

Wyoming Department of Environmental Quality
Water Quality Division
WYPDES Program

STATEMENT OF BASIS

NEW

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

MAILING ADDRESS: 3801 North Highway 14-16
Gillette, WY 82716

FACILITY LOCATION: Wild Horse Creek Portion of the Kingsbury AMI Unit, which is located in the SWNE and NESW of Section 7 in Township 50 North, Range 74 West; and in the SESW and SESE of Section 23; the SWNE and NWSE of Section 24, the NENW and SWNW of Section 26, the SWNW of Section 27, the SENE of Section 35, and the SWSW of Section 36, all in Township 51 North, Range 75 West in Campbell County. The produced water will be discharged to various named on-channel reservoirs (class 3B), located on various unnamed, ephemeral tributaries (class 3B) of Sand Draw (class 3B), Jeffers Draw (class 3B), Cedar Draw (class 3B), Montgomery Draw (class 3B), and Wild Horse Creek (class 3B). All of these streams are tributary to the Powder River (2ABWW), via Wild Horse Creek (class 3B). The permit establishes an irrigation compliance point, located in the SWNE, Section 17, Township 52 North, Range 75 West, on Wild Horse Creek. The permit also establishes a total maximum daily flow limit of 3.06 MGD, and requires that the produced water being discharged by this facility originate in one or more of the following formations: the Wall and/or Cook coal seams.

NUMBER: WY0051985

This permit was revised following its public notice period (WYPDES public notice August 2004). The original draft permit contained 31 outfalls. At the time of issuance of the permit, only 11 of those outfalls had been evaluated by the applicant for their potential impacts to groundwater beneath the receiving reservoirs. Those 11 outfalls are currently the only outfalls eligible for coverage under WY0051985. Therefore this permit, as currently issued, authorizes discharge from 11 outfalls as listed in table 1 of the permit below. In addition, the discharge flow limit was reduced from 5.85 million gallons per day (MGD) in the original draft to 3.06 MGD in the final permit, based on the reduction in available reservoir capacity at this facility. Reservoir capacity is taken into account because the mixing calculations and predicted downstream water quality impacts in the application rely on impoundment of the effluent with overtopping to occur only during precipitation overtopping events.

This facility is a typical coal bed methane production facility in which groundwater is pumped from a coal bearing formation resulting in the release of methane from the coal bed. 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. The guideline limits oil and grease effluent concentrations to less than 35 mg/l and requires that discharges of produced water be used for agricultural production and/or wildlife propagation. 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. In addition, the permit establishes an irrigation compliance point. The irrigation compliance point is a designated monitoring location prior to the first downstream point of irrigation diversion/use in Wild Horse Creek from the permitted facility. Effluent limits associated with the irrigation compliance points - SAR = 6 and EC = 2000 micromhos/cm - were determined from a combination of one or more of the following: technical information submitted by the applicant, published scientific literature, credible water quality data that has been through formally adopted quality control/quality assurance review, and best professional judgement. These limits satisfy provisions under Chapter 1, Section 20 (protection of agricultural water supply) of the Wyoming Water Quality Rules and Regulations. Effluent limits at the irrigation compliance point located in Wild Horse Creek are in effect year round due to the downstream irrigator's limited ability to divert stream flow away from the fields under irrigation.

The permittee has committed to, and will be required to contain the effluent in on-channel reservoirs. Information submitted by the permittee indicates that the on-channel reservoirs will have sufficient capacity to contain all of the effluent under "dry" operating conditions. The permittee is required to contain all produced water discharged by this facility in the on-channel reservoirs. Discharges from the reservoirs are not permitted except during precipitation events that cause the reservoirs to fill and overtop. This facility is located approximately 55 miles from the Powder River. The permittee has committed that effluent from this facility shall not reach the Powder River. However, in the event that such a situation occurs, this permit establishes a monitoring station on the receiving stream prior to the confluence with the Powder River. This station will function to monitor any effluent flows to the Powder River.

Permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. The permit limits total petroleum hydrocarbons to 10 mg/l and the pH must remain within 6.5 and 8.5 standard units. Effluent limits for total dissolved solids (5,000 mg/l), specific conductance (7500 micromhos/cm), and sulfates (3,000 mg/l) are included to protect for stock and wildlife watering. These limits are based upon Wyoming Water Quality Rules and Regulations, Chapter 7 and apply to discharges from all permitted outfalls. In addition, the permit establishes a radium 226 limit of 1 pCi/l, a dissolved manganese limit of 650 µg/l, a total barium limit of 1800 µg/l, a total arsenic limit of 7 µg/l, and a chlorides limit of 46 mg/l. These limits are based on chronic aquatic life standards for class 2AB waters which are intended to protect for the above listed designated uses and reflect the application of the antidegradation provisions required under Chapter 1 of the Wyoming Water Quality Rules and Regulations. In addition, the permit establishes a dissolved iron limit of 1000 µg/l, which is based upon chronic aquatic life standards for class 3B waters greater than one mile from the confluence of a class 2 water, and reflects the application of standards required under Chapter 1 of the Wyoming Water Quality Rules and Regulations. The mixing analyses and water balances submitted by the permittee were based upon a maximum daily flow of 3.06 million gallons per day (MGD) from this facility, and

water quality representative of groundwater originating from the Wall and Cook coal seams at this facility. Therefore, the permit establishes a total maximum daily flow limit of 3.06 million gallons per day (MGD), to be calculated as the sum of all discharge from all permitted outfalls, and requires that the produced water being discharged by this facility originate in one or more of the following formations: the Wall and/or Cook coal seams.

Water quality information submitted in support of this permit application indicates that untreated effluent from this facility has the potential to exceed established permit effluent limits for total barium (1800 µg/l at the end of pipe). In order to prevent violations of the total barium effluent limit, the permittee has committed to, and will be required to install a barium treatment process to attain compliance with their total barium effluent limit. The permittee will be required to install and have fully operational the barium treatment process described in their permit application prior to discharge of produced water from this facility. The permittee has submitted documentation verifying the ability of the chosen treatment option to attain compliance with the total barium effluent limit of 1800 µg/l.

In order to monitor and regulate coal bed methane discharge for compliance with Chapter 1, Section 20 (protection of agricultural water supply), effluent limits for sodium adsorption ratio (SAR) and specific conductance are included in this permit. The Wyoming DEQ has determined that an SAR of 6 and a specific conductance of 2000 micromhos/cm are intended to be protective of agriculture use in the Wild Horse Creek drainage. The specific conductance limit of 2000 micromhos/cm is based on the threshold value for alfalfa which is considered to be the most salt sensitive plant irrigated in northeastern Wyoming (USDA George E. Brown Jr. Salinity Laboratory, Salt Tolerance Database, Grasses and Forage Crops). There was no data available to characterize EC tolerance of alfalfa specific to the Wild Horse Creek drainage. The SAR limit of 6 was determined to not reduce the rate of infiltration of irrigated soils in the Wild Horse Creek drainage, given the specific conductance threshold referenced above as ascertained from Figure 3 (page 44) of Agricultural Salinity and Drainage, Hanson et al., 1999 revision. An SAR limit of 6 and specific conductance limit of 2000 micromhos/cm will also maintain the baseline C3-S1 irrigation suitability category for the Powder River drainage (see Figure 25, of Diagnosis and Improvement of Saline and Alkali Soils, US Dept. of Agricultural Handbook No. 60, 1954). Monitoring will be required for flow volume, calcium, magnesium, sodium, bicarbonate, sodium adsorption ratio and specific conductance when flow is present at the irrigation compliance point(s) at any time during the year. This facility is linked to another WYPDES permitted facility, WY0051993. The permittee has submitted documentation verifying their ability to contain all estimated CBM discharge between both facilities.

The permit requires daily monitoring on Wild Horse Creek to determine whether water discharged from the outfalls reaches the established irrigation compliance point. Daily monitoring is necessary because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation compliance point. Once effluent flow at the irrigation compliance point has been documented within a sampling month, then weekly monitoring of effluent flow is required for the remainder of that calendar month. At the beginning of each calendar month, the frequency will revert to daily. Results are to be reported twice-yearly and if no effluent from this facility reaches the established ICP location during a given monthly monitoring period, then "no discharge" is to be reported for the ICP during that period. The irrigation compliance point will be located in the SWNE, Section 17, Township 52 North, Range 75 West, in the main channel of Wild Horse Creek, prior to the first downstream irrigation diversion.

The permit requires sampling at a designated tributary water quality monitoring station located on the receiving stream – Wild Horse Creek, and at mainstem water quality monitoring station locations on the Powder River upstream and downstream of the Wild Horse Creek - Powder River confluence. Water quality monitoring stations on the Powder River will be located in the main channel of the Powder River outside of the mixing zone of Wild Horse Creek and the Powder River. Effluent samples at the designated water quality monitoring

stations must be collected on a monthly basis and are to be reported semiannually. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: designated water quality monitoring stations identified as TRIB1, UPR, and DPR in Table 1 of the permit below. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone with the tributary and the mainstem. Monthly water quality samples are to be collected at all three water quality monitoring stations when effluent from this CBM facility reaches the TRIB1 station on Wild Horse Creek. If flow occurs at the TRIB1 station during a given monthly monitoring period, but this CBM facility did not contribute to that flow, the permittee will report "did not contribute" in the discharge monitoring reports for that monthly monitoring period. Under such circumstances, sampling is not required at the three water quality monitoring stations, and it will be the responsibility of the permittee to demonstrate that the effluent from this facility did not contribute to the flow occurring at the TRIB1 station. If no flow at all occurs at the TRIB1 station for an entire monthly monitoring period, then "no flow" is to be reported and samples need not be collected at the three water quality monitoring stations for that monthly monitoring period.

At the designated water quality monitoring stations, monitoring will be required for calcium, magnesium, sodium, sodium absorption ratio and specific conductance. Information gathered from the water quality monitoring stations may result in modification of the permit to protect existing uses on the tributary and mainstem.

The designated water quality monitoring stations are located on the tributary (Wild Horse Creek) in the SWSW, Section 15, Township 54 North, Range 77 West, and on the mainstem (Powder River) in the SWSE, Section 16, Township 54 North, Range 77 West, and in the NWSE, Section 34, Township 55 North, Range 77 West, upstream and downstream (respectively) of the Wild Horse Creek – Powder River confluence, in the main channel of the Powder River. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone of the tributary with the mainstem.

Results are to be reported twice-yearly and if no discharge occurs at the outfall then "no discharge" is to be reported. 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.

Effluent is to be discharged at a rate which does not cause significant erosion to the channel or receiving lands.

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 discharge of wastewater and 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 semiannually. The permit is scheduled to expire on December 31, 2008, which is reflective of the WDEQ's efforts towards watershed permitting and similar expiration dates for all permits within a specific drainage, which will allow for basin-wide analysis upon renewal of the permits in the drainage.

Kathy Shreve
Water Quality Division
Department of Environmental Quality
Drafted: July 26, 2004

Revised: April 5, 2005

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

Wild Horse Creek Portion of the Kingsbury AMI Unit,

which is located in the

SWNE and NESW of Section 7 in Township 50 North, Range 74 West; and in the SESW and SESE of Section 23; the SWNE and NWSE of Section 24, the NENW and SWNW of Section 26, the SWNW of Section 27, the SENE of Section 35, and the SWSW of Section 36, all in Township 51 North, Range 75 West in Campbell County


to receiving waters named

various named on-channel reservoirs (class 3B), located on various unnamed, ephemeral tributaries (class 3B) of Sand Draw (class 3B), Jeffers Draw (class 3B), Cedar Draw (class 3B), Montgomery Draw (class 3B), and Wild Horse Creek (class 3B). All of these streams are tributary to the Powder River (2ABWW), via Wild Horse Creek (class 3B)

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

This permit 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 December 31, 2008, at midnight .



John F. Wagner
Administrator - Water Quality

Date

4/7/05



John V. Corra
Director - Department of Environmental Quality

Date

4/8/05

PART IA. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Effective immediately and lasting through December 31, 2008, 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(s) serial numbers 005, 006, 009, 012, 013, 015, 018, 019, 020, 023, 030.

1. Such discharges shall be limited as specified below:

Effluent Limits

<u>Effluent Characteristic</u>	<u>Daily Maximum Outfall</u>	<u>Daily Maximum Irrigation Compliance Point</u>
Chlorides, mg/l	46	
Dissolved Iron, µg/l	1000	
Dissolved Manganese, µg/l	650	
pH, standard units	6.5 - 8.5	
Specific Conductance, micromhos/cm	7500	2000
Sulfates, mg/l	3000	
Sodium Adsorption Ratio, calculated as unadjusted ratio		6
Total Arsenic, µg/l	7	
Total Barium, µg/l	1800	
Total Dissolved Solids, mg/l	5000	
Total Petroleum Hydrocarbons (TPH), mg/l*	10	
Total Radium 226, pCi/l	1	
Total Flow, MGD**	3.06	

*Acceptable methods for this parameter are 1664 in the latest edition of Standard Methods for the Examination of Water and Wastewater and EPA SW846 Method 8015 (modified) for Total Extractable Petroleum Hydrocarbons.

**Total flow is to be calculated as the sum of all discharge from all permitted outfalls. The permit requires that the produced water being discharged by this facility originate in the Wall and/or Cook coal seams.

The pH shall not be less than 6.5 standard units nor greater than 8.5 standard units in any single grab sample.

Effluent limits at the irrigation compliance point are in effect year-round due to the downstream irrigator's inability to divert stream channel flow away from the agricultural fields.

In order to attain compliance with the total barium effluent limit established in this permit, the permittee has committed to, and will be required to install a barium treatment process. The permittee will be required to install and have fully operational the treatment process at each and every outfall prior to discharge of produced water from the outfall.

The permittee may, if so desired, discharge effluent from any authorized well to any permitted outfall, as long as all permit limits and requirements can be met. This facility, as originally permitted, consists of 11 outfalls and 142 wells.

Information gathered from the water quality monitoring stations may result in modification of the permit to protect existing uses on the tributary and the mainstem.

Water may not be intentionally discharged from the reservoirs. Reservoirs may discharge in response to storm events or upstream reservoir overflow only.

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. 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.

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

a. Monitoring of the initial discharge

Within 60 days of commencement of discharge, a sample shall be collected from each outfall and analyzed for the 24 constituents specified below, at the required detection limits. Within 120 days of commencement of discharge, 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 detection limits for each of the 24 constituents. 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 effluent limits and monitoring requirements established in this permit may be modified.

<u>Parameter*</u> (See notes following the table on chemical states)	<u>Required Detection Limits and Required Units</u>
Alkalinity, Total	1 mg/l as CaCO ₃
Aluminum, Total Recoverable	50 µg/l
Arsenic, Total	1 µg/l

Parameter* (See notes following the table on chemical states)	Required Detection Limits and Required Units
Barium, Total	100 µg/l
Bicarbonate	10 mg/l
Cadmium, Dissolved	5 µg/l
Calcium, Dissolved	50 µg/l, report as me/l
Calcium, Dissolved	50 µg/l, report as mg/l
Chlorides	5 mg/l
Copper, Dissolved	10 µg/l
Dissolved Solids, Total	5 mg/l
Hardness, Total	10 mg/l as CaCO ₃
Iron, Dissolved	50 µg/l
Lead, Dissolved	2 µg/l
Magnesium, Dissolved	100 µg/l, report as me/l
Magnesium, Dissolved	100 µg/l, report as mg/l
Manganese, Dissolved	50 µg/l
Mercury, Dissolved	1 µg/l
pH	to 0.1 pH unit
Radium 226, Total	0.2 pCi/l
Selenium, Total Recoverable	5 µg/l
Sodium Adsorption Ratio	Calculated as unadjusted ratio
Sodium, Dissolved	100 µg/l, report as me/l
Sodium, Dissolved	100 µg/l, report as mg/l
Specific Conductance	5 micromhos/cm
Sulfates	10 mg/l
Zinc, Dissolved	50 µg/l

TOTAL: Value is expressed in terms of total recoverable metal in the water column.

NOTE: Except for aquatic life values for metals and where otherwise indicated, the values given refer to the total recoverable (dissolved plus suspended) amount for each substance. For the aquatic life values for metals, the values refer to the dissolved amount.

DISSOLVED: Value is based on the dissolved amount which is the amount that will pass through a 0.45 µm membrane filter prior to acidification to pH 1.5 - 2.0 with nitric acid.

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

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

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 – 005, 006, 009, 012, 013, 015, 018, 019, 020, 023, 030

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>
Bicarbonate (mg/l)	Once every six months	Grab
Dissolved calcium (mg/l)	Monthly	Grab
Dissolved calcium (me/l)	Monthly	Grab
Chloride (mg/l)	Annually	Grab
Dissolved Iron ($\mu\text{g/l}$)	Annually	Grab
Dissolved Manganese ($\mu\text{g/l}$)	Annually	Grab
Dissolved Magnesium (mg/l)	Monthly	Grab
Dissolved Magnesium (me/l)	Monthly	Grab
pH (standard units)	Once Every Six Months	Grab
Total Radium 226 (pCi/l)	Annually	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Dissolved Sodium (me/l)	Monthly	Grab
Sodium Adsorption Ratio (unadjusted)	Monthly	Calculated
Specific Conductance (micromohs/cm)	Monthly	Grab
Sulfate (mg/l)	Annually	Grab
Total Alkalinity (mg/l)	Once Every Six Months	Grab
Total Arsenic ($\mu\text{g/l}$)	Annually	Grab
Total Barium ($\mu\text{g/l}$)	Annually	Grab
Total Flow - (MGD)	Monthly	Continuous
Total Petroleum Hydrocarbons* (mg/l)	Annually	Grab

*Acceptable methods for this parameter are 1664 in the latest edition of Standard Methods for the Examination of Water and Wastewater and EPA SW846 Method 8015 (modified) for Total Extractable Petroleum Hydrocarbons.

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.

c. Irrigation Compliance Points – ICP1

For the duration of the permit, at a minimum, samples for the constituents described below shall be collected at the indicated frequencies when water discharged from any permitted outfall reaches any irrigation compliance point. Irrigation compliance point limits and requirements are in effect year-round due to the downstream irrigator's limited ability to divert flow in the stream channel away from the fields undergoing irrigation.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Dissolved Calcium (mg/l)	Monthly	Grab
Dissolved Calcium (me/l)	Monthly	Grab
Dissolved Magnesium (mg/l)	Monthly	Grab
Dissolved Magnesium (me/l)	Monthly	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Dissolved Sodium (me/l)	Monthly	Grab
Sodium Adsorption Ratio (calculated as unadjusted ratio)	Monthly	Calculated
Specific Conductance (micromohs/cm)	Monthly	Grab
Flow (MGD)	Monthly	Instantaneous

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at the irrigation compliance point which is located as follows: in the SWNE, Section 17, Township 52 North, Range 75 West, on Wild Horse Creek.

The permit requires daily monitoring of the irrigation compliance point described above to determine whether water discharged from the outfalls reaches the established irrigation compliance point. Daily monitoring is necessary because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation compliance point. Once effluent flow at the irrigation compliance point has been documented within a sampling month, then weekly monitoring of effluent flow is required for the remainder of that calendar month. At the beginning of each calendar month, the frequency will revert to daily. Results are to be reported twice-yearly and if no effluent from this facility reaches the established ICP location during a given monthly monitoring period, then "no discharge" is to be reported for the ICP during that period.

d. 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 semiannually.

Parameter	Measurement Frequency	Sample Type
Dissolved Calcium (mg/l)	Monthly	Grab
Dissolved Calcium (me/l)	Monthly	Grab
Dissolved Magnesium (mg/l)	Monthly	Grab
Dissolved Magnesium (me/l)	Monthly	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Dissolved Sodium (me/l)	Monthly	Grab
Sodium Adsorption Ratio (calculated as unadjusted ratio)	Monthly	Calculated
Specific Conductance (micromohs/cm)	Monthly	Grab
Flow* (MGD)	Monthly	Instantaneous

*The permittee is only required to monitor and report flow at the tributary monitoring station on Wild Horse Creek (TRIB1). The permittee is not required to monitor or report flow data at the mainstem water quality monitoring stations (UPR and DPR), see Table 1 at the end of Part I for location descriptions.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: designated water quality monitoring stations identified as TRIB1, UPR, and DPR in Table 1 of the permit below. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone with the tributary and the mainstem. Monthly water quality samples are to be collected at all three water quality monitoring stations when effluent from this CBM facility reaches the TRIB1 station on Wild Horse Creek. If flow occurs at the TRIB1 station during a given monthly monitoring period, but this CBM facility did not contribute to that flow, the permittee will report "did not contribute" in the discharge monitoring reports for that monthly monitoring period. Under such circumstances, sampling is not required at the three water quality monitoring stations, and it will be the responsibility of the permittee to demonstrate that the effluent from this facility did not contribute to the flow occurring at the TRIB1 station. If no flow at all occurs at the TRIB1 station for an entire monthly monitoring period, then "no flow" is to be reported and samples need not be collected at the three water quality monitoring stations for that monthly monitoring period. At the designated water quality monitoring stations, monitoring will be required for calcium, magnesium, sodium, sodium absorption ratio and specific conductance. Information gathered from the water quality monitoring stations may result in modification of the permit to protect existing uses on the tributary and mainstem.

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, irrigation compliance point, and water quality station monitoring during the previous six (6) months shall be summarized and reported semiannually 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 semiannual DMR shall contain a summary of flow measurements and any additional monitoring conducted subsequent to the submittal of the initial monitoring report. When required, whole effluent toxicity (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 state water pollution control agency at the following address postmarked no later than the 15th day of the second month following the completed reporting period. The first report is due by August 15, 2005.

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

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.

Public notice is not required if the location of the established discharge point is 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 as defined in Part I.B.12. The permittee shall provide written notification of the establishment of each discharge point in accordance with Part I.A.2.a above.

12. Location of Discharge Points and Irrigation Compliance Points

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

SEE TABLE 1 FOR A LIST OF OUTFALL LOCATIONS

13. Location of water quality monitoring stations

As of the date of issuance, authorized water quality monitoring stations were as follows:

SEE TABLE 1 FOR A LIST OF WATER QUALITY STATIONS

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.

The outfalls listed in Table 1 (located at the end of Part I) 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.

