

Wyoming Department of Environmental Quality
Water Quality Division
WYPDES Program

STATEMENT OF BASIS

Major Modification

APPLICANT NAME: Pennaco Energy, Inc.

MAILING ADDRESS: 3601 Southern Drive
Gillette, WY 82718

FACILITY LOCATION: Wild Horse Creek - Kingsbury Project, which is located in the SWSE and NWSW, Section 20, the SENW and SWNE, Section 21, the SESW, NWSE, and SESE, Section 22, the NWSE and SWSE, Section 23, the NESW, Section 24, the NWSE, SENE, and NENW, Section 25, the NENE, NWNE, NWNW, NESE, SWSW, and NWSE, Section 26, the SENW, SWNW, SWNE, and SESW, Section 27, the NWNW, SWNW and SWSW, Section 28, the SENW, Section 29, the SENW and SWNW, Section 32, the NWNW, SENE, SESW, and NWSE, Section 34, the NWNW, NWSE, and SWSW, Section 35, Township 50 North, Range 74 West, and the NWSW, Section 19, Township 50 North, Range 73 West, and the NWNW, Section 2, Township 49 West, Range 74 West, Campbell County. The produced water will be discharged into on-channel reservoirs located on various named and unnamed tributaries (3B) of an directly to Kingsbury Creek (3B), East Fork, Wild Horse Creek (3B), and Wild Horse Creek (3B), which are all tributary to the Powder River (2ABWW), via Wild Horse Creek (3B). The permit establishes a total maximum daily flow rate of 3.5 MGD, which is 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 Anderson and/or Wall coal seams.

NUMBER: WY0051012

Upon approval of this modification, the terms of permit WY0051012 are hereby modified as follows:

1. *Add one new outfall (041);*
2. *Add one new well;*
3. *Add the Cook and Canyon coal seams to 13 wells currently permitted to this facility; Documentation submitted by the permittee indicate discharge quality will not adversely affected by the addition of the coal seams;*
4. *In accordance with current WDEQ policy, the effluent limit and monitoring requirements for total petroleum hydrocarbons (TPH) are removed;*
5. *Current outfall relocation language is added which establishes conditions that must be met in order for the permittee to relocate an outfall;*
6. *The radium²²⁶ effluent limit is updated to reflect current WDEQ permitting approaches.*

With the exception of items explicitly delineated in the major modification, all terms and conditions of permit WY0051012, including Parts II and III of the original permit, shall remain unchanged and in full force and effect.

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 judgment 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 to enhance 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. Based on a review of this permit application and previous applications in this tributary drainage, it has been determined that active irrigation uses of surface water occur downstream from this facility on Wild Horse Creek. 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 judgment. These limits satisfy provisions under Chapter 1, Section 20 (protection of agricultural water supply) of the Wyoming Water Quality Rules and Regulations.

The Wyoming DEQ has determined through review of the permit application and available scientific information that effluent discharged from this facility will be put to beneficial use and is unlikely to reach the Powder River. The permittee has submitted certified statements that demonstrate discharged effluent will be put to beneficial use for livestock and wildlife watering. Although most of the discharge will be used by wildlife and livestock, a portion of the flow may also be lost due to stream channel infiltration. Information gathered from Western Land Services, Sheridan Wyoming (April 19, 2001) and Hydrologic Consultants, Inc. (2001) indicate a mean channel infiltration loss rate for ephemeral drainages in the Powder River at 0.1 cfs per mile of stream channel. Review of the permit application reveals that this facility is located approximately 36 miles from the confluence with the Powder River. Maximum total effluent flow rate from this facility is estimated at 5.43 cfs. However, in the event that produced water does reach the Powder River, 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. This permit originally established a total radium 226 limit of 1 pCi/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 total petroleum hydrocarbons (TPH) in the discharge were well below the water quality standard of 10 mg/l established in Chapter 1 of the Wyoming Water Quality Rules and Regulations. Therefore, WDEQ has removed the effluent limit and monitoring requirements for TPH in this permit. Based on evaluation of the available data, it is WDEQ's determination that modifying the total radium 226 and removing 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. The pH must remain within 6.5 and 9.0 standard units. Effluent limits for total dissolved solids (5,000 mg/l), specific conductance (7500), 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 2 and apply to discharge from any permitted outfall. In addition, the permit establishes a radium 226 limit of 1 pCi/l, a dissolved manganese limit of 629 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 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. The permit also establishes a dissolved iron limit of 1000 µg/l, which is based on chronic aquatic life standards for class 3B waters, and applies to discharge from any permitted outfall. Because the permittee's impact analysis was based upon water quality representative of produced waters originating in the following coal seams—the Anderson, Wall/Pawnee, Cook and Canyon and an estimated discharge volume of 3.5 MGD, the permit establishes a total maximum daily flow limit of 3.5 MGD, which is to be calculated as the sum of all discharge from all permitted outfalls, and requires that the produced water being discharged at this facility originate in one or more of the following formations – the Anderson, Wall/Pawnee, Cook and Canyon coal seams.

Results are to be reported twice-yearly and if no discharge occurs 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.

The permittee has committed to containment of the CBM produced water in various on-channel reservoirs (See Table 1, Part I). Discharge of effluent from the reservoirs is not authorized unless runoff from a storm greater than a 2 year, 24-hour storm event exceeds reservoir capacity, and causes the reservoirs to overtop and spill. Irrigation compliance point limits are in effect year-round, due to the downstream irrigator's limited ability to divert flow in the stream channel away from the fields under irrigation. During storm events, reservoir water is to be released at a rate which does not cause significant erosion to the channel or receiving lands.

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. In addition, information from the Section 20 Analyses submitted in support of WYPDES permits WY0047805 and WY0047759 provided information used in establishment of the SAR limit of 6 and is intended to be protective of irrigation uses in the Wild Horse Creek drainage. 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.

The permit requires daily monitoring on Wild Horse Creek to determine whether water discharged from the outfalls reaches the established irrigation compliance point, located in the SESE, Section 31, Township 51 North, Range 74 West, on Wild Horse Creek (see Table 1). Daily monitoring is necessary because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation compliance point. Once flow at the irrigation compliance point has been documented within a sampling month, then weekly monitoring of

flow is required for the month. At the beginning of each calendar month, the frequency will revert to daily until such time as flow occurs at the irrigation compliance point and a sample is collected to represent effluent quality for irrigation compliance point constituents for that month. Effluent samples must be collected on a weekly basis if flow persists at the irrigation compliance point for 24 hours or more. Results are to be reported twice-yearly and if no flow occurs then "no discharge" is to be reported. Should the permittee be able to substantively document that discharges from this facility did not contribute to flows at the ICP at any time during the monitoring period in question, the permittee may report "did not contribute" on the discharge monitoring reports for the monitoring period in question, and is not required to collect samples at the irrigation compliance point for the monitoring period in question. In such cases, the permittee is required to submit copies of the documentation verifying non-contribution in conjunction with the discharge monitoring reports for the monitoring period in question.

The permit also requires sampling at designated water quality monitoring stations located as follows – the tributary monitoring station is to be located in SESE, Section 16, Township 51 North, Range 74 West, on Wild Horse Creek, and the mainstem monitoring stations are to be located in the SWSE and NESE, Section 16, Township 54 North, Range 77 West, upstream and downstream (respectively) of the Wild Horse Creek – Powder River confluence, in the main channel of the Powder River (see Table 1). Effluent samples at the designated water quality monitoring stations must be collected on a monthly basis and are to be reported semiannually. If no flow occurs at the tributary monitoring station on Wild Horse Creek then "no discharge" is to be reported and samples need not be collected at the three water quality monitoring stations for that monthly sampling period. Should the permittee be able to substantively document that discharges from this facility did not contribute to flows at the tributary monitoring station located on Wild Horse Creek at any time during the monitoring period in question, the permittee may report "did not contribute" on the discharge monitoring reports for the monitoring period in question, and is not required to collect samples at the irrigation compliance point for the monitoring period in question. In such cases, the permittee is required to submit copies of the documentation verifying non-contribution in conjunction with the discharge monitoring reports for the monitoring period in question. At the designated water quality monitoring stations, monitoring will be required for calcium, chlorides, 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.

Established water quality monitoring stations on the mainstem are to be located outside the mixing zone of the tributary with the mainstem.

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 January 31, 2009.

Kathy Shreve
Water Quality Division
Department of Environmental Quality
Drafted: November 21, 2003
Major Modification – Bob Alexander – June 21, 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,

Pennaco Energy, Inc.

is authorized to discharge from the wastewater treatment facilities serving the

Wild Horse Creek – Kingsbury Project

located in

SWSE and NWSW, Section 20, the SENW and SWNE, Section 21, the SESW, NWSE, and SESE, Section 22, the NWSE and SWSE, Section 23, the NESW, Section 24, the NWSE, SENE, and NENW, Section 25, the NENE, NWNW, NESE, SWSW, and NWSE, Section 26, the SENW, SWNW, SWNE, and SESW, Section 27, the NWNW, SWNW and SWSW, Section 28, the SENW, Section 29, the SENW and SWNW, Section 32, the NWNW, SENE, SESW, and NWSE, Section 34, the NWNW, NWSE, and SWSW, Section 35, Township 50 North, Range 74 West, and the NWSW, Section 19, Township 50 North, Range 73 West, and the NWNW, Section 2, Township 49 West, Range 74 West, Campbell County.

to receiving waters named

various on-channel reservoirs located on several named and unnamed tributaries (3B) of an directly to Kingsbury Creek (3B), East Fork, Wild Horse Creek (3B), and Wild Horse Creek (3B), which are all tributary to the Powder River (2ABWW), via Wild Horse Creek (3B).

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

This permit became effective on February 24, 2004. This 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 the major modification, all terms and conditions of permit WY0051012, 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 January 31, 2009 at midnight.



John F. Wagner
Administrator - Water Quality

10/26/05

Date



John V. Corra
Director - Department of Environmental Quality

10/27/05

Date

PART IA. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Effective immediately and lasting through January 31, 2009, the quality of effluent discharged by the permittee shall, at a minimum, meet the limitations set forth below. The permittee is authorized to discharge from outfalls(s) serial number 001- 041.

1. Such discharges shall be limited as specified below:

<u>Effluent Characteristic</u>	<u>Effluent Limits</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	629	
pH, standard units	6.5 – 9.0	
Specific Conductance, micromhos/cm	7500	2000
Sulfates, mg/l	3000	
Total Arsenic, µg/l	7	
Total Barium, µg/l	1800	
Total Dissolved Solids, mg/l	5000	
Sodium Absorption Ratio		6
Total Flow, MGD*	3.5	

*Total Flow is to be calculated as the sum of all discharge from all permitted outfalls. The produced water being discharged from this facility is to originate in one or more of the following formations – the Anderson, Wall, Canyon, and/or Pawnee coal seams.

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

The permittee may, if so desired, discharge produced water from any of the 117 wells authorized for discharge under this facility at any permitted outfall, as long as all permit limits and requirements can be met.

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.

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, streambeds, 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.

The permittee has committed to containment of the CBM produced water in various on-channel reservoirs (See Table 1, Part I). Discharge of effluent from the reservoirs is not authorized unless runoff from a storm greater than a 2 year, 24-hour storm event exceeds reservoir capacity, and causes the reservoirs to overtop and spill. Irrigation compliance point limits are in effect year-round, due to the downstream irrigator's limited ability to divert flow in the stream channel away from the fields under irrigation. During storm events, reservoir water is to be released at a rate which does not cause significant erosion to the channel or receiving lands.

2. 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 outfall 041 and analyzed for all constituents specified below, at the required detection limits. ***Outfalls 001-040 have already submitted initial monitoring reports since the issuance of this permit, and do not need to resubmit upon approval of this major modification.*** 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. 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 Limit	Sample Type
Total Aluminum	50 µg/l	Grab
Dissolved Cadmium	0.1 µg/l	Grab
Dissolved Calcium	as meq/l	Grab
Chlorides	5 mg/l	Grab
Dissolved Copper	1 µg/l	Grab
Dissolved Iron	30 µg/l	Grab
Dissolved Manganese	10 µg/l	Grab
Flow Volume	10% of actual volume	Monthly Total
Total Hardness	10 mg/l as CaCO ₃	Grab
Dissolved Lead	2 µg/l	Grab
Dissolved Magnesium	as meq/l	Grab

<u>Parameter</u> (See notes following the table on chemical states)	<u>Required Detection Limit</u>	<u>Sample Type</u>
Dissolved Mercury	0.06 µg/l	Grab
pH	to 0.1 pH unit	Grab
Total Radium 226	0.2 pCi/l	Grab
Total Selenium	5 µg/l	Grab
Dissolved Sodium	as meq/l	Grab
Sodium Absorption Ratio	not applicable	Calculated
Specific Conductance	5 micromhos/cm	Grab
Sulfates	10 mg/l	Grab
Total Alkalinity	1 mg/l as CaCO ₃	Grab
Total Arsenic	1 µg/l	Grab
Total Barium	100 µg/l	Grab
Total Beryllium	0.03 µg/l	Grab
Dissolved Zinc	10 µg/l	Grab
Bicarbonate	1 mg/l	Grab
Total Dissolved Solids	5 mg/l	Grab

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: Volume 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.

*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.

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 – 001-041

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	Monthly	Grab
Dissolved Calcium	Monthly	Grab
Chloride	Annually	Grab
Dissolved Iron	Annually	Grab
Dissolved Manganese	Annually	Grab
Dissolved Magnesium	Monthly	Grab
pH	Once Every Six Months	Grab
Radium 226	Annually	Grab
Dissolved Sodium	Monthly	Grab
Sodium Adsorption Ratio	Monthly	Calculated
Specific Conductance	Monthly	Grab
Sulfate	Annually	Grab
Total Alkalinity	Once Every Six Months	Grab
Total Arsenic	Annually	Grab
Total Barium	Annually	Grab
Total Flow - (MGD)	Monthly	Continuous

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 the outfalls reaches the irrigation compliance point. Limits at the irrigation compliance point are effective year round. Monitoring will be based on monthly time frames and reported semi-annually.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Dissolved Calcium	Monthly	Grab
Dissolved Magnesium	Monthly	Grab
Dissolved Sodium	Monthly	Grab
Sodium Adsorption Ratio	Monthly	Calculated
Specific Conductance	Monthly	Grab
Total 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 compliance point(s) which are located as follows: in the SESE, Section 31, Township 51 North, Range 74 West, on Wild Horse Creek (see Table 1).

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 flow at the irrigation compliance point has been documented within a sampling month, then weekly monitoring of flow is required for the month. At the beginning of each calendar month, the frequency will revert to daily until such time as flow occurs at the irrigation compliance point and a sample is collected to represent effluent quality for irrigation compliance point constituents for that month. Should the permittee be able to substantively document that this facility did not contribute to flows at the ICP at any time during the monitoring period in question, the permittee may report "did not contribute" on the discharge monitoring reports for the monitoring period in question, and is not required to collect samples at the irrigation compliance point for the monitoring period in question. In such cases, the permittee is required to submit copies of the documentation verifying non-contribution in conjunction with the discharge monitoring reports for the monitoring period in question. Effluent samples must be collected on a weekly basis if flow persists at the irrigation compliance point for 24 hours or more. Results are to be reported twice-yearly and if no discharge occurs then "no discharge" is to be reported.

d. Water Quality Monitoring Stations – TRIB, UPR, and 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.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Dissolved Calcium	Monthly	Grab
Dissolved Magnesium	Monthly	Grab
Dissolved Sodium	Monthly	Grab
Sodium Adsorption Ratio	Monthly	Calculated
Specific Conductance	Monthly	Grab
Flow*	Monthly	Instantaneous

*Flow is to be monitored and reported only at the tributary monitoring station located on Wild Horse Creek (TRIB). The permittee is not required to monitor or report flow at the mainstem monitoring stations (UPR and DPR) (see Table 1).

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): designated water quality monitoring stations located on Wild Horse Creek and in the main channel of the Powder River, upstream and downstream of the confluence with Wild Horse Creek. The designated water quality monitoring stations are located in the SESE, Section 16, Township 54 North, Range 77 West, on Wild Horse Creek, and in the SWSE and NESE, Section 16, Township 54 North, Range 77 West, upstream and downstream (respectively) of the Wild Horse Creek – Powder River confluence, in the main channel of the Powder River (see Table 1). Should the permittee be able to substantively document that this facility did not contribute to flows at the tributary water quality monitoring station at any time during the monitoring period in question, the permittee may report "did not contribute" on the discharge monitoring reports for the monitoring period in question, and is not required to collect samples at the three water quality monitoring stations for the monitoring period in question. In such cases, the permittee is required to submit copies of the documentation verifying non-contribution in conjunction with the discharge monitoring reports for the monitoring period in question. Established water quality monitoring stations on the mainstem are located outside the mixing zone with the tributary and the mainstem. Results are to be reported semiannually and if no flow occurs at the designated tributary monitoring station on, then "no flow" is to be reported and samples need not be collected at the water quality monitoring stations for that monthly sampling period.

B. MONITORING AND REPORTING

1. Representative Sampling

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

2. Reporting

Results of initial monitoring, including the date the discharge began, shall be summarized on a Monitoring Report Form for Monitoring of Initial Discharge and submitted to the state water pollution control agency at the address below postmarked no later than 90 days after the commencement of discharge.

Results of routine end of pipe 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 modification is due on February 15, 2006.

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.

In order for the permit not to be subjected to additional public notice, the location of the established discharge point must be within 1,510 feet of the location of the discharge point originally identified on the permit application. In addition, the discharge must be within the same drainage and must discharge to the same landowner's property as identified on the original application form. If the three previously stated requirements are not satisfied, modification of the discharge point location(s) constitutes a major modification of the permit 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

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

SEE TABLE 1 FOR A LIST OF OUTFALLS AND WELLS

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 MONITORING 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.

