STATEMENT OF BASIS

NEWALTA
NEW TOWN SWD #1
MOUNTRAIL COUNTY, North Dakota

EPA PERMIT NO. ND22328-10783

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This STATEMENT OF BASIS gives the derivation of site-specific UIC Permit conditions and reasons for them. Referenced sections and conditions correspond to sections and conditions in the Permit.

EPA UIC permits regulate the injection of fluids into underground injection wells so that the injection does not endanger underground sources of drinking water. EPA UIC permit conditions are based upon the authorities set forth in regulatory provisions at 40 CFR Parts 144 and 146, and address potential impacts to underground sources of drinking water. Under 40 CFR 144.35 Issuance of this permit does not convey any property rights of any sort or any exclusive privilege, nor authorize injury to persons or property of invasion of other private rights, or any infringement of other Federal, State or local laws or regulations. Under 40 CFR 144 Subpart D, certain conditions apply to all UIC Permits and may be incorporated either expressly or by reference. General Permit conditions for which the content is mandatory and not subject to site-specific differences (40 CFR Parts 144, 146 and 147) are not discussed in this document.

Upon the Effective Date when issued, the Permit authorizes the construction and operation of injection wells so that the injection does not endanger underground sources of drinking water, governed by the conditions specified in the Permit. The Permit is issued for the operating life of the injection well or project unless terminated for reasonable cause under 40 CFR 144.39, 144.40 and 144.41. The Permit is subject to EPA review at least once every five (5) years to determine if action is required under 40 CFR 144.36(a).

A Cultural Resources Survey of the New Town #1 Salt Water Disposal Well Site on the Fort Berthold Reservation was conducted to be compliant with Section 106 of the National Historic Preservation Act (NHPA) and the Native American Graves Protection and Repatriation Act (NAGPRA). A portion of the area temporarily impacted by construction may occur outside the area that has been previously disturbed. A cultural resources desktop study and pedestrian survey was conducted of the 5.7 acre Area of Potential Effect (APE) in early October 2014 by Stephen R. Anderson, RPA under State of North Dakota Archaeological Permit Pursuant to NDCC 55-03-01. The surface assessment resulted in a negative inventory. If during construction the operator or his contractors encounter any previously unidentified archaeological resources they are required to report them as described in Section 5 of the Cultural Resources Survey of the New Town Salt Water Disposal Well Project, Mountrail County, North Dakota, Tetra Tech, Inc., October 2014.

A Biological Assessment (BA) (April 2016) of the New Town Salt Water Disposal Well on the Fort Berthold Reservation was conducted to be compliant with Section 7(a)(2) of the Endangered Species Act (ESA), 16 U.S.C. 1536 (a)(2). This BA replaced a previously prepared document (December; 2014) that was determined to be outdated. The action area for the Project includes the area required for construction and operation of the new well and appurtenant features, Areas used for access, adjacent native grassland and agricultural habitats, and any water bodies that could be affected by the potential spill and discharge of salt water generated by oil and gas production activities in the area. The area envisioned as encompassing the Action Area is approximately 105 acre and includes both the existing oil field production waste disposal facility and adjacent lands most of which are impacted by past agricultural activities. In Mountrail County there are currently 11 Candidate, Threatened, and Endangered Species identified as indicated in the following table.

Species	Type	Status	Habitat	Designated Critical Habitat
Northern Long Eared Bat	Mammal	T	Common resident of forests from the Atlantic coast to as far west as eastern Wyoming and Montana	No
Grey Wolf	Mammal	E	Occur primarily in boreal and temperate forests, and may occasionally wander through temperate grasslands	No
Black-footed ferret	Mammal	E	Large prairie dog complexes – these complexes needed to support a black footed ferret population do not currently exist in North Dakota	No
Whooping Crane	Bird	E	During migration, use primarily seasonal and semi-permanent wetlands for roosting, feeding or both	No
Red knot	Bird	T	Migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions in southern regions	No
Piping plover	Bird	T	Great Plains population nests along sand and gravel shores of perennial rivers and alkali lakes	Yes
Least tern	Bird	E	Nests on sandy beaches or on sandbars in the Mississippi, Missouri, and Rio Grande river systems	No
Poweshiek skipperling	Bird	E	High quality tallgrass prairie in both upland, dry areas as well as low, moist prairie fen areas	No
Pallid sturgeon	Fish	E	Free flowing regions of the Missouri River, upstream of the Lake Sakakawea reservoir	No
Dakota skipper	Insect	E	High quality mixed and tallgrass native prairies containing a high diversity of wildflowers and grasses	Yes
Western prairie fringed orchid	Plant	T	Tall grass prairie and is found most often in unplowed, calcareous prairies and sedge meadows	No

T - Threatened
E - Endangered

Based upon the BA and in consultation with the US Fish and Wildlife Service the EPA has determined that the proposed project will have “no effect” on 10 of the species listed as either Threatened or Endangered within Mountrail County and “may effect, but is unlikely to adversely affect” the northern long eared bat.

Conservation measures that may be implemented to minimize impacts to federally threatened, endangered, candidate, and proposed species are provided below.

- Extend the existing containment berm to enclose the well, if necessary to prevent discharges to down gradient waters
- Implement sediment control measures that may include:
  - Sediment basins or traps
  - Fiber rolls
  - Silt Fences
- Upgrade sump capacity, if required, to prevent the contamination of discharges to down gradient waters
- Adhere to appropriate speed limits on the access road to minimize disturbance to wildlife.

PART I. General Information and Description of Facility

Newalta
1801 California Street
50th Floor
Denver, Colorado 80202

on

December 23, 2014

submitted an application for an Underground Injection Control (UIC) Program Permit or Permit Modification for the following injection well or wells:

New Town SWD #1
2296 feet FNL, 1140 feet FEL, SENE S17, T152N, R91W
Mountrail County, North Dakota

The application, including the required information and data necessary to issue or modify a UIC Permit in accordance with 40 CFR Parts 144, 146 and 147, was reviewed and determined by EPA to be complete.

The Permit will expire upon delegation of primary enforcement responsibility (primacy) for applicable portions of the UIC Program to an Indian Tribe or the State of North Dakota unless the delegated agency has the authority and chooses to adopt and enforce this Permit as a Tribal or State Permit.

TABLE 1.1 shows the status of the well or wells as "New", "Existing", or "Conversion" and for Existing shows the original date of injection operation. Well authorization "by rule" under 40 CFR Part 144 Subpart C expires automatically on the Effective Date of an issued UIC Permit.

TABLE 1.1
WELL STATUS / DATE OF OPERATION

NEW WELLS

Well Name	Well Status	Date of Operation
New Town SWD #1	New	N/A

PART II. Permit Considerations (40 CFR 146.24)

Hydrogeologic Setting

Geologic Setting (TABLE 2.1)

TABLE 2.1
GEOLOGIC SETTING
New Town SWD #1

Formation Name	Top (ft)	Base (ft)	TDS (mg/l)	Lithology
Coleharbor	0	23		Primarily glacial till
Bullion Creek	23	1,043	2,110	Sandstone, siltstone, claystone, and mudstone
Hell Creek	1,043	1,413	1,530	Sandstone, siltstone, claystone, and mudstone
Fox Hills	1,413	1,775	1,530	Mudstone, siltstone, and sandstone
Pierre Shale	1,775	4,060	> 10,000	Shale
Greenhorn	4,060	4,225		Shale, shaly limestone
Belle Fourche	4,225	4,431		Shale and bentonite clay
Mowry	4,431	4,802		Shale and bentonite claystone
Inyan Kara (Dakota)	4,802	5,188	6,510 - 9,170	Sandstone and shale
Swift/Rierdon	5,188	5,607		Shale with thin sandstone beds
Piper	5,703	6,149		Shale with gypsum, anhydrite, and limestone beds
Piper Formation/Dunham Salt	6,149	6,165		Salt

Proposed Injection Zone(s) (TABLE 2.2)

An injection zone is a geological formation, group of formations, or part of a formation that receives fluids through a well. The proposed injection zones are listed in TABLE 2.2.

Injection will occur into an injection zone that is separated from USDWs by a confining zone which is free of known open faults or fractures within the Area of Review.

TABLE 2.2
INJECTION ZONES
New Town SWD #1

Formation Name	Top (ft)	Base (ft)	TDS (mg/l)	Fracture Gradient (psi/ft)	Porosity	Exempted?*
Inyan Kara (Dakota)	4,802	5,188	6,510 - 9,170	0.800	22.00%	N/A

*** C - Currently Exempted**

E - Previously Exempted

P - Proposed Exemption

Confining Zone(s) (TABLE 2.3)

A confining zone is a geological formation, part of a formation, or a group of formations that limits fluid movement above the injection zone. The confining zone or zones are listed in TABLE 2.3.

TABLE 2.3
CONFINING ZONES
New Town SWD #1

Formation Name	Formation Lithology	Top (ft)	Base (ft)
Greenhorn	Shale, shaly limestone	4,060	4,225
Belle Fourche	Shale and bentonite clay	4,225	4,431
Mowry	Shale and bentonite claystone	4,431	4,802
Swift	Shale with thin sandstone beds	5,188	5,607
Rierdon	Shale	5,607	5,703
Piper	Shale with gypsum, anhydrite, and limestone beds	5,703	6,149

Underground Sources of Drinking Water (USDWs) (TABLE 2.4)
Aquifers or the portions thereof which contain less than 10,000 mg/l total dissolved solids (TDS) and are being or could in the future be used as a source of drinking water are considered to be USDWs. The USDWs in the area of this facility are identified in TABLE 2.4.

TABLE 2.4
UNDERGROUND SOURCES OF DRINKING WATER (USDW)
New Town SWD #1

Formation Name	Formation Lithology	Top (ft)	Base (ft)	TDS (mg/l)
Coleharbor	Clay, silt, sand and Gravel-Glacial Till	0	23	
Bullion Creek	Sandstone, siltstone, claystone, and mudstone	23	1,043	2,110
Hell Creek	Sandstone, siltstone, claystone, and mudstone	1,043	1,413	1,530
Fox Hills	Mudstone, siltstone, and sandstone	1,413	1,775	1,530

PART III. Well Construction (40 CFR 146.22)

TABLE 3.1
WELL CONSTRUCTION REQUIREMENTS
New Town SWD #1

Casing Type	Hole Size (in)	Casing Size (in)	Cased Interval (ft)	Cemented Interval (ft)
Surface	13.50	9.63	0 - 1,825	0 - 1,825
Longstring	8.75	7.00	0 - 5,300	1,825 - 5,300
Tubing	7.00	4.50	0 - 4,750	-

The approved well completion plan will be incorporated into the Permit as APPENDIX A and will be binding on the Permittee. Modification of the approved plan is allowed under 40 CFR 144.52(a)(1) provided written approval is obtained from the Director prior to actual modification.

Casing and Cementing (TABLE 3.1)
The well construction plan was evaluated and determined to be in conformance with standard practices and guidelines that ensure well injection does not result in the movement of fluids into USDWs. Well construction details for this "new" injection well is shown in TABLE 3.1.

Remedial cementing may be required if the casing cement is shown to be inadequate by cement bond log or other demonstration of Part II (External) mechanical integrity.

Tubing and Packer
Injection tubing is required to be installed from a packer up to the surface inside the well casing. The packer will be set above the uppermost perforation. The tubing and packer are designed to prevent injection fluid from coming into contact with the outermost casing.

Tubing-Casing Annulus (TCA)
The TCA allows the casing, tubing and packer to be pressure-tested periodically for mechanical integrity, and will allow for detection of leaks. The TCA will be filled with fresh water treated with a corrosion inhibitor or other fluid approved by the Director.

Monitoring Devices
The permittee will be required to install and maintain wellhead equipment that allows for monitoring pressures and providing access for sampling the injected fluid.required equipment may include but is not limited to: 1) shut-off valves located at the wellhead on the injection tubing and on the TCA; 2) a flow meter that measures the cumulative volume of injected fluid; 3) fittings or pressure gauges attached to the injection tubing and the TCA for monitoring the injection and TCA pressure; and 4) a tap on the injection line, isolated by shut-off valves, for sampling the injected fluid.

All sampling and measurement taken for monitoring must be representative of the monitored activity.

PART IV. Area of Review, Corrective Action Plan (40 CFR 144.55)

TABLE 4.1
AOR AND CORRECTIVE ACTION

Well Name	Type	Status (Abandoned Y/N)	Total Depth (ft)	TOC Depth (ft)	CAP Required (Y/N)
Nightcrawler 1-17H	Producer	No	13,952	2,110	No
Phoenix 1-18H	Producer	No	13,000	2,000	No

TABLE 4.1 lists the wells in the Area of Review ("AOR") and shows the well type, operating status, depth, top of casing cement ("TOC") and whether a Corrective Action Plan ("CAP") is required for the well.

Area Of Review
Applicants for Class I, II (other than "existing" wells) or III injection well Permits are required to identify the location of all known wells within the injection well's Area of Review (AOR) which penetrate the injection zone, or in the case of Class II wells operating over the fracture pressure of the formation, all known wells within the area of review that penetrate formations which may be affected by increased pressure. Under 40 CFR 146.6 the AOR may be a fixed radius of not less than one quarter (1/4) mile or a calculated zone of endangering influence. For Area Permits, a fixed width of not less than one quarter (1/4) mile for the circumscribing area may be used.

Corrective Action Plan
For wells in the AOR which are improperly sealed, completed, or abandoned, the applicant shall develop a Corrective Action Plan (CAP) consisting of the steps or modifications that are necessary to prevent movement of fluid into USDWs.

The CAP will be incorporated into the Permit as APPENDIX F and become binding on the permittee.

PART V. Well Operation Requirements (40 CFR 146.23)

TABLE 5.1
INJECTION ZONE PRESSURES
New Town SWD #1

Formation Name	Depth Used to Calculate MAIP (ft)	Fracture Gradient (psi/ft)	Initial MAIP (psi)
Inyan Kara (Dakota)	4,802	0.800	1,635

Approved Injection Fluid
The approved injection fluid is limited to Class II injection well fluids pursuant to 40 CFR § 144.6(b). For disposal wells injecting water brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production, the fluid may be commingled and the well used to inject other Class II wastes such as drilling fluids and spent well completion, treatment and

stimulation fluid. Injection of non-exempt wastes, including unused fracturing fluids or acids, gas plant cooling tower cleaning wastes, service wastes, and vacuum truck and drum rinsate from trucks and drums transporting or containing non-exempt waste, is prohibited.

Injection Pressure Limitation

Injection pressure, measured at the wellhead, shall not exceed a maximum calculated to assure that the pressure used during injection does not initiate new fractures or propagate existing fractures in the confining zones adjacent to the USDWs.

The applicant submitted injection fluid density and injection zone data which was used to calculate a formation fracture pressure and to determine the maximum allowable injection pressure (MAIP), as measured at the surface, for this Permit.

TABLE 5.1 lists the fracture gradient for the injection zone and the approved MAIP, determined according to the following formula:

$$FP = [fg - (0.433 * sg)] * d$$

FP = formation fracture pressure (measured at surface)
fg = fracture gradient (from submitted data or tests)
sg = specific gravity (of injected fluid)
d = depth to top of injection zone (or top perforation)

Injection Volume Limitation

Cumulative injected fluid volume limits are set to assure that injected fluids remain within the boundary of the exempted area. Cumulative injected fluid volume is limited when injection occurs into an aquifer that has been exempted from protection as a USDW.

Mechanical Integrity (40 CFR 146.8)

An injection well has mechanical integrity if:

1. there is no significant leak in the casing, tubing, or packer (Part I); and
2. there is no significant fluid movement into a USDW through vertical channels adjacent to the injection well bore (Part II).

The Permit prohibits injection into a well which lacks mechanical integrity.

The Permit requires that the well demonstrate mechanical integrity prior to injection and periodically thereafter. A demonstration of mechanical integrity includes both internal (Part I) and external (Part II). The methods and frequency for demonstrating Part I and Part II mechanical integrity are dependent upon well-specific conditions as explained below.

PART VI. Monitoring, Recordkeeping and Reporting Requirements

Injection Well Monitoring Program

At least once a year the permittee must analyze a sample of the injected fluid for total dissolved solids (TDS), specific conductivity, pH, and specific gravity. This analysis shall be reported to EPA annually as part of the Annual Report to the Director. Any time a new source of injected fluid is added, a fluid analysis shall be made of the new source.

Instantaneous injection pressure, injection flow rate, cumulative fluid volume and TCA pressures must be observed on a weekly basis. A recording, at least once every thirty (30) days, must be made of the injection pressure, annulus pressure, monthly injection flow rate and cumulative fluid volume. This information is required to be reported annually as part of the Annual Report to the Director.

PART VII. Plugging and Abandonment Requirements (40 CFR 146.10)

Plugging and Abandonment Plan
Prior to abandonment, the well shall be plugged in a manner that isolates the injection zone and prevents movement of fluid into or between USDWs, and in accordance with any applicable Federal, State or local law or regulation. Tubing, packer and other downhole apparatus shall be removed. Cement with additives such as accelerators and retarders that control or enhance cement properties may be used for plugs; however, volume-extending additives and gel cements are not approved for plug use. Plug placement shall be verified by tagging. Plugging gel of at least 9.2 lb/gal shall be placed between all plugs. A minimum 50 ft surface plug shall be set inside and outside of the surface casing to seal pathways for fluid migration into the subsurface. Within sixty (60) days after plugging the owner or operator shall submit Plugging Record (EPA Form 7520 13) to the Director. The Plugging Record must be certified as accurate and complete by the person responsible for the plugging operation. The plugging and abandonment plan is described in Appendix E of the Permit.

PART VIII. Financial Responsibility (40 CFR 144.52)

Demonstration of Financial Responsibility
The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director. The permittee shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance such as financial statements or other materials acceptable to the Director. The Regional Administrator may, on a periodic basis, require the holder of a lifetime permit to submit a revised estimate of the resources needed to plug and abandon the well to reflect inflation of such costs, and a revised demonstration of financial responsibility if necessary. Initially, the operator has chosen to demonstrate financial responsibility with:

Surety Bond Received August 20, 2015

Evidence of continuing financial responsibility is required to be submitted to the Director annually.