UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 W. 15th STREET, SUITE 3200
HELENA, MONTANA 59626

STATEMENT OF BASIS

PERMITTEE:	Northern Border Pipeline Company Fort Peck Reservation
FACILITY:	Northern Border Gas Transmission Pipeline
PERMIT NUMBER:	MT0030791
RESPONSIBLE OFFICIAL:	Jim Krause Northern Border Pipeline Company 13710 FNB Parkway Omaha, NE 68154 (402) 492-7300
CONTACT:	Ruth S. Jensen Northern Border Pipeline Company 13710 FNB Parkway Omaha, NE 68154 (402) 492-7465
PERMIT TYPE:	Minor Industrial, Indian Country
RECEIVING WATER:	To be determined prior to each discharge
LOCATION: Fort Peck Reservation	Valley and Roosevelt Counties, MT

A. Background Information

This facility consists of Northern Border Pipeline Company's natural gas transmission pipeline, which crosses the Fort Peck Reservation from a northwest to southeast direction. The pipeline route enters the reservation at the northwest corner approximately at 48° 36' 9" north latitude and 106° 33' 25" west longitude and leaves the reservation at the southeast boundary approximately at 48° 17' 33" north latitude and 104° 41' 24" west longitude. A map of the general pipeline route across the Fort Peck Reservation is included with this statement of basis as Attachment A.

This permit authorizes the discharge of water from pipeline hydrostatic testing and trench dewatering associated with pipeline repairs. Northern Border Pipeline Company had a previous NPDES permit, No.: MT0029289, which expired December 31, 1996. Since that date Northern Border Pipeline Company has not had an NPDES permit and has not discharged as no pipeline

repairs were needed. Northern Border Pipeline Company applied for a new NPDES permit as any needed pipeline repairs would necessitate a hydrostatic test discharge, a trench dewatering discharge, or both types of discharge. Though Northern Border Pipeline Company has no history of these discharges, a structural failure of their natural gas transmission pipeline would require emergency repairs with the associated discharge(s), which economically could not be postponed to apply and wait for issuance of an NPDES permit.

Past Discharge Analytical Data: As noted above, Northern Border Pipeline Company has not discharged from this facility and has not discharged any hydrostatic test water from any in service pipelines, so there is no historical discharge data. Northern Border Pipeline did submit discharge analytical data from hydrostatic testing conducted on new pipelines in two other states during 2007, as shown in the following table:

	Minnesota Site – New pipe		**South Dakota Site – New Pipe**	
	Intake Water	**Discharge Water**	**Intake Water**	**Discharge Water**
Oil & Grease, mg/l	< Q.L. **a/**	< Q.L. **a/**	< Q.L. **a/**	< Q.L. **a/**
pH, s.u. **b/**	8.0	7.5	8.4	8.1
Total Suspended Solids, mg/l	4.0	11.0	< Q.L.	5.67

a. analytical results were below quantitation limit.

b. sample was received and analyzed past holding time for all pH analyses.

Northern Border Pipeline has not had any trench dewatering discharges so is not able to supply analytical data of effluent from that type of discharge.

B. Discharges Covered

This permit covers discharges, which will be characterized as intermittent or temporary. These discharges will contain pollutants that pose a low risk of impairing receiving water quality and have minimal toxicity. Long-term or continuous discharges are not covered under this permit.

This permit authorizes discharges from hydrostatic testing of new or existing natural gas pipelines and trench dewatering discharges from excavations required to install new or conduct repairs on existing natural gas pipelines. Hydrostatic testing is done to meet internal requirements of the operator, i.e. to ensure repair to damaged pipeline is complete and correct, or to meet external requirements of regulatory agencies. Trench dewatering is done to clear excavations of water, thus allowing worker access to conduct pipeline repairs.

Source water used in hydrostatic testing may come from a variety of sources, public drinking water systems, domestic, livestock or other water wells, ponds or streams. If public drinking water is used as source water, residual chlorine is an additional contaminant of concern. If ground water not from a public drinking water supply is the water source, only uncontaminated ground water will be allowed. Ground water affected with any man-caused substance, such as landfill leachate, industrial pollutant plume, mining activity, oil or gas production activities, underground storage tank or any other such pollutant shall not be used as a source of hydrostatic testing water.

Hydrostatic testing is generally performed by sealing the piping to be tested and providing a water fill location. After the piping is full, pressure is applied to the desired level and held for several hours. Following the test, the pressure is released and the piping is drained by gravity, pump or air pressure. Hydrostatic testing is therefore a short-term batch discharge but more than one discharge may occur if different sections of piping need to be tested. Residue in the pipeline at the time of testing may also contribute to pollutants in hydrostatic testing discharges. New pipelines should be relatively free of potential pollutants as indicated by the analytical results supplied by Northern Border Pipeline in part A, above but may include construction debris, oil and grease from lubricants and preservatives and suspended solids from the area soil. Existing pipelines may contain residues from natural gas, hydrocarbon condensates or petroleum products. Therefore EPA has determined there is reasonable potential for oil and grease, suspended solids and pH affecting substances to occur in hydrostatic testing discharges and that there is a need to have effluent limits set to meet tribal water quality standards.

Water in trench dewatering discharges would most likely originate from ground water infiltration to the trench excavation, surface run-off which has entered the excavation, or directly from precipitation. Though the different water sources may have some affect on pollutants such as dissolved solids, it is most likely the primary pollutant in trench dewatering discharges would be sediment and turbidity.

C. Receiving Waters

Specific receiving water bodies can not be determined in advance as pipeline repairs are done on an as needed basis. Prior to discharge the permittee will submit a topographic map of the project area to EPA with a written description of best management practices (BMP) used to mitigate the affects of the discharge(s). The topographic map and BMP description may be submitted electronically and shall either show the locations of the proposed discharge(s) and proposed receiving water(s) or have latitude and longitude designations of the proposed discharge(s) and proposed receiving water(s) contained in the BMP description so the site may be located on the map.

Discharges to storm water systems are not expected due to the location of the existing pipeline. However, if a discharge is planned to an existing storm water conveyance system this permit will cover the discharge. It is the permittee's responsibility to contact the owner of the storm water conveyance system and learn of any specific requirements for disposal into the storm water system.

D. Water Quality

The Assiniboine and Sioux Tribes of the Fort Peck Reservation (Fort Peck Tribes) have adopted water quality standards (WQS), which have been approved by the U.S. EPA. The most recent revision to the Fort Peck Tribes WQS was approved by EPA on October 30, 2006. "Water of the Tribes" is defined in the Fort Peck Tribes WQS, as all waters on the Fort Peck Reservation, to include intermittent streams, wetlands, playa lakes, prairie potholes and impoundments of tribal waters except for waste treatment ponds and lagoons. The water quality standards apply to all "Water of the Tribes" (tribal waters).

With the exception of pH, which has a numeric standard of 6.5 to 9.0 standard units, standards for potential pollutants from hydrostatic testing or trench excavation dewatering are addressed in the *Narrative Water Quality Criteria* section of the WQS. This section of the WQS requires surface waters to be "free from" substances that:

a) settle to form objectionable deposits,
b) float as debris, scum, oil, or other matter forming nuisances,
c) produce objectionable color, odor, taste, or turbidity,
d) cause injury to, or are toxic to, or produce adverse physiological responses in humans, animals, or plants; or
e) produce undesirable or nuisance aquatic life.

E. Effluent Limitations

The effluent limits are based on the water quality standards for the tribal waters and the ambient water quality of those waters, and thus will be protective of the WQS designated beneficial uses. The Fort Peck Tribes have not developed a list of impaired waters (303d list) and thus the effluent limitations apply to discharges to all tribal waters. The tribal water quality standards define tribal waters to include ephemeral drainages so the effluent limits apply to all hydrostatic testing and trench dewatering discharges unless the permittee can affirmatively demonstrate a discharge will not enter tribal waters or an ephemeral drainage leading to tribal waters.

As effluent limitations must meet narrative standards as well as the antidegradation section of the WQS, determining numerical limits for effluent is best done by looking at the ambient quality of tribal waters which may receive discharges. The quality of those waters can then be compared to the quality of potential sources of hydrostatic testing water, which may be the same tribal waters or ground water. As ground water will most probably be the major source of trench excavation dewatering discharges, such a comparison should provide the information necessary to determine discharge effluent limits for both hydrostatic testing and trench excavation dewatering. The United States Geological Survey (USGS) maintains four stream-gauging stations, which also collect water quality data, on or near the Fort Peck Reservation. The USGS as well as the Montana Bureau of Mines and Geology (MBMG) have also collected ground water quality data from the major water-bearing geologic formations underlying the Fort Peck Reservation.

Of the four USGS stream gauging stations collecting water quality data, one is located within the exterior boundaries of the reservation. That site is on the Poplar River about 11 miles north of the town of Poplar. Two of the stations are located north of the reservation, on the international border with Canada, one each on the Poplar River and East Poplar River. These two stations give an indication of the Poplar River water quality upstream of the on-reservation gauging station. The final station is located on the south bank of the Missouri River, which is the south boundary of the reservation, about 4 miles east of the town of Wolf Point. Gauging station data for these four sites is:

Parameter	**Poplar River at border**	East Poplar River at border	Poplar River north of Poplar	Missouri River near Wolf Point
Specific Conductivity, µS/cm a/ b/	1,091	1,543	1,218	541
Total Suspended Solids, mg/L b/	713	1,003	775	331
Flow, cfs b/	8.62	2.82	76.9	10,230

a. Values given in µS/cm (micro-Siemens per centimeter), which is the same conductivity as the µmhos/cm (micro-mhos per centimeter) value given to the ground water readings in the table below.

b. Values are the mean (0) given in USGS Water-Data Report MT-04-1, for each water body.

Using the pipeline map submitted with the NPDES application and the MBMG Ground Water Information Center (GWIC) database, twelve wells with water quality data, which are also in the general location of the pipeline route, were located. The wells are installed in three major water-bearing geological formations on the Fort Peck Reservation. The geological formations and number of wells in each are: Flaxville Gravel formation, 5 wells; Fort Union formation, 3 wells; Glacial Deposits, 4 wells. The water quality data for wells in the different geological formations is:

Parameter	**Flaxville Gravel**	**Fort Union Formation**	**Glacial Deposits**
Specific Conductivity, µmhos/cm a/ b/	684	1,684	2,335
Total Dissolved Solids, mg/l b/	502	1,088	1,672

a. Values given in µmhos/cm (micro-mhos per centimeter), which is the same conductivity as the value µS/cm (micro-Siemens per centimeter) given to the surface water readings in the table above.

b. Values are the mean (0) calculated using values from logs of wells installed in each water bearing formation.

The following mass balance equation is used to determine the reasonable potential for a pollutant present in the effluent to cause an exceedence of water quality standards in the receiving stream.

$$Q_dC_d + Q_sC_s = Q_rC_r$$

Where:

Q_d = Discharge flow
C_d = Discharge concentration
Q_s = Upstream river flow available for dilution
C_s = Upstream concentration
Q_r = Downstream flow
C_r = Downstream concentration

The equation is used below for a total dissolved solids effluent calculation. The Montana Bureau of Mines and Geology has determined total dissolved solids (TDS) can be derived from specific conductivity (SC), a measure of the water's ability to conduct an electric current, using the following equation:

$$TDS = SC \text{ in } mScm^{-1} \times 640$$

The mass balance equation may be rearranged, as shown below, to calculate a concentration of a pollutant downstream of a discharge, when the concentration of the pollutant in the discharge is known, which will show if the discharge affects the receiving water quality.

$$C_r = \frac{(Q_dC_d + C_sQ_s)}{Q_r}$$

Converting the SC data from Poplar River north of Poplar to TDS and using a proposed discharge rate of 1 cubic foot per second and a discharge concentration of 5,000 mgL^{-1} TDS, which is the limit for stock water use, the equation calculates a downstream TDS concentration of 833 mgL^{-1}, which is a 54 mgL^{-1} increase over the ambient TDS concentration of 779 mgL^{-1}. The permittee intends to use settling basins and surface flow to remove settleable solids and sediment from discharges, which will also effectively regulate the discharge rate and control discharge affect on the receiving waters. As the calculated maximum conductivity discharge in the lowest flow stream results in a receiving water conductivity well below both the stock water and irrigation water TDS limits, discharges into higher flow streams or using water drawn from the receiving water body will show even less difference between the before discharge and after discharge conductivity levels.

As water in trench dewatering discharges would most likely originate from ground water infiltration to the trench excavation it is most likely the primary pollutant in trench dewatering discharges would be sediment and turbidity. Discharges from trench dewatering are also likely to be limited in amount and frequency of discharge. To meet the narrative WQS of being free from substances that settle or form turbidity, the Effluent Limit Guideline (ELG) for coal mine point source discharges (40 CFR 434) will be used to obtain an effluent limitation. In this ELG,

§434.63 (a)(2) lists and effluent limitation of 0.5 milliliters per liter (ml/l) of settleable solids for discharges resulting from a 24 hour precipitation event which is less than or equal to the 10-year, 24-hour storm for the discharge area. The permittee intends to use settling basins and surface flow to remove settleable solids and sediment from discharges, which will be able to remove settleable solids to the effluent limitation level.

Based on the above calculations and explanation, the following effluent limitations will be required for all hydrostatic testing discharges and all trench/excavation dewatering discharges:

Parameter	**Effluent Limitations Maximum Level Allowable a/**	**Basis**
	Daily Maximum b/	
Total Dissolved Solids (TDS), mg/l	5,000	BPJ
Total Settleable Solids, ml/l	0.5	BPJ
There shall be no visible sheen in the discharge and the analyzed concentration of oil and grease in any single sample shall not exceed 10 mg/l.		WQS/BPJ
pH of the discharge shall be between 6.5 and 9.0 standard units at all times.		WQS

a. At the point of discharge to tribal waters/waters of the U.S.

b. See Part 1.1 of the permit for definitions.

F. Self-Monitoring Requirements

The following self-monitoring requirements are included in this permit for each discharge event:

Effluent Characteristic	**Frequency a/**	**Sample Type b/**
Total Volume Discharged, gallons **c/**	Once per discharge	Calculated
Total Dissolved Solids, mg/l	Weekly	Grab
Total Settleable Solids, ml/l	Weekly	Grab
Oil and Grease, visual observation, **d/**	Weekly	Visual / Grab
pH, Standard Units	Weekly	Grab **e/**

a. Sampling shall be conducted at least once per discharge.

b. See Part 1.1 of the permit for definitions.

c. Total water volume discharged shall be calculated using the flow or pipe/trench volume and duration of the discharge, in either hours or days, whichever is appropriate.

d. A visual observation is required daily during the discharge. If a sheen is detected a grab sample shall immediately be collected and submitted for analysis.

e. Analyze within 15 minutes. [40 CFR 136.3, Table II]

G. Reporting Requirements

The facility is required to report effluent monitoring data for each discharge event. Effluent monitoring data shall be reported in a letter format and a copy of the analytical laboratory's analysis results shall be included with the report. If multiple discharges occur during the same time period, the individual discharges may be reported in the same letter but each discharge shall be separately indicated. Reports of effluent monitoring shall be postmarked not later than the 28th day of the month following a discharge event.

I. Total Maximum Daily Loads

On June 21, 2000 and September 21, 2000, U.S. District Judge Donald W. Molloy issued orders stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the EPA is prohibited from issuing new permits or from increasing already permitted discharges under the NPDES program. (The orders were issued pursuant to the lawsuit Friends of the Wild Swan, et al., v. U.S. EPA, CV 97-35-M-DWM, District of Montana, Missoula Division.)

EPA finds that the issuance of this permit would not conflict with the order because there are no listed water quality limited water bodies within the Fort Peck Reservation. The Assiniboine and Sioux Tribes of the Fort Peck Reservation have adopted and EPA has approved water quality standards for tribal waters but the Fort Peck Tribes have not developed a list of impaired water bodies requiring TMDLs. Also, when EPA approved the State of Montana's 1996 and 1998 lists of impaired streams and lakes, which included water bodies within tribal reservation boundaries, EPA specifically stated that the approval did not extend to waters within Indian Country.

H. Miscellaneous

The effective date of the permit and the permit expiration date will be determined at the time of issuance. The permit will be issued for a period of approximately five years, but not to exceed five years.

Prepared by David Rise
February 25, 2008
Modified by David Rise
June 2 and July 17, 2008

Addendum:

Public notice for the permit was published in the Fort Peck Journal and Wolf Point Herald on July 24, 2008 with a public comment period extending until 5:00 PM, August 31, 2008. During the public comment period the EPA did not receive any comments on the permit. The Fort Peck Tribes issued their CWA Section 401 certification for the permit on August 27, 2008 with a comment noting a change of telephone number. The permit was changed to reflect the correct telephone number. The effective date of the permit will be October 1, 2008 and the expiration date will be September 30, 2013.

In addition to the telephone number change, the following changes were made to the permit prior to issuance:

1. The format of the permit was corrected to conform to the Region 8 format for NPDES permits. Minor editing was done to correct typing errors, etc.

2. On the cover page of the permit the following changes were made:
   a. "approved locations" was changed to "locations". The change was made because the locations have not yet been identified nor approved.

   b. "Fort Peck Reservation" was changed to "Fort Peck Indian Reservation".

   c. "to approved waters of the United States and waters of the Fort Peck Tribes," was changed to "to waters of the United States located within the exterior boundaries of the Fort Peck Indian Reservation," The change was made because waters of the United States are not "approved" and EPA's authority to authorize discharges is limited to discharges to waters of the United States.

3. On page 3 the definitions of 30-day average and 7-day average were updated to conform to Region 8's current definitions. The change does not affect the permit.

4. The description of discharge points in Part 1.2 was changed by adding Outfall 002 and having Outfall 001 apply only to the discharge of water from hydrostatic testing and Outfall 002 apply only to discharges from trench dewatering.

5. In Part 1.3.2 the following changes were made. The table of effluent limitations was changed by deleting the column on the far right titled "Basis". The purpose of that column is to explain the basis of the effluent limitation and is appropriate in the Statement of Basis, but not in the permit.

   Footnote b/ was changed to a/. Old a/ was changed to b/ and the wording was changed from "At the point of discharge to tribal waters/waters of the U.S." to read "The effluent limitations apply at the end of the pipe, hose, etc., from which the discharge is occurring." The change was made because the permit applies to the discharge at the point where the permittee still has control over the discharge. Also, as the discharged water flows over the land towards waters of the United States, it could pick up additional

pollutants. This might result in a violation of the effluent limitations if the limitations applied just before the discharge entered waters of the United States.

It should be noted that if the permittee were to intentionally discharge water in such a manner that the water soaked into the ground before it flowed on the surface of the ground to waters of the United states, that would not be considered as a discharge to waters of the United states for purposes of this permit.

Footnote c/ was added to total dissolved solids and it reads as follows:

> The concentration of total dissolved solids (TDS) in mg/L may be determined using the analysis of the water for specific conductance in micromhos/cm at 25° C (SC) and the following equation:
>
> TDS = SC x 0.640

The footnote was added in order for the permittee to be able to get a reasonable idea of the concentration of total dissolved solids in water in a short period of time. It might take a week or longer for the permittee to obtain the results of an analysis for total dissolved solids using the normal analytical procedure and having to send the sample to a laboratory. A portable conductivity meter can be used in the field and the results obtained within a short period of time (e.g., ½ hour).

6. In Part 1.3.4, Self-Monitoring Requirement, the following changes were made:

In footnote c/ the wording was changed for purposes of clarification to the following: "Total water volume discharged shall be calculated using the rate of discharge and duration of the discharge or pipe/trench volume in either hours or days, whichever is appropriate."

In footnote e/ the following wording was added for purposes of clarification: If no grab sample was taken during the reporting period because no visible sheen was observed, enter "No grab sample required this reporting period." or something similar on the appropriate line of the discharge monitoring report form."

The following footnote f/ was added to Total Dissolved Solid:

> The concentration of total dissolved solids (TDS) in mg/L may be determined using the analysis of the water for specific conductance in micromhos/cm at 25° C (SC) and the following equation:
>
> TDS = SC x 0.640

The footnote was added in order for the permittee to be able to get a reasonable idea of the concentration of total dissolved solids in water in a short period of time. It might take a week or longer for the permittee to obtain the results of an analysis for total dissolved solids using the normal analytical procedure and having to send the sample to a

laboratory. A portable conductivity meter can be used ion the field and the results obtained within a short period of time (e.g., ½ hour).

7. Part 2.4, Reporting of Monitoring Results, was changed to require the permittee to report monitoring results on a Discharge Monitoring Report (DMR) form instead of in letter format. This is in accordance with the NPDES regulations, 40 CFR Part 12.41(l)(4). Since the discharges will most likely not occur on a regular basis, the permittee will not be provided preprinted DMR. The permittee will be required to submit separate DMRs for each discharge event. The permittee can download the DMR form from the EPA website and fill in the appropriate information. Since the NPDES regulations require at least annual reporting, the permit specifies that in the event that a discharge does not occur during the period from October 1 to September 30, the permittee shall report "no discharge" on a DMR form submitted no later that October 28 following the 12 month period.

8. In the first line of Part 2.10, Inspection and Entry, the words "the state or" were deleted because this part is not applicable to the State of Montana.

In the discussion of effluent limitations in Part E above, it states that the effluent limitations are based on the water quality standards for the tribal waters. The effluent limitation of 6.5 to 9.0 on pH is based on the water quality standards for the tribal waters. The effluent limitations on oil and grease are technology based and are based on best professional judgement (BPJ) as provided for by Section 402(a)(1) of the clean Water Act. The effluent limitations on total dissolved solids and settleable solids are technology based (BPJ), yet protective of the existing water uses. To a certain extent the permittee has control over the quality of the water used for hydrostatic testing of the pipeline, but there are practical considerations on how far to go to obtain water for use in the hydrostatic testing. In selecting the value of 5,000 mg/L for an effluent limitation, consideration was given to the fact that the discharge of hydrostatic testing water would occur for a relatively short period of time (e.g., 1-2 days). That is the same limitation that has been used for over 30 years in Region 8 permits for the discharge of produced water from oil and gas wells. That concentration can be tolerated by livestock and wildlife, especially for a short period of time.

In selecting the BPJ based effluent limitation of 0.5 mL/L of settleable solids, consideration was given to the fact that the discharges will occur on a short term basis with short notice and there will not be extensive treatment systems readily available to provide the level of treatment necessary to meet the traditional effluent limitations of 30 mg/L on total suspended solids. For most wastewater resulting from dewatering operations, the 0.5 mL/L limitation on settleable solids can be met by providing 1-2 hours of detention time to allow settling of those suspended solids that will readily settle out. The effluent limitations guidelines for the coal mining point source category (40 CFR Part 434) have the same effluent limitation for storm water runoff.

Bob Shankland, SEE
EPA Region 8
9-16-2008

David Rise
Montana Office, EPA Region 8
September 2008