



840 Woodman Drive
Buffalo, Wyoming 82834

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January 14, 2009

WYPDES Permits Section
Department of Environmental Quality/Water Quality Division
122 West 25th Street, Herschler Building, 4W
Cheyenne, WY 82002

Re: New WYPDES Permit Application – **Spotted Horse**
Cedar Ridge, LLC

To Whom It May Concern:

Enclosed is an Option 2 WYPDES permit application for coal bed natural gas water discharges into both on-channel and off-channel impoundments.

Feel free to contact me with any questions or comments at 307-684-7233 or by email at cbrown@bisonenv.com.

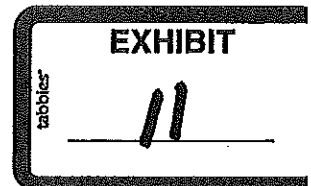
Sincerely,
Bison Environmental, Inc.

Christopher J. Brown, P.E.

cjb

enclosure

cc: Terry Logan



SUBMIT ONE HARD COPY AND ONE ELECTRONIC COPY

WYOMING POLLUTANT DISCHARGE ELIMINATION SYSTEM

APPLICATION FOR PERMIT TO SURFACE DISCHARGE PRODUCED WATER FROM COAL BED METHANE NEW DISCHARGES, RENEWALS, OR MAJOR MODIFICATIONS

Revised: 06-22-06

Revised form last updated: 9-03-08

PLEASE PRINT OR TYPE (Submission of illegible materials will result in return of the application to the applicant)

For Agency Use Only	
Application Number	
WY00 _____	
Date Received:	

(mo/dav/yr)	

1. Check the box corresponding to the type of application being applied for:

- New CBM permit
- CBM permit renewal Permit number _____ Expiration Date: _____
- CBM permit major modification Permit number _____ Expiration Date: _____

2. Identify the river basin in which the discharge will occur:

- Belle Fourche Cheyenne Powder Little Powder Tongue
- Other (identify) _____

3. Select permit option(s): if more than one option is selected, the applicant must describe which option applies to which outfall.

- Option 1A – Discharge is contained within an off-channel pit (class 4C) capable of containing all effluent plus up to a 50-year / 24-hour storm event. For existing permits only, Option 1A also applies to discharges that are contained within a headwater reservoir situated within a class 4 channel and capable of containing all effluent plus up to a 50-year/24-hour storm event, provided that the discharge was permitted for 50-year/24-hour containment prior to June 24th, 2008.
- Option 1B – Discharge is contained within a natural closed basin or playa lake (class 3A). For existing permits only, Option 1B also applies to discharges that are contained within a headwater reservoir situated within a class 3 channel and capable of containing all effluent plus up to a 50-year/24-hour storm event, provided that the discharge was permitted for 50-year/24 hour storm containment prior to June 24th, 2008. Option 1B headwater reservoirs shall not be located within alluvial deposits or the floodplain of any perennial, intermittent or ephemeral stream. Option 1B headwater reservoirs less than 50 acre feet in capacity shall not be located within 500 feet of such features; reservoirs greater than 50 acre feet in capacity shall not be located within ¼ mile (1320 feet) of such features.
- Option 2 – This option includes any on-channel discharge (including discharge into an on-channel reservoir) that does not meet the impoundment requirements specified in options 1A or 1B above.

4. General Facility Location: Township(s) 54 & 55 Range(s) 75

Immediate Receiving Stream(s) Rucker Draw & Linn Draw, tributaries to Spotted Horse Creek

5. Name of the facility producing the discharge (this is the facility name that will appear on the WYPDES permit)

Spotted Horse

6. Company, Contact Name, mailing address, e-mail address, and telephone number of the individual or company which owns the facility producing the discharge, and the person (consultant) responsible for permit submission.

Company Contact Name <u>Terry L. Logan, P.E.</u>	Consultant Contact Name <u>Chris Brown</u>
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<i>Company Name</i> <u>Cedar Ridge LLC dba Cedar Ridge Operating Co., LLC</u>	<i>Company Name</i> <u>Bison Environmental, Inc.</u>
<i>Mailing Address</i> <u>484 Turner Drive, Building B, Suite 3</u>	<i>Mailing Address</i> <u>840 Woodman Drive</u>
<i>City, State, and Zip Code</i> <u>Durango, CO 81303</u>	<i>City, State, and Zip Code</i> <u>Buffalo, WY 82834</u>
<i>Telephone Number</i> <u>970-382-5990</u>	<i>Telephone Number</i> <u>307-684-7233</u>
<i>E-Mail Address</i> <u>tlogan@cedarridgellc.com</u>	<i>E-Mail Address</i> <u>cbrown@bisonenv.com</u>

7.a. If applying for outfalls under Option 2, are any of the proposed Option 2 outfalls **DIRECT DISCHARGES*** that would require the use of assimilative capacity credits for salt and sodium in the Powder River?

Yes No

If "yes", please complete Table 5.

**DIRECT DISCHARGE means those discharges that are not or are only partially contained within reservoirs. Discharges to reservoirs that only overtop and spill during storm events are not subject to assimilative capacity requirements. Direct discharges that can meet Powder River ambient concentrations for TDS and sodium are also not subject to assimilative capacity requirements.*

7.b. If applying for outfalls under Option 2, is it possible that **INTENTIONAL RESERVOIR RELEASES*** will be requested for any of the reservoirs receiving CBM discharges under this permit?

Yes No

**INTENTIONAL RESERVOIR RELEASE means purposeful and intentional reservoir releases (opening a valve or pumping out a reservoir) to provide freeboard within a reservoir. Discharges that occur solely in response to storm events are not considered intentional reservoir releases, and do not require assimilative capacity credits. Intentional reservoir releases are authorized on a case-by-case basis and require WDEQ approval above and beyond a WYPDES surface discharge permit (authorization application form available on WDEQ website).*

8. If submitting a major modification or permit renewal, please describe all requested permit modifications (i.e. add 2 outfalls, add 23 wells, move outfall 001 500 feet...):

1. **Not applicable. Filing for new WYPDES permit.**
 2. _____
 3. _____
- (add additional lines as necessary)

***NOTE:** Major modification applications requesting to increase the permitted flow for a facility will be processed as **RENEWALS**. Major modification applications for permits within six months of their expiration date will also be processed as **RENEWALS**.

9. Name(s) and mailing address(es) of owner(s) of the surface rights on whose land the discharge occurs (in cases where the land is owned by the state or federal government but surface rights are leased to a private individual, provide lessee's name and address)

<i>Landowner #1 Name</i> <u>Bobby Joe</u> <u>Donald Spellman Trust</u>	<i>Landowner #2 Name</i> <u>Clifford Smith</u>
<i>Mailing Address</i> <u>7239C Highway 14-16</u>	<i>Mailing Address</i> <u>739 West 5th Street</u>
<i>City, State, and Zip Code</i> <u>Arvada, WY 82831</u>	<i>City, State, and Zip Code</i> <u>Sheridan, WY 82801</u>

(additional spaces may be added as necessary)

10a. Please provide the maximum anticipated discharge rate, in million gallons per day (MGD), from this facility:

Total estimated discharge rate = 0.03 MGD.

10b. Does this facility rely on containment in reservoirs (of any type) as part of the water management strategy?

YES NO

10c. If NO is checked above, please proceed to item #11. If YES is checked above, the permittee is required to conduct an internal evaluation of the ability of the reservoir(s) at this facility to contain discharges. Based on the results of this evaluation, please describe the ability of the reservoir(s) at this facility to contain effluent and surface run-off from precipitation events. If there are multiple reservoirs at this facility which have different reservoir containment capabilities, please describe separately, identifying reservoirs using reservoir name. For example, "Reservoir A will contain all effluent and will only overflow during a storm event of any magnitude; Reservoir B will contain all effluent plus surface run-off from up to the 50 year/24 hour storm event, etc...":

Produced water from CBNG wells will be discharged into and contained in three existing impoundments. These impoundments have the ability to divert the runoff shed by the surrounding landscape. Cedar Ridge LLC has no intentions of releasing stored CBNG water and will monitor reservoir levels to ensure there is no intentional overfilling of the impoundments.

The internal evaluation does NOT need to be submitted to the WYPDES Program as part of this application. By completing item 10b and signing this application, the permittee certifies that the reservoirs at this facility are capable of meeting the containment abilities which have been provided. The WYPDES Program will use the information provided above to determine the appropriate reservoir containment requirements that will be established in the permit. If reservoir containment requirements established in the permit are not met, this may constitute a violation of the permit, which is subject to full enforcement by the WYPDES Program.

11. Attach a description and a clear, legible, detailed topographic map of the discharging facility. Include the following:

- a. A legend
- b. Well locations
- c. Ponds
- d. Reservoirs
- e. Stock tanks **Stock tank locations are not pertinent to the water management proposed by this application.**
- f. Discharge points (outfalls)
- g. Immediate receiving streams
- h. Water quality monitoring stations
- i. Irrigation monitoring points
- j. Location of nearest downstream irrigator. **See Item #23.**
- k. Section, Township, and Range information
- l. **If proposing to use class 4C off-channel pits (option 1A), include footprint outline of the proposed pits. To denote setback distance, include a distance marker from closest side of pit to the nearest water feature, floodplain, or stream alluvium. Identify latitude and longitude in decimal degrees (using a minimum of 6 decimal places) for each end point of the setback distance marker.**
- m. **If proposing discharge to a headwater reservoir or to a playa lake (option 1B), include footprint outline of the proposed impoundment(s). See page 1 of the application form for option 1B impoundment siting requirements. To denote setback distance from alluvial floodplain areas, include a distance marker from closest side of the impoundment to the nearest floodplain, or stream alluvium. Identify latitude and longitude in decimal degrees (using a minimum of 6 decimal places) for each end point of the setback distance marker.**

If any of the above are not applicable please indicate in the description and include a brief explanation as to why the item is not applicable)

12. Describe the control measures that will be implemented to prevent significant damage to or erosion of the receiving water channel at the point of discharge.

If necessary, Cedar Ridge LLC will install erosion protections such as rip-rap and/or geotextiles.

13. Describe the control measures that will be implemented to achieve water quality standards and effluent limits. If proposing to utilize a treatment process, provide a description of the treatment process.

Outfalls are located on topography that gradually slopes towards the receiving channel. If necessary, Cedar Ridge LLC will install erosion control such as rip-rap and/or geotextile.

14. Outfall locations must be established as part of a preliminary field reconnaissance survey using GPS or conventional survey equipment and documented in Table 1. Please document the type of equipment used, the expected accuracy of your measurements, and a brief rationale for locating the outfalls at the requested sites below.

Outfall locations are based on topography and land owner needs. Coordinates were obtained from GPS units with accuracies of 3 meters or better.

15. Complete the attached **Table 1**. Provide all the information requested in the table for each proposed discharge point or monitoring point. If proposing changes (a major modification) to an existing facility, clearly indicate the desired changes on the table. Additional tables may be attached. Use the format provided. Option 2 permits, except those located in the Belle Fourche or Cheyenne River Basins, must include water quality monitoring station locations. Option 1B headwater reservoir discharges (reservoirs other than playa lakes capable of 50 year, 24 hour stormwater runoff containment) must include flow monitoring station locations. Option 1A and 1B permits must include containment unit monitoring station locations. Information related to reservoirs is only required if the facility's water management plan includes reservoir containment.

See attached Table 1.

16. Complete the attached **Table 2**. Provide all the information requested in the table for each well associated with this proposed discharge authorization. If proposing changes (a major modification) to an existing facility, clearly indicate the desired changes on the table. Additional tables may be attached. Use the format provided.

See attached Table 2.

17. Complete the attached **Table 3**. Provide all the information requested in the table for each reservoir proposed for containment of CBM produced water. Specified locations refer to the approximate center of the reservoir. If proposing changes (a major modification) to an existing facility, clearly indicate the desired changes on the table. Additional tables may be attached. Use the format provided. Information related to reservoirs is only required if the facility's water management plan includes reservoir containment.

See attached Table 3.

18. Complete the attached **Table 4**. Provide all information requested in the table related to reservoir bonding requirements for each reservoir proposed for the containment of CBM produced water. If proposing any changes (a major modification) to an existing facility, clearly indicate the desired changes on the table. Additional tables may be attached. Use the format provided. Information related to reservoirs is only required if the facility's water management plan includes reservoir containment.

See attached Table 4.

19. Provide the results of water analyses for a sample collected from a location representative of the quality of the water being proposed for discharge for all of the chemical parameters listed in the table below. The sample must be collected from well(s) or outfall(s) within a twenty mile radius of the proposed facility's location, and from the same coal formation(s) and the same approximate depth(s) as proposed in this application. If filing an application for a permit renewal or modification, the representative sample must be collected from the facility being proposed for renewal or modification. Explain why this sample is representative of the produced water to be discharged.

Samples from co-mingled coal seams are acceptable as long as the sample(s) meet the following criteria:

- A. all of the coal seams being proposed for development are represented in the co-mingled sample, with no contribution from coal seams not being proposed for development at the new facility.
- B. the ratio of each coal seam's contribution is approximately the same in the sample and the proposed development,
- C. documentation is provided to verify the criteria listed in A. and B.

The analyses must be conducted in accordance with approved EPA test procedures (40 CFR Part 136). Include a signed copy of your lab report that includes the following:

- a. detection limits
- b. results of each of the chemical parameters at the chemical state given below
- c. quarter/quarter, section, township and range of the sample collection location
- d. Time and date of sample collection
- e. Time and date of analysis for each parameter
- f. Analyst's initials for each parameter
- g. Detection limit for each parameter as achieved by the laboratory
- h. WYPDES permit number and outfall number, where the sample was collected.
- i. Origin of produced water (coal seam and legal location of sample collection location)

If more than one coal seam is being proposed for development, the permittee must submit a lab analysis and complete information characterizing water quality from each coal seam being proposed for development. If the permittee is proposing to include discharges from a coal seam not previously developed at this facility, the permittee must submit a lab analysis and complete information characterizing water quality from the new coal seam being proposed for development. A mixing analysis may be required if the representative water quality analysis from the new coal seam indicates that the inclusion of the new effluent source may result in degradation of existing effluent quality. Analyses must be provided in the units listed below.

Parameter* (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, Dissolved	50 µg/l
Arsenic, Total Recoverable	1 µg/l
Barium, Total Recoverable	100 µg/l
Bicarbonate	10 mg/l
Cadmium, Dissolved	5 µg/l
Calcium, Dissolved	50 µg/l, report as mg/l
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
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

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

*Discharges into drainages other than the Powder River geologic basin may require analysis of additional parameters, please contact the WDEQ for a separate list.

**This parameter is only required for those discharges located within one stream mile of a class 2 water.

See attached representative water quality from nearby WYPDES permitted outfall WY0045829-002. This outfall is located in the SENW of Section 2, Township 54 North, Range 75 West and discharges water from the same coals as listed on Table 2.

20. For new facilities, provide the expected (estimated) flow volume from each well in gallons per day, and provide the rationale behind the flow volume estimate. For existing facilities, provide actual flow data from all wells within the last six months.

The estimated initial flow volume is approximately 900 gpd/well.

21. For applications for new facilities, are any of the required chemical constituents in the laboratory analysis present in concentrations above Wyoming Water Quality Standards?

YES NO

If the answer to question # 21 is yes, answer 21.a. – 21.b below. If no, proceed to question 23.

a. Which constituents?

b. Has this constituent been addressed in the response to question 13?

22. For applications for existing facilities, has the facility ever exceeded permit limits or water quality standards? *If the facility has never discharged or has not yet been constructed, please indicate below.*

Not applicable. Filing for a new WYPDES permit.

YES NO

If the answer to question 22 is yes, answer 22.a. – 22.c. If no, proceed to question 23.

a. Which constituents?

b. Has the exceedance been addressed?

c. Describe how the exceedance was addressed.

23. Is there active irrigation in the drainage downstream of the discharge? *(Please note that this response includes both artificially and naturally irrigated bottomlands as defined in the Draft Agricultural Use Protection Policy for the interpretation and implementation of Chapter 1, Section 20 of the Wyoming Water Quality Rules and Regulations).*

YES NO

If yes, at a **minimum**, the WYPDES Program requires submission of the following information:

1. Location(s) of irrigation diversions and/or sub-irrigated acreage;
2. Type(s) of Crops grown under irrigation;
3. Description of Irrigation Practices

4. A topographic map showing irrigated acreage, any structures, ownership of irrigated acreage.

In addition to the minimum information described above, the WYPDES Program may require additional information should the permittee request site-specific effluent limits protective of irrigation uses. Contact the WYPDES Program for more information regarding requirements for site-specific SAR, TDS, and EC limits.

Please refer to the 2000 and 2006 Tier 2 Section 20 reports submitted for Spotted Horse Creek. The specific conductance (EC) protection limit established for the Spotted Horse Creek drainage is 2,680 µmhos/cm. SAR will be monitored at the downstream irrigation monitoring point (IMP). The attached representative water quality analysis demonstrates produced water from this facility will be below the EC limit of 2,680 µmhos/cm.

24. Provide name(s) and address(es) for all downstream irrigators between the outfalls and the mainstem.

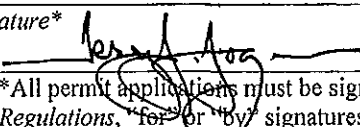
<i>Irrigator #1 Name</i> <u>Please refer to the 2000 and 2006 Tier 2 Section 20 reports submitted for Spotted Horse Creek.</u>	<i>Irrigator #2 Name</i>
<i>Mailing Address</i>	<i>Mailing Address</i>
<i>City, State, and Zip Code</i>	<i>City, State, and Zip Code</i>

(additional spaces may be added as necessary)

25. Provide a listing of all active permits or construction approvals received or applied for by the applicant for the site described in this permit application in accordance with *Chapter 2, Section 5.T. of the Wyoming Water Quality Rules and Regulations.*

There are no other WDEQ permits associated with this facility.

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. I am requesting 3 (fill in number) outfalls in this application.

Terry L. Logan, P.E.	Manager
Printed Name of Person Signing*	Title
Signature* 	Date 1.13.2009

*All permit applications must be signed in accordance with Section 14, Chapter 2 of the Wyoming Water Quality Rules and Regulations, "for" or "by" signatures are not acceptable.

Section 35-11-901 of Wyoming Statutes provides that:

Any person who knowingly makes any false statement, representation, or certification in any application ... shall upon conviction be fined not more than \$10,000 or imprisoned for not more than one year, or both. Permittees are required to retain records of all data used to complete permit applications in accordance with Chapter 2, Section 5, Part 5.V.vii of the Wyoming Water Quality Rules and Regulations.

Mail this application to:

WYPDES Permits Section
 Department of Environmental Quality/WQD
 122 West 25th Street, Herschler Building, 4W
 Cheyenne, WY 82002

Permits issued under the WYDPES Program are subject to an annual \$100 permit fee for as long as permit is active. The annual billing cycle is based on the calendar year. There is no need to pay the fee with the application. All permit fees are invoiced after January 1st of each year.

Table 1: Outfall, Water Quality Monitoring Station, Containment Unit, and Flow Monitoring Station Location Information

Discharge Point (Outfall) #	Immediate Receiving Stream	Mainstem (closest perennial water)	Distance from outfalls to Mainstem	Quarter/Quarter	Section	Township	Range	Latitude (decimal degrees) NAD 83	Longitude (decimal degrees) NAD 83	County	Reservoir Name and Type
001	Rucker Draw	Powder River	17.2	NWSW	28	55	75	44.712052	-105.892083	Campbell	"004-SHS" - Option 2
002	Linn Draw	Powder River	24.4	SENW	14	54	75	44.662344	-105.851730	Campbell	"Spellman 54-75-6-11" Option 2
003	Linn Draw	Powder River	23.3	NESW	11	54	75	44.673471	-105.850037	Campbell	"Spellman 54-75-11-11" Option 2
Station Name	Station Description		Quarter/Quarter	Section	Township	Range	Latitude (decimal degrees) NAD 83	Longitude (decimal degrees) NAD 83	Notes regarding water quality monitoring station types		
DPR	downstream Powder River		SENW	31	57	76	44.87964	-106.05983			
UPR	upstream Powder River		NWSW	7	56	76	44.83951	-106.06188			
TRIB	Spotted Horse Creek confluence with Powder River		SWNE	7	56	76	44.84652	-106.04959			
IMP1	irrigation monitoring point		SENE	28	54	75	44.718228	-105.888467	for outfall 001		
IMP2	irrigation monitoring point		NWNW	11	55	75	44.679653	-105.855281	for outfalls 002 & 003		

TABLE 2: WELL INFORMATION

Well Name	API Number	Coal Seam(s)	Well Depth	Legal Location (QQ, Section, Township, Range)	Discharges to Outfall #
SPELLMAN 1-11-A	49-005-43094	Anderson	465	NENE 11 54-75	AWAO
SPELLMAN 1-11-W	49-005-43092	Anderson, Wall	1199	NENE 11 54-75	AWAO
SPELLMAN 3-11-A	49-005-43118	Anderson	371	NENW 11 54-75	AWAO
SPELLMAN 3-11-W	49-005-43117	Wall	1105	NENW 11 54-75	AWAO
SPELLMAN 5-11-A	49-005-43120	Anderson	390	SWNW 11 54-75	AWAO
SPELLMAN 5-11-W	49-005-43122	Wall	1119	SWNW 11 54-75	AWAO
SPELLMAN 7-11-A	49-005-43123	Anderson	498	SWNE 11 54-75	AWAO
SPELLMAN 7-11-W	49-005-43125	Wall	1208	SWNE 11 54-75	AWAO
SPELLMAN 9-11-A	49-005-43126	Anderson	658	NESE 11 54-75	AWAO
SPELLMAN 9-11-W	49-005-43091	Wall	1328	NESE 11 54-75	AWAO
SPELLMAN 11-11-A	49-005-43115	Anderson	438	NESW 11 54-75	AWAO
SPELLMAN 11-11-W	49-005-43113	Wall	1150	NESW 11 54-75	AWAO
SPELLMAN 13-11-A	49-005-43112	Anderson	592	SWSW 11 54-75	AWAO
SPELLMAN 13-11-W	49-005-43111	Wall	1244	SWSW 11 54-75	AWAO
SPELLMAN 15-11-A	49-005-43109	Anderson	591	SWSE 11 54-75	AWAO
SPELLMAN 15-11-W	49-005-43107	Wall	1217	SWSE 11 54-75	AWAO
SPELLMAN 1-14-A	49-005-43106	Anderson	599	NENE 14 54-75	AWAO
SPELLMAN 1-14-W	49-005-43104	Wall	1220	NENE 14 54-75	AWAO
SPELLMAN 3-14-A	49-005-43103	Anderson	479	NENW 14 54-75	AWAO
SPELLMAN 3-14-W	49-005-43101	Wall	1220	NENW 14 54-75	AWAO
SPELLMAN 5-14-A	49-005-43100	Anderson	682	SWNW 14 54-75	AWAO
SPELLMAN 5-14W	49-005-43098	Wall	1345	SWNW 14 54-75	AWAO
SPELLMAN 7-14-A	49-005-43097	Anderson	609	SWNE 14 54-75	AWAO
SPELLMAN 7-14-W	49-005-43095	Wall	1234	SWNE 14 54-75	AWAO
SMITH 11-28	49-005-41627	Anderson	507	NESW 28 54-75	AWAO
SMITH 11-28C	49-005-42061	Canyon	647	NESW 28 54-75	AWAO
SMITH 11-28 W	49-005-41634	Wall	1037	NESW 28 54-75	AWAO
SMITH 1-32	49-005-41626	Smith, Anderson	708	NENE 32 55-75	AWAO
SMITH 1-32 W	49-005-41635	Smith, Anderson, Wall	1098	NENE 32 55-75	AWAO
SMITH 1-32S	49-005-42062	Anderson	318	NENE 32 55-75	AWAO
SMITH 3-33	49-005-41628	Anderson	605	NENW 33 55-75	AWAO
SMITH 3-33C	49-005-42202	Canyon	725	NENW 33 55-75	AWAO
SMITH 3-33 W	49-005-41631	Wall	1076	NENW 33 55-75	AWAO
SMITH 5-33	49-005-41629	Anderson	625	SWNW 33 55-75	AWAO
SMITH 5-33C	49-005-42199	Canyon	743	SWNW 33 55-75	AWAO
SMITH 5-33 W	49-005-41632	Smith, Canyon, Wall	1120	SWNW 33 55-75	AWAO
SMITH 7-33	49-005-41630	Anderson	578	SWNE 33 55-75	AWAO
SMITH 7-33C	49-005-42204	Canyon	718	SWNE 33 55-75	AWAO
SMITH 7-33 W	49-005-41633	Anderson, Canyon, Wall, Cook	1090	SWNE 33 55-75	AWAO

AWAO = "all wells to all outfalls"

Total Number of Wells

39

TABLE 3: RESERVOIR INFORMATION

Reservoir Name	Reservoir Storage Volume (acre/feet)	SEO Permit #	SEO Reservoir Requirements	Legal Location (QQ, Section, Township, Range)				Geographic Location (Latitude and Longitude, Decimal Degrees) NAD 83	
				Quarter-Quarter	Section	Township	Range	Latitude	Longitude
004-SHS	3.9	P14342S	not applicable	NWSE	28	55	75	44.712814	-105.891500
Spellman 54-75-6-11	19.9	P14425S	not applicable	SESW	14	54	75	44.661933	-105.851103
Spellman 54-75-11-11	19.9	P14426S	not applicable	NESW	11	54	75	44.673467	-105.850570

Table 4: Bonding Information Table

		Please check only one "reservoir reclamation volume box" for each reservoir.				
Reservoir Name	Reservoir Bonding Authority (BLM, WDEQ, WOGCC, or OSLI)	Reservoir Reclamation Volume less than 5,000 cubic yards?	Reservoir Reclamation Volume between 5,000 and 10,000 cubic yards?	Reservoir Reclamation Volume greater than 10,000 cubic yards?	Reservoir constructed prior to September 1, 2005?	Bond currently posted with bonding authority?
004-SHS	WDEQ		X		yes	no
Spellman 54-75-6-11	WOGCC		X		yes	no
Spellman 54-75-11-11	WOGCC		X		yes	no



LABORATORY ANALYTICAL REPORT

Client: Federated Oil and Gas
 Project: Spotted Horse 16
 Client Sample ID: Spotted Horse 16
 Location: 002 SE1/4 SW 32 T51N R75W
 Samp FREQ/Type: Anderson, Canyon, Cook + Wall
 Lab ID: 007040490-00
 Report Date: 05/03/07
 Collection Date: 04/17/07 15:00
 Date Received: 04/17/07
 Matrix: Aqueous
 Sampled By: Dean McClure

Analyses	Result	Units	Result	Units	Qualifier	Method	Analysis Date / By
MAJOR IONS, DISSOLVED							
Bicarbonate as HCO ₃ ⁻	1346	mg/L	224	meq/L		A2020 B	04/19/07 02:47 / mlb
Chloride	13	mg/L	0.38	meq/L		E300 0	04/21/07 05:51 / mlb
Fluoride	10	mg/L	0.05	meq/L		E300 0	04/21/07 05:51 / mlb
Sulfate	1	mg/L	<0.02	meq/L		E300 0	04/21/07 05:51 / mlb
Calcium	15	mg/L	0.75	meq/L		E200 7	04/19/07 15:43 / elb-b
Magnesium	9	mg/L	0.72	meq/L		E200 7	04/19/07 15:43 / elb-b
Sodium	496	mg/L	21.7	meq/L		E200 7	04/19/07 15:43 / elb-b
METALS, DISSOLVED							
Aluminum	<50	ug/L				E200 7	04/19/07 15:43 / elb-b
Cadmium	<0.1	ug/L				E200.6	04/23/07 13:12 / elb-b
Copper	6	ug/L				E200.6	04/23/07 13:12 / elb-b
Iron	<30	ug/L				E200 7	04/19/07 15:43 / elb-b
Lead	<2	ug/L				E200.6	04/23/07 13:12 / elb-b
Manganese	13	ug/L				E200 7	04/19/07 15:43 / elb-b
Mercury	<0.02	ug/L				E200.6	04/23/07 13:12 / elb-b
Zinc	<10	ug/L				E200.7	04/19/07 15:43 / elb-b
METALS, TOTAL RECOVERABLE							
Arsenic	0.1	ng/L				E200.6	04/21/07 12:52 / elb-b
Barium	597	ug/L				E200.6	04/21/07 12:52 / elb-b
Selenium	<5	ug/L				E200.6	04/21/07 12:52 / elb-b
NON METALS							
Alkalinity, Total as CaCO ₃	1100	mg/L				A2020 B	04/19/07 02:47 / mlb
Conductivity @ 25 C	1858	umhos/cm				A2010 B	04/19/07 10:47 / cm
Hardness as CaCO ₃	74	mg/L				A2040 E	04/24/07 15:15 / mlb
pH	7.12	u				A4500-H B	04/19/07 10:46 / cm
Sodium Adsorption Ratio (SAR)	26.1	meq/L				Calculation	04/24/07 15:15 / mlb
Solids, Total Dissolved TDS @ 100 C	1150	mg/L				A2630 C	04/20/07 10:17 / mlb
RADIOCHEMICAL							
Radium 226	1.0	pCi/L				E903.01	04/30/07 15:10 / elb-b
Radium 226 precision (rel)	2.2	%				E903.01	04/30/07 15:10 / elb-b

Michelle Buchholz

Michelle Buchholz
 Project Manager

Report: RL Analytical Reporting Method
 Definitions: CC Quality Control Method
 MFL - Maximum Contaminant Level
 ND - Not Detected at the reporting level

**Spotted Horse
WYPDES Permit
Application**

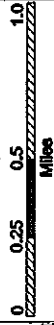
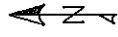
**CEDAR
RIDGE, LLC**

January 13, 2008

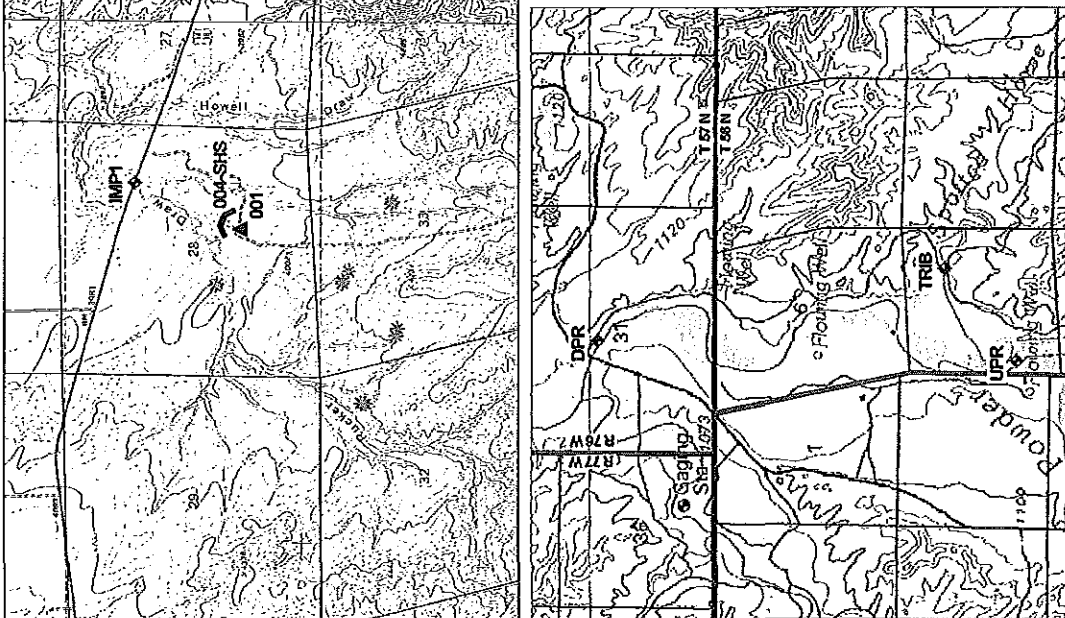
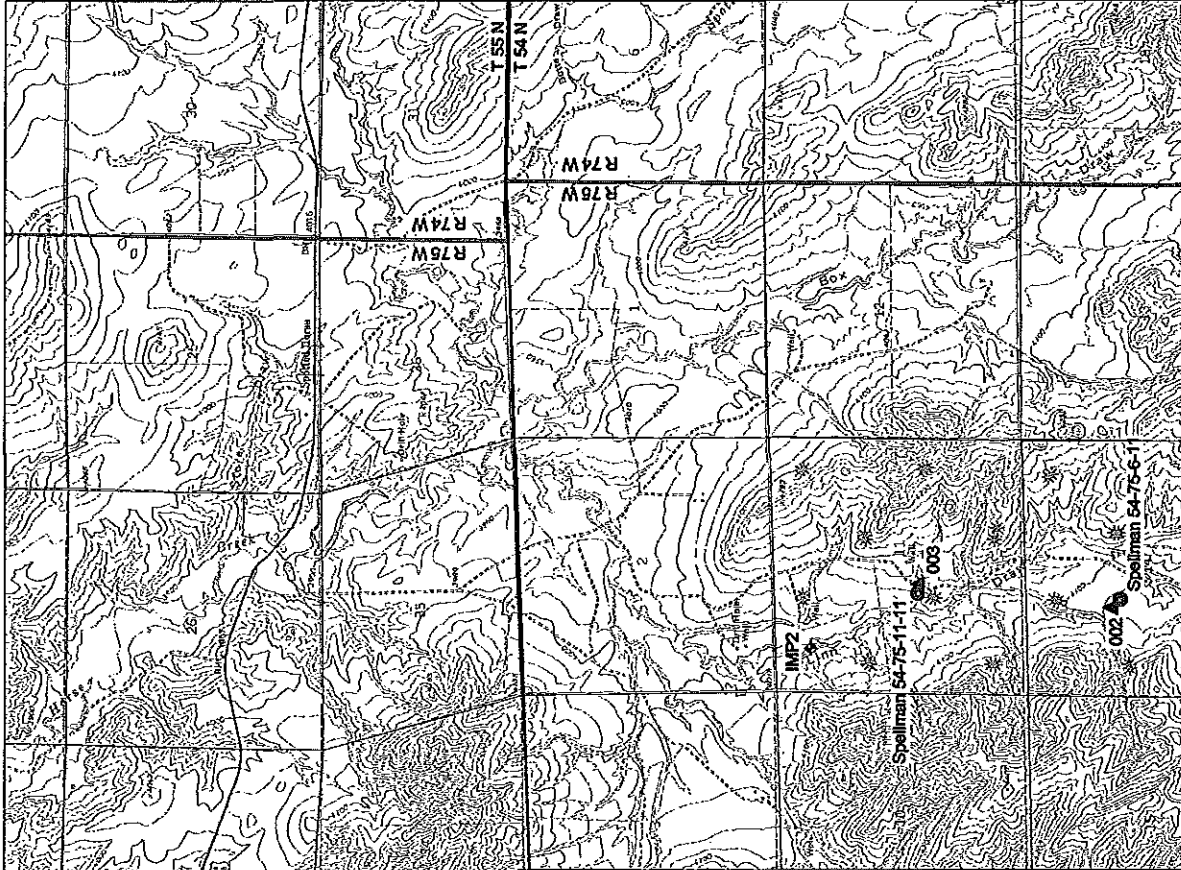
HUC 1009020209

LEGEND

- ▲ Outfall
- ⊛ Well
- ⊕ WQMS
- ⌒ Reservoir
- ⊙ Pit



Campbell County, WY
Scale 1:24,000
NAD 83, UTM Zone 13



WQMS Locations Inset Map

Sheridan County, WY
Scale 1:50,000
NAD 83, UTM Zone 13

Table 1: Outfall, Water Quality Monitoring Station, Containment Unit, and Flow Monitc

Discharge Point (Outfall) #	Immediate Receiving Stream	Mainstem (closest perennial water)	Distance from outfalls to Mainstem	Quarter/Quarter	Section	Township
001	Rucker Draw	Powder River	17.2	NWSW	28	55
002	Linn Draw	Powder River	24.4	SENW	14	54
003	Linn Draw	Powder River	23.3	NESW	11	54
Station Name	Station Description		Quarter/Quarter	Section	Township	Range
DPR	downstream Powder River		SENW	31	57	76
UPR	upstream Powder River		NWSW	7	56	76
TRIB	Spotted Horse Creek confluence with Powder River		SWNE	7	56	76
IMP1	irrigation monitoring point		SENE	28	54	75
IMP2	irrigation monitoring point		NWNW	11	55	75

Monitoring Station Location Information

Range	Latitude (decimal degrees) NAD 83	Longitude (decimal degrees) NAD 83	County	Reservoir Name and Type
75	44.712052	-105.892083	Campbell	"004-SHS" - Option 2
75	44.662344	-105.851730	Campbell	"Spellman 54-75-6-11" Option 2
75	44.673471	-105.850037	Campbell	"Spellman 54-75-11-11" Option 2
Latitude (decimal degrees) NAD 83	Longitude (decimal degrees) NAD 83	Notes regarding water quality monitoring station types		
44.87964	-106.05983			
44.83951	-106.06188			
44.84652	-106.04959			
44.718228	-105.888467	for outfall 001		
44.679653	-105.855281	for outfalls 002 & 003		

12. Location of Discharge Points and Containment Unit Monitoring Locations

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

Table 1: WY0094056 Spotted Horse

Out-fall	Qtr/Qtr	SEC-TION	TWP (N)	RNG (W)	LATITUDE	LONGITUDE	Drainage / Description	Groundwater approval required prior to Discharge?	Reservoir Bond to WDEQ Required prior to Discharge?
001	NWSW	28	55	75	44.712052	-105.892083	Powder River (2ABWW) via Spotted Horse Creek (3B) via Rucker Draw (3B) via an on-channel reservoir "004-SHS" (3B)	NO	YES
002	SENW	14	54	75	44.662344	-105.851730	Powder River (2ABWW) via Spotted Horse Creek (3B) via Linn Draw (3B) via an on-channel reservoir "Spellman 54-75-6-11" (3B)	NO	NO
003	NESW	11	54	76	44.673471	-105.860037	Powder River (2ABWW) via Spotted Horse Creek (3B) via Linn Draw (3B) via an on-channel reservoir "Spellman 54-75-11-11" (3B)	NO	NO
UPR	SENW	31	57	76	44.87964	-106.05983	upstream Powder River monitoring station	NA	NA
DPR	NWSW	7	56	76	44.83951	-106.06188	downstream Powder River monitoring station	NA	NA
TRIB1	SWNE	7	56	76	44.84652	-106.04959	tributary monitoring station for Spotted Horse Creek	NA	NA
IMP1	SENE	28	54	75	44.718228	-105.888467	Irrigation monitoring point	NA	NA
IMP2	NWNW	11	55	75	44.679653	-105.855281	Irrigation monitoring point	NA	NA

Requests for modification of the list below will be processed as follows. If the requested modification satisfies the definition of a minor permit modification as defined in 40 CFR 122.63 modifications will not be required to be advertised in a public notice. A minor modification constitutes a correction of a typographical error, increase in monitoring and/or reporting, revision to an interim compliance schedule date, change in ownership, revision of a construction schedule for a new source discharger, deletion of permitted outfalls, and/or the incorporation of an approved local pretreatment program.

A request for a minor modification must be initiated by the permittee by completing the form titled Wyoming Pollutant Discharge Elimination System Permit Modification Application For Coal Bed Methane. Incomplete application forms will be returned to the applicant.

The outfalls listed in the above table 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