

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

STATEMENT OF BASIS

RENEWAL

APPLICANT NAME: Pennaco Energy, Inc.

MAILING ADDRESS: 3601 Southern Drive
Gillette, WY 82718-9107

FACILITY LOCATION: Kuhn Ranch 2, 11 – North Cottonwood, which is located in the SWNE, SWNW, SENW, NWSW, SWSW, NENW of Section 2, the NENE, SENE, SENW of Section 3, the NESW, SESW of Section 11, and the SENW of Section 14, all in Township 53 North, Range 77 West, in Sheridan County. The produced water will be discharged to one off-channel pit (4C) and multiple on-channel reservoirs (class 3B) located within various ephemeral tributary drainages (class 3B) to the Powder River (class 2ABWW). The permit requires that the produced water being discharged from this facility originate in one or more of the following formations: the Anderson, Wall, and/or Pawnee coal seams, and establishes a total maximum daily flow limit of 1.25 million gallons per day (MGD).

NUMBER: WY0047422

All conditions and terms of permit WY0047546 have been updated in accordance with current WDEQ permitting requirements during the renewal process. Specifically, the following changes have been made to WY0047546:

- 1. Four outfalls (011-014) are added to this permit. Outfalls 011, 013, 014 will discharge to on-channel reservoirs located on unnamed ephemeral tributaries to the Powder River. Outfall 012 will discharge to an off-channel man-made containment unit.*
- 2. Two hundred and fifty one (251) wells are added to this facility.*
- 3. Effluent limits and routine monitoring requirements for sulfates and manganese are removed from this permit.*
- 4. Effluent limits and routine monitoring requirements for dissolved lead are removed from this permit.*

General 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 EPA Effluent Guidelines and Standards for Oil and Gas Extraction Point Source Category (Part 435, Subpart E) predate the development of coal bed methane extraction technology; however, the technology is similar enough to conventional gas extraction that, in the professional judgement of the WDEQ, this effluent limit guideline is appropriately applied to coal bed methane gas production. This permit does not cover activities associated with discharges of drilling fluids, acids, stimulation waters or other fluids derived from the drilling or completion of the wells.

Facility Description: Outfalls 004-008, 013-014 Option 2 discharge

The permittee has chosen option 2 of the coal bed methane permitting options for outfalls 004-008, 013-014. Produced water from outfalls 004-008, 013-014 will immediately be discharged to a series of on-channel reservoirs located on class 3 receiving streams that are eventually tributary to a class 2AB perennial water of the state. Effluent limitations protective of class 2AB waters will be established at these outfalls. The permit establishes effluent limits for the end of pipe at outfalls 004-008, 013-014, 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.

The Wyoming DEQ has determined through review of the permit application and available scientific information that effluent discharged from outfalls 004-008, 013-014 at this facility, located approximately 1-2 miles from the Powder River, is unlikely to reach the Powder River. The permittee will be required to contain all produced water within the reservoirs associated with outfalls 004-008, 013-014 during “dry” operating conditions. Under “dry” operating conditions, the reservoirs are not allowed to discharge. The reservoirs will be allowed to discharge during precipitation events that cause the reservoirs to fill and overtop. However, under such circumstances, discharges will be limited to natural overtopping only. Intentional discharge from the reservoirs is prohibited, and will be considered to be in violation of this permit. It is the sole responsibility of the operator to adequately demonstrate the circumstances in which reservoir discharges occurred, if requested to do so by the WYPDES Program. The applicant has submitted a water budget which demonstrates that all of the CBM effluent produced at outfalls 004-008, 013-014 at this facility can be contained within the on-channel receiving reservoirs at these outfalls.

The permittee has committed that effluent shall not reach the Powder River. However, in the event that such a situation occurs, this permit establishes tributary monitoring stations on unnamed, ephemeral tributaries to the Powder River, prior to confluence with the Powder River. These stations will function to monitor any effluent flows to the Powder River.

In addition, this permit establishes an upstream and downstream monitoring station (UPR, DPR) on the Powder River as identified in Table 1 of the permit below. The permit requires monthly monitoring at these stations, regardless of whether the reservoirs overtop. This requirement is established because several of the reservoirs are located in close proximity to the Powder River and may potentially develop a subsurface hydrologic connection with the river. The purpose of the monitoring stations within the river, upstream and downstream of this facility, is to determine whether the facility is having an adverse impact on water quality within the Powder River.

Discharges from the on-channel reservoirs being utilized to contain CBM produced water from outfalls 004-008, 013-014 are not allowed except in the event that stormwater runoff causes the reservoirs to fill and overtop. Reservoir and/or discharge water is to be released at a rate which does not cause significant erosion to the channel or receiving lands. Intentional discharges from the reservoirs are not allowed, and will be considered to be a violation of this permit. Discharge during precipitation events that causes the reservoirs to fill and overtop is limited to natural overtopping.

Facility Description: Outfalls 012, Option 1A discharge

The permittee has chosen option 1A of the coal bed methane permitting options for outfall 012. Under this permitting option, the produced water from outfall 012 is immediately discharged to confined, off channel pits, stock ponds or other man made containment units (class 4C water) that will not flow into any other waters of the state. The permittee has demonstrated through a water balance study that, considering CBM well inflow, natural

precipitation, evaporation and infiltration, the off channel containment units associated with outfall 012 will be adequate to contain all CBM discharge water from outfall 012 and stormwater up to a 50 year 24 hour event. In addition, the permittee has committed to the complete containment of all discharged water from outfall 012. The permit establishes effluent limits for the end of pipe, which are protective of recreation, agriculture, industry, scenic value, and livestock and wildlife watering.

Facility Description: Outfalls 001-003, 009-011, Option 1B discharge

The permittee has chosen option 1B of the coal bed methane permitting options for discharges from outfalls 001-003, 009-011. 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. This permit prohibits discharge to the nearest class 2 water (Powder River) from outfalls 001-003, 009-011. This permit authorizes discharge of CBM effluent into a headwater on-channel reservoir from outfalls 001-003, 009-011. Flow monitoring stations, located below the on-channel headwater reservoirs proposed for containment of CBM produced waters (FM1-FM6) have been established to ensure that effluent from the reservoir does not reach the Powder River except in the event of a 50-year/24-hour storm event or greater. The permit establishes effluent limits for the end of pipe, which are protective of all designated uses of the class 3B receiving waters defined in Chapter 1 of Wyoming Water Quality Rules and Regulations. This may include aquatic life other than fish, recreation, agriculture (livestock watering), wildlife, industry and scenic value. Neither the reservoirs nor their spillways will constitute regulated discharge points under this permit. The reservoirs associated with outfalls 001-003, 009-011 were originally classified as off-channel reservoirs; however, since they are not sited greater than 500 feet from a waterway or the Powder River alluvium, they are categorized as an option 1B discharge as per current WDEQ policy.

Effluent Limits and Monitoring Requirements: Outfalls 004-008, 013-014 Option 2 discharge

Permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. For outfalls 004-008, 013-014, the permit requires that the pH must remain within 6.5 and 9.0 standard units. Effluent limits for total dissolved solids (5000 mg/l), and specific conductance (7500 micromohs/cm), are included to protect for stock and wildlife watering. These limits are based upon *Wyoming Water Quality Rules and Regulations, Chapter 1* and apply to discharge from any permitted outfall. In addition, the permit establishes a total recoverable barium limit of 1800 µg/l, a chloride limit of 150 mg/l, and a total recoverable arsenic limit of 7 µg/l. These limits are based on chronic aquatic life standards for class 2AB waters which are intended to protect for the above listed designated uses and reflect the application of the antidegradation provisions required under *Chapter 1 of the Wyoming Water Quality Rules and Regulations*.

Additionally, for outfalls greater than one mile from the confluence with a class 2 water, the permit establishes a dissolved iron limit of 1000 µg/l, which is based upon chronic aquatic life standards for class 3B waters and reflects the application of standards required under *Wyoming Water Quality Rules and Regulations, Chapter 1*. For outfalls less than one mile from the confluence of a class 2 water, this permit establishes a dissolved iron limit of 300 µg/l. This limit is based on Water Quality Criteria as established in *the Wyoming Water Quality Rules and Regulations, Chapter 1*, for Human Health values. This permit also establishes a limit of 1 pCi/l for total recoverable radium²²⁶ and radium²²⁸ combined for outfalls less than one mile from the confluence with a class 2 water, and establishes a limit of 3 pCi/l for radium²²⁶ for outfalls between one and two miles from the confluence with a class 2 water. These limits reflect current WYPDES permitting practice in regards to establishing total radium 226 effluent limits in CBM surface discharge permits. 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. This permit also originally established a sulfate limit of 3000 mg/l, a dissolved lead limit of 3.7 µg/l and a dissolved manganese limit of 630 µg/l at the end of pipe. 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 and sulfate in the discharge were well below the water quality standards of 3000 mg/l for sulfates established in Chapter 1 of the Wyoming Water Quality Rules and Regulations, and well below the originally established effluent limit of 630 µg/l for dissolved manganese. Finally, review of discharge monitoring report data submitted for this facility indicates that concentrations of dissolved lead are well below the originally established limit of 3.7 µg/l; therefore, this facility does not appear likely to exceed chronic aquatic life water quality standards for dissolved lead for class 2AB waters, and the effluent limit and routine end of pipe monitoring requirements for dissolved lead are removed from this permit. Based on evaluation of the available data, it is WDEQ's determination that removing the sulfate, dissolved manganese, and dissolved lead limits from this permit conforms to the anti-backsliding requirements established in Section 402(o).2.B.i of the Clean Water Act.

This permit establishes tributary monitoring stations on unnamed, ephemeral tributaries to the Powder River, prior to confluence with the Powder River. These stations will function to monitor any effluent flows to the Powder River. The permit requires sampling at designated tributary water quality monitoring stations and at two mainstem water quality monitoring locations on the Powder River upstream and downstream of the confluences of the unnamed, ephemeral tributaries where discharge from these outfalls is occurring 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 the unnamed, ephemeral tributaries 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 stations designated in Table 1, Part I.B.12 of the following permit as "TRIB1-TRIB3" 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 stations designated as "TRIB1-TRIB3" 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.

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.

Effluent Limits and Monitoring Requirements: Outfall 012, Option 1A discharge

For outfall 012, the permit establishes the following effluent limits. Permit effluent limits are based on state regulations and are effective as of the date of issuance. The permit requires that the pH must remain within 6.5 and 9.0 standard units. Effluent limits for total dissolved solids (5,000 mg/l), chlorides (2,000 mg/l) and specific conductance (7,500 micromhos/cm) are included to protect for livestock and wildlife watering. These limits are based upon *Wyoming Water Quality Rules and Regulations, Chapters 1 and 2* and apply to discharge from any permitted outfall. Based upon the results of the initial monitoring, this permit may be reopened and more stringent limits and/or monitoring and reporting required.

This permit originally established a total radium²²⁶ limit of 60 pCi/l, a sulfate limit of 3000 mg/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 and/or the concentration(s) of radium seen in representative water quality data for a facility. The removal of the originally-established total radium²²⁶ 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) and sulfate in the discharge were well below the water quality standards of 10 mg/l for TPH and 3000 mg/l for sulfates established in *Chapter 1 of the Wyoming Water Quality Rules and Regulations*. Therefore, WDEQ has removed the effluent limit and monitoring requirements for TPH and sulfate in this permit. Based on evaluation of the available data, it is WDEQ's determination that removing the total radium²²⁶, sulfate, 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*.

In order to monitor effluent contained within the off-channel, man-made containment units to ensure that the effluent does not exceed water quality standards for livestock and wildlife watering as the result of concentration due to evaporation, the permittee is required to monitor the effluent contained within the pits associated with outfall 012 and report the results to the WDEQ on an annual basis.

Effluent Limits and Monitoring Requirements: Outfalls 001-003, 009-011, Option 1B discharge

For outfalls 001-003, 009-011, the permit establishes the following effluent limits. Permit effluent limits are based on federal and state regulations and are effective as of the date of issuance. The permit requires that the pH remains within 6.5 and 9.0 standard units. Effluent limits for total dissolved solids (5,000 mg/l) and specific conductance (7,500 micromhos/cm) are included to protect for stock and wildlife watering. These limits are based upon Wyoming Water Quality Rules and Regulations, Chapter 1 and apply at the end of pipe. This permit also establishes a total recoverable arsenic limit of 150 µg/l, a dissolved iron effluent limit of 1000 µg/l, and a chlorides limit of 230 mg/l. These limits are based on standards for class 3B waters which are intended to protect for the above listed designated uses and reflect the application of "tier 1" antidegradation protection. Tier 1 antidegradation protection is the level of protection which applies to all waters of the state, as described in the *Wyoming Surface Water Quality Standards "Implementation Policies for Antidegradation"*. Based upon the results of the initial monitoring, this permit may be reopened and more stringent limits and/or monitoring and reporting required.

The reservoirs being utilized for containment of the CBM produced water at 001-003, 009-011 were described by the permittee in their application materials as being able to effectively contain all estimated produced water from outfalls 001-003, 009-011, in addition to the stormwater runoff from up to a 50 year/24 hour precipitation event. Should the volume of water within the reservoirs associated with outfalls 001-003, 009-011 exceed the freeboard needed to contain runoff from a 50 year/24 hour precipitation event under normal operating conditions, the permittee is required to cease discharge into these reservoirs until the volume of water within the reservoir drops back below the 50 year/24 hour freeboard reserve.

In order to monitor potential accumulation of pollutants within the receiving reservoirs, this permit (Part I.A.2.c) requires routine sampling, analysis, and reporting for the following constituents within the reservoirs at 001-003, 009-011: total dissolved solids, specific conductance, total recoverable radium 226, dissolved manganese, total recoverable arsenic, chlorides, sulfates, and total recoverable selenium. Sampling for these constituents within the reservoirs is to occur a minimum of 100 feet from the location where the CBM effluent enters the reservoirs. The reservoir monitoring locations have been identified in Table 1, Part I.B.13 of the permit below as "R1-R6". This monitoring requirement is intended to aid in the protection of the uses associated with the class 3B on-channel reservoirs (aquatic life other than fish, recreation, livestock watering, wildlife, industry and scenic value). If monitoring of the effluent within the reservoirs at outfalls 001-003, 009-011 reveals an exceedance of any applicable standards for class 3B waters, then this permit may be modified in order to protect all uses of the receiving water bodies.

This permit requires daily monitoring year-round at the flow monitoring stations located immediately downstream of the reservoirs containing discharges from outfalls 001-003, 009-011 in order to determine if any effluent from this facility is reaching an established flow monitoring station (FM1-FM6). The established flow monitoring stations are located as described in Part I.B.12 (Table 1) of the permit below). This permit prohibits discharge of effluent from the reservoirs associated with outfalls 001-003, 009-011 except in the event of a 50-year/24-hour storm event or greater. If a reservoir overtopping event occurs, verification of storm magnitude will be the responsibility of the permittee. Discharge from the reservoir associated with outfalls 001-003, 009-011 resulting from a 50-year/24-hour precipitation event or greater is limited by the permit to natural overtopping and shall not extend beyond a 48 hour period following commencement of natural overtopping. Additional release from the reservoir(s) is not authorized. If any effluent discharged from this facility does reach a flow monitoring station (FM1-FM6), this permit requires the permittee to cease all discharge of effluent from the contributing wells until the effluent is no longer reaching the flow monitoring station. Any effluent from this facility that reaches the established flow monitoring station, except as the direct result of reservoir(s) overtopping during a 50-year/24-hour storm event or greater, will be considered a violation of this permit and must be corrected by the permittee immediately.

Flow limit and coal seam restrictions—all permitted outfalls (001-014)

Documentation submitted in support of this permit by the permittee was based upon water quality representative of water quality from the Anderson, Pawnee and Wall coal seams in the surrounding geographical area, and a total maximum daily discharge rate of 1.25 million gallons per day (MGD). Therefore, the permit requires that the produced water being discharged by this facility originate in one or more of the following formations: the Anderson, Pawnee and/or Wall coal seams, and establishes a total maximum daily flow limit of 1.25 MGD, which is to be calculated as the sum of all discharge from all permitted outfalls. The permittee has submitted documentation demonstrating that, considering the on-channel and off-channel reservoir capacity, expected infiltration and evaporation losses, and water production declines, there is sufficient capacity/consumptive loss to prevent the discharge from reaching the Powder River under “dry” operating conditions. However, should the discharge reach the Powder River on a more frequent, persistent, and/or significant nature than estimated in the permit application, the WYPDES Program reserves the right to reopen the permit and establish more stringent effluent limits to protect water quality within the Powder River.

Monitoring Requirements—all permitted outfalls (001-014)

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.

Other permit requirements—all permitted outfalls (001-014)

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, 2009, which is reflective of the WDEQ's efforts towards watershed permitting and similar expiration dates for all permits within a specific drainage, which will allow for basin-wide analysis upon renewal of the permits in the drainage.

Jennifer Zygmunt--Renewal
Water Quality Division
Department of Environmental Quality
Drafted: December 8, 2006

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

Kuhn Ranch 2,11 – North Cottonwood,

which is located in the

SWNE, SWNW, SENW, NWSW, SWSW, NENW of Section 2, the NENE, SENE, SENW of Section 3, the NESW, SESW of Section 11, and the SENW of Section 14, all in Township 53 North, Range 77 West, in Sheridan County,

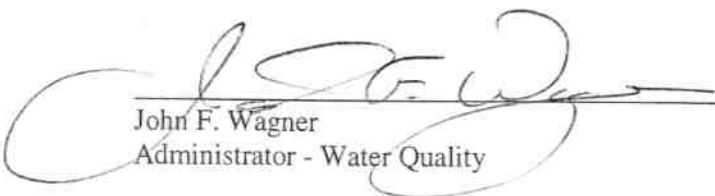
to receiving waters named

one off-channel pit (4C) and multiple on-channel reservoirs (class 3B) located within various ephemeral tributary drainages (class 3B) 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.

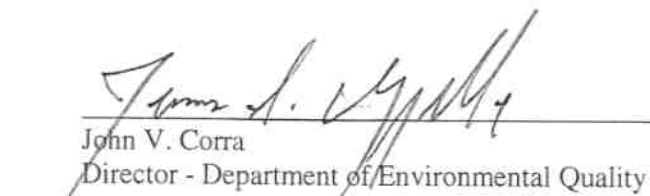
This permit renewal shall become effective on the date of signature by the Director of the Department of Environmental Quality.

This permit and the authorization to discharge shall expire June 30, 2009, at midnight.



John F. Wagner
Administrator - Water Quality

Date 2/7/07



John V. Corra
Director - Department of Environmental Quality

Date 2/7/07

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Effective immediately and lasting through June 30, 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 outfall(s) serial numbers **001-014**.

1a. Such discharges shall be limited as specified in sections i and ii below for outfalls **004-008, 013-014 (on-channel discharges)**:

i. Effluent limits outfalls 004-008, 013-014

Effluent Limits

<u>Effluent Characteristic</u>	<u>Daily Maximum</u>
Chlorides, mg/l	150
pH, standard units	6.5 – 9.0
Specific Conductance, micromhos/cm	7500
Total Recoverable Arsenic, µg/l	7
Total Recoverable Barium, µg/l	1800
Total Dissolved Solids, mg/l	5000
Total Flow, MGD*	1.25

*Total flow is to be calculated as the sum of all discharge from all permitted outfalls (001-014).

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

ii. Distance based effluent limits by outfall for outfalls 004-008, 013-014

Distance-Based Effluent Limits by Outfall

<u>Outfall</u>	<u>Distance to Nearest Class 2 Stream</u>	<u>Total Recoverable Radium 226 + Total Recoverable Radium 228, pCi/L</u>	<u>Total Recoverable Radium 226, pCi/L</u>	<u>Dissolved Iron, µg/l</u>
004	1.10	NA	3	1000
005	0.81	1	NA	300
006	0.58	1	NA	300
007	0.40	1	NA	300
008	0.32	1	NA	300

<u>Outfall</u>	<u>Distance to Nearest Class 2 Stream</u>	<u>Total Recoverable Radium 226 + Total Recoverable Radium 228, pCi/L</u>	<u>Total Recoverable Radium 226, pCi/L</u>	<u>Dissolved Iron, µg/l</u>
013	1.89	NA	3	1000
014	0.38	1	NA	300

- 1b. Such discharges shall be limited as specified below for outfall **012 (reservoirs meet off-channel setback distance)**.

Effluent Limits

<u>Effluent Characteristic</u>	<u>Daily Maximum</u>
Chlorides, mg/l	2000
pH, standard units	6.5 – 9.0
Specific Conductance, micromhos/cm	7500
Total Dissolved Solids, mg/l	5000

Intentional discharge from the off-channel reservoirs associated with outfall 012 being utilized for produced water containment at this facility is prohibited. Discharge from the off-channel reservoirs is not allowed except during those periods of time that a precipitation event equal to or greater than a 50 year, 24 hour storm event causes the reservoirs to fill and overtop, and discharges under such circumstances will be limited to natural overtopping only. In the event of discharge from the reservoirs, it shall be the permittee’s responsibility to demonstrate whether or not the discharge was related to a 50 year, 24 hour storm event. Discharges from the reservoirs not directly related to a 50 year, 24 hour storm event will be considered a violation of this permit.

- 1c. Such discharges shall be limited as specified below for outfalls **001-003, 009-011 (reservoirs do not meet off-channel setback distance)**.

Effluent Limits

<u>Effluent Constituent</u>	<u>Daily Maximum, Each Outfall</u>
Chlorides, mg/l	230
Dissolved Iron, µg/l	1000
pH, standard units	6.5 – 9.0
Specific Conductance, micromhos/cm	7500
Total Dissolved Solids, mg/l	5000

<u>Effluent Constituent</u>	<u>Daily Maximum, Each Outfall</u>
Total Recoverable Arsenic, µg/l	150

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.

This permit prohibits discharge of effluent from the reservoir associated with outfalls 001-003, 009-011 except in the event of a 50-year / 24-hour storm event or greater. If a reservoir overtopping event occurs, verification of storm magnitude will be the responsibility of the permittee. Discharge from reservoir(s) resulting from a 50-year/24 hour storm event or greater is limited by the permit to natural overtopping and shall not extend beyond a 48 hour period following commencement of natural overtopping. Additional release from reservoir is not authorized. If any effluent discharged from this facility does reach a downstream flow monitoring point (FM1-FM6), this permit requires the permittee to cease all discharge of effluent from the contributing wells until the effluent is no longer reaching the flow monitoring point(s). Any effluent from this facility that reaches a flow monitoring point, as described in Table 1, Part I.B.12 of the permit below, except as the direct result of reservoir(s) overtopping during a 50-year/24-hour storm event or greater, will be considered a violation of this permit and must be corrected by the permittee immediately. This permit does not establish effluent limits that are protective of designated uses associated with the Powder River (class 2AB waters). The permittee is required to maintain freeboard within the reservoirs equivalent to that necessary to contain a 50 year/24 hour storm event. Should the volume of water within the reservoir(s) exceed the 50 year/24 hour freeboard reserve under normal operating conditions, the permittee is required to cease discharge to the reservoir(s) until the volume of water within the reservoirs falls below the 50 year/24 hour freeboard reserve.

1c. Effluent limits and requirements applicable to all permitted outfalls (001-014)

The permittee may, if so desired, discharge effluent from any authorized well to any permitted outfall, as long as all permit limits and requirements can be met. The total daily maximum permitted flow for this facility is 1.25 MGD. Total flow is to be calculated as the sum of all discharge from all permitted outfalls (001-014). The permit requires that the produced water being discharged by this facility originate in the Anderson, Pawnee and/or Wall coal seams.

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, 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:

If the outfalls being authorized for discharge under this permit modification have already been sampled and analyzed for initial monitoring constituents, the permittee is not required to re-sample and re-analyze the outfalls if results have been obtained for all the constituents listed below and reported to the WDEQ.

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

<u>Parameter</u> (See notes following the table on chemical states)	<u>Required Detection Limits and Required Units</u>
Manganese, Dissolved	50 µg/l
Mercury, Dissolved	1 µg/l
pH	to 0.1 pH unit
Radium 226, Total Recoverable	0.2 pCi/l
Radium 228, 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 meq/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 for radium228 only required for outfalls that are located less than one mile from the confluence with the Powder River.

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 – Outfalls 004-008, 013-014 (Option 2 discharges)**

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. Reporting 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>
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<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Bicarbonate (mg/l)	Once every Six months	Grab
Dissolved Calcium (mg/l)	Monthly	Grab
Chloride (mg/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 for bicarbonate)	Monthly	Calculated
Specific Conductance (micromohs/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
Dissolved Iron (µg/l)	Annually	Grab
Total Recoverable Radium 226, pCi/L	Annually	Grab

c. Additional Routine monitoring End of Pipe – Outfalls 005-008, 014 only

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. Reporting 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>
Total Recoverable Radium 228, pCi/L	Annually	Grab

d. Routine monitoring End of Pipe – Outfall 012 (Option 1A discharges)

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. Reporting will be based on semi-annual time frames, from January through June, and from July through December.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Chloride (mg/l)	Annually	Grab
pH (standard units)	Once Every Six Months	Grab
Specific Conductance (micromohs/cm)	Once Every Six Months	Grab
Total Recoverable Arsenic ($\mu\text{g/l}$)	Annually	Grab
Total Flow – (MGD)	Monthly	Continuous
Total Dissolved Solids (mg/l)	Annually	Grab

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

e. Routine monitoring End of Pipe – 001-003, 009-011 (Option 1B discharges)

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>
Dissolved Calcium (mg/l)	Annually	Grab
Total Flow (MGD)	Monthly	Continuous
Dissolved Iron ($\mu\text{g/l}$)	Annually	Grab
Dissolved Magnesium (mg/l)	Annually	Grab
pH (standard units)	Annually	Grab
Total Dissolved Solids (mg/l)	Annually	Grab
Dissolved Sodium (mg/l)	Annually	Grab
Sodium Adsorption Ratio (unadjusted)	Annually	Calculated
Specific Conductance (micromohs/cm)	Annually	Grab

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Chlorides (mg/l)	Annually	Grab
Total Recoverable Arsenic (µg/l)	Annually	Grab

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

f. Containment Unit Monitoring –CU1

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 six-month time frames, and reported annually.

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Specific Conductance (micromohs/cm)	Once Every Six Months	Grab
Total Recoverable Arsenic (µg/l)	Annually	Grab
Total Recoverable Selenium (µg/l)	Annually	Grab
Chlorides (mg/l)	Annually	Grab
Total Dissolved Solids (mg/l)	Annually	Grab
Sulfate (mg/l)	Annually	Grab
pH (standard units)	Once Every Six Months	Grab
Dissolved Fluoride (µg/l)	Annually	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): within the individual containment units, outside of the mixing zone of the outfall and the containment unit, at least 100 feet from the location that the discharge enters the containment unit. See Part I.B.12 of the permit for additional information regarding containment unit locations.

g. Routine Monitoring Within Reservoirs (R1-R6)

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

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): designated reservoir monitoring stations are located within each receiving reservoir as described in Table 1, Part I.B.12 of the permit below (R1-R6). In each reservoir, monitoring locations are to be located a minimum of 100 feet away from the point where CBM effluent enters the reservoir. Reservoir sampling will only apply to reservoirs that are receiving CBM effluent or have received CBM effluent in the past. Results are to be reported annually and if a particular reservoir has not yet received any CBM effluent from this facility, then “no discharge” is to be reported for that reservoir monitoring station in the discharge monitoring report.

h. Routine Monitoring of the Flow Monitoring Stations (FM1-FM6)

For the duration of the permit, at a minimum, the permittee is required to monitor for flow at the flow monitoring station location as described in Table 1 (Part I.B.12) of the permit on a daily basis. Should flow be detected at the flow monitoring station during periods of “dry” operating conditions that is the result of seepage or alluvial subsurface flow from the reservoirs, the permittee is required to cease discharge into the reservoirs associated with outfalls 002 and 012 immediately. Discharge from the reservoirs that is not in response to reservoir filling and overtopping during a 50 year, 24 hour event is a violation of this permit.

i. Water Quality Monitoring Stations – TRIB1-TRIB3, 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 (mg/l)	Monthly	Grab
Dissolved Magnesium (mg/l)	Monthly	Grab
Dissolved Sodium (mg/l)	Monthly	Grab
Sodium Adsorption Ratio (unadjusted)	Monthly	Calculated
Specific Conductance (micromohs/cm)	Monthly	Grab

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-TRIB3 and UPR and DPR in Table 1 (Part I.B.12) of the permit below. Established water quality monitoring stations on the mainstem are to be located outside the mixing zone with the tributaries and the mainstem. Because some of the on-channel reservoirs at this particular facility have a significant potential to develop a subsurface hydrologic connection with the Powder River, this monthly monitoring requirement at the UPR and DPR stations applies during all months, regardless of whether the reservoirs overtop.

B. MONITORING AND REPORTING

1. Representative Sampling

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

2. Reporting

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

Results of routine end of pipe and water quality station monitoring during the previous 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. If 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 issuance of this renewal is due on August 15, 2007.

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

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

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 STATION

Table 1: WY0047422 - Kuhn Ranch 2, 11 - North Cottonwood

Out-fall	Qtr/Qtr	SECTION	TWP (N)	RNG (W)	LATITUDE	LONGITUDE	Drainage / Description	Groundwater approval required prior to Discharge?	Reservoir Bond to WDEQ Required prior to Discharge?
001	SENW	14	53	77	44.574420	-106.092670	Discharges to on-channel reservoir "North Cottonwood #8" located in unnamed ephemeral tributary to Powder River	No	Yes
002	NESW	11	53	77	44.583420	-106.092700	Discharges to on-channel reservoir "Phil's Pond" located in unnamed ephemeral tributary to Powder River	No	Yes
003	SWNE	2	53	77	44.603190	-106.085130	Discharges to on-channel reservoir "North Cottonwood #7" located in unnamed ephemeral tributary to Powder River	No	Yes
004	NENE	3	53	77	44.605361	-106.098777	Discharges to on-channel reservoir "North Cottonwood #4" located in unnamed ephemeral tributary to Powder River	No	Yes
005	SENE	3	53	77	44.601555	-106.100055	Discharges to on-channel reservoir "Randy's Pond" located in unnamed ephemeral tributary to Powder River	No	Yes
006	SWNW	2	53	77	44.602030	-106.095130	Discharges to on-channel reservoir "North Cottonwood #5" located in unnamed ephemeral tributary to Powder River	No	Yes
007	SENW	2	53	77	44.601083	-106.092194	Discharges to on-channel reservoir "Kiely" located in unnamed ephemeral tributary to Powder River	No	Yes
008	SENW	2	53	77	44.600410	-106.090840	Discharges to on-channel reservoir "North Cottonwood #6" located in unnamed ephemeral tributary to Powder River	No	Yes
009	NWSW	2	53	77	44.596250	-106.095700	Discharges to on-channel reservoir "North Cottonwood #3" located in unnamed ephemeral tributary to Powder River	No	No
010	SWSW	2	53	77	44.592970	-106.094890	Discharges to on-channel reservoir "North Cottonwood #9" located in unnamed ephemeral tributary to Powder River	No	No
011	SESW	11	53	77	44.581220	-106.093330	Discharges to on-channel reservoir "P14W-11-53-77" located in unnamed ephemeral tributary to Powder River	Yes	Yes
012	NENW	2	53	77	44.603770	-106.091610	Discharges to off-channel pit "P3S-2-55-77"	Yes	No
013	SENW	3	53	77	44.599900	-106.107960	Discharges to on-channel reservoir "Montana" located in unnamed ephemeral tributary to Powder River	Yes	No
014	SENW	2	53	77	44.600490	-106.092480	Discharges to on-channel reservoir "Kiely" located in unnamed ephemeral tributary to Powder River	Yes	Yes

Table 1: WY0047422 - Kuhn Ranch 2, 11 - North Cottonwood

Out-fall	Qtr/Qtr	SECTION	TWP (N)	RNG (W)	LATITUDE	LONGITUDE	Drainage / Description	Groundwater approval required prior to Discharge?	Reservoir Bond to WDEQ Required prior to Discharge?
TRIB1	SENE	35	54	77	44.613104	-106.085264	Tributary monitoring station on unnamed, ephemeral tributary to Powder River	N/A	N/A
TRIB2	NWSE	2	53	77	44.598674	-106.085946	Tributary monitoring station on unnamed, ephemeral tributary to Powder River	N/A	N/A
TRIB3	NENW	11	53	77	44.591575	-106.091498	Tributary monitoring station on unnamed, ephemeral tributary to Powder River	N/A	N/A
UPR	SWSE	11	53	77	44.578400	-106.088900	Upstream Powder River monitoring station	N/A	N/A
DPR	NENE	27	54	77	44.634395	-106.106036	Downstream Powder River monitoring station	N/A	N/A
CU1	NENW	2	53	77	44.603770	-106.091610	Containment unit monitoring station for outfall 012 pit "P3S-2-77"	N/A	N/A
R1	SENW	14	53	77	44.574420	-106.092670	Reservoir monitoring station 001	N/A	N/A
R2	NESW	11	53	77	44.583420	-106.092700	Reservoir monitoring station 002	N/A	N/A
R3	SWNE	2	53	77	44.603190	-106.085130	Reservoir monitoring station 003	N/A	N/A
R4	NWSW	2	53	77	44.596250	-106.095700	Reservoir monitoring station 009	N/A	N/A
R5	SWSW	2	53	77	44.592970	-106.094890	Reservoir monitoring station 010	N/A	N/A
R6	SESW	11	53	77	44.581220	-106.093330	Reservoir monitoring station 011	N/A	N/A
FM1	SESW	11	53	77	44.580330	-106.093166	Flow monitoring station 011	N/A	N/A
FM2	NESW	11	53	77	44.583055	-106.090194	Flow monitoring station 002	N/A	N/A
FM3	NWSW	2	53	77	44.595611	-106.095888	Flow monitoring station 009	N/A	N/A
FM4	SENW	14	53	77	44.572750	-106.086166	Flow monitoring station 001	N/A	N/A
FM5	SWSW	2	53	77	44.593166	-106.093138	Flow monitoring station 010	N/A	N/A
FM6	SWNE	2	53	77	44.603200	-106.083800	Flow monitoring station 003	N/A	N/A

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 National 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 (Part I.B.12) 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 and/or total radium 226 effluent 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.

PART II

A. MANAGEMENT REQUIREMENTS

1. Changes

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

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

2. Noncompliance Notification

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

The written submission shall contain:

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

- (3) Violation of a maximum daily discharge limitation for any toxic pollutants or hazardous substances, or any pollutants specifically identified as the method to control a toxic pollutant or hazardous substance listed in the permit.
- e. The administrator of the Water Quality Division may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Quality Division, Watershed Management Section, NPDES Program (307) 777-7781.
- f. Reports shall be submitted to the Wyoming Department of Environmental Quality at the address in Part I under Reporting and to the Planning and Targeting Program, 8ENF-PT, Office of Enforcement, Compliance, and Environmental Justice, U.S. EPA Region 8, 999 18th St., Suite 300, Denver, CO 80202-2466.
- g. The permittee shall report all instances of noncompliance that have not been specifically addressed in any part of this permit at the time the monitoring reports are due.
3. Facilities Operation
- The permittee shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
4. Adverse Impact
- The permittee shall take all reasonable steps to minimize any adverse impact to waters of the state resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.
5. Bypass of Treatment Facilities
- a. Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
- b. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c. and d. of this section. Return of removed substances to the discharge stream shall not be considered a bypass under the provisions of this paragraph.
- c. Notice:
- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice at least 60 days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.A.2.

- d. Prohibition of bypass.
- (1) Bypass is prohibited and the administrator of the Water Quality Division may take enforcement action against a permittee for a bypass, unless:
 - (a) The bypass was unavoidable to prevent loss of life, personal injury or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (c) The permittee submitted notices as required under paragraph c. of this section.
- e. The administrator of the Water Quality Division may approve an anticipated bypass, after considering its adverse effects, if the administrator determines that it will meet the three conditions listed above in paragraph d. (1) of this section.

6. Upset Conditions

- a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improper designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph c. of this section are met.
- c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required under Part II.A.2; and
 - (4) The permittee complied with any remedial measures required under Part II.A.4.
- d. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

7. Removed Substances

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

8. Power Failures

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

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

9. Duty to Comply

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

10. Duty to Mitigate

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

11. Signatory Requirements

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

- a. All permit applications shall be signed as follows:
 - (1) For a corporation: by a responsible corporate officer;
 - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - (3) For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected official.
- b. All reports required by the permit and other information requested by the administrator of the Water Quality Division shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- (1) The authorization is made in writing by a person described above and submitted to the administrator of the Water Quality Division; and
 - (2) The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
- c. If an authorization under paragraph II.A.11.b. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph II.A.11.b must be submitted to the administrator of the Water Quality Division prior to or together with any reports, information or applications to be signed by an authorized representative.
- d. Any person signing a document under this section shall make the following certification:
- "I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

B. RESPONSIBILITIES

1. Inspection and Entry

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

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

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

2. Transfer of Ownership or Control

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

3. Availability of Reports

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

4. Toxic Pollutants

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

5. Changes in Discharge of Toxic Substances

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

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 µg/l);
 - (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21 (g) (7); or
 - (4) The level established by the director of the Environmental Protection Agency in accordance with 40 CFR 122.44 (f).
- b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 µg/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21 (g) (7); or
 - (4) The level established by the director of the Environmental Protection Agency in accordance with 40 CFR 122.44 (f).

6. Civil and Criminal Liability

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

7. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the federal act.

9. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties established pursuant to any applicable state or federal law or regulation. In addition, issuance of this permit does not substitute for any other permits required under the Clean Water Act or any other federal, state, or local law.

10. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights nor any infringement of federal, state or local laws or regulations.

11. Duty to Reapply

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

12. Duty to Provide Information

The permittee shall furnish to the administrator of the Water Quality Division, within a reasonable time, any information which the administrator may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the administrator, upon request, copies of records required by this permit to be kept.

13. Other Information

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

14. Permit Action

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

15. Permit Fees

Once this permit has been issued, the permittee will be assessed a \$100.00 per-year permit fee by the Water Quality Division. The fee year runs from July 1st through June 30th. This permit fee will continue to be assessed for as long as the permit is active, regardless of whether discharge actually occurs. This fee is not pro-rated. If the permit is active during any portion of the fee year, the full fee will be billed to the permittee for that fee year. In the event that this permit is transferred from one permittee to another, each party will be billed the full permit fee for the fee year in which the permit transfer was finalized.

PART III

A. OTHER REQUIREMENTS

1. Flow Measurement

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

2. 208(b) Plans

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

3. Reopener Provision

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

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

- i. If new, additional or more stringent permit conditions are necessary for control of erosion downstream of the discharges to ensure protection of water quality standards.

4. Permit Modification

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

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

5. Toxicity Limitation - Reopener Provision

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

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

6. Severability

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit, shall not be affected thereby.

7. Penalties for Falsification of Reports

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