North Dakota Department of Environmental Quality Public Notice Reissue of an NDPDES Permit

Public Notice Date: 8/12/2021 Public Notice Number: ND-2021-029

Purpose of Public Notice

The Department intends to reissue the following North Dakota Pollutant Discharge Elimination System (NDPDES) Discharge Permit under the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Application Date: 3/31/2021

Application Number: ND0025011

Applicant Name: Dakota Gasification Co Mailing Address: 420 County Rd 26, Beulah, ND 58523-9473 Telephone Number: 701.873.6619

Proposed Permit Expiration Date: 9/30/2026

Facility Description

The reapplication is for a coal gasification plant which converts lignite coal into synthetic natural gas. Plant site surface runoff and sanitary wastewaters are routed to a treatment pond system located in the N1/2, Section 25, Township 145 North, Range 88 West. Any discharge would be to the west branch of Antelope Creek, a class III stream located next to the plant.

Tentative Determinations

Proposed effluent limitations and other permit conditions have been made by the Department. They assure that State Water Quality Standards and applicable provisions of the FWPCAA will be protected.

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. For further information on making public comments/public comment tips please visit: https://deq.nd.gov/ PublicCommentTips.aspx. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by September 10, 2021 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

Permit No: Effective Date: Expiration Date: ND0025011 October 1, 2021 September 31, 2026

AUTHORIZATION TO DISCHARGE UNDER THE

NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33.1-16-01 of the North Dakota Department of Environmental Quality rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

Dakota Gasification Company, owner and operator of the Great Plains Synfuels Plant, Beulah, North Dakota

is authorized to discharge from its holding ponds

to the West Branch of Antelope Creek

provided all the conditions of this permit are met.

This permit and the authorization to discharge shall expire at midnight,

September 31, 2026.

Signed this ______ day of ______, _____,

Karl H. Rockeman, P.E. Director Division of Water Quality

BP 2019.05.29

TABLE OF CONTENTS

DE	FINITIONS Standard Permit BP 2019.05.29	3
DE	FINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06	4
OU	ITFALL DESCRIPTION	5
PE	RMIT SUBMITTALS SUMMARY	6
SP	ECIAL CONDITIONS	6
I.	LIMITATIONS AND MONITORING REQUIREMENTS	7
	A. Discharge Authorization	7
	B. Effluent Limitations and Monitoring	7
	C. Whole Effluent Toxicity (WET) Requirements BP 2021.01.26	12
II.	MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2020.10.19	15
	A. Representative Sampling (Routine and Non-Routine Discharges)	15
	B. Test Procedures	15
	C. Recording of Results	15
	E. Reporting of Monitoring Results	15
	F. Records Retention	16
III.	COMPLIANCE RESPONSIBILITIES	16
	A. Duty to Comply	16
	B. Proper Operation and Maintenance	17
	C. Planned Changes	17
	D. Duty to Provide Information	17
	E. Signatory Requirements F Twenty-four Hour Notice of Noncompliance Reporting	. 17
	G. Bypass of Treatment Facilities	18
	H. Upset Conditions	19
	I. Duty to Mitigate	19
	J. Removed Materials	19
n <i>7</i>		
IV.		19
	A. Inspection and Entry	19
	C. Transfers	20
	D. New Limitations or Prohibitions	20
	E. Permit Actions	20
	F. Need to Halt or Reduce Activity Not a Defense	20
	G. State Laws	20
	I. Property Rights	∠0 20
	J. Severability	20
	-	

DEFINITIONS Standard Permit BP 2019.05.29

- 1. "Act" means the Clean Water Act.
- 2. "Average monthly discharge limitation" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.
- 3. "Average weekly discharge limitation" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.
- 4. "Best management practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
- 5. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- 6. "**Composite**" sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24 hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.
- 7. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.
- 8. "Department" means the North Dakota Department of Environmental Quality, Division of Water Quality.
- 9. "DMR" means discharge monitoring report.
- 10. "EPA" means the United States Environmental Protection Agency.
- 11. "Geometric mean" means the nth root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.
- 12. "Grab" for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.
- 13. "**Instantaneous**" for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.
- 14. "Maximum daily discharge limitation" means the highest allowable "daily discharge."
- 15. "**Salmonid**" means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.

- 16. "Sanitary Sewer Overflows (SSO)" means untreated or partially treated sewage overflows from a sanitary sewer collection system.
- 17. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- 18. "Total drain" means the total volume of effluent discharged.
- 19. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

- 1. "Acute toxic unit" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC50").
- "Chronic toxic unit" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").
- 3. "Inhibition concentration", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).
- 4. "LC50" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.
- 5. **"No observed effect concentration**", ("NOEC"), is the highest concentration of toxicant (e.g., effluent) to which organisms are exposed in a chronic toxicity test [full life-cycle or partial life-cycle (short term) test], that causes no observable adverse effects on the test organisms (i.e., the highest concentration of effluent in which the values for the observed responses are not statistically significantly different from the controls).

OUTFALL DESCRIPTION

Outfall 001. Active. Final.			
Latitude: 47.35475	Longitude: -101.83278	County: Mercer	
Township: 145N	Range: 88W	Section: 25	QQ: ABC
Receiving Stream: West Bra	nch of Antelope Creek	Classification: C	lass III
Outfall Description: Wastewa site stormwater runoff; high t domestic wastewater; and tro wastewater ponds 5A, 5B, an of Antelope Creek.	ater Stabilization Ponds. Contrib emperature, low pressure cond- eated groundwater. Discharges nd 5C to a ditch on the facility's	uting wastewater ensate; cold, lime would be by gravi property which lea	sources include plant softened water; treated ity or pump from ads to the West Branch

Outfall 004. Active. Stormwater Monitoring.					
Latitude: 47.36492	Longitude: -101.84361	County: Mercer			
Township: 145N	Range: 88W	Section: 24	QQ: BCC		
Receiving Stream: West Branch of Antelope Creek Classification: Class III					
Outfall Description: Stormwater monitoring site located at the north end of the peripheral ditch where					
the DGC property line begi	ns.				

the DGC property line begins.

Outfall 005. Active. Stormwater Monitoring.						
Latitude: 47.35278	Longitude: -101.83750	County: Mercer				
Township: 145N	Range: 88W	Section: 25	QQ: BDB			
Receiving Stream: West Branch of Antelope Creek Classification: Class III						
Outfall Description: Stormwater monitoring site located at the DGC plant access road bridge from						
County Road 26.						

Outfall 006. Active. Stormwater Monitoring.						
Latitude: 47.34830	Longitude: -101.82260	County: Mercer				
Township: 145N Range: 88W Section: 25 QQ: DAD						
Receiving Stream: West Bra	Receiving Stream: West Branch of Antelope Creek Classification: Class III					
Outfall Description: Stormwa DGC.	Outfall Description: Stormwater monitoring site located at the southeast property boundary line of DGC.					

Outfall 008. Active. Internal.					
Latitude: 47.35861 Longitude: -101.83778 County: Mercer					
Township: 145N Range: 88W Section: 24 QQ: CCD					
Receiving Stream: West Branch of Antelope Creek Classification: Class III					
Outfall Description: Groundwater Treatment. Monitoring point for water directed to ponds 5A and 5C					
from the aeration / air stripping groundwater treatment system.					

PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Monitoring Period	Submittal Frequency	First Submittal Date
001A	Discharge Monitoring Report	Monthly	Quarterly	January 31, 2022
001W	Discharge Monitoring Report	Quarterly	Quarterly	January 31, 2022
004A	Discharge Monitoring Report	Annual	Annual	October 31, 2022
005A	Discharge Monitoring Report	Annual	Annual	October 31, 2022
006A	Discharge Monitoring Report	Annual	Annual	October 31, 2022
008A	Discharge Monitoring Report	Quarterly	Quarterly	January 31, 2022
Application Renewal	EPA Form 1 & 2C	Not applicable	1/permit cycle	March 31, 2026

SPECIAL CONDITIONS

No special conditions have been determined at this time.

I. LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls as specified to the following: **West Branch of Antelope Creek**.

This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process.

B. Effluent Limitations and Monitoring

The permittee must limit and monitor all discharges as specified below:

Table 1: Effluent Limitations and Monitoring Requirements Outfall 001						
	Effluent L	imitations	Monitoring	Requirements		
Parameter	Average Monthly Limit	Daily Maximum Limit	Sample Frequency	Sample Type		
Biochemical Oxygen Demand (BOD ₅)	25 mg/L	45 mg/L	1/week	Grab		
Total Suspended Solids (TSS)	30 mg/L	45 mg/L	1/week	Grab		
pH ^{a,c}	Between 6.0) and 9.0 s.u.	1/week	Instantaneous		
E. coli ^b	126 / 100 mL	409 / 100 mL	1/week	Grab		
Oil & Grease – Visual	N/A	N/A	1/week	Visual		
Phenols	*	0.30 mg/L	1/week	Grab		
Temperature ^c	*	85º F	1/week	Grab		
Chlorine, Total Residual, mg/L ^d	*	*	1/week	Grab		
Ammonia as N °	Refer to the Ammonia table (Table 2)	*	1/week	Grab		
Nitrate + Nitrite (as N), mg/L	Monitor only	Monitor only	1/month	Grab		
Nitrogen, Total, mg/L ^e	Monitor only	Monitor only	1/month	Grab		
Nitrogen, Total, lb/day ^e	Monitor only	Monitor only	1/month	Calculated		
Phosphorus, Total (as P), mg/L	Monitor only	Monitor only	1/month	Grab		
Phosphorus, Total (as P), lb/day	Monitor only	Monitor only	1/month	Calculated		
Whole Effluent Toxicity (TUa)	See Part I.C fo monitoring	or specific WET conditions	1/quarter	Grab		

Table 1: Effluent Limitations and Monitoring Requirements Outfall 001						
	Effluent L	imitations	Monitoring	Requirements		
Parameter	Average Monthly Limit	Daily Maximum Limit	Sample Frequency	Sample Type		
Zinc, Total, mg/L	*	*	1 x semiannual	Grab		
Barium, mg/L	*	*	1 x semiannual	Grab		
Boron, mg/L	*	*	1 x semiannual	Grab		
Flow Rate, MGD	Report Monthly Average	Report Maximum Daily Value	1/day	Instantaneous		
Total Drain, Mgal	Report Mo	onthly Total	1/month	Calculated		
*. This parameter is not lir sample history and to p	nited. However, the rotect the receiving v	department may imp waters.	ose limitations	based on		
a. The pH, an instantaneo	us limitation, shall be	e between 6.0 (s.u.) a	and 9.0 (s.u.).			
b. This limitation shall be e determined as a geome	effective from April 1 etric mean.	through October 31.	Averages for E	E. <i>coli</i> shall be		
c. Any discharge shall be in the State Water Qual near the eastern rail sport responsibility to coordin surface runoff ponds op is met. During a dischar temperature.	c. Any discharge shall be managed to meet the chronic 4-day standard for ammonia as provided in the State Water Quality Standards (NDAC 33.1-16-02.1) at Downstream Site 0.25 located near the eastern rail spur (latitude 47.34829, longitude -101.82099). It is the permittee's responsibility to coordinate the discharge with flows from the perimeter ditch and flows from surface runoff ponds operated by the adjacent coal mine to ensure that the ammonia standard is met. During a discharge, Downstream Site 0.25 shall be sampled daily for ammonia, pH, and temperature					
d. Testing required only d	uring periods when e	ffluent is chlorinated				
e. Total nitrogen is a comb	pination of nitrate, nit	rite, and Total Kjelda	hl Nitrogen (Th	(N).		
Stipulations:						
A pre-discharge sample tested for BOD ₅ , TSS, a discharge when the pre can be by e-mail, letter,	A pre-discharge sample shall be taken prior to the start of any discharge. The sample shall be tested for BOD ₅ , TSS, ammonia, <i>E. coli</i> and pH. The department must be notified prior to discharge when the pre-discharge ammonia concentration is greater than 3 mg/L. Notification can be by e-mail, letter, or telephone.					
The permittee shall not There shall not be a vis	discharge any floatir ible sheen or floating	ng solids, visible foan g oil in the discharge.	n in other than	trace amounts.		
Samples taken in comp taken prior to leaving co	Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving company property or entering the receiving stream.					

Table 2: Ammonia Effluent Limitations – Outfall 001

Average Monthly Limitation

The monthly average concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula:

WQS_{Chronic 4-Day}

$$= 2.5 \times 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$$

Receiving stream pH and temperature in degrees Celsius are used for the calculation

Table 3: Effluent Limitations and Monitoring Requirements Outfall 004, 005 and 006					
	Effluent L	imitations	Monitoring	Requirements	
Parameter	Average Monthly Limit	Daily Maximum Limit	Sample Frequency	Sample Type	
BOD₅, mg/L	*	*	1/year	Grab	
TSS, mg/L	*	*	1/year	Grab	
Ammonia as N, mg/L	*	*	1/year	Grab	
Total Phosphorus, mg/L	*	*	1/year	Grab	
Nitrate + Nitrite as N, mg/L	*	*	1/year	Grab	
рН	Shall remain betw	reen 6.0 to 9.0 s.u.	1/year	Instantaneous	
Oil and Grease, mg/L ^a	*	*	1/year	Visual/Grab	
Notes:)	

*. This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.

a. If a visible sheen or floating oil is present a grab sample must be collected and analyzed.

Stipulations:

The samples from the stormwater monitoring locations shall be taken following a precipitation event, which results in stormwater runoff. The samples for each site must be collected on the same day. The test results for the stormwater monitoring must be provided with the Discharge Monitoring Report.

The quality of stormwater discharges from the plant site shall reflect the best which is attainable through the use of Best Management Practices (BMP) and shall not cause a violation of the state's Water Quality Standards. The department reserves the right to make adjustments to the sampling and monitoring requirement listed above, based on the sample results.

The facility shall be operated and maintained to minimize, to the extent reasonably practicable, stormwater contact with raw materials, intermediate products, finished products, by-products, or waste materials. The material handling activities including loading/unloading, storage and processing at the plant shall be conducted in a manner to minimize exposure to stormwater. Good housekeeping practices shall be employed to maintain a clean, orderly facility. Spill prevention and response procedures must be employed to minimize the potential for the discharge of spilled material with stormwater. The adherence to Spill Prevention Control and Countermeasures (SPCC) plans developed to satisfy 40 CFR 151 also serves as a stormwater pollution prevention measure.

Table 4: Effluent Limitations and Monitoring Requirements Outfall 008					
	Effluent Limitations		Monitoring Requirements		
Parameter	Average Monthly	Daily Maximum	Sample Frequency	Sample Type	
Isopropyl Ether (IPE), mg/L ^a Alt. name: Diisopropyl Ether	*	*	Quarterly	Grab	
Flow, gpm	N/A	N/A	Quarterly	Calculated	
Total Flow, Mgal	Report Mo	onthly Total	Quarterly	Calculated	
Notes:					

*. This parameter is not limited; however the department may impose limitations based on sample history and to protect the receiving waters. This may include imposing limitations and sampling requirements on discharges from Outfall 001.

a. If samples are collected more frequently, provide the department with the additional test information (or summary) for the quarterly monitoring period.

C. Whole Effluent Toxicity (WET) Requirements BP 2021.01.26

1. Acute Toxicity Testing

Acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of <u>"Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine</u> <u>Organisms</u>," EPA-821-R-02-012 (Fifth Ed., October 2002). The permittee shall conduct an acute 48-hour static renewal toxicity test using freshwater fleas, *Ceriodaphnia dubia* and an acute 96-hour static renewal toxicity test using fathead minnows, *Pimephales promelas*.

WET tests shall be performed on the first discharge made each calendar year, unless specifically waived by the department. Thereafter, tests shall be performed at least once every calendar quarter in which there is a discharge.

Toxicity is defined as:

Acute test failure is defined as lethality to 50% or more of the test organisms exposed to 100% effluent or >1.0 TUa for *Ceriodaphnia dubia* 48-hour and fathead minnow 96-hour test. The 48-hour and 96-hour effluent value must be <1.0 TUa to indicate a passing test. Any 48-hour or 96-hour effluent value of >1.0 TUa will constitute a failure. Tests in which the control survival is less than 90% are invalid and must be repeated.

Acute WET requirements for Outfall 001					
Implementation	Monitoring Imposed or Limitation Imposed				
Effluent Dilution	0%(Control) 12.5% 25% 50% 75% 100%				
Dilution Water	West Branch of Antelope Creek or Lab Synthetic Water				
Spacios and Tast Type	Ceriodaphnia dubia - 48 Hour Acute - Static Renewal - 20°C				
Species and rest type	Fathead minnow - 96 Hour Acute - Static Renewal - 20°C				
Endpoint	Endpoint TUa				
Compliance Point End-of-pipe or In-stream					

If toxicity occurs in a routine test, an additional test shall be initiated within 14 days from the date of the initial toxicity findings. Should toxicity occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of a <u>Toxicity Reduction</u> <u>Evaluation (TRE)</u> shall be determined by the department. If no toxicity is found in the second test, testing shall occur as outlined in the permit. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge.

The permittee shall report the following results of each toxicity test on the DMR for that reporting period:

Pimephales promelas (Fathead Minnow)

a. Report the highest TUa for Fathead minnow, Parameter No. TSN6C.

Ceriodaphnia dubia (Water Flea)

a. Report the highest TUa for Ceriodaphnia dubia, Parameter No. TSM3B.

2. Chronic Toxicity Testing

No chronic toxicity limits are imposed on this permit. Therefore, the permittee is not required to monitor or test for chronic toxicity.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "<u>Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms</u>," EPA-821-R-02-013 (Fourth Ed., October 2002). Test species shall consist of freshwater fleas, *Ceriodaphnia dubia* and fathead minnows, *Pimephales promelas*.

3. Reduced Monitoring for Toxicity Testing

a. Alternating Species

If the results of a minimum of four consecutive samples taken over at least a 12 month period indicate no toxicity, the permittee may request the Department for a test reduction. This reduction would only be testing one species per sampling frequency. If fathead minnows are used first then the next test would be *C. dubia* or vice versa and continue alternating. The department may approve or deny the request, based on the biomonitoring results and other available information. If the request is approved, the test procedures are to be the same as outlined in <u>1. Acute Toxicity Testing</u> and/or <u>2. Chronic Toxicity Testing</u>.

This provision is revoked at the time of permit reissuance/renewal. Permittees may request alternating species after the conditions of this section are met under the reissued permit.

If toxicity occurs in any single species test the provision for alternating species shall be immediately revoked and <u>1. Acute Toxicity Testing</u> and/or <u>2. Chronic Toxicity Testing</u> shall be followed in whole.

b. Monthly Testing

If the results of <u>5. Toxicity Reduction Evaluation (TRE)</u> have been accepted by the department or a period of time has indicated no toxicity, the permittee may request the department to allow a reduction from monthly to quarterly toxicity testing for both species. The department may approve or deny the request, based on the bio-monitoring results and other available information. If the request is approved, the test procedures are to be the same as outlined in <u>1. Acute Toxicity Testing</u> and/or <u>2. Chronic Toxicity Testing</u>.

4. Reporting Requirements

Test results shall be submitted with the Discharge Monitoring Report (DMR) form for each reporting period. The format for the report shall be consistent with the above reference manual(s) as outlined in the section "Report Preparation and Test Review." Each lab generated report shall document the findings for each species reference toxicity testing chart.

5. Toxicity Reduction Evaluation (TRE)

If toxicity is detected, and it is determined by the department that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. A TRE shall reference the latest revision of "<u>Technical Support Document for Water Quality-based Toxics Control</u>," EPA/505/2-90-001 – PB91-127415 (March 1991). The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

If the TRE establishes that the toxicity cannot be eliminated by the current treatment system, the permittee shall submit a proposed compliance plan to the department. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If

the approach and schedule are acceptable to the department, this permit may be reopened and modified.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations or proper discharge management as approved by the department, the permittee may:

- 1. Submit an alternative control program for compliance with the numerical requirements; or
- 2. If necessary, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

If acceptable to the department, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the department, and/or a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the department, shall in no way relieve the permittee from maintaining compliance with the whole effluent toxicity requirements of this permit.

II. MONITORING, RECORDING, AND REPORTING REQUIREMENTS BP 2020.10.19

A. Representative Sampling (Routine and Non-Routine Discharges)

All samples and measurements taken shall be representative of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited under **Part I Effluent Limitations and Monitoring** requirements of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with <u>B. Test Procedures</u>. The permittee must report all additional monitoring in accordance with <u>D. Additional Monitoring</u>.

B. Test Procedures

The collection and transportation of all samples shall conform with EPA preservation techniques and holding times found in 40 CFR 136. All laboratory tests shall be performed by a North Dakota certified laboratory in conformance with test procedures pursuant to 40 CFR 136, unless other test procedures have been specified in this permit or approved by EPA as an alternate test procedure under 40 CFR 136.5. The method of determining the total amount of water discharged shall provide results within 10 percent of the actual amount.

C. Recording of Results

Records of monitoring information shall include:

- 1. the date, exact place and time of sampling or measurements;
- 2. the name(s) of the individual(s) who performed the sampling or measurements;
- 3. the name of the laboratory;
- 4. the date(s) and time(s) analyses were performed;
- 5. the name(s) of the individual(s) who performed the analyses;
- 6. the analytical techniques or methods used; and
- 7. the results of such analyses.

D. Additional Monitoring

If the discharge is monitored more frequently than this permit requires, all additional results, if in compliance with <u>B. Test Procedures</u>, shall be included in the summary on the Discharge Monitoring Report.

E. Reporting of Monitoring Results

 Monitoring results shall be summarized and reported to the department using Discharge Monitoring Reports (DMRs). If no discharge occurs during a reporting period, "No Discharge" shall be reported. The permittee must submit DMRs electronically using the electronic information reporting system unless requirements in subsection 3 are met.

- Prior to December 21, 2025, the permittee may elect to electronically submit the following compliance monitoring data and reports instead of mailing paper forms. Beginning December 21, 2025, the permittee must report the following using the electronic reporting system:
 - a. General permit reports [e.g., notices of intent (NOI); notices of termination (NOT); no exposure certifications (NOE)];
 - b. Municipal separate storm sewer system program reports;
 - c. Pretreatment program reports;
 - d. Sewer overflow/bypass event reports; and
 - e. Clean Water Act 316(b) annual reports
- 3. The permittee may seek a waiver from electronic reporting. To obtain a waiver, the permittee must complete and submit an Application for Temporary Electronic Reporting Waiver form (SFN 60992) to the department. The department will have 120 days to approve or deny the waiver request. Once the waiver is approved, the permittee may submit paper versions of monitoring data and reports to the department.
 - a. One of the following criteria must be met in order to obtain a waiver. The department reserves the right to deny any waiver request, even if they meet one of the criteria below.
 - 1. No internet access,
 - 2. No computer access,
 - 3. Annual DMRs (upon approval of the department),
 - 4. Employee turnover (3-month periods only), or
 - 5. Short duration permits (upon approval of the department)

All reports must be postmarked by the last day of the month following the end of each reporting period. All original documents and reports required herein shall be signed and submitted to the department at the following address:

ND Department of Environmental Quality Division of Water Quality 918 East Divide Ave Bismarck ND 58501-1947

F. Records Retention

All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the department or EPA.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and

reissuance, or modification; or for denial of a permit renewal application.

B. Proper Operation and Maintenance

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. If necessary to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.

C. Planned Changes

The department shall be given advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance. Any anticipated facility expansions, production increase, or process modifications which might result in new, different, or increased discharges of pollutants shall be reported to the department as soon as possible. Changes which may result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) shall also be reported.

D. 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. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.

E. Signatory Requirements

All applications, reports, or information submitted to the department shall be signed and certified.

All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

All reports required by the permit and other information requested by the department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

The authorization is made in writing by a person described above and submitted to the department; and

The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If an authorization under <u>E. Signatory Requirements</u> is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the department prior to or together with any reports, information, or applications to be signed by an authorized representative.

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Twenty-four Hour Notice of Noncompliance Reporting

- 1. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The following occurrences of noncompliance shall be included in the oral report to the department at 701.328.5210:
 - a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit under <u>G. Bypass of Treatment Facilities;</u>
 - b. Any upset which exceeds any effluent limitation in the permit under <u>H. Upset Conditions;</u> or
 - c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit.
- 2. A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and
 - d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

Reports shall be submitted to the address in <u>Part II.E. Reporting of Monitoring Results.</u> The department may waive the written report on a case by case basis if the oral report has been received within 24 hours by the department at 701.328.5210 as identified above.

All other instances of noncompliance shall be reported no later than at the time of the next Discharge Monitoring Report submittal. The report shall include the four items listed in this subsection.

G. Bypass of Treatment Facilities

- 1. <u>Bypass not exceeding limitations</u>. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to any of the following provisions in this section.
- 2. <u>Bypass exceeding limitations-notification requirements.</u>
 - a. Anticipated Bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of bypass.
 - b. Unanticipated Bypass. The permittee shall submit notice of an unanticipated bypass as required under <u>F. Twenty-four Hour Notice of Noncompliance Reporting</u>.
- 3. <u>Prohibition of Bypass.</u> Bypass is prohibited, and the department may take enforcement action against a permittee for bypass, unless:
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been

installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted notices as required under the <u>1. Anticipated Bypass</u> subsection of this section.

The department may approve an anticipated bypass, after considering its adverse effects, if the department determines that it will meet the three (3) conditions listed above.

H. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with technologybased permit effluent limitations if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- 1. An upset occurred and the permittee can identify its cause(s);
- 2. The permitted facility was, at the time being, properly operated;
- 3. The permittee submitted notice of the upset as required under <u>F. Twenty-four Hour Notice of</u> <u>Noncompliance Reporting</u> and
- 4. The permittee complied with any remedial measures required under <u>I. Duty to Mitigate</u>.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.

J. Removed Materials

Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the state. The permit issuing authority shall be contacted prior to the disposal of any sewage sludges. At that time, concentration limitations and/or self-monitoring requirements may be established.

K. Duty to Reapply

Any request to have this permit renewed should be made six months prior to its expiration date.

IV. GENERAL PROVISIONS

A. Inspection and Entry

The permittee shall allow department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the wastewater treatment facilities and monitoring equipment, to sample any discharges, and to have access to and copy any records required to be kept by this permit.

B. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the department and EPA. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

C. Transfers

This permit is not transferable except upon the filing of a Statement of Acceptance by the new party and subsequent department approval. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the department of the possible change.

D. New Limitations or Prohibitions

The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307(a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations even if the permit has not yet been modified to incorporate the requirements.

E. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. 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 does not stay any permit condition.

F. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

G. State Laws

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.

H. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

J. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 1 of 34

FACT SHEET FOR NDPDES PERMIT ND0025011

DAKOTA GASIFICATION COMPANY BEULAH, ND

DATE OF THIS FACT SHEET – AUGUST 2021

INTRODUCTION

The Federal Clean Water Act (CWA, 1972, and later amendments in 1977, 1981, and 1987, etc.) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES), which the US Environmental Protection Agency (EPA) has oversight authority. In 1975, the State of North Dakota was delegated primacy of the NPDES program by EPA. The North Dakota Department of Environmental Quality (NDDEQ), hereafter referred to as "department", has been designated the state water pollution control agency for all purposes of the Federal Water Pollution Control Act, as amended [33 U.S.C. 1251, et seq.], and is hereby authorized to take all action necessary or appropriate to secure to this state the benefits of the act and similar federal acts. The department's authority and obligations for the wastewater discharge permit program is in the NDAC 33.1-16 (North Dakota Century Code). The department uses North Dakota Pollutant Discharge Elimination System (NDPDES) as its permitting title.

The following rules or regulations apply to NDPDES permits:

Procedures the department follows for issuing NDPDES permits (NDAC chapter 33.1-16-01), Standards of Quality for Waters of the State (NDAC chapter 33.1-16-02.1).

These rules require any treatment facility operator to obtain an NDPDES permit before discharging wastewater to state waters. They also define the basis for limits on each discharge and for other requirements imposed by the permit.

According to the North Dakota Administrative Code (NDAC) section 33.1-16-01-08, the department must prepare a draft permit and accompanying fact sheet, and make it available for public review. The department must also publish an announcement (public notice) during a period of thirty days, informing the public where a draft permit may be obtained and where comments regarding the draft permit may be sent (NDAC chapter 33.1-16-01-07). For more information regarding preparing and submitting comments about the fact sheet and permit, please see Appendix A - Public Involvement. Following the public comment will summarize the responses to comments and changes to the permit in Appendix D - Response to Comments.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 2 of 34

TABLE OF CONTENTS

BACKGROUND INFORMATION	3
FACILITY DESCRIPTION	5
Discharge Outfalls	6 8
SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED	8
Whole Effluent Toxicity (WET) Tests Past Discharge Data	8
PROPOSED EFFLUENT LIMITATIONS	11
SELF-MONITORING REQUIREMENTS	15
SURFACE WATER QUALITY-BASED EFFLUENT LIMITS	17
Numerical Criteria for the Protection of Aquatic Life and Recreation Numerical Criteria for the Protection of Human Health Narrative Criteria Antidegradation Mixing Zones	18 18 18 18 19
EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA	19
pH E. coli Total Phenols Oil & Grease Temperature Ammonia as N. Whole Effluent Toxicity.	19 19 19 19 19 20 20
	21
MONITORING REQUIREMENTS	22
Test Procedures	22
OTHER PERMIT CONDITIONS	22
PERMIT ISSUANCE PROCEDURES	22
Permit Actions Proposed Permit Issuance	22 22
APPENDIX A – PUBLIC INVOLVEMENT INFORMATION	23
APPENDIX B - GLOSSARY	
APPENDIX C - DATA AND TECHNICAL CALCULATIONS	
APPENDIX D – ISOPROPYL ETHER ACCEPTABLE DAILY INTAKE	
APPENDIX E – RESPONSE TO COMMENTS	

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 3 of 34

BACKGROUND INFORMATION

Applicant:	Dakota Gasification Company
Facility Name and Address:	Great Plains Synfuels Plant 420 County Road 26 Beulah ND 58523
Permit Number:	ND0025011
Permit Type:	Minor Industrial, Permit Reissuance
Type of Treatment:	Sedimentation, Aeration, Activated Sludge, Chlorination, Evaporation, Stormwater Runoff
SIC Code(s):	4925, 2873, 2813
NAICS Code(s)	221210, 325311, 325120
Discharge Location:	West Branch of Antelope Creek, Class III stream Latitude: 47.3547 Longitude: -101.8325 West Branch of Antelope Creek, Class III stream Latitude: 47.348 Longitude: -101.826
Hydrologic Code:	10130201 – Knife River

Table 1 – General Facility Information

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 4 of 34

Figure 1 – Aerial Photograph of Dakota Gasification Company, Beulah, ND (North Dakota Geographic Information System, Map Generated August 2021)



FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 5 of 34

FACILITY DESCRIPTION

The Great Plains Synfuels Plant (GPSP) located near Beulah, North Dakota is a commercialscale coal gasification plant that produces synthetic natural gas, fertilizers, solvents, phenol, carbon dioxide, and other chemical products. The plant is owned and operated by Dakota Gasification Company (DGC), which is a wholly owned subsidiary of Basin Electric Power Cooperative, based in Bismarck, North Dakota. The permit is for surface runoff from process plant areas, sanitary waste, and groundwater. The average contribution of treated sanitary wastewater is 20,000 gallons per day. The average contribution of treated groundwater is 33,000 gallons per day. Plant runoff is directed to three stormwater ponds (5A, 5B, and 5C). Pond 5A holds 11 million gallons, Pond 5B holds 4.4 million gallons, and Pond 5C holds 5.3 million gallons. A fourth pond (5D) was in service but was decommissioned during the last permit cycle when the urea facility was built.

The GPSP processes about 18,500 tons of lignite coal daily. The coal is supplied by the nearby Freedom Mine which is owned and operated by the Coteau Properties Company. The facility produces numerous by-products and co-products which include anhydrous ammonia, ammonium sulfate fertilizer, urea, phenol, dephenolized cresylic acid, krypton-xenon gas, naphtha, liquid carbon dioxide, liquid nitrogen, and carbon dioxide.

Process wastewater is recycled in plant processes. The facility has several surge ponds to store process wastewater and recirculated cooling water which are not allowed to discharge under this permit. Process wastewater, including reverse osmosis reject water, that cannot be recycled in the plant is disposed of in underground injection wells. The facility has two underground injection wells on-site which are covered by an Underground Injection Control (UIC) permit issued by the department (NDUIC-101-1).

Stormwater runoff from the plant site is directed to stabilization / settling ponds (5A, 5B, and 5C). Stormwater runoff from the coal handling area and ammonium sulfate generation area flows to pond 5B.

Both the treated domestic wastewater and groundwater are directed to ponds 5A and 5C. Domestic wastewater is treated by a package treatment unit. In 2009, the facility discovered groundwater at the plant's phenosolvan area was impacted by the release of diisopropyl ether (IPE). Since 2009, the facility has been engaged in a project to recover the impacted groundwater. IPE is removed from the impacted groundwater using an aeration / air stripping treatment system.

High temperature low pressure condensate contributes water to the ponds. The condensate is created when steam passes through pipes throughout the facility and the heat exchanged through the pipe material creates non-contact condensate.

Cold, lime-softened water that is produced at the facility can contribute water to the ponds. The produced water is used for coal handling washdown when fire water/utility water levels are low and make-up water is needed. Wastewater created during the lime softening process is directed to the underground injection wells.

As part of the 2016 permit, the facility was required to develop a strategy to reduce ammonia concentrations in discharges from the stabilization / settling ponds. In 2020, the facility began utilizing breakpoint chlorination in pond 5A to reduce ammonia concentrations in discharges

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 6 of 34

from the pond. The process is initiated by adding bleach to pond 5A to convert ammonia to nitrogen gas until the breakpoint (or point at which combined chlorine becomes free chlorine) occurs. Free chlorine that is created after the breakpoint occurs is removed by adding sodium bisulfite and sodium metabisulfite to the pond.

Effluent from these ponds flows in a ditch on the facility's property for approximately 0.8 miles before emptying into a ditch on the south side of the facility which eventually becomes West Antelope Creek, a class III stream. This system utilizes a controlled discharge and is deemed to be non-continuous.

Peripheral runoff along the west side of the plant, as well as from the areas south and east of the plant, is operated and maintained with the use of best management practices (BMPs) to minimize the exposure of stormwater to raw materials, intermediate products, finished products, by-products, and waste materials.

Runoff from the adjacent ash landfill is covered under the NDPDES stormwater discharge general permit associated with industrial activity, NDR05-0000, and is not covered by this permit. The general permit coverage number assigned to the landfill is NDR050736. The general permit requires the use of BMPs to discharge stormwater from non-contact areas of the landfill. The discharge of contact water is not allowed by the general permit or this permit.

Cooling water for the Great Plains Synfuels Plant is supplied by the neighboring Basin Electric Power Cooperative – Antelope Valley Station (AVS). The cooling water is drawn into a raw water pond at AVS. The raw water is split between AVS and GPSP for use at each facility. GPSP treats the raw water supply for its own use. AVS is an existing facility subject to Section 316(b) of the Clean Water Act (CWA). All cooling water drawn for use at AVS – and subsequently GPSP – is regulated through the NDPDES permit for AVS (ND0024945).

Potable water is supplied to the facility by the Southwest Water Authority. The facility utilizes a water treatment plant to produce treated water for plant processes. Any wastewater generated from the water treatment plant is mixed with other production wastewater and directed to the underground injection wells.

Discharge Outfalls

There are five active discharge outfalls at the facility. The description of the active outfalls and former outfalls is provided below. During the 2011 renewal, the description for outfall 001 was revised to include discharges that had been designated as outfall 003. Both outfalls were for the runoff ponds and discharged to the channel south of the ponds (the outlet channel for pond 5A). The description for outfall 003 identified the pump discharge from ponds 5B, 5C, and 5D while outfall 001 was identified as discharges from pond 5A. The ponds were interconnected allowing transfer between cells and thus the water received in any of the cells is not isolated to a specific source.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 7 of 34

Outfall 001. Active. Final.			
Latitude: 47.35475	Longitude: -101.83278	County: Mercer	,
Township: 145N	Range: 88W	Section: 25	QQ: ABC
Receiving Stream: West Bra	Classification: C	lass III	

Outfall Description: Wastewater Stabilization Ponds. Contributing wastewater sources include plant site stormwater runoff; high temperature, low pressure condensate; cold, lime softened water; treated domestic wastewater; and treated groundwater. Discharges would be by gravity or pump from wastewater ponds 5A, 5B, and 5C to a ditch on the facility's property which leads to the West Branch of Antelope Creek.

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	¥			
Latitude: 47.36492	Longitude: -101.84361	County: Mercer		
Township: 145N	Range: 88W	Section: 24	QQ: BCC	
Receiving Stream: West Branch of Antelope Creek Classification: Class III				
Outfall Description: Stormwater monitoring site located at the north end of the peripheral ditch				

where the DGC property line begins.

Outfall 005. Active. Stormwater Monitoring.					
Latitude: 47.35278	Longitude: -101.83750	County: Mercer			
Township: 145N	Range: 88W	Section: 25 QQ: BDB			
Receiving Stream: West Branch of Antelope Creek Classification: Class III					
Outfall Description: Stormwater monitoring site located at the DGC plant access road bridge from County Road 26.					

Outfall 006. Active. Stormwater Monitoring.						
Latitude: 47.34830	Longitude: -101.82260	County: Mercer				
Township: 145N	Range: 88W	Section: 25	QQ: DAD			
Receiving Stream: West Branch of Antelope Creek Classification: Class III						
Outfall Description: Stormwater monitoring site located at the southeast property boundary line of DGC.						

Outfall 008. Active. Internal.					
Latitude: 47.35861	Longitude: -101.83778	County: Mercer			
Township: 145N	Range: 88W	Section: 24	QQ: CCD		
Receiving Stream: West Branch of Antelope Creek Classification: Class III					
Outfall Description: Groundwater Treatment. Monitoring point for water directed to ponds 5A and 5C from the aeration / air stripping groundwater treatment system.					

Outfall 003 – Inactive. Outfall combined with 001 in 2011.

Outfall 007 – Inactive. Former stormwater monitoring site for haul road runoff located upstream of 006. Inactivated in 2011.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 8 of 34

PERMIT STATUS

The department issued the current permit for this facility on October 1, 2016. The current permit has monitoring requirements for the following:

- Five-day biochemical oxygen demand (BOD₅)
- Total suspended solids (TSS)
- Total dissolved aluminum
- Phenols
- Sodium
- Sulfates
- Ammonia
- E. coli
- Temperature

- Total phosphorus
- Nitrate plus nitrite as nitrogen
- Total Kjeldahl Nitrogen
- pH
- Isopropyl ether
- Whole effluent toxicity (*Ceriodaphnia dubia*)
- Whole effluent toxicity (*Pimephales* promelas)

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Department staff conducted one overflow inspection on July 1, 2020, and one non-sampling compliance inspection on June 15, 2021. The department's assessment of compliance is based on review of the facility's Discharge Monitoring Reports (DMRs) and inspections conducted by department staff.

The facility reported four environmental incidents during the current permit period applicable to the permitted activity. The incidents included leaks and equipment failure or malfunction. Spilled material was contained and disposed accordingly.

Whole Effluent Toxicity (WET) Tests

The facility conducted WET tests on a quarterly basis when a discharge occurred during the quarter. Test results showed discharges from the facility were not acutely toxic to either species. Results of a WET test collected March 4, 2019 showed toxicity in both the *Ceriodaphnia dubia* and fathead minnow (*Pimephales promelas*) tests; however the follow-up WET collected on March 26, 2019 showed no toxicity.

Past Discharge Data

According to department records this facility discharged 54 times since October 2016. The concentration of pollutants in the discharge was reported on discharge monitoring report forms. The effluent is characterized as shown in Table 2.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 9 of 34

Paramotor	Unite	Range Average Pe		, Pormit Limit	Number of
Effluent – Outfall 001					
BOD ₅	mg/L	0 to 69	0 to 69 9.8 25 30-day avg 45 Daily max		1
TSS	mg/L	0.4 to 280	20.6	30 30-day avg 45 Daily max	3 1
рН	SU	7.3 to 9.81	N/A	6.0 to 9.0	9 (upper limit)
E. Coli	#/100mL	0 to 4,290	171 (geometric mean)	126 _{30-day} avg 409 _{Daily max}	7 6
Ammonia (at 001)	mg/L	0.21 to 24	6.7	N/A	N/A
Ammonia (at 0.25)	mg/L	0 to 23	3.1	4-day chronic WQS	2
Aluminum (Dis.)	mg/L	0.01 to 1.12	0.10	1.0	1
Phenols	mg/L	0 to 0.322	0.03	0.30	1
Sodium	% of total cations in mEq/L	9.62 to 96.2	52	N/A	N/A
Sulfate	mg/L	117 to 751	240	N/A	N/A
Temperature	° F	12.7 to 77	46.9	85	0
Total Phosphorus	mg/L	0.03 to 8.41	0.90	N/A	N/A
Total Phosphorus	lb/d	40 (max)	40 (max) 6.80 N/A		N/A
Nitrate + Nitrite (as N)	mg/L	0.5 to 18.78	4.84	N/A	N/A
Total Kjeldahl Nitrogen	mg/L	0 to 38.4	9.9	N/A	N/A
Ceriodaphnia dubia	TUa	<1 to 1.15	<1 to 1.15 1.01 <		1 ^a
Fathead Minnow	TUa	<1 to 1.23	1.01	<1	1 ^a
Flow	MGD	6.1 (max)	1.86	N/A	N/A
Drain	Mgal	8.6 to 45.4 24.9 N/A N/A			
a. The Whole Effluent Toxicity test performed on the sample collected following the initial toxicity findings (as required by the current permit) resulted in no toxicity.					
Effluent – Outfall 004					

Table 2 – Dakota Gasification Company (October 2016-June 2021)

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 10 of 34

D				D	Number of
Parameter	Units	Range	Average		Excursions
BOD ²	mg/L	3.4 to 5.6	3.4 to 5.6 4.5		N/A
Ammonia	mg/L	0.04 to 0.1	0.07	N/A	N/A
Nitrate + Nitrite (as N)	mg/L	1.25 to 1.9	1.58	N/A	N/A
Oil & Grease	mg/L	No Detection	No Detection	N/A	N/A
рН	S.U.	7.88 to 8.3	N/A	6.0 to 9.0	0
Total Phosphorus	mg/L	0.1 to 0.17	0.14	N/A	N/A
TSS	mg/L	92.8 to 210	151.4	N/A	N/A
Effluent – Outfall	005				
BOD ₅	mg/L	2 to 7.1	4.6	N/A	N/A
Ammonia	mg/L	0.12 to 0.8	0.5	N/A	N/A
Nitrate + Nitrite (as N)	mg/L	0.49 to 0.5	0.5	N/A	N/A
Oil & Grease	mg/L	No Detection	No Detection	N/A	N/A
рН	S.U.	7.77 to 8.3	N/A	6.0 to 9.0	0
Total Phosphorus	mg/L	0.021 to 0.1	0.06	N/A	N/A
TSS	mg/L	4 to 85.3	4 to 85.3 44.7		N/A
Effluent – Outfall	006				
BOD₅	mg/L	2 to 3.6	2.8	N/A	N/A
Ammonia	mg/L	0 to 0.32	0.2	N/A	N/A
Nitrate + Nitrite (as N)	mg/L	0.5 to 3	1.8	N/A	N/A
Oil & Grease	mg/L	No Detection	No Detection	N/A	N/A
рН	S.U.	7.6 to 7.8	N/A	6.0 to 9.0	0
Total Phosphorus	mg/L	0.089 to 0.1	0.09	N/A	N/A
TSS	mg/L	6.4 to 11.7	9.1	N/A	N/A
Effluent – Outfall	008				
Drain	Mgal	1.93 to 3.11	2.72	N/A	N/A

Table 2 – Dakota Gasification Company (October 2016-June 2021)

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 11 of 34

Parameter	Units	Range	Average	Permit Limit	Number of Excursions
Flow	gal/min	33.8 (max)	20.3	N/A	N/A
Isopropyl Ether	mg/L	0 to 28.9	2.849	N/A	N/A

Table 2 – Dakota Gasification Company (October 2016-June 2021)

PROPOSED EFFLUENT LIMITATIONS

Process wastewater, reverse osmosis reject water, and recirculated cooling water are not allowed to be discharged under the proposed permit. The discharge of surface runoff from process plant areas; low pressure condensate; and cold, lime-softened water are not regulated by national effluent guidelines. In addition, the discharge of domestic wastewater from a privately owned treatment works is not regulated by secondary treatment standards or technology-based effluent limitations.

In the absence of a federal standard, limitations may be generated using Best Professional Judgment (BPJ) to ensure reasonable control technologies are used to prevent potential harmful effects of the discharge. In addition, the department must consider and include limitations necessary to protect water quality standards applicable to the receiving water.

Using BPJ, the department determined that an average monthly limitation of 25 mg/L and a daily maximum limitation of 45 mg/L for BOD_5 is appropriate for this type of facility. In addition, using BPJ the department determined that an average monthly limitation of 30 mg/L and daily maximum limitation of 45 mg/L for TSS is appropriate for this type of facility. Other treatment systems with activated sludge treatment and stabilization ponds in the state have similar limitations.

The department determined an average monthly limitation of 126 count per 100 mL and a daily maximum limitation of 409 count per 100 mL for *E. coli* is appropriate for this type of facility. The limitation is effective April 1 to October 31 and is not in effect November 1 through March 31. Other treatment systems with activated sludge treatment and stabilization ponds in the state have similar limitations.

A total residual chlorine water quality-based effluent limitation was not developed for outfall 001 in the proposed permit. The department included monitoring for total residual chlorine in the proposed permit to collect information about the effectiveness of the chlorination/dechlorination process used during ammonia treatment. The department will evaluate the information collected during the development of the next permit.

The department reviewed the applicability of the total dissolved aluminum effluent limitation to discharges from outfall 001 as part of the 2021 permit renewal. The limitation was added in 1983 to address the discharge of wastewater from the onsite water treatment plant. Since that time, the facility has switched to obtaining potable water from the Southwest Water Authority and wastewater from the water treatment plant is directed to the underground injection wells. The department reviewed total dissolved aluminum DMR data for outfall 001 and 003 (outfall 003 was combined with outfall 001 in 2011) submitted since 1983 (Appendix C). Of the 139 sets of DMR data reviewed, there were five DMRs that showed exceedances of the limitation. The

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 12 of 34

exceedances occurred in 1984, 1985, twice in 1994, and 2019. Because the source of the effluent limitation was removed from discharges from the facility, the department removed the total dissolved aluminum effluent limitation from the proposed permit.

The department reviewed the applicability of the percent sodium and total sulfate effluent limitations to discharges from outfall 001 as part of the 2021 permit renewal. The limitations were meant to address the discharge of reverse osmosis reject water from the facility. Reverse osmosis reject water is directed to the underground injection wells and is not discharged from the facility. Because the source of the effluent limitations was removed from discharges from the facility, the department removed the percent sodium and total sulfate effluent limitations and monitoring requirements from the proposed permit.

Effective July 1, 2021, the water quality standards changed for total ammonia as nitrogen. As a result, the ammonia effluent limitation which is based on the 4-Day chronic water quality standard was updated in the proposed permit to reflect the change.

The proposed effluent limitations shall take effect once the proposed permit takes effect. The effluent limitations and the basis for the limitations are provided in Tables 3 - 6.

Effluent		Average	Daily	
Parameter	Units	Monthly	Maximum	Basis ^e
BOD₅	mg/L	25	45	BPJ, Previous Permit
TSS	mg/L	30	45	BPJ, Previous Permit
pH ^a	S.U.	Between 6.	0 and 9.0	WQS, BPJ, Previous Permit
E. Coli ^b	#/100 mL	126	409	WQS, BPJ
Ammonia as N °	mg/L	Refer to the Ammonia Table (Table 4)	*	WQS
Phenols	mg/L	*	0.30	WQS, Previous Permit
Temperature	٩F	*	85º F	WQS, Previous Permit
Whole Effluent Toxicity	TUa	<1	<1	40 CFR 122.44(d)(1) Previous Permit
Total Residual Chlorine ^d	mg/L	*	*	WQS
The permittee sha other than trace ar floating oil in the d	Previous Permit			
A pre-discharge sa discharge. A grab <i>E. coli</i> and pH. The when the pre-disch can be by e-mail, I	Previous Permit			

Table 3: Comparison of Effluent Limits for Outfall 001

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 13 of 34

Table 3: Comparison of Effluent Limits for Outfall 001

Samp specif prope	les taken in compliance with the monitoring requirements ied in this permit shall be taken prior to leaving company rty or entering the receiving stream.	Draviava Damait
Notes	3:	Previous Permit
а.	The pH, an instantaneous limitation, shall be between 6.0 (s.u.)	and 9.0 (s.u.).
b.	This limitation shall be effective from April 1 through October 31 be determined as a geometric mean.	. Averages for <i>E. coli</i> shall
С.	Any discharge shall be managed to meet the chronic 4-day star provided in the State Water Quality Standards (NDAC 33.1-16-0 0.25 located near the eastern rail spur (latitude 47.34829, longit permittee's responsibility to coordinate the discharge with flows and flows from surface runoff ponds operated by the adjacent co ammonia standard is met. During a discharge, Downstream Site daily for ammonia, pH, and temperature in degrees Celsius.	ndard for ammonia as 02.1) at Downstream Site ude -101.82099). It is the from the perimeter ditch oal mine to ensure that the e 0.25 shall be sampled
d.	Testing required only during periods when effluent is chlorinated	d.
e.	The basis of the effluent limitations is given below: "Previous Permit" refers to limitations in the previous permit. The CFR Part 122.44(1)(1) Reissued permits require that when a per- reissued, interim limitations, standards or conditions must be at final effluent limitations, standards, or conditions in the previous circumstances on which the previous permit was issued have modification or revocation and reissuance under 40 CFR Part 12 "BPJ" refers to best professional judgment. "WQS" refers to effluent limitations based on the State of North Quality for Waters of the State", NDAC Chapter 33.1-16-02.1.	e NPDES regulations 40 ermit is renewed or least as stringent as the permit unless the laterially and substantially itute cause for permit 22.62. Dakota's "Standards of
*.	This parameter is not limited. However, the department may imposed sample history and to protect the receiving waters.	oose limitations based on

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 14 of 34

Table 4: Ammonia Effluent Limitations – Outfall 001

Average Monthly Limitation

The monthly average concentration of total ammonia (expressed as N in mg/L) does not exceed the numerical value given by the following formula:

WQS_{Chronic 4-Day}

$$= 2.5 \times 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$$

Receiving stream pH and temperature in degrees Celsius are used for the calculation

Table 5: Effluent Limits for Outfalls 004, 005, and 006							
Effluent		Average	Daily				
Parameter	Units	Monthly	Maximum	Basis [°]			
рН	S.U.	Between 6	6.0 and 9.0	WQS, Previous Permit			
Stipulation							
The quality of th	e discharge shall	reflect the best w	hich is				
attainable throug	gh the use of best	t management pra	actices and shall	Previous Permit			
not cause a viol	ation of the state's	s Water Quality S	tandards. ^a	40 CFR 122.44(k)(3) ^b			
The facility shall	be operated and	maintained to mi	nimize, to the				
extent reasonab	ly practicable, sto	ormwater contact	with raw				
materials, intern	nediate products,	finished products	, byproducts, or	Previous Permit			
waste materials.				40 CFR 122.44(k)(3) ^b			
The material ha	ndling activities in	cluding loading/u	nloading,				
storage and pro	cessing at the pla	nt shall be condu	cted in a	Previous Permit			
manner to minin	nize exposure to a	stormwater.		40 CFR 122.44(k)(3) ^b			
Good housekee	ping practices sha	all be employed to	o maintain a	Previous Permit			
clean, orderly fa	cility.			40 CFR 122.44(k)(3) ^b			
Spill prevention	and response pro	cedures must be	employed to				
minimize the po	tential for the disc	harge of spilled n	naterial with	Previous Permit			
stormwater.				40 CFR 122.44(k)(3) ^b			
Notes:							
a. The depa	artment may requ	ire additional BMI	Ps, specific maint	enance, and/or monitoring if			
deemed	necessary to prof	ect receiving wat	ers.				
b. Best Ma	nagement Practic	es (BMPs) may b	e used to control	or abate the discharge of			
pollutant	s when numeric e	effluent limitations	are infeasible pro	ovided in 40 CFR 122.44(k)(3).			
c. The basi	s of the effluent li	mitations is given	below:				
"Previou	s Permit" refers to	limitations in the	previous permit.	The NPDES regulations 40			
CFR Par	rt 122.44(1)(1) Re	issued permits re	quire that when a	permit is renewed or reissued,			
interim li	mitations, standar	rds or conditions r	nust be at least a	s stringent as the final effluent			
limitation	ns, standards, or c	conditions in the p	revious permit un	less the circumstances on			
			•				

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FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 15 of 34

Table 5: Effluent Limits for Outfalls 004, 005, and 006

which the previous permit was issued have materially and substantially changed since the previous permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62.

"WQS" refers to effluent limitations based on the State of North Dakota's "Standards of Quality for Waters of the State", NDAC Chapter 33.1-16-02.1.

Table 6: Comparison of Effluent Limits for Outfall 008

Efflu Para	ent meter	Average Monthly	Daily Maximum	Basis ^b				
Isopr	opyl Ether (IPE) ª	*	*	Previous Permit				
Note	es:							
a.	a. Parameter of concern in groundwater treated by aeration / air stripping. Alternate name for parameter is diisopropyl ether.							
b.	 b. The basis of the effluent limitations is given below: "Previous Permit" refers to limitations in the previous permit. The NPDES regulations 40 CFR Part 122.44(1)(1) Reissued permits require that when a permit is renewed or reissued, interim limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit unless the circumstances on which the previous permit was issued have materially and substantially changed since the previous permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62. 							
*.	This parameter is not sample history and to and sampling require	 limited. However, the protect the receivin ments on discharges 	e department may g waters. This may s from Outfall 001.	 impose limitations based on y include imposing limitations 				

SELF-MONITORING REQUIREMENTS

All effluent is sampled at a point leaving outfall 001 but prior to leaving plant property or entering waters of the state.

Total residual chlorine was added to outfall 001 in the proposed permit to monitor the dechlorination process used during the treatment of ammonia using breakpoint chlorination. Downstream monitoring requirements for ammonia are located at the end of the facility's mixing zone. The monitoring site is designated as Downstream Site 0.25 and is located near the eastern rail spur (latitude: 47.34829, longitude: -101.82099), downstream of outfall 001.

Monitoring for nutrients at outfall 001 in the proposed permit was updated to include total nitrogen to coincide with the state's nutrient reduction strategy. The update subsequently

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 16 of 34

removes the monitoring and reporting requirement for Total Kjeldahl Nitrogen; however, the parameter is used to calculate total nitrogen.

Monitoring for Total Zinc, Barium, and Boron was added to outfall 001 in the proposed permit. The monitoring was added after a review of the permit application showed the parameters were present above the applicable water quality standard. Data submitted as part of previous permit applications showed the parameters were below the applicable water quality standard. The monitoring frequency is semiannual in the proposed permit which is consistent with trace element monitoring at other facilities.

Stormwater monitoring sites are located in the peripheral ditch along the west and southwest side of the facility. The quality of treated water from the aeration / air stripping groundwater treatment system also is monitored.

Effluent Parameter	Frequency	Sample Type ^a				
BOD ₅	1/Week ^b	Grab				
TSS	1/Week ^b	Grab				
pН	1/Week ^{b, c}	Instantaneous				
E. coli	1/Week ^b	Grab				
Ammonia as N	1/Week ^{b, c}	Grab				
Phenols	1/Week	Grab				
Nitrates + Nitrites as N	1/Month	Grab				
Total Phosphorus	1/Month	Grab/Calculated				
Total Nitrogen ^d	1/Month	Grab/Calculated				
Temperature	1/Week ^c	Instantaneous				
Oil & Grease	1/Week	Visual				
WET, TUa	1/Quarter	Grab				
Total Residual Chlorine	1/Week	Grab				
Total Zinc	inc 1 x Semiannual Grab					
Barium	1 x Semiannual	Grab				
Boron	1 x Semiannual	Grab				
Flow, MGD	1/Day	Instantaneous				
Total Drain, Mgal	1/Month	Calculated				
Notes:						
a. Refer to Appendix E	3 for definitions.					
b. Sampling shall cons	5. Sampling shall consist of one sample taken and analyzed prior to any discharge. In					
addition, at least on weekly basis for the	addition, at least one sample of the actual discharge shall be taken and analyzed on a weekly basis for the duration of the discharge.					
c. Downstream Site 0 daily for ammonia,	.25 located near the eastern rail spo pH, and temperature in degrees Ce	ur shall also be sampled at least Isius during the discharge.				
d. Total nitrogen is a c	combination of nitrate, nitrite, and To	otal Kjeldahl Nitrogen (TKN).				

Table 7: Self-Monitoring Requirements for Outfall 001

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 17 of 34

Effluent Parameter	Frequency	Sample Type ^a				
BOD ₅	1/Year	Grab				
TSS	1/Year	Grab				
рН	1/Year	Instantaneous				
Ammonia as N	1/Year	Grab				
Total Phosphorus	1/Year	Grab				
Nitrate + Nitrite as N	1/Year	Grab				
Oil & Grease	1/Year	Visual / Conditional Grab ^b				
Notes:						
a. Refer to Appendix	B for definitions.					
b. If a visible sheen o analyzed.	If a visible sheen or floating oil is present a grab sample must be collected and analyzed.					

Table 8: Self-Monitoring Requirements for Outfalls 004, 005, and 006

Table 9:	Self-Monitoring	Requirem	ents for	Internal O	utfall 008
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Effluent Parameter	Frequency	Sample Type ^a				
Isopropyl Ether	1/Quarter ^b	Grab				
Flow, gpm	1/Quarter	Calculated				
Total Flow, Mgal	1/Quarter	Calculated				
Notes:						
a. Refer to Appendix I	3 for definitions.					
 The department shall be provided with additional test information (or summary) if samples are collected more frequently. 						

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

The North Dakota State Water Quality Standards (NDAC Chapter 33.1-16-02.1) are designed to protect existing water quality and preserve the beneficial uses of North Dakota's surface waters. Wastewater discharge permits must include conditions that ensure the discharge will meet the surface water quality standards. Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load (TMDL) study. TMDLs result from a scientific study of the water body and are developed in order to reduce pollution from all sources.

West Antelope Creek is not specifically mentioned in the Standards of Quality for Waters of the State and is considered a class III stream. The quality of water in class III streams must be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are of limited value for

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY EXPIRATION DATE: SEPTEMBER 30, 2026 Page 18 of 34

recreation, and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g., wading), fish and aquatic biota, and wildlife uses.

The segment of Antelope Creek that receives discharges from the facility is listed as impaired for fecal coliform in the 2018 North Dakota <u>Section 303(d) List of Waters Needing Total</u> <u>Maximum Daily Loads</u>. TMDL development for this impairment is "Low" in the State's TMDL development strategy and is not scheduled for completion prior to the expiration date of the proposed permit. Monitoring for *E. coli* will continue to be part of the proposed permit. In addition, effluent limitations for *E. coli* are included in the proposed permit. There currently are no other TMDLs for Antelope Creek.

The North Dakota Water Quality Standards (NDAC 33.1-16-02.1) do not list criteria for isopropyl ether (IPE). A review of toxicological information for IPE available online shows that IPE exhibits moderate aquatic toxicity. An acute toxicity test on fathead minnows determined IPE to be toxic at 92 mg/L (96-hour LC50). The measured toxicity for IPE in a test on daphnia magna was determined to be 190 mg/L (48-hour EC50).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (NDAC Chapter 33.1-16-02.1). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. The department uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published numeric water quality criteria for the protection of human health that are applicable to dischargers. These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (NDAC Chapter 33.1-16-02.1-08) limit concentrations of pollutants from exceeding applicable standards of the receiving waters. The department adopted a narrative biological goal solely to provide an additional assessment method that can be used to identify impaired surface waters.

Antidegradation

The purpose of North Dakota's Antidegradation Policy (NDAC Chapter 33.1-16-02.1 (Appendix IV)) is to:

- Provide all waters of the state one of three levels of antidegradation protection.
- Determine whether authorizing the proposed regulated activity is consistent with antidegradation requirements.

The department's fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

Mixing Zones

The department's WQS contain a Mixing Zone and Dilution Policy and Implementation Procedure, NDAC Chapter 33.1-16-02.1 (Appendix III). This policy addresses how mixing and dilution of point source discharges with receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations for point source discharges. Depending upon site-specific mixing patterns and environmental concerns, some pollutants/criteria may be allowed a mixing zone or dilution while others may not. In all cases, mixing zone and dilution allowances shall be limited, as necessary, to protect the integrity of the receiving water's ecosystem and designated uses.

EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

рΗ

Discharges to class III streams shall have an instantaneous pH limitation between 6.0 (s.u.) and 9.0 (s.u.).

E. coli

Based on the WQS, the department has determined that an *E. coli* limitation of 126 organisms per 100 mL as a monthly geometric mean and 409 organisms per 100 mL as a daily maximum is appropriate for this type of facility. The standard only applies during the recreation season from May 1 through September 30. The limitation in the permit is meant to cover the period one month before and one month after the recreation season.

Total Phenols

Total phenols may be present in the discharge above the organoleptic WQS criterion. Organoleptic effects relate to sensory effects of the effluent such as odor or taste.

Oil & Grease

The WQS state that waters of the state must be free from oil or grease attributable to wastewater which causes a visible sheen or film upon the water.

Temperature

The temperature may not be above eighty-five degrees Fahrenheit as referenced in the WQS for class III streams.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 20 of 34

Ammonia as N

Monitoring and discharge restrictions for ammonia have been included to protect the state's water quality standards for ammonia. To demonstrate that the water quality standard is met during a discharge the permittee must collect samples from the receiving stream. The sampling point is designated as Downstream Site 0.25 which is near the eastern rail spur. Since the standard for ammonia is temperature and pH dependent, sampling for Downstream Site 0.25 will consist of testing for ammonia, temperature, and pH.

The proposed permit requires the permittee to plan and manage the discharge to meet the 4day chronic standard for ammonia as provided in the water quality standards (NDAC 33.1-16-02.1) effective July 1, 2021. The 4-day chronic standard has been specified since it best matches the typical discharge duration. On average the facility discharges 12 times a year with the average length of discharge being 6 days.

The 4-day chronic standard for ammonia is determined using the formulas below found in Table 1 of NDAC 33.1-16-02.1.

Chronic Standard:

 $WQS_{chronic} = 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$

T = Temperature in degrees C

Chronic Standard (4-day):

 $WQS_{chronic 4-day} = WQS_{chronic} \times 2.5$

Whole Effluent Toxicity

Testing requirements and limitations for whole effluent toxicity (WET) testing are specified in 40 CFR 122.44(d)(1)(iv) & (v) for discharges that may have the reasonable potential to contribute to an in-stream excursion above a numeric or narrative criterion for whole effluent toxicity. The state water quality standards include a narrative standard related to whole effluent toxicity. The narrative standard listed in NDAC 33.1-16-02.1-08(1)(a)(4) states that waters of the state shall be "[f]ree from substances attributable to municipal, industrial, or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to humans, animals, plants, or resident aquatic biota. For surface water, this standard will be enforced in part through appropriate whole effluent toxicity requirements in North Dakota pollutant discharge elimination system permits."

The current permit requires quarterly acute WET testing. The permittee must conduct *Ceriodaphnia dubia* (Water Flea) and *Pimephales promelas* (Fathead Minnow) WET tests. Acute toxicity testing shall occur once per quarter in which there is a discharge. Acute test failure (LC50) is defined as lethality of 50% or more of each test organism at any effluent concentration. The acute toxicity test methods consist of the parameters provided in Table 10.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 21 of 34

Implementation	Monitoring Imposed or Limitation Imposed					
Effluent Dilution	0%(Control)	12.5%	25%	50%	75%	100%
Dilution Water	West Branch of Antelope Creek or Lab Synthetic Water					
Species and Test Type	Ceriodaphnia dubia - 48 Hour Acute - Static Renewal - 20°C					
	Fathead minnow - 96 Hour Acute - Static Renewal - 20°C					
Endpoint	TUa					
Compliance Point	End-of-pipe	or In-strear	n			

Table 10: Acute WET requirements for Outfall 001

If acute toxicity occurs in a routine test, an additional test must be conducted within fourteen days of the initial toxicity findings. If an additional test cannot be conducted within fourteen days, an additional test must be conducted on the next discharge. If the additional test fails, the department will determine whether a Toxicity Reduction Evaluation (TRE) is necessary.

Human Health

North Dakota's water quality standards include numeric human health-based criteria that the department must consider when writing NDPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

The North Dakota Water Quality Standards (NDAC 33.1-16-02.1) do not list human health criteria for IPE. The department was provided with an Acceptable Daily Intake (ADI) derivation for IPE as part of the 2011 permit renewal (Appendix E). An ADI is established to determine the dose of a particular chemical that an individual can be exposed to on a daily basis over an extended period of time (usually a lifetime) without resulting in adverse health effects. The ADI provided for IPE was determined to be 0.416 mg/kg/day. A translation to a concentration in water could be made based on a 70 kg adult with a 2 L/day water intake. Using the ADI, the acceptable concentration in water would be 14.5 mg/L. While the information on IPE is not a standard or limitation, it does provide a point of reference for evaluating the groundwater sent to the ponds (internal outfall 008). Concentrations of IPE at outfall 008 have ranged from 0 to 28.9 mg/L at outfall 008 since October 2016 with an average of concentration of 2.849 mg/L. The concentration has ranged from 0.001 mg/L to 5 mg/L with an average concentration of 0.011 mg/L since 2018.

Safety data sheets (SDS) for IPE available online describe exposure to 100 percent IPE. According to the SDS, IPE exposure may cause irritation to eyes, as well as redness and pain. IPE exposure to skin is listed as non-irritating to irritating. Ingestion of IPE may cause nausea, stomach pain, vomiting, cough, sore throat, chest pain, and lightheadedness. The Occupational Safety & Health Administration lists the permissible exposure limit as 500 parts per million. The permissible exposure limit is based on an 8-hour time weighted average work day (40 hours per week).

IPE is a clear, colorless, volatile liquid. The specific gravity of IPE is 0.72 and would be lighter than water. It has a boiling point of 68° C and vapor pressure of 120 mmHg at 20° C. It has an evaporation rate of 8.4 (as compared to the evaporation of rate of normal-butyl acetate) and evaporates quickly. Discharges from outfall 008 that contain IPE are directed to wastewater

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 22 of 34

ponds 5A or 5C. Water in ponds 5A and 5C is detained until a discharge is facilitated which allows time for evaporation (the average discharge from the ponds occurs once per month for a period of 6 days).

Based on this information, the department has determined the applicant's discharge is unlikely to contain chemicals in concentrations that would adversely affect human health. The department will re-evaluate this discharge for impacts to human health at the next permit reissuance.

MONITORING REQUIREMENTS

The department requires monitoring, recording, and reporting (NDAC Chapter 33.1-16-01-(21 through 23) and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's limits.

Test Procedures

The collection and transportation of all samples shall conform to EPA preservation techniques and holding times found in 40 CFR 136. All laboratory tests shall be performed by a North Dakota certified laboratory in conformance with test procedures pursuant to 40 CFR 136, unless other test procedures have been specified or approved by EPA as an alternate test procedure under 40 CFR 136.5. The method of determining the total amount of water discharged shall provide results within 10 percent of the actual amount.

OTHER PERMIT CONDITIONS

The permit contains no additional conditions.

PERMIT ISSUANCE PROCEDURES

Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. 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 does not stay any permit condition.

Proposed Permit Issuance

This proposed permit meets all statutory requirements for the department to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of North Dakota. The department proposes to issue this permit for a term of five (5) years.

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

The department proposes to reissue a permit to the **Dakota Gasification Company** for its **Great Plains Synfuels Plant**. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and the department's reasons for requiring permit conditions.

The department will place a Public Notice of Draft on **August 12, 2021** in the **Beulah Beacon** to inform the public and to invite comment on the proposed draft North Dakota Pollutant Discharge Elimination System permit and fact sheet.

The Notice -

- Indicates where copies of the draft Permit and Fact Sheet are available for public evaluation.
- Offers to provide assistance to accommodate special needs.
- Urges individuals to submit their comments before the end of the comment period.
- Informs the public that if there is significant interest, a public hearing will be scheduled.

You may obtain further information from the department by telephone, 701.328.5210, or by writing to the address listed below.

North Dakota Department of Environmental Quality Division of Water Quality 918 East Divide Avenue, 4th Floor Bismarck, ND 58501

The author of this permit and fact sheet is Dallas Grossman.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 24 of 34



APPENDIX B – GLOSSARY

DEFINITIONS Standard Permit BP 2019.05.29

- 1. "Act" means the Clean Water Act.
- 2. "Average monthly discharge limitation" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.
- 3. "Average weekly discharge limitation" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.
- 4. "Best management practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
- 5. **"Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.
- 6. "**Composite**" sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24-hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.
- 7. "**Daily discharge**" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.
- 8. "**Department**" means the North Dakota Department of Environmental Quality, Division of Water Quality.
- 9. "DMR" means discharge monitoring report.
- 10. "EPA" means the United States Environmental Protection Agency.
- 11. "Geometric mean" means the nth root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

- 12. "**Grab**" for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.
- 13. "**Instantaneous**" for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.
- 14. "Maximum daily discharge limitation" means the highest allowable "daily discharge."
- 15. "**Salmonid**" means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.
- 16. **"Sanitary Sewer Overflows (SSO)**" means untreated or partially treated sewage overflows from a sanitary sewer collection system.
- 17. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- 18. "Total drain" means the total volume of effluent discharged.
- 19. **"Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

DEFINITIONS Whole Effluent Toxicity (WET) BP 2017.04.06

- 1. "Acute toxic unit" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC50").
- "Chronic toxic unit" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").
- 3. **"Inhibition concentration**", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).
- 4. "**LC50**" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 27 of 34

5. "**No observed effect concentration**", ("NOEC"), is the highest concentration of toxicant (e.g., effluent) to which organisms are exposed in a chronic toxicity test [full life-cycle or partial life-cycle (short term) test], that causes no observable adverse effects on the test organisms (i.e., the highest concentration of effluent in which the values for the observed responses are not statistically significantly different from the controls).

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 28 of 34

APPENDIX C – DATA AND TECHNICAL CALCULATIONS

The development of the permit did not require technical calculations by the North Dakota Department of Environmental Quality. The department reviewed DMR information and applicable water quality standards for class III streams to determine the appropriate requirements to be placed in the permit. In addition, the department reviewed Total Maximum Daily Load information for the West Branch of Antelope Creek and the department's 2018 North Dakota <u>Section 303(d) List of Waters Needing Total Maximum Daily Loads</u> (303(d) List).

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 29 of 34

Aluminur Total Diss 5/11/2021 0.23/22/221 0.33 0.04 0.071 mgL Aluminum Total Diss 10/29/020 12/21/2021 0.033 0.04 0.077 mgL Aluminum Total Diss 10/29/020 0.023 0.044 0.031 0.044 mgL Aluminum Total Diss 4/0/2020 6/11/2020 0.011 0.033 0.044 mgL Aluminum Total Diss 10/1/2019 12/18/2019 0.051 0.033 0.044 mgL Aluminum Total Diss 10/1/2019 8/20/2019 0.041 0.68 0.112 mgL Aluminum Total Diss 10/1/2019 8/20/2019 0.031 0.068 0.017 mgL Aluminum Total Diss 1/1/2018 8/20/2018 0.11 0.11 mgL mgL Aluminum Total Diss 1/1/2018 3/92/2017 0.033 0.033 0.033 mgL Aluminum Total Diss 1/1/2018 3/92/2017 0.032 0.04 0.071 mgL Aluminum Total Diss <td< th=""><th>Parameter</th><th>Discharge Start</th><th>Discharge End</th><th>Minimum</th><th>Average</th><th>Maximum</th><th>Units</th></td<>	Parameter	Discharge Start	Discharge End	Minimum	Average	Maximum	Units
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Aluminum Total Diss 10/19/2016 12/25/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/12/2016 9/16/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/19/2016 3/23/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/13/2015 11/23/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/13/2015 7/20/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 4/14/2015 6/11/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/2/1014 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/1/2014 9/11/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/11/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/1/2013 12/3	Aluminum Total Diss	1/30/2017	3/24/2017	0.09	0.09	0.1	mg/L
Aluminum Total Diss 7/12/2016 9/16/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 4/28/2016 5/4/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/19/2016 3/23/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/17/2015 1/12/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/17/2015 6/11/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 2/16/2015 3/13/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/12/2014 9/11/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/12/2014 6/11/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/12/2014 9/11/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/12/2013 0.1 0.1 0.1 mg/L 1/1/2013 3/31/2013 0.1 0.1 mg/L 1/1	Aluminum Total Diss	10/19/2016	12/25/2016	0.1	0.1	0.1	mg/L
Aluminum Total Diss 4/28/2016 5/4/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/3/2015 3/23/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/13/2015 11/23/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/17/2015 7/20/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 2/8/2015 3/13/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.3 0.88 mg/L Aluminum Total Diss 1/1/2014 9/11/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 1/23/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 3/3/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 3/3/2013 </td <td>Aluminum Total Diss</td> <td>7/12/2016</td> <td>9/16/2016</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>mg/L</td>	Aluminum Total Diss	7/12/2016	9/16/2016	0.1	0.1	0.1	mg/L
Aluminum Total Diss 1/19/2016 3/23/2016 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/13/2015 11/23/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 4/14/2015 6/11/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 4/14/2015 6/11/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 7/1/2014 9/11/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 7/1/2014 9/11/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 10/2/2014 6/30/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2013 6/23/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/1/2013 3/	Aluminum Total Diss	4/28/2016	5/4/2016	0.1	0.1	0.1	mg/L
Aluminum Total Diss 10/13/2015 11/23/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/17/2015 7/20/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 2/6/2015 3/13/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 1/1/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 1/26/2014 2/11/2014 0.1 0.11 0.1 mg/L Aluminum Total Diss 1/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 8/23/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 7/19/2012 8/23/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/26/2012 0.	Aluminum Total Diss	1/19/2016	3/23/2016	0.1	0.1	0.1	mg/L
Aluminum Total Diss 7/17/2015 7/20/2015 0.1 0.1 0.1 ng/L Aluminum Total Diss 4/14/2015 6/11/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 2/8/2015 3/13/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 10/2/2014 6/30/2014 0.1 0.3 0.98 mg/L Aluminum Total Diss 11/8/2014 2/11/2014 0.1 0.11 0.14 mg/L Aluminum Total Diss 11/8/2014 2/11/2014 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 11/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 11/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/1/2012	Aluminum Total Diss	10/13/2015	11/23/2015	0.1	0.1	0.1	mg/L
Aluminum Total Diss 4/14/2015 6/11/2015 0.1 0.1 0.1 ng/L Aluminum Total Diss 2/0/2015 3/13/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/2/1/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 1/0/2/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 1/1/2/014 0.1 0.14 0.14 0.14 mg/L Aluminum Total Diss 1/1/2/1014 0.1 0.1 0.14 mg/L Aluminum Total Diss 1/0/1/2013 1/2/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 6/2/3/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 1/1/2013 3/1/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/2/2/2012 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 mg	Aluminum Total Diss	7/17/2015	7/20/2015	0.1	0.1	0.1	mg/L
Aluminum Total Diss 2/6/2015 3/13/2015 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 7/1/2014 9/11/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 1/2/2014 6/30/2014 0.1 0.1 0.14 0.31 mg/L Aluminum Total Diss 1/2/2014 2/11/2014 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 7/15/2013 9/19/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 3/31/2012 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011	Aluminum Total Diss	4/14/2015	6/11/2015	0.1	0.1	0.1	mg/L
Aluminum Total Diss 10/2/2014 12/21/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 7/1/2014 9/11/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 4/9/2014 6/30/2014 0.1 0.1 0.14 mg/L Aluminum Total Diss 1/28/2014 2/11/2013 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 9/19/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 1/1/2013 8/23/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/28/2012 0.1055 0.1055 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 mg/L Aluminum Total Diss 10/6/2011 10/7/2011 0.1	Aluminum Total Diss	2/6/2015	3/13/2015	0.1	0.1	0.1	mg/L
Aluminum Total Diss 7/1/2014 9/11/2014 0.1 0.14 0.31 mg/L Aluminum Total Diss 4/9/2014 6/30/2014 0.1 0.3 0.98 mg/L Aluminum Total Diss 1/28/2014 2/11/2014 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010	Aluminum Total Diss	10/2/2014	12/21/2014	0.1	0.1	0.14	mg/L
Aluminum Total Diss 4/9/2014 6/30/2014 0.1 0.3 0.98 mg/L Aluminum Total Diss 11/28/2014 2/11/2014 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/15/2013 0/19/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 4/8/2013 6/23/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/26/2012 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.14 0.14 mg/L	Aluminum Total Diss	7/1/2014	9/11/2014	0.1	0.14	0.31	mg/L
Aluminum Total Diss 1/28/2014 2/11/2014 0.1 0.11 0.14 mg/L Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/15/2013 9/19/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 1/1/2013 6/23/2013 0.1 0.13 0.355 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 1/1/2012 8/26/2012 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.1 0.1 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.18 0.18	Aluminum Total Diss	4/9/2014	6/30/2014	0.1	0.3	0.98	mg/L
Aluminum Total Diss 10/1/2013 12/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/15/2013 9/19/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 4/8/2013 6/23/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/26/2012 0.1055 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 3/3/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 10.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.1 0.1 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.1 0.1 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.18	Aluminum Total Diss	1/28/2014	2/11/2014	0.1	0.11	0.14	mg/L
Aluminum Total Diss 7/15/2013 9/19/2013 0.1 0.12 0.24 mg/L Aluminum Total Diss 4/8/2013 6/23/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/26/2012 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.22 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.12 0.12 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total D	Aluminum Total Diss	10/1/2013	12/31/2013	0.1	0.1	0.1	mg/L
Aluminum Total Diss 4/8/2013 6/23/2013 0.1 0.13 0.35 mg/L Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/26/2012 0.1055 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.12 0.12 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.31 0.31	Aluminum Total Diss	7/15/2013	9/19/2013	0.1	0.12	0.24	mg/L
Aluminum Total Diss 1/1/2013 3/31/2013 0.1 0.1 0.1 mg/L Aluminum Total Diss 7/19/2012 8/26/2012 0.1055 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.22 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.14 0.14 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.31 0.31 mg/L	Aluminum Total Diss	4/8/2013	6/23/2013	0.1	0.13	0.35	mg/L
Aluminum Total Diss 7/19/2012 8/26/2012 0.1055 0.1055 0.1055 mg/L Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.22 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.18 0.18 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L	Aluminum Total Diss	1/1/2013	3/31/2013	0.1	0.1	0.1	mg/L
Aluminum Total Diss 5/2/2012 6/15/2012 0.1 0.22 mg/L Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.31 0.31 mg/L Aluminum Total Diss 4/1/2009 4/9/2009 0.3 0.3 mg/L Alu	Aluminum Total Diss	7/19/2012	8/26/2012	0.1055	0.1055	0.1055	mg/L
Aluminum Total Diss 3/6/2012 3/13/2012 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.14 0.14 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 4/1/2010 4/1/2010 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.31 0.31 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.38 0.3 mg/L A	Aluminum Total Diss	5/2/2012	6/15/2012	0.1		0.22	mg/L
Aluminum Total Diss 10/4/2011 10/7/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.5 0.5 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.18 0.18 mg/L Aluminum Total Diss 8/10/2010 4/1/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L	Aluminum Total Diss	3/6/2012	3/13/2012	0.1	0.1	0.1	mg/L
Aluminum Total Diss 8/3/2011 8/30/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.5 0.5 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 8/10/2010 4/1/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 6/9/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L </td <td>Aluminum Total Diss</td> <td>10/4/2011</td> <td>10/7/2011</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>mg/L</td>	Aluminum Total Diss	10/4/2011	10/7/2011	0.1	0.1	0.1	mg/L
Aluminum Total Diss 5/24/2011 5/26/2011 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.5 0.5 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.18 0.18 mg/L Aluminum Total Diss 8/10/2010 4/1/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 mg/L Muminum Total Diss </td <td>Aluminum Total Diss</td> <td>8/3/2011</td> <td>8/30/2011</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>mg/L</td>	Aluminum Total Diss	8/3/2011	8/30/2011	0.1	0.1	0.1	mg/L
Aluminum Total Diss 10/6/2010 10/8/2010 0.12 0.12 mg/L Aluminum Total Diss 9/8/2010 9/11/2010 0.5 0.5 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.18 0.18 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 4/1/2010 4/1/2010 0.12 0.56 1 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 mg/L Aluminum Total Diss	Aluminum Total Diss	5/24/2011	5/26/2011	0.1	0.1	0.1	mg/L
Aluminum Total Diss 9/8/2010 9/11/2010 0.5 0.5 mg/L Aluminum Total Diss 8/10/2010 8/12/2010 0.18 0.18 mg/L Aluminum Total Diss 4/1/2010 4/1/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Alum	Aluminum Total Diss	10/6/2010	10/8/2010		0.12	0.12	mg/L
Aluminum Total Diss 8/10/2010 8/12/2010 0.18 0.18 mg/L Aluminum Total Diss 4/1/2010 4/1/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 mg/L Aluminum Total Diss <td>Aluminum Total Diss</td> <td>9/8/2010</td> <td>9/11/2010</td> <td></td> <td>0.5</td> <td>0.5</td> <td>mg/L</td>	Aluminum Total Diss	9/8/2010	9/11/2010		0.5	0.5	mg/L
Aluminum Total Diss 4/1/2010 4/1/2010 0.14 0.14 0.14 mg/L Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 6/19/2008 6/23/2007 0.19 0.19 mg/l	Aluminum Total Diss	8/10/2010	8/12/2010		0.18	0.18	mg/L
Aluminum Total Diss 6/9/2009 7/2/2009 0.12 0.56 1 mg/L Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Al	Aluminum Total Diss	4/1/2010	4/1/2010	0.14	0.14	0.14	mg/L
Aluminum Total Diss 5/27/2009 5/29/2009 0.31 0.31 mg/L Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 mg/l Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 mg/l	Aluminum Total Diss	6/9/2009	7/2/2009	0.12	0.56	1	mg/L
Aluminum Total Diss 4/7/2009 4/9/2009 0.3 0.3 mg/L Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.55 1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/l Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 0.9 mg/l	Aluminum Total Diss	5/27/2009	5/29/2009		0.31	0.31	mg/L
Aluminum Total Diss 3/16/2009 3/20/2009 0.48 0.48 mg/L Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 10/23/2007 10/25/2007 0.9 0.9 mg/l	Aluminum Total Diss	4/7/2009	4/9/2009		0.3	0.3	mg/L
Aluminum Total Diss 10/1/2008 10/17/2008 0.1 0.25 0.4 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 0.9 mg/l	Aluminum Total Diss	3/16/2009	3/20/2009		0.48	0.48	mg/L
Aluminum Total Diss 9/17/2008 9/19/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/l Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 0.9 mg/l	Aluminum Total Diss	10/1/2008	10/17/2008	0.1	0.25	0.4	mg/L
Aluminum Total Diss 8/5/2008 8/29/2008 0.1 0.55 1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/L Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 0.9 mg/l	Aluminum Total Diss	9/17/2008	9/19/2008	0.1	0.1	0.1	mg/L
Aluminum Total Diss 6/19/2008 6/23/2008 0.1 0.1 0.1 mg/l Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 mg/l	Aluminum Total Diss	8/5/2008	8/29/2008	0.1	0.55	1	mg/L
Aluminum Total Diss 10/23/2007 10/25/2007 0.19 0.19 mg/l Aluminum Total Diss 8/10/2007 8/10/2007 0.9 mg/l	Aluminum Total Diss	6/19/2008	6/23/2008	0.1	0.1	0.1	mg/l
Aluminum Total Diss 8/10/2007 8/10/2007 0.9 0.9 mg/l	Aluminum Total Diss	10/23/2007	10/25/2007		0.19	0.19	mg/l
	Aluminum Total Diss	8/10/2007	8/10/2007		0.9	0.9	mg/l

Total Dissolved Aluminum DMR data Outfall 001

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 30 of 34

Aluminum Total Diss	7/24/2007	7/27/2007	0.41	0.41	0.41	mg/l
Aluminum Total Diss	6/1/2007	6/30/2007	0.14	0.26	0.4	mg/l
Aluminum Total Diss	5/31/2007	6/1/2007	0.17	0.17	0.17	mg/l
Aluminum Total Diss	4/12/2007	4/13/2007		0.37	0.37	mg/l
Aluminum Total Diss	3/13/2007	3/14/2007		0.1	0.1	mg/l
Aluminum Total Diss	11/1/2006	11/30/2006		0.13	0.13	mg/l
Aluminum Total Diss	6/2/2005	6/10/2005		0.1	0.1	mg/l
Aluminum Total Diss	3/18/2004	3/25/2004	0.1	0.1	0.1	mg/l
Aluminum Total Diss	5/14/2003	5/17/2003	0.1	0.1	0.1	mg/l
Aluminum Total Diss	3/17/2003	3/23/2003		0.24	0.24	mg/l
Aluminum Total Diss	6/11/2002	6/21/2002	0.1	0.1	0.1	mg/l
Aluminum Total Diss	2/1/2001	4/30/2001	0.1	0.1	0.1	mg/l
Aluminum Total Diss	2/26/2000	2/27/2000	0.1	0.1	0.1	mg/l
Aluminum Total Diss	9/1/1999	9/30/1999	0.1	0.1	0.1	mg/l
Aluminum Total Diss	8/1/1999	8/31/1999	0.1	0.1	0.1	mg/l
Aluminum Total Diss	11/1/1998	12/31/1998	0.1	0.1	0.1	mg/l
Aluminum Total Diss	8/1/1998	10/31/1998	0.1	0.1	0.1	mg/l
Aluminum Total Diss	8/1/1997	8/31/1997	0.1	0.1	0.1	mg/l
Aluminum Total Diss	11/1/1996	11/30/1996	0.1	0.1	0.1	mg/l
Aluminum Total Diss	7/1/1996	7/31/1996	0.1	0.17	0.23	mg/l
Aluminum Total Diss	5/1/1996	5/31/1996	0.1	0.1	0.1	mg/l
Aluminum Total Diss	4/1/1996	4/30/1996	0.1	0.1	0.1	mg/l
Aluminum Total Diss	3/1/1996	3/31/1996	0.1	0.1	0.1	mg/l
Aluminum Total Diss	2/1/1996	2/29/1996	0.1	0.1	0.1	mg/l
Aluminum Total Diss	12/1/1995	12/31/1995	0.1	0.1	0.1	mg/l
Aluminum Total Diss	7/18/1995	7/24/1995	0.1	0.1	0.1	mg/l
Aluminum Total Diss	5/15/1995	5/20/1995	0.01	0.01	0.01	mg/l
Aluminum Total Diss	4/4/1995	4/29/1995	0.1	0.31	0.53	mg/l
Aluminum Total Diss	3/29/1995	3/29/1995	0.1	0.1	0.1	mg/l
Aluminum Total Diss	11/7/1994	11/11/1994	0.1	0.1	0.1	mg/l
Aluminum Total Diss	10/1/1994	10/31/1994	0.1	1 7	7.8	mg/l
Aluminum Total Diss	6/1/1994	6/30/1994	0.17	0.17	0.17	mg/l
Aluminum Total Diss	4/1/1994	4/30/1994	0.1	0.14	0.17	mg/l
Aluminum Total Diss	3/1/1994	3/31/1994	0.1	0.14	1.2	mg/l
Aluminum Total Diss	9/1/1993	9/30/1993	0.2	0.2	0.2	mg/l
Aluminum Total Diss	8/1/1993	8/31/1003	0.2	0.2	0.2	mg/l
Aluminum Total Diss	4/1/1993	4/30/1993	0.2	0.2	0.2	mg/l
Aluminum Total Diss	3/1/1003	3/31/1993	0.2	0.2	0.2	mg/l
Aluminum Total Diss	2/1/1993	2/28/1993	0.2	0.2	0.2	mg/l
Aluminum Total Diss	12/1/1002	12/31/1993	0.2	0.2	0.2	mg/l
Aluminum Total Diss	10/1/1992	10/31/1992	0.2	0.2	0.2	mg/l
Aluminum Total Diss	7/1/1992	7/31/1992	0.2	0.2	0.1	mg/l
Aluminum Total Diss	//1/1992	4/30/1992	0.1	0.1	0.1	mg/l
Aluminum Total Diss	3/1/1002	3/31/1002	0.2	0.2	0.2	mg/l
Aluminum Total Diss	2/1/1992	2/20/1002	0.2	0.2	0.2	mg/l
Aluminum Total Diss	2/1/1992	2/29/1992	0.2	0.2	0.2	mg/l
Aluminum Total Diss	3/1/1991	3/30/1991	0.2	0.2	0.2	Ing/I
	6/1/1001	6/30/1001	0.2	0.2	0.2	mg/l
Aluminum Total Diss	2/1/1001	2/21/1001	0.32	0.32	0.02	mg/l
	12/1/1000	12/21/1000	0.00	0.00	0.08	mg/l
	7/1/1990	7/21/1990	0.17	0.17	0.17	mg/l
	6/1/1000	6/20/4000	0.0	0.7	0.73	mg/l
	0/1/1990	2/24/4000	0.42	0.20	0.32	ing/i
	3/1/1990	3/31/1990	0.18	0.18	0.18	ring/i
	9/1/1989	9/30/1989	0.02	0.07	0.1	mg/i
Aluminum Total Diss	6/1/1989	6/30/1989	0.06	0.08	U.1	mg/l

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 31 of 34

Aluminum Total Diss	4/1/1989	4/30/1989	0.1	0.23	0.42	mg/l
Aluminum Total Diss	8/1/1988	10/31/1988	0.03	0.05	0.1	mg/l
Aluminum Total Diss	5/1/1988	7/31/1988	0.23	0.23	0.23	mg/l
Aluminum Total Diss	2/1/1988	4/30/1988	0.02	0.02	0.02	mg/l
Aluminum Total Diss	8/1/1987	10/31/1987	0.3	0.3	0.3	mg/l
Aluminum Total Diss	5/1/1987	7/31/1987	0.1	0.1	0.1	mg/l
Aluminum Total Diss	11/1/1986	1/31/1987	0.1	0.1	0.1	mg/l
Aluminum Total Diss	8/1/1986	10/31/1986	0.02	0.04	0.06	mg/l
Aluminum Total Diss	5/1/1986	7/31/1986	0.1	0.16	0.3	mg/l
Aluminum Total Diss	2/1/1986	4/30/1986	0.1	0.1	0.2	mg/l
Aluminum Total Diss	11/1/1985	1/31/1986	0.18	0.2	0.22	mg/l
Aluminum Total Diss	8/1/1985	10/31/1985	0.34	0.46	0.8	mg/l
Aluminum Total Diss	5/1/1985	7/31/1985	0.1	0.22	0.3	mg/l
Aluminum Total Diss	2/1/1985	4/30/1985	0.1	0.16	0.3	mg/l
Aluminum Total Diss	11/1/1984	1/31/1985	0.1	0.96	4.1	mg/l
Aluminum Total Diss	8/1/1984	10/31/1984	0.1	1.18	2.1	mg/l
Aluminum Total Diss	5/1/1984	7/31/1984	0.1	0.1	0.1	mg/l
Aluminum Total Diss	2/1/1984	4/30/1984	0.1	0.1	0.1	mg/l
Aluminum Total Diss	11/1/1983	1/31/1984	0.1	0.18	0.3	mg/l
Aluminum Total Diss	8/1/1983	10/31/1983	0.1	0.15	0.2	mg/l
Aluminum Total Diss			0.1	0.1	0.1	mg/L

Total Dissolved Aluminum DMR data Outfall 003

Parameter	Discharge Start	Discharge End	Minimum	Average	Maximum	Units
Aluminum Total Diss	4/5/2011	4/7/2011		0.71	0.71	mg/L
Aluminum Total Diss	3/18/2011	3/20/2011		0.314	0.314	mg/L
Aluminum Total Diss	6/3/2010	7/2/2010	0.6	0.76	0.92	mg/L
Aluminum Total Diss	3/17/2010	3/31/2010	0.1	0.12	0.14	mg/L
Aluminum Total Diss	9/30/2009	10/16/2009	0.1	0.12	0.13	mg/L
Aluminum Total Diss	2/9/2009	2/13/2009	0.1	0.3	0.5	mg/L
Aluminum Total Diss	5/23/2005	5/30/2005		0.1	0.1	mg/l
Aluminum Total Diss	3/23/2005	3/29/2005	0.1	0.1	0.1	mg/l
Aluminum Total Diss	5/14/2003	5/15/2003	0.1	0.1	0.1	mg/l

FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 32 of 34

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			Dileopropyl Ether (DIPE)		
			Derivation of the Acceptable Daily Intake	(ADI)	· ·
	To evaluate are reviewe	the potent d and an A	tial safety of a chemical, such as DIPE Acceptable Daily Intake (ADI) can be d	, available toxicology data eveloped based on the	
	relevant dat an individua	a. An ADI I can be ex	is established to determine the dose of posed to on a daily basis over an exter liting in adverse beatth effects. Uncert	of a particular chemical that ended period of time (usually fainty or safety factors may	
	be incorpora	ated into th	e calculation in extrapolating from ani	mal studies to humans.	
	These facto	rs can acc	ount for potential differences between	test species and humans	
	(inter-specie (subchronic	(nue-species), anong the numan population (inte-species), duration of exposure (subchronic to lifetime), quality of data, and other issues.			
	The No Obs	erved Adv	erse Effect Level (NOAEL) determined	d in a 13-week rat inhalation	
	ADI. In that	study, rats	ted by Dalbey and Feuston (1996) , v s were exposed to 0, 480, 3300 or 710	was used to develop the 10 ppm of DIPE 6hr/day, 5	
	days/week f	or 13 week	ks. Effects observed were increased li	iver weights (male, female)	
· .	and kidney v	veights (m	ale) at the 3300 ppm exposure level. T	There were increased liver	
	NOAEL was	determine	and to be 480 ppm (2100 mg/m ³). The i	inhalation NOAEL is	
	converted to	an oral N	OAEL using standard physiological as	sumptions as described	
	below.				
	Assumption	s:			
\bigcirc	Rat body we	ight:	0.35 kg	,	· · ·
	Rat inhalatio	n rate: 0	0.233 m°/day 0.5		
	Absorption				
	$NOAEL_{o} = \frac{NOAEL_{i} \times AIR \times h/24 \times d/7 \times F}{BW}$				
	Where:	NOAEL	a = oral NOAEL		
		NOAEL	= inhalation NOAEL		•••••
		AIR h	 animal innalation rate (m²/d) bours of exposure per day 	ay)	1
		d	= days of exposure per week		
		F	 absorption factor i.e. estima 	ited ratio of inhaled dose	1
		BW	= animal body weight (kg)		• •
	T 1				-
•	Thus,				· • • •
	NOAEL_ = 2	NOAEL _o = <u>2100 mg/m³ x 0.233 m³/day x 6/24 x 5/7 x 0.5</u>			
		0.35 kg			
	NOAFL = 1	24.7 ma/k	day (rounded to 125 mg/kg/day)		
	I a data specied				
	•				
					11
	DIPE ADI Calcula	ition 06 2:39:00 PM	l		
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	Created on 2/14/		-1-		
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FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 33 of 34



FACT SHEET FOR NDPDES PERMIT ND0025011 DAKOTA GASIFICATION COMPANY **EXPIRATION DATE: SEPTEMBER 30, 2026** Page 34 of 34

APPENDIX E – RESPONSE TO COMMENTS

Comments received during the public comment period will be addressed and placed here.