**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 closure, post-closure care, and corrective action for Solid Waste Management Units and Areas of Concern to:

Facility Name: Koch Nitrogen Company, LLC

Operator: Koch Nitrogen Company, LLC

Owner: Koch Nitrogen Company, LLC
P.O. Box 1337
Dodge City, KS 67801-1337

Location: 11559 U.S. Highway 50
Dodge City, KS 67801-1337

EPA Identification Number: KSD044625010

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 V 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 property 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.

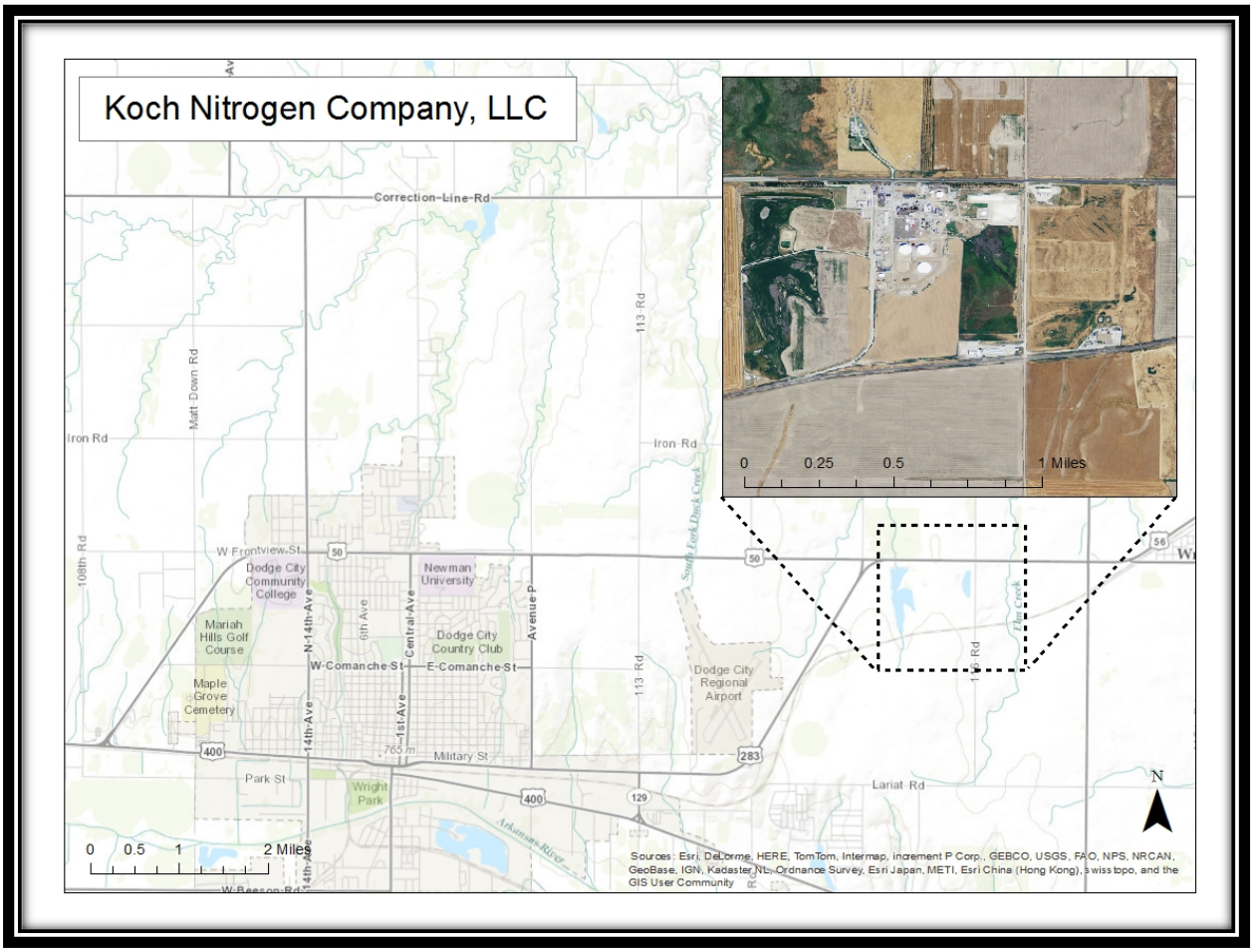
Done at Topeka, this _____ day of _____

Kansas
Department of Health and Environment

_____
Robert Moser, MD, Secretary
Kansas Department of Health and Environment

## FACILITY DESCRIPTION

The Koch Nitrogen Company, LLC Nitrogen Plant located in Dodge City manufactures anhydrous ammonia and urea ammonium nitrate fertilizers for agricultural applications (Facility). The 600 tons/day plant was built in 1966, and began operations in 1968. The raw materials used in the manufacturing process include natural gas, water, air, carbon dioxide and urea. The plant consists of two fertilizer production facilities, the anhydrous ammonia facility and the urea-ammonium nitrate solution facility. The ammonia unit is based on the steam-methane pressure reforming process for production of synthesis gas. The actual production layout consists of a 30-acre process area with boilers, cooling and stripping towers, heat exchangers, two large ammonia storage tanks, and one large liquid nitrogen tank.




The Facility is located on a 300-acre parcel of land in the north half of Section 22, Township 26S, Range 24E, in a rural area approximately three miles east of Dodge City on U.S. Highway 50 in Ford County, Kansas. The land surrounding the facility is used primarily for agricultural purposes, but there are several rural residences within a one-mile radius of the facility.

**HAZARDOUS WASTE FACILITY PERMIT**
**KOCH NITROGEN COMPANY, LLC**
**DODGE CITY, KANSAS**
**EPA I.D. #KSD044625010**

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LIST OF ATTACHMENTS

## 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 |
| 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 |
| CDU | Chromium Destruct Unit |
| 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 |
| 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 |
| $\mu g/m^3$ | 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 |
| NIOSH | National Institute for Occupational Safety and Health |
| 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 |
| 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 |
| 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

Koch Nitrogen Company, LLC (Operator and Owner), herein referred to as the Permittee, is required to perform closure and post-closure care for the Chromium Destruct Unit (CDU) and corrective action for Solid Waste Management Units (SWMUs), Areas of Concern (AOCs) and releases for the Facility located in Dodge City, Kansas, 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; the approved permit application (Part A, Part B and associated Supplement); and the applicable regulations contained in 40 Code of Federal Regulations (CFR) Parts 124, 260 through 264, 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 misrepresentation 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

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit 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.B.3. Permit Review

Within five (5) years of the effective date of this permit and every five (5) years thereafter, the Permittee shall submit a report to the Secretary. This report shall provide a detailed evaluation of the overall effectiveness of any post-closure care and/or corrective action activities performed during the discrete five-year reporting period. This comprehensive evaluation, at a minimum, shall include a capture zone analysis, groundwater quality trend analysis, including a discussion of the sampling event specified by Permit Condition IV.C.6.d., and, if necessary, recommendations for changes to the groundwater corrective action program specified in Permit Condition IV. 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.

## 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 approved by KDHE." 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 IV and Section V 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 including laboratory quality assurance/quality control (QA/QC) documentation.

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. [40 CFR 270.30(l)(1)] This includes advance notice to KDHE of any planned physical alterations or additions which may affect any hazardous waste management units (HWMUs), SWMUs, 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.

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), comment]

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.K., 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.K. 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.K., the Secretary shall notify the old Permittee that maintaining financial assurances is no longer required pursuant to Permit Condition II.K.

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.K. 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.K., 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.K. 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. through 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 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 V 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), 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)(19).

## 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**

All communications, notifications and requests required under this Permit shall be made in writing. For the purposes of this Permit, fax transmissions will be considered as being in writing. Electronic transmission may be utilized provided Respondent provides a hard copy to KDHE within three (3) working days of the electronic transmission.

## I.I. CONFIDENTIAL INFORMATION

In accordance with 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. Inspection schedules and documents, as required by 40 CFR 264.15(b) and this Permit.

I.J.2.b. Closure Plan, as required by 40 CFR 264.112(a) and this Permit.

I.J.2.c. 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 of 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.

## II.B. REQUIRED NOTICES

II.B.1. 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.2. 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.3. 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, in a form acceptable to or as provided by KDHE, 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. SECURITY

The Permittee shall comply with the security provisions of 40 CFR 264.14(b)(2) and (c) and the Security Procedures, Section F-1 of the approved Part B application.

## II.D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedules set out in Section I-6.3, Section I-6.4, and Appendix E-1 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.D.1. Inspection for Malfunctions and Deterioration

The Permittee shall inspect the Facility as required by 40 CFR 264.15 and the Inspection Schedules, Section I-6.3 and Appendix E-1 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.D.2. Schedule of Inspections

The Permittee shall follow the written schedule in the Inspection Schedules, Section I-6.3 and Appendix E-1 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.D.3. Records of Inspections

The Permittee shall record inspections required by Permit Condition II.D.2. in an inspection log or summary. 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 I-6.3 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.D.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.E. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by 40 CFR 264.16 for all facility personnel involved in implementing the post-closure and/or corrective action

activities specified in the permit. 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.F. LOCATION STANDARDS

The Facility is not located within the hundred-year flood-plain, thus no permit conditions are required with respect to location standards in 40 CFR 264.18(b)(1).

The Facility is located in Ford County, Kansas, which is not listed in Appendix VI of 40 CFR 264. Therefore, no further demonstration for the seismic standard of 264.18(a) is required.

## II.G. PREPAREDNESS AND PREVENTION

II.G.1. Required Equipment

At a minimum, the Permittee shall maintain at the Facility the safety and emergency equipment set forth in Section F-2 of the approved Part B application, as required by 40 CFR 264.32.

II.G.2. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.G.1., as necessary, to assure its proper operation in time of emergency, as required by 40 CFR 264.33.

II.G.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 of the approved Part B application.

II.G.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.H. RECORDKEEPING AND REPORTING

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

II.H.1. Operating Record

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

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

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

II.H.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.H.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.I. GENERAL CLOSURE REQUIREMENTS

II.I.1. Performance Standard

The Permittee shall close the Facility, as required by 40 CFR 264.111, 264.112(a) and (b), and 264.228.

II.I.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.I.3. Notification of Closure

The Permittee shall notify the Secretary in writing at least sixty(60) 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.I.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.

II.I.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.

II.I.6. Certification of Closure

The Permittee and an independent Kansas Professional Engineer shall certify that the Facility has been closed in accordance with the approved Closure Plan as required by 40 CFR 264.115.

II.I.7. Survey Plat

The Permittee shall submit a survey plat no later than the submission of certification of closure of the Chromium Destruct Unit, in accordance with 40 CFR 264.116.

## II.J. GENERAL POST-CLOSURE REQUIREMENTS

The post-closure of the CDU shall meet the following requirements in addition to the requirements established in Section III.

II.J.1. Post-Closure Care Period

The Permittee shall perform post-closure care for the CDU throughout the post-closure care period. The post-closure care period will begin the date of certification of closure, and shall continue for thirty (30) years after that date unless otherwise specified by the Secretary. The post-closure care period shall be automatically extended for the duration of any unresolved corrective action. Post-closure care shall be in accordance with 40 CFR 264.117 and the Post-Closure Plan, Section F of the Part B Permit Application.

II.J.2. Post-Closure Security

The Permittee shall maintain security at the facility during the post-closure care period, in accordance with the Post-Closure Plan, Section F of the Part B Permit Application, and 40 CFR 264.117(b).

II.J.3. Amendment to Post-Closure Plan

The Permittee shall amend the Post-Closure Plan in accordance with 40 CFR 264.118(d).

II.J.4. Post-Closure Notices

II.J.4.a No later than sixty (60) days after certification of closure of the CDU, the Permittee shall submit records of the type, location, and quantity of hazardous wastes disposed of within each cell or disposal unit, in accordance with 40 CFR 264.119(a).

II.J.4.b. Within sixty (60) days of certification of closure of the CDU, the Permittee shall do the following:

i. Record a notation on the deed to the facility property, in accordance with 40 CFR 264.119(b)(1) and K.A.R. 28-31-264a(c).

ii. Submit a certification that a notation in accordance with Permit Condition II.J.4.b.i. has been recorded as required by CFR 40 264.119(b)(2).

II.J.4.c. The Permittee shall request and obtain a Permit modification prior to post-closure removal of hazardous wastes, hazardous waste residues, liners, or contaminated soils in accordance with 40 CFR 264.119(c).

II.J.5. Certification of Completion of Post-Closure Care

The Permittee shall certify that the post-closure care period was performed in accordance with the specifications in the Post-Closure Plan, as required by 40 CFR 264.120.

## II.K. FINANCIAL REQUIREMENTS

The Permittee is required to perform closure and post-closure care for the CDU and corrective action for SWMUs AOCs, and releases for the Facility. The Permittee shall maintain adequate financial assurance for the Facility in accordance with 40 CFR Subpart H and this Permit.

II.K.1. Cost Estimate for Closure

II.K.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-8 and Appendix I-4 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.K.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.K.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.I. 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.K.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.K.2. Cost Estimate for Corrective Action

II.K.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 V.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.K.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.K.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.K.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.K.3. Facility Financial Assurance

The Permittee shall demonstrate continuous compliance by providing documentation of financial assurance, as required by 40 CFR 264.101 and 264.143, in at least the amount of the closure and corrective action cost estimates required by Permit Conditions II.K.1. and II.K.2. The Permittee shall maintain documentation demonstrating the Permittee's financial assurance in Section I-9 of the approved Part B application, in accordance with 40 CFR 264.101 and 264.143.

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

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.K.4. Incapacity of Owners or Operators, Guarantors, or Financial Institutions

The Permittee shall comply with 40 CFR 264.148 whenever necessary.

II.K.5. Monitoring Fees

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

II.K.6. 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 – CLOSURE AND POST-CLOSURE CARE

### III.A. GENERAL CONDITIONS

The hazardous waste management unit at the Facility subject to closure and post-closure care is the CDU. This unit, identified as SWMU #8 in Permit Condition V.C., was used to treat cooling tower blowdown wastewater that contained hexavalent chromium. This process which occurred in three basins, involved the conversion of hexavalent chromium to trivalent chromium. In the first basin, sulfur dioxide and sulfuric acid were mixed with the blowdown wastewater in a low pH environment to reduce hexavalent chromium to trivalent chromium. The wastewater then flowed into the second basin which consisted of two asphalt lined trenches that provided the proper retention time to ensure the completion of the chemical reaction. Finally, prior to discharge into evaporation lagoons, the wastewater flowed into an epoxy-lined concrete basin where lime was added for pH control.

The CDU was used to treat cooling tower blowdown wastewater until 1984 when the Facility stopped using chromium corrosion inhibitors in the plant's cooling systems. At that time, the CDU was used to treat chromium contaminated groundwater generated by the recovery system. All operations at the CDU ceased in 1991, when the Facility changed the wastewater management procedures by removing the third basin and replacing it with a larger basin. Eventually, the two trenches were backfilled with the asphalt left in place. Later, the Facility installed a cooling tower over the southwest portion of the west trench. The first basin was left intact. As a result of these changes, the status of the CDU is considered inactive.

In 1991, the Facility installed an electrochemical chrome reduction treatment unit to treat the recovered groundwater. This unit was installed in a building located north of the CDU. In 2007, the electrochemical chrome reduction treatment unit (SWMU #9 in Permit Condition V.C.) was replaced by a reverse-osmosis unit for further reduction of chromium levels in the treated water.

The facility initiated groundwater monitoring in response to an April 1982 letter from KDHE prompting the facility to comply with the new groundwater monitoring requirements in the 40 CFR 265.90 to 265.94. The Facility notified KDHE in June 1982 that chromium contamination had been detected in a private well east of the facility. KDHE required the Facility to conduct an assessment of the groundwater which revealed a plume of chromium contamination had migrated beyond the north, east, and south property boundaries. Subsequent assessments revealed nitrates and volatile organic compounds (VOCs) also present in the groundwater at concentrations above the Maximum Contaminant Levels (MCLs) for drinking water. The CDU, infiltration from the ponds, and a chromic acid spill are all considered contaminant sources.

In accordance with 40 CFR 264.110, the Permittee is required to provide closure and post-closure care for the CDU. According to 40 CFR 264.110(c) the Secretary may replace all or part of the closure and post-closure requirements of Subpart G, including unit-specific standards referenced in 40 CFR 264.111(c), with alternative requirements in this Permit. The Secretary has determined the CDU, identified as SWMU #8 in Permit Condition V.C., is situated among SWMUs (or AOCs), a release has occurred, and both the CDU and one or more SWMUs (or AOCs) are likely to have contributed to the groundwater contaminant plume. Therefore, releases from the CDU, as well as any SWMU, will be addressed in accordance with 40 CFR 264.101.

## III.B. CLOSURE REQUIREMENTS FOR THE CDU

The Permittee shall close the CDU as required by 40 CFR 264.111 and this Permit. Since final closure has not been completed in accordance with 40 CFR 264.228, the Permittee shall fulfill the requirements of Permit Condition III.B.1. through III.B.3.

III.B.1. The Permittee shall submit, a revised CDU Closure Plan for KDHE's approval within one-hundred-twenty (120) days of the effective date of the Permit. The Closure Plan shall be approved as a Class 1a permit modification in accordance with 40 CFR 270.42.

III.B.2. After final closure, the Permittee shall follow the procedures in the Closure Plan and the Post-Closure Plan included in Section I of the Part B Permit Application.

III.B.3. The groundwater monitoring and corrective action requirements specified in 40 CFR 264 Subpart F, releases from SWMUs and AOCs, and 40 CFR 264 Subpart G, Closure and Post-Closure care, will be addressed in accordance with Section IV.

## SECTION IV – GROUNDWATER CORRECTIVE ACTION

The Permittee shall implement and maintain a groundwater corrective action program to address all releases to groundwater from the CDU, SWMUs, and AOCs, as described in the approved Part B Permit Application, and as specified in this Permit. In accordance with 40 CFR 264.110, the Permittee is required to provide closure and post-closure care for the CDU. According to 40 CFR 264.110(c) the Secretary may replace all or part of the closure and post-closure requirements of Subpart G, including unit-specific standards referenced in 40 CFR 264.111(c), with alternative requirements in this Permit. The Secretary has determined the CDU, identified as SWMU #8 in Permit Condition V.C., is situated among SWMUs (or AOCs), a release has occurred, and both the CDU and one or more SWMUs (or AOCs) are likely to have contributed to the groundwater contaminant plume. The groundwater corrective action and groundwater monitoring requirements set forth in this section shall address releases from the regulated unit and SWMUs (or AOCs) to the groundwater.

### IV.A. GROUNDWATER PROTECTION STANDARD

IV.A.1. Hazardous Constituents and Concentration Limits

The Groundwater Protection Standard (GWPS) establishes the maximum concentration limits for hazardous constituents in the groundwater. The hazardous constituents and maximum concentration limits specified in Permit Attachment 3 constitute the GWPS for groundwater underlying the SWMUs and AOCs. The listed hazardous constituents of Permit Attachment 3 have been detected in groundwater, or are reasonably expected to be in or derived from waste disposed in these units.

IV.A.2. Basis for Groundwater Protection Standard

The maximum concentration limits for the hazardous constituents listed in Permit Attachment 3 are based on 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), or, as in the case for Nitrate and Nitrite, the Maximum Contaminant Levels (MCLs) established under the National Primary Drinking Water Regulations. Although Nitrate and Nitrite are not a listed hazardous constituent of Appendix VIII to 40 CFR Part 261, they are included in this Permit in accordance with K.S.A. 65-3430 and 40 CFR 270.32(b)(2) because these constituents present a significant threat to the human health and the environment.

IV.A.3. GWPS Detection Limit

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 GWPS concentration limit. If the detection limit cannot be achieved due to matrix interference or other analytical limitations (provided appropriate supporting documentation is submitted 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 limits.

IV.A.4. Demonstration of Alternate Concentration Limits

The Permittee may make a demonstration to the Secretary, at any time during the term of this Permit, for establishment of Alternate Concentration Limits (ACLs) in lieu of the GWPS concentration limits contained herein. Any such demonstration shall ensure that any ACL proposed in lieu of the GWPS concentration limits are protective of human health and the environment in accordance with the requirements of 40 CFR 264.94(b). In proposing the ACL(s), the Permittee shall consider and formally address the factors listed in 40 CFR 264.94(b)(1) and (2). Any ACLs approved by the Secretary shall require a Permit modification in accordance with 40 CFR 270.42.

IV.A.5. Implementation of Groundwater Corrective Action

The Permittee shall implement a groundwater corrective action program to ensure compliance with the groundwater protection standard. The overall objectives of the groundwater corrective action program are to protect human health and the environment, achieve media clean-up standards, and control the source(s) of release so as to reduce or eliminate, to the extent practicable, further releases of hazardous waste or hazardous constituents that may pose a threat to human health and the environment. The groundwater corrective action program shall consist of the groundwater recovery and treatment system specified in Permit Condition IV.B. and the groundwater monitoring system specified in Permit Condition IV.C.

IV.A.6. Duration of the Groundwater Corrective Action

The Permittee shall continue the groundwater corrective action program until the Permittee demonstrates that the GWPS or ACL as demonstrated in Permit Condition IV.A.4. have not been exceeded in any recovery well identified in Table 1 or groundwater monitoring well identified in Table 2 for a period of three consecutive years.

## IV.B. GROUNDWATER RECOVERY AND TREATMENT

The SWMUs and AOCs are subject to the corrective action requirements of 40 CFR 264.101, as incorporated by reference in K.A.R. 28-31-264, and this Permit until the corrective action requirements contained in 40 CFR Part 264.101 and this Permit have been satisfied. The corrective action program for the SWMUs shall ensure groundwater quality will achieve compliance with the GWPS within a reasonable amount of time, as determined by the Secretary. This program shall involve continuous operation of the groundwater recovery and treatment system until the GWPS established in Permit Condition IV.A. have not been exceeded for a period of three (3) consecutive years in all on- and off-site wells following the shutdown of the groundwater recovery and treatment system.

If the Permittee concludes that the requirements of 40 CFR 264.101 and this Permit have been fulfilled during the term of this permit for groundwater corrective action, the Permittee may request a permit modification to terminate the groundwater corrective action program in accordance with Permit Condition I.B.1.

IV.B.1. Groundwater Recovery and Treatment System

IV.B.1.a. The groundwater recovery and treatment system shall consist of the recovery wells specified in Table 1, or any subset of these wells approved by the Secretary, a reverse-osmosis unit, a settling basin, a 2.8 million gallon equalization tank, a 300,000 gallon wastewater tank, a filtration facility, and two Class I non-hazardous injection wells.

**Table 1 - Groundwater Recovery Wells**

| Recovery Wells |
|---|
| TW-1A, TW-7, TW-9, TW-10, TW-13, TW-14, TW-16, TW-17, TW-19, TW-20, TW-21, TW-23, TW-26, TW-27, TW-28, TW-29, TW-30, TW-31, TW-37, TW-38, TW-39, TW-40, TW-48, TW-49, TW-51, TW-52, TW-53, TW-54, TW-55, TW-56, TW-57, TW-58, TW-64, TW-65, TW-66, TW-67, TW-68, TW-69, TW-70, TW-71, TW-72, TW-73, TW-74, TW-75, TW-76, TW-77, TW-78, TW-82, TW-83, TW-84, TW-85, TW-86, TW-87, TW-88, TW-89, TW-90, TW-91, TW-92, TW-93, TW-94, and all future recovery wells |

IV.B.1.b. The Permittee shall operate the groundwater recovery and treatment system listed in Permit Condition IV.B.1.a. to comply with Permit Condition IV.B.2.

IV.B.1.c. The Permittee shall operate the groundwater recovery and treatment system to treat the recovered groundwater in accordance with the Post-Closure Plan, Section I-6 of the Part B Permit Application.

IV.B.1.d. The Permittee is currently using the system identified in Section I-6 of the Part B Permit Application to dispose of the recovered groundwater. This system includes the utilization of two underground injection control (UIC) wells (Permit # KS-01-057-001 and Permit # KS-01-057-002), issued by the Secretary. In accordance with 40 CFR 270.42, the Permittee may request a Class I permit modification with approval if an alternate disposal method for the recovered contaminated groundwater is selected.

IV.B.2. Containment of Contaminated Groundwater

IV.B.2.a. The Permittee shall implement the groundwater recovery and treatment system to contain contaminated groundwater that prevents migration of hazardous constituents above the GWPS included in Permit Attachment 3 or any ACLs approved according to Permit Condition IV.A.4.

IV.B.2.b. To prevent migration of hazardous constituents in groundwater above the GWPS, the Permittee shall operate the recovery wells, or subset thereof as approved by the Secretary, listed in Permit Condition IV.B.1. (Table 1) in accordance with Section I of the Part B Permit Application to obtain capture of the contaminated groundwater.

IV.B.2.c. The Permittee shall demonstrate the effectiveness of the groundwater corrective action program using data collected from the groundwater monitoring system as specified in Permit Condition IV.C. The demonstration shall be completed annually, in accordance with procedures contained in Permit Condition IV.C. and reported in accordance with Permit Condition IV.D.

IV.B.2.d. If, at any time, the Permittee is unable to comply with Permit Condition IV.B.2., the Permittee shall submit, within 45 days, a work plan to delineate the rate and extent of hazardous constituents in groundwater above the GWPS, evaluate and enhance the groundwater recovery and treatment system, and if necessary submit a permit modification to address any proposed changes to the groundwater corrective action program specified in Permit Condition IV.

IV.B.3. Removal of Hazardous Constituents

The Permittee shall implement a groundwater corrective action program to remove any hazardous constituents that exceed the GWPS in groundwater in accordance with the procedures specified in Section I of the approved Part B Permit Application. [40 CFR 264.101]

IV.B.3.a. The groundwater recovery and treatment system to remove and/or treat the hazardous constituents that exceed the GWPS in the groundwater shall consist of the recovery wells, or subset thereof as approved by the Secretary, listed in Permit Table 1.

IV.B.3.b. The groundwater recovery and treatment system will be operated in accordance with Permit Condition IV.B.2., Section E, Groundwater Monitoring of the Part B Permit Application, and the Post-Closure Inspection Plan, Section I-6, of the Part B Permit Application.

IV.B.3.c. The groundwater from the recovery wells will be sampled at the sampling port at each well and at the reverse osmosis unit intake at least semi-annually as part of the monitoring to evaluate the performance of the groundwater corrective action program. The Permittee shall report the results to the Secretary in accordance with Permit Condition IV.D.

IV.B.3.d. Sampling and analysis of the hazardous constituents in the groundwater required by Permit Condition IV.C. will be used to monitor and evaluate the progress and effectiveness of the groundwater corrective action program. The Permittee shall report this information to the Secretary in accordance with Permit Condition IV.D.

IV.B.3.e. If the groundwater recovery and treatment system fails to operate within the parameters listed in Permit Condition IV.B.3.b., the Permittee shall submit a permit modification according to 40 CFR 270.42.

IV.B.4. Inspection and Maintenance of Groundwater Recovery and Treatment System

IV.B.4.a. The Permittee shall inspect and maintain the groundwater recovery and treatment system specified in Permit Condition IV.B. at the locations specified in Section E, Groundwater Monitoring, and the Sampling and Analysis Plan (Section E, Appendix E-1), of the Part B Permit Application.

IV.B.4.b. The Permittee shall submit to the Secretary, in a time specified by the Secretary following the RCRA Facility Investigation (RFI), an Operations and Maintenance Plan that describes the operation and maintenance procedures for the groundwater recovery and treatment system.

IV.B.4.c. The Permittee shall maintain the groundwater recovery and treatment system for use as identified in Permit Condition IV.B. and inspect it in accordance with the Post-Closure Plan, Section I-6, and the Sampling and Analysis Plan (Section E, Appendix E-1), of the Part B Permit Application.

IV.B.4.d. The Permittee shall maintain the groundwater recovery and treatment system in optimum condition necessary to capture groundwater to comply with Permit Condition IV.B.2. The Permittee shall provide an annual demonstration of the recovery and treatment system efficiency as a part of the groundwater reporting requirements of Permit Condition IV.D.

IV.B.5. Modifications to Groundwater Recovery and Treatment System

Any modification in the number and/or location of the recovery wells established in Permit Condition IV.B.1 for the Facility shall require a Class 1a Permit modification in accordance with 40 CFR 270.42 and Permit Condition IV.F. In addition, the Permittee shall meet the following requirements:

IV.B.5.a. Any new recovery well(s) installed by the Permittee to meet the requirements of this Permit shall be designed and installed in accordance with well-specific plans and specifications approved by the Secretary.

IV.B.5.b. The Permittee shall report the surveyed elevation of the recovery wells to the nearest 0.01 foot when the wells are installed. The total depth of wells and elevation of the following shall 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, well seals, pump specifications, and the location of the pump intake.

IV.B.5.c. New or additional wells shall be inspected and maintained in accordance with procedures outlined in Permit Condition IV.B.4.

IV.B.5.d. All wells deleted from the groundwater recovery and treatment 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 groundwater corrective action program.

IV.B.5.e. The Permittee shall contact the Secretary at least five (5) working days prior to conducting any field work associated with the construction or modification of the groundwater recovery or treatment system required by this Permit. The Secretary may choose to provide oversight of any portion of the system's construction or modification.

IV.B.6. Extension of Groundwater Corrective Action beyond Term of Permit

If groundwater corrective action is required beyond the term of this Permit, the term of this Permit and the groundwater corrective action shall be extended until the GWPS has not been exceeded for three (3) consecutive years as approved by the Secretary.

## IV.C. GROUNDWATER MONITORING

During the term of this Permit, the Permittee shall establish and maintain a groundwater monitoring system to demonstrate the effectiveness of the groundwater corrective action program. Groundwater monitoring shall be conducted to comply with 40 CFR 264.101 and the following additional requirements.

IV.C.1 Groundwater Monitoring System

IV.C.1.a The sampling locations specified in Permit Table 2 and depicted in Figure 2 of the Sampling and Analysis Plan (Section E, Appendix E-1) of the Part B Permit Application will serve as the groundwater monitoring system. The Permittee shall maintain the wells established in Table 2 as the groundwater monitoring system.

IV.C.1.b. 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.

**Table 2 – Groundwater Monitoring System**

| Private Well Monitoring System [a] |
|---|
| Bogner, Buehne (North), Buehne (South), Chaffin, Tawzer, Conrardy, Feed Mill, Lix, Dodge City Services, Maxwell |
| Semi-Annual Monitoring System [b] |
| A-3B, B-1, C-3B, MW-01, MW-02, MW-03, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18S, MW-18D, MW-19S, MW-19D, MW-20, MW-21, MW-22S, MW-22D, MW-23S, MW-23D, MW-31, MW-32, MW-33, MW-34, MW-35, SIT-RG-01, SIT-RG-02, SIT-RG-03, SIT-RG-04, SIT-RG-05, SIT-RG-06, SIT-RG-08, TW-1A, TW-5, TW-7 TW-9, TW-10, TW-11, TW-12, TW-13, TW-14, TW-16, TW-17, TW-18, TW-19, TW-20, TW-21, TW-22, TW-23, TW-26, TW-27, TW-28, TW-29, TW-30, TW-31, TW-37, TW-38, TW-39, TW-40, TW-47, TW-48, TW-49, TW-51, TW-52, TW-53, TW-54, TW-55, TW-56, TW-57, TW-58, TW-63, TW-64, TW-65, TW-66, TW-67, TW-68, TW-69, Tw70, TW-71, TW-72, TW-73, TW-74, TW-75, TW-76, TW-77, TW-78, TW-79, TW-80, TW-82, TW-83, TW-84, TW-85, TW86, TW87, TW-88, TW-89, TW-90, TW-91, TW-92, TW-93, TW-94, *B-2, TW-15, TW-24, TW-25, TW-46, TW-47, TW-59, TW-60, TW-61, TW-62, MW-*25, and any future well. |

a – Only analytical data for the hazardous waste constituents shall be required from the Private Well Monitoring System.

b – *Italicized* text denotes wells that shall be used for water level measurements only.

IV.C.1.c. The Permittee shall install the monitoring wells designated in Figure 18 of the Supplement to the Part B Permit Application within 60 days of the effective date of this permit.

IV.C.2. Design and Installation of Groundwater Monitoring System

The Permittee's groundwater monitoring system shall be designed and installed in a manner which ensures:

IV.C.2.a. Detection and/or delineation of the horizontal and vertical extent of groundwater contamination;

IV.C.2.b. Determination of representative concentrations of hazardous constituents in the groundwater; and

IV.C.2.c. The Permittee's ability to determine the effectiveness of any groundwater corrective action activities in terms of contaminant containment, removal, destruction, and/or treatment.

IV.C.3. Groundwater Monitoring System Objectives

IV.C.3.a. The groundwater monitoring system shall consist of a set of monitoring wells designed, installed, and operated to collect samples from the underlying aquifer and that meet the following objectives:

i. Is adequate to support the collection of representative groundwater samples for comparison to the GWPS;

ii. Is adequate to detect significant evidence of increased/decreased contamination at sampling locations;

iii. Is adequate to detect the rate of migration and three-dimensional extent of all groundwater contaminant plumes;

iv. Adequately demonstrates the effectiveness of the groundwater recovery and treatment system in terms of containment, removal, destruction, and/or treatment of contaminated groundwater; and

v. Is adequate to monitor the progress of the groundwater corrective action program.

IV.C.3.b. If the Secretary or Permittee determines that the groundwater monitoring system does not adequately meet the objectives as specified by Permit Condition IV.C.3.a., the Permittee shall implement the following:

i. Submit, within thirty (30) days of the date of the determination that Permit Condition IV.C.3.a has not been met, an application for a permit modification to make appropriate changes to the groundwater monitoring system in accordance with 40 CFR 270.42.

ii. The Permittee must continue to operate the groundwater monitoring system in accordance with Permit Condition IV.C. until the permit modification is approved.

IV.C.4. Inspection and Maintenance of Groundwater Monitoring System

IV.C.4.a. The Permittee shall implement an inspection and maintenance program for the groundwater monitoring system identified in Permit Condition IV.C.1., in accordance with the plans and specifications present in the Sampling and Analysis Plan (Section E, Appendix E-1) of the Part B Permit Application. The wells specified in Permit Table 2 are to be inspected and maintained in accordance with Permit Conditions IV.C.4.b through IV.C.4.g. This program shall be designed to ensure the structural integrity of all monitoring wells during the implementation of the groundwater corrective action program.

IV.C.4.b. 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, surface well seal, 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.).

IV.C.4.c. Subsurface well integrity inspections shall be performed annually, in accordance with the provisions contained in the Sampling and Analysis Plan (Section E, Appendix E-1) of the Part B Permit Application 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, groundwater 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.C.4.d. Total depth measurements shall be performed annually to assess well siltation and well screen occlusion. Recovery wells in the monitoring system shall be measured whenever pump maintenance is conducted. At a minimum, twenty (20) percent of all recovery wells shall be measured annually and each recovery well shall be

measured every five (5) years. This evaluation shall be designed to ensure the representative nature of the Permittee's groundwater sample analysis and field measurement results through minimization of sampling and measurement interferences (e.g., excessive well screen occlusion, etc.).

IV.C.4.e. 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.).

IV.C.4.f. Wells demonstrating well screen occlusion equal to or in excess of ten percent (10%) of the effective well screen length shall be redeveloped prior to the next scheduled sampling event.

IV.C.4.g. 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.D.

IV.C.5. <u>Modifications to Groundwater Monitoring System</u>

IV.C.5.a Any modification in the number and/or location of the monitoring wells established in Permit Condition IV.C.1. shall require a Class 1a Permit modification approved by the Secretary in accordance with 40 CFR 270.42 and Permit Condition IV.F.

IV.C.5.b. Any new groundwater monitoring well(s) installed by the Permittee to meet the requirements of this Permit shall be designed and installed according to the objectives of the groundwater monitoring system specified in Permit Condition IV.C.3.a., and well-specific plans and specifications approved by the Secretary.

IV.C.5.c. 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. The Secretary shall have the option of observing any portion of the system's construction or modification.

IV.C.5.d. New or additional wells shall be inspected and maintained in accordance with procedures outlined in Permit Condition IV.C.3., Section E, Groundwater Monitoring, and the Sampling and Analysis Plan, (Section E, Appendix E-1) of the approved Part B Permit Application.

IV.C.5.e. All wells removed from the groundwater 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 groundwater monitoring system.

IV.C.6. Sampling and Analysis Procedures

IV.C.6.a. The Permittee shall perform groundwater sampling and analysis and field measurement of the groundwater-related parameters listed in Permit Table 3 to evaluate the effectiveness of the groundwater corrective action program and to detect potential releases and migration to groundwater.

**Table 3 – Groundwater Sampling and Analysis Schedule**

| Parameters | Type of Measurement | Frequency |
|---|---|---|
| Appendix IX (1) | Analytical Lab Data | As Requested(4) |
| GWPS Constituents (2) | Analytical Lab Data | Semi-annual |
| Static Water Levels (3) | Field Measurement | Quarterly |
| Total Well Depth | Field Measurement | Annually (5) |

(1) Appendix IX Parameters are those specified in Appendix IX of 40 CFR Part 264.
(2) Constituent listed in Permit Attachment 3.
(3) Groundwater potentiometric surface measurements shall be obtained at the time of each regularly scheduled sampling event from all monitoring wells at the Facility, including those not routinely sampled.
(4) Analyses of samples for Appendix IX parameters are required, as specified by the Secretary, in accordance with Permit Condition IV.C.6.d.
(5) Total Well Depth shall be measured as specified in Permit Condition IV.C.4.d.

IV.C.6.b. The Permittee shall determine the groundwater surface elevation and total well depth at each well listed in Permit Table 2 in accordance with procedures in the Sampling and Analysis Plan (Section E, Appendix E-1) of the approved Part B Permit Application and the following:

i. The Permittee shall obtain groundwater surface elevation measurements semi-annually (twice each year) and total well depth measurements as specified in Permit Condition IV.C.4.c. for the groundwater monitoring system established in Permit Condition IV.A.

ii. The Permittee shall obtain measurements of groundwater surface elevation and total well depth prior to purging any well.

iii. The Permittee shall obtain measurements of groundwater surface elevation while the groundwater recovery and treatment system is operating and prior to well purging. The Permittee shall obtain total well depth measurements prior to well purging.

IV.C.6.c. The Permittee shall use the following techniques and procedures when collecting and analyzing samples from the groundwater monitoring wells described in Permit Condition IV.C.

i. Samples shall be collected by the techniques described in the Sampling and Analysis Plan, (Section E, Appendix E-1) of the approved Part B Permit Application.

ii. Samples shall be preserved and shipped for analysis, in accordance with the procedures specified in the Sampling and Analysis Plan, (Section E, Appendix E-1) of the approved Part B Permit Application.

iii. Samples shall be analyzed according to the procedures specified in the Sampling and Analysis Plan, (Section E, Appendix E-1) of the approved Part B Permit Application.

iv. Samples shall be tracked and controlled using the chain-of-custody procedures specified in the Sampling and Analysis Plan, (Section E, Appendix E-1) of the approved Part B Permit 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.C.6.d. At the request of the Secretary, but no less than 54 months after the effective date of this Permit and every five (5) years thereafter, the Permittee shall sample and analyze groundwater from selected wells for all hazardous constituents listed in the GWPS (Permit Attachment 3) and 40 CFR 264, Appendix IX (or a portion thereof) to determine the concentrations of hazardous constituents present in the uppermost aquifer. The wells to be sampled will be chosen by the Permittee and approved by the Secretary.

i. If the Permittee identifies additional hazardous constituents present (i.e., not listed in Permit Attachment 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. The Permittee shall determine the concentration of the constituents listed in Permit Attachment 3 in groundwater at each groundwater monitoring well established in Permit condition IV.A. (Table 1), according to the schedule specified in the Sampling and Analysis Plan (Section E, Appendix E-1) of the Part B Permit Application and Table 3 of this Permit to demonstrate the effectiveness of the groundwater corrective action program.

iii. 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 Attachment 3) and the groundwater monitoring system.

IV.C.6.e. The Permittee shall statistically analyze the contaminant trend from year to year to evaluate the effectiveness of the groundwater corrective action program. This statistical analysis shall be performed in accordance with procedures specified in the Sampling and Analysis Plan, (Section E, Appendix E-1) of the approved Part B Permit Application. This statistical analysis shall be performed in accordance with the requirements of 40 CFR 264.97, shall utilize a statistical method which is appropriate for the distribution of the data undergoing analysis, and ensure, to the greatest degree possible, protection of human health and the environment.

## IV.D. GROUNDWATER REPORTING REQUIREMENTS

IV.D.1. Annual Groundwater Reporting Requirements

IV.D.1.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 corrective action program. The report shall include a narrative discussion of the nature, evolution, and overall adequacy of the groundwater corrective action program. Any conclusions concerning inadequacies in the groundwater corrective action 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.

IV.D.1.b. The Permittee's Annual Groundwater Monitoring Reports shall evaluate the effectiveness of the groundwater corrective action 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 Attachment 3.

ii. An evaluation of the rate and direction of groundwater movement in the underlying aquifer and potential effect on any corrective action measures being designed or implemented at

the Facility for removal, containment, or control of the groundwater contaminant plume(s).

iii. An evaluation of the horizontal and vertical extent and concentrations of any hazardous constituents in groundwater throughout the contaminant plume(s) as determined from the data obtained from the Permittee's groundwater monitoring system.

iv. The mass of contaminant and volume of groundwater extracted from the subsurface as part of the operation of the groundwater recovery and treatment system, future stabilization activities, and/or as part of the groundwater monitoring system.

v. 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.

vi. An evaluation of surface and subsurface monitoring well integrity including identification of any actual or potential problems that may influence the groundwater data or efficiency of the groundwater monitoring system.

vii. A capture zone analysis of groundwater flow to demonstrate the effectiveness of the groundwater corrective action program. The Permittee must demonstrate that groundwater with constituents above the GWPS is captured by the groundwater recovery system. The capture zone analysis shall be conducted using EPA approved methods approved by the Secretary.

viii. A potentiometric surface map for each semi-annual groundwater sampling event. Each map must depict groundwater flow from the northeast, north, and northwest toward the middle portions of the Facility using the data from each sampling event.

ix. The Facility shall document the migration of groundwater from perimeter groundwater monitoring wells toward wells installed

inside the target capture zone located in the middle of the groundwater monitoring system. The Facility must also document lower concentrations of hazardous constituents near the perimeter of the groundwater monitoring system than concentrations measured from wells installed inside the target capture zone located in the middle of the groundwater monitoring system.

x. A demonstration of the effectiveness of the groundwater corrective action program by confirming the concentrations of contaminants at monitoring wells located downgradient of the capture zone are lower than the concentrations located within the capture zone.

IV.D.1.c. The Annual Reports shall comprehensively address applicable requirements of 40 CFR Part 264 Subpart F 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.D.1.d. During the implementation of the groundwater corrective action program, the Annual Reports shall contain a demonstration of the effectiveness of the groundwater recovery and treatment system and of the groundwater monitoring system to help evaluate the effectiveness of the groundwater corrective action program in removing subsurface contaminants, in preventing migration of groundwater above the GWPS as required by Permit Condition IV.B.2., to track the overall progress/trends in remediating the groundwater, and to provide the basis for future decisions regarding cessation of groundwater corrective action activities.

IV.D.2. Semi-Annual Groundwater Corrective Action Reporting Requirements

IV.D.2.a. In addition to annual reporting requirements, the Permittee shall prepare and submit a Semi-Annual Groundwater Corrective Action Report by March 1 and September 1 for the sampling events

completed during the preceding months of January through June and July through December.

The Semi-Annual Groundwater Corrective Action Reports shall be submitted to the Secretary by March 1 and September 1 of each calendar year for the preceding calendar half-year. All information included in the March 1 semi-annual report may be combined with the Annual Groundwater Corrective Action Report.

IV.D.2.b. The Semi-Annual Groundwater Corrective Action Reports shall provide sampling results including, but not limited to, the following:

i. A summary 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 monitoring well water level measurements,

iv. Semi-annual readings from each flow meter installed as part of the groundwater recovery and treatment system, total quantities of groundwater recovered during the reporting period, and a reporting of the average pumping rate of the recovery wells,

v. Photocopies of the field forms and laboratory chain of custody forms,

vi. A digital copy of the Semi-Annual Groundwater Monitoring Report including tables, figures, and appendices.

IV.D.3. Groundwater Monitoring Well Installation Reporting Requirements

IV.D.3.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.D.3.b. The Permittee shall provide a summary of all well installation activities performed during the year in the Annual Groundwater Monitoring Report.

IV.D.4. Recordkeeping

The Permittee shall enter all monitoring, testing, and analytical data collected according to Permit Condition IV, 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.E. REQUIREMENTS IF THE GROUNDWATER PROTECTION STANDARD IS MET DURING THE DURATION OF THE PERMIT

If the GWPS is met during the duration of the Permit, the Permittee may submit a permit modification request, in accordance with 40 CFR 270.42 and Permit Condition IV.F., to the Secretary to remove the corrective action requirements established in Section IV. This permit modification request must demonstrate that, using data from the groundwater monitoring program, the GWPS established in Permit Condition IV.A. and Permit Attachment 3 has not been exceeded at and beyond the CDU, SWMUs, and AOCs for a period of three consecutive years following shutdown of the groundwater recovery and treatment system.

## IV.F. REQUEST FOR PERMIT MODIFICATION

If the Permittee or the Secretary determines that the groundwater corrective action program established in Permit Condition IV of this Permit is no longer adequate, the Permittee shall submit an application for a permit modification within ninety (90) days from the date of this determination to make any necessary changes to the program. Changes to the groundwater recovery and treatment system or the groundwater monitoring system may be made as a Class 1a Permit Modification. The request for a permit modification must be made in accordance with Permit Condition I.B.1.

## SECTION V – CORRECTIVE ACTION FOR SWMUs, AOCs, AND 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, or 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;
- 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.K.

All corrective action activities contemplated or performed pursuant to Section V 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 V.H. through V.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 V of this Permit, or changes to permit conditions stated herein, are warranted, KDHE shall modify the Permit conditions in Section V, in accordance with this Permit Condition I.B.1.

## V.A. CORRECTIVE ACTION REQUIREMENTS

V.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)]

V.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)]

V.A.3. Additional Corrective Action Requirements

In addition to those corrective action requirements, as specified under Permit Conditions V.A.1. and V.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)]

## V.B. APPLICABILITY

The permit conditions of this section apply to:

V.B.1. The SWMUs/AOCs/releases identified by the initial RCRA Facility Assessment (RFA), any subsequent investigations, or other means, are listed in Section V.C.

V.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.

## V.C. IDENTIFICATION OF SWMUS, AOCS, AND RELEASES

The list in Table 4 comprises and reconciles all former and new SWMUs and AOCs. This list allows all identified SWMUs and AOCs, regardless of when they were initially identified, to be fully accounted for in this Permit along with the status of the SWMU. Attachment 2 of this Permit includes a map which identifies the location of each SWMU and AOC on the list.

**Table 4 – SWMUs and AOCs**

| SOLID WASTE MANAGEMENT UNIT (SWMUs) | |
|---|---|
| **UNIT** | **NAME** |
| SWMU #1 | South Pond |
| SWMU #2 | North Pond |
| SWMU #3 | East Pond |
| SWMU #4 | Former Disposal Well #1 |
| SWMU #5 | Landfarm |
| SWMU #6 | Former Washout Area |
| SWMU #7 | Landfill for General Plant Trash |
| SWMU #8 | Former Chromium Destruct Unit |
| SWMU #9 | Current Chromium Destruct Unit |
| SWMU #10 | East Cell of the Lime Sludge Pond |
| SWMU #11 | West Cell of the Lime Sludge Pond |
| SWMU #12 | Disposal Area (North of the South Pond) |
| SWMU #13 | Disposal Well #2 |
| SWMU #14 | Settling Basin by Chromium Treatment Building |
| SWMU #15 | Equalization Tank |
| SWMU #16 | Wastewater Tank |
| SWMU #17 | East Lime Sludge Landfill |
| SWMU #18 | Construction Landfill |
| SWMU #19 | West Lime Sludge Industrial Landfill |
| SWMU #20 | Disposal Well #3 |
| SWMU #21 | UIC Well #2 Cuttings |
| SWMU #22 | UIC Well #3 Cuttings |
| SWMU #23 | Neutralization Basin #1 |
| SWMU #24 | Neutralization Basin #2 |
| SWMU #25 | Neutralization Basin #3 |
| SWMU #26 | West Side Basin |

| AREAS OF CONCERN (AOCs) | |
|---|---|
| **AOC** | **NAME** |
| AOC #1 | Chromate Spills |
| AOC #2 | Process Sewer Line to Former Ponds |
| AOC #3 | Sanitary Sewage Pump Station |
| AOC #4 | Former Gas Shed on the Old Farm |
| AOC #5 | UAN Storage Tank Leak |
| AOC #6 | Dakota Formation |

A detailed description of each SWMU and AOC listed above is presented in Attachment 4 to this Permit.

## V.D. DESCRIPTION OF PAST AND/OR ON-GOING GROUNDWATER MONITORING AND CORRECTIVE ACTION ACTIVITIES

Ongoing groundwater corrective action related to the SWMUs and AOCs shall be addressed through Section IV of this Permit.

## V.E. NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY-IDENTIFIED OR SUSPECTED NEW SWMUS, AOCS, AND RELEASES

V.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 V.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.

V.E.2. The Permittee shall prepare and submit to KDHE, within thirty (30) calendar days of notification provided per Permit Condition V.E.1., a SWMU/AOC/Release Preliminary Assessment Report (PAR) for each SWMU/AOC/release identified under Permit Condition V.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.

V.E.3. Based on the information presented in the PAR for each SWMU/AOC/release identified under Permit Condition V.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 Condition V.H., V.I., and/or V.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.

## V.F. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES FROM PREVIOUSLY IDENTIFIED SWMUS AND AOCS

V.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 V.B.1. and V.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.).

V.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 V.H., V.I. and/or V.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.

## V.G. DESCRIPTION OF CURRENT CONDITIONS REPORT

V.G.1. As required, within forty-five (45) 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 the plumes are expanding or adversely affecting nearby surface water bodies.

V.G.2. The DCC Report shall meet the requirements of Attachment 5 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 5. Such omissions or deviations are subject to the approval of KDHE.

## V.H. CONFIRMATORY SAMPLING (CS)

V.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 V.E.3., or for each newly-discovered release(s) from previously-identified SWMUs/AOCs per Permit Condition V.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.

V.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 V.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.

V.H.3. The Permittee shall implement the confirmatory sampling in accordance with the approved CS Work Plan.

V.H.4. The Permittee shall provide notification of all CS-related field activities in accordance with Permit Condition V.T.

V.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.

V.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 V.I., V.J., and/or V.K. If applicable, KDHE will notify the Permittee of any no further action decision related to the specific SWMUs/AOCs/releases being evaluated.

## V.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 V.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 6 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 Section V.V. of this Permit.

V.I.1. RFI Work Plan

V.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 V.C., or as otherwise directed by KDHE. The RFI Work Plan(s) shall be developed to meet the requirements of Permit Condition V.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.

V.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 6. 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).

V.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 V.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.

V.I.2. RFI Implementation

V.I.2.a. The Permittee shall implement the RFI(s) in accordance with the approved RFI Work Plan(s) and Attachment 6.

V.I.2.b. The Permittee shall provide notification of all RFI-related field activities in accordance with Permit Condition V.T.

V.I.3. RFI Reporting

V.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 V.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 V.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.

V.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 V.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.

V.I.3.c. KDHE will review the RFI Report(s), including the screening levels described in Permit Condition V.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 V.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 V.I.1.

V.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.

V.I.4. Assessment of Risk

V.I.4.a. At a minimum, consistent with Permit Condition V.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 7 of this Permit.

V.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.

V.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 V.U.

## V.J. INTERIM MEASURES (IM)

If KDHE determines, during the course of any activity initiated in compliance with the permit conditions of Section V 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.

V.J.1. IM Work Plan/Design

V.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 8 unless otherwise directed or approved by KDHE. Such interim measures may be conducted concurrently with investigations required under the terms of this Permit.

V.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 V.J.1.a., and/or request submission of an IM Report per Permit Condition V.J.3.

V.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.

V.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 V.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.

V.J.2. IM Implementation

V.J.2.a. The Permittee shall implement the interim measures in accordance with the approved IM Work Plan/Design and Attachment 8.

V.J.2.b. The Permittee shall provide notification of all IM-related field activities in accordance with Permit Condition V.T.

V.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.

V.J.3. IM Reporting

V.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.

V.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 V.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.

V.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 that time.

V.J.3.d. KDHE may, if warranted, require the Permittee to perform additional interim measures and/or corrective action activities to ensure permit requirements are fully met.

## V.K. CORRECTIVE MEASURES STUDY (CMS)

Based on the results of the RFI, as required by KDHE under Permit Condition V.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 9 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 Section V.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 V.K.1. through V.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.

V.K.1. The Permittee shall prepare and submit to KDHE a CMS for those SWMUs/AOCs/releases where hazardous constituents are 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 V.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.

V.K.2. The CMS shall meet the requirements of Attachment 9 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 Permittee shall implement corrective actions beyond the Facility boundary, as set forth in Permit Condition V.A.2.

V.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.

V.K.4. KDHE shall either approve or disapprove, in writing, the CMS. If KDHE disapproves the CMS, consistent with Permit Condition V.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.

## V.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 supporting

documents, 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.

V.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.

V.L.2. KDHE will provide the public an opportunity to review and comment on the Statement of Basis and supporting documents. 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.

V.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.

V.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.

V.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 V.M.3.c.

V.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 V.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.

## V.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 10, 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).

V.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 V.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.

V.M.2. The Permittee shall implement the corrective measures in accordance with the approved CMI Work Plan and Attachment 10. The Permittee shall provide notification of all CMI-related field activities in accordance with Permit Condition V.T. KDHE may, if warranted, require the Permittee perform additional corrective action measures to ensure permit requirements are fully met.

V.M.3. <u>CMI Reporting</u>

V.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.

V.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.

V.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 V.J.

V.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 described in the Statement of Basis.
ii. Effectiveness of ECs and ICs in protecting human health and the environment as described 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 V.J.

V.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 V.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 V.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.

## V.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 V.U. Changes in corrective measures shall be selected in accordance with procedures in Permit Condition V.L. Upon final selection and modification into the Permit, the Permittee shall implement any new corrective measures.

## V.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 V.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.

## V.P. INSTITUTIONAL CONTROL (IC) REQUIREMENTS

V.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.

V.P.2. The Permittee, and any subsequent owner or operator, shall implement ICs to meet the requirements of Permit Condition V.N., pursuant to Kansas statutes and regulations, to prevent unacceptable exposures to human health and the environment.

V.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.

V.P.4. The ICs shall be consistent with available EPA guidance, including but not limited to, *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 and the draft *Institutional Controls: A Guide to Implementing, Monitoring, and Enforcing Institutional Controls at Superfund, Brownfields, Federal Facility, UST and RCRA Corrective Action Cleanups*, February 2003.

V.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 V.U. Upon approval of the IC Plan by KDHE, the Permittee shall implement the IC Plan in conformance with the schedule contained therein.
e. The Permittee shall record all instruments approved by KDHE, in a form acceptable to or as provided 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.

## V.Q. CORRECTIVE ACTION SCHEDULE OF COMPLIANCE MODIFICATION

V.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.

V.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.

## V.R. WORK PLAN AND REPORT REQUIREMENTS

V.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.

V.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.

V.R.3. If the Permittee at any time determines that the corrective action work having been or being performed no longer satisfies 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.

V.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 Condition I.H.

## V.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:

V.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.

V.S.2. In consideration of any required annual post-closure monitoring fee paid after the effective date of this Permit, as described in Permit Condition II.K.5., KDHE shall credit this amount towards cost reimbursement for corrective action upon receipt of payment. 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 V.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 11.

V.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.

V.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.

V.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.

V.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.

V.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.

V.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.

## V.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 12) to KDHE, as described in Permit Condition I.H.

## V.U. CORRECTIVE ACTION DOCUMENT SUBMITTAL AND WORK PERFORMANCE REQUIREMENTS

V.U.1. Document Submission and Modification Process

As outlined in Permit Conditions I.H. and V.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.

V.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.

V.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 or 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.

V.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 Section V.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 V.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.

V.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.

## V.V. FACILITY SUBMISSION SUMMARY

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

| SUBMISSION REQUIREMENTS | DUE DATE | PERMIT CONDITION |
|---|---|---|
| Notification of Newly-Identified or Suspected New SWMUs/AOCs/Releases | No later than fifteen (15) calendar days from discovery | V.E.1. |
| SWMU/AOC/Release Preliminary Assessment Report | Within thirty (30) calendar days of notification per Permit Condition V.E.1. | V.E.2. |
| Notification of Newly-Discovered Releases from Previously Identified SWMUs/AOCs | No later than fifteen (15) days from discovery | V.F.1. |
| DCC Report | Within forty-five (45) calendar days from date of written KDHE request | V.G.1. |
| CS Work Plan | Within forty-five (45) calendar days from date of written KDHE request | V.H.1. |
| CS Report | According to the schedule contained in approved | V.H.5. |

| SUBMISSION REQUIREMENTS | DUE DATE | PERMIT CONDITION |
|---|---|---|
| | CS Work Plan | |
| RFI Work Plan | Within sixty (60) calendar days from date of written KDHE request | V.I.1.a. |
| RFI Report | According to schedule contained in approved RFI Work Plan and/or any RFI Work Plan addenda | V.I.3.a. |
| Quantitative Baseline HHRA and SLERA/BERA | As directed or approved by KDHE | V.I.4. |
| IM Work Plan/Design | Within thirty (30) calendar days from date of written KDHE request | V.J.1.a. |
| IM Report | Within ninety (90) calendar days of IM completion | V.J.3.b. |
| CMS | Within ninety (90) calendar days from date of written KDHE request | V.K.3. |
| CMI Work Plan | Within sixty (60) calendar days of KDHE selection of final remedy/corrective measure | V.M. |
| CMCC Report | According to schedule contained in approved CMI Work Plan | V.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 | V.M.3.c. |
| CMI 5-Year Review Report | Within sixty (60) days of the 5-year anniversary of EPA's approval of the CMCC Report | V.M.3.d. |
| CMC Report | Within ninety (90) calendar days of the completion of all remedial activities | V.M.3.e. |
| IC Plan | Within thirty (30) calendar days from date of written KDHE request | V.P. |
| 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.K.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.K.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.K.3. |
| Quarterly Progress Reports | As approved or as otherwise directed by KDHE | V.I.3.d.<br>V.J.3.a.<br>V.M.3.a. |

# ATTACHMENT

# 1

# 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 or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal on-site, or to a point of shipment for disposal off-site.

"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 6 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 4 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 11559 U.S. Highway 50, Dodge City, KS, including all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. In addition, for the purpose of implementing correction action under 40 CFR 264.101, "Facility" also means all contiguous property under the control of the owner/operator.

"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 3.2 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 7/6/2012, modified by subsequent amendments dated 5/31/2013 including the Part A application dated 5/30/2013 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 Facility, in addition to all areas and media to which hazardous constituents or hazardous wastes, and any other contamination or pollution that originated at the Facility, have been released and/or migrated.

"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.

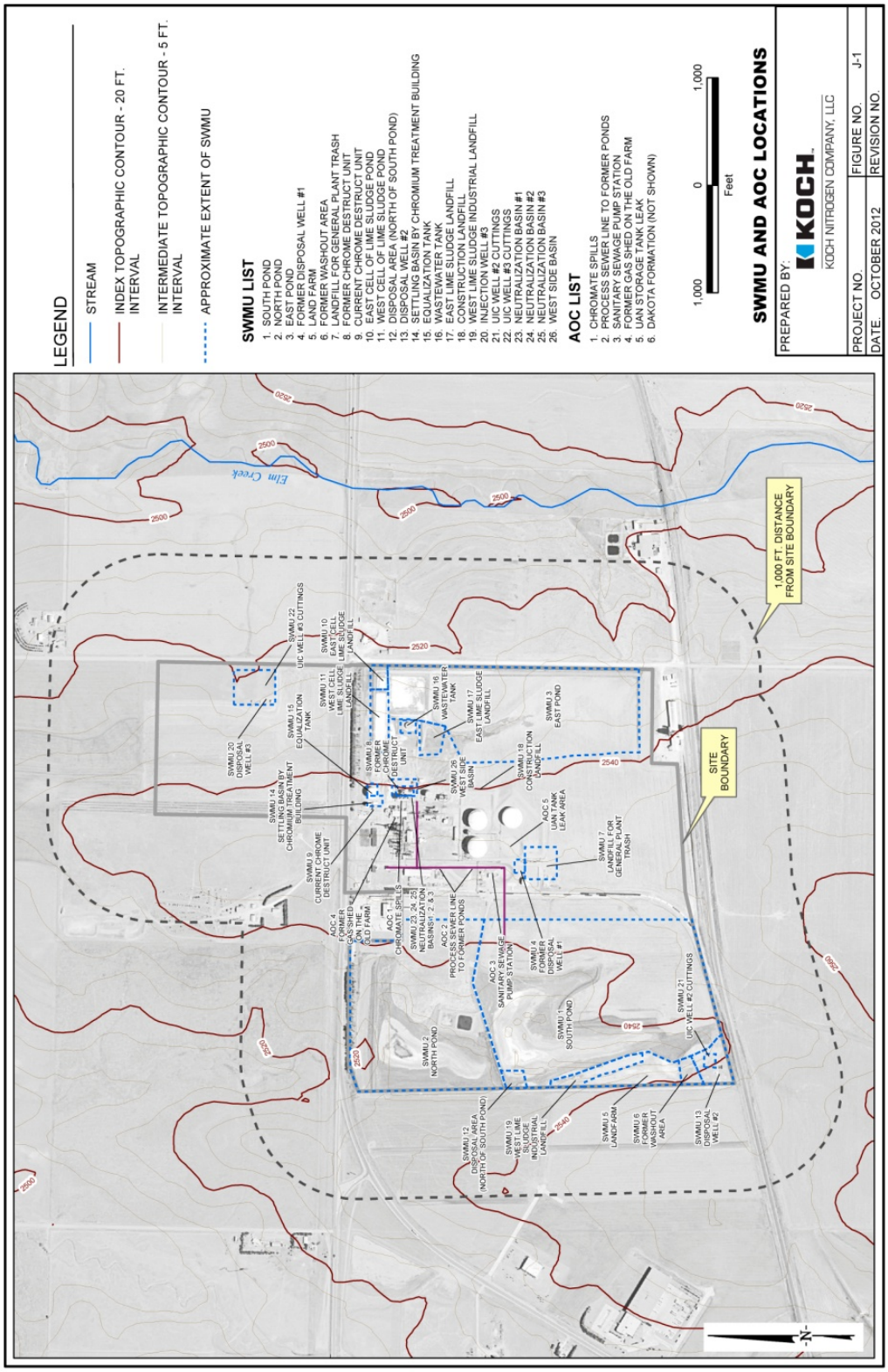
"Standard Operating Procedure" or "SOP" means a document that establishes or prescribes methods to be followed in the operation of hazardous waste storage, treatment and disposal activities. All SOPs must be signed by a responsible corporate officer and include the certification in 40 CFR 270.11(d)(1) . 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 2 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

# ATTACHMENT 2
# SWMU AND AOC LOCATION MAP



# ATTACHMENT 3

# ATTACHMENT 3
# GROUNDWATER PROTECTION STANDARDS

| Constituent | Concentration Limit mg/L |
|---|---|
| Total Chromium | 0.1 [b] |
| Hexavalent Chromium | 0.1 [b] |
| Nitrate as N [a] | 10.0 [c] |
| Nitrite as N [a] | 1.0 [c] |
| 1,1-Dichloroethene | 0.007 [b] |
| Trichloroethene | 0.005 [b] |
| Tetrachloroethene | 0.005 [b] |
| 1,1,1-Trichloroethane | 0.2 [b] |
| Vinyl Chloride | 0.002 [b] |

a – Nitrate and Nitrite are added in accordance with 40 CFR 270.32(b)(2).

b – Risk-Based Standards for Kansas, 5th Version, October 2010.

c – Maximum Contaminant Levels (MCLs) established under the National Primary Drinking Water Regulations.

# ATTACHMENT 4

**ATTACHMENT 4**
**SWMU AND AOC DESCRIPTIONS**

*SWMU 1: South Pond* - The South Pond is an earthen lagoon with a surface area of approximately 35 acres, located to the southwest of the Facility's process area. Records reflect that the pond was constructed in 1968, near the time of the Facility construction. The SWMU was part of a non-discharging evaporation pond system used for the collection of Facility area runoff and for disposal of process wastewater. Wastewater discharge to the evaporation ponds was eliminated in 1998. Currently, the South Pond receives only occasional storm water runoff from upgradient areas. It is currently overgrown with weedy vegetation and has been dry for the past several years.

*SWMU 2: North Pond* - The North Pond is an earthen lagoon with a designed water surface area of approximately 15 acres, located to the west of the Facility's process area. When constructed in 1968, the North Pond was designed to operate in series with the South Pond, increasing wastewater storage capacity and available pond surface area. Historically, when water levels in the South Pond reached design capacity, an overflow pipe allowed excess water from the South Pond to drain into the North Pond. Although the pond system was not designed to discharge, the North Pond is equipped with an emergency spillway on its northern side that potentially allowed water to flow onto the land between the dam the highway. The North Pond is currently dry and overgrown with weedy vegetation.

*SWMU 3: East Pond* - The East Pond, which was constructed in 1976, was an earthen evaporation pond having an approximate surface area of 40 acres. The East Pond was constructed southeast of the Facility to increase water storage capacity and evaporation capacity of the evaporation pond system. The Facility sewer system was modified to allow discharge to either the South Pond or East Pond. Process wastewater discharges to the East Pond would likely have been from the same manufacturing sources as wastewater discharged into the South Pond. The East Pond reportedly operated from 1976 until 1984 when it was allowed to revert to crop land. The East Pond is now dry. The northern portion of the East Pond is now covered by Lime Landfills (SWMUs 10, 11, and 17) and the Wastewater Tank (Sunflower Tank – SWMU 16).

*SWMU 4: Former Disposal Well No. 1* - Former Disposal Well No. 1 was located west of the product storage area. Based on Disposal Well No. 1 geologic and construction logs, the well was completed on 5 April 1968, with 8.625-inch outer casing to 1,654 feet below land surface (ft bls) and with a 5.5-inch carbon steel injection casing to 5,835 ft bls. The disposal well was uncased from 5,835 to 6,500 ft bls and the total depth was 6,507 ft bls in the Arbuckle Formation. A permit was issued for this disposal well on 28 January 1968. Wastewater was discharged

directly into the disposal well through a sealed wellhead. Injection was by gravity-feed through piping. The wellhead consisted of a 5.5-inch casing head with 2-side openings, a flow control valve, and a pressure gauge to monitor annulus pressure. The permitted capacity of the well was 650,000 gallons per day (gpd). Former Disposal Well No. 1 was completed as an alternative disposal method to the evaporation ponds. Injection was used during periods when the North and South Ponds could not be used for wastewater disposal and during periods when the ammonia stripper tower was out of service. The disposal well was utilized as an alternative disposal system to the North and South Ponds until 1976.

*SWMU 5: Land Farm* - The Land Farm is located in the southwest property corner, west of the South Pond. Settleable matter consisting primarily of calcium and manganese carbonate from the water softening treatment system was stored in the Former Washout Area (SWMU 6) prior to disposal in this SWMU. Approximately 300 tons of settleable matter was disposed of in this manner from 1974 until 1983.

*SWMU 6: Former Washout Area* - The Former Washout Area is located in the southwest property corner, west of the South Pond. Settleable matter consisting primarily of calcium and manganese carbonate from the water softening treatment system was stored in this SWMU prior to disposal in the Land Farm (SWMU 5). Approximately 300 tons of settleable matter was disposed of in this manner from 1974 until 1983.

*SWMU 7: Landfill for General Plant Trash* - SWMU 7 was a general facility trash landfill that was operated from 1976 until 1979 under Bureau of Waste Management (BWM) Permit 242 and was located south of the Facility production area. Available records indicate that following closure of this landfill, it was covered with soil.

*SWMU 8: Former Chrome Destruct Unit* - The Former CDU is immediately east of the ammonia plant cooling tower along the eastern side of the process area. The Former CDU consisted of an influent box, two detention basins and an effluent structure. Historically, chromium-containing cooling tower blowdown was managed in this unit. During the period of operation of the Former CDU, the treatment process consisted of reducing the hexavalent chromium to trivalent chromium by adding sulfur dioxide and sulfuric acid to the cooling tower blowdown water in the influent box and mixing with a paddle wheel. The pH was maintained between about 2.7 and 3.5 standard units (SU) during the chromium reduction process. This initial treatment process reduced a portion of the chromium to the less mobile and less toxic trivalent form. The influent box, located on the north end of the Former CDU, is a reinforced concrete, epoxy-lined basin, which served as a mixing chamber for the cooling tower blowdown and the water treatment chemicals. The influent box is not in service although it is currently still in place as constructed. The influent box is approximately 10 ft by 20 ft, and 5 ft deep. Two formed asphalt detention

basins received flow from the Former CDU influent box. The detention basins were designed as flow-through basins intended to provide additional reaction time for the conversion of hexavalent chromium to trivalent chromium to be completed before pH neutralization occurred in the former effluent structure. Each basin was approximately 130 ft long, 20 ft wide, and 3.75 ft deep. The cooling tower blowdown water was routed from the influent box by gravity through the asphalt-lined detention basins to complete the reduction process.

A cooling tower addition and the current neutralization basin (SWMU 25) were constructed over portions of the detention basins. Portions of the detention basins were removed for this new construction. According to facility records, approximately 880 square ft of the west detention basin was removed for construction of the cooling tower addition. Approximately 25 ft of the southern end of both detention basins were removed for construction of the current neutralization basin. There is approximately 3,655 square ft of the detention basins remaining. Historical records indicate the eastern basin was the last basin to be removed from service. Historical photos from June 1989, obtained from the Kansas Department of Health and the Environment (KDHE), show only the eastern detention basin was utilized for treatment. During some period of operation, the western basin had been reportedly used to store demineralizer regeneration wastewater containing sulfuric acid, which was fed into the influent structure for mixing with cooling tower blowdown water to reduce the influent wastewater pH. Available records do not indicate when the western basin was taken out of service.

The effluent structure, located on the south end of the Former CDU, was a reinforced concrete, epoxy-lined basin, which reportedly served as a neutralization basin for the treated cooling tower blowdown water. At this point in the treatment process, hexavalent chromium in the blowdown water had been reduced to a trivalent form. Precipitation of the trivalent chromium was completed by pH neutralization in this final treatment basin. Effluent from this structure was reportedly discharged to the chemical sewer for transport to either the injection well or evaporation ponds. By design, conversion of hexavalent chromium to trivalent chromium was to be completed in the influent box and detention basins. KNC is not aware of data that indicate that the flow from the detention basins to the former effluent structure exhibited any hazardous characteristics at the point where it flowed into the former effluent structure.
In the effluent structure, caustic regeneration wastewater from the demineralizer was added to increase the pH from 2.7 – 3.5 SU to about 8 SU. This alkaline condition caused the trivalent chromium to precipitate to the bottom of the effluent structure.

*SWMU 9: Current Chrome Destruct Unit* - The current Chrome Destruct Unit (also known as the ANDCO Unit) was used to treat recovered groundwater through electrochemical reduction of hexavalent chromium to trivalent chromium by precipitation. This unit was in operation from

1991 to 2007 when it was replaced by a reverse osmosis (RO) unit. The treatment unit consists of an electrochemical reaction unit housed inside a 40-ft by 50-ft pre-stressed concrete building.
SWMU 10: East Cell of the Lime Sludge Pond - The East Cell of the Lime Sludge Pond is the eastern portion of Trench No. 6 and consists of approximately 0.37 acres located near the northeast corner of the Facility. Aerial photographs show that construction and use of the East Cell of the Lime Sludge Pond did not occur until the 1990s. The approximate capacity of this cell is estimated at 6,000 cubic yards based on the areal extent (0.37 acres) and an estimated average thickness of 10 ft. The East Cell of the Lime Sludge Pond is full and currently inactive. The East and West Cells of the Lime Sludge Pond are regulated under BWM Permit No. 375 for the disposal of spent lime.

*SWMU 11: West Cell of the Lime Sludge Pond* - The West Cell of the Lime Sludge Pond is the western portion of Trench No. 6 and consists of approximately 1.14 acres located near the northeast corner of the Facility. Construction and operation of the West Cell of the Lime Sludge Pond occurred in the 1990s. The volume of settleable matter disposed in the West Cell of the Lime Sludge Pond is estimated at 18,000 cubic yards based on the areal extent (1.14 acres) and an estimated average thickness of 10 ft. The West Cell of the Lime Sludge Pond is currently active. The trench is authorized to receive spent lime under Permit No. 375.

*SWMU 12: Disposal Area (North of the South Pond)* - An area of stained soil on the northern bank of the South Pond was identified as a SWMU during the 2000 RCRA Facility Assessment. The area of stained soil was observed near demolition material, such as concrete and asphalt that were installed for erosion control on the bank of the South Pond.

*SWMU 13: Disposal Well No. 2* - SWMU 13 is one of the Facility's two Class I nonhazardous wastewater disposal wells permitted under the Underground Injection Control (UIC) program. Disposal Well No. 2 is located in the southwest property corner. The construction of this disposal well was completed in 1993. The disposal well consists of approximately 5,800 ft of 4.5-inch carbon steel injection tubing inside a 9.5-inch casing and was installed to a depth of approximately 6,500 ft bls into the Arbuckle Formation. The well has been in operation under Permit No. KS-01-057-001 since it was installed. Disposal Well No. 2 is used for disposal of nonhazardous wastewater consisting of process wastewater, laboratory wastewater, and recovered groundwater from the remediation system.

*SWMU 14: Settling Basin by Chromium Treatment Building* - The Settling Basin by the chromium treatment building received ANDCO effluent from the electrochemical chromium reduction unit and collected trivalent chromium precipitate prior to replacement by the RO Unit in 2007. The treated effluent flowed from the Settling Basin to the Equalization Tank prior to

reuse. The Settling Basin is located southeast of the ANDCO Unit and is an epoxy-coated, concrete basin that is 40-ft long, 20-ft wide, and 12-ft deep.

*SWMU 15: Equalization Tank* - The Equalization Tank receives water from the water supply wells, effluent from the ANDCO Unit, reverse osmosis reject water and, historically, carbon filter backwash. This tank is used to provide equalization of raw process water flow prior to lime softening treatment and is located east of the ANDCO Settling Basin (SWMU 14). The Equalization Tank is an aboveground, circular epoxy-coated metal tank with a capacity of 2.8 million gallons. This tank was installed in 1991 as part of the industrial water supply pretreatment process.

*SWMU 16: Wastewater Tank* - The Wastewater Tank (also termed the Sunflower Tank) receives treated wastewater from the neutralization basins. The chemical quality of water stored in this tank is identical to disposal well influent water. This tank was constructed in the 1990s and is a 65-ft diameter, 14-ft high, 350,000-gallon aboveground storage tank (AST) that provides wastewater storage and flow equalization prior to discharge to the disposal wells. This tank is located within a diked area south of SWMU 11.

*SWMU 17: East Lime Sludge Landfill* - The East Lime Sludge Landfill, regulated under BWM Permit No. 375, is located south of the wastewater tank (SWMU 16). The East Lime Sludge Landfill consists of Trenches No. 4 and 5, which cover about 0.49 and 0.38 acres, respectively. Records indicate the prior owner operated Trench No. 4 until 1994 and Trench No. 5 until 1999. Neither unit has been used by KNC. Records from the prior owner indicate that Trench No. 5 received only spent lime. Records from the prior owner indicate that monoethanolamine (MEA) charcoal and high temperature shift (HTS) catalyst, along with spent lime, were placed into Trench No. 4. These trenches were authorized to receive spent lime under Permit No. 375.

*SWMU 18: Former Construction Landfill* - During construction by the former owner, from 1967 to 1968, a Construction Landfill was operated at the Facility. The Construction Landfill was located east of the process area and received wood, trash, piping waste, and other similar construction debris. Industrial wastes are not suspected or known to have been placed in this landfill. Available information indicates disposal activity ceased prior to Facility operation.

*SWMU 19: West Lime Sludge Industrial Landfill* - The West Lime Sludge Industrial Landfill, regulated under BWM Permit No. 375, is located west of the South Pond (SWMU 1) on the western side of the Facility. This landfill was operated by the former owner for waste disposal and consists of three trenches. Records from the previous owner indicate that spent lime, spent resin, HTS catalyst, and MEA charcoal were placed into Trenches No. 1 and 2. These trenches were authorized to receive spent lime under Permit No. 375. Records from the prior owner

indicate that spent lime, spent resin, sandblasting sand, MEA charcoal, tank sludge, wastewater sludge, HTS catalyst, and asphalt were placed into Trench No. 3. Trench No. 1 (about 0.28 acres) and Trench No. 2 (about 0.08 acres) were covered with soil in 1992. Trench No. 3 (about 0.3 acres) has not been covered, but is inactive.

*SWMU 20: Disposal Well No. 3* - Disposal Well No. 3 is located in the northeast property corner. The construction of this disposal well was completed in 1995. As is the case for SWMU 13 (Disposal Well No. 2), this well was designed and constructed, and has been operated and monitored in accordance with Permit No. KS-01-057-002 for disposal of nonhazardous wastewater. This disposal well consists of approximately 5,800 ft of 4.5-inch carbon steel injection tubing inside a 9.5-inch casing, it was installed to a depth of approximately 6,550 ft bls. Disposal Well No. 3 is used for disposal of the same wastewater streams as Disposal Well No. 2.

*SWMU 21: UIC Well #2 Cuttings* - The drill cuttings from the installation of Disposal Well No. 2 (UIC Well #2) in November 1992 were placed in this SWMU, in accordance with directions and approval received from the KDHE on October 28, 1992. This SWMU is located near Disposal Well No. 2 in the southwest property corner. This SWMU was designed to contain solids with high and low chloride content. These solids were segregated within the disposal area based on their chloride content.

*SWMU 22 – UIC Well #3 Cuttings* - The drill cuttings from the installation of Disposal Well No. 3 (UIC Well #3) installed in November 1995 were reportedly placed in this SWMU, in accordance with directions and approval received from the KDHE on April 3, 1998, based on the prior owner's December 11, 1995 waste management plan. This SWMU is located near Disposal Well No. 3 in the northeast property corner. This SWMU was designed to contain solids with potentially elevated chlorides. These solids were segregated within the disposal area based on their chloride content.

*SWMU 23: Neutralization Basin #1* - SWMU 23 is part of an operating neutralization basin system which historically operated as part of the Former CDU (SWMU 8). SWMU 23 is an epoxy-coated basin with approximate dimensions of 12.75 ft long by 10 ft wide and 10.5 ft deep. Records indicate that the basin was constructed in 1967 and began operation in 1968. SWMU 23 was historically used to collect decanted water from the Former CDU asphalt detention basins and served this function until 1991 when the Former CDU was taken out of operation. Currently, SWMU 23 receives ammonia plant cooling water blowdown containing orthophosphate-based water treatment chemicals. In the current process water treatment system, normal water treatment flow into SWMU 23 comes from Neutralization Basins #2 and #3 (SWMUs 24 and 25). Because the system is designed for complete recirculation if required by

operational needs, other possible influent streams include any of the streams that are received in SWMU 26.

*SWMU 24: Neutralization Basin #2* - SWMU 24 is part of an operating neutralization basin system which historically operated as part of the Former CDU (SWMU 8). SWMU 24 is a concrete basin with approximate dimensions of 13.2 ft long by 30 ft wide and 10.5 ft deep. Records indicate that the unit was constructed in 1967 and began operation in 1968. SWMU 24 was historically used to receive ammonia plant cooling tower blowdown containing hexavalent chromium prior to treatment, and to collect sediment, primarily dirt, filtered out by the ammonia cooling tower side stream filter. The influent received in SWMU 24 was later pumped to the Former CDU for processing. In 1993, the influent stream to this tank was reportedly modified to include the UAN Plant sewer, ammonia plant drainage, Praxair condensate, cooling tower blowdown containing orthophosphate-based water treatment chemicals, hydrogen recovery unit condensate, sulfuric acid truck drainage, utility drainage, and DURCO mechanical filter backwash from the wastewater treatment building. Currently, SWMU 24 is primarily used as a settling basin for sediment prior to two-step filtration and disposal into the injection wells. The system is designed for complete recirculation if required by operational needs; therefore, other possible influent streams include any of the streams that are received in SWMUs 23, 25, and 26.

*SWMU 25: Neutralization Basin #3* - SWMU 25 is part of an operating neutralization basin system which historically operated as part of the Former CDU (SWMU 8). SWMU 25 is an HDPE-lined basin with approximate dimensions of 30 ft long by 40 ft wide and 12 ft deep. Records indicate that the unit was constructed on the southern portion of the Former CDU in approximately 1993, and it began operation shortly after completion. Construction of SWMU 25 required soil removal in an approximately 35-ft section of the southern portion of the Former CDU retention basins. SWMU 25 primarily receives the liquid regeneration stream from the ion exchange water treatment system, laboratory wastewater, Phase I building drainage, and drainage from the storage area where spent ammonia production catalyst is accumulated prior to offsite metals reclamation or disposal. The unit serves as a primary neutralization basin where acidic or basic streams and water are pumped out of the tank to achieve a near neutral pH for water destined for the disposal wells. Normal operation of the current wastewater system allows the contents of SWMU 24 to be directed to SWMU 25, but the system is designed for complete recirculation if required by operational needs; therefore, other possible influent streams include any of the streams that are received in SWMUs 23 and 26.

*SWMU 26: West-Side Basin* - The West-Side Basin (also referred to as the Wastewater Building Pit) is located south of the Former Chrome Destruct Unit. The basin is constructed of concrete and is 12-ft deep, 10-ft wide, and 10-ft in length. The floor is 1-ft 3-inches thick and the walls are 1-ft thick. Records indicate that this basin was constructed in 1991 and began operation in

1992. The Facility continues to use this structure as a settling basin. The waste streams it receives include groundwater from recovery wells; UAN plant sewer (process drainage nitric acid, urea ammonia nitrate, boiler blowdown containing orthophosphate-based treatment chemicals); liquid streams from Neutralization Basins No. 1, 2, and 3; Praxair condensate, hydrogen recovery unit condensate, sulfuric acid truck drainage, utility drainage (including washdown water from cleaning spills of acid/caustic or water treatment chemicals in the utility building); and DURCO mechanical filter backwash from the wastewater treatment building.

*AOC 1: Chromate Spills* - AOC 1 is defined as the chromate spill locations at the former storage tank feed line near the CDU and the north and south chromate tank location near the UAN Plant Cooling Tower.

*AOC 2: Process Sewer Line to Former Ponds* - The process sewer line transported process wastewater from the Facility to the South Pond, East Pond, or Former Disposal Well No. 1, and consisted of an 8-inch diameter, clay tile pipe. Records indicate that the process sewer lines carried process wastewater, consisting of treated cooling tower blowdown, regeneration waste streams from the demineralizer and boiler blowdown, steam condensate, and laboratory waste. Daily flow through the sewer line was estimated at approximately 600,000gpd.

*AOC 3: Sanitary Sewage Pump Station* - The sanitary sewage pump station has been in operation since 1993 and is used to isolate process wastewater from sanitary wastewater. Sanitary wastewater flows to the sanitary sewage pump station located west of the containment area which formerly contained the 30,000-ton UAN Tank. The sanitary sewage pump station consists of a 10-ft by 20-ft metal, below-ground tank equipped with submersible pumps that divert sanitary wastewater to the two-cell sanitary lagoon system. Sanitary wastewater consists of flow from the restrooms, kitchens, locker areas, and the sanitary wastewater from Praxair.

*AOC 4: Former Gas Shed on the Old Farm* – The Former Gas Shed reportedly was used for chemical storage before the Facility was built. Based on a review of historical and aerial photographs, this shed was located west of the utility building and east of the ammonia plant. This shed was a former farm storage structure located on the property prior to construction. This shed was reportedly removed prior to construction of the Facility.

*AOC 5: UAN Tank Leak Area* – The 30,000-ton UAN Storage Tank was located in the product storage area of the Facility and was used for the storage of UAN solution. In 1992, a leak was discovered in the tank. The leak was repaired in 1992, and the storage tank was placed back into operation until 1996. In 1996 this tank was removed from the Facility and replaced with a larger tank at a different location.

*AOC 6: Dakota Formation* – Based on the detection of nitrate and chromium in the production wells of United Protein's (Kansas By-Products)( and Land O' lakes (Feedmill) in the 1980s and 1990s, the Dakota Formation was identified by USEPA as an AOC during the 2000 RCRA Facility Assessment.

# ATTACHMENT

# 5

**ATTACHMENT 5**
**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

# 6

**ATTACHMENT 6**
**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 8).

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 Meeting[1] 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 Meeting[1], 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 5), 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.

[1]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.

# ATTACHMENT

# 7

**ATTACHMENT 7**
**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:

| Known/Suspected Impacted Media | Based on sampling data? |
|---|---|
| _____ 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):

_____
_____
_____
_____
_____

3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs 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.

The nearest surface water body is _____ feet/miles from the affected property.
The surface water body is named _____.
The surface water body is best described as a:

_____ Freshwater stream: _____ perennial (has water year round)
_____ intermittent (dries up completely ≥ one week/year)
_____ intermittent with perennial pools
_____ Freshwater swamp/marsh/wetland
_____ Saltwater or brackish swamp/marsh/wetland
_____ Reservoir, lake or pond; approximate surface acres _____
_____ Drainage ditch
_____ Tidal stream
_____ Other (specify) _____

Is the water body listed as a State classified segment?
_____ Yes Segment #: _____ Use Classification: _____
_____ No

If the water body is not a State classified segment, identify the first downstream classified segment.
Name: _____
Segment #: _____
Use classification: _____

As necessary, provide further description of surface waters in the vicinity of the affected property:

_____
_____
_____

## *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 Minimus** - 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, gasses 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 persons 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 ($^0$C /$^0$F) _____ 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 in 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?
_____ Submergement _____ 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 8

**ATTACHMENT 8**
**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 runon/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 9

**ATTACHMENT 9**
**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.

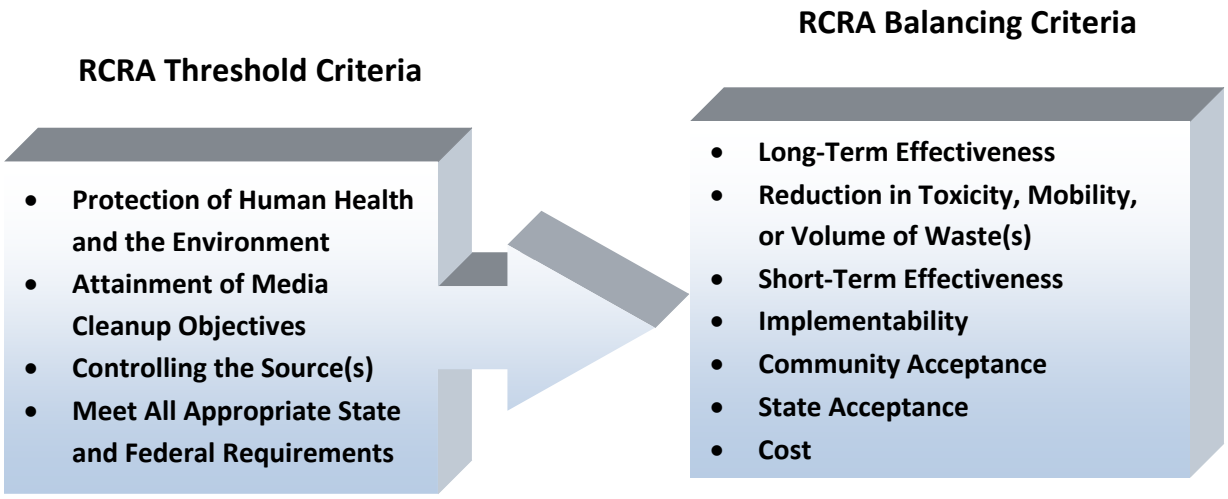



**Figure 1: Criteria for evaluation of corrective action alternatives**

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

# 10

**ATTACHMENT 10**
**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 medial 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

# 11

**ATTACHMENT 11**
**FORM OF INVOICE FOR OVERSIGHT COSTS**
**(Payroll and Expense Detail Entries are for Example Purposes Only)**

KDHE/Bureau of Waste Management
Attn: E. Jean Underwood
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
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

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 E. Jean Underwood at (785) 296-1603 or junderwood@kdheks.gov.

**Project Name:** XXXXXXXXXXXXXXXXXXXXX
**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 3rd 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

# 12

**ATTACHMENT 12**
**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:**
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