

**Wyoming Department of Environmental Quality
Water Quality Division
WYPDES Program**

Statement of Basis

NEW

APPLICANT NAME: Petro-Canada Resources (USA) Inc.

MAILING ADDRESS: 1099 18th Street, Suite 400
Denver, CO 80202

FACILITY LOCATION: Mitchell Draw, which is located in the NWNE, Section 21, the NWNW, SWNW, SESW, and NWSE, Section 22, the SWSW, Section 23, the NWNW, Section 27, the SWNE, SESE, SWNW, and NWNW, Section 28, the NENW and SWSE, Section 31, the NESE, and NWNW, Section 32, and the NWSE and NWNW, Section 33, Township 52 North, Range 77 West, Johnson County. A portion of the produced water will be treated and either discharged directly into the Powder River (class 2ABWW), or directly to Fortification Creek (3B). The remainder of the produced water will be contained in non-discharging headwater reservoirs (3B), located on either unnamed, ephemeral tributaries of the Powder River (3B), or unnamed, ephemeral tributaries of Fortification Creek (3B). Fortification Creek (3B) is tributary to the Powder River (2ABWW). The daily maximum permitted flow rate for this facility is 13.9 MGD. The permit requires that the produced water being discharged by this facility originate in one or more of the following formations: the Lower Anderson, Cook, Canyon, and/or Wall coal seams.

NUMBER: WY0054780

This permit was revised following its public notice period to include Part I.C.2, relating to requirements for bonding on-channel reservoirs at this facility.

This facility gathers and treats a portion of the effluent from typical coal bed methane production facilities in which groundwater is pumped from a coal bearing formation resulting in the release of methane from the coal bed. The remainder of the effluent is discharged to on-channel headwater reservoirs capable of containing all estimated discharges in addition to stormwater runoff from a 100 year, 24 hour precipitation event. The permit authorizes the discharge to the surface of groundwater produced in this way provided the effluent quality is in compliance with effluent limits that are established by this permit. In developing effluent limits, all federal and state regulations and standards have been considered and the most stringent requirements incorporated into the permit. The EPA Effluent Guidelines and Standards for Oil and Gas Extraction Point Source Category (Part 435, Subpart E) predate the development of coal bed methane extraction technology; however the technology is similar enough to conventional gas extraction that, in the professional judgement of the WDEQ, this effluent limit guideline is appropriately applied to coal bed methane gas production. This permit does not cover activities associated with discharges of drilling fluids, acids, stimulation waters or other fluids derived from the drilling or completion of the wells.

The permittee has chosen option 2 of the coal bed methane permitting options. Under this permitting option, the produced water is immediately discharged to a class 2 or 3 receiving stream which is eventually tributary to a class 2AB perennial water of the state. The permit establishes effluent limits for the end of pipe, which are protective of all the designated uses defined in Chapter 1 of Wyoming Water Quality Rules and Regulations. This may include drinking water, game and non-game fish, fish consumption, aquatic life other than fish, recreation, agriculture, wildlife, industry and scenic value.

Facility Description

This permit anticipates discharge of up to 13.9 million gallons per day (MGD) of CBM effluent either to the Powder River upon completion of treatment from outfalls 010-017 and 022, or to non-discharging headwater reservoirs from outfalls 001-009 and 018-021. Outfalls 010-017 and 022 discharge treated effluent directly to the Powder River. In order to meet the required effluent limits for such discharge, the permittee plans to treat the effluent either with a continuous crosscurrent ion exchange unit (Higgins Loop or EMIT treatment unit). or reverse osmosis. This treatment unit will gather and treat effluent originating from multiple wells and coal seams. During the continuous crosscurrent ion exchange process, the raw CBM produced water is cycled through a treatment loop, where it is brought into contact with a strong acid resin. The resin sequesters cations (sodium, iron, barium, etc.) from the CBM produced water. When the cations in the CBM produced water move on to the resin and displace the acid on the resin, the acid moves into the treated water, lowering the pH of the treated water from approximately 8 to approximately 3. Prior to final discharge, the treated water is routed over limestone to neutralize the pH. The resin in the treatment unit is recharged in a separate cycle, using a hydrochloric acid rinse. In the reverse osmosis process, raw CBM water is forced under hydrostatic pressure through semi-permeable filter membranes. Cations are then "captured" by the membranes. The permittee has indicated that should reverse osmosis become the treatment of choice, they may desire to pre-treat the produced water using a flocculant to remove certain constituents from the produced water. The chemical proposed for use as a flocculant is described as an aluminum chloride hydroxide sulfate, and according to information provided by the permittee, has little to no potential to cause toxicity to aquatic organisms. However, the permittee will be required to perform acute and chronic whole effluent toxicity tests on a routine basis upon all treated water discharged to the Powder River.

Both types of treatment being considered for use at this facility produce a concentrated brine wastestream. Any concentrated brine generated in the operation of these treatment units will be contained in above-ground storage tanks and/or lined pits, outside of any natural stream channels or water bodies. Under no circumstances is the permittee allowed to discharge concentrated brine wastewaters into a water of the state of Wyoming. These brine impoundments will not constitute waters of the state and will therefore not require WYPDES permit coverage for discharge into them. However, any brine pits used at this facility will require permitting through the Wyoming Oil and Gas Conservation Commission. In addition, the entire treatment facility will require a Chapter 3 permit-to-construct from the WDEQ District Engineer.

Outfalls 001-009 and 018-021 will discharge untreated CBM produced water into on-channel containment units capable of containing all estimated discharges in addition to stormwater runoff from a 100 year, 24 hour precipitation event. While some option 2 CBM discharge permits establish limits that are protective of the downstream class 2 water(s), this permit prohibits discharge to class 2 water (the Powder River) from the reservoirs containing discharges from outfalls 001-009 and 018-021. This permit authorizes discharge of CBM effluent to on-channel reservoirs located in the headwaters of ephemeral tributaries of the Powder River and unnamed, ephemeral tributaries of Fortification Creek. A flow monitoring location has been selected below each of the reservoirs proposed for containment of CBM produced waters (FM001 – FM009 and FM018-FM021) to ensure that effluent from the reservoirs does not reach the Powder River or Fortification Creek unless a 100-year/24-hour precipitation event or greater causes the reservoirs to fill and overtop. Intentional discharges from the reservoirs proposed to contain untreated discharges at this facility (reservoirs associated with outfalls 001-009 and 018-021) are prohibited. In the

event a 100 year, 24 hour precipitation event or larger causes the reservoirs associated with outfalls 001-009 and 018-021 to fill and overtop, discharge is limited to natural overtopping only, and must cease within 48 hours of commencement. The permit establishes different effluent limits for the end of pipe, depending on the immediate receiving water, which are protective of all designated uses of the class 3B or 2ABWW receiving waters defined in Chapter 1 of Wyoming Water Quality Rules and Regulations.

Effluent Limits – outfalls 010-017 and 022

In order to comply with the numeric standards for specific conductance (EC) and sodium adsorption ratio (SAR) established by the State of Montana for the Powder River, this permit establishes end-of-pipe effluent limits for EC, total dissolved solids (TDS) and dissolved sodium consistent with Montana's numeric standards for outfalls 010-017 and 022. From November 1 through the end of February each year, the permit establishes a daily maximum and monthly average limit for specific conductance of 2500 micromhos/cm. From March 1 through October 31 each year, the permit establishes a monthly average specific conductance limit of 2000 micromhos/cm, and a daily maximum limit for specific conductance of 2500 micromhos/cm. Based upon these specific conductance effluent limits, a total dissolved solids limit can be calculated, as per *Agricultural Salinity and Drainage, Hanson et al., 1999 revision*, which states that TDS is approximately equivalent to EC divided by 1.5. Using this methodology, the calculated TDS limits for this permit are as follows: From November 1 through the end of February each year, the permit establishes a daily maximum and monthly average limit of 1665 mg/l. From March 1 through October 31 each year, the permit establishes a monthly average TDS limit of 1330 mg/l, and a daily maximum TDS limit of 1665 mg/l. The monthly average effluent limit for dissolved sodium is 350 mg/l from November 1 through the end of February, and 270 mg/l from March 1 through October 31, and the daily maximum effluent limit for dissolved sodium is 610 mg/l from November 1 through the end of February, and 440 mg/l for March 1 through October 31 each calendar year. The effluent limits for dissolved sodium are based upon a regression analyses performed by the WDEQ using available Powder River water quality data from the Moorhead, Montana (USGS Station 06324500). WDEQ calculated these effluent limits based on a regression derived from SAR and dissolved sodium data from that station. The following concentrations of dissolved sodium equate to the following values for sodium adsorption ratio based upon data available at the USGS station located at Moorhead, Montana:

270 mg/l dissolved sodium = 4.9 SAR
 370 mg/l dissolved sodium = 6.3 SAR
 440 mg/l dissolved sodium = 7.3 SAR
 610 mg/l dissolved sodium = 9.6 SAR

Based on the flow limit of 13.9 MGD for the effluent at this facility, these effluent limits for specific conductance and dissolved sodium are expected to maintain compliance with the numeric SAR standards at the state line.

Other permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. The daily maximum effluent flow limit for this facility is 13.9 MGD. The pH must remain within 6.5 and 9.0 standard units. These limits are based upon Wyoming Water Quality Rules and Regulations, Chapter 2 and apply to discharge from outfalls 010-017 and 022. In addition, the permit establishes either a total radium²²⁶ + total radium²²⁸ limit of 1 pCi/l for outfalls 010-014, 017 and 022, or a total radium 226 effluent limit of 3 pCi/l for outfalls 015 and 016. As total radium is not a persistent pollutant, outfalls located more than one stream mile from confluence with a class 2 stream, in this case the Powder River, have less stringent effluent limits for total radium. Dissolved iron is also a non-persistent pollutant, and this permit establishes an effluent limit of 300 µg/l for discharges from outfalls 010-014, 017 and 022, and a dissolved iron effluent limit of 1000 µg/l for discharges from outfalls 015 and 016. These distance-based effluent limits for non-persistent pollutants are based upon current WYPDES permitting practice. The permit also establishes a total barium limit of 1800 µg/l, a total

arsenic limit of 7 µg/l, and a chlorides limit of 150 mg/l. These limits are based on standards for class 2AB waters which are intended to protect for the above listed designated uses and reflect the application of "tier two" anti-degradation protection as set forth in the "Wyoming Surface Water Quality Standards - Implementation Policies."

The permittee is not allowed to introduce chemicals into the treatment units other than the chemicals described above. Should the permittee desire to utilize chemicals such as biocides, algacides, flocculants, water conditioning agents, or anti-scaling agents at this facility, other than the chemicals described in this permit, the permittee must obtain express written consent from the WDEQ prior to use. Use of these and any other chemical not described in the permit without express written consent from the WDEQ is a violation of this permit.

Effluent Limits – outfalls 001-009 and 018-021.

The permittee has submitted information to demonstrate that all produced effluent from outfalls 001-009 and 018-021 will be contained in various on-channel reservoirs. The water budget for this facility confirms that these reservoirs will have sufficient capacity to contain all of the estimated effluent from this facility as well as storm run-on from up to a 100-year/24-hour precipitation event. This permit requires daily monitoring year-round on Fortification Creek and several unnamed, ephemeral tributaries of the Powder River below the on-channel reservoirs in order to determine if any effluent from this facility is reaching any of the established flow monitoring points (FM001-FM009, and FM018-FM021). The established flow monitoring points are located on unnamed, ephemeral tributaries of Fortification Creek and the Powder River as described in Part I.B.12 (Table 1) of the permit below. This permit prohibits discharge of effluent from the reservoirs except in the event of a 100-year/24-hour storm event or greater. If a reservoir overtopping event occurs, verification of storm magnitude will be the responsibility of the permittee. Discharge from reservoir(s) resulting from a 100-year/24-hour storm event or greater is limited by the permit to natural overtopping and shall not extend beyond a 48 hour period following commencement of natural overtopping. Additional release from reservoir(s) is not authorized. If effluent discharges not related to a 100 year, 24 hour storm reach a downstream flow monitoring point (FM001-FM009, and FM018-FM021), this permit requires the permittee to cease all discharge of effluent from the contributing wells until the effluent is no longer reaching the flow monitoring point(s). Any effluent from this facility that reaches an established flow monitoring point, except as the direct result of reservoir(s) overtopping during a 100-year / 24-hour storm event or greater, will be considered a violation of this permit and must be corrected by the permittee immediately.

Neither the reservoirs nor their spillways will constitute regulated discharge points under this permit.

Permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. The permit requires that the pH remain within 6.5 and 9.0 standard units. Effluent limits for total dissolved solids (5,000 mg/l), specific conductance (7,500 micromhos/cm), and dissolved fluorides (4000 µg/l), are included to protect for stock and wildlife watering. These limits are based upon *Wyoming Water Quality Rules and Regulations, Chapter 1* and apply at the end of pipe for outfalls 001-009 and 018-021. In addition, the permit establishes a radium 226 limit of 60 pCi/l, a dissolved iron limit of 1000 µg/l, a total barium limit of 1800 µg/l, a total arsenic limit of 150 µg/l, a chlorides limit of 230 mg/l, and a total selenium limit of 5 µg/l. These limits are based on standards for class 3B waters which are intended to protect for the above listed designated uses and reflect the application of "tier 1" antidegradation protection. Tier 1 antidegradation protection is the level of protection which applies to all waters of the state, as described in the *Wyoming Surface Water Quality Standards "Implementation Policies for Antidegradation."*

Should the volume of water within the reservoirs exceed the freeboard needed to contain runoff from a 100 year/24 hour precipitation event under normal operating conditions, the permittee is required to cease discharge into the reservoir until the volume of water within the reservoir drops back below the 100

year/24 hour freeboard reserve. The estimated discharge water quality was based upon representative water quality from the following formations in the immediate geographic area of the proposed facility: the Lower Anderson, Canyon, Cook, and Wall coal seams. Therefore, the permit requires that the produced water being discharged by this facility originate in one or more of the following formations: the Lower Anderson, Canyon, Cook, and Wall coal seams.

Monitoring and Reporting

Results are to be reported quarterly for outfalls **010-017 and 022**, and semi-annually for outfalls **001-009 and 018-021**. If no discharge occurs at a given outfall for an entire sampling period, then "no discharge" is to be reported for that outfall during that period. The permit also requires that an initial monitoring of the effluent be conducted within the first 60 days of discharge, and the results submitted to WDEQ and the U.S. Environmental Protection Agency within 120 days of the commencement of discharge.

The permit also requires sampling at designated water quality monitoring stations located on the Fortification Creek and the mainstem (Powder River, class 2ABWW water). Water quality monitoring stations on the Powder River will be located upstream and downstream of all outfalls directly discharging to the Powder River, and the Powder River – Fortification Creek confluence. Effluent samples at the designated water quality monitoring stations must be collected on a monthly basis and are to be reported quarterly. If none of the outfalls proposed for discharge of treated water discharge during an entire sampling month, then "no discharge" is to be reported at the mainstem water quality monitoring stations. If discharge from outfalls 015 or 016 does not reach the tributary water quality monitoring station on Fortification Creek, the permittee is to report "did not contribute" for the tributary water quality monitoring station for the monitoring period in question. In either event, samples need not be collected at those particular water quality monitoring stations for that monthly sampling period. At the designated water quality monitoring stations, monitoring will be required for calcium, magnesium, sodium, sodium adsorption ratio, specific conductance, and temperature. Information gathered from the water quality monitoring stations may result in modification of the permit to protect existing uses.

The designated water quality monitoring stations are located on the Powder River and are identified as UPR and DPR in Table 2, Part I.B.12 of the permit below. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone of the outfall with the mainstem.

In order to monitor potential accumulation of pollutants within the receiving on-channel reservoirs, this permit (Part I.A.2.c) requires routine sampling, analysis, and reporting for the following constituents within the reservoirs: total dissolved solids, specific conductance, total Radium 226, dissolved iron, dissolved manganese, total arsenic, chlorides, and total selenium. Sampling for these constituents within the reservoirs (containment units) is to occur a minimum of 50 feet from the location where the CBM effluent enters the reservoir. The reservoir monitoring locations have been identified in Table 1, Part I.B.13 of the permit below as "CU001-CU009 and CU018-CU021". This monitoring requirement is intended to aid in the protection of the uses associated with the class 3B on-channel reservoirs (aquatic life other than fish, recreation, livestock watering, wildlife, industry and scenic value). If this monitoring of the effluent within the reservoirs reveals an exceedence of any applicable standards for class 3B waters, then this permit may be modified in order to protect all uses of the receiving water bodies.

There shall be no discharge of floating solids or visible foam in other than trace amounts, nor shall the discharge cause formation of visible deposits of iron, hydrocarbons or any other constituent on the bottom or shoreline of the receiving water. In addition, erosion control measures will be implemented to prevent significant damage to or erosion of the receiving water channel at the point of discharge.

The effluent limits that are established in this permit have been reviewed to ensure that the levels of water quality necessary to protect the designated uses of the receiving waters are maintained and protected. An antidegradation review has been conducted and verifies that the permit conditions, including the effluent

limitations established, provide a level of protection to the receiving water consistent with the antidegradation provisions of Wyoming surface water quality standards.

Self monitoring of effluent quality and quantity is required on a regular basis with reporting of results quarterly. The permit is scheduled to expire on January 31, 2009. This expiration date was determined through review of the watershed permitting schedule which the WDEQ is implementing in order to synchronize the permitting and expiration of facilities within the same watershed. This holistic approach will provide for more efficient permitting of point-source discharges.

Kathy Shreve
Environmental Senior Analyst
Water Quality Division
Department of Environmental Quality
Drafted: July 7, 2006

MODIFICATION OF AUTHORIZATION TO DISCHARGE UNDER THE
WYOMING POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, (hereinafter referred to as "the Act"), and the Wyoming Environmental Quality Act,

Petro-Canada Resources (USA) Inc.,

is authorized to discharge from the wastewater treatment facilities serving the

Mitchell Draw,

located in

NWNE, Section 21, the NWNW, SWNW, SESW, and NWSE, Section 22, the SWSW, Section 23, the NWNW, Section 27, the SWNE, SESE, SWNW, and NWNW, Section 28, the NENW and SWSE, Section 31, the NESE, and NWNW, Section 32, and the NWSE and NWNW, Section 33, Township 52 North, Range 77 West, Johnson County,

to receiving waters named:

A portion of the produced water will be treated and discharged directly into the Powder River (class 2ABWW). The remainder of the produced water will be contained in non-discharging headwater reservoirs (3B), located on either unnamed, ephemeral tributaries of the Powder River (3B), or unnamed, ephemeral tributaries of Fortification Creek (3B). Fortification Creek (3B) is tributary to the Powder River (2ABWW),

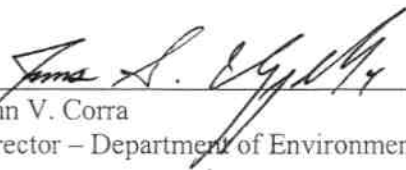
in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II and III hereof.

This modification shall become effective on the date of signature by the Director of the Department of Environmental Quality.

This permit and the authorization to discharge shall expire at midnight, January 31, 2009.


John F. Wagner
Administrator - Water Quality Division

1/22/07
Date


John V. Corra
Director - Department of Environmental Quality

1/22/07
Date

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Effective immediately and lasting through January 31, 2009, the quality of effluent discharged by the permittee shall, at a minimum, meet the limitations set forth below. The permittee is authorized to discharge from outfalls serial number 001-022.

1. Discharges from outfalls 010-017 and 022 are limited as specified below:

a. Effluent limits for persistent pollutants as described below apply to outfalls 010-017 and 022
Effluent Limits

<u>Effluent Characteristic</u>	<u>Daily Maximum, Outfall</u>	<u>Monthly Average, Outfall</u>
Chlorides, mg/l	150	
pH, standard units	6.5 – 9.0	
Total Arsenic, µg/l	7	
Total Barium, µg/l	1800	
Total Flow, MGD*	13.9	
Specific Conductance, micromhos/cm (March through October)	2500	2000
Specific Conductance, micromhos/cm (November through February)	2500	2500
Dissolved Sodium, mg/l (March through October)	440	270
Dissolved Sodium, mg/l (November through February)	610	350
Total Dissolved Solids, mg/l (March through October)	1330	1665
Total Dissolved Solids, mg/l (November through February)	1665	1665

*Total flow is to be calculated as the sum of the discharge from all permitted outfalls.

b. Effluent limits for Non-Persistent Pollutants, outfalls 010-017 and 022

Daily maximum effluent limits for non-persistent pollutants only apply to designated outfalls as described in the table below:

<u>Outfall #</u>	<u>Dissolved Iron effluent limit</u>	<u>Total Radium 226 + Total Radium 228</u>	<u>Total Radium 226</u>
010	300 µg/l	1 pCi/l	NA
011	300 µg/l	1 pCi/l	NA
012	300 µg/l	1 pCi/l	NA
013	300 µg/l	1 pCi/l	NA
014	300 µg/l	1 pCi/l	NA

<u>Outfall #</u>	<u>Dissolved Iron effluent limit</u>	<u>Total Radium 226 + Total Radium 228</u>	<u>Total Radium 226</u>
015	1000 µg/l	NA	3 pCi/l
016	1000 µg/l	NA	3 pCi/l
017	300 µg/l	1 pCi/l	NA
022	300 µg/l	1 pCi/l	NA

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units in any single grab sample.

Should the permittee elect to utilize any type of biocide, algacide, anti-scaling agent, or other chemical not described in their permit application, they must obtain express written consent from the WDEQ prior to use.

2. Discharges from outfalls 001-009 and 018-021 are limited as specified below:

Effluent Limits

<u>Effluent Characteristic</u>	<u>Daily Maximum</u>
Chloride, mg/l	230
Dissolved Iron, µg/l	1000
pH, standard units	6.5 – 9.0
Specific Conductance, micromohs/cm	7500
Total Recoverable Arsenic, µg/l	150
Total Recoverable Barium, µg/l	1800
Total Dissolved Solids, mg/l	5000
Total Radium 226, pCi/l	60
Dissolved Fluoride, µg/l	4000
Total Flow, MGD*	13.9

*Total flow is to be calculated as the sum of all discharge from all permitted outfalls.

This permit prohibits discharge of effluent from the reservoirs except in the event of a 100-year / 24-hour storm event or greater. If a reservoir overtopping event occurs, verification of storm magnitude will be the responsibility of the permittee. Discharge from reservoir(s) resulting from a 100-year/24 hour storm event or greater is limited by the permit to natural overtopping and shall not extend beyond a 48 hour period following commencement of natural overtopping. Additional and/or intentional release from reservoir(s) is not authorized. If any effluent discharged from this facility does reach a downstream flow monitoring point (FM001 – FM002), this permit requires the permittee to cease all discharge of effluent

from the contributing wells until the effluent is no longer reaching the flow monitoring point(s). Any effluent from this facility that reaches a flow monitoring point, as described in Table 1, Part I.B.12 of the permit below, except as the direct result of reservoir(s) overtopping during a 100-year/24-hour storm event or greater, will be considered a violation of this permit and must be corrected by the permittee immediately. This permit does not establish effluent limits for discharges from outfalls 001-009 and 018-021 that are protective of designated uses associated with Fortification Creek or the Powder River (class 2AB waters). The permittee is required to maintain freeboard within the reservoirs equivalent to that necessary to contain a 100 year/24 hour storm event. Should the volume of water within the reservoir(s) exceed the 100 year/24 hour freeboard reserve under normal operating conditions, the permittee is required to cease discharge to the reservoir(s) until the volume of water within the reservoirs falls below the 100 year/24 hour freeboard reserve.

3. Requirements applicable to all discharges from this facility

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units in any single grab sample.

The produced water will originate from the Lower Anderson, Canyon, Cook, and/or Wall coal seams. The permittee may, if so desired, discharge produced water from any authorized well to any permitted outfall, as long as all permit limits and requirements can be met.

There shall be no discharge of floating solids or visible foam in other than trace amounts, nor shall the discharge cause formation of a visible sheen or visible hydrocarbon deposits on the bottom or shoreline of the receiving water.

Information gathered from the water quality, flow, or containment unit monitoring stations may result in modification of the permit to protect existing uses.

There shall be no discharge of floating solids or visible foam in other than trace amounts, nor shall the discharge cause formation of a visible sheen or visible hydrocarbon deposits on the bottom or shoreline of the receiving water.

All waters shall be discharged in a manner to prevent erosion, scouring, or damage to stream banks, stream beds, ditches, or other waters of the state at the point of discharge. Due to the high volume of anticipated discharge, the permittee will install a diffuser system at each outfall in order to minimize impacts to the stream bed in the Powder River. The diffuser system must be functional upon commencement of discharge. In addition, there shall be no deposition of substances in quantities which could result in significant aesthetic degradation, or degradation of habitat for aquatic life, plant life or wildlife; or which could adversely affect public water supplies or those intended for agricultural or industrial use.

2. Discharges shall be monitored by the permittee as specified below:

a. Monitoring of the initial discharge

Within 60 days of commencement of discharge following issuance of this permit modification, a sample shall be collected from each outfall, and analyzed for all the constituents specified below, at the required detection limits. Within 120 days of commencement of discharge following issuance of this permit renewal, a summary report on the produced water must be submitted to the Wyoming Department of Environmental Quality and the U.S. EPA Region 8 at the addresses listed below. This summary report must include the results and practical quantitation limits for each of the constituents listed

below, at the required chemical state. In addition, the report must include written notification of the established location of the discharge point (refer to Part I.B.11). This notification must include a confirmation that the location of the established discharge point(s) is within 1,510 feet of the location of the identified discharge point(s), is within the same drainage, and discharges to the same landowner's property as identified on the original application form. The legal description and location in decimal degrees of the established discharge point(s) must also be provided. After receiving the monitoring results for the initial discharge, the routine monitoring requirements described in Part I.A.7.b. may be modified to require more stringent monitoring.

<u>Parameter</u>	<u>Required Detection Limit</u>	<u>Sample Type</u>
Total Aluminum	50 µg/l	Grab
Dissolved Cadmium	0.1 µg/l	Grab
Dissolved Calcium	as mg/l	Grab
Chlorides	5 mg/l	Grab
Dissolved Copper	1 µg/l	Grab
Dissolved Fluoride	100 µg/l	Grab
Dissolved Iron	30 µg/l	Grab
Total Hardness	10 mg/l as CaCO ₃	Grab
Dissolved Lead	2 µg/l	Grab
Dissolved Magnesium	as mg/l	Grab
Dissolved Mercury	0.06 µg/l	Grab
pH	to 0.1 pH unit	Grab
Total Radium 226	0.2 pCi/l	Grab
Total Radium 228*	0.2 pCi/l	Grab
Total Radium 228	0.2 pCi/l	Grab
Total Selenium	5 µg/l	Grab
Dissolved Sodium	as mg/l	Grab
Sodium Adsorption Ratio	not applicable	Calculated
Specific Conductance	5 micromhos/cm	Grab
Sulfates	10 mg/l	Grab
Total Alkalinity	1 mg/l as CaCO ₃	Grab
Total Arsenic	1 µg/l	Grab
Total Barium	100 µg/l	Grab
Dissolved Zinc	10 µg/l	Grab
Bicarbonate	1 mg/l	Grab
Total Dissolved Solids	5 mg/l	Grab
Temperature	+/- 1 degree F	Instantaneous

***Total Radium 228 requirements only apply to discharges from outfalls 010-017 and 022.**

Initial monitoring reports are to be sent to the following addresses:

Planning and Targeting Program, SENF-PT

**Office of Enforcement, Compliance, and Environmental Justice
 U.S. EPA Region 8
 999 18th St., Suite 300
 Denver, CO 80202-2466**

and

**Wyoming Department of Environmental Quality
 Water Quality Division
 Herschler Building, 4 West
 122 West 25th Street
 Cheyenne, WY 82002**

b. Routine monitoring End of Pipe (010-017 and 022)

For the duration of the permit, at a minimum, samples for the constituents described below shall be collected at the indicated frequencies. Reporting will be based on quarterly time frames, from January through March (quarter 1), April through June (quarter 2), July through September (quarter 3), and October through December (quarter 4).

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Bicarbonate (mg/l)	Once every three months	Grab
Dissolved Calcium (mg/l)	Twice per Month	Grab
Chloride (mg/l)	Once every three months	Grab
Dissolved Iron (µg/l)	Annually	Grab
Dissolved Magnesium (mg/l)	Twice per Month	Grab
pH (standard units)	Once every three months	Grab
Total Radium 226 (pCi/l)	Annually	Grab
Total Radium 228 (pCi/l)	Annually	Grab
Dissolved Sodium (mg/l)	Twice per Month	Grab
Sodium Adsorption Ratio (unadjusted)	Twice per Month	Calculated
Specific Conductance (micromhos/cm)	Twice per Month	Grab
Sulfate (mg/l)	Annually	Grab
Total Alkalinity (mg/l)	Once every three months	Grab
Total Dissolved Solids (mg/l)	Twice per Month	Grab
Total Arsenic (µg/l)	Annually	Grab
Total Barium (µg/l)	Annually	Grab

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Total Flow – (MGD)*	Monthly	Continuous
Temperature (degrees F)**	Monthly	Continuous

Note: * Total Flow at the outfall will be measured continuously and the data will be compiled by the permittee in order to report in the quarterly submitted DMRs a monthly average value (average of all flow readings for a given month) as well as a daily maximum value (highest single flow reading for that month).

** Temperature at the end of pipe will be measured continuously and the data will be compiled by the permittee in order to report the following values in the quarterly submitted DMR's:

- 1) monthly average value (average of all temperature readings for a given month)
- 2) daily maximum value (highest single temperature reading for that month)
- 3) daily minimum value (lowest single temperature reading for that month)

c. Routine monitoring End of Pipe (001-009 and 018-021)

For the duration of the permit, at a minimum, samples for the constituents described below shall be collected at the indicated frequencies. The first routine monitoring for the time frame during which the monitoring of initial discharge occurs will, at a minimum, consist of flow measurements for the duration of the six-month monitoring time frame. Monitoring will be based on semi-annual time frames, from January through June, and from July through December.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Chloride (mg/l)	Annually	Grab
Dissolved Iron (µg/l)	Annually	Grab
pH (standard units)	Once Every Six Months	Grab
Radium 226 (pCi/l)	Annually	Grab
Specific Conductance (µmohs/cm)	Annually	Grab
Total Dissolved Solids (mg/l)	Annually	Grab
Total Arsenic (µg/l)	Annually	Grab
Total Selenium	Annually	Grab
Total Barium (µg/l)	Annually	Grab
Total Flow – (MGD)	Monthly	Continuous
Dissolved Fluoride (µg/l)	Annually	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): At the outfall of the final treatment unit which is located out of the natural drainage and prior to admixture with diluent waters.

d. Routine Monitoring Within Reservoirs (CU001-CU009 and CU018-CU021)

For the duration of the permit, at a minimum, samples for the constituents described below shall be collected at the indicated frequencies. Monitoring and reporting will be based on an annual time frame.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Total Dissolved Solids (mg/l)	Annually	Grab
Specific Conductance(μmohs/cm)	Annually	Grab
Total Radium 226 (pCi/l)	Annually	Grab
Dissolved Iron (μg/l)	Annually	Grab
Total Arsenic (μg/l)	Annually	Grab
Chlorides (mg/l)	Annually	Grab
Total Selenium (μg/l)	Annually	Grab
Sulfate (mg/l)	Annually	Grab
Total Selenium (μg/l)	Annually	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): designated reservoir monitoring stations are located within each receiving reservoir as described in Table 1, Part I.B.12 of the permit below (CU001 –CU002). In each reservoir, monitoring locations are to be located a minimum of 50 feet away from the point where CBM effluent enters the reservoir. Reservoir sampling will only apply to reservoirs that are receiving CBM effluent or have received CBM effluent in the past. Results are to be reported annually and if a particular reservoir has not yet received any CBM effluent from this facility, then “no discharge” is to be reported for that reservoir monitoring station in the discharge monitoring report.

e. Routine Monitoring of the Flow Monitoring Stations (FM001-FM009 and FM018-FM021)

For the duration of the permit, at a minimum, the permittee is required to monitor for flow at the flow monitoring station locations as described in Table 1 (Part I.B.12) of the permit on a weekly basis. Should flow be detected at the flow monitoring station during periods of “dry” operating conditions that is the result of seepage or alluvial subsurface flow from the reservoirs, the permittee is required to cease discharge into the reservoirs immediately. Discharge from the reservoirs that is not in response to reservoir filling and overtopping during a 100 year, 24 hour event is a violation of this permit.

f. Water Quality Monitoring Stations (TRIB1, UPR, DPR)

For the duration of the permit, at a minimum, samples for the constituents described below shall be collected at the indicated frequencies. Monitoring will be based on monthly time frames, and reported quarterly.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Dissolved Calcium (mg/l)	Monthly	Grab
Dissolved Magnesium (mg/l)	Monthly	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Sodium Adsorption Ratio (calculated)	Monthly	Calculated
Specific Conductance (micromhos/cm)	Monthly	Grab
Temperature (degrees F)**	Monthly	Continuous

** Temperature at the established water quality monitoring stations will be measured continuously and the data will be compiled by the permittee in order to report the following values in the quarterly submitted DMR's:

- 1) monthly average value (average of all temperature readings for a given month)
- 2) daily maximum value (highest single temperature reading for that month)
- 3) daily minimum value (lowest single temperature reading for that month)

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): The tributary and mainstem water quality monitoring stations designated as TRIB1, UPR and DPR in Table 1, Part I.B.12 of the permit below. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone with the facility and/or Fortification Creek and the mainstem. Results are to be reported quarterly and if none of the outfalls proposed for discharge of treated water discharge during an entire sampling month, then "no discharge" is to be reported at the mainstem water quality monitoring stations. If discharge from outfalls 015 or 016 does not reach the tributary water quality monitoring station on Fortification Creek, the permittee is to report "did not contribute" for the tributary water quality monitoring station for the monitoring period in question. In either event, samples need not be collected at those particular water quality monitoring stations for that monthly sampling period.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and approval by, the permit issuing authority.

2. Reporting

Results of initial monitoring, including the date the discharge began, shall be summarized on a Monitoring Report Form for Monitoring of Initial Discharge and submitted to the state water pollution control agency at the address below postmarked no later than 120 days after the commencement of discharge.

Results of routine end of pipe and water quality station monitoring during the previous three (3) or six (6) months as applicable shall be summarized and reported quarterly or semiannually as applicable on a Discharge Monitoring Report Form (DMR). If the discharge is intermittent, the date the discharge began and ended must be included. The information submitted on the first quarterly DMR shall contain a summary of flow measurements and any additional monitoring conducted subsequent to the submittal of the initial monitoring report. If required, whole effluent toxicity testing (biomonitoring) results must be reported on the most recent version of EPA Region VIII's Guidance for Whole Effluent Reporting. Monitoring reports must be submitted to the Wyoming Department of Environmental Quality and the Wyoming Game and Fish Department at the following addresses postmarked no later than the 15th day of the second month following the completed reporting period. The first quarterly report following issuance of this permit modification is due by August 15, 2007.

Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the Signatory Requirements contained in Part II.A.11.

**Wyoming Department of Environmental Quality
Water Quality Division
Herschler Building, 4 West
122 West 25th Street
Cheyenne, WY 82002
Telephone: (307) 777-7781**

and

**Rick Huber, Habitat Protection
Wyoming Game and Fish Department
5400 Bishop Boulevard
Cheyenne, WY 82006-0001
Telephone: (307) 777-4558**

If no discharge occurs during the reporting period, "no discharge" shall be reported. If discharge is intermittent during the reporting period, sampling shall be done while the facility is discharging.

3. Definitions

- a. The "monthly average" shall be determined by calculating the arithmetic mean (geometric mean in the case of fecal coliform) of all composite and/or grab samples collected during a calendar month.
- b. The "weekly average" shall be determined by calculating the arithmetic mean (geometric mean in the case of fecal coliform) of all composite and/or grab samples collected during

any week.

- c. The "daily maximum" shall be determined by the analysis of a single grab or composite sample.
- d. "MGD", for monitoring requirements, is defined as million gallons per day.
- e. "Net" value, if noted under Effluent Characteristics, is calculated on the basis of the net increase of the individual parameter over the quantity of that same parameter present in the intake water measured prior to any contamination or use in the process of this facility. Any contaminants contained in any intake water obtained from underground wells shall not be adjusted for as described above and, therefore, shall be considered as process input to the final effluent. Limitations in which "net" is not noted are calculated on the basis of gross measurements of each parameter in the discharge, irrespective of the quantity of those parameters in the intake waters.
- f. A "composite" sample, for monitoring requirements, is defined as a minimum of four grab samples collected at equally spaced two hour intervals and proportioned according to flow.
- g. An "instantaneous" measurement for monitoring requirements is defined as a single reading, measurement, or observation.
- h. A "pollutant" is any substance or substances which, if allowed to enter surface waters of the state, causes or threatens to cause pollution as defined in the Wyoming Environmental Quality Act, Section 35-11-103.
- i. "Total Flow" is the total volume of water discharged, measured on a continuous basis and reported as a total volume for each month during a reporting period. The accuracy of flow measurement must comply with Part III.A.1.

4. Test Procedures

Test procedures for the analysis of pollutants, collection of samples, sample containers, sample preservation, and holding times, shall conform to regulations published pursuant to 40 CFR, Part 136, unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling;
- b. The dates and times the analyses were performed;
- c. The person(s) who performed the analyses and collected the samples;
- d. The analytical techniques or methods used; and

- e. The results of all required analyses including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine the results.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall also be indicated.

7. Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the administrator at any time. Data collected on site, copies of Discharge Monitoring Reports and a copy of this WYPDES permit must be maintained on site during the duration of activity at the permitted location.

8. Penalties for Tampering

The Act provides that any person who falsifies, tampers with or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or both.

9. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.

10. Facility Identification

All facilities discharging produced water shall be clearly identified with an all-weather sign posted at each outfall and flow monitoring locations (points of compliance). This sign shall, as a minimum, convey the following information:

- a. The name of the company, corporation, person(s) who holds the discharge permit, and the WYPDES permit number;
- b. The contact name and phone number of the person responsible for the records associated with the permit;
- c. The name of the facility (lease, well number, etc.) and the outfall number as identified by the discharge permit.

11. Identification and Establishment of Discharge Points

According to 40 CFR 122.21(k)(1), the permittee shall identify the expected location of each discharge point on the appropriate WYPDES permit application form. The location of the discharge point must be identified to within an accuracy of 15 seconds. This equates to a distance of 1,510 feet.

In order for the permit not to be subjected to additional public notice, the location of the established discharge point must be within 1,510 feet of the location of the discharge point originally identified on the permit application. In addition, the discharge must be within the same drainage and must discharge to the same landowner's property as identified on the original application form. If the three previously stated requirements are not satisfied, modification of the discharge point location(s) constitutes a major modification of the permit. The permittee shall provide written notification of the establishment of each discharge point in accordance with Part I.A.6.a above.

12. Location of Discharge Points and Water Quality Monitoring Stations

As of the date of permit issuance, authorized points of discharge were as follows:

SEE TABLE 1 FOR A LIST OF OUTFALLS AND WATER QUALITY MONITORING STATIONS

The outfalls listed in the table below may be moved from the established location without submittal of a permit modification application provided all of the following conditions are satisfied:

1. The new outfall location is within 2640 feet of the established outfall location.
2. The new outfall location is within the same drainage or immediate permitted receiving waterbody.
3. There is no change in the affected landowners.
4. Notification of the change in outfall location must be provided to the WYPDES Permits Section on a form provided by the WQD Administrator within 10 days of the outfall location change. The form must be provided in duplicate and legible maps showing the previous and new outfall location must be attached to the form.

Moving an outfall location without satisfying the four above listed conditions will be considered a violation of this permit and subject to full enforcement authority of the WDQ.

An outfall relocation as described above will not be allowed if the new outfall location is less than one mile from the confluence of a Class 2 waterbody and the dissolved iron limits established in the permit for the outfall are based upon Class 3 standards.

Requests for modification of the above list will be processed as follows. If the requested modification satisfies the definition of a minor permit modification as defined in 40 CFR 122.63 modifications will not be required to be advertised in a public notice. A minor modification constitutes a correction of a typographical error, increase in monitoring and/or reporting, revision to an interim compliance schedule date, change in ownership, revision of a construction schedule for a new source discharger, deletion of permitted outfalls, and/or the incorporation of an approved local pretreatment program.

A request for a minor modification must be initiated by the permittee by completing the form titled Wyoming Pollutant Discharge Elimination System Permit Modification Application For Coal Bed Methane. Incomplete application forms will be returned to the applicant.

Table 1: OUTFALL, IRRIGATION MONITORING POINT, AND WATER QUALITY MONITORING STATION LOCATION INFORMATION, WY0054780

Outfall #	Immediate Receiving Stream	Quarter / Quarter	SECT	TWN	RNG	Latitude	Longitude	Reservoir Name	Groundwater compliance approval required prior to discharge?	Reservoir Bond to WDEQ Required Prior to Discharge?
001	Unnamed, ephemeral tributary, Powder River	NWNW	22	52	77	44.47248	-106.11504	22-22	YES	NO
002	Unnamed, ephemeral tributary, Fortification Creek	SWNW	22	52	77	44.47004	-106.11662	22.23	YES	NO
003	Unnamed, ephemeral tributary, Fortification Creek	SWNW	22	52	77	44.46759	-106.11773	22-32	YES	NO
004	Unnamed, ephemeral tributary, Fortification Creek	SESW	22	52	77	44.46179	-106.11445	22-33	YES	NO
005	Unnamed, ephemeral tributary, Fortification Creek	NWNW	27	52	77	44.44570	-106.11820	27-33	YES	NO
006	Unnamed, ephemeral tributary, Powder River	SWNE	28	52	77	44.45434	-106.12897	28-13	YES	NO
007	Unnamed, ephemeral tributary, Powder River	SWNE	28	52	77	44.45309	-106.12550	28-14	YES	NO
008	Unnamed, ephemeral tributary, Powder River	SESE	28	52	77	44.44663	-106.12307	28-44	YES	NO
009	Unnamed, ephemeral tributary, Powder River	NWSE	33	52	77	44.43672	-106.12946	33-34	YES	NO
010	Powder River	NESE	32	52	77	44.45393	-106.14218	none	N/A	N/A
011	Powder River	NWNW	33	52	77	44.44293	-106.13947	none	N/A	N/A
012	Powder River	SWNW	28	52	77	44.45320	-106.13693	none	N/A	N/A
013	Powder River	SWNW	28	52	77	44.45617	-106.13772	none	N/A	N/A
014	Powder River	NWNW	28	52	77	44.45981	-106.13942	none	N/A	N/A
015	Fortification Creek	SWSW	23	52	77	44.46033	-106.09958	none	N/A	N/A
016	Fortification Creek	NWSE	22	52	77	44.46590	-106.11019	none	N/A	N/A
017	Powder River	NWNE	21	52	77	44.47294	-106.12773	none	N/A	N/A
018	Unnamed, ephemeral tributary, Powder River	NENW	31	52	77	44.44371	-106.17017	31-21N	YES	YES
019	Unnamed, ephemeral tributary, Powder River	NENW	31	52	77	44.44266	-106.17082	31-21S	YES	YES
020	Unnamed, ephemeral tributary, Powder River	SWSE	31	52	77	44.43440	-106.16788	31-43	YES	YES
021	Unnamed, ephemeral tributary, Powder River	NWNW	32	52	77	44.44430	-106.15912	32-22	YES	YES
022	Powder River	NESE	32	52	77	44.43457	-106.14281	none	N/A	N/A

Table 1 Continued: FLOW MONITORING, Containment UNIT MONITORING, AND WATER QUALITY MONITORING STATION LOCATION INFORMATION, WY0054780							
Station Name	Station Description	Quarter / Quarter	SECT	TWN	RNG	Latitude	Longitude
TRIB1	Tributary water quality monitoring station on Fortification Creek	SWNE	21	52	77	44.46896	-106.12519
UPR	Upstream water quality monitoring station	NWSE	5	51	77	44.423640	-106.150010
DPR	Downstream water quality monitoring station	NWSE	16	52	77	44.926815	-106.011065
FM001	Flow monitoring station, discharges from outfall 001	NWMW	22	52	77	44.47408	-106.11785
FM002	Flow monitoring station, discharges from outfall 002	NWSW	22	52	77	44.46646	-106.11636
FM003	Flow monitoring station, discharges from outfall 003	NWSW	22	52	77	44.46656	-106.11745
FM004	Flow monitoring station, discharges from outfall 004	SWSW	22	52	77	44.46199	-106.11643
FM005	Flow monitoring station, discharges from outfall 005	SESE	28	52	77	44.44661	-106.12131
FM006	Flow monitoring station, discharges from outfall 006	SENE	28	52	77	44.45491	-106.13112
FM007	Flow monitoring station, discharges from outfall 007	NWSE	28	52	77	44.45136	-106.12738
FM008	Flow monitoring station, discharges from outfall 008	SWSE	28	52	77	44.44846	-106.12614
FM009	Flow monitoring station, discharges from outfall 009	NWSE	33	52	77	44.43585	-106.12991
FM018	Flow monitoring station, discharges from outfall 018	SWNE	31	52	77	44.44013	-106.16629
FM019	Flow monitoring station, discharges from outfall 019	SWNE	31	52	77	44.44013	-106.16629
FM020	Flow monitoring station, discharges from outfall 020	NWSE	31	52	77	44.43616	-106.16733
FM021	Flow monitoring station, discharges from outfall 021	NWNW	32	52	77	44.44309	-106.15569
CU001	Flow monitoring station, discharges from outfall 001	NWNW	22	52	77	44.47248	-106.11504
CU002	Containment unit monitoring station, discharges from outfall 002	SWNW	22	52	77	44.47004	-106.11662
CU003	Containment unit monitoring station, discharges from outfall 003	SWNW	22	52	77	44.46759	-106.11773

Table 1 Continued: FLOW MONITORING, Containment UNIT MONITORING, AND WATER QUALITY MONITORING STATION LOCATION INFORMATION, WY0054780

Station Name	Station Description	Quarter / Quarter	SECT	TWN	RNG	Latitude	Longitude
CU004	Containment unit monitoring station, discharges from outfall 004	SESW	22	52	77	44.46179	-106.11445
CU005	Containment unit monitoring station, discharges from outfall 005	NWNW	27	52	77	44.4457	-106.1182
CU006	Containment unit monitoring station, discharges from outfall 006	SWNE	28	52	77	44.45434	-106.12897
CU007	Containment unit monitoring station, discharges from outfall 007	SWNE	28	52	77	44.45309	-106.1255
CU008	Containment unit monitoring station, discharges from outfall 008	SESE	28	52	77	44.44663	-106.12307
CU009	Containment unit monitoring station, discharges from outfall 009	NWSE	33	52	77	44.43672	-106.12946
CU018	Containment unit monitoring station, discharges from outfall 018	NENW	31	52	77	44.44371	-106.17017
CU019	Containment unit monitoring station, discharges from outfall 019	NENW	31	52	77	44.44266	-106.17082
CU020	Containment unit monitoring station, discharges from outfall 020	SWSE	31	52	77	44.4344	-106.16788
CU021	Containment unit monitoring station, discharges from outfall 021	NWNW	32	52	77	44.4443	-106.15912

C. RESERVOIR / IMPOUNDMENT REQUIREMENTS

1. Groundwater Monitoring Beneath Impoundments:

Table 1 of the permit above identifies which outfalls (if any) are designed to discharge into impoundments that are subject to groundwater monitoring requirements established in the latest version of the Water Quality Division guideline "*Compliance Monitoring for Groundwater Protection Beneath Unlined Coalbed Methane Produced Water Impoundments.*" These specified outfalls are not authorized to discharge until a written groundwater compliance approval has been granted by the Groundwater Pollution Control Program of the Water Quality Division. A groundwater compliance approval will consist of either a final approved groundwater compliance monitoring plan, or written authorization for an exemption thereof. Once an impoundment has been granted a written groundwater compliance approval, the contributing outfall(s) to that reservoir may commence discharge.

2. Reclamation Performance Bonds for On-Channel Reservoirs:

Table 1 of the permit above also identifies which outfalls (if any) are designed to discharge into impoundments that are subject to WDEQ bonding requirements, as set forth in the latest version of the Water Quality Division guideline "*Implementation Guidance for Reclamation and Bonding of On-Channel Reservoirs That Store Coalbed Natural Gas Produced Water.*" These specified outfalls are not authorized to discharge until the associated reservoir reclamation bond is approved by WDEQ. Once the reservoir reclamation bond is approved by WDEQ, the contributing outfall(s) to that reservoir may commence discharge.

Any discharge into an above-listed impoundment which has not been secured by the required WDEQ-approved bond, or which has not been granted the required groundwater compliance approval, will constitute a violation of this permit, and may result in enforcement action from the Water Quality Division.

PART II

A. MANAGEMENT REQUIREMENTS

1. Changes

The permittee shall give notice to the administrator of the Water Quality Division as soon as possible of any physical alterations or additions to the permitted facility. Notice is required when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29 (b); or
- b. The alteration or addition could change the nature or increase the quantity of pollutants discharged.

2. Noncompliance Notification

- a. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- b. The permittee shall report any noncompliance which may endanger health or the environment as soon as possible, but no later than 24 hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Quality Division, Wyoming Department of Environmental Quality at (307) 777-7781.
- c. For any incidence of noncompliance, including noncompliance related to non-toxic pollutants or non-hazardous substances, a written submission shall be provided within five (5) days of the time that the permittee becomes aware of the noncompliance circumstance.

The written submission shall contain:

- (1) A description of the noncompliance and its cause;
 - (2) The period of noncompliance, including exact dates and times;
 - (3) The estimated time noncompliance is expected to continue if it has not been corrected; and
 - (4) Steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance.
- d. The following occurrences of unanticipated noncompliance shall be reported by telephone to the Water Quality Division, Watershed Management Section, NPDES Program (307) 777-7781 as soon as possible, but no later than 24 hours from the time the permittee first became aware of the circumstances.
 - (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
 - (2) Any upset which exceeds any effluent limitation in the permit; or

- (3) Violation of a maximum daily discharge limitation for any toxic pollutants or hazardous substances, or any pollutants specifically identified as the method to control a toxic pollutant or hazardous substance listed in the permit.
- e. The administrator of the Water Quality Division may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Quality Division, Watershed Management Section, WYPDES Program (307) 777-7781.
- f. Reports shall be submitted to the Wyoming Department of Environmental Quality at the address in Part I under Reporting and to the Planning and Targeting Program, 8ENF-PT, Office of Enforcement, Compliance, and Environmental Justice, U.S. EPA Region 8, 999 18th St., Suite 300, Denver, CO 80202-2466.
- g. The permittee shall report all instances of noncompliance that have not been specifically addressed in any part of this permit at the time the monitoring reports are due.

3. Facilities Operation

The permittee shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse Impact to waters of the state resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and Impact of the noncomplying discharge.

5. Bypass of Treatment Facilities

- a. Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
- b. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c. and d. of this section. Return of removed substances to the discharge stream shall not be considered a bypass under the provisions of this paragraph.
- c. Notice:
 - (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice at least 60 days before the date of the bypass.

- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.A.2.
- d. Prohibition of bypass.
 - (1) Bypass is prohibited and the administrator of the Water Quality Division may take enforcement action against a permittee for a bypass, unless:
 - (a) The 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 to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (c) The permittee submitted notices as required under paragraph c. of this section.
- e. The administrator of the Water Quality Division may approve an anticipated bypass, after considering its adverse effects, if the administrator determines that it will meet the three conditions listed above in paragraph d. (1) of this section.

6. Upset Conditions

- a. 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, Improper designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph c. of this section are met.
- c. 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 that the permittee can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required under Part II.A.2; and
 - (4) The permittee complied with any remedial measures required under Part II.A.4.

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

7. Removed Substances

Solids, sludges, filter backwash or other pollutants removed in the course of treatment or control of wastewaters or intake waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the state.

8. Power Failures

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

- a. In accordance with a schedule of compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities; or
- b. If such alternative power source as described in paragraph a. above is not in existence and no date for its Implementation appears in Part I, take such precautions as are necessary to maintain and operate the facility under its control in a manner that will minimize upsets and insure stable operation until power is restored.

9. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the federal act and the Wyoming Environmental Quality Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the administrator of the Water Quality Division advance notice of any planned changes at the permitted facility or of any activity which may result in permit noncompliance.

10. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

11. Signatory Requirements

All applications, reports or information submitted to the administrator of the Water Quality Division shall be signed and certified.

- a. All permit applications shall be signed as follows:
 - (1) For a corporation: by a responsible corporate officer;
 - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - (3) For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected official.

- b. All reports required by the permit and other information requested by the administrator of the Water Quality Division 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:
- (1) The authorization is made in writing by a person described above and submitted to the administrator of the Water Quality Division; and
 - (2) The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
- c. If an authorization under paragraph II.A.11.b. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph II.A.11.b must be submitted to the administrator of the Water Quality Division prior to or together with any reports, information or applications to be signed by an authorized representative.
- d. 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."

B. RESPONSIBILITIES

1. Inspection and Entry

If requested, the permittee shall provide written certification from the surface landowner(s), if different than the permittee, that the administrator or the administrator's authorized agent has access to all physical locations associated with this permit including well heads, discharge points, reservoirs, monitoring locations, and any waters of the state.

The permittee shall allow the administrator of the Water Quality Division or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and
- d. Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the federal act, any substances or parameters at any location.

2. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the regional administrator of the Environmental Protection Agency and the administrator of the Water Quality Division. The administrator of the Water Quality Division shall then provide written notification to the new owner or controller of the date in which they assume legal responsibility of the permit. The permit may be modified or revoked and reissued to change the name of the permittee and incorporate such other requirements as described in the federal act.

3. Availability of Reports

Except for data determined to be confidential under Section 308 of the federal act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Wyoming Department of Environmental Quality and the regional administrator of the Environmental Protection Agency. As required by the federal act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the Imposition of criminal penalties as provided for in Section 309 of the federal act.

4. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established under Section 307 (a) of the federal act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Changes in Discharge of Toxic Substances

Notification shall be provided to the administrator of the Water Quality Division as soon as the permittee knows of, or has reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 µg/l);
 - (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21 (g) (7); or
 - (4) The level established by the director of the Environmental Protection Agency in accordance with 40 CFR 122.44 (f).

- b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 µg/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21 (g) (7); or
 - (4) The level established by the director of the Environmental Protection Agency in accordance with 40 CFR 122.44 (f).

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. As long as the conditions related to the provisions of "Bypass of Treatment Facilities" (Part II.A.5), "Upset Conditions" (Part II.A.6), and "Power Failures" (Part II.A.8) are satisfied then they shall not be considered as noncompliance.

7. 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.

8. 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 federal act.

9. State Laws

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 established pursuant to any applicable state or federal law or regulation. In addition, issuance of this permit does not substitute for any other permits required under the Clean Water Act or any other federal, state, or local law.

10. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or 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.

11. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.

12. Duty to Provide Information

The permittee shall furnish to the administrator of the Water Quality Division, within a reasonable time, any information which the administrator 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 administrator, upon request, copies of records required by this permit to be kept.

13. Other Information

When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the administrator of the Water Quality Division, it shall promptly submit such facts or information.

14. Permit Action

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

PART III

A. OTHER REQUIREMENTS

1. Flow Measurement

At the request of the administrator of the Water Quality Division, the permittee must be able to show proof of the accuracy of any flow measuring device used in obtaining data submitted in the monitoring report. The flow measuring device must indicate values of within plus or minus ten (10) percent of the actual flow being measured.

2. 208(b) Plans

This permit may be modified, suspended or revoked to comply with the provisions of any 208(b) plan certified by the Governor of the State of Wyoming.

3. Reopener Provision

This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary) or other appropriate requirements if one or more of the following events occurs:

- a. The state water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit;
- b. A total maximum daily load (TMDL) and/or watershed management plan is developed and approved by the state and/or the Environmental Protection Agency which specifies a wasteload allocation for incorporation in this permit;
- c. A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit;
- d. Downstream Impairment is observed and the permitted facility is contributing to the Impairment;
- e. The limits established by the permit no longer attain and/or maintain applicable water quality standards;
- f. The permit does not control or limit a pollutant that has the potential to cause or contribute to a violation of a state water quality standard.
- g. If new applicable effluent guidelines and/or standards have been promulgated and the standards are more stringent than the effluent limits established by the permit.
- h. In order to protect water quality standards in neighboring states, effluent limits may be incorporated into this permit or existing limits may be modified to ensure that the appropriate criteria, water quality standards and assimilative capacity are attained.

i.

4. Permit Modification

After notice and opportunity for a hearing, this permit may be modified, suspended or revoked in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- d. If necessary to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b) (2) (C) and (D), 304 (b) (2) and 307 (a) (2) of the federal act, if the effluent standard or limitation so issued or approved:
 - (1) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) Controls any pollutant not limited in the permit.

5. Toxicity Limitation - Reopener Provision

This permit may be reopened and modified (following proper administrative procedures) to include a new compliance date, additional or modified numerical limitations, a new or different compliance schedule, a change in the whole effluent protocol or any other conditions related to the control of toxicants if one or more of the following events occur:

- a. Toxicity was detected late in the life of the permit near or past the deadline for compliance;
- b. The TRE results indicate that compliance with the toxic limits will require an Implementation schedule past the date for compliance and the permit issuing authority agrees with the conclusion;
- c. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits and the permit issuing authority agrees that numerical controls are the most appropriate course of action;
- d. Following the Implementation of numerical controls on toxicants, the permit issuing authority agrees that a modified whole effluent protocol is necessary to compensate for those toxicants that are controlled numerically;
- e. The TRE reveals other unique conditions or characteristics which, in the opinion of the permit issuing authority, justify the incorporation of unanticipated special conditions in the permit.

6. 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.

7. Penalties for Falsification of Reports

The federal act provides that any person who knowingly makes any false statement, representation or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation or by Imprisonment for not more than two years per violation or both.