

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: Hay Creek B-5 which is located in the SENE of Section 19, the SESW of Section 20, the NWNE and NWNW of Section 29, the SENW of Section 33, and the NWNW of Section 35, all in Township 51 North, Range 74 West in Campbell County. The produced water will be discharged to 6 on-channel reservoirs located in unnamed ephemeral tributaries to Wild Horse Creek (class 3B) and to Hay Creek (class 3B) which is tributary to Wild Horse Creek, which is tributary to the Powder River (class 2ABWW). The established irrigation compliance points are located in the SENE of Section 19, the SWSE, SWSW, and SESW of Section 20, the NWNW of 33, and the NENE of Section 34, all in Township 51 North, Range 74 West, prior to the first downstream points of irrigation diversion/use on Wild Horse Creek. In the permittee's original submitted application for coal bed methane water discharge, a total flow rate of 0.40 MGD has been estimated from this facility.

NUMBER: WY0048461

*The terms of WY0048461 are hereby modified as follows:*

1. *The radium<sup>226</sup> effluent limit is updated to reflect current WDEQ permitting approaches.*
2. *Potassium and fluoride are removed from routine end-of-pipe monitoring requirements.*
3. *The dissolved manganese effluent limit is updated to reflect current drainage limits.*
4. *In accordance with current WDEQ policy, the effluent limit and monitoring requirements for total petroleum hydrocarbons (TPH) are removed.*

*No additional initial monitoring requirements are instituted upon approval of this modification.*

*With the exception of items explicitly delineated in this major modification, all terms and conditions of permit WY0048461, 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 judgement of the WDEQ, this effluent limit guideline is appropriately applied to coal bed methane gas production. The guideline limits oil and grease effluent concentrations to less than 35 mg/l and requires that discharges of produced water be used 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. In addition, the permit establishes three irrigation compliance points. The irrigation compliance points are designated monitoring locations 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 point (SAR=6 and EC=2000 micromhos/cm) were determined from a combination of one or more of the following: technical information submitted by the applicant, published scientific literature, credible water quality data that has been through formally adopted quality control/quality assurance review, and best professional judgement. These limits satisfy provisions under Chapter 1, Section 20 (protection of agricultural water supply) of the Wyoming Water Quality Rules and Regulations.

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 landowners have 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 34 miles from the confluence with the Powder River. In addition, maximum total effluent flow rate from this facility is estimated at 0.62 cfs. The permittee has committed that effluent shall not reach the Powder River. However, in the event that such a situation occurs, this permit establishes a monitoring station on the receiving stream prior to the confluence with the Powder River. This station will function to monitor any effluent flows to the Powder River.

Permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. The pH must remain within 6.5 and 9.0 standard units. Effluent limits for total dissolved solids (5,000 mg/l), specific conductance (7,500 micromhos/cm) and 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. The permit also establishes a dissolved manganese limit of 630 µg/l, and a chlorides limit of 46 mg/l. These limits are based on chronic aquatic life standards for class 2AB waters as established in *the Wyoming Water Quality Rules and Regulations, Chapter 1*. The permit also establishes a total barium limit of 1800 µg/l, a total arsenic limit of 7 µg/l, a dissolved copper limit of 9 µg/l, and a dissolved lead limit of 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. 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*. Review of the representative water quality data submitted with the application revealed that effluent from this facility may have the potential to exceed chronic aquatic life water quality standards for dissolved copper and dissolved lead for class 2AB waters. Based on this information, the permit establishes additional effluent limits for dissolved copper and dissolved lead that are protective of aquatic life uses for class 2AB waters. In addition, the permit establishes a dissolved iron limit of 1000 µg/l, which is based upon chronic aquatic life standards for class 3B waters greater than one mile from the confluence of a class 2 water, and reflects the application of standards required under Chapter 1 of the Wyoming Water Quality Rules and Regulations. 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 total radium<sup>226</sup> limit of 1 pCi/l and a 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<sup>226</sup> limit is based on this permitting approach. In addition, 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 requirement for TPH in this permit. Based on evaluation of the available data, it is WDEQ's determination that removing the total radium<sup>226</sup> and total petroleum hydrocarbons limits from this permit conforms to the anti-backsliding requirements established in Section 402(o).2.B.i of the Clean Water Act.

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.

Of the 56 wells that will discharge at this facility, 44 wells are currently permitted to discharge to alternate outfalls under existing WYPDES permits WY0039534 and WY0039535. The permittee has submitted a water budget that demonstrates all produced effluent from the 12 new wells will be contained in on-channel reservoirs located on unnamed draws tributary to Hay Creek and Wild Horse Creek. If, in the event effluent discharged from reservoirs reaches the established irrigation compliance points, located in the SENE of Section 19, the SWSE, SWSW, and SESW of Section 20, the NWNW of 33, and the NENE of Section 34, all in Township 51 North, Range 74 West, the permit establishes a specific conductance limit of 2000 micromhos/cm and a sodium adsorption ratio (SAR) limit of 6 at the irrigation point of compliance. Effluent limits at each irrigation compliance point, which are protective of irrigation uses, are effective from April 1 thru September 30 of each calendar year.

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 specific conductance of 2,000 micromhos/cm is intended to be protective of agriculture use in the Wild Horse Creek drainage. The default specific conductance limit of 2,000 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). Data that might aid in characterizing salt tolerance of alfalfa specific to the Wild Horse Creek drainage is currently unavailable. 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, water with an SAR at or below 6 is typically considered usable for irrigation as determined by Applied Hydrology Associates, Inc. in their technical document "Certification of Compliance with Chapter 1, Section 20 of the Wyoming Water Quality Rules and Regulations for Devon Energy Production Company, LP CBM Discharge Permits within Wild Horse Creek Watershed" (see permit WY0047759). An SAR limit of 6 and specific conductance limit of 2,000 micromhos/cm will also maintain the baseline C3-S2 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). The SAR of 6 was also derived from the mean ambient SAR value of the Powder River at Arvada, WY. 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) during the irrigation season April 1 thru September 30.

The permit requires daily monitoring on the various unnamed ephemeral tributaries of Hay Creek and Wild Horse Creek downstream from the outfalls to determine whether water discharged from the outfalls reaches the established irrigation compliance points from April 1 thru September 30. Daily monitoring is necessary during this period because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation compliance points. Once flow at the irrigation compliance points has been documented within a sampling month, then weekly monitoring of flow is required for the month. At the beginning of each calendar month from April 1 thru September 30, 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 for a weekly sampling period 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. The permit also requires that an initial monitoring of the effluent be conducted within the first 60 days of discharge and the results submitted to WDEQ and the U.S. Environmental Protection Agency within 120 days of the commencement of discharge.

The permit also requires sampling at designated water quality monitoring stations located on the receiving stream (Wild Horse Creek) and at locations on the Powder River (class 2AB water) that Wild Horse Creek confluences. Water quality monitoring stations on the Powder River will be located upstream and downstream of the confluence of Wild Horse Creek with the Powder River. Effluent samples at the designated water quality monitoring stations must be collected on a monthly sampling period 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. At the designated water quality monitoring stations, monitoring will be required for calcium, chlorides, 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.

The designated water quality monitoring stations are located on the tributary in the SESE of Section 16, Township 54 North, Range 77 West and on the mainstem in the SWSE of Section 16, Township 54 North, Range 77 West, and the NWSE of Section 34, Township 55 North, Range 77 West. 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 June 30, 2007.

Jason Thomas  
Water Quality Division  
Department of Environmental Quality  
May 22, 2002

Jennifer Zygmunt (Major Modification)  
Water Quality Division  
Department of Environmental Quality  
April 25, 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

Hay Creek B-5

located in

the SENE of Section 19, the SESW of Section 20, the NWNE and NWNW of Section 29, the SENW of Section 33, and the NWNW of Section 35, all in Township 51 North, Range 74 West in Campbell County

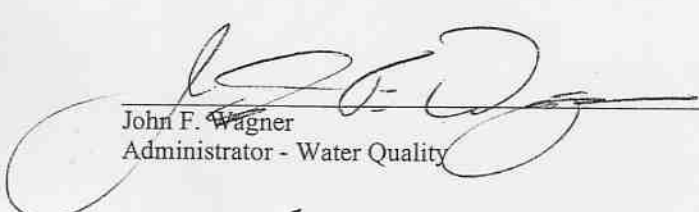
to receiving waters named

6 on-channel reservoirs located in unnamed ephemeral tributaries to Wild Horse Creek (class 3B) and to Hay Creek (class 3B) which is tributary to Wild Horse Creek, which is tributary to the Powder River (class 2ABWW)

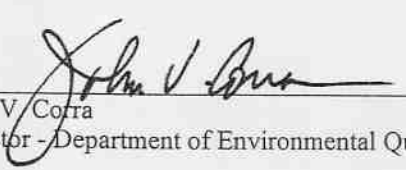
in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II and III hereof.

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 WY0048461, 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 at midnight June 30, 2007.

  
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John F. Wagner  
Administrator - Water Quality

8/5/05  
Date

  
\_\_\_\_\_  
John V. Corra  
Director - Department of Environmental Quality

8/5/05  
Date

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Effective immediately and lasting through June 30, 2007, 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 001-006.

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	630	
Dissolved Copper, µg/l	9	
Dissolved Lead, µg/l	4	
pH, standard units	6.5 - 9.0	
Specific Conductance, micromhos/cm	7500	2,000
Sulfates, mg/l	3000	
Total Arsenic, µg/l	7	
Total Barium, µg/l	1800	
Total Dissolved Solids, mg/l	5000	
Sodium Adsorption Ratio, calculated		6

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's original submitted application for coal bed methane water discharge estimates a total flow rate of 0.4 MGD from 56 wells for this facility. These wells will discharge produced water from the Anderson coal seam.

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.

Effluent limits at the irrigation compliance point(s) are only effective from April 1 thru September 30 of each calendar year.

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

Within 60 days of commencement of discharge, a sample shall be collected from each outfall 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 routine monitoring requirements described in Part I.A.2.b. may be modified to require more stringent monitoring.

<u>Parameter* (See notes following the table on chemical states)</u>	<u>Required Detection Limits and Required Units</u>
Alkalinity, Total	1 mg/l as CaCO <sub>3</sub>
Aluminum, Total Recoverable	50 µg/l
Arsenic, Total	1 µg/l
Barium, Total	100 µg/l
Bicarbonate	10 mg/l
Cadmium, Dissolved	5 µg/l
Calcium, Dissolved	50 µg/l, report as me/l
Calcium, Dissolved	50 µg/l, report as mg/l
Chlorides	5 mg/l
Copper, Dissolved	10 µg/l
Dissolved Solids, Total	5 mg/l
Hardness, Total	10 mg/l as CaCO <sub>3</sub>
Iron, Dissolved	50 µg/l
Lead, Dissolved	2 µg/l
Magnesium, Dissolved	100 µg/l, report as me/l
Magnesium, Dissolved	100 µg/l, report as mg/l
Manganese, Dissolved	50 µg/l
Mercury, Dissolved	1 µg/l
pH	to 0.1 pH unit
Radium 226, Total	0.2 pCi/l

<u>Parameter*</u> (See notes following the table on chemical states)	<u>Required Detection Limits and Required Units</u>
Selenium, Total Recoverable	5 µg/l
Sodium Adsorption Ratio	Calculated as unadjusted ratio
Sodium, Dissolved	100 µg/l, report as me/l
Sodium, Dissolved	100 µg/l, report as mg/l
Specific Conductance	5 micromhos/cm
Sulfates	10 mg/l
Zinc, Dissolved	50 µg/l

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 (001-006)

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 for April, May, June, July	Grab
Dissolved Calcium	Monthly for April, May, June, July	Grab
Chloride	Monthly for April, May, June, July	Grab
Dissolved Iron	Annually	Grab
Dissolved Manganese	Annually	Grab

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Dissolved Copper	Annually	Grab
Dissolved Lead	Annually	Grab
Dissolved Magnesium	Monthly for April, May, June, July	Grab
pH	Once Every Six Months	Grab
Dissolved Sodium	Monthly for April, May, June, July	Grab
Sodium Adsorption Ratio	Monthly for April, May, June, July	Calculated
Specific Conductance	Monthly for April, May, June, July	Grab
Sulfate	Monthly for April, May, June, July	Grab
Total Alkalinity	Monthly for April, May, June, July	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-ICP6)

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. Monitoring will be based on monthly time frames, from April 1 thru September 30 and reported semi-annually.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Bicarbonate	Monthly for April thru September	Grab
Dissolved Calcium	Monthly for April thru September	Grab
Dissolved Magnesium	Monthly for April thru September	Grab
Dissolved Sodium	Monthly for April thru September	Grab

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Sodium Adsorption Ratio	Monthly for April thru September	Calculated
Specific Conductance	Monthly for April thru September	Grab
Total Flow - (MGD)	Monthly for April thru September	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 in SENE of Section 19, the SWSE, SWSW, and SESW of Section 20, the NWNW of 33, and the NENE of Section 34, all in Township 51 North, Range 74 West on 5 unnamed ephemeral tributaries to Hay Creek and one unnamed ephemeral tributary to Wild Horse Creek.

The permit requires daily monitoring on the various unnamed ephemeral tributaries of Hay Creek and Wild Horse Creek downstream from the outfalls to determine whether water discharged from the outfalls reaches the established irrigation compliance points from April 1 thru September 30. Daily monitoring is necessary during this period because the permit establishes different sampling and analysis requirements based on whether the effluent reaches the irrigation compliance points. Once flow at the irrigation compliance points has been documented within a sampling month, then weekly monitoring of flow is required for the month. At the beginning of each calendar month from April 1 thru September 30, 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 for a weekly sampling period 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 (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.

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

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 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 on the tributary in the SESE of Section 16, Township 54 North, Range 77 West and on the mainstem in the SWSE of Section 16, Township 54 North, Range 77 West, and the NWSE of Section 34, Township 55 North, Range 77 West. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone of the tributary with the mainstem. Results are to be reported semiannually and if no flow occurs at the designated tributary monitoring station on Wild Horse Creek, 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 120 days after the commencement of discharge.

Results of routine end of pipe, irrigation compliance point, and water quality station monitoring during the previous six (6) months shall be summarized and reported semiannually on a Discharge Monitoring Report Form (DMR). If the discharge is intermittent, the date the discharge began and ended must be included. The information submitted on the first semiannual DMR shall contain a summary of flow measurements and any additional monitoring conducted subsequent to the submittal of the initial monitoring report. Whole effluent toxicity (biomonitoring) results must be reported on the most recent version of EPA Region VIII's Guidance for Whole Effluent Reporting. Monitoring reports must be submitted to the state water pollution control agency at the following address postmarked no later than the 15th day of the second month following the completed reporting period. The first report is due 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 and Irrigation Compliance Points

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

SEE TABLE 1 FOR A LIST OF WELLS, OUTFALLS, AND IRRIGATION COMPLIANCE POINTS

Table 1: WY0048461- Hay Creek B-5 - (Option 2)

OUT-FALL #	WELL NAME	Qtr/Qtr	SEC	TWP (N)	RNG (W)	LATITUDE	LONGITUDE	Drainage	Reservoir Name
001		NWNW	35	51	74	44.360701	-105.729903	UET to Hay Creek	Owen R. Goerke
002		SENW	33	51	74	44.356362	-105.763109	UET to Hay Creek	Angela's Pond
003		NWNE	29	51	74	44.375195	-105.779675	UET to Hay Creek	Wendy
004		NWNW	29	51	74	44.374333	-105.787462	UET to Hay Creek	Zane #1
005		SENE	19	51	74	44.386020	-105.792594	UET to Wild Horse Creek	Edwards #1
006		SESW	20	51	74	44.379794	-105.785644	UET to Hay Creek	Foxy
	15-1 A								
	1-12 A								
	7-12 A								
	7-18 A								
	9-18 A								
	15-18 A								
	2-19 A								
	3-19 A								
	7-19 A								
	8-19 A								
	5-20 A								
	6-20 A								
	7-20 A								
	8-20 A								
	11-20 A								
	12-20 A								
	13-20 A								
	14-20 A								
	15-20 A								
	16-20 A								
	4-21 A								
	4-21 AR								
	5-21 A								
	6-21 A								
	13-26 A								
	14-26 A								
	9-27 A								
	10-27 A								
	16-27 A								

