

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: 3-1-2012

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/day/yr)

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

- Checkboxes for New CBM permit, CBM permit renewal, and CBM permit major modification with permit numbers and expiration dates.

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

- Checkboxes for Belle Fourche, Cheyenne, Powder, Little Powder, and Tongue river basins.

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

- Options 1A, 1B, and 2 with detailed descriptions of discharge containment requirements.

4. General Facility Location: Township(s) 46N Range(s) 75W

Immediate Receiving Stream(s) North Prong Pumpkin Creek tributary of Pumpkin Creek; this mod will add one (1) outfall to North Prong Pumpkin Creek and six (6) outfalls to Middle Prong Pumpkin Creek.

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

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.

Table with 2 columns: Company Contact Name (Paul McElvery), Consultant Contact Name, Company Name (MEGA Energy LLC).

<i>Mailing Address</i> <b>1206 Jack Plane Ln.</b>	<i>Mailing Address</i>
<i>City, State, and Zip Code</i> <b>Gillette, WY 82716</b>	<i>City, State, and Zip Code</i>
<i>Telephone Number</i> <b>307-685-4359</b>	<i>Telephone Number</i>
<i>E-Mail Address</i> <b>pmcelvery@yahoo.com</b>	<i>E-Mail Address</i>

**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. Add 7 outfalls
  2. Add 26 wells
  3. Add 7 reservoirs
- (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> <b>Innes Ranch c/o Bob Innes</b>	<i>Landowner #2 Name</i> <b>Bob Christensen</b>
<i>Mailing Address</i> <b>888 Black and Yellow Road</b>	<i>Mailing Address</i> <b>P.O. Box 1269</b>
<i>City, State, and Zip Code</i> <b>Gillette, WY 82718</b>	<i>City, State, and Zip Code</i> <b>Gillette, WY 82717</b>

(additional spaces may be added as necessary)

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

It is not anticipated that the water from these new outfalls will ever fill up the reservoirs. There has been so much dewatering in the Big George that new wells just don't produce that much water.

*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
- f. Discharge points (outfalls)
- g. Immediate receiving streams
- h. Water quality monitoring stations
- i. Irrigation monitoring points
- j. Location of nearest downstream irrigator.
- 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.

Erosion control structures such as cement aprons and/or rip-rap will be installed at each outfall.

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.  
No active water treatment is necessary to meet the water quality standards and effluent limits. However, passive treatment methods such as aeration and settling may be implemented to reduce concentrations of trace metals.
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.  
The outfalls will be constructed at sites designated by the landowner. The locations represent the coordinates obtained by field personnel using hand-held GPS units with accuracies of approximately 20 feet.
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.  
Please see attached Table 1: Outfall Information
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.  
Please see attached Table 2: Well Information
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.  
Please see attached Table 3: Reservoir Information
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.  
Please see attached Table 4: Bonding Information
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.

<b>Parameter*</b> (See notes following the table on chemical states)	<b>Required Detection Limits and Required Units</b>
Alkalinity, Total	1 mg/l as CaCO <sub>3</sub>
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 <sub>3</sub>
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
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.

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.

Expected flow volume from each well is 10 gpm (when pump is running, which will only be a few hours a day) or 3,600 gallons per day. This flow volume estimate is based on pump size and expected depth to water.

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.*

YES  NO Not Applicable. This is a new facility.

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. Does any irrigation occur downstream of the discharge? Please note that irrigation may include conventional (artificial) irrigation involving the use of diversion structures; as well as natural irrigation, which occurs passively from overbank flooding or sub-irrigation.

YES  NO

MEGA Energy acknowledges the presence of passive downstream irrigation in the form of passive overbank flooding and sub-irrigation / natural irrigation. MEGA Energy plans on following the WDEQ’s current practice of enhanced agricultural protection through management and monitoring.

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

1. Location(s) of irrigation diversions (if any) and/or naturally-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.

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

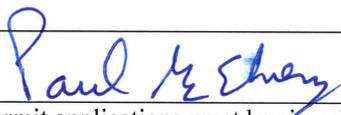
<i>Irrigator #1 Name</i> <b>Iberlin Ranch Ltd. Partnership</b>	<i>Irrigator #2 Name</i>
<i>Mailing Address</i> <b>975 Iberlin Road</b>	<i>Mailing Address</i>
<i>City, State, and Zip Code</i> <b>Gillette, WY 82718</b>	<i>City, State, and Zip Code</i>

(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.**

Please see Table 2: Well information for API numbers.  
Please see Table 3: Reservoir information for WSEO numbers.

*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 1 (fill in number) outfalls in this application.*

<b>Paul McElvery</b>	<b>Owner</b>
<i>Printed Name of Person Signing*</i>	<i>Title</i>
<i>Signature*</i> 	<i>Date</i> <u>12-08-14</u>

\*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 25<sup>th</sup> 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**

Desired Changes (modifications and renewals only)	Discharge Point (Outfall) #	Immediate Receiving Stream	Mainstem (closest perennial water)	Distance from outfalls to mainstem	Quarter/Quarter	Section	Township	Range	Latitude (NAD 83, decimal degrees accurate to a minimum of 5 decimal places)	Longitude (NAD 83, decimal degrees accurate to a minimum of 5 decimal places)	County	Reservoir Name and type
	001	North Prong Pumpkin Creek	Powder River	29.5	NESW	8	46	75	43.97396	105.90104	Campbell	8-1
	002	North Prong Pumpkin Creek	Powder River	28.7	NWSW	8	46	75	43.97301	105.90773	Campbell	8-1
Add	003	Middle Prong Pumpkin Creek	Powder River	31.1	SWSW	22	46	75	43.94027	105.86586	Campbell	North Shed
Add	004	North Prong Pumpkin Creek	Powder River	32.7	SESE	23	46	75	43.94325	105.83157	Campbell	Innes #1
Add	005	Middle Prong Pumpkin Creek	Powder River	35.4	SESW	25	46	75	43.92831	105.82056	Campbell	Wanda I.
Add	006	Middle Prong Pumpkin Creek	Powder River	30.1	NENE	33	46	75	43.92470	105.87279	Campbell	Pumpkin Creek #2
Add	007	Middle Prong Pumpkin Creek	Powder River	29.4	SENW	29	46	75	43.93347	105.89953	Campbell	29-1
Add	008	Middle Prong Pumpkin Creek	Powder River	30.7	SESW	32	46	75	43.91282	105.90157	Campbell	Booth
Add	009	Middle Prong Pumpkin Creek	Powder River	29.5	SENW	31	46	75	43.91946	105.92113	Campbell	Pumpkin
Desired Changes (modifications and renewals only)	Station Name	Station Description	Quarter/Quarter	Section	Township	Range	Latitude (decimal degrees)	Longitude (decimal degrees)	Notes regarding water quality monitoring station types			
	UWQMS	Upstream mainstem water quality monitoring station	NWNE	25	47	78	44.02403	-106.17646	Only required for Option 2 outfalls in drainages other than the Belle Fourche and Cheyenne Rivers, facility may require more than one TRIB station			
	DWQMS	Downstream mainstem water quality monitoring station	SENE	24	47	78	44.03315	-106.17400				
	TRIB1	Tributary water quality monitoring station	NESW	19	47	77	44.02932	-106.16246				
	CU1	Containment unit water quality monitoring station							Only required for option 1A and Option 1B permits Separate containment unit monitoring stations are required for each			

	<b>CU2</b>	Containment unit water quality monitoring station							containment unit
	<b>FM1</b>	Flow monitoring station							Only required for Option 1A discharges that are not into off-channel pits (i.e. 50 yr/24 hour containment in on-channel reservoirs located in Class 4 drainages) and for Option 1B reservoirs that are <b>not</b> playa lakes. Separate flow monitoring stations are required for each containment unit
	<b>FM2</b>	Flow monitoring station							
<p>Please note that not all station types may be applicable for a particular facility. Additional spaces/pages may be added if necessary. Use the format provided. Please denote reservoir type(s) – on channel, off-channel, playa, headwater Option 1B – in the appropriate column. Please note that reservoir information is not required if reservoir containment is not part of the facility’s water management plan – for instance, information about existing “incidental” downstream reservoirs is not required. Please use North American Datum 1983 (NAD 83) when reporting latitudes and longitudes.</p>									

<b>TABLE 2: WELL INFORMATION</b>						
<b>Desired changes</b>	<b>Well Name</b>	<b>API Number</b>	<b>Coal Seam(s)</b>	<b>Well Depth</b>	<b>Legal Location (QQ, Section, Township, Range)</b>	<b>Discharges to Outfall</b>
	Innes 23-7-4675	49-005-62344	Big George	1105	NESW, Sec. 7, T46N, R75W	AWAO
	Innes 32-7-4675	49-005-62345	Big George	1105	SWNE, Sec. 7, T46N, R75W	AWAO
	Innes 43-7-4675	49-005-57968	Big George	1070	NESE, Sec. 7, T46N, R75W	AWAO
	Innes 23-8-4675	49-005-57969	Big George	1090	NESW, Sec. 8, T46N, R75W	AWAO
ADD	Innes 9-20-46-75 BG	Unassigned	Big George	Unk	NESE, Sec. 20, T46N, R75W	AWAO
ADD	Innes 11-20-46-75 BG	Unassigned	Big George	Unk	NESW, Sec. 20, T46N, R75W	AWAO
ADD	Innes 13-20-46-75 BG	Unassigned	Big George	Unk	SWSW, Sec. 20, T46N, R75W	AWAO
ADD	Innes 15-20-46-75 BG	Unassigned	Big George	Unk	SWSE, Sec. 20, T46N, R75W	AWAO
ADD	Innes 14-22-4675	49-005-62662	Big George	1300	SWSW, Sec. 22, T46N, R75W	AWAO
ADD	Innes 23-22-4675	49-005-62661	Big George	1300	NESW, Sec. 22, T46N, R75W	AWAO
ADD	Innes 9-22-46-75 BG	49-005-42775	Big George	1385	NESE, Sec. 22, T46N, R75W	AWAO
ADD	Innes 3-25-46-75 BG	49-005-34720	Big George	1275	NENW, Sec. 25, T46N, R75W	AWAO
ADD	Innes 11-25-46-75 BG	49-005-42756	Big George	1258	NESW, Sec. 25, T46N, R75W	AWAO
ADD	Innes 13-25-46-75 BG	49-005-42779	Big George	1259	SWSW, Sec. 25, T46N, R75W	AWAO
ADD	Innes 1-26-46-75 BG	49-005-34721	Big George	1334	NENE, Sec. 26, T46N, R75W	AWAO
ADD	Innes 7-26-46-75 BG	49-005-42782	Big George	1257	SWNE, Sec. 26, T46N, R75W	AWAO
ADD	Innes 15-26-46-75 BG	49-005-42780	Big George	1254	SWSE, Sec. 26, T46N, R75W	AWAO
ADD	Innes 14-28-4675	Unassigned	Big George	Unk	SWSW, Sec. 28, T46N, R75W	AWAO
ADD	Innes 23-28-4675	Unassigned	Big George	Unk	NESW, Sec. 28, T46N, R75W	AWAO
ADD	Innes 44-28-4675	Unassigned	Big George	Unk	SESE, Sec. 28, T46N, R75W	AWAO
ADD	Innes 33-29-4675	Unassigned	Big George	Unk	NWSE, Sec. 29, T46N, R75W	AWAO
ADD	Innes 31-33-4675	Unassigned	Big George	Unk	NWNE, Sec. 33, T46N, R75W	AWAO
ADD	Innes 43-33-4675	Unassigned	Big George	Unk	NESW, Sec. 33, T46N, R75W	AWAO
ADD	Christensen 31-30-4675	Unassigned	Big George	Unk	NWNE, Sec. 30, T46N, R75W	AWAO
ADD	Christensen 33-30-4675	Unassigned	Big George	Unk	SENE, Sec. 30, T46N, R75W	AWAO
ADD	Christensen 42-30-4675	Unassigned	Big George	Unk	NWSE, Sec. 30, T46N, R75W	AWAO
ADD	Christensen 44-30-4675	Unassigned	Big George	Unk	SESE, Sec. 30, T46N, R75W	AWAO
ADD	Christensen 13-32-4675	Unassigned	Big George	Unk	NWSW, Sec. 32, T46N, R75W	AWAO
ADD	Christensen 22-32-4675	Unassigned	Big George	Unk	SENE, Sec. 32, T46N, R75W	AWAO
ADD	Christensen 24-32-4675	Unassigned	Big George	Unk	SESE, Sec. 32, T46N, R75W	AWAO

**Total Number of Wells: 30**

**TABLE 3: RESERVOIR INFORMATION**

Desired Changes (modifications and renewals only)	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)	
					Quarter-Quarter	Section	Township	Range	Latitude	Longitude
	8-1	12.0	P19984S	None	NWSW	8	46	75	43.97348	105.90739
Add	North Shed	4.9	P386S	None	SESW	21	46	75	43.94040	105.88029
Add	Innes #1	2.4	P14241S	None	NESE	23	46	75	43.94513	105.83084
Add	Wanda I.	18.7	P16939S	None	SESW	25	46	75	43.92848	105.82339
Add	Pumpkin Creek #2	7.0	P607R	None	SESE	28	46	75	43.92624	105.87278
Add	29-1	6.5	Not Available	None	SWNW	29	46	75	43.93503	105.90438
Add	Booth	6.1	P17792S	None	NESW	32	46	75	43.91623	105.90209
Add	Pumpkin	12.3	P17793S	None	NENW	31	46	75	43.92170	105.92017

Additional spaces/tables may be included as necessary. Use the format provided. *Please note that reservoir information is not required if reservoir containment is not part of the facility's water management plan – for instance, information about existing “incidental” downstream reservoirs is not required.*

**Table 4: Bonding Information Table**

			Please check only one “reservoir reclamation volume” box for each reservoir.				
Desired Changes (modifications and renewals only)	Reservoir Name	Reservoir Bonding Authority (BLM, WDEQ, WOGCC, or OSLI)	Reservoir Reclamation Volume* less than 5000 cubic yards?	Reservoir Reclamation Volume* between 5000 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?
	8-1	WDEQ		X		No	No
Add	North Shed	WDEQ	X			Yes	No
Add	Innes #1	WDEQ	X			Yes	No
Add	Wanda I.	WDEQ		X		Yes	No
Add	Pumpkin Creek #2	WDEQ	X			Yes	No
Add	29-1	WDEQ	X			Yes	No
Add	Booth	WDEQ	X			Yes	No
Add	Pumpkin	WDEQ		X		Yes	No

\*"Reservoir reclamation volume" is the volume of backfill and/or topsoil needed to fill reservoir upon reclamation, in cubic yards. This can also be measured in the amount of material that was excavated to create the reservoir. *Please note that reservoir information is not required if reservoir containment is not part of the facility's water management plan – for instance, information about existing “incidental” downstream reservoirs is not required.*

**TABLE 5. Assimilative Capacity Information for Direct Discharges Within Powder River Hydrologic Basin Only\***

*\* DIRECT DISCHARGES 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. This table ONLY needs to be completed for applications requesting Option 2 direct discharges located within the Powder River hydrologic basin that cannot meet Powder River ambient concentrations for TDS and sodium for all months of the year. Assimilative capacity for monthly planned reservoir releases will be evaluated at the time that the permittee applies for the monthly release authorization; this table does NOT need to be completed for monthly reservoir release situations.*

**1. List all outfalls that are requested for direct discharge:**

**2. Please indicate, for both total dissolved solids and dissolved sodium, the pounds per month (“credits”) the permittee wishes to allocate to this permit (i.e. what portion of the total assimilative capacity available to the permittee will be issued to this permit for each month?).**

Constituent	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TDS (lb/mo)												
Dissolved Na (lb/mo)												

**3. Please indicate, for each month of the year, what the expected water quality concentrations for TDS and dissolved sodium (in mg/l) and the expected flow volumes (in millions of gallons per month), will be for this facility:**

Constituent	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TDS (mg/l)												
Dissolved Na (mg/l)												
Flow, (MG/month)												

**4. Please provide a brief description of the source of information used to determine concentrations and flow volumes listed in item #3 above:**

**5. Does the applicant intend to treat water at this facility to meet the concentrations provided in item #3 above?**       Yes       No

**6. Please indicate, for the months of August and September when no assimilative capacity is available to any operator, how the applicant will manage water such that no additional salt loads are contributed to the Powder River (i.e. contain all discharges in reservoir(s) up to storm event, treat effluent from direct discharge outfalls to Powder River ambient concentration, cease discharge from these outfalls for these two months, etc.):**

## APPLICATION INSTRUCTIONS

1. Please provide as much information as possible on the application form. Additional spaces may be inserted in the application form to accommodate additional information. Please keep attachments to a minimum.
2. Please provide a response to ALL items, even if it is to indicate that the item is “not applicable”. Leaving items blank may result in the application being returned as incomplete.
3. Do NOT separate any portion of the application, including the following tables. All supplemental information should be attached **following** the permit application. Use of cover sheets should be restricted to supplemental information **ONLY**.
4. Do not staple or bind any of the permit application materials. Only binder clips or paper clips should be used to separate or bind materials.
5. While the WDEQ allows permittees to reference previously completed works, please ascertain that the item being referenced is available to DEQ personnel for review during the permit application process. DEQ personnel may request copies of referenced works if not available for review. Information easily incorporated into the permit application may not be referenced (for example, the names and addresses of downstream irrigators).
6. Please place all oversized pages at the back (END) of the permit application materials. This aids in scanning and/or copying of the permit application materials. If necessary to attain adequate legibility, tables may be enlarged and submitted on paper other than 8.5 X 11. Use whatever size necessary to achieve adequate legibility.
7. If at all possible, the WYPDES program would appreciate the inclusion of an electronic version of the permit application, either on CD or floppy diskette, including any supplemental permit application materials. Inclusion of an electronic version of the permit application speeds permit processing.
8. If at all possible, the WYPDES program would appreciate the inclusion of an electronic version of the outfall location table (Table 1 in the permit application), in either Word (.doc) or Excel (.xls) format for inclusion in the draft permit document. Inclusion of this information speeds permit drafting.
9. Please include unique footer information on each page of this application and on all supporting documentation using the following format:  
  
*Company Name: Year/Month/Day/application type (NEW, MOD, RENEWAL)/10 Digit HUC Code/Permit # (if a modification or renewal) or Application # (from this particular company) for that particular day. If applying for a renewal or modification, use of the existing WYPDES permit number is sufficient as a unique footer identifier.*
10. Please note that incomplete applications will be returned to the permittee.
11. In order for the WYPDES Program and other agencies to coordinate on reservoir bonding and permitting, permittees are required to utilize and maintain unique reservoir names for each reservoir used to contain CBM produced water.
12. Please review all information prior to submission to ensure that materials have not been inadvertently omitted, all copies are legible, and that the permit application materials were signed by the appropriate company signatory. In reviewing permit applications, the WDEQ utilizes a standard permit application review form. This form is available on our website, and the WDEQ would like to encourage operators to use this form prior to application submission as a pre-submission application review.
13. Applications requesting the use of Powder River assimilative capacity credits or attainment of effluent limits through the use of water treatment may require the submittal of additional information not requested in this permit application.

LIC/rm/12-0171



### LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** MEGA Energy LLC  
**Project:** Mankin Wells  
**Client Sample ID:** WY0095087-001  
**Location:**  
**Samp FRQ/Type:** IN\_A\_Q4  
**Lab ID:** G13110118-002

**Report Date:** 12/02/13  
**Collection Date:** 11/06/13 13:09  
**Date Received:** 11/07/13  
**Matrix:** Aqueous  
**Sampled By:** Paul McElvery

Analyses	Result	Units	RL	Qualifier	Result	Units	Method	Analysis Date / By
<b>FIELD PARAMETERS</b>								
Conductivity, field	2460	umhos/cm					FIELD	11/06/13 13:09 / ***
pH, field	7.38	s.u.					FIELD	11/06/13 13:09 / ***
*** Field data provided by client								
<b>MAJOR IONS, DISSOLVED</b>								
Bicarbonate as HCO <sub>3</sub>	1730	mg/L	5		28.4	meq/L	A2320 B	11/08/13 11:13 / blb
Chloride	11	mg/L	1		0.31	meq/L	E300.0	11/08/13 16:12 / blb
Fluoride	1550	ug/L	100				E300.0	11/08/13 16:12 / blb
Sulfate	2	mg/L	1		0.04	meq/L	E300.0	11/08/13 16:12 / blb
Calcium	51	mg/L	1		2.57	meq/L	E200.7	11/08/13 16:08 / eli-b
Magnesium	31	mg/L	1		2.59	meq/L	E200.7	11/08/13 16:08 / eli-b
Sodium	545	mg/L	1		23.7	meq/L	E200.7	11/08/13 16:08 / eli-b
<b>METALS, DISSOLVED</b>								
Aluminum	ND	ug/L	30				E200.7	11/08/13 16:08 / eli-b
Cadmium	ND	ug/L	0.1				E200.8	11/08/13 18:01 / eli-b
Copper	ND	ug/L	1				E200.8	11/08/13 18:01 / eli-b
Iron	874	ug/L	30				E200.7	11/08/13 16:08 / eli-b
Lead	ND	ug/L	1				E200.8	11/08/13 18:01 / eli-b
Manganese	38	ug/L	1				E200.8	11/08/13 18:01 / eli-b
Mercury	ND	ug/L	0.06				E200.8	11/14/13 21:03 / eli-b
Zinc	ND	ug/L	10				E200.7	11/08/13 16:08 / eli-b
<b>METALS, TOTAL RECOVERABLE</b>								
Arsenic	2.7	ug/L	0.5				E200.8	11/12/13 00:59 / eli-b
Barium	1020	ug/L	50				E200.8	11/12/13 00:59 / eli-b
Selenium	ND	ug/L	1				E200.8	11/12/13 00:59 / eli-b
<b>NON-METALS</b>								
Alkalinity, Total as CaCO <sub>3</sub>	1420	mg/L	5				A2320 B	11/08/13 11:13 / blb
Hardness as CaCO <sub>3</sub>	260	mg/L					A2340 B	11/08/13 16:08 / jlw
Sodium Adsorption Ratio (SAR)	14.8	unitless					Calculation	11/08/13 16:08 / jlw
Solids, Total Dissolved TDS @ 180 C	1580	mg/L	30				A2540 C	11/08/13 09:44 / ffp
<b>RADIONUCLIDES - TOTAL</b>								
Radium 226	0.40	pCi/L					E903.0	11/20/13 13:42 / eli-ca
Radium 226 precision (±)	0.15	pCi/L					E903.0	11/20/13 13:42 / eli-ca
Radium 226 MDC	0.16	pCi/L					E903.0	11/20/13 13:42 / eli-ca

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

Iberlin

Innes Ranch LLC  
T46N R75W

Bob Christensen

Innes Ranch LLC

	EXISTING CBM WELL		PROPOSED CBM WELL
	EXISTING WATERLINE		PROPOSED WATERLINE
	EXISTING DISCHARGE		PROPOSED DISCHARGE
			EXISTING RESERVOIR LOCATION

DRAWN BY: Paul McElvery DATE: 12-08-14 CHKD BY: ARW/BH PREPARED BY: SCALE: 1"=2,500' DWG. #: Innes.dwg	<b>WYPDES MAJOR MOD WY0095389 Innes Fee Wells CAMPBELL COUNTY, WY</b>	
---	---	---

