program
Bureau of Waste Management
Kansas Department of Health and Environment
Suite 320
1000 SW Jackson Street
Topeka, Kansas

**Subject: Proposed Hazardous Waste Management Facility Draft Permit
Day & Zimmermann Kansas LLC
23102 Rush Road
Parsons, Kansas 67357
KSR000511964**

Dear Mr. Kamal,

Tetra Tech, Inc. (Tetra Tech) on behalf of Day & Zimmermann Kansas LLC (D&Z) is submitting the comments on the draft permit for the operation of a hazardous waste storage facility and an open detonation grounds at the D&Z facility at 23102 Rush Road in Parsons, Kansas.

If you have any questions, or need further clarification on the permit application, please do not hesitate to contact me at (816) 412-1762.

Sincerely,

David H. Homer, Ph.D.
Program Manager

cc: Richard Flanary, KDHE
Dean Cramer, D&Z
Jerry Galloway, D&Z
Lisa Miller, D&Z
Steve Kosman, D&Z

Section IV – Thermal Treatment in Open Detonation Unit

1. **Section IV.A.** Description of Thermal Treatment Open Detonation Unit: The draft permit currently states that the “Maximum Yearly Quantity of reactive hazardous wastes containing explosives that can be thermally treated in the OD 2700 Area is 50,000 pounds (Net Explosives Weight) which may consist of TNT only, RDX only or a combination of TNT and RDX. *These quantities may be revised pending further regulatory review* (emphasis added). . . .”

However, **Section IV.D.** Thermal Treatment Capacities includes a table titled Maximum Hazardous Waste Thermal Treatment Capacities, and the footnote to this table states “*Quantities may be adjusted downward pending additional regulatory review* (emphasis added). . . .”

For consistency across permit conditions, and more importantly for future flexibility, Day and Zimmermann respectfully requests that the footnote to the Section IV.D. table be corrected to state that “*quantities may be revised . . .*” instead of “*quantities may be adjusted downward.*”

2. **Section IV.F.** Groundwater Monitoring: The draft permit states that “Upon issuance of this Permit, previously established LTM requirements shall be superseded by the requirements set forth in this permit.”

Day and Zimmermann respectfully requests further discussion with KDHE concerning the above-referenced statement in Section IV. F. It is not clear to Day and Zimmermann how the LTM requirements established by the Corrective Action Decision Document can be superseded, particularly when Section VI. identifies the OD unit as SWMU #17 that is (and has been) subject to corrective action activities. Additionally, the SWMU 17 description in Attachment 5 does not reflect the LTM remedy decision made by EPA for this SWMU in May, 2006.

Section VI – Corrective Action for SWMUs/AOCs/Releases

3. **Section VI.C**, top of page 64 of 89: This permit condition currently states “*Within ninety (90) days of the effective date of this Permit*, the Permittee shall submit a Description of Current Conditions (DCC) Report in accordance with Permit Condition **VI.G** and Permit Attachment 6.” However, Permit Condition **VI.G.1.** states “As required, *within ninety (90) calendar days from the date of a written request from KDHE*, the Permittee shall submit to KDHE a Description of Current Conditions Report. . . .”

Day and Zimmermann respectfully requests Permit Conditions VI.C and VI.G be revised to be consistent with each other.

ATTACHMENT 2
Redline/~~Strikeout~~ Revised Permit Pages

STATE OF KANSAS
DEPARTMENT OF HEALTH AND ENVIRONMENT
DIVISION OF ENVIRONMENT

Hazardous Waste Management Facility ~~Draft~~ Permit

In accordance with the provisions of Kansas Statutes Annotated (K.S.A.) 65-3430 *et seq.* permission is hereby granted for hazardous waste Storage in Containers and Thermal Treatment to:

Facility Name: Day & Zimmermann Kansas LLC

Operator: Day & Zimmermann Kansas LLC

Owner: Day & Zimmermann Kansas LLC
23102 Rush Road
Parsons, KS 67357-8403

Location: 21017 Scott Road
Parsons, KS 67357

EPA Identification Number: KSR000511964

This Permit is being issued in accordance with rules and regulations of the Kansas Department of Health and Environment (KDHE) and the following-named conditions and requirements to wit: The Permittee must comply with all terms and conditions in Section I through Section VI of this Permit. The Permit consists of the conditions contained herein, including those in any attachments, the permit application and all applicable hazardous waste regulations contained in Kansas Administrative Regulations (K.A.R.) 28-31-4 through 28-31-279a in effect on the date of issuance of this Permit. This Permit also contains provisions for corrective action as necessary to protect human health and the environment to address any release(s) of hazardous waste(s) or hazardous constituent(s) from any solid waste management unit (SWMU), area of concern (AOC), or release at the Facility, or that which may have migrated beyond the facility boundary.

This Permit shall become effective at 12:01 a.m. on _____ and shall remain in effect until _____ unless revoked and reissued, or terminated or continued in accordance with K.A.R. 28-31-124b.

Done at Topeka, this _____ day of _____



Susan Mosier, MD, Secretary
Kansas Department of Health and Environment

- IV.B.3. The Permittee is prohibited from thermally treating hazardous waste not identified in Permit Condition IV.B.1. unless a permit modification allowing thermal treatment of other wastes has been approved in accordance with 40 CFR 270.42 and Permit Condition I.B.1.
- IV.B.4. The Permittee is allowed to thermally treat the hazardous waste codes identified in Attachment 2 of this Permit. The Permittee is prohibited from the thermal treatment of hazardous waste codes that are not identified in Attachment 2 of this Permit.
- IV.B.5. Addition of hazardous waste codes to Permit Condition IV.B requires modification of Attachment 2 to this Permit as specified in 40 CFR 270.42 and Permit Condition I.B.1.

IV.C. OPERATION AND MAINTENANCE

The Permittee shall operate and maintain the OD 2700 Area in accordance with 40 CFR 260.10, 264, Subpart X, 266, Subpart M, and 268 and the specifications and design criteria contained in Section D-8 and the SOP's located in Appendix D-3 of the approved Part B application.

IV.D. THERMAL TREATMENT CAPACITIES

The Permittee may thermally treat only the following hazardous wastes, as indicated by EPA hazardous waste code, in the table below and subject to the prohibitions of Permit Conditions IV.B.1 and IV.B.2. The Permittee shall not thermally treat more than 100 days per year. The Permittee shall not exceed the maximum Net Explosive Weight (NEW) for each daily event or total quantities per year as listed below:

MAXIMUM HAZARDOUS WASTE THERMAL TREATMENT CAPACITIES

EPA Hazardous Waste Code	Maximum Daily* (NEW lb)	Maximum Yearly* (NEW lb)
D003	500 (10 – 50 lb Charges)	50,000 (1000 – 50 lb Charges)

*Quantities may be ~~adjusted downward~~ revised pending additional regulatory review of the *Human Health and Ecological Risk Assessment for the Open Detonation Unit Day & Zimmerman Kansas LLC Parsons, Kansas* located in Section D, Appendix D-4 of the approved Part B application.

ATTACHMENT 5 SWMU AND AOC DESCRIPTIONS

SWMU 9. 1000 Area. The 1000 Area is located in the northwestern portion of the D&Z facility south of Area 900. It was originally used as a load and pack (LAP) facility for the 105 mm shell. In 1952, three facilities (Buildings 1064, 165, and 1066) were added and the line was converted to a facility for loading the 105 millimeter (mm) artillery round with Composition B. Building 1008 was being used to treat wastewater from another area prior to discharge. The line was then used in the production of 60 mm mortar and M795 projectiles (TechLaw 2006). Prior to construction of the industrial wastewater treatment system in the 1000 Area, wastewater was discharged into the unlined ditches and oxidation ponds.

An RFA was completed in 1989. The Phase I RCRA Facility Investigation (RFI) was completed in August 1994 and the Phase II RFI was completed in June 1998. Metals and explosives were detected in the soil in the 1000 Area during these investigations. Groundwater investigations completed in the 1000 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2011 Data Gap Study and a 2004 Data Gap Study. ~~Analytical data indicated that groundwater in the 1000 Area had not been impacted by explosives.~~

In 1991-1992 petroleum underground storage tanks (UST's) #16 and #17, both with 17,111 gallon capacity were removed under the direction of the Kansas Department of Health and Environment's Bureau of Environment (Facility ID #24006). They were replaced by Aboveground Storage Tanks (AST's) #32 (5,000 gallon Diesel Fuel), #33 (15,000 gallon No. 5 Fuel Oil) and #47 (2,000 gallon No. 2 Fuel Oil)

Contaminated soil was removed from the 1000 Area in the spring of 2003. During that removal, trinitrotoluene (TNT) and cyclotrimethylenetrinitramine (RDX) contaminated soils were removed to industrial clean-up standards of 21 milligrams per kilogram (mg/kg) and 6 mg/kg, respectively. The closure report for this removal shows unrestricted use levels were attained in all excavated areas. There are four locations outside the limits of excavation where arsenic remains above unrestricted use levels; however these concentrations are below the site-specific background levels (5-year report).

In the Corrective Measures Decision (CMD) prepared by the EPA in April 2006 the corrective measures selected from the 1000 Area included contaminated soil removal, long-term monitoring (LTM), and land use controls (LUC) of industrial land use and a restriction against the use of groundwater.

There are currently nine monitoring wells that are used to assess the groundwater at this site - MW 2-3, MW 3-3, MW 4-3, MW 16-5, MW 17-5, MW 18-5, MW 47S, MW 5-7D, and MW 1-14. The general direction of groundwater flow was south across the central part of the 1000 Area, southeast in the southeastern portion of the area, and southwest in the southwest portion of the 1000 Area during the spring 2012 and fall 2012 sampling events. The 1000 Area monitoring wells are located on the south slope of a low, broad topographic rise. The hydraulic gradient was approximately 0.007 ft/ft (37 ft/mi) in spring 2012 and approximately

soil samples at concentrations exceeding the CMD cleanup goal of 37 mg/kg. The cadmium concentrations above the cleanup goal were reported at 38.8 mg/kg and 78.9 mg/kg. Perchlorate was not detected above the EPA regional screening level (RSL) for industrial soil (Open Detonation Grounds Baseline Survey Report, ARA for USACE, January 2010).

Groundwater contamination was originally detected in the OD Area during the RCRA Facility Investigation (RFI) phase of the corrective action process. Long Term Monitoring (LTM) was selected as the preferred remedy in the November 2005 Statement of Basis, thus providing the initial framework for groundwater monitoring. Groundwater monitoring of the OD Area has since been performed under the purview of the selected remedy, LTM, throughout interim status operation. Upon issuance of this Permit, previously established LTM requirements will be superseded by a groundwater monitoring program intended to ensure that any release of hazardous waste or hazardous constituents is sufficiently monitored. The newly established groundwater monitoring requirements will be included as part of the OD operating requirements, in accordance with 40 CFR 264.601.

Currently seven monitoring wells are used to assess the groundwater at this site - MW 10-1, MW 17-3, MW 18-3, MW 19-3, MW 20-3, MW 15-7, and MW 16-7. The most recent groundwater monitoring results from the OD Grounds reported the general direction of groundwater flow was from the northwest to the southeast across the site during the spring 2012 and fall 2012 sampling events. The hydraulic gradient was approximately 0.02 ft/ft (105 ft/mi) in spring 2012 and approximately 0.019 ft/ft (101 ft/mi) in fall 2012. No VOCs or explosives were detected at SWMU 17 during the spring or fall 2012 sampling events. Although several metals were detected in the groundwater samples, none of the metals detections were above their respective CMD Cleanup Goals for metals (USACE).

In a separate investigation, perchlorate was detected in groundwater but at levels well below the Kansas Department of Health and Environment (KDHE) Risk-Based Standard for Kansas (RSK) value of 11 parts per billion (ppb).

In the fall sampling event of 2013, RDX was detected in MW 20-3 at 0.639 ug/L which was exceeded the CMD Cleanup Goal of 0.61ug/L.

SWMU 21. Container Storage Area's 2707, 2708 and 2709: Container Storage Areas 2707, 2708, and 2709 store hazardous wastes that are to be thermally treated at the OD grounds. All three igloos are of identical construction. These storage igloos are constructed of poured reinforced concrete. The reinforced concrete slab walls are six-inches thick and rest on an eight-inch reinforced concrete slab floor poured on fill on grade. The floor dimensions of each igloo are 6-foot by 6-foot, for a total floor space of 36 square feet. Ceiling height within the igloos is seven feet. Each igloo is earth-covered to a minimum depth of two feet with 1:1 grass-covered side slopes. The igloos are used to store containers with no free liquids; although, each igloo has a secondary containment consisting of a 2.5-inch concrete sill at the entrance. These igloos are small in size and provide only limited storage space. Due to the limited space in each igloo, a 2-foot wide aisle is maintained for inspection purposes and to allow for moving containers in and out of the igloos. These igloos were permitted in 1989 and will continue to be permitted under this new permit.



FACT SHEET
DAY & ZIMMERMANN KANAS LLC
PARSONS, KANSAS
PERMIT RENEWAL
September 10, 2015

This fact sheet, in accordance with the requirements of Kansas Administrative Regulations (KAR) 28-31-124d, has been prepared to announce availability for public review a draft Resource Conservation and Recovery Act (RCRA) permit that the Kansas Department of Health and Environment (KDHE) intends to issue to Day & Zimmermann Kanas LLC (D&ZKSLLC), the owner and operator of the facility. The facility is located at 21017 Scott Road, Parsons, Kansas. The location of the facility in Labette County is depicted in **Figure 1**.

The proposed renewal permit will allow D&ZKSLLC to continue hazardous waste operations and corrective action at the facility. D&ZKSLLC has submitted RCRA Part A and Part B permit renewal applications for hazardous waste operations and corrective action at the facility. Any treatment, storage, or disposal of hazardous waste not authorized in this Permit is strictly prohibited.

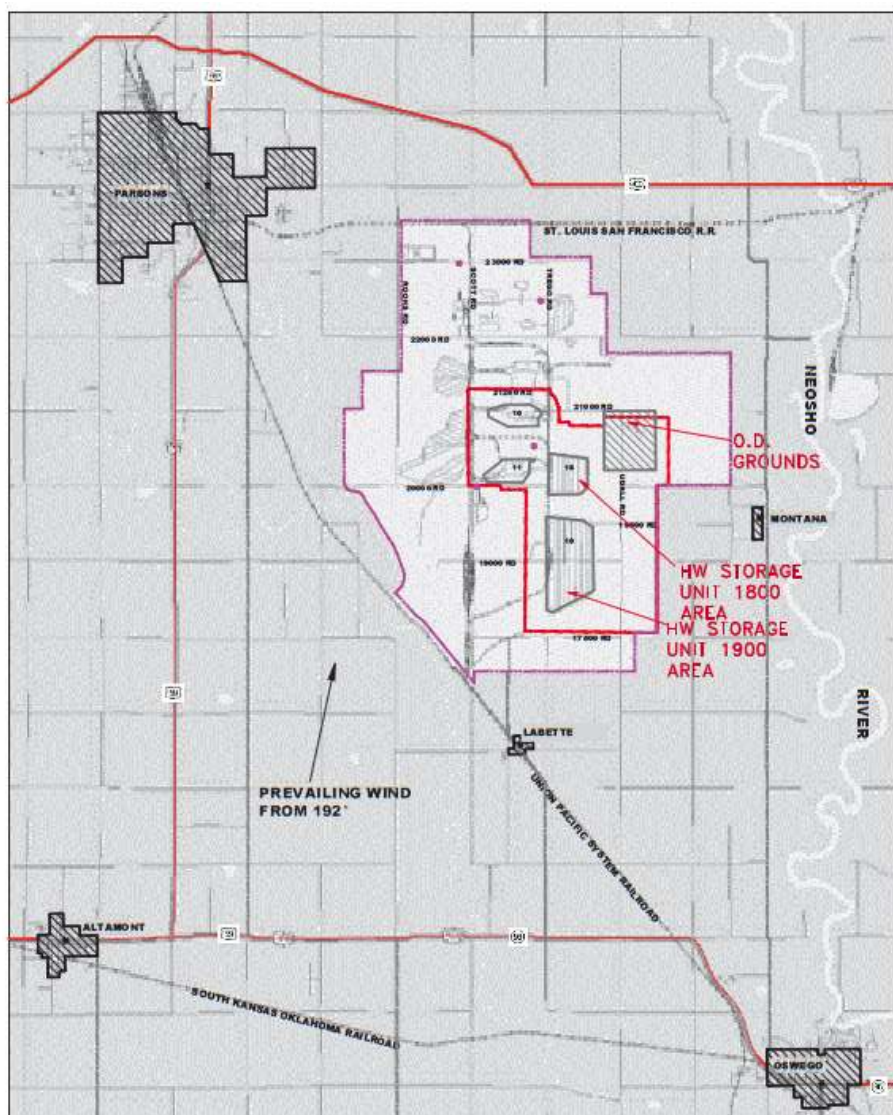


Figure 1 Facility Location Map

I. Facility Permit Overview

In December 1989 the US Environmental Protection Agency (EPA) and KDHE issued a hazardous waste management permit to the Kansas Army Ammunition Plant (KAAP), (EPA ID KS0213820467) owned by the United States Department of the Army (Army) and operated by Day & Zimmermann, Inc. (D&Z), Parsons, Kansas. The Permit allowed KAAP to store hazardous waste and to treat explosive hazardous wastes in an explosive waste incinerator (EWI). The original hazardous waste permit application submitted in January 1985 also included miscellaneous hazardous waste thermal treatment units (TTU): an open burning (OB) unit that began operations 1967 at Burn Pads 5 and 6, and an open detonation (OD) unit that began operations in 1942 for the thermal treatment of explosive and reactive hazardous wastes.

In March 1985 KDHE requested the OB/OD TTUs be removed from the original permit application until regulations were promulgated for the management of explosive and reactive hazardous wastes in these types of thermal treatment units. Burn Pad 5 and the OD TTUs were allowed to continue operation under interim status until a final permit decision was made. In November 1988 a separate Hazardous Waste Permit Application for the OB/OD TTUs was submitted to EPA and KDHE.

The December 1989 permit was issued after the Hazardous and Solid Waste Amendments of 1984 (HSWA) were enacted and therefore the permit contained provisions for addressing releases of hazardous waste or hazardous constituents from Solid Waste Management Units (SWMU) and Areas of Concern (AOC). EPA completed a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) in March 1989 that identified one-hundred sixty (160) SWMUs and AOCs. In Part II of the 1989 Permit, the SWMUs and AOCs were divided into 25 SWMU Groups to facilitate planning and implementation of the RCRA Facility Investigation (RFI) and identify SWMU Groups requiring further investigation to determine the nature and extent of releases of hazardous waste or hazardous constituents. The OD TTU was included in SWMU Group 17 and Burn Pads 5 and 6 were included in SWMU Group 24. The hazardous waste management permit expired in December 1994 but remained in effect since a timely renewal permit application was received in June 1994. KAAP completed all Phase I and Phase II RFIs that included the OB/OD Areas in May 1998.

With the promulgation of regulations contained in 40 CFR Part 264 Subpart X - Miscellaneous Units, EPA and KDHE began review of the renewal hazardous waste permit application. In July 2001 KDHE requested a separate permit application for the OB/OD TTUs including Burn Pad 5 and the OD Unit to include a risk assessment of the hazardous waste thermal treatment operations. The application was submitted in two parts in December 2003 and August 2004 and included a human health and ecological risk assessment for the OB/OD TTUs. This risk assessment concluded the quantities of hazardous wastes proposed to be treated in the OB/OD TTUs including Burn Pad 5 did not pose an unacceptable risk to human health and the environment.

Burn Pad 5 and the OD TTUs continued to operate under interim status and were inspected regularly by EPA under HSWA corrective action authority as SWMUs while alternatives to the open burning of reactive and explosive hazardous wastes were sought. In 2007 KDHE prohibited the open burning of these wastes as other treatment alternatives became available. In 2008 KAAP ceased its operations as part of the Base Realignment and Closure (BRAC) Committee recommendations. A large portion of the KAAP property was transferred to the Great Plains Development Authority (GPDA) for redevelopment and reuse. A portion of the KAAP property was transferred to D&ZKSLLC, a private entity to allow the hazardous waste operations to continue under a new permit.

In July 11, 2013 KDHE and EPA individually issued a Class I permit modification to transfer the original hazardous waste operating permit to D&ZKSLLC (EPA ID KSR000511964). On October 13, 2013 D&ZKSLLC submitted Part A and Part B permit renewal applications as the new owner/operator of the hazardous waste storage and treatment facility which included accepting off-site hazardous waste from other company owned facilities for storage and thermal treatment. The renewal application also included a revised human health and ecological risk assessment for operation of the OD TTU. Subsequent to its submission the Part B renewal application was revised to reflect current facility conditions, and was determined complete on July 30, 2015. Burn Pad 5 and 6 are in the process of final closure and nine of the originally permitted

hazardous waste storage units were closed at the request of the Army and are replaced with identical units upon permit issuance.

The groundwater underneath this facility is subject to RCRA groundwater monitoring regulations as specified in 40 CFR 264 Subpart F. The Part B application contains the procedures and plans to ensure the facility minimizes threats to human health and the environment by providing monitoring wells to track the location and concentrations of perchlorate, explosives and volatile organic compounds historically detected in some portions of the facility to determine if remediation of contaminated groundwater may be required. A status summary of each SWMU Group identified at the facility can be found in Attachment 5 of the draft permit. Remedial goals for past corrective action activities associated with SWMU Groups were established by EPA. Remedial goals established in the draft permit for outstanding and future corrective action activities are derived from the risk-based cleanup values as summarized in the most current version of KDHE's Risk-Based Standards for Kansas (RSK) Manual available at: http://www.kdheks.gov/remedial/rsk_manual_page.html

Additional information on the hazardous waste management activities at D&ZKSLLC can be found in the draft permit and administrative record.

II. Permitting Regulatory Authority

In November 1985, the State of Kansas received final authorization from EPA to implement a hazardous waste management program in lieu of the federal program, except for those portions covered by the HSWA. In September 2013, authority for the corrective action portion of the RCRA program was delegated to the State of Kansas.

The draft permit sets forth all of the applicable requirements that KDHE will require the Permittee to comply with during the 10-year duration of the permit. The draft hazardous waste permit includes standard permit conditions, general facility conditions, closure requirements, groundwater corrective action requirements, and corrective action requirements for SWMUs and AOCs.

The draft permit is being considered for issuance under authority of the Kansas Statutes Annotated (K.S.A) 65-3430 et seq. and KAR 28-31-4 through 28-31-279a and Subtitle C of RCRA, as amended by HSWA. Documents that support the permit conditions specified in the draft permit are part of the administrative record. Applicable regulations are found in 40 CFR Parts 124, 260 through 264, 266, 268, and 270, as specified in this permit. All citations found in the draft permit to federal regulations are for the sake of convenience. Some modifications to federal regulations by applicable state regulations are noted in this permit, but all modifications to federal regulations by state regulations are incorporated. To the extent that state regulations exclude any sections of applicable federal regulations, those sections are not in effect. In the instance of inconsistent language or discrepancies between conditions found in the permit, state regulations, or federal regulations, the language of the more stringent provision will govern; otherwise, state law governs.

III. Summary of the RCRA Permitting Process

State hazardous waste laws require that the public be given at least 45 days to review the administrative record for the draft permit prior to KDHE taking a final action. The purpose of having a public comment period is to ensure that interested parties have the opportunity to evaluate the conditions specified in the final permit and to provide their input into the permit decision-making process. The public comment period will begin on September 21, 2015 and end on November 6, 2015. The administrative record, which includes the draft permit, permit application, and other relevant correspondence, will be available for public review at the following locations:

Kansas Department of Health and Environment
Hazardous Waste Permits Section
1000 SW Jackson Street, Suite 320
Topeka, Kansas 66612-1366
Contact: Mostafa Kamal

Parsons Public Library
311 S 17th St
Parsons, Kansas 67357-4213
(620) 421-5920

The administrative record can also be accessed on the KDHE website at:

http://www.kdheks.gov/waste/p_pubnot_hw.html

Written comments related to this permit action can be submitted to Mostafa Kamal (KDHE) at the above address, beginning September 21, 2015 and postmarked no later than November 6, 2015. For more information about this permit renewal or to join the mailing list to receive further information, contact Mostafa Kamal of KDHE at the above address and phone number.

As specified in 40 CFR 124.11, during the public comment period any interested person may request a public hearing in writing which states the nature of the issues proposed to be raised in a public hearing. In the event that a hearing is scheduled, advance notice of the date will be given to the public. In accordance with 40 CFR 124.12, during a public hearing, any person may submit oral or written statements and data concerning the draft permit or Part B application.

IV. Procedures for Reaching a Final Decision

The Secretary of KDHE will make the decision regarding the issuance of a final permit after the close of the public comment period. The Secretary will consider all comments received during the public hearing and comment period.

When the final decision to issue or deny the permit is made, notice will be given to the applicant, all persons who submitted written comments, and those who requested notice of the final permit decision. If none of the comments received during the public comment period result in revision(s) to the draft permit, the permit will become effective immediately upon issuance of the final permit decision. If comments received during the public comment period result in revision(s), the permit will become effective 30 days after service of notice of the final decision to allow for public review of the revisions. Appeals of the final permit decision for permit must be filed within 15 days after service of notice in accordance with K.S.A 65-3440 and K.S.A. 77-601 *et seq.*

V. Permit Organization

The permit is organized in the following manner:

Permit	Description
Cover Sheet	Sets forth basic legal authority.
Section I Standard Permit Conditions	General permit conditions which are the regulatory requirements specified in 40 CFR 270.
Section II General Facility Conditions	General facility permit conditions which are the regulatory requirements specified in 40 CFR 264.
Section III Storage in Containers	Specific operating conditions, limitations, procedures, container limitations, and requirements which implement the regulatory requirements of 40 CFR Part 264, Subpart I and EE.
Section IV Thermal Treatment in Open Detonation Unit	Specific operating conditions, limitations, procedures and requirements which implement the regulatory requirements of 40 CFR Part 264, Subpart X and applicable requirements of

Section V
Air Emission Standards for Containers

Subpart F.
Specific conditions, limitations, procedures, and requirements which implement the applicable regulatory requirements of 40 CFR Subpart CC.

Section VI
Corrective Action for SWMUs, AOCs
and Groundwater Monitoring

Specific conditions and framework for assessing the nature and extent of releases and, if necessary, implementing corrective measures to protect human health and the environment, pursuant to the regulatory requirements of 40 CFR 264.101 and applicable requirements of 40 CFR Subpart F.

SALUTATION	FIRSTNAME	MIDNAME	LASTNAME	SUFFIX	ADDRESSEETITLE	ORG	ADDRESS1	ADDRESS2	CITY	STATE	ZIP
	Edward (Ed)	B.	Anderson				Hc #1		Rolla	KS	67954
	William (Bill)	A.	Anderson	JR			5733 Reinhardt Dr		Fairway	KS	66205
	Carol		Badart				708 E Naught St		Scammon	KS	66773
	Bob		Bartelli				311 Crestview		Parsons	KS	67357
	Sam		Brownback			Governor of Kansas	Office of the Governor	300 SW 10th Ave, Suite 241S	Topeka	KS	66612-1590
	William	R.	Browning	M.D.			RR 1, Box 645		Madison	KS	66860
	Ann		Charles			GPDA	1209 Corporate Dr, No 6		Parsons	KS	67357
	Dan		Goddard				3420 Mosher Rd		Parsons	KS	67357
	Melanie		Goins				Rt 2 Box 243		Cherryvale	KS	67335
Hon.	Lynn		Jenkins		US Representative	U.S. House of Representatives	120 N 6th Street		Indepence	KS	67301
Mr.	Mostafa		Kamal	PE	Chief/HW Permit Section	KDHE/Bureau of Waste Management	1000 SW Jackson, Suite 320		Topeka	KS	66612-1366
Hon.	Forrest		Knox		Senator	Kansas Senate (District 14)	17120 Udall Rd		Altoona	KS	66710
	Walter		Littlejohn				105 Elm		Chetopa	KS	67336
	Marvin		McKnight				2230 Corning		Parsons	KS	67357
	Lisa		Miller			Day & Zimmermann Kansas, LLC	23102 Rush Rd		Parsons	KS	67357-8403
Hon.	Jerry		Moran		Senator	U.S. Senate	923 Westport Pl, Suite 210		Manhattan	KS	66502
	Victoria	S.	O'Brien				11585 Xavier Rd		St. Paul	KS	66771
	Joe		Ponce				707 Creek		Parsons	KS	67357
	W. L. Hank		Procter		Assistnat Chief of Staff	US Army/BRAC Division Industrial Branch	Room 5000 Taylor Bldg/NC3 2530 Crystal Dr		Arlington	VA	22202
Hon.	Richard		Proehl		Member	Kansas House of Representatives (District 7)	510 Pine Ridge Rd		Parson	KS	67357
	Current		Resident				RR #3 Box 36A		Madison	KS	66860
	Current		Resident				607 N Creek		Parsons	KS	67357
	Current		Resident				1217 Appleton Ave		Parsons	KS	67357
	Current		Resident				PO Box 936		Parsons	KS	67357
	Current		Resident				603 Iowa		Oswego	KS	67356
	Current		Resident				1326 Appleton		Parsons	KS	67357
	Current		Resident				203 S Olive		Cherryville	KS	67335
	Current		Resident				6300 Ocean Dr		Corpus Christi	TX	78412
Hon.	Pat		Roberts		Senator	U.S. Senate	Frank Carlson Federal Bldg	444 SE Quincy, Rm 392	Topeka	KS	66683
	Mary Ann		Sears				201 N 14th St		Parsons	KS	67357
	Ted		Sears				210 N 14th St		Parsons	KS	67357
	Carolyn		Smalley				1302 N. 7th		Neodesha	KS	66757
	Patricia		Stoneking		President	Kansas State Rifle Association	PO Box 219		Bonner Springs	KS	66012
	Richard	G.	Tucker				PO Box 875		Parsons	KS	67357
	Carol		Vaverka				3012 Redwood		Parsons	KS	67357
	William	W.	Wheat				421 S 18th		Parsons	KS	67357
Hon.	Jerry		Williams		Member	Kansas House of Representatives (District 8)	21225 Kiowa Rd		Chanute	KS	66720
	Rose		Zeiler			KAAP BEC	PO Box 220		Ratcliff	AR	72951
	Resident						114 N Grandview		Columbus	KS	66725
						Kansas Marina Operators Association	El Dorado State Park	Shady Creek Marina	El Dorado	KS	67042
						Kansas State Tree Farm Committee	2610 Claflin Rd		Manhattan	KS	66502-2798
					Chief Engineer	Kansas Department of Agriculture	Division of Water Resources	1320 Research Park Drive	Manhattan	KS	66502
					Member	Kansas House of Representatives (District 11)	PO Box 277		Tryo	KS	67364
					City Manager	City of Parsons	112 S 17th	PO Box 1037	Parsons	KS	67357-1037
					News Director	KLKC Radio	PO Box 853		Parsons	KS	67357
					Kansas Division-General Manager	Day & Zimmerman, Inc	23018 Rooks Rd, Suite A		Parsons	KS	67357-8403
					c/o R.L. McGregor Herbariam	Kansas Wildflower Society	2045 Constant	University of Kansas	Lawrence	KS	66047
					President	Kansas Herpetological Society	300 North St		Harrisburg	PA	17120
					President	Kansas Chapter of the Wildlife Society	512 SE 25th Ave		Pratt	KS	67124
						Kansas Recreation and Parks	700 SW Jackson St, Suite 805		Topeka	KS	66603-3737
					President	Kansas Natural Resource Council	PO Box 2635		Topeka	KS	66601
						Dept of Horticulture, Forestry & Recreation Resources	Kansas State Universiyt, Plant Sciences Center	201 Throckmorton	Manhattan	KS	66506-5506
						Kansas Trails Council	PO Box 695		Topeka	KS	66601-0695
					President	Kansas Section Society for Range Management	PO Box 303		Manhattan	KS	66505
					President	Kansas Wildlife Federation	PO Box 771282		Wichita	KS	67277-1282
					Executive Vice President	Kansas Livestock Association/Kansas Beef Council	6031 SW 37th St		Topeka	KS	66614
						Greenpeace USA	702 H St NW	Suite 300	Washington	DC	20001
					Chairman	The Land Institute	2440 E Water Well Rd		Salina	KS	67401
					National Park Serfvce, Branch o	RMRO-PC	PO Box 25287	Denver Federal Center	Denver	CO	80225
					Executive Director	Kansas State Historical Society	6425 SW 6th Ave		Topeka	KS	66615-1099
					Director, Air & Waste Management	US Environmental Protection Agency	Region VII - WRAP/AWMD	11201 Renner Blvd	Lenexa	KS	66219-9601
						U.S. Army Corps of Engineers	Attn: ED-T	601 E 12th St	Kansas City	MO	64106
					Director	Kansas Water Office	900 SW Jackson, Suite 4014		Topeka	KS	66612
					Conservation Chair	Sierra Club - Kanza Group	609 N. 72nd St.		Kansas City	KS	66445-3100
						EBU Explosives Environmental Co	PO Box 1386		Joplin	MO	64802-1386
					Secretary	Kansas Department of Wildlife & Parks	Environmental Services Section	512 SE 25th Ave	Pratt	KS	67124
					President	Kansas Ornithological Society	20714 Crickett Lane		Lenexa	KS	66220
					Director	U.S. Fish & Wildlife Services	Ecological Services/Partners for Fish & Wildlife	2609 Anderson	Manhattan	KS	66502-2801
					COMMANDER (de)	8th Coast Guard District External Affairs	500 Poydras Stm Suite 1324		New Orleans	LA	70130