NORTH Dakota | Environmental Quality
Be Legendary.

HAZARDOUS WASTE PERMIT
PERMIT NUMBER HW-010
PERMITTEE: DAKOTA GASIFICATION COMPANY
GREAT PLAINS SYNFUELS PLANT
EPA ID NO. NDD000690594

Pursuant to Chapter 23.1-04 (Hazardous Waste Management Act) of the North Dakota Century Code (NDCC) and Article 33.1-24 (Hazardous Waste Management Rules) of the North Dakota Administrative Code (NDAC), a permit is hereby issued by the North Dakota Department of Environmental Quality to Dakota Gasification Company (hereafter called the Permittee), Great Plains Synfuels Plant (hereafter referred to as the Facility), EPA ID No. NDD000690594 to operate hazardous waste management units, which includes a container storage area and a containment building for bulk waste storage, located in Mercer County seven miles northwest of Beulah, North Dakota.

The Permittee must comply with all the terms and conditions of this permit. This permit consists of the conditions contained in Modules I through VII (including those referenced in the permit application) and applicable rules contained in Article 33.1-24 NDAC.

This permit is based on the premise that the information submitted in the permit application dated February 3, 2021, and subsequent revisions, is accurate and that the hazardous waste management units on the Facility have been constructed and will be operated as specified in the application, as part of the permit. Any inaccuracies or misrepresentations found in the application may be grounds for the termination or modification of this permit pursuant to Sections 33.1-24-06-12, -13, and -14 NDAC. The Permittee must inform the North Dakota Department of Environmental Quality of any deviations from, or changes in, the information in the permit application which would affect the Permittee's ability to comply with the applicable rules or permit conditions.

This permit is effective as of August 1, 2026, and shall remain in effect until July 31, 2026, unless revoked and reissued as described in Section 33.1-24-06-12 NDAC, or terminated as described in Section 33.1-24-06-18 NDAC.

Signature: _____ Date: _____

Charles R. Hyatt, Director
Division of Waste Management
ND Department of Environmental Quality

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MODULE I: STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is allowed to store hazardous waste in accordance with conditions of this permit. Any storage of hazardous waste not authorized in this permit is prohibited. Compliance with this permit constitutes compliance, for purposes of enforcement, with Chapter 23.1-04 (Hazardous Waste Management Act) of the North Dakota Century Code (NDCC) and Article 33.1-24 (Hazardous Waste Management Rules) of the North Dakota Administrative Code (NDAC).

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 NDCC 23.1-04, NDAC 33.1-24, Sections 3013, 7003, or 3008(a) of the Resource Conservation and Recovery Act (RCRA), Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et. seq., commonly known as CERCLA) or any other law providing for protection of public health or the environment.

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 Sections 33.1-24-06-12, -13 and -14 NDAC. The filing of a request for permit modification, revocation and reissuance, or termination, or the notification of plan changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

I.B.2 Permit Renewal

This permit may be renewed as specified in subsection 2 of Section 33.1-24-06-04 NDAC and Permit Module I.D.2. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations.

I.B.3. Permit Expiration

Pursuant to Section 33.1-24-06-06 NDAC, this permit shall be effective for a fixed term not to exceed five (5) years. 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 as specified in Section 33.1-24-06-17 NDAC and, through no fault of the Permittee, the Department has not issued a new permit as set forth in Section 33.1-24-06-02 NDAC.

I.C. SEVERABILITY

The provisions of this permit are severable, as specified in Section 33.1-24-07-12 NDAC and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply

The Permittee shall comply with all conditions of this permit. Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of the NDCC and is grounds for enforcement action, permit termination, permit revocation and reissuance, permit modification, or for denial of a permit renewal application. However, the Permittee need not comply with the conditions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit. (See Section 33.1-24-06-19 NDAC.)

I.D.2. Duty to Reapply

Pursuant to subsection 9 of Section 33.1-24-06-01 NDAC, if the Permittee wishes to continue an activity allowed 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 eighty (180) calendar days before this permit expires.

I.D.3. 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.

I.D.4. Duty to Mitigate

In the event of noncompliance with this 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 any adverse impacts on human health or the environment.

I.D.5. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of storage and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

I.D.6. Duty to Provide Information

The Permittee shall furnish to the Department, within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

I.D.7. Inspection and Entry

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

I.D.7.a. Enter at reasonable times upon the Permittee's premises where the regulated facility or activity is located or conducted, or where records must be kept under conditions of this permit;

I. D.7.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

I. D.7.c. Inspect at reasonable times any solid or hazardous waste management units, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

I. D.7.d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized any substances or parameters at any location.

I.D.8. Monitoring and Records

I.D.8.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

I.D.8.b. The Permittee shall retain, at the facility, records of all monitoring information, including all calibration and maintenance records, copies of all reports and records required by this permit, the certification required by subdivision i of subsection 2 of Section 33.1-24-05-40 NDAC, and all records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. All monitoring information, including all calibration and maintenance records, copies of reports and records required by this permit, and all data used in completing corrective action shall be retained until corrective action is completed. These periods may be extended by request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

I. D.8.c. Records of monitoring information shall include:

I.D.8.c.1. The date, exact place, and time of sampling or measurements;

I.D.8.c.2. The individuals who performed the sampling or measurements;

I.D.8.c.3. The dates analyses were performed;

I.D.8.c.4. The individuals who performed the analyses;

I.D.8.c.5. The analytical techniques or methods used; and

I.D.8.c.6. The results of such analyses.

I.D.9. Reporting Requirements

I.D.9.a. Reporting Planned Alterations, Additions, or Changes

The Permittee shall give notice to the Department, as soon as possible, of any planned physical alterations or additions to the permitted waste management units.

I.D.9.b. Anticipated Noncompliance

The Permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

I.D.10. Transfers

The permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to subdivision b of subsection 2 of Section 33.1-24-06-12 or subsection 4 of Section 33.1-24-06-14 NDAC. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify, in writing, the new owner or operator of the requirements of Chapters 33.1-24-05 and 33.1-24-06 NDAC and this permit.

I.D.11. Twenty-Four Hour Reporting

I.D.11.a. The Permittee shall report to the Department any noncompliance with the permit which may endanger health or the environment.

I.D.11.b. Any information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally:

I.D.11.b.1. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies; and

I.D.11.b.2. Any information of a release or discharge of hazardous waste, or of a fire or explosion from the hazardous waste management unit, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause must include:

I.D.11.b.2.a. Name, address, and telephone number of the owner or operator;

I.D.11.b.2.b. Name, address, and telephone number of the facility;

I.D.11.b.2.c. Date, time, and type of incident;

I.D.11.b.2.d. Name and quantity of materials involved;

I.D.11.b.2.e. The extent of injuries, if any;

I.D.11.b.2.f. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and

I.D.11.b.2.g. Estimated quantity and disposition of recovered material that resulted from the incident.

I.D.11.c. A written submission shall also be provided within five (5) calendar 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(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

I.D.11.d. The Department may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days.

I.D.12. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Module I.D.11., as appropriate.

I.D.13. Monitoring Reports

Monitoring results shall be reported at the intervals specified elsewhere in this permit.

I.D.14. Manifest Discrepancy Reports

If a significant discrepancy in a manifest is discovered, the Permittee shall attempt to reconcile the discrepancy. If not resolved within fifteen (15) calendar days, the Permittee shall submit a letter report, including a copy of the manifest to the Department.

I.D.15. Biennial Report

A biennial report must be submitted covering facility activities during odd-numbered calendar years.

I.D.16. Other Information

Whenever the Permittee becomes aware that the Permittee has failed to submit any relevant facts in the permit application or submitted incorrect information in the

permit application or in any report to the Department, the Permittee shall promptly submit such facts or information.

I.D.17. Compliance Schedule

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

I.E. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to or requested by the Department shall be signed and certified as required by Section 33.1-24-06-03 NDAC.

I.F REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

All reports, notifications, or other submissions which are required by this permit to be sent or given to the Department should be sent by certified mail or given to:

North Dakota Department of Environmental Quality
Division of Waste Management
4201 Normandy St, 2nd Floor
Bismarck, ND 58503-1324
Telephone No. (701) 328-5166

I.G. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until closure of the hazardous waste management units is completed and certified by an independent, registered professional engineer, the following documents and all amendments, revisions, and modifications to these documents:

I.G.1. Waste Analysis Plan as required by subsection 2 of Section 33.1-24-05-04 NDAC and this permit.

I.G.2. Personnel training documents and records as required by subsection 4 of Section 33.1-24-05-07 NDAC and this permit.

I.G.3. Contingency Plan as required by subsection 1 of Section 33.1-24-05-26 NDAC and this permit.

I.G.4. Closure Plan(s) as required by subsection 1 of Section 33.1-24-05-61 NDAC and this permit.

I.G.5. Operating record as required by subsection 1 of Section 33.1-24-05-40 NDAC and this permit.

I.G.6. Inspection schedules as required by subsection 2 of Section 33.1-24-05-06 NDAC and inspection records as required by subsection 4 of Section 33.1-24-05-06 NDAC and this permit.

I.G.7. Copies of manifests for hazardous waste shipments transported off-site for at least three (3) years, as required by subsection 1 of Section 33.1-24-03-13 NDAC and this permit.

I.G.8. Cost Estimate for closure as required by subdivision d of subsection 1 of Section 33.1-24-05-76 NDAC and a copy of the documentation required to demonstrate financial assurance as required by Section 33.1-24-05-77 NDAC and this permit.

I.G.9. A copy of the documentation used to demonstrate compliance with the liability requirements as required by Section 33.1-24-05-79 NDAC and this permit.

I.G.10. For each shipment of restricted waste to an off-site facility, the information required by Section 33.1-24-05-256 NDAC and this permit.

I.G.11. A copy of the latest revision of the amended Part B application for Dakota Gasification Company, Great Plains Synfuels Plant, NDD000690594 and most current permit with attachments.

I.G.12. All other documents required by this permit.

I.H. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in Chapter 23.1-04 NDCC and Chapters 33.1-24-01, -02, -05, -06, and -07 NDAC, unless this permit specifically provides otherwise. Where terms are not defined in the rules, the permit or EPA guidelines or publications, 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.

I.H.1. "Area of Concern" (AOC), for purposes of this permit, includes any area at a facility having a probable release of a hazardous waste or hazardous constituent which may or may not be from a solid waste management unit and is determined by the Department to pose a current or potential threat to human health or the environment. AOC identified in Appendix A of this permit and Sections 1.0 and 11.0 of the Permit Application, and any additional AOC identified in the future, shall receive the same level of investigation and remediation as that of SWMUs.

I.H.2. "Containment building," for the purposes of this permit, means the Bulk Waste Storage Facility and means a hazardous waste management unit that is used to store or treat hazardous waste under the provisions of sections 33.1-24-05-475 through 33.1-24-05-477 NDAC.

I.H.3. "Corrective Action Management Unit (CAMU)" means an area within a facility as designated by the Department for the purpose of implementing corrective action requirements of this permit. A CAMU shall only be used for the management of remediation wastes pursuant to implementing such corrective action requirements at the facility.

I.H.4. "Corrective measures," for purposes of this permit, include all corrective actions necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any SWMU or AOC at the facility, regardless of the time at which waste was placed in the unit, as required under Section 33.1-24-05-58 NDAC. Corrective measures may address releases to air, soil, surface water, or ground water.

I.H.5. "Department" means the North Dakota Department of Environmental Quality or authorized representative.

I.H.6. "Facility," for purposes of this permit, includes any contiguous property and structures, other appurtenances, and improvements on the property. A facility may consist of several treatment, storage, or disposal operations units, e.g., one or more landfills, surface impoundments or combinations of them.

I.H.7. “Hazardous Waste Constituent” or “Constituent” means a constituent that caused the Department to list the hazardous waste in Chapter 33.1-24-02 NDAC or a constituent listed in Table 1 of Section 33.1-24-02-14 NDAC.

I.H.8. "Land disposal," for purposes of this permit and Chapter 33.1-24-05 NDAC, means placement in or on the land, except in a CAMU, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or concrete vault or bunker intended for disposal purposes.

I.H.9. A "release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.

I.H.10. "Remediation waste" means all solid and hazardous wastes, and all media (including ground water, surface water, soils and sediments) and debris, which contain listed hazardous wastes or hazardous constituents or which themselves exhibit a hazardous waste characteristic, that are managed for the purpose of implementing corrective action requirements. For a given facility, remediation wastes may originate only from the facility boundary, but may include waste managed in implementing corrective action beyond the facility boundary. Remediation waste managed on-site shall be regulated within the context of this permit.

I.H.11. "Solid waste” means garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities; but, the term “solid waste” does not include solid or dissolved material and domestic sewage, solid or dissolved materials in irrigation return flows, industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

I.H.12. "Solid waste management unit" (SWMU) means any discernible unit which has been used for the treatment, storage, or disposal of solid wastes at any time, regardless of whether the unit was intended for solid or hazardous waste management. SWMUs include RCRA-regulated hazardous waste management units. Such units include any area at a facility at which solid wastes have been routinely and systematically released.

I.H.13. "Unit," for the purposes of this permit, includes, but is not limited to, any landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station, or recycling unit.

<End of Module I>

MODULE II: GENERAL FACILITY CONDITIONS

II.A. APPLICABILITY

The requirements of this permit module pertain to the hazardous waste management units identified within Modules III and IV.

II.B. DESIGN AND OPERATION OF UNITS

The Permittee shall maintain and operate the hazardous waste management units to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment as required by Section 33.1-24-05-15 NDAC.

II.C. OFF-SITE SHIPMENTS

The Permittee shall not receive regulated hazardous waste from an off-site source.

II.D. GENERAL WASTE ANALYSIS

II.D.1. The Permittee shall follow the waste analysis procedures required by Section 33.1-24-05-04 NDAC, as described in the Waste Analysis Plan contained in Section 4.0 and Attachment B of the Permit Application.

II.D.2. The Permittee shall verify the analysis of each waste stream annually as part of its Quality Assurance Program, in accordance with, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, (latest revision) and Standard Methods Wastewater Analysis or equivalent methods approved by the Department.

II.D.3. At a minimum, the Permittee shall maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations. If the Permittee uses a contract laboratory to perform the analysis, then the Permittee shall inform the laboratory, in writing, that it must operate under the waste analysis conditions set forth in the permit.

II.E. SECURITY

The Permittee shall comply with the security provisions as specified in subsection 6.1 of the Permit Application and subdivision b of subsection 2 and subsection 3 of Section 33.1-24-05-05 NDAC.

II.F. GENERAL INSPECTION REQUIREMENTS

II.F.1. The Permittee shall follow the inspection requirements set out in Section 33.1-24-05-06 NDAC and subsection 6.0 of the Permit Application.

II.F.2. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by subsection 3 of Section 33.1-24-05-06 NDAC and the Permit Application.

II.F.3. Records of inspection shall be kept as required by subsection 4 of Section 33.1-24-05-06 NDAC.

II.G. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by Section 33.1-24-05-07 NDAC. This training program shall follow the program as detailed in Section 8 of the Permit Application. The Permittee shall maintain training documents and records as required by subsections 4 and 5 of Section 33.1-24-05-07 NDAC.

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

The Permittee shall comply with the requirements of Section 33.1-24-05-08 NDAC. The Permittee shall follow the procedures for handling ignitable, reactive, and incompatible wastes set forth in subsections 5.1 and 5.2 of the Permit Application.

II.I. PREPAREDNESS AND PREVENTION

II.I.1. Required Equipment

At a minimum, the Permittee shall equip the facility and hazardous waste management units with the emergency equipment listed in Table 6.4 of Section 6.0 of the Permit Application, as set forth in the Pollution Control Contingency Plan found in Section 7.0, Supplement 1 of the Permit Application, and as required by Section 33.1-24-05-16 NDAC.

II.I.2. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.I.1., as necessary, to assure its proper operation in time of emergency, as required by Section 33.1-24-05-17 NDAC.

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

The Permittee shall maintain access to the communications or alarm system as required by Section 33.1-24-05-18 NDAC.

II.I.4. Required Aisle Space

At a minimum, the Permittee shall maintain aisle space as required by Section 33.1-24-05-19 NDAC as described in Sections 5.0 and 6.0 of the Permit Application.

II.I.5. Arrangements with Local Authorities

The Permittee shall maintain arrangements with state and local authorities as required by Section 33.1-24-05-20 NDAC. If state or local officials refuse to enter into preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

II.J. CONTINGENCY PLAN

II.J.1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the Contingency Plan (Section 7.0, Supplement 1 of the Permit Application) whenever there is a fire, explosion, or release of hazardous waste or constituents which could threaten human health or the environment. As applicable, the plan must cover the requirements of Sections 33.1-24-05-26 through 33.1-24-05-32 NDAC.

II.J.2. Copies of Plan

The Permittee shall comply with the requirements of Section 33.1-24-05-28 NDAC. The most recent copy of the plan will be maintained on-site.

II.J.3. Amendments to the Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan as required by Section 33.1-24-05-29 NDAC.

II.J.4. Emergency Coordinator

A trained emergency coordinator shall be available at all times in case of an emergency as required by Section 33.1-24-05-30 NDAC.

II.J.5 Quick Reference Guide

A quick reference guide to the contingency plan must be submitted to local emergency responders as required by Section 33.1-24-05-32 NDAC.

II.K. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of Sections 33.1-24-05-38, 33.1-24-05-39, and 33.1-24-05-43 NDAC. In addition, the Permittee shall comply with the additional reporting requirements of Sections 33.1-24-03-15 through 33.1-24-03-16 NDAC.

II.L. RECORDKEEPING AND REPORTING

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

II.L.1. Operating Record

The Permittee shall maintain a written Operating Record at the facility, in accordance with Section 33.1-24-05-40 NDAC.

II.L.2. Biennial Report

The Permittee shall comply with the biennial report requirements of Section 33.1-24-05-42 NDAC.

II.M. GENERAL CLOSURE REQUIREMENTS

II.M.1. Performance Standard

The Permittee shall close the hazardous waste management units as required by Section 33.1-24-05-60 NDAC and in accordance with the Closure Plans included in Section 9.0 and Attachment C of the Permit Application.

II.M.2. Amendment to the Closure Plan

The Permittee shall amend the Closure Plans in accordance with subsection 3 of Section 33.1-24-05-61 NDAC whenever necessary or required by the Department.

II.M.3. Notification of Closure

II.M.3.a. The Permittee shall notify the Department, in writing, at least forty-five (45) calendar days prior to the date on which the Permittee expects to begin closure of the Container Storage Area as required by subsection 4 of Section 33.1-24-05-61 NDAC.

II.M.3.b. The Permittee shall notify the Department, in writing, at least sixty (60) calendar days prior to the date on which the Permittee expects to begin closure of the containment building (Bulk Storage Facility) or final closure of the facility as required by subsection 4 of Section 33.1-24-05-61 NDAC.

II.M.4. Time Allowed for Closure

After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the hazardous waste management units all hazardous waste and shall complete closure activities in accordance with Section 33.1-24-05-62 NDAC and the schedules specified in the Closure Plans (Section 9.0, Attachment C of the Permit Application).

II.M.5. Disposal or Decontamination of Equipment

The Permittee shall decontaminate and/or dispose of all contaminated equipment, structures, and soils as required by Section 33.1-24-05-63 NDAC and the approved Closure Plans (Section 9.0, Attachment C of the Permit Application).

II.M.6. Certification of Closure

The Permittee shall certify that the hazardous waste management units have been closed in accordance with the specifications in the Closure Plan (Section 9.0, Attachment C of the Permit Application) and as required by Section 33.1-24-05-64 NDAC.

II.N. COST ESTIMATE FOR FACILITY CLOSURE

The Permittee's most recent closure Cost Estimate, prepared in accordance with Section 33.1-24-05-76 NDAC, is specified in Section 10.0 of the Permit Application.

The Permittee must adjust the closure Cost Estimate for inflation in accordance with Section 33.1-24-05-76 NDAC.

II.O. FINANCIAL ASSURANCE FOR CLOSURE

II.O.1. Closure

The Permittee shall demonstrate continuous compliance with Section 33.1-24-05-77 NDAC by providing documentation of financial assurance as required by Section 33.1-24-05-81 NDAC in at least the amount of the cost estimates required by Permit Condition II.N. Changes in financial assurance mechanisms must be approved by the Department pursuant to Section 33.1-24-05-77 NDAC.

II.O.2. Corrective Action

The Permittee shall demonstrate financial assurance for corrective action. The mechanism for financial assurance shall be one that is allowable under Section 33.1-24-05-77 NDAC.

II.P. LIABILITY REQUIREMENTS

II.P.1. Sudden Accidental Occurrences

The Permittee shall demonstrate continuous compliance with the requirements of Section 33.1-24-05-79 NDAC and the documentation required by Section 33.1-24-05-81 NDAC, including the requirements to have and maintain liability coverage for sudden accidental occurrences in the amount of at least $1,000,000 per occurrence with an annual aggregate of at least $2,000,000, exclusive of legal defense costs (see Section 10., Enclosure 1 of the Permit Application).

II.P.2. Non-sudden Accidental Occurrences

The Permittee shall demonstrate continuous compliance with the requirements of Section 33.1-24-05-79 NDAC and the documentation required by Section 33.1-24-05-81 NDAC, including the requirements to have and maintain liability coverage for non-sudden accidental occurrences in the amount of at least $3,000,000 per occurrence with an annual aggregate of at least $6,000,000, exclusive of legal defense costs (see Section 10.4, Enclosure 1 of the Permit Application).

II.Q. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS OR FINANCIAL INSTITUTIONS

The Permittee shall comply with Section 33.1-24-05-80 NDAC whenever necessary.

<End of Module II

MODULE III: STORAGE IN CONTAINERS

III.A. DESCRIPTION OF STORAGE FACILITY

Hazardous wastes shall be stored and managed in closed Department of Transportation (DOT)-approved containers no larger than 600 gallons at the existing hazardous waste storage unit called the Container Storage Area. The Container Storage Area consists of a transfer area and a container storage building. Containerized wastes are either checked in at the transfer area and held while arrangements are made for transfer to specific storage bays in the container storage building or unloaded directly into the container storage building.

The transfer area is a 60 feet x 245 feet outdoor pad consisting of 3 inches of asphalt graded to allow for spill and runoff containment. Intercepted storm water (runoff) or spillage is collected in a central drain and is then drained via a 15-inch underground concrete pipe to a 4-foot diameter by 15-foot deep concrete grout sealed collection sump. If the collected runoff is characterized as hazardous, it will be disposed off-site at a permitted treatment, storage, and disposal facility. If the collected runoff is not hazardous, it will be transported to the cooling tower surge pond A, the stormwater ponds, or the oily water sewer system.

The container storage building is an enclosed 40 feet x 100 feet heated, steel building constructed on 5 inches of reinforced concrete with a 4-inch overlay concrete slab, which includes 8-inch caulked and epoxy-sealed concrete block walls and berms encircling each of four storage bays located inside the building. The northwest and northeast storage bays are adequately designed to provide a combined containment capacity for storage of containers and a 5,000-gallon used oil tank. The used oil tank is located in the northeast storage bay. The maximum volume of wastes allowed in the northwest and southwest storage bays are 5,500 gallons each, the maximum volume of container storage in the northeast bay is 1,100 gallons, and the maximum volume of container storage in the southeast bay is 550 gallons. All containers in the container storage building will be stored on top of pallets so as to protect the containers from standing in liquid and to aid in the inspection of each container.

III.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

III.B.1. The Permittee may store the wastes, identified in the Part A Application contained in Section 2.0 of the Permit Application, in containers at the facility subject to the conditions of this permit.

III.B.2. The Permittee is prohibited from storing hazardous waste that is not identified in Permit Condition III.B.1., unless the permit is modified in accordance with the procedures in Section 33.1-24-06-14.

III.C. CONDITION OF CONTAINERS

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

this permit as required by Section 33.1-24-05-90 NDAC. The Permittee shall complete the above actions no later than twenty-four (24) hours after discovery.

III.D. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall assure that the ability of the container to contain the waste is not impaired as required by Section 33.1-24-05-91 NDAC.

III.E. MANAGEMENT OF CONTAINERS

The Permittee shall manage containers as required by Section 33.1-24-05-92 NDAC.

III.F. CONTAINMENT SYSTEM

The Permittee shall maintain the containment system in accordance with the requirements of Section 33.1-24-05-94 NDAC and Section 5.0 of the Permit Application.

III.G. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the container area weekly in accordance with the Inspection Schedule, Section 6.0 of the Permit Application, to detect leaking containers and deterioration of containers and the containment system caused by corrosion and other factors as required by Section 33.1-24-05-93 NDAC.

III.H. RECORDKEEPING

The Permittee shall record and maintain the results of all inspection data, waste analysis, and trial tests in the facility operating record as required by Section 33.1-24-05-40 NDAC.

III.I. CLOSURE

At closure of the container storage area, the Permittee shall remove all hazardous waste and hazardous waste residues from the containment system, in accordance with the procedures in the Closure Plan contained in Section 9.0, Attachment C of the Permit Application and Section 33.1-24-05-97 NDAC.

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

III.J.1. The Permittee shall not locate containers holding ignitable or reactive wastes within fifteen meters (50 feet) of the facility's property line as required by Section 33.1-24-05-95 NDAC.

III.J.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive wastes and follow the procedures specified in Section 5.0 of the Permit Application and as required by subsection 1 of Section 33.1-24-05-08 and Section 33.1-24-05-95 NDAC.

III.K. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTES

III.K.1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container.

III.K.2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material.

III.K.3. The Permittee shall separate containers of incompatible as indicated in Section 5.0 of the Permit Application and as required by subsection 3 of Section 33.1-24-05-96 NDAC.

III.K.4. The Permittee must document compliance with Permit Condition III.K.1.and III.K.2. as required by subsection 3 of Section 33.1-24-05-08 NDAC and place this documentation in the operating record.

<End of Module III>

MODULE IV: STORAGE IN THE CONTAINMENT BUILDING

IV.A. DESCRIPTION OF STORAGE FACILITY

The existing hazardous waste storage unit called the Bulk Storage Facility (BSF) is regulated in this permit as a "containment building." The BSF provides storage of bulk hazardous and nonhazardous wastes prior to disposal in the gasifier ash disposal site (if the waste is characterized as nonhazardous) or shipment off-site for management (if the waste is characterized as hazardous). The BSF is located in the southern end of Warehouse B-1 adjacent to the Container Storage Building, and measures 100 feet x 100 feet.

The BSF consists of two concrete block waste storage bins and a surrounding storage area, which are located inside the containment building. The BSF is surrounded by a 5-inch concrete slab on the bottom, sheet metal roof on the top, sheet metal walls on three sides, and a partitioned wall on the fourth side which separates the BSF from the rest of the warehouse. The waste bin walls are constructed of 6-inch concrete-filled and reinforced masonry blocks. The bins consist of three 4-foot high walls and a 6-inch reinforced concrete sill on the open side. The inner walls and sills are sealed with an impermeable epoxy coating. The south bin measures 25 feet x 28 feet and the north bin measures 20 feet x 28 feet.

Hazardous wastes shall be stored and managed in the BSF in closed DOT-approved containers or in the containment building's bulk waste storage bins. The maximum volume of hazardous wastes allowed for storage in the storage bins is 50 cubic yards of dry bulk or 3,960 gallons of containerized waste in the north bin (bin #1) and 65 cubic yards of dry bulk or 5,280 gallons of containerized waste in the south bin (bin #2). Dry hazardous wastes may be stored outside of the waste bins in the surrounding storage area of the BSF in closed containers. The maximum volume of hazardous waste allowed for storage outside of the waste bins in the surrounding storage area is two roll-off bins not to exceed 60 cubic yards and other waste containers not to exceed 6,600 gallons.

Drummed and bulk wastes are checked in at the transfer area and held while arrangements are made for transfer to the BSF or unloaded directly into the BSF. All containerized wastes in containers not larger than 600 gallons will be stored on pallets so as to protect the containers from standing in liquid and to aid in the inspection of each container. Bulk wastes may be stored in the waste bins, containers, or in closed roll-off containers.

IV.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IV.B.1. The Permittee may store the wastes, identified in the Part A Application contained in Section 2.0 of the Permit Application, in containers or the bulk waste storage bins of the BSF subject to the conditions of this permit.

IV.B.2. The Permittee is prohibited from storing hazardous waste that is not identified in the Permit Condition IV.B.1., unless the permit is modified in accordance with the procedures specified in Section 33.1-24-06-14 NDAC.

IV.B.3. The Permittee is prohibited from storing liquid wastes within the BSF or the containment building.

IV.C. EXEMPTION FROM DESIGN AND OPERATING STANDARDS

The facility will remain exempt from the design and operating requirements for containment buildings listed in subsection 2 of Section 33.1-24-05-476 NDAC provided that the following conditions of subsections 3 and 4 of Section 33.1-24-05-476 NDAC are met:

IV.C.1. The Permittee shall design, construct, and operate the BSF in accordance with the design plans, specifications, and operating practices contained in Section 5.0 of the Permit Application;

IV.C.2. The Permittee shall not place liquids or materials containing free liquids in the bulk waste storage bins;

IV.C.3. The Permittee shall protect the bulk waste from surface water run-on by the structure or in some other manner;

IV.C.4. The Permittee shall control dispersal of the wastes by wind, by means other than wetting; and

IV.C.5. The Permittee shall ensure the bulk waste will not generate leachate through decomposition or other reactions.

IV.D. CONDITION OF CONTAINERS AND BULK WASTE BINS

If a container or bulk waste bin holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container or bulk waste bin to a container or bulk waste bin that is in good condition or otherwise manages the waste in compliance with the conditions of this permit as required by Section 33.1-24-05-90 NDAC. The Permittee shall perform the above actions no later than twenty-four (24) hours after discovery.

IV.E. COMPATIBILITY OF WASTE WITH CONTAINERS AND BULK WASTE BINS

The Permittee shall assure the ability of the container or bulk waste bin to contain the waste is not impaired, as required by Section 33.1-24-05-91 NDAC.

IV.F. MANAGEMENT OF CONTAINERS

The Permittee shall manage containers as required by Section 33.1-24-05-92 NDAC.

IV.G. CONTAINMENT

The Permittee shall maintain the containment system in accordance with the requirements of Section 33.1-24-05-94 NDAC, and Section 5.0 of the Permit Application.

IV.H. INSPECTION SCHEDULES AND PROCEDURES

IV.H.1. The Permittee shall inspect containers and bulk waste bins weekly in accordance with the Inspection Schedule found in Section 6.0 of the Permit Application to detect leaking containers or bulk waste bins, deterioration of containers or bulk waste bins, and the containment system caused by corrosion and other factors as required by Section 33.1-24-05-93 NDAC.

IV.H.2. The Permittee shall inspect the containment building and the bulk waste in accordance with the Inspection Schedule found in Section 6.0 of the Permit Application, and shall complete the following as part of those inspections:

IV.H.2.a. The Permittee shall inspect the containment building on a monthly basis and immediately after storms to detect evidence of the following:

IV.H.2.a.1. Exposure of wastes stored in the bulk storage bins within the containment building to precipitation, wind or run-on from cracks, holes, or gaps in the containment building floor, walls, or roof;

IV.H.2.a.2. The presence of liquids;

IV.H.2.a.3. Spillage of waste; and

IV.H.2.a.4. Malfunction or deterioration of structural integrity of bin walls.

IV.H.2.b. The Permittee shall inspect the bulk waste on a weekly basis and immediately after storms to detect evidence of the following:

IV.H.2.b.1. Deterioration or malfunctions of the run-on control system as required by subsection 2 of Section 33.1-24-05-132 NDAC;

IV.H.2.b.2. The presence of liquids;

IV.H.2.b.3. Spillage of waste;

IV.H.2.b.4. The presence of waste stored in excess of the height of the containment wall; and

IV.H.2.b.5. Malfunction or deterioration of structural integrity of bin walls.

IV.I. RECORDKEEPING

The Permittee shall record and maintain the results of all inspection data, waste analysis, and trial tests in the facility operating record as required by Section 33.1-24-05-40 NDAC.

IV.J. CLOSURE

IV.J.1. At closure of the BSF, the Permittee shall follow the procedures specified in the Closure Plan of Section 9.0, Attachment C of the Permit Application and Section 33.1-24-05-477 NDAC.

IV.J.2. At closure of the BSF, the Permittee shall remove all hazardous waste and hazardous waste residue from the containment system in accordance with the procedures specified in the Closure Plan of Section 9.0, Attachment C of the Permit Application and Sections 33.1-24-05-97 and 33.1-24-05-477 NDAC.

IV.K. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE OR REACTIVE WASTES

IV.K.1. The Permittee shall not locate containers holding ignitable or reactive wastes within 15 meters (50 feet) of the facility's property line as required by Section 33.1-24-05-95 NDAC.

IV.K.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive wastes and follow the procedures specified in Section 5.0 of the Permit Application and as required by subsection 1 of Section 33.1-24-05-08 and Section 33.1-24-05-95 NDAC.

IV.K.3. The Permittee shall not place ignitable or reactive wastes in the bulk waste storage bin as documented in Section 5.0 of the Permit Application.

IV.L. SPECIAL BULK WASTE PROVISIONS FOR INCOMPATIBLE WASTES

IV.L.1. The Permittee shall not place incompatible wastes or incompatible wastes and materials in the same bulk waste storage bin, as indicated in Section 5.0 of the Permit Application and as required by subdivision c of subsection 1 of Section 33.1-24-05-476 NDAC.

IV.L.2. The Permittee shall separate bulk hazardous waste from any incompatible hazardous waste or other materials stored nearby in containers, other bulk hazardous waste, open tanks, or surface impoundments, or protect the bulk waste from the waste or materials by a dike, berm, wall, or other devices as indicated in Section 5.0 of the Permit Application and as required by subsection 2 of Section 33.1-24-05-134 NDAC.

IV.L.3. The Permittee shall not place bulk hazardous waste on the same base where incompatible wastes or materials were previously stored unless the base has been decontaminated sufficiently to ensure compliance with subsection 2 of Section 33.1-24-05-08 NDAC.

<End of Module IV>

MODULE V: CORRECTIVE ACTION

V.A. APPLICABILITY

The conditions of this module apply to:

V.A.1. The SWMUs and AOCs identified in the approved RCRA Facility Investigation (RFI) Work Plan or RFI Report, referenced under Permit Condition V.B.1. and V.B.2., and the SWMUs and AOCs identified in Permit Appendix A as requiring further investigation. Permit Appendix A has been modified to distinguish between those SWMUs and AOCs, identified in the RFI Work Plan and RFI Report, as referenced under Permit Condition V.B.1. and V.B.2, requiring further investigation and those which do not; and

V.A.2. Any additional SWMU(s), AOC(s), or area(s) of contamination not identified in the approved RFI Work Plan or the final RFI Report, referenced under Permit Condition V.B.1 and V.B.2, discovered during the course of ground water monitoring, field investigations, environmental audits, or other means; and

V.A.3. Any newly discovered release(s) of hazardous waste or hazardous constituents discovered during the course of ground water monitoring, site inspections, implementation of corrective measures, investigating new areas of contamination or other means.

V.B. RCRA DOCUMENTS SUBMITTED

V.B.1. RCRA Facility Investigation (RFI)

This permit acknowledges that the current operator of the facility, Dakota Gasification Company (DGC), submitted Draft RFI Work Plans in 1993 and 1994 and a Revised RFI Work Plan in 1995. RFI work plan addendums were submitted and approved in 2010 and 2018. The Department approved the RFI Work Plans in August 1994, in May 1995. The Work Plans were developed to meet, at a minimum, the requirements of Permit Appendix B and for those SWMUs and AOCs identified in Section 11.0 of the permit application and Permit Appendix A.

V.B.2. RFI Draft and Final Reports

V.B.2.a. This permit acknowledges that the current operator of the facility, DGC, submitted Draft RFI Reports in 1996 and 1997 and a final RFI Report in 1998 on the SWMUs and AOCs identified in Section 12.0 of the permit application and Permit Appendix A. The Department approved the final RFI Report in January 1999. The RFI Reports were developed to meet, at a minimum, the requirements of Permit Appendix B and for those SWMUs and AOCs identified in Section 11.0 of the permit application and Permit Appendix A.

V.B.2.b. This permit acknowledges that in a letter to DGC dated November 21, 2005, the Department required development of an Addendum to the final RFI Report dated September 1998. Draft revised Addendums were submitted to the Department in May 2007, December 2007, and September 2009, with the final revised Addendum being approved in September 2009. Discovery of a release in the Phenosolvan

unit (1600 Area) in May 2009 prompted the Department to require DGC to submit a draft Addendum to the RFI, for that specific area, which was received in January 2010 and approved in February 2010. These Addendums were developed and submitted to the Department under the requirements of Permit Condition V.D.1. and other necessary requirements determined by the Department under Permit Appendix B.

V.B.2.c. This permit acknowledges that in a letter dated September 16, 2016, DGC notified the Department of a possible release detected from the Phenosolvan unit (1600B Area) and its plans to perform an investigation of that area to be added as an Addendum to the Revised RFI Work Plan 1995. A draft RFI Work Plan for the 1600B area was submitted and approved in January 2018.

V.B.3. This permit acknowledges that in a letter dated November 17, 2023, DGC notified the Department that elevated IPE was detected in a groundwater monitoring well in the Phenosolvan 1600 area. DGC has begun investigation into the cause and will amend the RFI if necessary.

V.B.3. Interim Measures (IM) Draft and Final IM Work Plan(s)

This permit acknowledges that the current operator of the Facility, DGC, submitted draft Interim Measures (IM) Work Plans in January and April 1997 and a final IM Work Plan in August 1997. The Department approved the final IM Work Plan in December 1997. The final IM Work Plan was developed to meet, at a minimum, the requirements of Permit Appendix B and for those SWMUs and AOCs identified in Section 11.0 of the permit application and Permit Appendix A. The final IM Work Plan described the corrective measures DGC had completed for three SWMUs and one AOC and described proposed corrective measures for three AOCs, which DGC planned to implement during the RFI process.

V.B.4. Corrective Measures Study (CMS) Work Plan(s)

This permit acknowledges that the current operator of the facility, DGC, submitted draft CMS Work Plans in February 2000 and December 2001. The Department approved the final CMS work plan in January 2002. Revised CMS work plans were submitted to the Department in April 2005, April 2008, and June 2008, with the final CMS Work Plan being approved in June 2008. A draft, area specific, CMS Work Plan Phenosolvan unit (1600 Area) was received in January 2010 and approved in February 2010. The CMS Work Plans were developed to meet, at a minimum, the requirements of Permit Appendix C and for those SWMUs and AOCs identified in Section 11.0 of the permit application and Permit Appendix A.

V.B.5. CMS Draft and Final Report(s)

V.B.5.a. This permit acknowledges that the current operator of the facility, DGC, submitted draft CMS Reports in April 1999, January 2003, October 2008, and September 2009. The final CMS was approved by the Department in September 2009. The CMS Report was developed to meet, at a minimum, the requirements of Permit Appendix C and for those SWMUs and AOCs identified in Section 11.0 of the permit application and Permit Appendix A.

V.B.5.b. This permit acknowledges that DGC submitted a draft, area specific, revised CMS report for the Phenosolvan Unit (1600 Area) in July 2010. The final CMS report was approved by the Department in July 2010. The revised CMS was identified under provisions of Permit Condition V.D.5. and developed under the requirements of Permit Condition V.G. and Permit Appendix C.

V.B.6. Corrective Measures Implementation (CMI) Work Plan(s)

V.B.6.a. This permit acknowledges that the current operator of the facility, DGC, submitted a draft, area specific, CMI Work Plan for the Phenosolvan Unit (1600 Area) in January 2011. The final CMI Work Plan was approved by the Department in January 2011. The CMI Work Plan was developed to meet, at a minimum, the requirements of Permit Appendix D.

V.B.6.b. This permit acknowledges that DGC submitted an area specific CMI Work Plan Addendum for the Phenosolvan Unit (1600B Area) in December 2016.

V.C. NOTIFICATION AND ASSESSMENT REQUIREMENTS

V.C.1. Notification and Assessment Requirements for Newly Discovered Areas of Contamination at Previously Identified SWMUs and AOCs

V.C.1.a. The Permittee shall notify the Department, in writing, within fifteen (15) calendar days of discovery of any newly discovered area(s) of contamination at previously identified SWMUs or AOCs identified under Permit Condition V.A.1. Such newly discovered area(s) of contamination may be from SWMU's or AOC's identified in Permit Condition V.A.1., for which further investigation was not required. The notification shall include, at a minimum, the location of the SWMUs, AOC's, or area(s) of contamination and all available information pertaining to the nature of the release, including (e.g., the location and extent of the release, type of hazardous waste and/or constituent(s) released, media affected, time and duration of the release, magnitude of release, the volume of material released, activities performed to contain and control the release, the volume of the release recovered, and the actual potential impacts of the releases on human health and the environment, etc.).

V.C.2. Notification and Assessment Requirements for Additional SWMUs, AOCs, or Areas of Contamination Not Previously Identified

V.C.2.a. The Permittee shall notify the Department, in writing, within fifteen (15) calendar days of discovery of any additional SWMU(s), AOC(s) or area(s) of contamination not previously identified in the approved RFI Work Plan or RFI Report as referenced under Permit Condition V.A.2. The notification shall include pertinent information as stated in Permit Condition V.C.1.a.

V.C.3. Notification and Assessment Requirements for Any Newly Discovered Releases of Hazardous Waste and/or Constituents

V.C.3.a. The Permittee shall notify the Department, in writing, within fifteen (15) calendar days of discovery of any newly discovered release(s) of hazardous waste and/or constituents discovered during the course of ground water monitoring, site

inspections, implementation of corrective measures, investigating new areas of contamination or other means, as referenced under Permit Condition V.A.3. Such newly discovered releases may be from SWMUs, AOCs, or areas of contamination identified under Permit Condition V.C.1.a. for which further investigation under Permit Condition V.C.1. was not required. The notification shall include pertinent information as stated in Permit Condition V.C.1.a.

V.C.4. Determination of Need for Further Investigation/Characterization Activities

V.C.4.a. If the Department determines that further investigation of the SWMUs or AOCs identified under Permit Conditions V.C.1., V.C.2., and V.C.3. is needed, the Department will establish the parameters of such investigation and require the Permittee to conduct such investigation.

V.C.4.b. Based on the results of the investigation conducted by the Permittee in Permit Condition V.C.4.a., the Department shall determine those areas or units requiring remediation. The Permittee shall incorporate those areas or units identified by the Department as stated in Permit Condition V.E.1.

V.D. RCRA FACILITY INVESTIGATION (RFI)

V.D.1. Investigation/Characterization Draft and Final Amended Report(s)

V.D.1.a. The Permittee shall prepare and submit to the Department draft and final Amendment(s) to the final RFI Report, referenced under Permit Module V.B.2., for the investigation/characterization activities conducted pursuant to the Assessment Report submitted under Permit Module V.C.4., due to notification(s) to the Department pursuant to the provisions under Permit Modules V.C.1., V.C.2., and V.C.3. The draft Amended RFI report(s) shall be submitted to the Department for review no less than ninety (90) calendar days upon completion of such further RFI investigation/characterization activities conducted under Permit Module V.C.4. The final Amended RFI Report(s) shall be submitted within sixty (60) calendar days of receipt of the Department's comments on the draft Amended RFI Report. The final Amended RFI Report(s) shall include an analysis and summary of all required investigations of SWMU(s), AOC(s) or area(s) of contamination addressed under Permit Module V.C.4.a. and their results and shall contain the necessary information as outlined in Appendix B of this permit module. The Department shall determine what necessary information under Appendix B will be required for the final Amended RFI Report(s). The report(s) summary shall describe the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The final Amended RFI Report(s) shall also describe the extent of contamination (qualitative and quantitative) in relation to background levels indicative of the area. The objective of this task shall be to ensure that the data generated during the investigation 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 Corrective Measure Study, if necessary.

V.D.1.b. The Department will review the final Amended RFI Report(s). Upon approval of the Amended RFI Report(s), the Department will notify the Permittee of the need for

further investigative action and/or the need for a Corrective Measures Study (CMS), or a "revision" of the current CMS, if applicable, to meet the requirements of Permit Module V.G. and Section 33.1-24-05-58 NDAC. The Department will notify the Permittee if no further action is required.

V.D.1.c. Upon approval of an Addendum to the final RFI Report referenced under Permit Module V.B.1.; the IM Work Plan referenced under Permit Module V.B.3.; and/or the CMS Work Plan referenced under Permit Module V.B.4.; shall be amended under the requirements of Permit Module V.F.1. (IM Work Plan), and/or Permit Module V.G.1. (CMS Work Plan).

V.E. DETERMINATION AND NEED FOR REMEDIATION

V.E.1. Based on the results of the investigations conducted by the Permittee under the requirement of Permit Module V.C.4.b., the Department shall determine those SWMUs, AOCs, or area(s) of contamination requiring remediation which the Department determines to pose a current or potential threat to human health or the environment. If the Department determines that such remediation measures are needed, the Permittee shall be required to:

V.E.1.a. Incorporate any SWMU(s), AOC(s), or Area(s) of contamination identified by the Department into a revised Interim Measures (IM) (Permit Module V.F.), a revised Corrective Measures Study (CMS) (Permit Module V.G.), or revised Corrective Measures Implementation (CMI) (Permit Module V.I.), if applicable, and the permit shall be modified to include such information in accordance with Section 33.1-24-06-12 NDAC.

V.F. INTERIM MEASURES (IM)

V.F.1. IM Workplan

V.F.1.a. Upon notification by the Department, the Permittee shall prepare and submit an IM Workplan for any SWMU(s) or AOC(s) (as identified under Permit Condition V.C.) which poses a current or potential threat to human health or the environment. The IM Workplan shall be submitted within sixty (60) calendar days of such notification and shall include the elements listed in Permit Condition V.F.1.b. Such interim measures may be conducted concurrently with investigations required under the terms of this permit.

V.F.1.b. The IM Workplan shall ensure that the interim measures are designed to mitigate any current or potential threat(s) to human health or the environment and is consistent with and integrated into any long-term solution at the facility. The IM Workplan shall include the interim measures objectives, procedures for implementation (including any designs, plans, or specification), and schedules for implementation.

V.F.1.c. The IM Workplan must be approved, in writing, by the Department prior to implementation. The written approval shall specify the starting date of the IM Workplan schedule. If the Department disapproves the IM Workplan, the Department shall either (1) notify the Permittee in writing of the IM Workplan's deficiencies and specify a due date for a submittal of a revised IM Workplan, or (2)

revise the IM Workplan and notify the Permittee of the revisions and the start date of the schedule within the approved IM Workplan.

V.F.1.d. The Permittee shall provide a cost estimate and demonstrate financial assurance for completing the activities described in the IM Workplan in accordance with Permit Appendix F within forty-five (45) days of approval of the IM Workplan by the Department.

V.F.2. IM Implementation

V.F.2.a. The Permittee shall implement the interim measures in accordance with the approved IM Workplan.

V.F.2.b. The Permittee shall provide notice to the Department of any planned changes, deletions, or additions to the IM workplan within seven (7) calendar days.

V.F.2.c. Final approval of corrective action required under Section 33.1-24-05-58 NDAC, which is achieved through interim measures, shall be in accordance with Section 33.1-24-06-12 NDAC and Permit Condition V.H. as a permit modification.

V.F.3. IM Reports

V.F.3.a. If the scheduled completion of interim measures is greater than six (6) months, the Permittee shall provide the Department with progress reports every one-hundred twenty (120) days, beginning from the starting date specified in the IM Workplan approval letter. The progress reports shall contain the following information at a minimum:

V.F.3.a.1. A description of the portion of the interim measures completed;

V.F.3.a.2. Summaries of <u>all</u> deviations from the IM Workplan during the reporting period;

V.F.3.a.3. Summaries of all problems or potential problems encountered during the reporting period;

V.F.3.a.4. Projected work for the next reporting period;

V.F.3.a.5. Copies of laboratory/monitoring data; and

V.F.3.a.6. Quantification of all wastes, waste residues, soils, contaminated soils, contaminated water, etc., extracted or measured as remaining in-place after the IM is completed.

V.G. CORRECTIVE MEASURES STUDY (CMS)

V.G.1. CMS Work Plan

V.G.1.a. The Permittee shall prepare and submit a CMS Work Plan for those units requiring a CMS within ninety (90) calendar days following receipt of written notification of: (1) approval, by the Department, of the RFI Report; and (2) a requirement by the

Department for DGC to perform a CMS. This CMS Work Plan shall be developed to meet the requirements of Permit Condition V.G.1.b.

V.G.1.b. The CMS Work Plan shall include schedules of implementation and completion of specific actions necessary to complete a CMS that shall meet the requirements of Permit Appendix C. The CMS shall be conducted in accordance with the approved CMS Work Plan. The Permittee shall provide sufficient written justification for any omissions or deviations from Permit Appendix C. Such omissions or deviations are subject to the approval of the Department. The scope of the CMS Work Plan shall include all investigations necessary to ensure compliance with Section 23.1-04-05, NDCC, and Section 33.1-24-05-58 NDAC.

V.G.1.c. The Permittee shall implement corrective action beyond the facility boundary, where necessary to protect human health and the environment unless the Permittee demonstrates to the Department 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 off-site access is denied. Onsite measures to address such releases will be determined on a case-by-case basis.

V.G.1.d. The Department shall either approve or disapprove, in writing, the CMS Work Plan. If the Department disapproves the CMS Work Plan, the Department shall either: (1) notify the Permittee in writing of the CMS Work Plan's deficiencies and specify a due date for submittal of a revised CMS Work Plan, or (2) revise the CMS Work Plan and notify the Permittee of the revisions. This modified CMS Work Plan becomes the approved CMS Work Plan.

V.G.1.e. The Permittee shall implement the Corrective Measure Study according to the schedules specified in the CMS Work Plan. Pursuant to Permit Condition V.G.1.b., the CMS shall be conducted in accordance with the approved CMS Work Plan.

V.G.2. CMS Report

V.G.2.a. The Permittee shall prepare and submit to the Department a draft and final CMS Report for the study conducted pursuant to the approved CMS Work Plan. The draft CMS Report shall be submitted to the Department in accordance with the schedule specified in the CMS Work Plan. The final CMS Report shall be submitted to the Department within sixty (60) days of receipt of the Department's comments on the draft CMS Report. The final CMS Report shall summarize any bench-scale or pilot tests conducted, include an evaluation of each remedial alternative, and present all information gathered under the approved CMS Work Plan. The final CMS Report must contain adequate information to support the Department's decision on the recommended remedy, described under Permit Condition V.H.

V.G.2.b. If the Department determines that the final CMS Report does not fully satisfy the information requirements specified under Permit Condition V.G.2.a., the Department may disapprove the final CMS Report. If the Department disapproves the final CMS Report, the Department shall notify the Permittee, in writing, of any deficiencies and specify a due date for submittal no less than thirty (30) days from

notification of the Permittee of a revised final CMS Report. The Department shall also notify the Permittee if no further action is required.

V.G.2.c. As specified under Permit Condition V.G.2.b., based on preliminary results and the final CMS Report, the Department may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

V.H. REMEDY APPROVAL AND PERMIT MODIFICATION

V.H.1. A remedy or remedies shall be selected by the Department from the remedial alternatives evaluated in the final CMS. The remedy or remedies shall be based, at a minimum, on protection of human health and the environment, existing law and regulations, and guidance.

V.H.2. Pursuant to Section 33.1-24-06-12 NDAC, a permit modification shall be initiated by the Department only if the selected remedy is significantly different from those previously selected under Permit Condition V.H.1.

V.H.3. Within forty-five (45) calendar days after the remedy(ies) is selected, or this permit has been modified, the Permittee shall demonstrate financial assurance for completing the approved remedy in accordance with the procedures in Permit Appendix F.

V.I. CORRECTIVE MEASURE IMPLEMENTATION (CMI)

V.I.1. CMI Work Plan

V.I.1.a. The Permittee shall prepare and submit a CMI Work Plan for the selected corrective measure(s) within ninety (90) calendar days of receipt of the Department's written approval of the CMS. The CMI Work Plan shall be developed to meet the requirements of Permit Condition V.I.1.b.

V.I.1.b. The CMI Work Plan shall include information to document the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of corrective measure(s). The CMI Work Plan shall be developed to meet the requirements of Permit Appendix D. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Permit Appendix D. Such omissions or deviations are subject to the approval of the Department.

V.I.1.c. The Department shall either approve or disapprove, in writing, the CMI Work Plan. If the Department disapproves the CMI Work Plan, the Department shall either: (1) notify the Permittee, in writing, of the CMI Plan's deficiencies and specify a due date for submittal of a revised CMI Work Plan; or (2) revise the CMI Work Plan and notify the Permittee of the revisions. This modified CMI Work Plan becomes the approved CMI Work Plan.

V.I.1.d. The Permittee may be required to conduct ground water monitoring to evaluate the effectiveness of the selected corrective measures.

V.I.1.e. The Permittee shall implement the corrective measure(s) according to the schedules specified in the CMI Work Plan. Pursuant to Permit Condition V.I.1.b., the CMI shall be conducted in accordance with the approved CMI Work Plan.

V.I.2. CMI Reports

V.I.2.a. The Permittee shall prepare and submit to the Department the Draft and Final CMI Report at the completion of the construction of the project(s). The Final CMI Report shall be submitted to the Department within sixty (60) days of receipt of the Department's comments on the Draft CMI Report. The Final CMI Report shall document that the project is consistent with the design specifications and that the corrective measure(s) is/are performing adequately.

V.I.2.b. If the scheduled Final CMI Report completion time is greater than ninety (90) calendar days, the Permittee shall provide the Department with CMI Progress Reports every one-hundred twenty (120) calendar days from the day the Draft CMI Report is approved by the Department.

V.I.2.c. If the Department determines that the Final CMI Report does not fully satisfy the information requirements specified under Permit Condition V.I.2.a., the Department may disapprove the Final CMI Report and the Department shall notify the Permittee, in writing, of any deficiencies and specify a due date for submittal of a revised Final CMI Report.

V.J. MODIFICATION OF SCHEDULE OF COMPLIANCE

V.J.1. If at any time the Department determines that modification of the Compliance Schedule (Permit Appendix E) is necessary, the Department may initiate a modification to the schedule.

V.J.2. Modifications that are initiated or finalized by the Department shall be carried out according to the procedures in Sections 33.1-24-06-12 or 33.1-24-06-14 NDAC.

V.J.3. Modifications to the Compliance Schedule do not constitute a reissuance of the permit.

V.K. IMMINENT OR EXISTING HAZARDS

V.K.1. The Permittee shall report to the Department any imminent or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituents. Such information shall be reported orally within twenty-four (24) hours from such time the Permittee becomes aware of the circumstances as specified under Permit Condition I.D.11.b.

V.K.2. A written report shall also be provided to the Department within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Permit Condition I.D.11.c.

V.L. PLAN AND REPORT REQUIREMENTS

V.L.1. All plans and schedules shall be subject to approval by the Department prior to implementation. The Permittee shall revise all submittals and schedules as specified, in writing, by the Department. Upon written approval the Permittee shall implement all plans and schedules as written.

V.L.2. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Department based on the Permittee's demonstration that sufficient justification for the extension exists.

V.L.3. If the Permittee at any time determines that a written assessment required under Permit Conditions V.C., V.D., V.H., or V.I. no longer satisfies the requirements of Section 33.1-24-05-58 NDAC or this permit, for prior or continuing releases of hazardous waste or hazardous constituents from solid waste management units or areas of concern, the Permittee shall submit amendments to the Department within sixty (60) calendar days of such determination.

V.L.4. All reports submitted shall be signed and certified in accordance with Section 33.1-24-06-03 NDAC. This requirement does not apply to progress reports.

V.L.5. Electronic copies of all reports and plans shall be provided by the Permittee to the following recipients at the Department:

Robin Beyer
rbeyer@nd.gov

Derek Hall
dahall@nd.gov

Electronic storage devices (compact discs, flash drives, etc.) containing copies of all reports and plans may be sent to:

North Dakota Department of Environmental Quality
Division of Waste Management – Hazardous Waste Program
4201 Normandy St, 2nd Floor
Bismarck, ND 58503-1324

<End of Module V>

MODULE VI: ORGANIC AIR EMISSIONS

VI.A. The Permittee is required to comply with Sections 33.1-24-05-400 through 33.1-24-05-435 NDAC, relating to the control of organic air emissions from process vents and equipment leaks associated with hazardous waste management units.

<End of Module VI>

MODULE VII: WASTE MINIMIZATION

VII.A. Pursuant to subdivision i of subsection 2 of Section 33.1-24-05-40 NDAC and Section 3005(h) of RCRA, 42 U.S.C. 6925(h), the Permittee must certify, in writing, no less than annually, that:

VII.A.1. The Permittee has a program in place to reduce the volume and toxicity of hazardous waste to the degree determined to be economically practicable; and

VII.A.2. The proposed method of treatment, storage or disposal is the most practicable method available to the Permittee which minimizes the present and future threat to human health and the environment.

VII.B. The Permittee shall maintain copies of this certification in the facility Operating Record as required by subsection 2 of Section 33.1-24-05-40 NDAC.

VII.C. The Waste Minimization Program required under Permit Condition VII.A. shall address the objectives listed in Enclosure 1 of this permit.

<End of Module VII>

APPENDIX A: Summary of the Solid Waste Management Units and Area(s) of Concern (AOC)

Solid Waste Management Unit (SWMU)	SWMU/ AOC (1993/ 1995)	SWMU/ AOC (2006)	SWMU/ AOC (2009)	SWMU/ AOC (2016)	Status
Container Storage Area (CSA)	X				HW Permit HW-010
Bulk Storage Facility (BSF)	X				HW Permit HW-010
Multiple Effect Evaporator System (MEE)	X				SW Permit 0169
Liquid Waste Incinerator System (LWI)	X				NFI/GWM
Deep-well Pretreatment System	X				NFI/GWM
Oily Water Collection and Treatment System	X	X			NFI/GWM
Multiple Effect Evaporator Surge Pond and Transfer Lines	X	X			SW Permit 0169
Liquid Waste Incinerator Surge Pond and Transfer Lines	X	X			SW Permit 0169
Deep-well Surge Pond and Transfer Lines	X	X			SW Permit 0169
Cooling Tower Surge Pond A	X	X			SW Permit 0169
Cooling Tower Surge Pond B and Transfer Lines	X	X			SW Permit 0169
Oily Water Retention Pond	X	X			NFI/GWM
Fire Training Area	X	X			NFI
Construction Waste Disposal Area	X				SW Permit 0369
Desulfurization Waste Disposal Area	X				SW Permit 0101
Gasifier Ash Handling System	X	X			NFI/GWM
Ash Water Sumps	X	X			NFI/GWM
Temporary Gasifier Ash Storage Unit	X				SW Permit 0101
1986-1989 Gasifier Ash Disposal Facility	X				SW Permit 0101
1985 Gasifier Ash Disposal Facility	X				SW Permit 0100
Surge Pond Dewatering Pad	X	X			NFI
Storm Water System	X				NDPDES Permit
Sulfolin Process Area	X				NFI
Rail Loading Area	X	X			NFI/GWM/FCARI
Acid/Caustic Day Tank (Area 5400)	X	X			NFI/GWM
Separation/Gasification (Area 1810/1100)	X	X			NFI/GWM
Gas Liquor Tank Storage (Area 1820)	X	X			NFI/GWM/FCARI
Rectisol Unit (Area 1400)	X	X			NFI/GWM/FCARI
Phenosolvan Unit (Area 1600)			X		GWM&R
Phenosolvan Unit (Area 1600B)				X	GWM&R

HWP = NDDEQ Hazardous Waste Program
SWP = NDDEQ Solid Waste Program
GWM&R = Ground Water Monitoring & Recovery
GWM = Ground Water Monitoring
NFI = No Further Investigation
FI = Further Investigation
NDPDES = North Dakota Pollutant Discharge Elimination System
FCARI = Final Corrective Action Remedy Implemented

APPENDIX B: Scope of Work for a RCRA Facility Investigation

Purpose

The purpose of this RCRA Facility Investigation (RFI*)* is to determine the nature and extent of releases of hazardous waste or constituents from regulated units, SWMUs, and other source areas at the facility and to gather all necessary data to support the Corrective Measures Study. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA remedial investigation at Dakota Gasification Company, Beulah, North Dakota.

Scope

The RFI consists of six tasks:

Task I: Description of Current Conditions

- A. Facility Background
- B. Nature and Extent of Contamination
- C. Implementation of Interim Measures

Task II: Pre-Investigation Evaluation of Corrective Measure Technologies

Task III: RFI Work Plan Requirements

- A. Project Management Plan
- B. Data Collection Quality Assurance Plan
- C. Data Management Plan
- D. Health and Safety Plan
- E. Community Relations Plan

Task IV: Facility Investigation

- A. Environmental Setting
- B. Source Characterization
- C. Contamination Characterization
- D. Potential Receptor Identification
- E. Risk Assessment

Task V: Investigation Analysis

- A. Protection Standards

Task VI: Laboratory and Bench-Scale Studies

Task VII: Reports

- A. Progress

B. Draft and Final

Task I: Description of Current Conditions

The Permittee shall submit for Departmental approval a report providing the background information pertinent to the facility, contamination, and interim measures as set forth below. The data gathered during any previous investigations and other relevant data shall be included.

A. Facility Background

The Permittee's report shall summarize the regional location, pertinent boundary features, general facility physiography, hydrogeology, and historical use of the facility for the treatment, storage, or disposal of solid and hazardous waste. The Permittee's report shall include:

1. Map(s) depicting the following:

   a. General geographic location;

   b. Property lines, with the owners of all adjacent property clearly indicated;

   c. Topography and surface drainage (with a contour interval of two (2) feet and a scale of 1 inch = 100 feet) depicting 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 they were active on November 19, 1980;

   g. All known past and present product and waste aboveground and underground tanks or piping directly related to SWMUs and AOC;

   h. Surrounding land uses (residential, commercial, agricultural, recreational); and

   i. The location of all recovery and ground water monitoring wells. These wells shall be clearly labeled, and ground and top of casing elevations and construction details included (these elevations and details may be included as an attachment).

   All maps shall be consistent with the requirements set forth in Section 33.1-24-06-17 NDAC and be of sufficient detail and accuracy to locate and report all current and future work performed at the site.

2. A history and description of facility ownership and operation, solid and hazardous waste generation, treatment, storage, and disposal activities at the facility;

3. Dates or periods of past product and waste spills, identification of the materials spilled, the amount spilled, the location where spilled, and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response;

4. A summary of past permits requested and/or received, any enforcement actions and their subsequent responses and a list of documents and studies prepared for the facility; and

5. A summary of all past and present product containers and tanks, including type of product, use, capacity of containers and tanks, and amounts present at facility.

B. Nature and Extent of Contamination

1. The Permittee shall prepare and submit for Department approval a report describing the existing information on the nature and extent of contamination.

   The report shall summarize all possible source areas of contamination. This, at a minimum, should include all regulated units, SWMUs, spill areas, and other suspected source areas of contamination. For each area, the Permittee shall identify the following:

   a. Location of unit/area (which shall be depicted on a facility map);

   b. Quantities of solid and hazardous waste;

   c. Hazardous waste or constituents, to extent known; and

   d. Identification of areas where additional information is necessary.

2. The Permittee shall prepare an assessment and description of the existing degree and extent of contamination. This should include:

   a. Available monitoring data and qualitative information on locations and levels of contamination at the facility;

   b. All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and

   c. The potential impact(s) on human health and the environment, including demography, ground water and surface water use, and land use.

C. Implementation of Interim Measures

The Permittee's report shall document interim measures which were or are being undertaken at the facility. This shall include:

1. Objectives of the interim measures: how the 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 facility;

2. Design, construction, operation, and maintenance records;

3. Schedules for design, construction, and monitoring; and

4. Schedule for progress reports.

Task II: Pre-Investigation Evaluation of Corrective Measure Technologies

Prior to starting the facility investigation, the Permittee shall submit to the Department a report that identifies the potential corrective measure technologies that may be used onsite or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability of wastes, etc.).

Task III: RFI Work Plan Requirements

The Permittee shall prepare an RFI Work Plan. This RFI Work Plan shall include the development of several plans, which shall be prepared concurrently. During the RFI, it may be necessary to revise the RFI Work Plan to increase or decrease the detail of information collected to accommodate the facility-specific situation. The RFI Work Plan includes the following:

A. Project Management Plan

The Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RFI.

B. Data Collection Quality Assurance Plan

The Permittee shall prepare a plan to document all monitoring procedures: sampling, field measurements, and sample analysis performed during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include, but not be limited to, the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used to assess the precision, accuracy, and completeness of the measurement data;

c. Description of the rationale used to assure that the data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Examples of factors which shall be considered and discussed include:

(1) Environmental conditions at the time of sampling;

(2) Number of sampling points;

(3) Representatives of selected media; and

(4) Representatives of selected analytical parameters.

d. Description of the measures to be taken to assure that the following data sets can be compared to each other:

(1) RFI data generated by the Permittee over some time period;

(2) RFI data generated by an outside laboratory or consultant versus data generated by the Permittee;

(3) Data generated by an outside consultant or laboratory over some time period; and

(4) Data generated by separate consultants or laboratories.

e. Details relating to the schedule and information to be provided in quality assurance reports. The reports should include, but not be limited to:

(1) Periodic assessment of measurement data accuracy, precision, and completeness;

(2) Results of performance audits;

(3) Results of system audits;

(4) Significant quality assurance problems and recommended solutions; and

(5) Resolutions of previously stated problems.

2. Sampling

The sampling section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate sampling locations, depths, etc.;

b. Providing a statistically sufficient number of sampling sites;

c. Measuring all necessary ancillary data;

d. Determining conditions under which sampling should be conducted;

e. Determining which media are to be sampled (e.g., ground water, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of sampling and length of sampling period;

h. Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected;

i. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;

j. Documenting field sampling operations and procedures, including:

(1) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters and adsorbing agents);

(2) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

(3) Documentation of specific sample preservation method;

(4) Calibration of field devices;

(5) Collection of replicate samples;

(6) Submission of field-biased blanks, where appropriate;

(7) Potential interference present at the facility;

(8) Construction materials and techniques associated with monitoring wells and piezometers;

(9) Field equipment listing and sample containers;

(10) Sampling order; and

(11) Decontamination procedures.

k. Selecting appropriate sample containers;

l. Sample preservation; and

m. Chain-of-custody, including:

(1) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and

(2) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate field measurement locations, depths, etc.;

b. Providing a statistically sufficient number of field measurements;

c. Measuring all necessary ancillary data;

d. Determining conditions under which field measurements should be conducted;

e. Determining which media are to be addressed by appropriate field measurements (e.g., ground water, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of field measurement and length of field measurement period; and

h. Documenting field measurement operations and procedure, including:

(1) Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition;

(2) Calibration of field devices;

(3) Collection of replicate samples;

(4) Submission of field-biased blanks, where appropriate;

(5) Potential interferences present at the facility;

(6) Construction materials and techniques with monitoring wells and piezometers used to collect field data;

(7) Field equipment listing;

(8) Order in which field measurements were made; and

(9) Decontamination procedures.

4. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

(1) Identification of a responsible party to act as custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

(2) Provision for a laboratory sample custodian log consisting of serially numbered standard lab-tracking report sheets; and

(3) Specification of laboratory sample custody procedures for sample handling, storage, and disbursement for analysis.

b. Sample storage procedures and storage times;

c. Sample preparation methods;

d. Analytical procedures, including:

(1) Scope and application of the procedure;

(2) Sample matrix;

(3) Potential interferences;

(4) Precision and accuracy of the methodology; and

(5) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation, and reporting;

g. Internal quality control checks, laboratory performance, and systems audits and frequency, including:

(1) Method blank(s);

(2) Laboratory control sample(s);

(3) Calibration check sample(s);

(4) Replicate sample(s);

(5) Matrix-spiked sample(s);

(6) "Blind" quality control sample(s);

(7) Control charts;

(8) Surrogate samples;

(9) Zero and span gases; and

(10) Reagent quality control checks.

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigations.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

d. Laboratory analysis ID number;

e. Property or component measured; and

f. Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall appear in tabular displays:

a. Unsorted (raw) data;

b. Results for each medium, or for each constituent monitored;

c. Data reduction for statistical analysis;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three-dimensional graphs, etc.):

a. Display sampling location and sampling grid;

b. Indicate boundaries of sampling area, and areas where more data are required;

c. Displays levels of contamination at each sampling location;

d. Display geographical extent of contamination;

e. Display contamination levels, averages, and maxima;

f. Illustrate changes in concentration in relation to distance from the source, time, depth, or other parameters; and

g. Indicate features affecting intermedia transport and show potential receptors.

D. Health and Safety Plan

The Permittee shall prepare a facility Health and Safety Plan.

1. Major elements of the Health and Safety Plan shall include:

a. Facility description including availability of resources such as roads, water supply, electricity, and telephone service;

b. Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

c. List key personnel and alternates responsible for site safety, response operations, and for protection of public health;

d. Delineate work areas;

e. Describe levels of protection to be worn by personnel in work areas;

f. Establish procedures to control site access;

g. Describe decontamination procedures for personnel and equipment;

h. Establish site emergency procedures;

i. Address emergency medical care for injuries and toxicological problems;

j. Describe requirements for an environmental surveillance program;

k. Specify any routine and special training required for responders; and

l. Establish procedures for protecting workers from weather-related problems.

2. The Facility Health and Safety Plan shall be consistent with:

a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

b. EPA Order 1440.1 - Respiratory Protection;

c. EPA Order 1440.3 - Health and Safety Requirements for Employees Engaged in Field Activities;

d. Facility Contingency Plan;

e. EPA Standard Operating Safety Guide (1984);

f. OSHA regulations, particularly 29 CFR 1910 and 1926;

g. State and local regulations; and

h. Other EPA guidance as provided.

E. Community Relations Plan

The Permittee shall prepare a plan for the dissemination of information to the public regarding investigation activities and results.

Task IV: Facility Investigation

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of contamination (Contamination Characterization); identify actual or potential receptors and determine the impact(s) of contamination on human health and/or ecological receptors (Risk Assessment). For reporting the ecological assessment refer to "The Risk Assessment Volume II Manual." [EPA/540/1-89/002 and 001, March 1989].

The investigations should result in data of adequate technical quality to support the development and evaluation of the corrective measure alternative or alternatives during the Corrective Measures Study.

The investigation activities shall follow the plans set forth in, Appendix B, Task III. All sampling and analysis shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

The Permittee shall collect information to supplement and verify existing information on the environmental setting at the facility. The Permittee shall characterize the following:

1. Hydrogeology

The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. A description of the regional and facility-specific geologic and hydrogeologic characteristics affecting ground water flow beneath the facility, including:

(1) Regional and facility-specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

(2) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);

(3) Depositional history;

(4) Identification and characterization of areas and amounts of recharge and discharge;

(5) Regional and facility-specific ground water flow patterns; and

(6) Characterize seasonal and temporal variations in ground water flow regime.

b. An analysis of any topographic features that might influence the ground water flow system. (Note: Stereographic analysis of aerial photographs may aid this analysis.)

c. Based on field data, test, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

(1) Hydraulic conductivity and porosity (total and effective);

(2) Lithology, grain size, sorting, degree of cementation;

(3) An interpretation of hydraulic interconnections between saturated zones;

(4) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange, organic carbon content, mineral content, etc.); and

(5) Recording the depth to the immiscible layer(s) and the thickness of the immiscible layer(s) when immiscible contaminants are present, either floating on or at the bottom of the water column.

d. Based on field studies and cores, structural geology and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:

(1) Sand and gravel deposits in unconsolidated deposits;

(2) Zones of fracturing or channeling in consolidated or unconsolidated deposits;

(3) Zones of higher permeability or low permeability that might direct and restrict the flow of contaminants;

(4) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding significant amounts for ground water to wells or springs; and

(5) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

e. Based on data obtained from ground water monitoring wells and piezometers installed upgradient and downgradient of the potential contamination source, a representative description of water level or fluid pressure monitoring including:

(1) Water level contour and/or potentiometric maps;

(2) Hydrologic cross sections showing vertical gradients;

(3) The flow system, including the vertical and horizontal components of flow; and

(4) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

f. A description of manmade influences that may affect the hydrogeology of the site, identifying:

(1) Active and inactive local water supply and production wells with an approximate schedule of pumping; and

(2) Manmade hydraulic structures (pipelines, French drains, ditches, unlined ponds, septic tanks, NDPDES outfalls, retention areas, etc.).

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Such characterization shall include, but not be limited to, the following information:

a. Surface soil distribution;

b. Hydraulic conductivity (saturated and unsaturated);

c. Relative permeability;

d. Porosity;

e. Soil sorptive capacity;

f. Cation exchange capacity (CEC);

g. Soil organic content;

h. Effect of stratification on unsaturated flow;

i. Infiltration;

j. Storage capacity;

k. Vertical flow rate; and

l. Depth of water table.

3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization shall include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface water bodies including:

(1) For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;

(2) For rivers, streams, ditches, drains, swamps, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., a 100-year flood event); and

(3) Drainage patterns.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH_3, NO_3^-/NO_2^-, PO_4^{-3}), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

c. Description and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

4. Air

The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information shall include, but not be limited to:

a. A description of the following parameters:

(1) Annual and monthly rainfall averages;

(2) Monthly temperature averages and extremes;

(3) Wind speed and direction;

(4) Relative humidity/dew point;

(5) Atmospheric pressure;

(6) Evaporation data;

(7) Development of inversions; and

(8) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

b. A description of topographic and manmade features which affect air flow and emission patterns, including:

(1) Ridges, hills, or mountains;

(2) Canyons and valleys;

(3) Surface water bodies (e.g., rivers, lakes, bays, etc.);

(4) Wind breaks and forests; and

(5) Buildings.

B. Source Characterization

The Permittee shall collect analytic data to completely characterize the wastes and the areas where wastes have been placed, collected, or removed including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics

affecting release (e.g., facility security, and engineered barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area characteristics:

    a. Location of unit/disposal area;

    b. Type of unit/disposal area;

    c. Design features;

    d. Operating practices (past and present);

    e. Period of operation;

    f. Age of unit/disposal area;

    g. General physical conditions;

    h. Method used to close the unit/disposal area; and

    i. Determine if there is potential for continuing release by any closed unit/area.

2. Waste Characteristics:

    a. Type of waste:

        (1) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);

        (2) Quantity; and

        (3) Chemical composition.

    b. Physical and chemical characteristics:

        (1) Physical form (solid, liquid, gas);

        (2) Physical description (e.g., powder, oily sludge);

        (3) General chemical class (e.g., acid, base, solvent);

        (4) Density and molecular weight;

        (5) Viscosity;

        (6) Cohesiveness of the waste;

        (7) Solubility in water;

(8) Flash point; and

(9) Boiling point.

c. Migration and dispersal characteristics of the waste:

(1) Sorption;

(2) Biodegradability, bioconcentration, biotransformation;

(3) Photodegradation rates;

(4) Hydrolysis rates; and

(5) Chemical transformations.

The Permittee shall document the procedures used in making the above determinations.

C. Contamination Characterization

The Permittee shall collect analytical data on ground water, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility. This data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data shall include the time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

1. Ground Water Contamination

The Permittee shall conduct a ground water investigation to characterize any plumes of contamination at the facility. This investigation shall, at a minimum, provide the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;

b. Available monitoring data and qualitative information on locations and levels of contamination at the facility;

c. The horizontal and vertical direction of contamination movement;

d. The velocity of contamination movement;

e. The horizontal and vertical concentration profiles of Section 33-24-05 NDAC Appendix XII constituents in the plume(s);

f. An evaluation of factors influencing the plume movement;

g. An extrapolation of future contaminant movement;

h. All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, and water quality;

i. Completely characterize the contaminants; and

j. Determine if contaminants are the same in all areas of the facility. If not, delineate the areas that contain different types of contaminants.

The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release. The investigation shall include the following information:

a. A description of the vertical and horizontal extent of contamination;

b. A description of contaminant and soil chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other factors that might affect contaminant migration and transformation;

c. Specific contaminant concentration;

d. The velocity and direction of contaminant movement; and

e. The extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from contaminant releases at the facility. The investigation shall include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocity;

d. An evaluation of the physical, biological, and chemical factors influencing contaminant movement;

e. An extrapolation of future contaminant movement; and

f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentration, etc.

The Permittee shall document the procedures used in making the above determinations.

4. Air Contamination

The Permittee shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere. This investigation shall provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of the release; and

c. The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

5. Subsurface Gas Contamination

The Permittee shall conduct an investigation to characterize the subsurface gases emitted from buried hazardous waste and hazardous constituents in the ground water. This investigation shall include the following information:

[NOTE: If this is not applicable to the buried waste onsite, document the procedures used in making this determination.]

a. A description of the horizontal and vertical extent of subsurface gases migration;

b. The chemical composition of the gases being emitted;

c. The rate, amount, and density of the gases being emitted; and

d. Horizontal and vertical concentration profiles of the subsurface gases emitted.

The Permittee shall document the procedures used in making the above determinations.

D. Potential Receptor Identification

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples may be needed. Data on observable effects in ecosystems may also be obtained. The following characteristics shall be identified:

1. Local uses and possible future uses of ground water:

    a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

    b. Location of ground water users including wells and discharge areas.

2. Local uses and possible future uses of surface waters draining the facility:

    a. Domestic and municipal (e.g., potable and lawn/garden watering);

    b. Recreational (e.g., swimming, fishing);

    c. Agricultural;

    d. Industrial; and

    e. Environmental (e.g., fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including, but not limited to:

    a. Recreation;

    b. Hunting;

    c. Residential;

    d. Commercial;

    e. Zoning;

    f. Relationship between population locations and prevailing wind direction; and

    g. The potential impact(s) on human health including demography, ground water and surface water use, and land use.

4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A description of the ecology overlying and adjacent to the facility.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age, sex, and sensitive subgroups.

7. A description of any endangered or threatened species near the facility.

E. Risk Assessment

The baseline risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases (under the assumption of no action). The baseline risk assessment contributes to the site characterization and subsequent development, evaluation, and selection of appropriate response alternatives. There are four steps in the risk assessment process.

1. Determine contaminants of concern: Data collection and evaluation involves the gathering and analyzing of site data relevant to the human health evaluation and identifying the substances present at the site that are the focus of the risk assessment process.

2. Exposure assessment: Using the procedure outlined in Section D for determining potential receptors, estimate the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways by which humans are potentially exposed. In the exposure assessment, reasonable maximum estimates of exposure are developed for both current and future land-use assumptions.

3. Toxicity assessment: This component of the risk assessment considers the types of adverse health effects associated with chemical exposure and the relationship between the magnitude of exposure and adverse effects.

4. Risk characterization: This summarizes and combines outputs of the exposure and toxicity and assessments to characterize baseline risk, both in quantitative expressions and qualitative statements.

Task V: Investigation Analysis

The Permittee shall prepare an analysis and summary of all facility investigations and their results. 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 the Corrective Measures Study.

A. Protection Standards

1. Ground Water Protection Standards

   For the facility, the Permittee shall provide information to support the Department's selection/development of Ground Water Protection Standards for all of the Section 33-24-05 NDAC Appendix XII and Skinner list constituents found in the ground water during the Facility Investigation (Appendix B, Task IV).

   a. The Ground Water Protection Standards shall consist of:

(1) For any constituents listed in Table 1 of Section 33-24-05-51 NDAC, the respective value given in that table (MCL) if the background level of the constituent is below those given in Table 1; or

(2) The background level of that constituent in the ground water; or

(3) Department-approved Alternate Concentration Limit (ACL).

b. Information to support the Department's subsequent selection of ACLs shall be developed by the Permittee in accordance with U.S. EPA guidance. For any proposed ACLs the Permittee shall include a justification upon the criteria set forth in Section 33-24-05-51.2. NDAC.

2. Other Relevant Protection Standards

The Permittee shall identify all relevant and applicable standards for the protection of human health and the environment (e.g., federally-approved state water quality standards, etc.).

Task VI: Laboratory and Bench-Scale Studies

The Permittee shall conduct laboratory and/or bench-scale studies to determine the applicability of a corrective measure technology or technologies to facility conditions. The Permittee shall analyze the technologies based on literature review, vendor contracts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

[NOTE: Submit any future and/or previous laboratory and bench-scale studies using above criteria.]

APPENDIX C: Scope of Work for a Corrective Measure Study

Purpose

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at Dakota Gasification Company, Beulah, North Dakota. The Permittee shall furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

Scope

The Corrective Measure Study consists of four tasks:

Task I: Identification and Development of the Corrective Measure Alternative or Alternatives

- A. Description of Current Situation
- B. Establishment of Corrective Action Objectives
- C. Screening of Corrective Measures Technologies
- D. Identification of the Corrective Measure Alternative or Alternatives

Task II: Evaluation of the Corrective Measure Alternative or Alternatives

- A. Technical/Environmental/Human Health/Institutional
- B. Cost Estimate

Task III: Justification and Recommendation of the Corrective Measure or Measures

- A. Technical
- B. Human Health
- C. Environmental

Task IV: Reports

- A. Progress
- B. Draft
- C. Final

Task I: Identification and Development of the Corrective Measure Alternative or Alternatives

Based on the results of the RFI and consideration of the identified Preliminary Corrective Measure Technologies (Appendix B Task III), the Permittee shall identify, screen, and develop the alternative or alternatives for removal, containment, treatment, and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the

RFI Report. The Permittee shall provide an update to the information presented in Module V Appendix B Task I of the RFI to the Department regarding previous response activities and any interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement or purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the Department, shall establish site-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, current and future planned use of the facility, EPA guidance, and the requirements of any applicable federal and state statutes. At a minimum, all corrective actions concerning ground water releases must be consistent with, and as stringent as, those required under Section 33.1-24-05-57 NDAC.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and reassess the technologies specified in Module V Appendix B Task II and identify additional technologies which are applicable at the facility. The Permittee shall screen the preliminary corrective measure technologies identified in Module V Appendix B Task II of the RFI and any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration.

2. Waste Characteristics

   Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology limitations

   During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point

where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternative or Alternatives

The Permittee shall develop the corrective measure alternative or alternatives based on the corrective action objectives and analysis of preliminary corrective measure technologies, as presented in Module V Appendix B Task II of the RFI and as supplemented following the preparation of the RFI Report. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies, identified in Module V Appendix B Task II, as supplemented in the development of the alternative or alternatives.

Task II: Evaluation of the Corrective Measure Alternative or Alternatives

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Module V Appendix C Task I and evaluate each corrective measure alternative and its component. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes, but is not limited to, the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical;

   The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability, and safety.

   a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

      (1) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

(2) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. The Permittee shall provide information on reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

(1) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

(2) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

(1) Constructability is determined by conditions both internal and external to the facility conditions and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

(2) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. The Permittee shall evaluate each corrective measure alternative with regard to safety. The evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental;

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health; and

The Permittee shall assess each alternative in terms of the extent of which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels of characterizations of contaminants onsite, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to the Department.

4. Institutional.

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of federal, state, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operational and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (non-construction and overhead) costs.

a. Direct capital costs include:

(1) Construction costs: costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure;

(2) Equipment costs: costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

(3) Land and site-development costs: expenses associated with purchase of land and development of existing property; and

(4) Buildings and services costs: costs of process and non-process buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

(1) Engineering expenses: costs of administration, design, construction, supervision, drafting, and testing of corrective measure alternatives;

(2) Legal fees and license or permit costs: administrative and technical costs necessary to obtain licenses and permits for installation and operation;

(3) Startup and shakedown costs: costs incurred during corrective measure startup; and

(4) Contingency allowances: funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:

a. Operating labor costs: wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs: costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxiliary materials and energy: costs of such items as chemicals and electricity for operations, water and sewer service, and fuel;

d. Purchased services: sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs: costs for transporting, treating, and disposing of waste materials, such as residues, recovered product, sludges from tanks the recovered products may produce, etc., generated during operations;

f. Administrative costs: costs associated with administration of corrective measure operations and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs: costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds: annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment, and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: items that do not fit any of the above categories.

Task III: Justification and Recommendation of the Corrective Measure or Measures

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Department will select the corrective measure alternative or alternatives to be implemented based on the results of Module V Appendix C Tasks II and III. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance: Corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability: Corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability: Corrective measure or measures which can be constructed and operating to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety: Corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing U.S. EPA/Department criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

APPENDIX D: Scope of Work for Corrective Measure Implementation

Purpose

The purpose of the Corrective Measure Implementation (CMI) program is to design, construct, operate, maintain, and monitor the performance of the corrective measure or measures selected to protect human health and the environment. The Permittee will furnish all personnel, materials, and services necessary for the implementation of the corrective measure or measures.

Scope

The Corrective Measure Implementation program consists of four tasks:

Task I: Corrective Measure Implementation Program Plan

- A. Program Management Plan

Task II: Corrective Measure Design

- A. Design Plans and Specifications
- B. Operation and Maintenance Plan
- C. Cost Estimate
- D. Project Schedule
- E. Construction Quality Assurance Objectives
- F. Design Phases

Task III: Corrective Measure Construction

- A. Responsibility and Authority
- B. Construction Quality Assurance Personnel Qualifications
- C. Inspection Activities
- D. Sampling Requirements
- E. Documentation

Task IV: Reports

- A. Progress
- B. Draft
- C. Final

Task I: Corrective Measure Implementation Program Plan

The Permittee shall prepare a Corrective Measure Implementation Program Plan. This program will include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as the work is performed to focus efforts on a particular problem. The Program Plan includes the following:

A. Program Management Plan

The Permittee shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of corrective measure(s). The plan shall document the responsibility and authority of all organizations and key personnel involved with the implementation. The Program Management Plan will also include a description of qualifications of key personnel directing the Corrective Measure Implementation Program, including contractor personnel.

Task II: Corrective Measure Design

The Permittee shall prepare final construction plans and specifications to implement the corrective measure(s) at the facility as defined in the Corrective Measure Study.

A. Design Plans and Specifications

The Permittee shall develop clear and comprehensive design plans and specifications which include, but are not limited to, the following:

1. Discussion of the design strategy and the design basis, including:

    a. Compliance with all applicable or relevant environmental and public health standards; and

    b. Minimization of environmental and public impacts.

2. Discussion of the technical factors of importance, including:

    a. Use of currently accepted environmental control measures and technology;

    b. Methods used to determine location of proposed corrective measure(s);

    c. The constructability of the design; and

    d. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and detailed justification of these assumptions;

4. Discussion of the possible sources of error and references to possible operation and maintenance problems;

5. Detailed drawings of the proposed design, including:

    a. Qualitative flow sheets; and

    b. Quantitative flow sheets.

6. Tables listing equipment and specifications;

7. Tables listing monitoring wells used during corrective measure(s);

8. Tables giving material and energy balances; and

9. Appendices including:

    a. Sample calculations (one example presented and explained clearly for significant or unique design calculations);

    b. Derivation of equations essential to understanding the report; and

    c. Results of laboratory or field tests.

B. Operation and Maintenance Plan

The Permittee shall prepare an Operation and Maintenance Plan to cover both implementation and long-term maintenance of the corrective measure. The plan shall be composed of the following elements:

1. Description of normal operation and maintenance (O&M);

    a. Description of tasks for operation;

    b. Description of tasks for maintenance;

    c. Description of prescribed treatment or operation conditions; and

    d. Schedule showing frequency of each O&M task.

2. Description of potential operating problems;

    a. Description and analysis of potential operation problems;

    b. Sources of information regarding problems; and

    c. Common and/or anticipated remedies.

3. Description of routine monitoring and laboratory testing;

    a. Description of monitoring tasks;

    b. Description of required laboratory test and their interpretation;
    c. Required QA/QC; and

    d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.

4. Description of alternate O&M;

    a. Should systems fail, alternate procedures to prevent undue hazard; and

b. Analysis of vulnerability and additional resource requirements should a failure occur.

5. Safety plan;

   a. Description of precautions, of necessary equipment, etc., for site personnel; and

   b. Safety tasks required in event of systems failure.

6. Description of equipment; and

   a. Equipment identification;

   b. Installation of monitoring components using RCRA Ground Water Technical Enforcement Guidance Document;

   c. Maintenance schedule of site equipment; and

   d. Replacement schedule for equipment and installed components.

7. Records and reporting mechanisms required;

   a. Daily operating logs;

   b. Laboratory records;

   c. Records for operating costs;

   d. Mechanism for reporting emergencies;

   e. Personnel and maintenance records; and

   f. Monthly/annual reports to the Department.

C. Cost Estimate

The Permittee shall develop cost estimates for the purpose of assuring that the facility has the financial resources necessary to construct and implement the corrective measure. The cost estimate developed in the Corrective Measure Study shall be refined to reflect the more detailed/accurate design plans and specifications being developed. The cost estimate shall include both capital and operation and maintenance costs.

D. Project Schedule

The Permittee shall develop a project schedule for construction and implementation of the corrective measure or measure which identifies timing for initiation and completion of all critical path tasks. The Permittee shall specifically identify dates for completion of the project and major interim milestones.

E. Construction Quality Assurance Objectives

The Permittee shall identify and document the objectives and framework for the development of a construction quality assurance program including, but not limited to, the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and documentation.

F. Design Phases

The design of the corrective measure(s) should include the phases outlined below.

1. Preliminary design

   The Permittee shall submit the preliminary design when the design effort reflects a level such that the technical requirements of the project have been addressed and outlined. The submittal will be reviewed to determine if the final design will provide an operable and useable corrective measure. Supporting data and documentation shall be provided with the design documents defining functional aspects of the program.

2. Correlating plans and specifications

   General correlation between drawings and technical specifications is a basic requirement of any set of working construction plans and specifications. Before submitting the project specifications, the Permittee shall:

   a. Coordinate and cross-check the specifications and drawings; and

   b. Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

3. Equipment start-up and operator training

   The Permittee shall prepare, and include in the technical specifications governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, startup, and operation of the treatment systems, and training covering appropriate operational procedures once the startup has been successfully accomplished.

4. Final design

   The Permittee shall execute the required revisions and submit the final documents 100 percent complete with reproducible drawings and specifications.

   The final design submittal consists of the final Design Plans and Specifications (100 percent complete), the Permittee's final Construction Cost Estimate, the final Operation and Maintenance Plan, final Quality Assurance Plan, and final Project Schedule. The quality of the design documents should be such that the Permittee would be able to include them in a bid package and invite contractors to submit bids for the construction.

Task III: Corrective Measure Construction

Following Department approval of the final design, the Permittee shall develop and implement a Construction Quality Assurance (CQA) program to ensure, with a reasonable degree of certainty, that a completed corrective measure(s) meets or exceeds all design criteria, plans and specifications. The CQA plan is a facility-specific document which must be submitted to the Department for approval prior to the start of construction. At a minimum, the CQA plan should include the elements, which are summarized below. Upon Department approval of the CQA plan the Permittee shall construct and implement the corrective measures in accordance with the approved design, schedule, and the CQA plan. The Permittee shall also implement the elements of the approved Operation and Maintenance plan.

A. Responsibility and Authority

The responsibility and authority of all organizations (i.e., technical consultants, construction firms, etc.) and key personnel involved in the construction of the corrective measure shall be described in full in the CQA plan. The Permittee must identify a CQA officer and the necessary supporting inspection staff.

B. Construction Quality Assurance Personnel Qualifications

The qualifications of the CQA officer and supporting inspection personnel shall be presented in the CQA plan to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

C. Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the components of the corrective measure(s) shall be summarized in the CQA plan. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with all environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. The inspection should also ensure compliance with all health and safety procedures. In addition to oversight inspections, the Permittee shall conduct the following activities:

1. Preconstruction inspection and meeting

   The Permittee shall conduct a preconstruction inspection and meeting to:

   a. Review methods for documenting and reporting inspection data;

   b. Review methods for distributing and storing documents and reports;

   c. Review work area security and safety protocol;

   d. Discuss any appropriate modifications of the construction quality assurance plan to ensure that site-specific considerations are addressed; and

   e. Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

The preconstruction inspection and meeting shall be documented by a designated person and minutes should be transmitted to all parties.

2. Prefinal inspection

Upon preliminary project completion the Permittee shall notify the Department for the purposes of conducting a pre-final inspection. The prefinal inspection will consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and the Department-approved corrective measure. Any outstanding construction items discovered during the inspection will be identified and noted. Additionally, treatment equipment will be operationally tested by the Permittee. The Permittee will certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. The prefinal inspection report should outline the outstanding construction items, actions required to resolve items, completion date for these items, and date for final inspection.

3. Final inspection

Upon completion of any outstanding construction items, the Permittee shall notify the Department for the purposes of conducting a final inspection. The final inspection will consist of a walk-through inspection of the project site. The prefinal inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

D. Sampling Requirements

The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specifications should be presented in the CQA plan.

E. Documentation

Reporting requirements for CQA activities shall be described in detail in the CQA plan. This should include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records also should be presented in the CQA plan.

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APPENDIX E: Compliance Schedule

Activity and Permit Conditions	Due Date
1. Notification of Compliance or Noncompliance with Compliance Schedule - Permit Module I.D.17.	Within 14 calendar days of due date.
2. Notification of Noncompliance - Permit Modules I.D.11.c. and d.	Oral notification within 24 hours; written notification within 5 calendar days.
3. Notification Requirements for Newly Discovered Areas of Contamination at Previously Identified SWMUs and AOC - Permit Module V.C.1., 2. And 3.	Within 15 calendar days of discovery.
4. Submittal of IM Work Plan – Permit Module V.F.1.a.	With 90 calendar days of required notification under Permit Modules V.C.1., V.C.2., or V.C.3.
5. Submittal of IM Work Plan Under Requirements of Permit Module V.F.1.	Within sixty (60) calendar days of notification by NDDEQ.
6. Notification Prior to Any Planned Changes, Deletions or Additions to the IM Work Plan – Permit Module V.F.2.b.	Within 7 calendar days.
7. Demonstration of Financial Assurance For Completion of Activities Described in the IM Work Plan – Permit Module V.F.1.d.	Within 45 calendar days of written approval of the IM Work Plan(s).
8. Submittal of IM Progress Reports – Permit Module V.F.3.a.	If scheduled completion exceeds 6 months; then, every 120 days, beginning from the starting date specified by NDDEQ.
9. Submittal of CMS Work Plan – Permit Module V.G.1.a.	Within 90 calendar days following receipt of written notification of: 1) Approval by NDDEQ of a RFI Report, if applicable; 2) requirement by NDDEQ that CMS is needed.
10. Submittal of Draft CMS Report -Permit Module V.G.2.a.	In accordance with schedule specified in CMS Plan.
11. Submittal of Final CMS Report – Permit Module V.G.2.a.	Within 60 calendar days after receipt of NDDEQ comments on draft CMS Report.
12. NDDEQ Initiates Permit Modification Pursuant to Section 33.1-24-06-12 NDAC – Permit Module V.H.2.	After such selection of remedy under Permit Module V.F.1.
13. Demonstration of Financial Assurance For Completion Approved Remedy – Permit Module V.H.3.	Within 45 calendar days after permit modification for remedy under Permit Module V.F.2.

Activity and Permit Conditions	Due Date
14. Submittal of CMI Work Plan For Selected Corrective Measures – Permit Module V.I.1.a.	Within 90 calendar days after receipt of NDDEQ approval of the Final CMS Report.
15. Submittal of CMI Progress Reports – Permit Module V.I.2.b.	Every 120 calendar days beginning after Draft CMI Workplan Department approval.
16. Submittal of Final CMI Report – Permit Module V.I.2.a.	Within 60 calendar days of receipt of NDDEQ comments on Draft CMI Report.
17. Imminent Hazard Report – Permit Module V.K.1.	Oral notification within 24 hours from such time Permittee becomes aware of circumstances as specified under Permit Module I.D.11.b.
18. Imminent Hazard Report – Permit Module V.K.2.	Written notification within 15 calendar days of the time Permittee becomes aware of circumstances.

*NDDEQ means the North Dakota Department of Environmental Quality.

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APPENDIX F: Financial Assurance

The Permittee shall guarantee performance of and payment for implementing the RCRA Facility Investigation (RFI), Interim Measures (IM), Corrective Measures Study (CMS), and/or remedy and provide liability insurance coverage for third-party injury and property damage claims resulting from sudden and non-sudden accidental occurrences arising from any activity performed in accordance with this permit.

A. Cost Estimate

The Permittee shall provide cost estimates for all corrective action measures required by this permit. The cost estimate requirements of Section 33.1-24-05-76.1 NDAC shall continue throughout the term of this permit and shall include: subdivision a, third party costs; subdivision b, annual inflation adjustments; and, subdivision c, revision of the cost estimate when there has been a change in the RFI, IM, CMS, or remedy, which results in an increase in the cost of such activities.

B. Financial Assurance

The Permittee shall provide financial assurance for the RFI, IM, CMS, and remedy as set forth in Section 33.1-24-05-77 NDAC within forty-five (45) calendar days of receipt of written approval by the Department of the RFI, IM, CMS Work Plan(s), and the remedy.

1. The term "RFI, CMS, and/or Interim Measure," as appropriate is substituted for the word "post-closure," and "Permittee" is substituted for the words "owner or operator" when referring to Sections 33.1-24-05-76 through 33.1-24-05-81 NDAC.

2. If the Permittee is using a financial test for compliance with this section, all the Permittee facilities in the U.S. and its territories that are also being covered by the financial test under any RCRA regulation must be listed and the amount covered must be included in Alternative I or Alternative II, whichever is appropriate.

3. If the Permittee is securing a corporate guarantee, all the Guarantor's facilities in the U.S. and its territories as well as those facilities being guaranteed under any RCRA regulation must be listed on the financial test submitted by the Guarantor and included in Alternative I or Alternative II.

C. Liability Requirements

Within forty-five (45) calendar days of receipt of written Departmental approval of the RFI, IM, CMS Work Plan(s), and the remedy, the Permittee shall provide liability coverage using one or a combination of the mechanisms allowed under Section 33.1-24-05-79 NDAC. The liability coverage for sudden and non-sudden occurrences arising solely from implementing the RFI, interim measures, or approved remedy shall consist of $4,000,000 per occurrence with $8,000,000 annual aggregate exclusive of legal defense costs.

Requirements for use of a financial test or corporate guarantee shall be the same as those stated in Module V Appendix F Section B.

1. If the Department determines that the levels of liability insurance required by this section are not consistent with the degree of risk associated with the RFI, IM, CMS, and/or remedy activities, they may adjust the level of insurance required under this section as may be necessary to protect human health and the environment. In order to determine that appropriate degree of risk, the Department may request information from the Permittee which must be furnished within thirty (30) calendar days of such request. Based on this information the Department will determine whether cause exists for such adjustments in the level and/or type of coverage.

D. Incapacity of Owners/Operators

The Permittee shall comply with the requirements of Section 33.1-24-05-80 NDAC with regard to the incapacity of the Permittee, its guarantors, or financial institutions issuing financial mechanisms in compliance with the requirements of this permit.

E. Failure to Perform Corrective Action

If the Department determines that the Permittee has failed to perform the RFI, IM, CMS, and/or remedy in accordance with any of the terms or conditions of this permit, the Department will provide written notification to the Permittee of their intent to utilize the Permittee financial responsibility instruments for the purpose of undertaking such performance. Notification of intent to draw on the Permittee financial instruments will specify in detail the Department's reasons for taking such action.

F. Corrective Action Notices

In order to assure that a potential purchaser and/or lending institution is made aware of the existence of hazardous waste or hazardous constituents at the facility, the Permittee shall within sixty (60) calendar days after identification of the land area covered by the permit comply with Section 33.1-24-05-68 NDAC. The Permittee shall submit a copy of the required notices to the Department within thirty (30) calendar days after such notices have been completed. In the event the Department determines such notices are inadequate, the Permittee will have thirty (30) calendar days to rectify such inadequacies. Identification of any hazardous waste or hazardous constituents which have been left in place after the completion of corrective action, shall remain on the deed and survey plat. The Department will release the Permittee from the financial responsibility requirements of this permit after the Permittee has submitted documentation that the final deed notices have been properly filed. They may also withhold release from other requirements in this permit in the event that Section 33.1-24-05-68 NDAC is not fully complied with.

G. Corrective Action and Closure/Post-Closure Care

The Permittee may combine the required financial assurance coverage for the RFI, IM, CMS, and/or remedy with any instrument(s) being used with any closure/post-closure permit providing the Permittee assures that the monies for compliance with corrective action requirements are separate from closure/post-closure and are clearly identified as such.

H. Future Permit Revision

In the event the Department publishes changes to Sections 33.1-24-05-74 through 33.1-24-05-88 NDAC after this permit is effective, the Department and the Permittee may consider a revision to the financial assurance requirements of this permit in accordance with these published changes.

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APPENDIX G: Corrective Action Final Remedy Selection

Department approved final remedies for areas undergoing corrective action

Area of Concern (AOC)	Final Remedy Selected	Approval date
Rail Loading Area	No-Action	October 14, 2009
Gas Liquor Tank Storage (Area 1820)	No-Action	October 14, 2009
Rectisol Unit (Area 1400)	No-Action	October 14, 2009
Phenosolvan Unit (Area 1600)	Institutional Controls and Pump-and-Treat	August 13, 2010

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“No-Action”- Under this alternative, impacted soil and groundwater are left in place. No activities are implemented to prevent direct contact with soils or groundwater at the site. No monitoring or operations and maintenance activities are performed, with the exception of the site-wide and oily water sewer monitoring plans.

“Institutional Controls”- Under this alternative, a restriction on property use is used to meet remediation goals and prevent unacceptable exposure to human receptors. This alternative is frequently used in conjunction with other corrective measures.

‘Pump-and-Treat”- Under this alternative, construction and operation of a pump-and-treat system is implemented to provide source control for contaminated groundwater in order to meet remediation goals. A pump-and-treat system requires routine maintenance.

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ENCLOSURE 1: Waste Minimization Certification

The Waste Minimization Program shall include the following elements:

Top Management Support

1. Dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan.

2. Description of employee awareness and training programs designed to involve employees in waste minimization planning and implementation to the maximum extent feasible.

3. Description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance.

Characterization of Waste Generation

Identification of types and amounts of wastes generated annually with the sources of waste identified. The hazardous waste codes shall be indicated for those wastes which are hazardous.

Ongoing Waste Minimization Efforts

A copy of the facility's ongoing waste minimization program will be submitted annually.

Cost Allocation System

Identification of waste management costs for the specific wastes listed in the waste minimization plan which includes recycling, treatment, disposal, and transportation costs. The costs associated with waste management administration will be estimated and included to the extent feasible.

Technology Transfer

Description of efforts to seek and exchange technical information on waste minimization from other parts of the company, other firms, trade associations, technical assistance programs, and professional consultants.

Program Evaluation

1. Analysis and quantification of the results of the source reduction and recycling techniques which are implemented. A comparison shall be made to the waste minimization plan.

2. The waste minimization plan will be modified annually, if necessary, to account for process changes affecting waste generation (deletions, additions, new waste types, etc.).

3. List impediments to waste minimization at the facility (e.g., cost prohibitive, technical limitations, etc.).

Pollution Prevention Act of 1990

Dakota Gasification Company shall make all reasonable efforts to meet the goals of this Act.