NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
PUBLIC NOTICE TO
ISSUE AN UNDERGROUND INJECTION CONTROL PERMIT

July 24, 2024

PURPOSE OF PUBLIC NOTICE

THE PURPOSE OF THIS NOTICE IS TO STATE THE DEPARTMENT'S INTENTION TO ISSUE A CLASS I UNDERGROUND INJECTION CONTROL PERMIT UNDER THE AUTHORITY OF ARTICLE 33.1-25 OF THE NORTH DAKOTA ADMINISTRATIVE CODE.

PERMIT INFORMATION

APPLICANT NAME:	Select Water Solutions, LLC.
MAILING ADDRESS:	12515 Carriage Way Oklahoma City, OK 73142
FACILITY LOCATION:	Dishon Disposal Special Waste Landfill 18 Miles Southwest of Williston, ND
APPLICANT CONTACT	Gary Woolsey, Vice President
CONTACT TELEPHONE NUMBER:	281-794-7811
PERMIT NUMBER:	ND-UIC-110

UNDERGROUND INJECTION CONTROL PERMIT

The North Dakota Department of Environmental Quality, Division of Water Quality, intends to issue a Class I underground injection control permit (Permit) for a Class I non-hazardous waste underground injection well located at the Dishon Disposal Special Waste Landfill. The well will be located approximately 18 miles southwest of Williston, North Dakota.

The permitted waste stream consists of liquid wastes from the landfill's leachate collection pond, which is comprised of landfill leachate and surface water runoff. Previous sampling results has determined that the waste is classified as non-hazardous.

Injection Well #1. Injection Well #1 will inject wastewater into permeable sandstone intervals of the Inyan Kara Formation in the interval from approximately 5,670 to 5,995 feet below ground surface (bgs). 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 3,660 feet below the lowermost underground source of drinking water (USDW), the Fox Hills Sand.

The permit will be issued for a five-year period, beginning on the date the permit is signed by the Director of the Division of Water Quality.

PUBLIC COMMENTS

The Permit Application Package, Draft Permit, and Fact Sheet will be available for public review and comment for thirty (30) days following publication of the Public Notice. The public comment period begins July 24, 2024 and ends August 26, 2024. Interested persons may submit written comments to the Department on the Draft Permit during this period.

Interested persons may request a public hearing by stating the nature of the specific issues to be raised. The Department has tentatively scheduled a Public Hearing on the Draft Permit on August 28, 2024 at 3:30 pm Central Time at the Missouri-Yellowstone Confluence Interpretive Center, 15349 39th Lane Northwest, Williston, North Dakota. The hearing will be held if there is sufficient public interest pertaining to the proposed Draft Permit. If sufficient public interest is not raised and a hearing is not requested by August 21, 2024, the hearing will not be conducted. Please check North Dakota Department of Environmental Quality (nd.gov) or call the Department at 701-328-5210 on or after August 21, 2024 for confirmation of the hearing.

The Department will consider all comments prior to taking any action on the permit. Comments, questions, and written communication should be directed to:

Karl Rockeman, Director
North Dakota Department of Environmental Quality
Division of Water Quality
4201 Normandy Street
Bismarck, ND 58503-1324

The Permit Application Package, Draft Permit, and Fact Sheet are available for review during the hours of 8:30 a.m. to 4:30 p.m., Monday through Friday, at the North Dakota Department of Environmental Quality, Division of Water Quality, 4201 Normandy Street, Bismarck, North Dakota. Copies of this Public Notice and the Draft Permit are also on the Department's website at: http://deq.nd.gov. Anyone requiring special access or accommodations to review the documents may contact the Department at 701-328-5210.

NDDEQ Non-Discrimination Statement

The Department will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access programs and information. To request accommodations, contact Ann Fritz, Non-discrimination Coordinator at 701-328-5162 or afritz@nd.gov. TTY users may use Relay North Dakota at 711 or 1800-366-6888.

PUBLIC NOTICE NUMBER: ND-2024-016

North Dakota Department of Environmental Quality
Division of Water Quality
Underground Injection Control Program

FACT SHEET

Select Water Solutions, LLC. Class I Injection Well #1
Dishon Disposal Special Waste Landfill
Class I Non-Hazardous Waste Underground Injection Well Permit

Select Water Solutions, LLC. (Select Water)
Williams County, North Dakota

North Dakota Department of Environmental Quality UIC Permit No. ND-UIC-110

NDDEQ Contact: Carl Anderson
Ground Water Protection Program Manager
North Dakota Department of Environmental Quality
Division of Water Quality
4201 Normandy Street
Bismarck, ND 58503-1324
701-328-5213

Select Water Contact: Gary Woolsey
Vice President
Select Water Solutions, LLC
12515 Carriage Way
Oklahoma City, OK 73142

PERMIT BACKGROUND INFORMATION

The North Dakota Department of Environmental Quality (NDDEQ) received an application from Select Water Solutions, LLC. (Select Water) (Permittee) requesting a Class I Underground Injection Control Permit (Permit) to install and operate a non-hazardous waste disposal well. The permit application proposes to dispose of non-hazardous wastewater generated from the Dishon disposal Special Waste Landfill (owned by Select Water) into one deep underground injection well, Injection Well #1.

The permitted waste stream would consist of liquid wastes from the landfill's leachate collection pond, which is comprised of landfill leachate and surface water runoff. Previous sampling results has determined that the waste is classified as non-hazardous.

If approved, Permit ND-UIC-110 (Permit) will authorize the injection of waste fluids into Injection Well #1 for a period of five (5) years, beginning from the effective date of the final Permit.

FACILITY INFORMATION AND INJECTION ACTIVITY

Well Location. North Dakota Underground Injection Permit ND-UIC-110 (Permit) authorizes Select Water (Permittee) to dispose of surface water runoff and landfill leachate into one (1) Class I non-hazardous waste underground injection well (Well #1). The injection well is located within the landfill property boundary, just south of the entrance to the facility off 153rd Avenue NW.

Wastewater Description. The permitted waste stream will consist of liquid wastes from the landfill's leachate collection pond, which is comprised of landfill leachate and surface water runoff. Previous sampling results have determined that the waste is classified as non-hazardous.

Class I Injection Well #1 Information. Injection Well #1 injects wastewater into permeable sandstone intervals of the Inyan Kara Formation in the interval from approximately 5,670 to 5,995 feet below ground surface (bgs). 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 3,660 feet below the lowermost underground source of drinking water (USDW), the Fox Hills Sand.

Well #1 is constructed with a 16-inch outside diameter (OD) conductor casing set from ground surface to an approximate depth of 55 feet bgs, a 9 3/8-inch OD surface casing set from ground surface to approximately 2,110 feet bgs, and a 7-inch OD protection casing that extends from ground surface to a depth of approximately 6,050 feet bgs. Wastewater is injected through 4 1/2-inch OD tubing with a packer set at a depth of 5,620 feet bgs, or approximately 50 feet above the top of the targeted injection zone. The annulus between the injection tubing and protection casing is filled to the surface with an inhibited brine, and a seal pot is attached to the annulus to detect well malfunctions. Injection pressure, flow rate, and tubing/long string annulus pressure are continuously monitored. The maximum permitted injection rate for Well #1 is 350 gallons per minute (gpm).

The maximum permitted volume of injected fluids is 1.84×10^9 gallons.

Should the well need corrective maintenance or be shut-in for testing, the injectate will be properly stored onsite or disposed of off-site.

The Permittee is authorized to conduct injection activity in Well #1 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.

GEOLOGY AND HYDROGEOLOGY

Geology

The proposed wellbore is located in eastern Williams County approximately 18 miles south of Williston, ND. Williams County lies near the center of the Williston Basin. The Williston Basin is a large, roughly circular depression consisting of both sedimentary and structural components, underlying parts of North and South Dakota, Montana, and the Canadian provinces of Saskatchewan and Manitoba.

The following tabulation summarizes the geologic formations expected to be encountered in the upper confining unit, the injection interval, and the lower confining unit during drilling of the injection well.

Interval Name	Stratigraphic Formations	Estimated Depth of Top of Unit (feet below ground surface)	Estimated Depth of Bottom of Unit (feet below ground surface)
Upper Confining Unit	Cretaceous confining system: Graneros Shale, Greenhorn Limestone, Carlile Shale, Niobrara formation, Pierre Shale (includes non-sandstone layers near the top of the Inyan Kara formation)	2,010	5,670
Injection Interval	Inyan Kara formation Sandstone (often referred to as the Dakota Aquifer)	5,670	5,995
Lower Confining Unit	Jurassic confining system: Swift formation, Rierdon formation (includes non-sandstone layers near the bottom of the Inyan Kara formation)	5,995	Undetermined

Hydrogeology of Proposed Injection Zone and Confining Zones

Well #1 injects wastewater into the Inyan Kara Formation in the interval from 4,670 to 5,995 feet below ground surface (bgs). 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 water quality of the Dakota aquifer at the proposed injection site has not been evaluated. The total dissolved solids concentration is expected to be greater than 10,000 milligrams per liter (mg/L). Samples of fluid from the proposed injection zone will be collected during well drilling and after well completion. If the TDS concentration is greater than 3,000 mg/L and less than 10,000 mg/L, an aquifer exemption will be requested.

The uppermost perforated injection interval in Well #1 is approximately 3,660 feet below the lowermost underground source of drinking water (USDW), the Fox Hills Sand. The Fox Hills formation is isolated from the Dakota aquifer by a shaley, Cretaceous confining unit composed of the Pierre, Niobrara, Carlile, Greenhorn, Belle Fourche, and Mowry formations (listed in descending order). This grouped unit is estimated to be 3,660 feet thick near the proposed injection site. The predominant formation in the Cretaceous confining unit is the Pierre shale, which is an areally extensive layer that can exceed 3,000 feet in thickness in some sections of the northern Great Plains. The other formations, although not as thick, also act as effective confining units.

The Dakota aquifer is underlain by the Swift formation, which is comprised primarily of shale interbedded with siltstone and sandstone. The thickness of the Swift formation in the vicinity of Well #1 is estimated to be 550 feet.

INJECTION INFORMATION

The waste fluids are authorized to be injected into one interval consisting of the Inyan Kara Formation between approximately 4,670 and 5,995 feet below ground surface (bgs). The uppermost perforated injection interval is approximately 3,660 feet below the closest currently identified underground source of drinking water (USDW), the Fox Hills Sand.

DRAFT PERMIT CONDITIONS

This Fact Sheet summarizes the site-specific Permit conditions. The following section references refer to corresponding sections in NDDEQ Permit ND-UIC-110 (Permit in Draft form). General permit conditions for which the content is mandatory and not subject to site-specific differences (based on 40 CFR Parts 124, 144, 146, and 147) are not included in this Fact Sheet.

Section IV – Well Construction Requirements

Casing and Cementing (Condition 1)

The construction details submitted with the Construction Completion Report are incorporated into the Permit and are binding on the Permittee. Any proposed changes to the construction of the wells must be submitted to the Department.

Injection Tubing and Packer Specifications (Condition 2)

The wells shall have a tubing and packer construction of materials of sufficient quality and strength for the proposed injection activity.

Monitoring Devices (Condition 3)

The Permit establishes that the primary method of monitoring is pressure monitoring of the injection and casing tubing annulus pressure and of the injection rate and total volume of fluid injected into the well. All monitoring equipment shall be continuous recording, and shall be operated and maintained as long as the Permit is in effect. The Permit also requires that the wells have mechanisms to access the wellhead and injection line to obtain manual measurements of injection and annulus pressure and samples of the injection fluid.

Prior to commencement of injection activities, the operator shall install and maintain in good operation 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 tubing/casing annular space will be monitored using a digital continuous reading pressure monitoring device in the wellhead casing/tubing annulus. The tubing/casing annulus shall be maintained with an inhibited brine fluid that is under a differential pressure of at least 100 pounds per square inch (psi). 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 shall be less than 1,430 psi in Injection Well #1. 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.

Section V - Well Logging and Testing Requirements

Cement Bond Log (Condition 4)

Based on the proposed construction and cementing details of the injection well, all USDW should be

adequately protected behind the cemented surface and long-string casings. Following completion of the well, a cement bond log will be run to verify the adequacy of the cement placement. The Permittee shall also run a new cement bond log following any work performed on the well that involves cementing.

Mechanical Integrity Testing (Condition 5)

Mechanical integrity testing will be completed prior to commencement of injection into the well. Prior to commencement of injection, the mechanical integrity of the well will be evaluated by conducting the following:

1. A cement bond log.
2. An annular pressure test.

The mechanical integrity testing will also be conducted at least every five years and 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.

Pressure Fall-Off Test (Condition 6)

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.

Section VI - Well Operating Parameters

The injection of non-hazardous waste fluids into the proposed Class I underground injection well will be covered under the authority of Permit ND-UIC-110 and is authorized subject to the conditions herein.

Injection Rate (Condition 7)

The maximum injection rate for Injection Well #1 shall not exceed 350 gpm.

Injection Interval (Condition 8)

The injection interval shall be limited to the Inyan Kara Formation, in an injection interval between 4,670 and 5,995 feet bgs.

Injection Pressure (Condition 9)

The maximum injection pressure at the wellhead shall not exceed 1,430 pounds per square inch (psi), the maximum pressure calculated to ensure that fracturing of the injection zone and confining zone does not occur. The injection pressure may be modified if Department-approved testing (e.g., step rate injection test) indicates that fractures in the formation do not occur at a higher injection pressure.

Annular Fluid (Condition 10)

The tubing/long string casing annulus of each well shall be filled with a fluid containing corrosion inhibitors. A pressure differential from the injection pressure of at least 100 psig (pounds per square inch gage) (measured at the wellhead) shall be maintained on the annulus to detect well malfunctions. For 60 minutes after the pressure differential drops below 100 psig, the Permittee can conduct troubleshooting and proceed to restore a minimum 100 psig pressure differential. If a minimum 100 psig 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 psig pressure differential.

Injection Fluid (Condition 11)

The injected wastewater stream shall consist of the stream specified in the Permit. However, with prior written approval from the Department, injection of wastewater streams other than those specified may be allowed if (1) the wastewater stream is compatible to the original waste stream, (2) the wastewater is non-hazardous, and (3) the wastewater stream will not interfere with the operation of the facility or its ability to meet Permit conditions.

Section VII – Injection Well Monitoring

Environmental Protection Agency (EPA) regulations (40 CFR Part 146.13) require continuous monitoring and recording of injection pressure, flow rate and volume, and tubing/casing annulus pressure. The Permittee is also required to analyze the water quality of the injected fluids.

Pressure Gauges and Recording Devices (Condition 12)

Pressure gauges shall be maintained in proper operating conditions at all times on the injection tubing and on the tubing/long string casing annulus of the wellhead. 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 tubing/long string casing annulus pressures.

Injection Fluid Monitoring (Condition 13)

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. This complete analysis shall include the parameters specified in Lists A and B, summarized in Attachment A of the Permit. The Department will establish an on-going sampling program to ensure the waste fluids injected into the well are non-hazardous.

One of Dishon's onsite groundwater monitoring wells (to be specified by the Director) will be sampled on a semi-annual basis; the samples will be analyzed for the parameters specified in List C, Attachment A of the Permit. The groundwater elevation in the well shall also be measured.

Section VIII – Ambient Monitoring Program

Pressure Fall-Off Test (Condition 14)

The pressure buildup in the injection zone will be evaluated at least annually by conducting a

pressure fall-off test. The data obtained will be used to evaluate the zone of influence in the well to date, reservoir transmissivity, and reservoir skin factor.

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.

Section IX – Proposed Changes and Well Workovers

Notification (Condition 15)

The Permittee shall give at least two (2) week advance notice to the Department of any planned physical alterations or additions to permitted well. 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.

Reporting (Condition 16)

The Permittee shall provide the Department with all records of well workovers. The documentation shall include the reason for the workover and the details of the work performed.

Mechanical Integrity (Condition 17)

A demonstration of the mechanical integrity shall be performed within thirty (30) days of completion of any change or workover. Injection into the well(s) will not resume until mechanical integrity is demonstrated.

Section X – Reporting

Quarterly Reports (Condition 18)

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 should include:

1. Monthly average, maximum and minimum values for injection pressure, injection rate and volume, and annular pressure for each well. The report should include summary graphs of the data collected during the reporting period.

2. Results of analyses of the injected fluids.

3. Results of the groundwater monitoring well analyses.

4. Graphical plots of continuous injection and annulus pressures (shown on the same plot) for each well.

5. Graphical plots showing continuous injection rates for each well.

6. Graphical plots showing the cumulative injection volumes for each well.

7. Any other information requested in writing by the Department.

Additional Reports (Condition 19)

The results of mechanical integrity tests, pressure fall-off tests, and well workovers shall be submitted as part of the first quarterly report following their completion.

General Reporting (Condition 20)

The Permittee shall report orally within twenty-four (24) hours from the time (1) monitoring or other information indicates that any contaminant may cause an endangerment to an USDW, and/or (2) information is obtained that indicates noncompliance with a Permit condition or a malfunction of the injection system (e.g., 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.

Non-Compliance Reporting (Condition 21)

The Permittee shall report all other instances of noncompliance at the time monitoring reports are submitted. The reports shall contain the information listed above.

Compliance Reporting (Condition 22)

In the event that the Permittee is placed on a compliance schedule, a report of compliance or noncompliance with the requirements of the schedule shall be submitted no later than fourteen (14) days following each schedule date.

Omissions Reporting (Condition 23)

If the Permittee becomes aware that he failed to submit any relevant facts in a Permit application or submitted incorrect information, he shall promptly submit such facts and information to the Department.

Conversion/Abandonment Reporting (Condition 24)

The Permittee shall notify the Department at least sixty (60) days before conversion or abandonment of the disposal well.

Section XI - Recordkeeping

Monitoring Records (Condition 25)

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 the Permit, and records of all data used to complete the application for the Permit for a period of at least five (5) years from the date of the sample measurement, report, or application submittal.

Injection Fluid Records (Condition 26)

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.

Section XII – Plugging and Abandonment

Notification (Condition 27)

The Permittee shall notify the Department in writing sixty (60) days prior to commencing plugging operations. The plugging and abandonment procedure shall be in accordance with an Injection Well Closure Plan approved by the Department.

Abandonment Report (Condition 28)

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 should 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.

Section XIII - Financial Responsibility

Surety Performance Bond (Condition 29)

The Permittee is required to maintain continuous financial responsibility and resources to close, plug, and abandon the injection well as provided in the plugging and abandonment plan. Prior to commencement of injection, The Permittee shall submit a $151,300 Surety Performance Bond for the plugging and abandonment of the injection well and for post-closure activities.

PUBLIC INVOLVEMENT

Public Comment Period

Public Notice number ND-2024-016 was issued on July 26, 2024, inviting comments on the Draft Permit developed for Select Water. Comments should be directed to the North Dakota Department of Environmental Quality, Division of Water Quality, 4201 Normandy Street, Bismarck, ND 58503-1324. All information received on or before August 28, 2024 will be considered prior to final consideration on issuing an approval to operate Well #1.

Public Hearing

Should there be significant public interest, a Public Hearing will be held. In anticipation of the Department receiving a request for a Public Hearing or receiving significant public comments, a Public Hearing has been scheduled for August 28, 2024 at 3:30 pm Central Time at the Missouri-Yellowstone Confluence Interpretive Center, 15349 39th Lane Northwest, Williston, North Dakota. The hearing will be held if there is sufficient public interest pertaining to the proposed Draft Permit. If sufficient public interest is not raised and a hearing is not requested by August 21, 2024, the hearing will not be conducted. Please check North Dakota Department of Environmental Quality (nd.gov) or call the Department at 701-328-5210 on or after August 21, 2024 for confirmation of the hearing.

Additional Information

Additional information may be obtained upon request by calling the NDDEQ at (701) 328-5210, or by writing to the address listed above. The Permit Application, Draft Permit ND-UIC-110, and related documents are available for review and reproduction at the Department.

NDDEQ Non-Discrimination Statement

The Department will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access programs and information. To request accommodations, contact Ann Fritz, Non-discrimination Coordinator at 701-328-5162 or afritz@nd.gov. TTY users may use Relay North Dakota at 711 or 1800-366-6888.

Permit No.: ND-UIC-110

Effective Date: xxx, 2024
Expiration Date: xxx, 2029

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, Select Water Solutions, LLC., 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, 2024, and shall expire at midnight on xxx, 2029, unless amended or terminated by the Department.

_____
Karl Rockeman, Director
Division of Water Quality
Date:_____

I. NAME OF PERMITTEE

Select Water Solutions, LLC,
12515 Carriage Way
Oklahoma City, OK 73142

II. NATURE OF BUSINESS

Select Water Solutions, LLC. (Select Water) operates the Dishon Disposal special waste landfill at a location approximately 18 miles south of Williston, in Sections 19 and 30, Township 153N, Range 103W. The facility accepts non-hazardous wastes produced by the oil and gas industry in the area, including drill cuttings, exploration and production waste, pit liners, contaminated soils from crude oil and natural gas drilling, pipeline leaks, production saltwater spills, and industrial spills.

Liquids generated at the facility consists of contact water (surface water runoff) from within the landfill waste placement area and leachate collected from the landfill's leachate collection system. The volume of water requiring management via the Class I injection well varies over time, based on actual precipitation generating runoff and leachate. It is anticipated that the well will operate intermittently, as required to consume excess water within the leachate collection ponds.

III. DESCRIPTION AND LOCATION OF INJECTION ACTIVITY

Well Location. North Dakota Underground Injection Permit ND-UIC-110 (Permit) authorizes Select Water (Permittee) to dispose of surface water runoff and landfill leachate into one (1) Class I non-hazardous waste underground injection well (Well #1). The injection well is located within the landfill property boundary, just south of the entrance to the facility off 153rd Avenue NW.

Wastewater Description. The permitted waste stream consists of liquid wastes from the landfill's leachate collection pond, which is comprised of landfill leachate and surface water runoff. Previous sampling results has determined that the waste is classified as non-hazardous.

Class I Injection Well #1 Information. Injection Well #1 injects wastewater into permeable sandstone intervals of the Inyan Kara Formation in the interval from approximately 5,670 to 5,995 feet below ground surface (bgs). 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 3,660 feet below the lowermost underground source of drinking water (USDW), the Fox Hills Sand.

Well #1 is constructed with a 16-inch outside diameter (OD) conductor casing set from ground surface to an approximate depth of 55 feet bgs, a 9 3/8-inch OD surface casing set from ground surface to approximately 2,110 feet bgs, and a 7-inch OD protection casing that extends from ground surface to a depth of approximately 6,050 feet bgs. Wastewater is injected through 4 1/2-inch OD tubing with a packer set at a depth of 5,620 feet bgs, or approximately 50 feet above the top of the targeted injection zone. The annulus between the injection tubing and protection casing is filled to the surface with an inhibited brine, and a seal pot is attached to the annulus to detect well malfunctions. Injection pressure, flow rate, and tubing/long string annulus pressure are continuously monitored. The maximum permitted injection rate for Well #1 is 350 gallons per minute (gpm).

The maximum permitted volume of injected fluids is 1.84×10^9 gallons.

Should the well need corrective maintenance or be shut-in for testing, the injectate will be properly stored onsite or disposed of off-site.

The Permittee is authorized to conduct injection activity in Well #1 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.

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 construction of materials of sufficient quality and strength for the proposed injection activity.

C. Monitoring Devices. The primary method of monitoring shall be continuous pressure monitoring of the injection and casing tubing annulus pressure (at the wellhead) and continuous monitoring of the injection rate and total volume. Prior to commencement of injection activities, the operator shall install and maintain in good operation 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 tubing/casing annular space will be monitored using a digital continuous

reading pressure monitoring device in the wellhead casing/tubing annulus. The tubing/casing annulus shall be maintained with an inhibited brine fluid that is under a differential pressure of at least 100 pounds per square inch (psi). 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 shall be less than 1,430 psi in Injection Well #1. 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 Bond Log. A cement bond log was after the well was constructed to verify the adequacy of the cement placement. The Permittee shall also run a new cement bond 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 was 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 Well #1, 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 conducting in accordance with 40 CFR 146.8. Prior to conducting mechanical integrity testing, the Permittee must submit a Mechanical Integrity 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 for one well. The maximum instantaneous injection rate in Well #1 shall be 350 gallons per minute (gpm).

C. Injection Interval. Injection into Well #1 is limited to the Inyan Kara Formation, a Cretaceous sandstone unit, in the approximate interval from 5,670 to 5,995 feet below ground surface (bgs). The uppermost perforated injection interval in PDI Class I Injection Well #1 is approximately 3,660 feet below the base of the lowermost underground source of drinking water (USDW), the Fox Hills Sand.

D. Injection Pressure. The wellhead injection pressure with fresh water specific gravity

fluid shall not exceed 1,430 psi in Well #1 to assure that fracturing of the injection zone and confining zone does not occur. The injection pressure may be modified if Department-approved testing (e.g., step rate injection test) indicates that fractures in the formation do not occur at a higher injection pressure.

E. Annular Fluid. The tubing/long string casing annulus shall be filled with a fluid containing corrosion inhibitors. A pressure with a differential (positive or negative) from 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 psig, the Permittee can conduct troubleshooting and proceed to restore a minimum 100 psig pressure differential. If a minimum 100 psig 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 psig 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 to those streams outlined in Section III.

2. The wastewater is nonhazardous.

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 tubing/long string casing annulus of 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 tubing/long string casing annulus pressures.

C. Mechanical Integrity. The mechanical integrity of the well shall be verified by the

continuous monitoring of the tubing/long string casing annulus pressure. An annular pressure test and a temperature survey will be completed at least every five years.

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. This complete analysis shall include the parameters specified in Lists A and B, summarized in Attachment A. The Department will establish an on-going sampling program to ensure the waste fluids injected into the well are non-hazardous.

E. Groundwater Monitoring. One of Dishon's onsite groundwater monitoring wells (to be specified by the Director) will be sampled on a semi-annual basis; the samples will be analyzed for the parameters specified in List C, Attachment A. The groundwater elevation in the well shall also be measured.

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) week advance notice to the Department of any planned physical alterations or additions to permitted well. 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 (tubing/casing 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 should include:

1. Monthly average, maximum and minimum values for injection pressure, injection rate and volume, and annular pressure for each well. The report should include summary graphs of the data collected during the reporting period.

2. Results of analyses of the injected fluids.

3. Results of the groundwater monitoring well analyses.

4. Graphical plots of continuous injection and annulus pressures (shown on the same plot) for each well.

5. Graphical plots showing continuous injection rates for each well.

6. Graphical plots showing the cumulative injection volumes for each well.

7. 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 should 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 he failed to submit any relevant facts in a Permit application or submitted incorrect information he 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 Construction Completion Report.

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 the 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 should 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 well as provided in the plugging and abandonment plan. The Permittee has submitted a Trust Agreement and an Irrevocable Standby Letter of Credit in the amount of $151,300 for the plugging and abandonment of the injection well. Evidence that the bond 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 N.D.A.C. 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 well 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 well 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	TCLP Pesticides	TCLP Herbicides
Arsenic	Endrin	2,4-D
Barium	Chlordane	2,4,5-TP
Cadmium	Heptaclor	
Chromium	Heptachor Epoxide	
Lead	Methoxychlor	
Mercury	Meptachlorepoxide	
Selenium	Toxaphene	
Silver	Lindane	

TCLP Volatile Organic Compounds	TCLP Semi Volatile Compounds
Benzene	Cresol
Carbon Tetrachloride	o-Cresol
Chlorobenzene	m-Cresol
Chloroform	p-Cresol
1,2-Dichloroethane	Pentachlorophenol
1,1-Dichoroethylene	1,4-Dichlorobenzene
Methyl Ethyl Ketone	2,4-Dinitrotoluene
Tetrachloroethylene	Hexachlorobenzene
Trichloroethylene	Nitrobenzene
Vinyl Chloride	Pyridine
	2,4,5-Trochlorophenol
	2,4,6-Trichlorophenol

List B – General Waste Characterization

Volatile Organic Compounds (VOCs)	Arsenic (dissolved)
Semi Volatile Organic Compounds (SVOCs)	Barium (dissolved)
Total Suspended Solids (TSS)	Cadmium (dissolved)
Total Dissolved Solids (TDS)	Calcium
pH	Chloride
Specific Gravity	Total Chromium (dissolved)
Specific Conductivity	Silver (dissolved)
Temperature	Fluoride

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
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

List C – Abbreviated Waste Characterization

pH
Total Dissolved Solids (TDS)
Sulfate
Calcium
Sodium
Chloride
Total Organic Carbon (TOC)
Specific Gravity
Magnesium
Temperature
Potassium
Calcium Carbonate