

Permit No.: ND-UIC-111

Effective Date: XXXX, 2025
Expiration Date: XXXXX, 2030

UNDERGROUND INJECTION PERMIT

AUTHORIZATION TO INJECT UNDER THE NORTH DAKOTA UNDERGROUND INJECTION CONTROL PROGRAM

In compliance with Chapter 33.1-25-01 (Underground Injection Control Program) of the North Dakota Department of Environmental Quality (Department) rules, as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code, Minnkota Power Cooperative, is authorized to inject waste fluids in accordance with the limitations, monitoring requirements, and other conditions set forth in this Permit.

This Permit shall become effective on XXX, 2025, and shall expire at midnight on XXXX, 2030, unless amended or terminated by the Department.

Marty Haroldson, Director
Division of Water Quality
North Dakota Department of Environmental Quality
Date: _____

I. NAME OF PERMITTEE

Minnkota Power Cooperative, Inc.
Milton R. Young Station
3401 24th Street SW
Center, ND 58530

II. NATURE OF BUSINESS

Minnkota Power Cooperative, Inc. (MPC) operates the Milton R. Young Station (MRY Station) adjacent to Nelson Lake in Sections 4 and 5, Township 141N, Range 83 W. The MRY Station is a two-unit, lignite coal-based power plant with a 705-megawatt generating capacity.

MPC and its partners are pursuing the construction of a carbon capture and storage project adjacent to MRY Station, known as Project Tundra. The project will treat the flue gas from Units 1 and 2 to capture approximately 95 percent of the carbon dioxide emissions from each flue; the carbon dioxide will be injected into up to three Class VI injection wells. Up to two Class I injection wells will be used to manage non-hazardous process waters generated from the carbon capture process that will be co-mingled with existing non-hazardous process waters at MRY. The Class I wells will be located on the existing well pad near the proposed Class VI wells.

III. DESCRIPTION AND LOCATION OF INJECTION ACTIVITY

Well Location. North Dakota Underground Injection Permit ND-UIC-111 (Permit) authorizes MPC (Permittee) to dispose of existing plant wastewater and Project Tundra wastewater into two (2) Class I non-hazardous waste underground injection wells (FREEMAN-1 and RUBEN-1). MPC anticipates that they will require a permitted injection rate of 1,500 gallons per minute (gpm) to dispose of the projected quantity of wastewater generated at their facility.

Initially, waste fluids will be injected into the FREEMAN-1 well. If it is determined that the injection capacity of the FREEMAN-1 well is not capable of meeting the disposal needs of the facility, or if MPC decides that an additional well will provide needed redundancy or operational flexibility, then the RUBEN-1 well will be drilled.

Wastewater Description. The permitted waste stream consists of non-hazardous process fluids generated from operations at the MRY Station and may include existing plant waste streams and Project Tundra waste streams consistent with the table below.

Category	Waste Stream
Existing Plant Waste Streams	• Low-pressure ash water • Nelson Lake water • Flue gas desulfurization (FGD) blowdown • Plant stormwater • Fireside boiler cleaning water (during unit outages) • Precipitation collected in coal combustion residual (CCR) surface impoundments
Project Tundra Waste Streams	• Combined wastewater to FGD scrubber pond • Water treatment blowdown • Compressed air blowdown • Wet electrostatic precipitator discharge • Purge stream • Condensate from dehydration unit

The proposed waste streams will be tested to ensure that only non-hazardous wastes are injected into the wells.

Injection Well Information.

The anticipated required flow rate for wastewater disposal at MRY is 1,500 gpm. If the FREEMAN-1 well cannot achieve a flow rate of 1,500 gpm, or if MPC decides that an additional well will provide needed redundancy or operational flexibility, then MRY will construct and operate a second well (RUBEN-1). If the RUBEN-1 well is constructed, the maximum injection rate in each well will be 1,100 gpm.

If a well needs corrective maintenance or to be shut-in for testing, the injectate will be managed in the second well, properly stored on-site, or properly disposed of off-site.

The Permittee is authorized to conduct injection activity in the FREEMAN-1 and RUBEN-1 wells in accordance with the provisions of Chapter 33.1-25-01 (Underground Injection Control Program) of the North Dakota Administrative Code and with the limitations, requirements, and other conditions set forth in this Permit.

FREEMAN-1 Injection Well. The FREEMAN-1 injection well will be installed within a stratigraphic test well (Freeman 1 well) that was drilled under a sundry notice issued by the North Dakota Industrial Commission (NDIC). The Freeman 1 well was drilled for the purposes of collecting a representative water sample from the Inyan Kara Formation

at the proposed injection site and for future conversion into the FREEMAN-1 Class I injection well.

The Freeman 1 stratigraphic test well is constructed with a 16-inch outside diameter (OD) conductor casing set from ground surface to an approximate depth of 77 feet below ground surface (bgs), an 11-3/4-inch OD surface casing set from ground surface to approximately 1,359 feet bgs, and an 8-5/8-inch OD production casing that extends from ground surface to a depth of approximately 3,917 feet bgs.

The production casing is perforated at three intervals (3,649 to 3,669, 3,743 to 3,781, and 3,785 to 3,823 feet bgs) within the permeable sandstone intervals of the Inyan Kara Formation. The Inyan Kara Formation is part of the Dakota Group, which also includes the Mowry, Newcastle, and Skull Creek Formations. While various terms have been used to describe this geologic unit, including the Lower Cretaceous aquifer, Inyan Kara Group, and Lakota Formation, it is generally acceptable to simply reference it as the "Dakota aquifer". The uppermost perforated injection interval in Well #1 is approximately 2,444 feet below the lowermost underground source of drinking water (USDW), the Fox Hills Sand.

To place the Freeman 1 stratigraphic test well into "Temporary Abandoned Drilled to Total Depth" (TATD) status, a retrievable bridge plug was set at a depth of 3,520 feet bgs and was topped off by 10 feet of sand and 30 feet of cement. The mechanical integrity of the well in the temporary plugged state was demonstrated with a pressure test witnessed by NDIC staff.

The Freeman 1 stratigraphic test well will be converted to the FREEMAN-1 Class I injection well by removing the retrievable bridge plug and injecting wastewater through a 6-5/8-inch OD tubing with a packer set at an approximate depth of 3,599 feet bgs, or approximately 50 feet above the top of the targeted injection zone. The annulus between the injection tubing and production casing (the casing-tubing annulus) will be filled to the surface with an inhibited brine.

The maximum permitted injection rate for the FREEMAN-1 well is 1,500 gpm under the one injection well scenario, and the maximum permitted volume will be 1.89×10^{10} gallons over a twenty-year period. If MPC elects to drill a second injection well (RUBEN-1), the maximum injection rate in the FREEMAN-1 well will be reduced to 1,100 gpm, and the permitted maximum injection volume will be 1.38×10^{10} gallons over a twenty-year period.

RUBEN-1 Injection Well. If MPC elects to drill a second injection well for additional injection capacity, redundancy, or operational flexibility, the RUBEN-1 injection well will be installed at a location approximately 300 feet northwest of the FREEMAN-1 injection

well. The construction details of the RUBEN-1 well will be similar to those of the FREEMAN-1 well. The maximum injection rate for the RUBEN-1 well is 1,100 gpm and the permitted maximum injection volume is 1.38×10^{10} gallons over a twenty-year period

IV. WELL CONSTRUCTION REQUIREMENTS

- A. Casing and Cementing. The construction details submitted with the Injection Well Completion Report are hereby incorporated into this Permit and are binding on the Permittee. Any proposed changes to the construction of the wells must be submitted to the Department for review and written approval.
- B. Tubing and Packer Specifications. The wells shall have a tubing and packer constructed of materials of sufficient quality and strength for the proposed injection activity.
- C. Monitoring Devices. The primary method of monitoring shall be continuous monitoring of the injection pressure (at the wellhead), casing-tubing annulus pressure (at the wellhead), and the injection rate and total volume. Prior to commencement of injection activities, the operator shall install and maintain in good operating condition the following equipment:
 - (1) Injection Pressure Monitoring Device. The injection pressure will be monitored using a digital, continuous reading pressure monitoring device in the injection tubing at the wellhead.
 - (2) Wellhead Annulus Pressure Monitoring Device. The wellhead pressure of the casing-tubing annular space will be monitored using a digital, continuous reading pressure monitoring device in the wellhead casing-tubing annulus. The casing-tubing annulus shall be maintained with an inhibited brine fluid that is under a differential pressure of at least 100 pounds per square inch (psi) compared to wellhead injection pressure. The annulus pressure may be maintained above or below the wellhead injection pressure as long as the absolute differential pressure is at least 100 psi. The annulus pressure can be transitioned from positive differential (annulus pressure greater than the wellhead tubing pressure) to a negative differential (annulus pressure less than the wellhead tubing pressure) or the reverse in 60 minutes without being in violation of the minimum 100 psi differential pressure requirement. The minimum annulus differential pressure of 100 psi must be restored within 60 minutes. A mineral oil freeze blanket, or other fluid as approved in writing by the Director, may be circulated from surface to below frost level at completion to prevent freezing and possible equipment failure during winter months.

- (3) **Well Shutdown Switch.** The maximum surface injection (tubing) pressure at the wellhead shall not exceed 1,050 psi (calculated using the anticipated specific gravity of the injectate). Any increase in pressure that exceeds the allowable injection pressure shall result in an immediate shutdown of the injection pump.
- (4) **Flow Meters.** Flow meters and digital, continuous recording devices shall be installed in the injection line immediately upstream of the wellhead to track and document disposal fluid flow rates and total fluid volumes.
- (5) **Fluid Sampling Ports.** The injection line shall be equipped with sampling ports and appropriate connections to facilitate the periodic collection of injection fluid samples for chemical analysis. The sampling point shall be in an unobstructed portion of the injection line.

V. WELL LOGGING AND TESTING REQUIREMENTS

The Permittee shall give at least a two-week, advance written notice to the Director of any planned well logging or testing. This notice shall include a plan for conducting the proposed test or log.

- A. **Cement Evaluation Log.** A cement evaluation log will be completed after the well is constructed to verify the adequacy of the cement placement. Cement evaluation logs may include cement bond log/variable density log (CBL/VDL), Ultrasonic Imaging (USI) log, or other method approved by the Director. The method used must be approved by the Director prior to completing the evaluation. If a conventional cement bond log is completed, interpretation of the log will be in accordance with EPA Region 8 Guidance No. 34 – Cement Bond Logging and Interpretation. The Permittee shall also run a new cement evaluation log following any remedial work or repair work that involves cementing.
- B. **Pressure Fall-Off Test.** A pressure fall-off test is required for Class I operations [40 CFR 146.13 (d) (1)] and must be performed at least once every twelve months to detect any significant loss of fluids due to fracturing in the injection and/or confining zone and to aid in determining the lateral extent of the injection plume. The test shall conform to the test plan provided to the Department. The Permittee shall analyze test results and provide a report with an appropriate narrative interpretation of the test results, including an estimate of reservoir parameters, information on any reservoir boundaries, an estimate of the well skin effect, and a summary of reservoir flow conditions. The report shall also compare the test results with the previous year's test data and shall be prepared by a knowledgeable analyst.
- C. **Mechanical integrity testing** will be completed prior to commencement of injection

and will be conducted at least every five years or whenever there has been a well workover. All mechanical integrity testing will be conducted in accordance with the requirements of 40 CFR 146.8 – Mechanical Integrity. The types of tests conducted to verify the mechanical integrity of the well must be approved in advance by the Department.

VI. WELL OPERATING PARAMETERS

- A. Prior to commencing injection into the FREEMAN-1 or RUBEN-1 wells, the Permittee must complete the following:
1. A Well Completion Report must be submitted to the Department for review and approval.
 2. Mechanical integrity testing (MIT) must be performed to demonstrate that (1) there is no significant leak in the casing, tubing, or packer, and (2) there is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the well bore. All mechanical integrity testing must be conducted in accordance with 40 CFR 146.8. Prior to conducting mechanical integrity testing, the Permittee must submit a Mechanical Integrity Test Workplan to the Department for review and approval. The well must demonstrate mechanical integrity as described in NDAC 33.1-25-01-13.

Following the review and approval of the Well Completion Report and the MIT results, the Department will provide the Permittee with a letter authorizing the commencement of injection into the well.

- B. **Injection Rate.** This Permit authorizes injection into a maximum of two wells. The maximum instantaneous injection rate in the FREEMAN-1 Class I injection well shall be 1,500 gpm, or 1,100 gpm if RUBEN-1 has been constructed. The maximum instantaneous injection rate in the RUBEN-1 well is 1,100 gpm.
- C. **Injection Interval.** Injection is limited to the Inyan Kara Formation, a Cretaceous sandstone unit, in the approximate interval from 3,649 to 3,823 feet bgs. The uppermost perforated injection interval is approximately 2,444 feet below the base of the lowermost underground source of drinking water (USDW), the Fox Hills Sand.
- D. **Injection Pressure.** The wellhead injection pressure shall not exceed 1,050 psi (calculated using the anticipated specific gravity of the injectate) to ensure that fracturing of the injection zone and confining zone does not occur. A step-rate injection test will be completed following the commencement of injection to verify that the maximum permitted wellhead pressure does not fracture the injection formation. The injection pressure may be modified if the step-rate injection test indicates that

fractures in the formation do not occur at a higher injection pressure.

- E. **Annular Fluid.** The casing-tubing annulus shall be filled with a fluid containing corrosion inhibitors. A pressure with a differential (positive or negative) from wellhead injection pressure of at least 100 psi, measured at the surface, shall be maintained on the annulus to detect well malfunctions. The annulus pressure can be transitioned from positive differential (annulus pressure greater than the wellhead tubing pressure) to a negative differential (annulus pressure less than the wellhead tubing pressure) or the reverse within 60 minutes without being in violation of the minimum 100 psi differential pressure requirement. The minimum annulus differential pressure of 100 psi must be restored within 60 minutes. For 60 minutes after the pressure differential drops below 100 psi, the Permittee can conduct troubleshooting and proceed to restore a minimum 100 psi pressure differential. If a minimum 100 psi pressure differential cannot be achieved within 60 minutes, the Permittee shall notify the Department and commence shut-in procedures on the well. The Permittee may continue to operate the well under flow conditions that maintain a minimum 100 psi pressure differential.
- F. **Injection Fluid.** The injected wastewater stream shall consist of the stream specified in Section III of this Permit. However, with prior written approval from the Department, injection of wastewater streams other than those specified may be allowed if they meet the following conditions:
1. The wastewater stream is compatible with those streams outlined in Section III.
 2. The wastewater is non-hazardous.
 3. The wastewater stream will not interfere with the operation of the facility or its ability to meet Permit conditions.

VII. INJECTION WELL MONITORING

- A. **Pressure Gauges.** Pressure gauges shall be maintained in proper operating conditions at all times on the injection tubing and on the casing-tubing annulus at the wellhead.
- B. **Recording Devices.** Continuous recording devices shall be maintained in proper operating conditions at all times to record injection tubing pressures, injection flow rates, injection total volumes, and casing-tubing annulus pressures.
- C. **Mechanical Integrity.** The mechanical integrity of the well shall be verified by the continuous monitoring of the casing-tubing annulus pressure at the wellhead.

Mechanical integrity testing will be completed at least every five years in accordance with the requirements of 40 CFR 146.8 – Mechanical Integrity. The types of tests conducted to verify the mechanical integrity of the well must be approved in advance by the Department.

- D. Chemical Analysis. A complete chemical analysis shall be completed for the waste fluids prior to commencement of injection to confirm the classification of the waste as non-hazardous per North Dakota Administrative Code 33.1-24-02. This complete analysis shall include the parameters specified in Lists A and B, summarized in Attachment A. The Department will establish an ongoing sampling program to ensure the waste fluids injected into the well are non-hazardous.

VIII. AMBIENT MONITORING PROGRAM

- A. Pressure Fall-Off Test. Minimum requirements are annual monitoring of the pressure buildup in the injection zone, including a shutdown of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve. The zone of influence to date, the reservoir transmissivity, and the reservoir skin factor shall be calculated and submitted with the results of the pressure fall-off test.
- B. Additional Testing. The Department may also require any additional monitoring, based on a site-specific assessment of the potential for fluid movement from the well or injection zone and on the potential value of monitoring wells to detect such movement.

IX. PROPOSED CHANGES AND WELL WORKOVERS

The Permittee shall give at least two (2) weeks advance notice to the Department of any planned physical alterations or additions to the permitted wells. A major alteration or workover shall be considered any work performed that affects the well casing, packer, or tubing. The notification shall be in writing and shall include plans for the workover. For emergency workover or well service, 24-hour prior notification to the Department will be provided with the proposed work plan also submitted for review.

The Permittee shall provide all records of well workovers, logging, or other test data to the Department as part of the quarterly report for the period in which the activity was completed. The report should include the reason for the workover or change and the details of the work performed.

A demonstration of mechanical integrity (casing-tubing annulus pressure test) shall be performed within thirty (30) days of completion of any change or workover and prior to resuming injection activities.

X. REPORTING

A. The Permittee shall file quarterly reports within thirty (30) days after the last day of March, June, September, and December of each year. The report shall include:

1. Monthly average, maximum and minimum values for injection pressure, injection rate and volume, and annular pressure for each well. The report shall include summary graphs of the data collected during the reporting period.
2. Results of analyses of the injected fluids.
3. Graphical plots of continuous injection and annulus pressures (shown on the same plot) for each well.
4. Graphical plots showing continuous injection rates for each well.
5. Graphical plots showing the cumulative injection volumes for each well.
6. Any other information requested in writing by the Department.

The results of periodic tests of mechanical integrity, annual ambient monitoring, and well workovers shall be submitted as part of the first quarterly report following their completion.

B. The Permittee shall report orally within twenty-four (24) hours from the time these circumstances are made aware of:

1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an USDW.
2. Any noncompliance with a Permit condition or malfunction of the injection system such as loss of mechanical integrity which may cause fluid migration into or between USDWs.

A written report shall follow within five (5) days. The written report shall contain a description of the noncompliance and its causes, the period of noncompliance (including exact date and times), and if the noncompliance has not been corrected, the anticipated time it is expected to continue. Steps shall be taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

C. The Permittee shall report all other instances of noncompliance at the time

monitoring reports are submitted. The report shall contain the information listed above.

- D. In the event that the Permittee is placed on a compliance schedule, report of compliance or noncompliance with the requirements of the schedule shall be submitted no later than fourteen (14) days following each schedule date.
- E. If the Permittee becomes aware that they failed to submit any relevant facts in a Permit application or submitted incorrect information they shall promptly submit such facts and information.
- F. The Permittee shall notify the director at least (sixty) 60 days before conversion or abandonment of the disposal well.

XI. RECORDKEEPING

- A. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit for a period of at least five (5) years from the date of the sample measurement, report, or application. Records of monitoring information shall include:
 - 1. The date, exact place and time of sampling or measurements.
 - 2. The name of individual(s) who performed the sampling or measurements.
 - 3. The date(s) analyses were performed.
 - 4. The name of the laboratory and individual(s) who performed the analyses.
 - 5. The analytical techniques or methods used.
 - 6. The results of such analyses.
- B. The Permittee shall retain all records concerning the nature and composition of injected fluids for five (5) years after completion of plugging and abandonment procedures.

XII. PLUGGING AND ABANDONMENT

- A. Notification. The Permittee shall notify the Department in writing sixty (60) days prior to commencing plugging operations.

- B. **Injection Well Closure Plan.** The Permittee shall plug and abandon the well in accordance with the detailed Injection Well Closure Plan that is included in the Permit Application.

If the Permittee wishes to modify the plugging procedure, the following information shall be submitted to the Department:

1. The type, number, and placement (including the elevation of the top and bottom) of the plugs,
 2. The type, grade, and quantity of cement to be used, including any additives to be used,
 3. The method used to place the plugs and the method used to place the well into a state of equilibrium prior to placing the plugs, and
 4. The procedures to meet the requirements of 40 CFR §146.10.
- C. **Plugging and Abandonment Report.** Within sixty (60) days after plugging the well, the Permittee shall submit a report to the Department. The person who performed the plugging operation shall certify the report as accurate and the report shall consist of either (1) a statement that the well was plugged in accordance with the plan, or (2) where actual plugging differed from the plan, a statement that specifies the different procedures followed.

XIII. FINANCIAL RESPONSIBILITY

The Permittee is required to maintain continuous financial responsibility and resources to close, plug, and abandon the injection wells as provided in the plugging and abandonment plan. If only one well is constructed, the cost for plugging and abandonment is estimated as \$319,000 (inflated over the period between 2025 and 2030). The cost for plugging and abandoning two wells is estimated at \$638,000 (inflated over the period between 2025 and 2030). The Permittee will provide an appropriate financial assurance mechanism prior to completing the FREEMAN-1 injection well and prior to drilling the RUBEN-1 injection well, if MPC elects to drill RUBEN-1. Evidence that the financial assurance mechanism remains in effect must be submitted to the Department annually.

XIV. GENERAL CONDITIONS

- A. **Duty to Comply.** The Permittee must comply with all conditions of this Permit. Any permit noncompliance constitutes a violation of Chapter 33.1-25-01 of the NDAC. and is grounds for enforcement action; for Permit termination, revocation and reissuance or modification; or for denial of a Permit renewal application.
- B. **Injection Period.** The injection period will be five (5) years from the effective date of this Permit. The Permittee must apply for and obtain a new Permit in order to

continue injection after the expiration date of this Permit.

- C. Halting or Reducing Injection. The Permittee must halt or reduce injection if necessary to maintain compliance with the conditions of this Permit.
- D. Duty to Mitigate. The Permittee shall minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit.
- E. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain the well and all related appurtenances. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures.
- F. Modification, Reissuance, or Termination. This Permit may be modified, revoked, and reissued or terminated for cause. The filing of a request by the Permittee for a Permit modification, revocation, and reissuance or termination, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any Permit condition.
- G. Conveyance of Rights. This Permit does not convey any property rights of any sort or any exclusive privilege.
- H. Duty to Provide Information. The Permittee shall furnish to the Department, within a reasonable time, any 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. Inspection and Entry. The Permittee shall allow the Department or an authorized representative upon the presentation of credentials to:
 - 1. Enter upon the Permittee's premises where the wells or the records that must be kept under the conditions of this Permit are located.
 - 2. Have access to and copy, at reasonable times, the records that must be kept under the condition of this Permit.
 - 3. At reasonable times, inspect the wells and the monitoring and control equipment.
 - 4. Sample or monitor, at reasonable times, for the purpose of assuring Permit compliance.

- J. **Report Certification.** All reports or information submitted to the Department under the terms of this Permit shall be signed and certified as follows:
1. By a principal executive officer of at least the level of vice-president, or a duly authorized representative.
 2. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above.
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the well.
 - c. The written authorization is submitted to the Department.
 3. If an authorization is no longer accurate because a different individual has responsibility for the overall operation of the wells, a new authorization must be submitted to the Department prior to, or together with, any document signed by an authorized representative.
 4. The person signing the document shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."
- K. **Reporting on Noncompliance.** The Permittee shall give advance notice to the Department of any planned changes in the operation of the wells which may result in noncompliance with Permit requirements.
- L. **Transfers.** This Permit is not transferable to any person except after information is provided to the Department. The Department may require modification or revocation and reissuance of the Permit to change the name of the Permittee and to incorporate such other requirements as may be necessary under the Safe Drinking Water Act.

ATTACHMENT A

Parameters for Chemical Analysis

List A – Hazardous Waste Classification

Corrosivity by pH

Setaflash Flashpoint

Complete Toxicity Characteristic Leaching Procedure (TCLP)

TCLP Metals

Arsenic

Barium

Cadmium

Chromium

Lead

Mercury

Selenium

Silver

TCLP Pesticides

Endrin

Chlordane

Heptachlor

Heptachlor Epoxide

Methoxychlor

Toxaphene

Lindane

TCLP Herbicides

2,4-D

2,4,5-TP

TCLP Volatile Organic Compounds

Benzene

Carbon Tetrachloride

Chlorobenzene

Chloroform

1,2-Dichloroethane

1,1-Dichloroethylene

Methyl Ethyl Ketone

Tetrachloroethylene

Trichloroethylene

Vinyl Chloride

1,4-Dichlorobenzene

TCLP Semi Volatile Compounds

Cresol

o-Cresol

m-Cresol

p-Cresol

Pentachlorophenol

1,4-Dichlorobenzene

2,4-Dinitrotoluene

Hexachlorobenzene

Nitrobenzene

Hexachlorbutadiene

Pyridine

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Hexachloroethane

List B – General Waste Characterization

Volatile Organic Compounds (VOCs)

Semi Volatile Organic Compounds (SVOCs)

Total Suspended Solids (TSS)

Total Dissolved Solids (TDS)

pH

Specific Gravity

Arsenic (dissolved)

Barium (dissolved)

Cadmium (dissolved)

Calcium

Chloride

Total Chromium (dissolved)

Specific Conductivity
Temperature
Hardness
Total Organic Carbon (TOC)
Chemical Oxygen Demand (COD)
Turbidity
Sulfate
Sulfite
Nitrogen (Nitrate)
Nitrogen (Nitrite)
Total Kjeldahl Nitrogen
Ammonia (as N)
Viscosity
Alkalinity
Carbonate
Bicarbonate
Aluminum
Bromide
Antimony
Lead 210

Silver (dissolved)
Fluoride
Iron
Lead (dissolved)
Magnesium
Cyanide
Copper
Strontium
Manganese (dissolved)
Molybdenum (dissolved)
Nickel (dissolved)
Phosphorus (dissolved)
Potassium (total)
Selenium (dissolved)
Silver (dissolved)
Sodium
Mercury (dissolved)
Zinc (dissolved)
Calcium Carbonate
Radium 226/228