

FILED

**BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING**

SEP 12 2008

IN THE MATTER OF THE APPEAL)
AND REVIEW OF THE ISSUANCE)
OF WYOMING POLLUTANT DISCHARGE)
ELIMINATION SYSTEM (WYPDES))
PERMIT WY0049271)
(Yates, Taylor – Wild Horse Creek))
DATED July 30, 2007)

**Jim Ruby, Executive Secretary
Environmental Quality Council**

Docket No. 07-3621

JOINT STIPULATION FOR WITHDRAWAL AND DISMISSAL OF APPEAL

The Wyoming Department of Environmental Quality (DEQ), Water Quality Division (WQD) issued WYPDES Renewal Permit No. WY0049271 (the contested permit) on July 30, 2007, authorizing Yates Petroleum Corporation (Yates) to discharge water produced from its Taylor – Wild Horse Creek coal bed methane (CBM) project, subject to specified conditions. On September 27, 2007, Yates filed a Notice of Appeal and Request for Hearing before the Wyoming Environmental Quality Council (EQC) contesting that permit's effluent limits for specific conductance (EC) and sodium adsorption ratio (SAR), as well as the effluent limit and monitoring requirement for total dissolved solids (TDS). Yates and the DEQ are the only parties in this contested case before the EQC.

On or about April 16, 2008, Yates submitted an application for a major modification of the contested permit, seeking to modify the effluent limits for EC and SAR based on a Section 20 Analysis, but not the effluent limit and monitoring requirement for TDS.

On or about June 16, 2008, DEQ published notice of opportunity for public comment on the proposed modification of the contested permit with modified effluent limits based on the Section 20 Analysis. The DEQ received no comments on the

proposed modification of Renewal Permit No. WY0049271 during the public comment period, which closed on July 17, 2008. Although no comments on the proposed modification of the contested permit were received during the public comment period, DEQ, through counsel, informed Yates that DEQ would add some language for SAR to the Statement of Basis (p.5) and Part I.A.2.c. (p.7) before issuing the modified permit.

Chapter I, Section 11(a) of the DEQ Rules of Practice & Procedure provides for disposition of contested cases by stipulation of the parties upon approval of the EQC. Yates and the DEQ now jointly stipulate to the following terms for disposition of this contested case prior to hearing:


1. Having received no comments, the DEQ will issue the modification of permit number WY0049271 in the form ("4-30A-2008") which is attached hereto, when this Joint Stipulation has been signed on behalf of the parties and filed with the EQC.
2. Modified Permit No. WY0049271 ("4-30A-2008") shall become effective on the date of signature by the Director of the DEQ, and shall supersede and replace the contested permit.
3. Yates shall be bound by the terms of Modified Permit No. WY0049271 ("4-30A-2008") while it remains in effect.
4. Upon issuance of Modified Permit No. WY0049271 ("4-30A-2008"), Yates' pending Notice of Appeal and Request for Hearing concerning the contested permit before the EQC (Docket No. 07-3621) shall be deemed withdrawn.
5. Yates and the DEQ agree that the stipulated withdrawal and dismissal of this contested case should not be considered an adjudicated determination on the merits of the issues raised in Yates' Notice of Appeal and Request for Hearing, and both parties

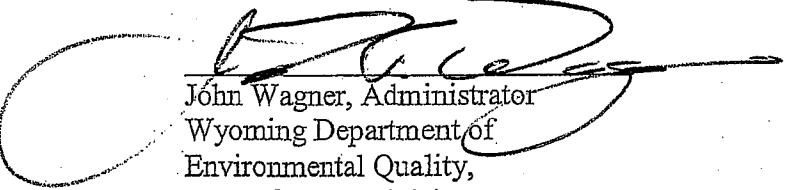
reserve the right to assert their respective positions on such issues in a future proceeding before the EQC, if any.


6. The parties request that the EQC enter an Order dismissing Yates' pending Notice of Appeal and Request for Hearing on contested Renewal Permit No. WY0049271 based on this Joint Stipulation for Withdrawal and Dismissal of Appeal.

7. Each party shall bear its own costs and attorney fees incurred through the EQC's entry of an Order dismissing Yates' pending Notice of Appeal and Request for Hearing.

DATED this 12th day of September, 2008.

 FOR
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Wyoming Department of Environmental Quality
Water Quality Division
WYPDES Program

STATEMENT OF BASIS

Major Modification

APPLICANT NAME: Yates Petroleum Corporation

MAILING ADDRESS: 105 South 4th Street
Artesia, NM 88210

FACILITY LOCATION: Taylor - Wild Horse Creek, which is located in the SWSE and SESE, Section 2, Township 53 North, Range 76 West, and the SESE, Section 34, Township 54 North, Range 76 West, Campbell County. The produced water will be discharged to unnamed, ephemeral tributaries (class 3B) of Wild Horse Creek (class 3B), which is tributary to the Powder River (class 2ABWW). The permit requires that the produced water being discharged from this facility originate from the Anderson, Upper and Lower Canyon, and/or Wall coal seams.

PERMIT NUMBER: WY0049271

All terms and conditions of permit WY0049271 have been updated in accordance with current WDEQ permitting requirements during the renewal process. In addition, the permittee has requested that the following modifications be made to this permit:

- 1. The effluent limits and routine end-of-pipe monitoring requirements for total petroleum hydrocarbons, sulfate, and manganese are removed from this permit according to current permitting practices.*
- 2. The effluent limit and monitoring requirement for iron are updated in accordance with the WDEQ's current distance-based permitting approach for this constituent.*
- 3. Irrigation protection effluent limit and monitoring requirements are updated in accordance with current WDEQ permitting practices.*

With the exception of items explicitly delineated in this major modification, all terms and conditions of Permit No. WY0049271, including Parts II and III of the renewed permit, shall remain unchanged and in full force.

General Facility Description

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 effluent

limits established in this permit are based upon Chapters 1 and 2 of the Wyoming Water Quality Rules and Regulations and other evaluations conducted by WDEQ related to this industry. 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.

Facility Description

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 monitoring point (IMP1 listed in Table 1 of the permit below). The irrigation monitoring point is a designated monitoring location prior to the first downstream point of irrigation diversion/use on Wild Horse Creek from the permitted facility. An IMP differs from an irrigation compliance point (ICP) in that the IMP does not establish effluent limits. IMP sampling is for data-gathering purposes only.

This CBM facility is located approximately 16 stream miles from the Powder River. The permit establishes a tributary monitoring station on Wild Horse Creek (TRIB1) which will serve to monitor any CBM flows from this facility to the Powder River.

The permittee is required to contain all effluent from outfalls 001-003 in a series of on-channel reservoirs at this facility, unless prior written authorization is granted by the WYPDES program for a reservoir release, in association with use of assimilative capacity credits for the Powder River Basin. In the event that such an authorization for release is granted for this facility, the authorization letter will specify the release volume, duration and individual reservoir(s) covered. In the absence of such written authorization for release, the following containment requirements will apply at the reservoirs: the permittee will be required to contain all produced water within all on-channel reservoirs during "dry" operating conditions and discharge of effluent from the reservoirs, except during periods of time in which natural precipitation causes the reservoirs to overtop and spill, is prohibited. Intentional or draw-down type releases from the reservoirs will constitute a violation of this permit. Discharge from the reservoirs is limited by the permit to natural overtopping and shall not extend beyond a 48 hour period following commencement of natural overtopping. It is the responsibility of the permittee to adequately demonstrate the circumstances in which reservoir discharges occurred, if requested to do so by the WYPDES Program.

Effluent Limits and Monitoring Requirements

Effluent Limits: Permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. Permit limits are applicable to all permitted outfalls unless otherwise indicated. The permit requires that the pH must remain within 6.5 and 9.0 standard units. The pH limit are based on water quality standards established in Chapter 2 of the *Wyoming Water Quality Rules and Regulations*, in order to protect for livestock and wildlife consumption. The permit also establishes a total recoverable barium limit of 1800 µg/l and a total recoverable arsenic limit of 8.4 µg/l. These limits are based on Water Quality Criteria as established in the *Wyoming Water Quality Rules and Regulations, Chapter 1*, for Human

Health values. In addition, the permit establishes a chloride limit of 150 mg/l, which is based on Water Quality Criteria as established in the *Wyoming Water Quality Rules and Regulations*, Chapter 1, for chronic aquatic life protection values. The limits established in this permit for metals and chlorides reflect the application of the antidegradation provisions required under the *Wyoming Water Quality Rules and Regulations*, Chapter 1. In addition, the permit establishes a dissolved iron limit of 1000 µg/l. The dissolved iron effluent limit is based upon chronic aquatic life protection for class 3B waters, and does not consider the antidegradation provisions under Chapter 1 of the *Wyoming Water Quality Rules and Regulations*, as dissolved iron has been determined to be a non-persistent pollutant, and all the outfalls being authorized for discharge in this permit are located more than one stream mile from confluence with the nearest class 2 water, in this case, the Powder River. This approach reflects current WYPDES permitting practice in regards to establishing dissolved iron effluent limits in CBM surface discharge permits. Based upon the results of the initial monitoring, this permit may be reopened and more stringent limits and/or monitoring and reporting required.

All limits described in this section are intended to protect for the above listed designated uses, on both the immediate receiving water and the perennial mainstem, and apply at the end of pipe.

This permit originally established a chlorides effluent limit of 46 mg/l at all outfalls. Based on WQD's evaluation of new water quality information, which was not available at the time original permit issuance, this effluent limit has been revised to 150 mg/l as listed in Part I of the permit below. Also, this permit originally established a total radium 226 limit of 1 pCi/l, a dissolved manganese of 629 µg/l, a sulfates of 3000 mg/l, and total petroleum hydrocarbons (TPH) limit of 10 mg/l at the end of pipe. Based upon water quality data collected by WDEQ since the time this permit was originally issued, a permitting approach for establishing total radium limits in coal bed methane permits has been developed. This approach is based upon the distance of the outfall from a class 2 water. The removal of the originally established total radium 226 limit is based on this permitting approach. In addition, a review of discharge monitoring report data for this facility and other CBM facilities in Northeast Wyoming indicates that the maximum reported concentrations for dissolved manganese, sulfates, and total petroleum hydrocarbons (TPH) in the discharge were well below the water quality standard of 629 µg/l of dissolved manganese, 3000 mg/l of sulfates, and 10 mg/l established in *Chapter 1 of the Wyoming Water Quality Rules and Regulations*. Therefore, WDEQ has removed the effluent limit and routine monitoring requirements for dissolved manganese, sulfates, and TPH in this permit. Based on evaluation of the available data that was not available at the time of permit issuance, it is WDEQ's determination that removing the total radium 226, dissolved manganese, sulfates and total petroleum hydrocarbons limits from this permit conforms to the anti-backsliding requirements established in *Section 402(o).2.B.4 of the Clean Water Act*.

Irrigation Use Protection: This permit authorizes discharges from outfalls that are located above known irrigation activity in Wild Horse Creek drainage. In order to monitor and regulate coal bed methane discharge for compliance with Chapter 1, Section 20 of the Wyoming Water Quality Rules and Regulations (protection of agricultural water supply), an end-of-pipe effluent limit for specific conductance (EC) is included in this permit. In addition, this permit requires monitoring for EC and SAR at the established irrigation monitoring point (IMP1).

The Wyoming DEQ has determined that an end-of-pipe specific conductance effluent limit of 2,560 micromhos/cm is appropriate for protection of agricultural uses in the Wild Horse Creek drainage. This effluent limit was derived using soil salinity data submitted with the original application for WY0051985

Statement of Basis

(Section 20 Compliance Analysis for Proposed Discharges by Petro-Canada to Wild Horse Creek, Campbell County, WY; KC Harvey, LLC, November 2005) and supplemental information permit application for WY0056031 (Section 20 Compliance Analysis for Proposed Discharges by Williams Production to Wild Horse Creek, Campbell County, WY; KC Harvey, LLC, July 2007).

The end-of-pipe specific conductance limit of 2,560 micromhos/cm was derived through evaluation of the average soil electrical conductivity in the sampled irrigated fields. The average soil EC within the irrigated areas was measured at 4,220 micromhos/cm, with a 95 % confidence interval of +/- 369 micromhos/cm. This means that while the sampled population indicates a mean soil EC of 4,220 micromhos/cm, the actual mean soil EC for all fields likely falls within the range of 3,851 to 4,589 micromhos/cm. For the purpose of introducing a margin of conservatism into the irrigation effluent limit calculations for this permit, the lower value (3,851 micromhos/cm) was assumed to be the actual mean soil EC for the downstream irrigated fields. In calculating an end-of-pipe effluent limit for EC that will maintain a mean soil EC of 3,851 micromhos/cm in the downstream irrigated fields, USDA recommends dividing the soil EC by 1.5 to estimate allowable salinity in the applied water (*Agricultural Salinity and Drainage, Hanson et al., 1999 revision*). This results in an end-of-pipe specific conductance effluent limit of 2,560 micromhos/cm, which is established at each outfall authorized under this permit that is located upstream of irrigation activity, and is effective year-round.

As stated above, in addition to the end-of-pipe EC limit, this permit requires monitoring for EC and SAR at the designated irrigation monitoring point (IMP1). The Wyoming DEQ has determined that, in this drainage, it is appropriate to establish an EC threshold at the IMP that is equivalent to the calculated average soil EC within the irrigated areas (4,220 micromhos/cm, based on the studies referenced above) divided by 1.5 to estimate allowable salinity in the applied water (based on USDA recommendation cited above). This results in an instream EC threshold of 2,800 micromhos/cm at the IMP, which represents the estimated background salinity of the historically-applied irrigation water in the Wild Horse Creek drainage, and therefore is the target water quality value that the Wyoming DEQ has determined should be achieved at the IMP. The permittee will be required to monitor at the irrigation monitoring point(s) downstream of the on-channel reservoirs at this facility for compliance with the 2,800 micromhos/cm threshold, as well as for compliance with a chemical relationship between EC and SAR, described in detail below under "Monitoring and Reporting Requirements".

Monitoring and Reporting Requirements: The permit requires daily monitoring on the receiving stream below the outfalls in order to determine whether effluent discharged from the outfalls reaches the established irrigation monitoring point (IMP1, listed in Table 1 of the permit below). Daily monitoring is necessary because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation monitoring point(s). Once effluent flow at the irrigation monitoring point(s) has been documented within a sampling month, then weekly monitoring of flow at the IMP(s) is required for the remainder of that calendar month. At the beginning of each calendar month, the monitoring frequency will revert to daily until such time as effluent flow occurs at the irrigation monitoring point(s) and a sample is collected to represent effluent quality for irrigation monitoring point constituents. Results are to be reported twice-yearly and if no effluent from this facility reaches the irrigation monitoring point(s) during an entire sampling month, then "no discharge" is to be reported for the IMP that month. The IMP is not a compliance point. It is intended only as a location to gather downstream water quality data.

Data collected at location IMP1 will be evaluated by WDEQ on an ongoing basis in order to determine if effluent from this facility conforms to the following chemical characteristics at the IMP location:

$$EC < 2,800 \text{ micromhos/cm (= 2.80 dS/m)}$$

and

$$*SAR < 7.10 \times EC - 2.48$$

(*where "SAR" represents sodium adsorption ratio and "EC" represents specific conductance of the IMP sample in dS/m).

In the event that overtopping or a release from a reservoir that receives discharges from the permittee's outfall(s) is contributing to flow at station IMP1, and the IMP sample exceeds the SAR threshold listed above, then WDEQ may re-open the permit and add an effluent limit for SAR at the outfall(s) discharging to such reservoir. In any case, where the IMP samples (minimum of 5 samples) exceed the above SAR threshold in 50% or more of the sampled flow events during any continuous 12-month period, then, upon written notification to the permittee, the above SAR threshold ($SAR < 7.10 \times EC - 2.48$) will automatically become an effluent limit at each outfall discharging to such reservoir. .

The permit also requires sampling at a designated tributary water quality monitoring station located on Wild Horse Creek, and at two mainstem water quality monitoring locations on the Powder River upstream and downstream of the confluence of Wild Horse Creek and the Powder River. Water quality monitoring stations on the Powder River must 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. If flow occurs at the tributary water quality monitoring station (TRIB1, location listed in Table 1 of the permit) 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 associated mainstem 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 tributary water quality monitoring station. If no flow at all occurs at the tributary water quality monitoring station designated as "TRIB1" for an entire monthly monitoring period, then "no flow" is to be reported and samples need not be collected at the associated mainstem and tributary water quality monitoring stations for that monthly monitoring period.

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.

Kathy Shreve
Water Quality Division
Department of Environmental Quality
September 13, 2002

Statement of Basis

Major Modification
Bob Alexander
Water Quality Division
Department of Environmental Quality
Drafted June 8, 2006

Dena Hicks
Water Quality Division
Department of Environmental Quality
Drafted: May 22, 2007

Major Modification
Bob Alexander
Water Quality Division
Department of Environmental Quality
Drafted May 31, 2008

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,

Yates Petroleum Corporation

is authorized to discharge from the wastewater treatment facilities serving the

Taylor - Wild Horse Creek CBM Facility

located in

the SWSE and SESE, Section 2, Township 53 North, Range 76 West, and the SESE, Section 34, Township 54 North, Range 76 West, Campbell County.

to receiving waters named

unnamed, ephemeral tributaries (3B) of Wild Horse Creek (3B), which 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 major modification shall become effective on the date of signature by the Director of the Department of Environmental Quality. *With the exception of items explicitly delineated in this major modification, all terms and conditions of permit WY0049271, including Parts II and III of the original permit, shall remain unchanged and in full force and effect.*

This permit and the authorization to discharge shall expire December 31, 2010, at midnight.

John F. Wagner
Administrator - Water Quality

Date

John V. Corra
Director - Department of Environmental Quality

Date

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Effective immediately, and lasting through December 31, 2010, 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 outfall(s) serial numbers 001 – 003.

1. **Such discharges shall be limited as specified below:**

Effluent Limits

<u>Effluent Characteristic</u>	<u>Daily Maximum Outfall</u>
Chlorides, mg/l	150
Dissolved Iron, µg/l	1000
pH, standard units	6.5 – 9.0
Specific Conductance, micromhos/cm	2560
Total Recoverable Arsenic, µg/l	8.4
Total Recoverable Barium, µg/l	1800

Note: 1) 'Dissolved' value for metals refers to the amount that will pass through a 0.45 µm membrane filter prior to acidification to 1.5-2.0 with Nitric Acid.

2) 'Total' value for metals refers to the total recoverable amount of that metal in the water column.

The permittee is required to contain all effluent from outfalls 001-003 in a series of on-channel reservoirs at this facility, unless prior written authorization is granted by the WYPDES program for a reservoir release, in association with use of assimilative capacity credits for the Powder River Basin. In the event that such an authorization for release is granted for this facility, the authorization letter will specify the release volume, duration and individual reservoir(s) covered. In the absence of such written authorization for release, the following containment requirements will apply at the reservoirs: the permittee will be required to contain all produced water within all on-channel reservoirs during "dry" operating conditions and discharge of effluent from the reservoirs, except during periods of time in which natural precipitation causes the reservoirs to overtop and spill, is prohibited. Intentional or draw-down type releases from the reservoirs will constitute a violation of this permit. Discharge from the reservoirs is limited by the permit to natural overtopping and shall not extend beyond a 48 hour period following commencement of natural overtopping. It is the responsibility of the permittee to adequately demonstrate the circumstances in which reservoir discharges occurred, if requested to do so by the WYPDES Program.

The permit requires that the produced water being discharged by this facility originate in one or more of the following formations: the Anderson, Upper and Lower Canyon, and/or Wall coal seams.

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

Information gathered from the water quality monitoring stations and irrigation monitoring points may result in modification of the permit, in accordance with Part III.A.3 of the permit below, to protect existing uses on the tributary and the mainstem. In addition, WQD may re-open and modify this permit, in accordance with Part III.A.3, in the event that additional or more stringent conditions are determined by WQD to be necessary for control of erosion downstream of the discharges within the Wild Horse Creek drainage.

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.

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

a. Monitoring of the initial discharge

Note: The initial monitoring requirement described below will not apply to outfalls which have already undergone sampling for these parameters under previous permit coverage.

Within 60 days of commencement of discharge following issuance of this permit renewal, a sample shall be collected from each outfall ***that has not previously been sampled for initial monitoring*** and analyzed for the 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 constituents listed below. 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.

Parameter* (See notes following the table on chemical states)	Required Detection Limits and Required Units
Alkalinity, Total	1 mg/l as CaCO ₃
Aluminum, Dissolved	50 µg/l
Arsenic, Total Recoverable	1 µg/l
Barium, Total Recoverable	100 µg/l
Bicarbonate	10 mg/l
Cadmium, Dissolved	5 µg/l
Calcium, Dissolved	50 µg/l, report as mg/l
Chloride	5 mg/l
Copper, Dissolved	10 µg/l
Dissolved Solids, Total	5 mg/l
Fluoride, Dissolved	100 µg/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 mg/l
Manganese, Dissolved	50 µg/l
Mercury, Dissolved	1 µg/l
pH	to 0.1 pH unit
Radium 226, Total Recoverable	0.2 pCi/l
Selenium, Total Recoverable	5 µg/l
Sodium Adsorption Ratio	Calculated as unadjusted ratio
Sodium, Dissolved	100 µg/l, report as mg/l
Specific Conductance	5 micromhos/cm
Sulfate	10 mg/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
1595 Wynkoop Street
Denver, CO 80202-1129

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 – 001-003

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)	Annually	Grab
Dissolved calcium (mg/l)	Monthly	Grab
Chloride (mg/l)	Annually	Grab
Dissolved Iron (µg/l)	Annually	Grab
Dissolved Magnesium (mg/l)	Monthly	Grab
pH (standard units)	Once Every Six Months	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Sodium Adsorption Ratio (unadjusted)	Monthly	Calculated
Specific Conductance (micromhos/cm)	Monthly	Grab
Total Alkalinity (mg/l)	Annually	Grab
Total Recoverable Arsenic (µg/l)	Annually	Grab
Total Recoverable Barium (µg/l)	Annually	Grab
Total Flow - (MGD)	Monthly	Continuous
Total Dissolved Solids (mg/l)	Monthly	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.

c. Irrigation Monitoring Points –IMP1

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 the outfalls reaches the irrigation monitoring point. Monitoring will be based on monthly time frames and reported semi-annually.

Parameter	Measurement Frequency	Sample Type
Dissolved Calcium, mg/l	Monthly	Grab
Dissolved Magnesium, mg/l	Monthly	Grab
Dissolved Sodium, mg/l	Monthly	Grab
Sodium Adsorption Ratio, unadjusted	Monthly	Calculated
Specific Conductance, μ mhos/cm	Monthly	Grab
Bicarbonate, mg/l as CaCO ₃	Monthly	Grab
Flow, MGD	Monthly	Instantaneous

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the irrigation monitoring points which are located as described in Table 1 of the permit below.

The permit requires daily monitoring on Wild Horse Creek below the outfalls in order to determine whether effluent discharged from the outfalls reaches the established irrigation monitoring point (IMP1 listed in Table 1 of the permit below). Daily monitoring is necessary because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation monitoring point(s). Once effluent flow at the irrigation monitoring point(s) has been documented within a sampling month, then weekly monitoring of flow at the IMP is required for the remainder of that calendar month. At the beginning of each calendar month, the monitoring frequency will revert to daily until such time as effluent flow occurs at the irrigation monitoring point(s) and a sample is collected to represent effluent quality for irrigation monitoring point constituents. Results are to be reported twice-yearly and if no effluent from this facility reaches the irrigation monitoring point(s) during an entire sampling month, then "no discharge" is to be reported for the IMP(s) that month. The IMP is not a compliance point. It is intended only as a location to gather downstream water quality data.

Data collected at location IMP1 will be evaluated by WDEQ on an ongoing basis in order to determine if effluent from this facility conforms to the following chemical characteristics at the IMP location:

EC < 2,800 micromhos/cm (= 2.80 dS/m)

and

*SAR < 7.10 x EC – 2.48

(*where “SAR” represents sodium adsorption ratio, and “EC” represents specific conductance of the IMP sample in dS/m).

In the event that overtopping or a release from a reservoir that receives discharges from the permittee’s outfall(s) is contributing to flow at station IMP1, and the IMP sample exceeds the SAR threshold listed above, then WDEQ may re-open the permit and add an effluent limit for SAR at the outfall(s) discharging to such reservoir. In any case, where the IMP samples (minimum of 5 samples) exceed the above SAR threshold in 50% or more of the sampled flow events during any continuous 12-month period, then, upon written notification to the permittee, the above SAR threshold (SAR < 7.10 x EC – 2.48) will automatically become an effluent limit at each outfall discharging to such reservoir. .

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 Magnesium (mg/l)	Monthly	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Sodium Adsorption Ratio (calculated as unadjusted ratio)	Monthly	Calculated
Specific Conductance (micromhos/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, Part I.B.13 of the permit below for water quality monitoring station 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, Part I.B.12. 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 adsorption 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 monitoring 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 following the issuance of this renewal is due on February 15, 2009.

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 at the outlet of each receiving reservoir listed in Table 1 below. This sign shall, at 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 (as identified in this WYPDES permit). In addition, all outfall signs will include the outfall number. Reservoir signs are separate from the outfall signs, and are to be located at the outlet of the reservoir. Reservoir signs must include the information listed in items a and b above, in addition to the reservoir name, as identified in Table 1 below.

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, Irrigation Monitoring Point and stream monitoring points**

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

Table 1: WY0049271 Taylor-Wild Horse Creek

Out-fall	Qtr/Qtr	SEC-TION	TWP (N)	RNG (W)	LATITUDE	LONGITUDE	Drainage / Description	Groundwater approval required prior to Discharge?	Reservoir Bond to WDEQ Required prior to Discharge?
*001	SWSE	2	53	76	44.59541	-105.96678	Powder River (2ABWW), via an unnamed, ephemeral tributary (3B) of Wild Horse Creek (3B) via an on-channel reservoir "Tiffany" (3B)	No	YES
002	SESE	34	54	76	44.60717	-105.98530	Powder River (2ABWW), via an unnamed, ephemeral tributary (3B) of Wild Horse Creek (3B) via an on-channel reservoir "Faist" (3B)	YES	YES
003	SESE	2	53	76	44.59416	-105.96284	Powder River (2ABWW), via an unnamed, ephemeral tributary (3B) of Wild Horse Creek (3B) via an on-channel reservoir "Hem Haw" (3B)	YES	NO
IMP1	NESE	32	54	76	44.61220	-106.02453	Irrigation Monitoring Point on unnamed ephemeral tributary to Wild Horse Creek. Serves outfalls 001-003.	N/A	N/A
TRIB1	SESE	16	54	77	44.65044	-106.12215	Tributary monitoring station on Wild Horse Creek	N/A	N/A
UPR	SWSE	16	54	77	44.65036	-106.12836	Upstream Powder River monitoring station (above Wild Horse Creek)	N/A	N/A
DPR	NWSE	34	55	77	44.69695	-106.11294	Downstream Powder River monitoring station (below Wild Horse Creek)	N/A	N/A

* Location is verified by WDEQ GPS field data using NAD83.

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. 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 WQD.

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.

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.