25 May 2011
Delivered in person

Mr. John Passehl, P.G.
UIC Geological Supervisor
Wyoming Department of Environmental Quality – Water Quality Division
122 West 25th Street
Herschler Building 4W
Cheyenne, WY 82002
(303) 777-5623

Re: Rough Draw Class V (5F2) Individual Area UIC Permit Application

Dear Mr. Passehl:

Please find enclosed a hardcopy of Patriot's Rough Draw Class V (5F2) Individual Area UIC Permit Application package. Electronic submittal via GEM will follow this hardcopy application.

Based upon WDEQ's responses to the South Kitty Application, we have two known deficiencies at this time.

1. Notification letters are being sent to permit holders of record for surface and ground water rights in the Application's Area of Review; as well as to the operators of oil, gas, and coalbed methane wells within the same area. The notification return receipts may not be received until 1-2 months after this letter and will be submitted to you when all receipts have been returned.

2. Samples for sulfate-reducing bacteria are being analyzed. The results of these analyses are expected within the next week and will be submitted to you when they become available.

In addition to the information contained in this application, we anticipate that the WDEQ will require Luca to submit certain trade secret and other commercially confidential information. Specifically, we anticipate that WDEQ will need more specific information regarding the ingredients and concentrations of the nutrients that will be placed into the injection wells. Luca will provide this information under a separate cover marked as "commercial confidential and trade secret information" once the

WDEQ has confirmed that it will treat this information as commercial confidential and trade secret information as defined by the Wyoming Public Records Act (Confidentiality Determination). This letter is a request for a Confidentiality Determination under that Act. A copy of a previous Confidentiality Determination by your Department is attached to this cover letter.

We look forward to working with you and your staff in getting this application through the review and approval process. Please direct any questions you may have about this application through either Jason Burris, or Travis Meyers. They will work to get any information you need for your review from the appropriate parties here at Patriot. Their contact information is:

Jason Burris
(303) 597-8202
Jason.Burris@lucatechnologies.com

Travis Meyers
(307) 686-9488
Travis.Meyers@lucatechnologies.com

Respectfully Submitted,

Brian J. Cree
Chief Operating Officer

Enclosures:

- Confidentiality Determination letter from Jason Thomas, dated 15 October 2009
- Rough Draw Class V (5F2) Individual Area UIC Permit Application and supporting exhibits

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

October 15, 2009

Brian Cree
Luca Technologies, Inc.
500 Corporate Circle, Suite C
Golden, CO 80401

RE: Confidentiality Determination

Mr. Cree:

WDEQ has reviewed your recent request for confidentiality concerning well enhancement additives used at various coal bed methane projects. WDEQ had asked for specific information in recent months relating to the chemical and biological composition of the additives, as well as the locations and quantities used. To date, we have already received sufficient information from Luca Technologies regarding the locations where the additives were used, and the quantity at each location. Please be advised that the information submitted thus far by Luca Technologies relating to location and quantity is public information.

What remains to be disclosed by Luca is the chemical and biological composition of the additives. Your letter dated October 8, 2009 is a request for confidentiality of specific trade secrets, including the "identity of ingredients, additives or nutrients." WDEQ has determined that the chemical and biological composition of your proprietary material does constitute a trade secret as contemplated under the Wyoming Public Records Act. Therefore, the records retained by our office relating to the chemical and biological composition of your well enhancement material will remain confidential, pursuant to the above statute.

Your letter had also cited your enhancement process itself, and certain performance data relating to the process as trade secrets. Please be aware, however, that WDEQ is not requesting information on those items. Our request at this point is limited to the ingredients of your product, and their relative concentrations in the product. Additionally, your letter included a confidentiality agreement that Luca Technologies had apparently anticipated WDEQ signing. Please be aware that while we do not enter into such agreements under these circumstances, we can assure you that the remaining information requested by WDEQ will be kept confidential pursuant to the provisions and restrictions included in the Wyoming Public Records Act.

Insofar as WDEQ agrees that the "identity of ingredients, additives or nutrients" constitutes a trade secret, and given that WDEQ is prepared to keep this information confidential, and out of the public record pursuant to applicable law, please submit to WDEQ by October 30, 2009 a complete list of all chemical formulations used by Luca Technologies in coal bed methane wells in Wyoming. This list shall include the name(s) of the product(s) used, the active as well as the inert chemical and biological ingredients of the product, and their respective concentrations within the product.

If you have any questions, please contact our office at any time.

Sincerely,

Jason Thomas

Jason Thomas
WDEQ Water Quality Division
(307) 777-5504

CC: Mike Barrash, Wyoming Attorney General's Office
Bill DiRienzo, WYPDES Manager
Don Fischer, WDEQ - Sheridan

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY DIVISION

PERMIT APPLICATION FORM
UNDERGROUND INJECTION CONTROL (UIC) CLASS V WELL

Mail To:

WDEQ/WQD
ATTN: UIC Program
122 W. 25th St. – 4W
Cheyenne, WY 82002
(307)-777-7781

DEQ/WQD
_____
Application No.
_____
Date received
_____
Agency Use Only

You may obtain a username and password to apply for an on-line UIC permit at the following site: https://gem.trihydro.com. You will be required to scan and upload the entire document at the end of the on-line permitting process. Mail one complete hard copy of the application with original signatures and supporting documentation to the address above.

PLEASE PRINT OR TYPE

1. This application is being made for a class V injection facility permit. Class V permits can only be issued for non-hazardous wastes. All facilities which have not previously been issued a permit under Chapter 9 or 16 are new facilities. This application is for a:

New Permit: ☒ Modified Permit: ❑

2. Name of Facility: Rough Draw (multiple sites, see Exhibits E-1 and E-2 attached). "Centroid" of project area is identified by the location below.

Location: T 52 N, R 73 W, Section 4, NW 1/4, SE 1/4, NE 1/4 which is located in Campbell County, Wyoming. This facility is located _____feet from the North Line and _____from the East line of Section _____ **OR** (bearing and distance) from the _____ corner of Section _____. **OR** Latitude: 44 degrees E 31 ' 05 " North and Longitude: 105 deg. E 38 ' 08 " West, preferable within a (ten) 10 meter accuracy. (Only one location descriptor is required).

Mailing Address: Patriot Energy Resources, LLC
P.O. Box 7070 Gillette, WY 82717.

Street address where records will be kept: 1417 E. Energy St.
Gillette, WY 82717.
Telephone Number: (307) 686 - 9488.

Name and title of responsible individual, address and telephone number if different from above: Brian J. Cree, Chief Operating Officer
500 Corporate Circle, Suite C, Golden, CO 80401.
Telephone Number: (303) 534 - 4344.

3. Name and address of the operator on site: Patriot Energy Resources, LLC
P.O. Box 7070, Gillette, WY 82717.

Telephone Number: (307) 686 - 9488.

4. Description of the facility under Chapter 16, Appendix A:

- ☐ HEATING AND COOLING FACILITY (5A1, 5A2, AND 5A3)
  (5A1 AND 5A2 facilities may be covered by a General permit.)

- ☐ BENEFICIAL USE FACILITY (5B1, 5B2, 5B3, 5B4, 5B5, 5B6, AND 5B7)
  (5BI facilities may be covered by a General permit; 5B2, 5B4, 5B6, and 5B7 may be rule-authorized.)

- ☐ COMMERCIAL AND INDUSTRIAL FACILTIES (5C1, 5C2, 5C3, 5C4 AND 5C5)
  (Existing 5C4 facilities may be covered by a General permit; all new 5B4 facilities are banned by Chapter 16)

- ☐ DRAINAGE FACILITIES (5D1, 5D2, 5D3, 5D4, 5D5)
  (Existing 5D2 facilities may be covered by a General permit; 5D5 facilities may be rule-authorized.)

- ☐ SEWAGE DISPOSAL FACILITIES (5E1, 5E2, 5E3 AND 5E4)
  (All new sewage disposal facilities require an individual permit. Certain types of existing systems may be covered by a General permit.)

- ☒ MISCELLANEOUS FACILITIES (5FI AND 5F2)
  (5F1 facilities may be rule authorized; all 5F2 facilities require an individual permit.)

5. Area Permits. More than one facility may be included in one application. If this is the case, include all information from Section 2, and Attachments A, E, G, H, I, and J for each facility. Area permits will only be issued when the waste is similar for all points of injection and when a common injection plant serves all facilities. For a system to be covered by an area permit, the receiver must be the same for all points of injection, and the owners and operators for all facilities must be the same. Provide the name of each facility covered by this application. All 5E3 facilities which deliver more than 2,000 gallons per day through multiple points of discharge within any 5 acre area, and which are under a common ownership must be covered by a UIC permit under Chapter 16.

6. Owner of the Surface Rights where facility is located: variable, please refer to Exhibit E-2, attached

Telephone Number: ( ) _____-_____.

Copies of the access agreement between above owners and the operator if the operator is not the owner shall be attached. This requirement may be met by having the owner of the property write a letter stating that he consents to the construction covered by this application.

7. Ownership Status:

☐ Federal ☐ State ☒ Private ☐ Public or other entity

Certifications

CERTIFICATION OF THE OPERATOR OF THE 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."

Brian J. Cree — Chief Operating Officer

Signature of Applicant — Date signed: 5-24-11

CERTIFICATION OF ENGINEER:

I, Gordon W. Fassett, P.E. certify that the technical engineering aspects of this Permit Application, and its Attachments, submitted to the Department of Environmental Quality – Water Quality Division for a Class V Underground Injection Control Permit, have been prepared by me, or by others working under my supervision, and has been reviewed and completed according to the highest standards of Professional Engineering.

Gordon W. Fassett — Wyoming P.E. 3175 (active, expiring in 12/31/2011)

(SEAL) Professional Engineer (Civil) GORDON FASSETT 3175 Date 5/25/11 WYOMING

Signature of Professional Engineer — Date signed: 5/25/11

CERTIFICATION OF GEOLOGIST:

The Geologic Interpretations, Cross Sections, and Hydrologic Studies which are included in this application were all done by me or by someone working directly for me. I have reviewed this work and certify that they are all done according to the highest standards of Professional Geology.

Jason Burris — Wyoming P.G. 3462 (active, expiring in 12/31/2011)

(SEAL) PROFESSIONAL GEOLOGIST JASON BURRIS PG-3462 WYOMING

Signature of Professional Geologist — Date signed: 5/25/2011

Section 1 (see Chapter 16, Section 6 (c)(i))
Project Description

Executive Summary

Through this Wyoming Department of Environmental Quality ("WDEQ") Class V Underground Injection Control ("UIC") Application, Patriot Energy Resources LLC ("Applicant") applies for a Class 5F2 individual area permit for injection of coalbed methane ("CBM") production waters, amended with nutrients, back into the same coal seams in its Rough Draw Project Area ("Project Area") to enhance the production of natural gas and conserve such waters. The proposed term of this permit is five years. This is the first application from the Applicant requesting the injection of nutrients into coal seams.

The Project Area is located in Campbell County, north of Gillette (Figure 1). The Applicant proposes to inject CBM production waters obtained from the Fort Union Formation Anderson, Canyon, Lower Canyon, and Wall[1] coal seams into the wells completed in the same coal seams as part of its gas production enhancement technology. As described and shown in diagrams and exhibits elsewhere in this Application, the Applicant is seeking review and approval of this Class 5F2 individual area permit to inject produced waters, with added nutrients, into 300 wells completed in these coal seams over the requested 5 year period. Gas and water will be produced from the same wells, and the water that is produced will be re-injected for the purpose of water conservation and nutrient delivery for enhanced gas recovery. The Applicant will also file an application to the Wyoming Oil and Gas Conservation Commission ("WOGCC") for an Enhanced Gas Recovery Unit for the Project Area.

Company Background

Luca Technologies Inc. ("Luca" or the "Company"), the parent of the Applicant, is developing gas enhancement technologies for production of sustainable natural gas. Luca's technology provides for stable, long-term natural gas production by utilizing existing gas infrastructure and applying its gas enhancement technologies to create new gas resources. Luca's technology utilizes benign concentrations of nutrients to invigorate natural processes (which include native microbes) to produce real-time natural gas (methane) in economic quantities that is readily fed into the local gas pipeline system. Since the technology is dependent on microbial activity, maintaining water quality that supports life is a key part of the technology, and of value to the Company and Federal and Fee owners as well as the State of Wyoming. Unlike traditional coalbed methane ("CBM") gas extraction methods, in which gas production peaks then steeply declines as hydrocarbon reserves deplete, Luca's technology aims to produce low-cost natural gas for decades while reusing existing CBM wells and infrastructure.

[1] This is the coal nomenclature used by the Applicant in the area and is further discussed in Section 6 as shown on Table 2.

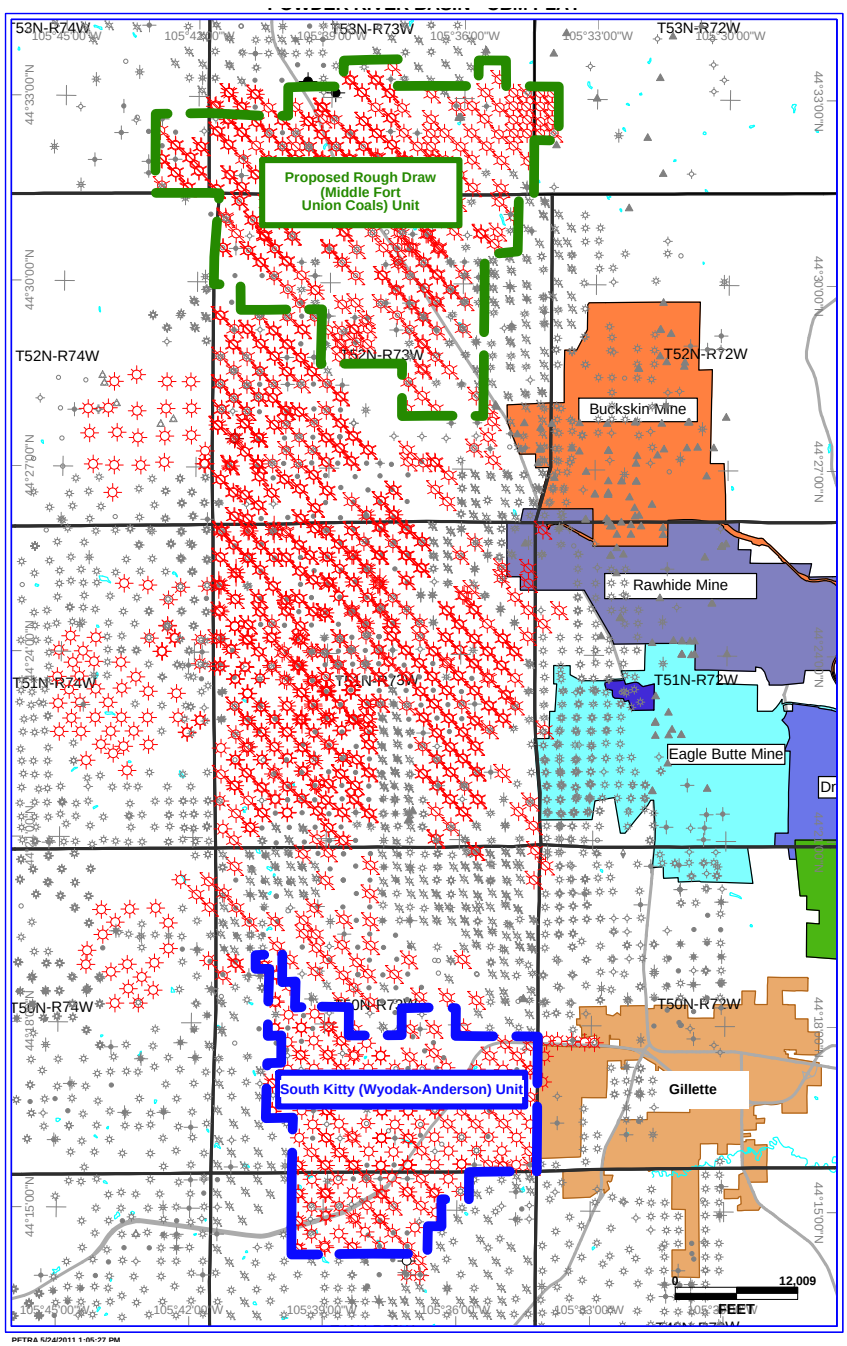

Figure 1 – Area location map. Applicant-operated wells are shown in red.

Luca opened its Golden, Colorado laboratory in August 2003. The Company spent its first years evaluating natural gas fields throughout the United States for suitability of its technology. Field testing began in the Powder River Basin ("PRB") in 2006 on wells owned by a third party. In November 2007, Luca acquired 100 operated wells through its wholly-owned subsidiary, Patriot Energy Resources LLC, which enabled the Company to apply its technology to its own operated wells. Since that time, Luca (through the Applicant) has acquired interests in an additional 1,250

operated wells and presently has employees in Golden, Colorado and Gillette, Wyoming. From 2006 through March of 2010, Luca performed its gas enhancement technologies under the supervision and direction of the WOGCC, including review from the Environmental Protection Agency ("EPA"), as "well treatments" under Sundry permit. During that time, Luca performed a significant number of these well treatments throughout the PRB as nutrient treatments and water only injections, referred to as "restorations".

The above described gas enhancement activities were performed as part of a "pilot" phase and have allowed Luca to gain valuable insight into its gas enhancement technology and to collect extensive water quality data that demonstrates its technology does not have a negative impact on water quality. After significant review and discussion with state and federal agencies, Luca is pursuing, through this Application, the second step towards full-scale commercialization of its technology. The first step involved the injection of CBM production water only, as described in a previous permit Application (see South Kitty Individual Area Class V [5F2 Miscellaneous Facilities] Injection Permit Application - UIC 10-498), while this permit Application expands those activities to include the injection of water with nutrients added to stimulate the creation of new biogenic methane. This Application to WDEQ will be combined with a request for the formation of an Enhanced Gas Recovery Unit in the Project Area, related to such nutrient injections, through the WOGCC. <u>The Project Area covered by this Application was not treated during this timeframe, and has never been treated with Luca's technology.</u>

<u>Project Background</u>

The Applicant, a subsidiary of Luca, owns and operates approximately 1,360 CBM wells in Campbell County, Wyoming. This Application covers the 300 wells and approximately 19,000 acres in the proposed Rough Draw (Middle Fort Union Coals) Unit area (in green, Figure 1). The principal coal seams producing gas in this area are the Canyon and Lower Canyon, with additional gas production from the Anderson and Wall. All of these gas reservoirs belong to the Tertiary Paleocene Ft. Union Formation.

Luca has learned as a result of its extensive field testing and research laboratory investigations that:

1. The Anderson, Canyon, Lower Canyon and Wall coal seam subsurface environments are favorable for real-time biogenic gas generation.
2. Laboratory processes, including water injections, circulation, and water and nutrient treatments have been shown to enhance biogenic gas generation rates and yields.
3. These laboratory processes have been adapted and applied to PRB CBM wells on a pilot basis.

Water injection, for the purposes of circulating water and re-watering previously depleted or dewatered coal seams resulting from traditional CBM production methods, and the addition of nutrients, for the purposes of stimulating, activating, and preserving the health of

methanogenic consortia, are critical aspects of Luca's technology and are the focus of this WDEQ Class V UIC Application.

Injection/Production Overview

The purpose of this Application is to gain permission for the Applicant to implement injection of produced CBM waters and nutrient amendments, for a process that will stimulate sustained gas production.

Water is a precious resource that is vital to Luca's process for sustained gas production. Water conservation (continuous withdrawal, re-injection, and circulation; preferably without any discharge of water) is a key component of the Applicant's gas reservoir management strategy. As such, every well operated by the Applicant will become a dual-purpose well, at times producing and at times injecting. This Application describes a process whereby waters produced from the Anderson, Canyon, Lower Canyon, and Wall coal seams are re-injected, using gravity without added surface injection pressure. Nutrients will be added to some of the injections, while others will simply be re-injection of produced waters.

The four coal seams involved in the project have all produced methane gas via traditional CBM production operations (Figure 2), and are currently in various states of water and gas depletion. In this Project Area, gas and water production has generally been shut in since November, 2010, and in most wells, water levels are above the top of coal. The Canyon and Lower Canyon are more highly developed for CBM production, with relatively uniform well coverage over the area. The Anderson and Wall are less-developed, with wells placed more sporadically.

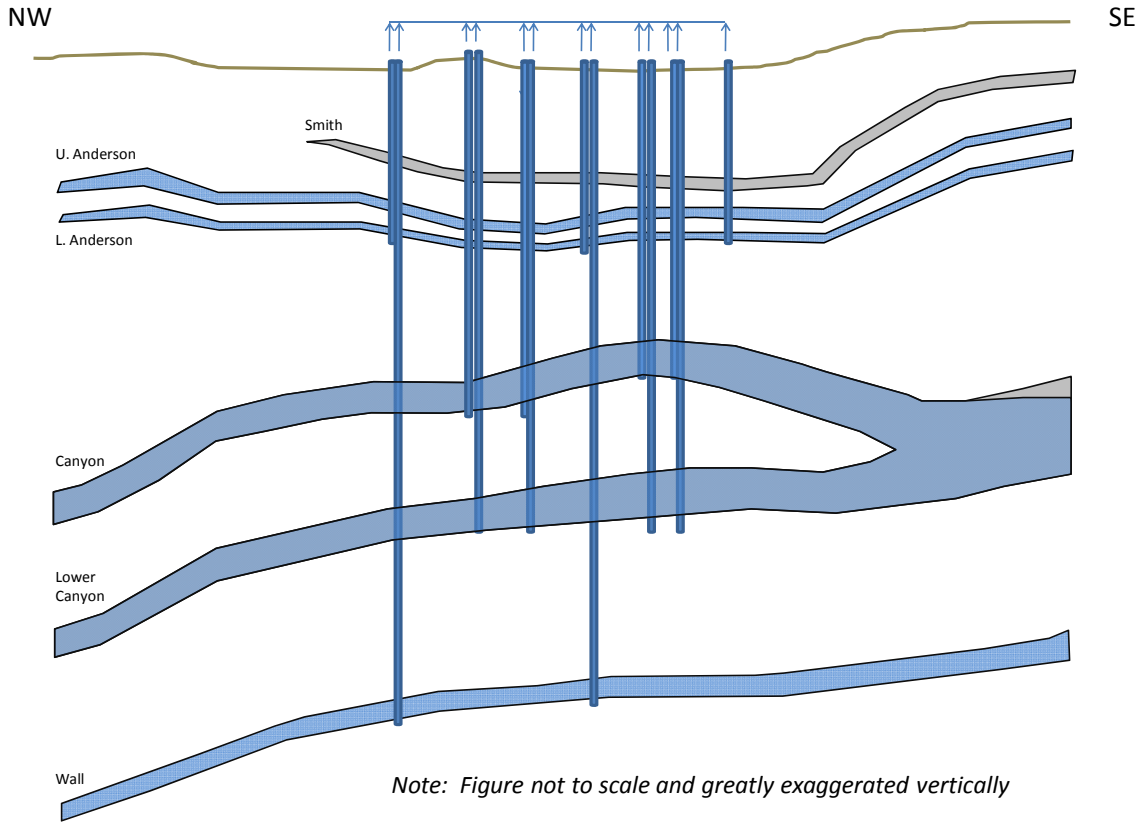

Figure 2: Cross-section diagram of the traditional CBM gas production within the Project Area prior to implementing this water injection plan. The grey shaded coal seam (Smith) is unaffected by this Application. Note, this figure is for descriptive purposes only: coals are shown with large vertical exaggeration; well locations, and water levels are not to scale.

The maximum sustainable total water production rate for the Project Area is expected to be 1575 gallons per minute, or approximately 54,000 barrels/day ("B/D"), or 2540 acre-feet ("AF") per year. Over the five year operational period requested by this Application, it is the intent to use produced water beneficially by re-injecting it with or without nutrients back into the various receiver coals. The cumulative estimated injection volume is 12,700 AF. Existing surface discharge permits may be used to discharge produced waters if re-injection is not feasible.

Table 1 is a schedule showing the water volumes withdrawn annually by CBM wells within the Area of Review ("AOR" – See Section 4) for this permit application. In addition, an estimated water injection schedule is presented, assuming permit approval late in 2011. These volumes are produced from all four coal seams, and will be managed in a manner where some of the permitted coals will gain water and some will lose water under the operations described in this application. The intent of this project design is to maintain the Project Area water balance at zero.

Table 1 - Historical CBM water production and projected net water injection within the Rough Draw (Middle Fort Union Coals) Unit outline (historical production data source: IHS Rocky Mountain Production Data - accessed via Enerdeq on 15 May 2011)

Year	Water produced from all CBM wells (in barrels, production shown as negative numbers)	Water Injected into the coals (in barrels)	Net Water Production / Injection (in barrels)	Equivalent Net Volume in Gallons	Equivalent Net Volume in Acre-feet
1996	15,709	0	15,709	659,778	2
1997	23,458	0	23,458	985,236	3
1998	2,743,544	0	2,743,544	115,228,848	354
1999	10,861,857	0	10,861,857	456,197,994	1,400
2000	20,603,240	0	20,603,240	865,336,080	2,656
2001	10,960,294	0	10,960,294	460,332,348	1,413
2002	17,113,270	0	17,113,270	718,757,340	2,206
2003	11,538,340	0	11,538,340	484,610,280	1,487
2004	8,387,011	0	8,387,011	352,254,462	1,081
2005	10,849,239	0	10,849,239	455,668,038	1,398
2006	10,016,944	0	10,016,944	420,711,648	1,291
2007	8,085,749	0	8,085,749	339,601,458	1,042
2008	9,747,382	0	9,747,382	409,390,044	1,256
2009	4,135,941	0	4,135,941	173,709,522	533
2010	4,004,881	0	4,004,881	168,205,002	516
2011	88,305	0	88,305	3,708,810	11
2012	*19,710,000*	*19,710,000*	0	0	0
2013	*19,710,000*	*19,710,000*	0	0	0
2014	*19,710,000*	*19,710,000*	0	0	0
2015	*19,710,000*	*19,710,000*	0	0	0
2016	*19,710,000*	*19,710,000*	0	0	0

The Applicant's process for stimulating sustained gas production is to optimize movement of water and gas in the coal seams in order to best produce sustained gas through the Applicant's microbial process. When not injecting, wells are operated to produce water and gas, just as in traditional CBM operations. However, while in traditional CBM, the produced waters are commonly disposed of on the surface, in the Applicant's process, these waters are captured and remain in a closed pipeline system and are re-injected into other wells within the Project Area. The Applicant intends to apply an initial treatment by injection of water with added nutrients to each well. Once this initial treatment is done, wells would in some cases be

returned to production, or in other cases, would receive additional injection of water, commonly without added nutrients. In order to best manage and optimize the process, over the life of the permit, a given well could sometimes be producing gas and water, sometimes be receiving nutrient-amended water, and sometimes be receiving water without added nutrients.

Applicant is requesting various maximum injection rates and volumes for individual wells, as well as for the project in total. For interior wells, a maximum injection rate of 2,000 B/D, and a maximum total injection volume of 3,650,000 barrels ("BBL") of water is requested over the life of the 5 year permit. For wells on the perimeter of the project area, a maximum injection rate of 400 B/D and a maximum total injection volume of 730,000 BBL water is requested. Exhibit E-3 specifically lists the wells and the requested rate and volume limits.

Note that while very large rates and volumes are specified above, they are very conservative maximums. For example, many wells will likely not accept 2,000 B/D under gravity alone, and projectwide, the total injection rate and volume is limited by water production. As such, at any given time, only a fraction of the permitted wells would actually be receiving injection waters, and even then, likely at rates well below the maximum.

Water will be injected under gravity, meaning that no additional pressure will be supplied at the injection wellhead. Water will be provided via the low-pressure flowline system that gathers produced waters. Precise water flowline pressures (and hence the wellhead pressures at injection wells) are low, but will vary somewhat due to topography, and the water rates of production wells on the system. Applicant therefore requests a wellhead injection pressure limit of 15 PSIG for each injection well.

Fieldwide, we propose a maximum injection rate (sum of injection) of 54,000 B/D, and a fieldwide maximum injection volume of 98,600,000 BBL. These numbers are based on historical and recent water production rates (which limit our overall injection rates). Note that these fieldwide limits, averaged across 300 wells, would be an average rate of 180 B/D, and an average injection volume of 328,667 BBL, much lower than the per-well maximums listed above. This reinforces that we expect, at any given time, only a subset of the wells would be acting as injectors, and that few if any would inject at maximum rate, or for the full duration of the permit.

The above proposed limits constrain the rates and volumes of water injection into wells within the Project Area. More details on the use of nutrient amendments, including proposed limits, will be discussed later in this application. Note that certain details about our nutrient amendments are considered proprietary information, and will be provided to WDEQ under separate cover, under a confidentiality determination.

<u>Water Classification</u>
The State of Wyoming – Department of Environmental Quality – Water Quality Division categorizes groundwater quality into several classes based on quality and/or use. Ground water beneath the Project Area would be classified as Class III based primarily on criteria for dissolved

iron, and Sodium Adsorption Ratio ("SAR"). Exhibits G-1 and G-2 show the results of the water quality analyses from water samples taken from Canyon, Lower Canyon, Anderson and Wall production wells for the purpose of understanding trace metal concentrations and general water chemistry from water samples in the AOR for this Application.

As shown in Exhibit G-1, dissolved iron and ammonia levels generally exceed the Chapter 8 (Section 5 (c), Table I) standards for Class I Domestic water. In addition, SAR values for all of these same samples exceed the Class II Agriculture water standards. Exhibit G-2 shows water chemistry analysis results for water samples collected from 69 wells in the AOR, and SAR values exceed Class II Agricultural water standards for all samples. As a result of these criteria, the ground waters in the receiving coal zones beneath the Project Area are generally considered Class III ground waters.

However, there are several domestic use wells within the immediate vicinity permitted to use water from the Fort Union intervals containing the Anderson, Canyon, Lower Canyon and Wall coal seams and sands. Therefore, the ground water in the Canyon, Lower Canyon, Anderson and Wall coal seams of the Fort Union Formation are classified as Class I (Domestic) by use. Since the ground water is classified as Class I, the water quality in CBM wells and domestic wells will be monitored to ensure that water quality is not changed significantly from baseline levels (see Monitoring Plans).

As noted previously, all of the Applicant's wells in the AOR will be used as dual-purpose wells—at times injecting and other times producing.

Section 2 (see Chapter 16, Section 6 (c)(ii))
Operator Address & Ownership Status

Patriot Energy Resources LLC
P.O. Box 7070
Gillette, WY 82717

(307) 686-9488 (Verlin Dannar, VP – Field Operations)

The Applicant is a privately-owned limited liability operating company and is a subsidiary of Luca Technologies Inc., headquartered in Golden, Colorado.

Section 3 (see Chapter 16, Section 6 (c)(iii))
Location of Proposed Injection Wells/Facilities & Contact Information

The Applicant proposes to utilize up to a total of 300 existing wells for injection under this individual area permit Application. The proposed injection wells/facilities are listed on Exhibit E-2, including section, township, and range.

The contact address for each well/facility is the same as that of the Applicant.

Patriot Energy Resources LLC
P.O. Box 7070
Gillette, WY 82717

(307) 686-9488 (Verlin Dannar, VP – Field Operations)

Section 4 (see Chapter 16, Section 6 (c)(iv))
Area of Review Calculation

Background
The purpose of the AOR is to delineate the reasonable maximum extent of the area within the receiving aquifer(s) that could be impacted by the injection of water and nutrients. Accepted groundwater aquifer theories may be used for this determination. The aggressive determination of the maximum AOR contained in this Application is based upon the estimated down gradient void space affected by injection activities associated with the proposed Class V UIC facilities. This is a conservative determination (i.e. results in a much larger AOR than anticipated during the requested UIC operations) since the analysis assumes that the full maximum amount of water anticipated to be injected for all of the Applicant's wells (730,000 to 3,650,000 cumulative barrels for well; Exhibit E-3) occur simultaneously across the entire Project Area, and that each well receives a maximum injection volume. In other words, the sum of the individual well injection volumes used for calculating AOR is far greater than the field can sustain at 54,000 B/D. As described herein, this assumption is a conservative estimate, since the Applicant is limited to the amount of produced water available that can be used as the injection source of water. As production and treatment activities progress, the AOR will shrink to those wells that are serving most as injectors.

The method used to calculate the AOR was a radial displacement plug-flow model (WDEQ simple calculation). To perform this calculation, one must know the injection zone thickness, injection time and rate (or injection volume), and injection zone porosity. The result of the calculation is a radius for a disc of uniform thickness and porosity. PRB fracture porosity is between one and four percent (Advanced Resources International, 2002; Hower *et al*, 2003). For the calculations presented in this Application, the average of the research-based range of values, two percent fracture porosity, was assumed for all wells. This method and formula is presented on WDEQ UIC-1-V Form page 5, and is represented here as follows:

$$R = \sqrt{\frac{Qt}{\pi H p}}$$

Where:	R	=	Radius of volumetric fillup (feet)
	H	=	Thickness of the injection zone (feet)
	t	=	Time of injection (days)
	Q	=	Injection rate (cubic feet per day)
	π	=	3.14
	P	=	porosity expressed as a pure decimal

We note that the product Q * t is simply the injected volume; therefore, the Qt in the formula can be replaced by V, the injection volume in cubic feet. Exhibit E-3, *Injection Facility Fillup Calculations*, shows the values for each of these variables, and the resulting radius (R) for each well. Exhibit E-1 shows the combined AOR radii for all wells in map format.

Area of Review – Description of Lands

The analysis described above results in an AOR given by the following legal descriptions as 40 acre tracts, shown as the AOR shaded boundary in Exhibit E-1. All of the relevant water right permits of record from the Wyoming State Engineer's Office ("WSEO") and WOGCC data bases of gas wells within the AOR described in the below tabulation are also shown on Exhibit E-4. Reported producing depth intervals were used to identify the aquifer from which each well is producing.

All legal descriptions are from the 6th Principal Meridian and in Campbell County, Wyoming.

T52N / R73W

- Section 1: SWNE, NW ¼, SW ¼, and NWSE
- Section 2: all
- Section 3: all
- Section 4: all
- Section 5: all
- Section 6: all
- Section 7: NE ¼, NW ¼, NESW, NWSW, SESW, and SE ¼
- Section 8: all
- Section 9: all
- Section 10: all
- Section 11: all
- Section 12: NWNW, SWNW, NWSW, and SWSW
- Section 14: all
- Section 15: all
- Section 16: all
- Section 17: NENE, NWNE, SENE, NENW, NESE, and SESE
- Section 20: NENE
- Section 21: NENE, NWNE, NENW, and NWNW

- Section 22: NE ¼, NENW, NWNW, SENW, NESW, SESW, and SE ¼
- Section 23: all
- Section 24: SWNW and NWSW
- Section 26: NWNE and NWNW
- Section 27: NENE, NWNE, and NENW

T52N / R74W

- Section 1: NE ¼, NENW, NWNW, and SE ¼
- Section 2: NENE and NWNE
- Section 12: NENE, NWNE, and SENE

T53N/R72W

- Section 19: SWSW, SESW, and SWSE
- Section 30: NWNE, SWNE, NW ¼, SW ¼, NWSE, and SWSE
- Section 31: NWNE, NENW, NWNW, SWNW, and NWSW

T53N / R73W

- Section 20: SESW, SWSE, and SESE
- Section 21: SWNE, SENE, NESW, SWSW, SESW, and SE ¼
- Section 22: SWNE, SWNW, SENW, SW ¼, NWSE, SWSE, and SESE
- Section 23: SWSW, SESW, SWSE, and SESE
- Section 24: SW ¼, NWSE, SWSE, and SESE
- Section 25: all
- Section 26: all
- Section 27: all
- Section 28: all
- Section 29: all
- Section 30: all
- Section 31: all
- Section 32: all
- Section 33: all
- Section 34: all
- Section 35: all
- Section 36: all

T53N / R74W

- Section 24: SESE
- Section 25: NE ¼, SWNW, SENW, SW ¼, and SE ¼
- Section 26: SWNE, SENE, SESW, and SE ¼
- Section 35: NE ¼, NENW, SENW, NESW, SESW, and SE ¼
- Section 36: all

Section 5 (see Chapter 16, Section 6 (c)(v))
Proposed Facility Information

Description of Substances to be Injected

Exhibits G-1 and G-2 show the quality of the natural ground waters in the Project Area. Water produced from wells completed to the Anderson, Canyon, Lower Canyon and Wall coal seams will be used as the source of injection water. At various times, the applicant will add nutrients to the injection water prior to injection into Canyon, Lower Canyon, Anderson and Wall wells. As mentioned above (Section 1) the ingredients and limitations pertaining to nutrient restorations are to be provided to WDEQ under separate cover. Multiple treatments will likely be performed on these wells over the five year term of this Application. After treatment, wells will be shut in for approximately 8 weeks, and then returned to gas production. Water from previously treated wells may be used as injection make-up water that will be mixed with water from other treated and untreated wells.

Construction and Engineering Details

The Applicant proposes to use different combinations of the wells for injection of CBM produced water at any given time during operations. Figure 3 shows a typical CBM wellbore diagram. Exhibit E-5 shows all of the available construction particulars for each proposed well, as aligned with the labeling shown on Figure 3. Exhibit E-2 lists the location of the wells.

As described in the ***Project Description*** section above, the Applicant intends to gravity inject CBM produced water from the Canyon, Lower Canyon, Anderson, and Wall coal seams, that is amended with nutrients, into the Canyon and Lower Canyon coal seams primarily, with some Wall and Anderson wells also receiving amended water. Exhibits G-1 and G-2 summarize the water quality of the source waters that make up the injectate. This source water will be produced and contained in a closed-loop system of wells, pipelines and other facilities (as shown below in Figure 4) that are not open to the air—thus preserving the anaerobic quality of the groundwater and thus the native microbial community of bacteria. Nutrients will be added to the injectate as described below.

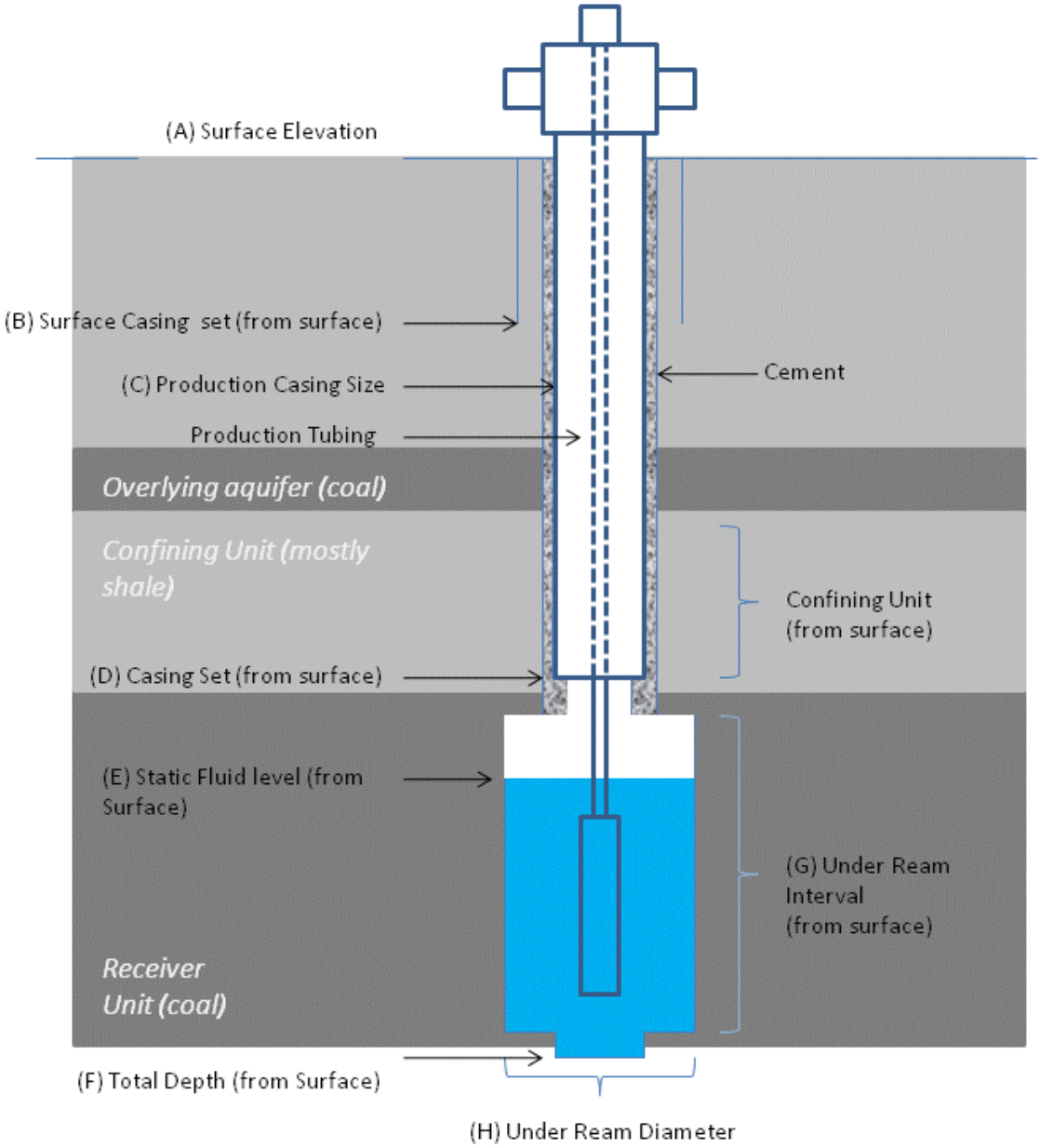

Figure 3 - Typical Wellbore Diagram.

Water Injection Facilities

For this Application each well will be retrofitted to receive injected water by installing a "Nutrient Delivery Skid" (Figure 4). The inlet hose to the skid (Line #1, Figure 4) is connected to the water discharge system on location, downstream of the check valve, and the outlet hose (Line #2, Figure 4) from the skid is connected to the available valve on the wellhead casing (Figure 4). Produced water from other CBM wells will be transported to the "Nutrient Delivery Skid" by way of the water discharge pipeline system already in place. The water is amended

with nutrients inside of the "Nutrient Delivery Skid', and then the amended water (i.e., injectate) is transported to the well casing by the outlet hose from the skid (Line #2, Figure 4). The amended water is injected to the target zone under gravity; injection pressures at the surface will not exceed 15 PSIG.

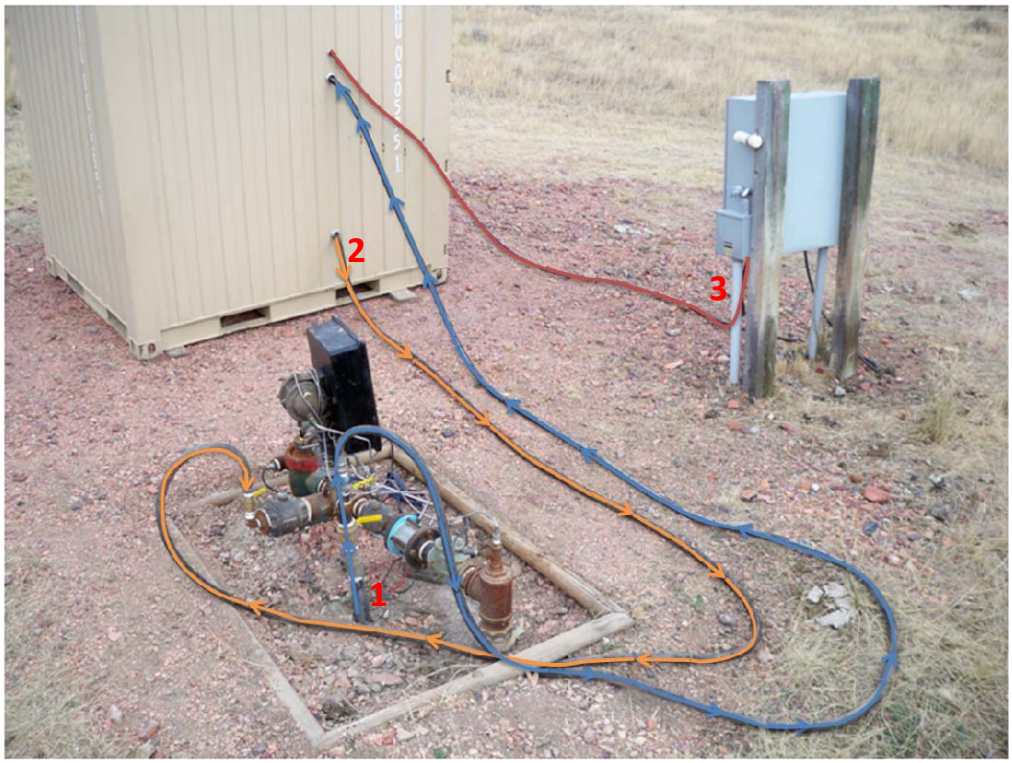

Figure 4 – "Nutrient Delivery Skid" connected to a wellhead. 1) Inlet line connected to water discharge system, supplies source water to the skid. 2) Outlet line from skid connected to wellhead casing, delivers amended injectate to the formation via the casing. 3) Skid connected to 480v power on location which is transformed to 120v power for the amendment pump.

Section 6 (see Chapter 16, Section 6 (c)(vi))
Geological and Fracture Pressure Information

Stratigraphy & Lithology

The regional stratigraphy beneath the Project Area is illustrated in Table 2 below. The proposed zones for injection ("receivers") are the Anderson, Canyon, Lower Canyon, and Wall coal seams (using the Applicant's nomenclature); which are all part of the Tongue River Member of the Paleocene Ft. Union Formation. Correlations for the significant coal seams in the Project Area are shown on cross-section A-A', labeled Exhibit G-3. A plan view of the location of cross-section A-A' is shown on Exhibits G-4 through G-7.

Table 2 - Stratigraphic chart for the Project Area. The proposed receiver zones are highlighted in blue, the confining zone with green.

Formation		USGS Nomenclature (Intrasearch, 1979)	WSGS Nomenclature (Jones and Rodgers, 2007)		Patriot Energy Resources	USGS Hydrostratigraphy (Lewis & Hotchkiss, 1981)
			Coal Zone	Named Coal Bed		
Wasatch			Upper Wasatch			Tongue River - Wasatch Aquifer (A)
		Felix	Felix	Felix		
			Lower Wasatch			
Fort Union	Tongue River Member	Norfolk	Roland			
		Smith	Wyodak Rider	Smith	Smith	
		Swartz	Upper Wyodak			
		Anderson		Anderson	Anderson	
		Canyon	Lower Wyodak	Canyon	Canyon	
		Cook		Lower Canyon	Lower Canyon	
		Pawnee	Sawyer	Cook	Wall	
		Wildcat		Wall		
		Moyer		Lower Wall		
		Oedekoven		Pawnee		
			Basal Tongue River	Moyer		
	Lebo Member					Lebo confining layer (B)
	Tullock Member					Tullock Aquifer (C)

The confining zone includes the uppermost part of the Fort Union Formation. The overlying Wasatch Formation is eroded in the Project Area (Quilinan *et al*, 2010). Lewis and Hotchkiss (1981) presented hydrostratigraphy for the Cretaceous, Quarternary, and Tertiary rock units within the PRB (Table 2, rightmost column). The proposed receiver and confining zones belong to the uppermost part of their Tongue River – Wasatch aquifer. This aquifer is 900 to 1,800 feet thick across the Project Area, with 50-65% sand content (Lewis & Hotchkiss, 1981).

As the Tertiary (Paleocene) Fort Union Formation is present across the surface of the Project Area (Quilinan *et al*, 2010), the entire package of rocks—receiver and confining zones both—belong to the Fort Union Formation. The Formation in the eastern PRB consists of interbedded siltstones, discontinuous sandstones and gravels, carbonaceous shales, and coals of variable thicknesses (Lewis & Hotchkiss, 1981). These sediments were deposited in terrestrial, intermontane, fluvial-deltaic and lacustrine systems with tectonics influencing coal extent and heterogeneity (WDEQ/LQD, 2000; Flores *et al*, 2010). Extensive peat deposits accumulated

within poorly drained interdeltaic regions of the deltaic swamps (Ashley, 2005). Exhibit G-3 shows an interpretation of the discontinuity of the sands in the Project Area, and the relative continuity of the coals. The total thickness of the Fort Union in the Project Area is approximately 2,600 feet (Jones *et al*, 2003).

Structure & Thickness

The receiving injection zones occur at depths ranging from 0[2] to 1,340 feet below surface in this Project Area (Table 3). Exhibit G-3 is a structure map on the top of the Canyon coal. Regionally, the receiver zones dip to the west at slopes of up to 1.5° degrees (Exhibit G-3). There are two mapped normal faults in the area that form a graben on the northern portion of the project area. These faults cut through the entire coal section and are shown on Exhibits G-4 through G-7. An additional smaller fault is shown on Exhibit G-4. This fault is smaller in size however, and does not appear to cut the deeper section. Individual coal thicknesses range from 0 to 89 feet (Table 3).

Table 3 - Receiver zone information (Patriot nomenclature)

Receiver Zone	Depth Range (ft. sub-GL)	Thickness Range (ft.)	Pressure Range (PSIG)[3]
Anderson	0 – 553	0 – 57	0 – 149.4
Canyon	161 – 803	6 – 89	0 – 126.0
Lower Canyon	193 – 968	16 – 42	7.8 – 169.7
Wall	450 – 1,340	6 – 33	65.4 – 199.6

Aquifer Properties

As described above, the confining layer above the proposed receiver zones and interburden layers between receivers is a mixture of lithologies—predominantly clay layers, sands, and coals. This means that the confining layer is a mixture of aquifers and aquitards. Aquitards typically have mean hydraulic conductivities of 7.9×10^{-4} ft./day. Coal and sand aquifers have comparable mean hydraulic conductivities of 7.9×10^{-2} and 2.6×10^{-2} ft./day respectively (Rehm *et al*, 1980).

The closest coal mine to the Project Area is the Buckskin Mine (Figure 1), presently operated by Kiewit Mining Properties, Inc. and formerly operated by Triton Coal Company. The active mine area is approximately five miles southeast of the Project Area. Buckskin Mine has conducted aquifer tests within various parts of its mine site and on different intervals (alluvium, overburden, coal, etc.). Hydraulic conductivities of the coal aquifers derived from those tests

[2] The Anderson coal is eroded in portions of the Project Area (shown on Exhibit G-4).
[3] This pressure was derived by using fluid levels measured in August 2010 and converting the feet of water head above the base of coal to PSIG using (0.433 PSI/ft.). Some wells are known to be dry and therefore at 0 PSIG.

ranged from 0.01 to 949 ft. /day (n = 16). The median value for these tests was 8.3 ft. /day. Overburden sand aquifer hydraulic conductivities ranged from approximately 0.04 to 12.9 ft/day (n = 10; Triton Coal, 2001).

Fracture Gradient
CBM produced water will be gravity-fed into the receiving coal seam aquifer and additional surface pumping and pressure will not be utilized. Therefore, the pressure gradient will not exceed 0.433 PSI/ft. This pressure gradient is well under the commonly used fracture gradient of 0.70 PSI/ft.

Section 7 (see Chapter 16, Section 6 (c)(vii))
Water Quality Information

Exhibit G-2 summarizes the water quality of samples collected and analyzed by the Applicant to assess the water quality characteristics of receiving coal seam waters completed to the Canyon, Lower Canyon, Anderson and Wall coal seams, as well as the quality of the source water completed to the same coal seams. As produced waters come from CBM production reservoirs and will be going back into a CBM production reservoir, the water quality of these waters are, not surprisingly, similar in chemical makeup.

The wells listed in Exhibit G-1 have been sampled for Total coliform, Sulfate Reducing Bacteria and Iron Related Bacteria. With the exception of sulfate reducing bacteria, that data is included in Exhibit G-1. Sulfate reducing bacteria data is being analyzed and will be reported after analysis is complete

Section 8 (see Chapter 16, Section 6 (c)(viii))
Topographic Map

Exhibit E-1 is a map displaying the AOR, water right permits that are contained within the State Engineer's Office records, the WOGCC permits, and the water pipeline infrastructure that will convey water from well to well. These wells and surface water rights within the AOR are also tabulated in Exhibit E-4.

Section 9 (see Chapter 16, Section 6 (c)(ix))
List of Relevant Permits

Exhibit E-4 also lists the relevant WOGCC, WSEO, and Wyoming Pollutant Discharge Elimination System ("WYPDES") permits associated with the Applicant's wells.

Section 10 (see Chapter 16, Section 6 (c)(x))
Monitoring Plans

Casing Pressure and Injected Volumes

The proposed wells will be equipped with flow meter/totalizers to enable the injected water volumes to be recorded weekly and reported on a quarterly basis. The wellhead casing pressure will be recorded and reported on the same basis.

Water Quality

Since ground water in the area of review is Class I (Domestic) by use, it is important to establish baseline (pre-operational) levels of water quality parameters, and to monitor those parameters over time in both CBM and domestic use wells in the project area. Previously sampled baseline data for some analytes, as well as microbial data for coliform, iron related and sulfate reducing bacteria, are included in Exhibits G-1 and G-2 of this application. In addition, all CBM and WSEO wells within the area of review will be sampled prior to project start and analyzed according to Wyoming Water Quality Rules and Regulations Chapter 8 (Table 1). Laboratory results will be submitted to the WDEQ for evaluation during the review period for this permit application.

Once a permit and authorization to inject have been approved, a Sampling Analysis Plan will be submitted, and samples of Injected water and pump back samples from the wells will be evaluated on a quarterly basis in order to monitor the propagation of injected nutrients (as submitted under confidential separate cover) as well as for ground water quality parameters listed below.

- Alkalinity
- Ammonia
- Chloride
- Copper
- Fluoride
- Hydrogen sulfide
- Iron
- Manganese
- Nitrate
- Nitrite
- pH
- Selenium
- Sodium adsorption ratio (calculated from Sodium, Calcium and Magnesium)
- Sulfate
- Total dissolved solids
- Total organic carbon

- Turbidity
- Zinc

Analysis results will be reported quarterly to the WDEQ via the GEM database. The applicant requests that ground water monitoring data be evaluated by the WDEQ after the first year of operations to determine if continued analysis of all water quality parameters is warranted, and if a decrease in monitoring frequency or number of wells to be monitored is appropriate.

Section 11 (see Chapter 16, Section 6 (c)(xi) & (xii))
Operator Certification

This certification is attached to the UIC-1-V form at the front of this Application.

Section 12 (see Chapter 16, Section 10 (p)(vii))
Mechanical Integrity Testing

Frequently, during subsurface injection procedures, water is conveyed from ground surface, downward past shallow fresh-water aquifers, and then injected into a deeper stratum. Supplemental pressure from the surface is usually needed to achieve the design rates of water injection, and this pressure increases the chance that leakage outside of the containment of the wellbore could occur. For such situations, mechanical integrity testing ("MIT") through high pressure testing is technically appropriate to insure that a very reliable physical barrier exists between the injection fluid's flow-path downward in the wellbore and the shallow Underground Source of Drinking Water ("USDW") aquifers present behind the well's casing.

In the Project Area, the physical and operating situation will be very different. The Applicant seeks to inject, under gravity (but with allowance of minor surface injection pressures of up to 15 PSIG to recognize available water supply fluctuations), water produced from the Canyon, Lower Canyon, Anderson, and Wall coal seams into the Canyon, Lower Canyon, Anderson, and Wall coal seams. A variety of unique and exceptional conditions exist in this project, as outlined here, which supports the use of non-pressure MIT methods on a representative subset of the wells as sufficient and technically appropriate:

- Injection will be under gravity, or at most under very low surface pressures. Supplemental pressure will not be employed. The absence of elevated wellbore pressure makes it unlikely that leaks due to mechanical stress and breakdown resulting from injection will occur.
- The wells will not be used solely for injection. Based on production response, the wells may be used for both water injection and gas and water production at different times over the course of the permit period. In fact, as described previously, for each well within this Project Area, its operating function may alternate between injection and production several times.
- A number of the existing CBM wells in the Project Area were cased with steel line pipe, threaded for this service. Such pipe was appropriate for use in shallow CBM wells,

however a standard 300 PSI pressure test — with a loaded wellbore — could create downhole pressures within a few hundred PSI of the burst strength of such casing.

- The receiving coal seams have good permeability and range from mostly-dewatered (Anderson), mixed dewatered and water-filled (Canyon, Lower Canyon), and water-filled (Wall). We anticipate these coals to be capable of receiving injected water at high volumes and rates under gravity flow.
- If a 300 PSI pressure test is performed on one of the wells using a packer set just above the top of the Wall coal at a nominal 750' depth and the hole is loaded with fresh water, the maximum downhole pressure will be 625 PSIG, compared to anticipated Wall reservoir pressure of 50-150 PSIG. Such a pressure test will not be consistent with actual operating conditions.

Though pressure tests are often appropriate to demonstrate the mechanical integrity of injection wells, a review of EPA and WDEQ regulations regarding MIT testing does not prescribe a requirement to use pressure testing for all Class V wells. Please refer to 40 CFR 144.51 (g)(1), which requires compliance with 40 CFR 146.8 mechanical integrity requirements for Class I, II and III wells, but not for Class V wells; and also 40 CFR 144.52, which establishes that Class V wells may include a permit condition prohibiting injection until the Applicant demonstrates mechanical integrity pursuant to 40 CFR 146.8.

Recognizing the unique and exceptional conditions, the Applicant proposes for WDEQ's consideration to test a subset of the wells, using a wireline-based method in lieu of a pressure-based method for confirming mechanical integrity. Specifically, Applicant proposes testing the mechanical integrity of one well per section through the use of wireline-mounted camera and caliper log. An injection falloff test will also be conducted in these wells. These MIT testing procedures will enable detection of leaks in production casing, possible water inflow, and casing deformation, under wellbore conditions more consistent with those to be experienced during actual injection operations.

Procedures to be used in the field are as follows:

Proposed MIT Procedure for the Applicant's Project Area Wells
(One Well per Section):

1. Conduct echometer survey of fluid level from wellhead.
2. Trip out tubing and pump.
3. Leave well shut-in for at least 48 hours.
4. Record shut-in surface pressure to 0.1 PSI accuracy using a recently-calibrated gauge.
5. Move in and rig up logging unit.
6. Run camera with digital image recordation and caliper logs. Tag and record top of fill at bottom of hole. Record depths of fluid level and bottom of casing.

7. Conduct an on-site review of log outputs for evidence of mechanical problems: incursion of water into the wellbore through casing as observed by the camera, and/or intervals of mechanical deformation of casing if measured by the caliper.
8. If evidence of breached mechanical integrity IS NOT observed after 7. above:
    a. Insert multi-pressure transducer sub on wireline to 5 feet above bottom of casing. Suspend in place on wireline. Record baseline pressure. Record falloff pressures (8.c below) with live surface readout.
    b. Move in and rig up water truck loaded with water from CBM wells in the vicinity. Install flow rate recorder to capture flow rates of water from the truck to the wellbore.
    c. Conduct hydrological pressure falloff test, with careful recordation of the times of test events. Release water truck. Nipple down water flow rate recorder.
    d. Retrieve pressure transducer sub.
    e. Rig down wireline and water truck.
    f. Re-insert tubing and pump. Shut in well until start of production and injection operations
9. If evidence of breached mechanical integrity IS seen:
    a. Move in and rig up water truck loaded with water from CBM wells in the vicinity, and hot oil truck.
    b. Insert straddle packer, and set across the deepest problem interval identified by camera and/or caliper logs. Pressure up to 100 PSIG surface pressure. Record pressure falloff readings every 30 seconds for 15 minutes, or by using a continuous recorder
    c. Repeat 8.b for all additional problem intervals in well.
    d. Conduct an on-site review of pressure test results, in conjunction with camera, caliper and drilling gamma ray log records.
    e. If mechanical integrity is present, proceed to Step 8 above
    f. If analysis indicates lack of mechanical integrity, retrieve downhole tools; rig down and move off logging unit, water truck and hot oil truck; and shut in well. Prepare workover plan for future operations to restore mechanical integrity. Do not use this well for injection service until mechanical integrity has been restored and confirmed
10. Prepare reports:
    a. Prepare summary MIT report of logging operations, and analysis of log results
    b. Prepare report of hydrological pressure fall-off test, including pre-test fluid level, and interpreted permeability.
    c. Submit MIT report to WOGCC.
    d. Submit MIT report and fall-off test reports to WDEQ.
11. When pressure integrity has been proven, operate well in injection and production service per the ongoing operating plan of the Rough Draw (Middle Fort Union Coals) Unit and Class V permit with WDEQ.

In addition to the above, as described earlier in this Application, gravity injection pressures will be recorded weekly and reported quarterly to ensure that unexpected conditions of wellbore pressure (greater than 15 PSIG at surface) do not arise. If pressure in excess of 15 PSIG is detected, injection will immediately be suspended and corrective action taken.

Further, when a well is ready for injection, water level readings will be taken prior to injection, at the end of the injection period, and just prior to the well being returned to production (approximately 8 weeks after end of injection), and all wells will have water levels measured at least annually, with annual analysis and reporting.

Taken in total, Applicant's proposal includes not only MIT via two wireline-based methods (One well per section), but also initial measurement of both surface and downhole pressures (one well per section); initial measurement of fluid levels from surface (all wells); initial video logging of the pertinent coal in open hole (one well per section); initial injection falloff testing (one well per section); annual measurement of fluid levels in all wells, with additional fluid level measurements in Receiving Wells; and annual analysis and reporting of fluid levels throughout the project.

Applicant believes that these measurements and analyses, in conjunction with injection volumes over time, will provide Applicant and WDEQ with a comprehensive body of information to confirm initial mechanical integrity, and then to monitor water movement within the Project Area over the life of the Class V UIC permit.

Section 13
Attached Exhibits

- Engineering
  - E-1: Project Area Map
  - E-2: Proposed Injection Facilities Location Table
  - E-3: Injection Facility Fillup Calculations
  - E-4: Facilities and Associated Permits within the Project AOR
  - E-5: Proposed Injection Facilities Construction Details Table
- Geological
  - G-1: Underground Water Classification
  - G-2: Water Quality Analyses of Wellhead Samples
  - G-3: Structural Cross-Section
  - G-4: Structure Map: T/Anderson coal
  - G-5: Structure Map: T/Canyon coal
  - G-6: Structure Map: T/Lower Canyon coal
  - G-7: Structure Map: T/Wall coal
- Land

- L-1: Surface Use Agreements
- L-2: Notification Letter
- L-3: Notification Table

Section 14
References Cited

Advanced Resources International, 2002, Powder River Basin Coalbed Methane Development and Produced Water Management Study, DOE/NETL-2003/1184.

Ashley, M., 2005, Wyodak coal, Tongue River Member of the Fort Union Formation, Powder River Basin, Wyoming: "no-coal zones" and their effects on coalbed methane production, *presented at* 2005 Rocky Mountain Section AAPG Annual Meeting September 24-26th , 2005 Jackson, Wyoming.

Flores, R.M., Spear, B.D., Kinney, S.A., Purchase, P.A., and C.M. Gallagher, 2010, After a century—Revised Paleogene coal stratigraphy, correlation, and deposition, Powder River Basin, Wyoming and Montana: U.S. Geological Survey Professional Paper 1777.

Hower, T.L., Jones, J.E., Goldstein, D.M., and W. Harbridge, 2003, Development of the Wyodak coalbed methane resource in the Powder River Basin, SPE 84428.

Intrasearch Inc., 1979, United States Geological Survey Open File Reports 79-028-031, 033-036, 038-040, 044-046, and 053-054.

Jones, N.R., Lyman, R.M., Ver Ploeg, A.J., De Bruin, R.H., Case, J.C., and J.C. Baxter, 2003, Structure contour and isopach maps of the Fort Union Formation, northern Powder River Basin, northeastern Wyoming, Wyoming State Geological Survey Open File Report 03-4.

Jones, N.R. and J.R. Rodgers, 2007, Coal correlations and coal zones in the Powder River Basin, Wyoming, Wyoming State Geological Survey Open File Report 07-3A (cross section A-A').

Lewis, B.D and W. R. Hotchkiss, 1981, Thickness, percent sand, and configuration of shallow hydrogeologic units in the Powder River Basin, Montana and Wyoming, United States Geological Survey Miscellaneous Investigations Series I-1317.

Quilinan, S.A., Jones, N.R., De Bruin, R.H., and B.N. Worman, 2010, Coalbed natural gas activity in the Powder River Basin, Wyoming, Wyoming State Geological Survey Map Series 58.

Rehm, B.W., Groenewold, G.H, and K.A. Morin, 1980, Hydraulic properties of coal and related materials, Northern Great Plains, *Ground Water,* v. 18, n. 6, pp. 551-561.

Triton Coal Company, 2001, *Buckskin Mine* Adjudication File, Permit 500-T, accessed at Office of Surface Mining, Denver, CO on 22 March 2011.

Wyoming Department of Environmental Quality / Land Quality Division (WDEQ/LQD), 2000, *Cumulative Hydrologic Impact Assessment for the Rawhide Creek and Little Rawhide Creek Drainage Basins, Northeast Wyoming.*

LEGEND

- NON-PATRIOT GAS WELL
- NON-PATRIOT OIL WELL
- CBM WELL

SEO PERMIT LOCATION W/STATUS

- CANCELLED
- COMPLETE
- FULLY ADJUDICATED
- INCOMPLETE
- UNADJUDICATED
- UNKNOWN
- PLUGGED & ABANDONED

WATER RIGHTS

- GROUNDWATER
- SURFACE WATER
- PROPOSED INJECTION (CIRCULATION) LOCATION
- WATERLINES PROJECT AREA
- CALCULATED AREA OF REVIEW
- PROPOSED ROUGH DRAW ENHANCED GAS RECOVERY UNIT (WOGCC)
- AREA OF REVIEW
- EXISTING RESERVOIR

N

SCALE: 1" = 2000'

GRAPHIC SCALE

MAP SOURCE

PLSS: BLM, GEOGRAPHIC COORDINATE DATABASE
IMAGE: USGS 1:24,000 DRG
MAP PROJECTION: NAD 27 UTM ZONE 13, METER

Patriot Energy Resources, LLC
P.O. Box 7070
Gillette, Wyoming 82717

EXHIBIT E-1
ROUGH DRAW INDIVIDUAL AREA UIC APPLICATION
PROJECT AREA
FINAL AREA OF REVIEW OUTLINE

DATE: 05/25/11	DESIGNED BY: KTI
SCALE: 1" = 2000'	DRAWN BY: KTI/PK
CONTOUR INTERVAL: 20'	APPROVED BY: LUCA
REVISION:	DATE:

Knight Technologies, Inc.
201 W. Lakeway Rd., Suite 200
Gillette, WY 82718
Office: (307) 682-8547
Fax: (307) 685-4151
Email: mwight@knight-tech.com

KTI

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Hall 11C-123	4900532668	Fee	52	73	1	NWNW	4295.5	44.522079	-105.586746
Hall 11C-2533	4900533805	Fee	53	73	25	NWNW	4067	44.551595	-105.592196
Hall Fed 11C-2633	4900536143	Federal	53	73	26	NWNW	4093	44.551143	-105.612536
Lynde 11C-3032	4900532087	Fee	53	72	30	NWNW	4149	44.551632	-105.571613
Hall 11C-3533	4900534793	Fee	53	73	35	NWNW	4046	44.536924	-105.61263
State 11C-3633	4900533822	State	53	73	36	NWNW	4121	44.537105	-105.591201
Hensley 12LC-2833	4900533341	Fee	53	73	28	SWNW	4100	44.547308	-105.653552
Lindquist 12LC-3333	4900533354	Fee	53	73	33	SWNW	4144	44.532933	-105.653586
Hinkes 12A-1123	4900543139	Fee	52	73	11	SWNW	4095	44.502558	-105.609917
Landeck 12A-223	4900545431	Fee	52	73	2	SWNW	4169.4	44.517838	-105.608788
Lindquist 12A-3333	4900533807	Fee	53	73	33	SWNW	4066	44.532899	-105.653829
Hall 12A-3533	4900545578	Fee	53	73	35	SWNW	4068.9	44.533328	-105.612038
State Bulkley 12A-3634	4900533261	State	53	74	36	SWNW	4137	44.533003	-105.713759
Twenty Mile 12A-623	4900536755	Fee	52	73	6	SWNW	4125	44.51692	-105.689346
Landeck 12C-1023	4900542511	Fee	52	73	10	SWNW	4424	44.502096	-105.630524
Hinkes 12C-1123	4900532328	Fee	52	73	11	SWNW	4184	44.502261	-105.609583
ST 12C-1623	4900531707	State	52	73	16	SWNW	4116	44.487333	-105.650623
Twenty Mile 12C2-1423	4900539441	Fee	52	73	14	SWNW	4402	44.487237	-105.609842
Landeck 12C-223	4900533105	Fee	52	73	2	SWNW	4164	44.517652	-105.608309
Scott Fed 12C-2733	4900532987	Federal	53	73	27	SWNW	4066	44.547403	-105.633523
Hensley 12C-2833	4900533799	Fee	53	73	28	SWNW	4023	44.547231	-105.653781
Lynde 12C-3032	4900533223	Fee	53	72	30	SWNW	4167	44.547971	-105.571591
Bowen 12C-3233	4900535604	Fee	53	73	32	SWNW	4183	44.533111	-105.673661
Scott 12C-3433	4900533835	Fee	53	73	34	SWNW	4060	44.533741	-105.63266
Lindquist 12C-523	4900534711	Fee	52	73	5	SWNW	4191	44.516771	-105.670384
Taylor Fed 12C-823	4900538818	Federal	52	73	8	SWNW	4144	44.501733	-105.671172
Twenty Mile 12LC2-623	4900548331	Fee	52	73	6	SWNW	4406	44.517518	-105.689685
Scott 12LC-3433	4900533834	Fee	53	73	34	SWNW	4039	44.533867	-105.632642
State Bulkley 12LC-3634	4900542926	State	53	74	36	SWNW	4342.3	44.533102	-105.714022
Butcher 12LC-423	4900532954	Federal	52	73	4	SWNW	4132	44.517062	-105.650047
Lindquist 12LC-523	4900534712	Fee	52	73	5	SWNW	4128	44.51682	-105.67024
Landeck 12WA-1023	4900531874	Fee	52	73	10	SWNW	4123	44.502121	-105.630316
Landeck 12WA-223	4900544068	Fee	52	73	2	SWNW	4173.4	44.517352	-105.608362
Hensley 12WA-2833	4900531743	Fee	53	73	28	SWNW	4123	44.547455	-105.653558
Bowen 12WA-3233	4900535605	Fee	53	73	32	SWNW	4038	44.532945	-105.67354
Lindquist 12WA-3333	4900545474	Fee	53	73	33	SWNW	4141.4	44.533288	-105.653366
Scott 12WA-3433	4900545581	Fee	53	73	34	SWNW	4183.7	44.533953	-105.633375
Hall 12WA-3533	4900545577	Fee	53	73	35	SWNW	4177.1	44.533658	-105.612078
Hall 13C-123	4900531098	Fee	52	73	1	NWSW	4090	44.51399	-105.587211

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Hall Fed 13C-2533	4900532959	Federal	53	73	25	NWSW	4156	44.544499	-105.592435
Hall Fed 13C-2633	4900536144	Federal	53	73	26	NWSW	4094	44.544307	-105.612693
Lynde 13C-3032	4900531746	Fee	53	72	30	NWSW	4284	44.543796	-105.571338
Hall 13C-3533	4900533110	Fee	53	73	35	NWSW	4275.6	44.529677	-105.611824
Hensley 13LC-2833	4900532891	Federal	53	73	28	NWSW	4102	44.54409	-105.653295
Lindquist 14LC-3333	4900533355	Fee	53	73	33	SWSW	4067	44.525436	-105.653736
Bulkley 14-2534	4900556931	Fee	53	74	25	SWSW	4185	44.540729	-105.714513
Hinkes 14A-1123	4900543134	Fee	52	73	11	SWSW	4133	44.495298	-105.610217
Landeck 14A-223	4900545432	Fee	52	73	2	SWSW	4252	44.509268	-105.609687
Butcher 14A-2933	4900543149	Fee	53	73	29	SWSW	4240	44.540276	-105.673553
Scott 14A-3433	4900545580	Fee	53	73	34	SWSW	4047.6	44.526198	-105.632547
Hall 14A-3533	4900545576	Fee	53	73	35	SWSW	4182.6	44.525768	-105.612207
Hinkes 14C-1123	4900532332	Fee	52	73	11	SWSW	4255	44.494949	-105.610132
Hall 14C-123	4900532665	Fee	52	73	1	SWSW	4156	44.509972	-105.588908
Twenty Mile 14C-1423	4900535595	Fee	52	73	14	SWSW	4413	44.480259	-105.610195
Landeck 14C-223	4900534792	Fee	52	73	2	SWSW	4181	44.509584	-105.609646
Hensley 14C-2233	4900534852	Fee	53	73	22	SWSW	4542	44.554901	-105.633443
Twenty Mile Fed 14C-2323	4900536561	Federal	52	73	23	SWSW	4328	44.46592	-105.609395
Hall 14C-2633	4900533798	Fee	53	73	26	SWSW	4039	44.540507	-105.612744
Scott Fed 14C-2733	4900536148	Federal	53	73	27	SWSW	4299	44.540343	-105.632996
Scott Fed 14C-2833	4900532988	Federal	53	73	28	SWSW	4066	44.540087	-105.653852
Lynde 14C-3032	4900533407	Fee	53	72	30	SWSW	4116	44.540732	-105.571555
Butcher 14C-3033	4900543127	Fee	53	73	30	SWSW	4289	44.540506	-105.692913
Butcher 14C-3133	4900549248	State	53	73	31	SWSW	4295	44.524898	-105.693135
Landeck Fed 14C-323	4900531858	Federal	52	73	3	SWSW	4123	44.509615	-105.629612
Lindquist 14C-3333	4900533700	Fee	53	73	33	SWSW	4236	44.525535	-105.653598
Scott 14C-3433	4900533833	Fee	53	73	34	SWSW	4039	44.525211	-105.632625
Landeck 14C-423	4900538625	Fee	52	73	4	SWSW	4218	44.509018	-105.650607
Twenty Mile 14C-523	4900538703	Fee	52	73	5	SWSW	4180	44.509052	-105.670929
Twenty Mile 14C-623	4900542514	Fee	52	73	6	SWSW	4088	44.509379	-105.690095
Hensley 14LC-2233	4900534851	Fee	53	73	22	SWSW	4017	44.554893	-105.633549
Scott Fed 14LC-2733	4900536147	Federal	53	73	27	SWSW	4071	44.540163	-105.632933
Scott Fed 14LC-2833	4900532993	Federal	53	73	28	SWSW	4320.6	44.539891	-105.653692
Butcher 14LC-2933	4900534709	Fee	53	73	29	SWSW	4131	44.540191	-105.673409
Butcher 14LC-3033	4900536574	Fee	53	73	30	SWSW	4148	44.540698	-105.693004
Butcher 14LC-3133	4900539309	State	53	73	31	SWSW	4271	44.524859	-105.693139
Lindquist 14LC-3233	4900534704	Fee	53	73	32	SWSW	4204	44.525767	-105.673718
Scott 14LC-3433	4900533832	Fee	53	73	34	SWSW	4065	44.525245	-105.633147
State Bulkley 14LC-3634	4900543200	State	53	74	36	SWSW	5357.88	44.525985	-105.713773

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Twenty Mile 14LC-523	4900539579	Fee	52	73	5	SWSW	4283	44.509094	-105.671142
Twenty Mile 14LC-623	4900538700	Fee	52	73	6	SWSW	4124	44.509211	-105.690591
Landeck 14WA-1023	4900545422	Fee	52	73	10	SWSW	4170.6	44.494681	-105.630938
Landeck 14WA-223	4900544069	Fee	52	73	2	SWSW	4195.6	44.509428	-105.609327
Lindquist 14WA-3233	4900533716	Fee	53	73	32	SWSW	4124	44.525651	-105.673756
Lindquist 14WA-3333	4900545475	Fee	53	73	33	SWSW	4079.8	44.525928	-105.653775
Scott 14WA-3433	4900545579	Fee	53	73	34	SWSW	4072.6	44.526188	-105.632997
Hall 14WA-3533	4900547669	Fee	53	73	35	SWSW	4362.4	44.525548	-105.611978
Landeck 14WA-423	4900544043	Fee	52	73	4	SWSW	4140	44.509308	-105.650646
Butcher 21LC-3233	4900533350	Fee	53	73	32	NENW	4123	44.536757	-105.668533
Hensley 21WA-3333	4900533421	Fee	53	73	33	NENW	4039	44.536665	-105.648247
Landeck 21C-1023	4900531877	Fee	52	73	10	NENW	4238	44.505801	-105.624618
Hinkes 21C-1123	4900532664	Fee	52	73	11	NENW	4244	44.505762	-105.604869
Twenty Mile 21C-1523	4900535101	Fee	52	73	15	NENW	4634	44.491388	-105.62475
Landeck Fed 21C-223	4900536142	Federal	52	73	2	NENW	4058	44.521879	-105.602344
Twenty Mile 21C-2323	4900543661	Fee	52	73	23	NENW	4271.7	44.47674	-105.60504
State 21C-2733	4900534790	State	53	73	27	NENW	4056	44.551432	-105.628286
Lynde 21C-3032	4900533417	Fee	53	72	30	NENW	4060	44.55164	-105.567077
Butcher 21C-3133	4900542502	Fee	53	73	31	NENW	4108	44.537177	-105.688805
Landeck 21C-323	4900538702	Fee	52	73	3	NENW	4158	44.52151	-105.622835
Butcher 21C-3233	4900533718	Fee	53	73	32	NENW	4401	44.536866	-105.66841
Hensley 21C-3333	4900533806	Fee	53	73	33	NENW	4086	44.536788	-105.648384
Hall Fed 21C-3433	4900536139	Federal	53	73	34	NENW	4103	44.537472	-105.627245
Landeck 21C-423	4900534725	State	52	73	4	NENW	4127	44.521284	-105.642927
Bowen 21C-623	4900543150	Fee	52	73	6	NENW	4238	44.521848	-105.684325
Harris Fed 21C-823	4900538820	Federal	52	73	8	NENW	4143	44.505738	-105.666415
State 21LC-2733	4900534791	State	53	73	27	NENW	4180	44.551282	-105.6281
Butcher 21LC-3133	4900536748	Fee	53	73	31	NENW	4161	44.53697	-105.688851
Hall Fed 21LC-3433	4900536140	Federal	53	73	34	NENW	4198	44.537335	-105.627244
State Bulkley 21LC-3634	4900543193	State	53	74	36	NENW	4202	44.536864	-105.708798
Landeck 21LC-423	4900534726	State	52	73	4	NENW	4245.1	44.521136	-105.642855
Butcher Fed 21LC-523	4900532955	Federal	52	73	5	NENW	4128	44.521306	-105.664327
Bowen 21LC-623	4900536754	Fee	52	73	6	NENW	4497	44.521786	-105.684566
Taylor Fed 21LC-823	4900538821	Federal	52	73	8	NENW	4158	44.505738	-105.666415
Landeck 21WA-1023	4900531744	Fee	52	73	10	NENW	4154	44.506043	-105.624698
Landeck 21WA-323	4900544048	Fee	52	73	3	NENW	4160	44.52152	-105.6232
State Bulkley 21WA-3634	4900533260	State	53	74	36	NENW	4185	44.536663	-105.708728
Landeck21WA-423	4900544042	State	52	73	4	NENW	4145.1	44.521118	-105.643246
Twenty Mile 21WA-923	4900538613	Fee	52	73	9	NENW	4292	44.505573	-105.645719

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
ST 22A-1623	4900531881	State	52	73	16	SENW	4105	44.487223	-105.645643
Hall 22C-123	4900532667	Fee	52	73	1	SENW	4135	44.518277	-105.581312
Hall 22C-2533	4900533797	Fee	53	73	25	SENW	4153	44.547645	-105.586777
Lynde 22C-3032	4900532500	Fee	53	72	30	SENW	4150	44.547988	-105.567045
Hall Fed 22C-3533	4900532985	Federal	53	73	35	SENW	4132	44.533003	-105.607344
State 22C-3633	4900533913	State	53	73	36	SENW	4042	44.533417	-105.58613
Butcher 23LC-2933	4900533346	Fee	53	73	29	NESW	4085	44.543751	-105.668693
Reile 23LC-3333	4900533356	Fee	53	73	33	NESW	4149	44.529222	-105.648014
Hinkes 23A-1123	4900544098	Fee	52	73	11	NESW	4150	44.498318	-105.604597
ST 23A-1623	4900531702	State	52	73	16	NESW	4302	44.483531	-105.646373
Butcher 23A-3033	4900542503	Fee	53	73	30	NESW	4245	44.543845	-105.689027
Landeck 23C-1023	4900532329	Fee	52	73	10	NESW	4146	44.498019	-105.625118
ST 23C-1623	4900531800	State	52	73	16	NESW	4228	44.483504	-105.645714
Landeck 23C-223	4900535593	Fee	52	73	2	NESW	4237	44.513739	-105.603852
Hensley 23C-2733	4900533827	Fee	53	73	27	NESW	4102	44.544661	-105.627439
Butcher 23C-2933	4900533702	Fee	53	73	29	NESW	4116	44.543888	-105.668694
Lynde 23C-3032	4900533416	Fee	53	72	30	NESW	4094	44.544235	-105.567055
Bowen 23C-3133	4900543128	Fee	53	73	31	NESW	4231	44.528895	-105.68806
Landeck 23C-323	4900531023	Fee	52	73	3	NESW	4137	44.513595	-105.623044
Butcher 23C-3233	4900534705	Fee	53	73	32	NESW	4202	44.529791	-105.668118
Reile 23C-3333	4900542508	Fee	53	73	33	NESW	4130	44.529338	-105.648176
Landeck 23C-3433	4900531155	Fee	53	73	34	NESW	4287	44.530246	-105.627813
Landeck 23C-423	4900531152	Fee	52	73	4	NESW	4092	44.513701	-105.645749
Butcher 23C-523	4900538701	Fee	52	73	5	NESW	4150	44.512521	-105.665322
Hensley 23LC-2233	4900538691	Fee	53	73	22	NESW	4240	44.55838	-105.627465
Hensley 23LC-2733	4900533826	Fee	53	73	27	NESW	4128	44.544568	-105.627726
Hensley 23LC-2833	4900533342	Fee	53	73	28	NESW	4044	44.543966	-105.649035
Butcher 23LC-3033	4900536750	Fee	53	73	30	NESW	4107	44.54403	-105.688996
Bowen 23LC-3133	4900538687	Fee	53	73	31	NESW	4163	44.528865	-105.688371
Butcher 23LC-3233	4900534706	Fee	53	73	32	NESW	4314	44.529836	-105.668243
State Bulkley 23LC-3634	4900543195	State	53	74	36	NESW	4218.4	44.52966	-105.708582
Twenty Mile 23LC-623	4900538827	Fee	52	73	6	NESW	4195	44.513129	-105.685587
Landeck 23WA-1023	4900544025	Fee	52	73	10	NESW	4159.8	44.498375	-105.625317
Hinkes 23WA-1123	4900532532	Fee	52	73	11	NESW	4176	44.49847	-105.604289
Landeck 23WA-323	4900532907	Fee	52	73	3	NESW	4124	44.513698	-105.623235
Landeck 23WA-3433	4900534848	Fee	53	73	34	NESW	4042	44.529778	-105.628045
State Bulkley 23WA-3634	4900543194	State	53	74	36	NESW	4190.6	44.529441	-105.708443
Landeck 23WA-423	4900544041	Fee	52	73	4	NESW	4110.4	44.513728	-105.645386
Butcher 23WA-523	4900536756	Fee	52	73	5	NESW	4565	44.512555	-105.665099

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Taylor Fed 23WA-823	4900538822	Federal	52	73	8	NESW	4318	44.498235	-105.666041
ST 24A-1623	4900531703	State	52	73	16	SESW	4338	44.479983	-105.646305
24B2-323	4900535501	Fee	52	73	3	SESW	4205	44.509675	-105.624963
Lynde 24C2-3032	4900531882	Fee	53	72	30	SESW	4118	44.540813	-105.566426
Hall 24C-2433	4900538689	Fee	53	73	24	SESW	3993	44.555255	-105.586942
Hall Fed 24C-2533	4900532960	Federal	53	73	25	SESW	4077	44.540322	-105.586611
Hall Fed 24C-2633	4900536145	Federal	53	73	26	SESW	4094	44.540617	-105.607653
State 24C-3533	4900532983	Federal	53	73	35	SESW	4113	44.525445	-105.606549
State 24C-3633	4900533912	State	53	73	36	SESW	4198	44.525756	-105.586274
Twenty Mile 24C-923	4900532222	Fee	52	73	9	SESW	4140	44.494135	-105.645535
Lynde 31C-2533	4900532499	Fee	53	73	25	NWNE	4076	44.551606	-105.581675
Hall Fed 31C-3533	4900532962	Federal	53	73	35	NWNE	4145	44.536899	-105.601923
State 31C-3633	4900533911	State	53	73	36	NWNE	4154	44.53729	-105.581201
Butcher 31C-523	4900533830	Fee	52	73	5	NWNE	4134	44.521385	-105.659259
Scott 31LC-3233	4900533935	Fee	53	73	32	NWNE	4173	44.536737	-105.663504
Butcher 31LC-523	4900533411	Fee	52	73	5	NWNE	4081	44.52129	-105.659381
Lindquist 32LC-3233	4900533351	Fee	53	73	32	SWNE	4101	44.533163	-105.663737
Scott 32LC-3333	4900533420	Fee	53	73	33	SWNE	4067	44.533391	-105.643243
ST 32A-1623	4900531705	State	52	73	16	SWNE	4350	44.487553	-105.640792
Twenty Mile 32A-2223	4900544076	Fee	52	73	22	SWNE	4220.1	44.473388	-105.620417
Landeck 32A-323	4900545427	Fee	52	73	3	SWNE	4172.7	44.517708	-105.618847
Landeck 32A-3433	4900545571	Fee	53	73	34	SWNE	4183.3	44.533148	-105.622387
Twenty Mile 32A-623	4900542507	Fee	52	73	6	SWNE	4069	44.516647	-105.680238
Twenty Mile 32C-1523	4900535100	Fee	52	73	15	SWNE	4227	44.487471	-105.620005
ST 32C-1623	4900533720	State	52	73	16	SWNE	4348	44.487487	-105.641031
Hall Fed 32C2-2633	4900535761	Federal	53	73	26	SWNE	4688.5	44.547863	-105.603105
Lynde 32C-2533	4900533937	Fee	53	73	25	SWNE	4042	44.548027	-105.581618
Hensley Trust 32C-2733	4900531147	Fee	53	73	27	SWNE	4117	44.547335	-105.623593
32C-323	4900531040	Fee	52	73	3	SWNE	4047	44.517863	-105.618376
Lindquist 32C-3233	4900533717	Fee	53	73	32	SWNE	4143	44.533301	-105.663736
Scott 32C-3333	4900533837	Fee	53	73	33	SWNE	4638	44.533238	-105.643224
Landeck 32C-3433	4900536577	Fee	53	73	34	SWNE	4163	44.533389	-105.622707
Taylor 32C-823	4900538610	Fee	52	73	8	SWNE	4165	44.502029	-105.661074
Twenty Mile 32C-923	4900538621	Fee	52	73	9	SWNE	4220	44.501974	-105.640535
Scott 32LC-2933	4900533347	Fee	53	73	29	SWNE	4135	44.547326	-105.663701
Butcher 32LC-3133	4900536576	Fee	53	73	31	SWNE	4145	44.533215	-105.683139
State Bulkley 32LC-3634	4900543196	State	53	74	36	SWNE	4219.8	44.533487	-105.7032
Twenty Mile 32LC-623	4900536572	Fee	52	73	6	SWNE	4231	44.516798	-105.680084
Hinkes 32WA-1023	4900532487	Fee	52	73	10	SWNE	4150	44.502174	-105.620124

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Hall 32WA-1123	4900544024	Fee	52	73	11	SWNE	4183	44.502578	-105.600058
Twenty Mile 32WA-1423	4900538838	Fee	52	73	14	SWNE	4094	44.48795	-105.600037
Landeck 32WA-323	4900544050	Fee	52	73	3	SWNE	4138	44.517521	-105.618488
Scott 32WA-3333	4900545478	Fee	53	73	33	SWNE	4158.4	44.533618	-105.643596
Landeck 32WA-3433	4900545570	Fee	53	73	34	SWNE	4154	44.533108	-105.623007
State Bulkley 32WA-3634	4900543197	State	53	74	36	SWNE	4280.3	44.533424	-105.703029
ST 33A2-1623	4900547733	State	52	73	16	NWSE	4421.2	44.484178	-105.640067
Lynde 33C-2533	4900532498	Fee	53	73	25	NWSE	4142	44.544319	-105.581668
Hall Fed 33C-3533	4900532984	Federal	53	73	35	NWSE	4132	44.529414	-105.602067
Hensley 34LC-2133	4900533340	Fee	53	73	21	SWSE	4118	44.554626	-105.642726
Landeck 34A-323	4900545426	Fee	52	73	3	SWSE	4138.4	44.509528	-105.619157
Hinkes 34C-1023	4900532331	Fee	52	73	10	SWSE	4159	44.49419	-105.619316
ST 34C-1623	4900533721	State	52	73	16	SWSE	4305.1	44.479957	-105.641137
Hensley 34C-2133	4900533802	Fee	53	73	21	SWSE	4025	44.554758	-105.642744
Twenty Mile Fed 34C-2223	4900536562	Federal	52	73	22	SWSE	4268	44.466018	-105.620783
Hensley 34C2-2833	4900534849	Fee	53	73	28	SWSE	4098	44.54018	-105.643183
Lynde 34C-2533	4900534846	Fee	53	73	25	SWSE	4098	44.5407	-105.581407
Hensley 34C-2733	4900538688	Fee	53	73	27	SWSE	4150	44.540556	-105.622843
Butcher 34C-3033	4900542518	Fee	53	73	30	SWSE	4173.5	44.540488	-105.683957
Lindquist 34C-3133	4900543151	Fee	53	73	31	SWSE	4214.7	44.525601	-105.683746
Landeck 34C-323	4900530937	Fee	52	73	3	SWSE	4103	44.509842	-105.620405
Butcher 34C-3233	4900542509	Fee	53	73	32	SWSE	4306	44.525669	-105.663913
Reile 34C-3333	4900542516	Fee	53	73	33	SWSE	4161	44.525468	-105.642836
Twenty Mile 34C-623	4900542510	Fee	52	73	6	SWSE	4232	44.508461	-105.680845
Taylor 34C-823	4900538611	Fee	52	73	8	SWSE	4164	44.494516	-105.661471
Taylor 34C-923	4900538614	Fee	52	73	9	SWSE	4180	44.494644	-105.640417
Hensley 34LC-2833	4900533344	Fee	53	73	28	SWSE	4043	44.540056	-105.642902
Scott 34LC-2933	4900534703	Fee	53	73	29	SWSE	4175	44.540465	-105.663294
Butcher 34LC-3033	4900536749	Fee	53	73	30	SWSE	4108	44.540389	-105.683677
Lindquist 34LC-3133	4900533701	Fee	53	73	31	SWSE	4122	44.525666	-105.683614
Reile 34LC-3333	4900533419	Fee	53	73	33	SWSE	4088	44.525297	-105.643141
State Bulkley 34LC-3634	4900542952	State	53	74	36	SWSE	4404.3	44.52544	-105.703992
Twenty Mile 34LC-623	4900538699	Fee	52	73	6	SWSE	4417	44.50853	-105.681232
Hinkes 34WA-1023	4900544028	Fee	52	73	10	SWSE	4182.3	44.494236	-105.619683
Twenty Mile 34WA-1123	4900544035	Fee	52	73	11	SWSE	4122.4	44.495178	-105.599298
Landeck 34WA-323	4900533714	Fee	52	73	3	SWSE	4175	44.510135	-105.620642
Butcher 34WA-3233	4900534710	Fee	53	73	32	SWSE	4192	44.525526	-105.663864
State Bulkley 34WA-3634	4900543198	State	53	74	36	SWSE	4233.8	44.525554	-105.704135
State Bulkley 43WA-3634	4900542950	State	53	74	36	NESE	4342	44.529831	-105.700482

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Landeck 34WA-423	4900538624	Fee	52	73	4	SWSE	4144	44.509008	-105.640285
Hinkes 41A-1023	4900544083	Fee	52	73	10	NENE	4150.2	44.505868	-105.615067
Twenty Mile 41A-1523	4900544075	Fee	52	73	15	NENE	4274.4	44.490978	-105.615311
ST 41A-1623	4900549476	State	52	73	16	NENE	4363	44.490123	-105.636405
Twenty Mile 41A-2223	4900544077	Fee	52	73	22	NENE	4147.9	44.476976	-105.615163
Scott 41A-3233	4900533829	Fee	53	73	32	NENE	4116	44.536771	-105.658517
Hinkes 41C-1023	4900532326	Fee	52	73	10	NENE	4131	44.505934	-105.614799
Twenty Mile 41C-1523	4900532187	Fee	52	73	15	NENE	4273	44.491089	-105.61495
Twenty Mile 41C-2223	4900535096	Fee	52	73	22	NENE	4205	44.476657	-105.615087
Lynde 41C-2533	4900534850	Fee	53	73	25	NENE	4016	44.551428	-105.576635
Butcher State 41C-2833	4900533915	State	53	73	28	NENE	4128	44.551403	-105.638683
41C-323	4900533107	Fee	52	73	3	NENE	4166	44.521756	-105.612698
Scott 41C-3333	4900533804	Fee	53	73	33	NENE	4079	44.536831	-105.637866
Hall 41C-3433	4900536569	Fee	53	73	34	NENE	4113	44.536957	-105.617713
Twenty Mile 41C-723	4900538630	Fee	52	73	7	NENE	4252	44.505348	-105.676164
Butcher 41LC-2833	4900533470	State	53	73	28	NENE	4320.1	44.551486	-105.638757
Butcher 41LC-3133	4900535603	Fee	53	73	31	NENE	4181	44.536878	-105.678415
State Bulkley 41LC-3634	4900543191	State	53	74	36	NENE	4215	44.536407	-105.698953
Lindquist 41LC-623	4900538697	Fee	52	73	6	NENE	4312	44.521228	-105.674562
Twenty Mile 41LC-723	4900538622	Fee	52	73	7	NENE	4138	44.505337	-105.676449
Scott 41WA-3233	4900533352	Fee	53	73	32	NENE	4102	44.53659	-105.658551
Scott 41WA-3333	4900533803	Fee	53	73	33	NENE	4026	44.536935	-105.638065
State Bulkley 41WA-3634	4900543192	State	53	74	36	NENE	4152.5	44.536468	-105.699237
Butcher 42WA-523	4900533409	Fee	52	73	5	SENE	4116	44.51736	-105.655041
ST 42A-1623	4900531706	State	52	73	16	SENE	4234	44.487721	-105.636004
Landeck State 42B-423	4900533281	State	52	73	4	SENE	4450.1	44.517896	-105.633305
Lynde 42C-2533	4900532086	Fee	53	73	25	SENE	4077	44.547921	-105.576978
Hall Fed 42C-2633	4900536146	Federal	53	73	26	SENE	4073	44.547896	-105.596949
Hall 42C-3533	4900534794	Fee	53	73	35	SENE	4088	44.533465	-105.597328
State 42C-3633	4900533909	State	53	73	36	SENE	4126	44.533118	-105.575751
Butcher 42C-523	4900533705	Fee	52	73	5	SENE	4111	44.517326	-105.654848
Scott 43LC-2833	4900533345	Fee	53	73	28	NESE	4124	44.543732	-105.637666
Scott 43LC-2933	4900533349	Fee	53	73	29	NESE	4145	44.54354	-105.658509
Lindquist 43LC-3233	4900533353	Fee	53	73	32	NESE	4085	44.5293	-105.65878
Hinkes 43A-1023	4900544082	Fee	52	73	10	NESE	4141.5	44.498818	-105.614537
Twenty Mile 43A-1523	4900544074	Fee	52	73	15	NESE	4167	44.483668	-105.615377
Scott 43A-2933	4900533831	Fee	53	73	29	NESE	4068	44.543555	-105.658739
Landeck 43A-323	4900545424	Fee	52	73	3	NESE	4112.4	44.513498	-105.613587
Twenty Mile 43A-623	4900543129	Fee	52	73	6	NESE	4159	44.512705	-105.675772

Exhibit E-2
Proposed Injection Facilites Location Table

Well Name	API Number	Lease	Township	Range	Section	QQ	Elevation	Lattitude	Longitude
Hinkes 43C-1023	4900532330	Fee	52	73	10	NESE	4160	44.49859	-105.61472
Twenty Mile 43C-1523	4900535098	Fee	52	73	15	NESE	4199	44.483856	-105.615002
ST 43C-1623	4900533719	State	52	73	16	NESE	4336	44.483513	-105.635981
Twenty Mile Fed 43C-2223	4900536565	Federal	52	73	22	NESE	4125	44.469683	-105.615162
Hall 43C-223	4900531052	Fee	52	73	2	NESE	4166	44.513463	-105.593491
Triton 43C-2323	4900535597	Fee	52	73	23	NESE	4406	44.469706	-105.595028
Lynde 43C-2533	4900535602	Fee	53	73	25	NESE	4187	44.544357	-105.576405
Scott 43C-2833	4900534142	Fee	53	73	28	NESE	4243.2	44.543634	-105.637863
Butcher 43C-3033	4900544269	Fee	53	73	30	NESE	4349.6	44.543218	-105.678246
Bowen 43C-3133	4900545455	Fee	53	73	31	NESE	4085.9	44.528923	-105.678515
Landeck 43C-323	4900531025	Fee	52	73	3	NESE	4137	44.513253	-105.613783
Lindquist 43C-3233	4900533828	Fee	53	73	32	NESE	4099	44.529295	-105.658592
Scott 43C-3333	4900533836	Fee	53	73	33	NESE	4068	44.529409	-105.637984
Landeck 43C-3433	4900537808	Fee	53	73	34	NESE	4417	44.529495	-105.617536
Butcher 43LC-3033	4900536575	Fee	53	73	30	NESE	4258	44.543217	-105.678478
Bowen 43LC-3133	4900538686	Fee	53	73	31	NESE	4086	44.528949	-105.678431
State Bulkley 43LC-3634	4900542951	State	53	74	36	NESE	4280.1	44.529921	-105.699854
Hall 43WA-223	4900544066	Fee	52	73	2	NESE	4175	44.513728	-105.593568
Landeck 43WA2-323	4900544049	Fee	52	73	3	NESE	4170	44.513386	-105.614215
Scott 43WA-3333	4900533418	Fee	53	73	33	NESE	4070	44.52953	-105.637949
Landeck 43WA-423	4900536571	Fee	52	73	4	NESE	4243	44.513857	-105.63412
Twenty Mile 43WA-623	4900536573	Fee	52	73	6	NESE	4123	44.512345	-105.675577
Taylor 43WA-823	4900538612	Fee	52	73	8	NESE	4175	44.498274	-105.655677
Lynde 44C-2533	4900532091	Fee	53	73	25	SESE	4170	44.540692	-105.576379
Hall 44C-2633	4900531043	Fee	53	73	26	SESE	4047	44.540669	-105.597286
Hall 44C-3533	4900534795	Fee	53	73	35	SESE	4331	44.525897	-105.596799
Landeck 44WA-3433	4900533109	Fee	53	73	34	SESE	4178	44.526097	-105.617837

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Hall 11C-123	4900532668	Canyon	67.2	0.02	2000	3,650,000	20,493,229	2,203
Hall 11C-2533	4900533805	Canyon	59	0.02	400	730,000	4,098,646	1,051
Hall Fed 11C-2633	4900536143	Canyon	68	0.02	400	730,000	4,098,646	979
Lynde 11C-3032	4900532087	Canyon	34	0.02	400	730,000	4,098,646	1,385
Hall 11C-3533	4900534793	Canyon	67	0.02	2000	3,650,000	20,493,229	2,206
State 11C-3633	4900533822	Canyon	60	0.02	2000	3,650,000	20,493,229	2,332
Hensley 12LC-2833	4900533341	Lower Canyon	33	0.02	400	730,000	4,098,646	1,406
Lindquist 12LC-3333	4900533354	Lower Canyon	31	0.02	2000	3,650,000	20,493,229	3,244
Hinkes 12A-1123	4900543139	Anderson	37	0.02	2000	3,650,000	20,493,229	2,969
Landeck 12A-223	4900545431	Anderson	30	0.02	2000	3,650,000	20,493,229	3,297
Lindquist 12A-3333	4900533807	Anderson	39	0.02	2000	3,650,000	20,493,229	2,892
Hall 12A-3533	4900545578	Anderson	25	0.02	2000	3,650,000	20,493,229	3,612
State Bulkley 12A-3634	4900533261	Anderson	25	0.02	400	730,000	4,098,646	1,615
Twenty Mile 12A-623	4900536755	Anderson	16	0.02	400	730,000	4,098,646	2,019
Landeck 12C-1023	4900542511	Canyon	76	0.02	2000	3,650,000	20,493,229	2,072
Hinkes 12C-1123	4900532328	Canyon	61	0.02	2000	3,650,000	20,493,229	2,312
ST 12C-1623	4900531707	Canyon	66.5	0.02	400	730,000	4,098,646	990
Twenty Mile 12C2-1423	4900539441	Canyon	60	0.02	2000	3,650,000	20,493,229	2,332
Landeck 12C-223	4900533105	Canyon	71.2	0.02	2000	3,650,000	20,493,229	2,140
Scott Fed 12C-2733	4900532987	Canyon	40	0.02	2000	3,650,000	20,493,229	2,856
Hensley 12C-2833	4900533799	Canyon	18	0.02	400	730,000	4,098,646	1,904
Lynde 12C-3032	4900533223	Canyon	63.2	0.02	2000	3,650,000	20,493,229	2,272
Bowen 12C-3233	4900535604	Canyon	19	0.02	2000	3,650,000	20,493,229	4,143
Scott 12C-3433	4900533835	Canyon	37	0.02	2000	3,650,000	20,493,229	2,969
Lindquist 12C-523	4900534711	Canyon	29	0.02	2000	3,650,000	20,493,229	3,354
Taylor Fed 12C-823	4900538818	Canyon	38	0.02	2000	3,650,000	20,493,229	2,930
Twenty Mile 12LC2-623	4900548331	Lower Canyon	28	0.02	400	730,000	4,098,646	1,526
Scott 12LC-3433	4900533834	Lower Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
State Bulkley 12LC-3634	4900542926	Lower Canyon	22	0.02	400	730,000	4,098,646	1,722
Butcher 12LC-423	4900532954	Lower Canyon	37	0.02	2000	3,650,000	20,493,229	2,969
Lindquist 12LC-523	4900534712	Lower Canyon	28	0.02	2000	3,650,000	20,493,229	3,413
Landeck 12WA-1023	4900531874	Wall	58	0.02	2000	3,650,000	20,493,229	2,371
Landeck 12WA-223	4900544068	Wall	23	0.02	2000	3,650,000	20,493,229	3,766
Hensley 12WA-2833	4900531743	Wall	28.5	0.02	400	730,000	4,098,646	1,513
Bowen 12WA-3233	4900535605	Wall	33	0.02	2000	3,650,000	20,493,229	3,144
Lindquist 12WA-3333	4900545474	Wall	24	0.02	2000	3,650,000	20,493,229	3,686

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Scott 12WA-3433	4900545581	Wall	19	0.02	2000	3,650,000	20,493,229	4,143
Hall 12WA-3533	4900545577	Wall	15	0.02	2000	3,650,000	20,493,229	4,663
Hall 13C-123	4900531098	Canyon	65.2	0.02	400	730,000	4,098,646	1,000
Hall Fed 13C-2533	4900532959	Canyon	65	0.02	2000	3,650,000	20,493,229	2,240
Hall Fed 13C-2633	4900536144	Canyon	70	0.02	2000	3,650,000	20,493,229	2,159
Lynde 13C-3032	4900531746	Canyon	59	0.02	2000	3,650,000	20,493,229	2,351
Hall 13C-3533	4900533110	Canyon	78	0.02	2000	3,650,000	20,493,229	2,045
Hensley 13LC-2833	4900532891	Lower Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Lindquist 14LC-3333	4900533355	Lower Canyon	30	0.02	2000	3,650,000	20,493,229	3,297
Bulkley 14-2534	4900556931	Lower Canyon	47	0.02	400	730,000	4,098,646	1,178
Hinkes 14A-1123	4900543134	Anderson	34	0.02	2000	3,650,000	20,493,229	3,097
Landeck 14A-223	4900545432	Anderson	38	0.02	2000	3,650,000	20,493,229	2,930
Butcher 14A-2933	4900543149	Anderson	29	0.02	2000	3,650,000	20,493,229	3,354
Scott 14A-3433	4900545580	Anderson	23	0.02	2000	3,650,000	20,493,229	3,766
Hall 14A-3533	4900545576	Anderson	29	0.02	2000	3,650,000	20,493,229	3,354
Hinkes 14C-1123	4900532332	Canyon	54.2	0.02	2000	3,650,000	20,493,229	2,453
Hall 14C-123	4900532665	Canyon	59.8	0.02	400	730,000	4,098,646	1,044
Twenty Mile 14C-1423	4900535595	Canyon	65	0.02	2000	3,650,000	20,493,229	2,240
Landeck 14C-223	4900534792	Canyon	66	0.02	2000	3,650,000	20,493,229	2,223
Hensley 14C-2233	4900534852	Canyon	31.2	0.02	400	730,000	4,098,646	1,446
Twenty Mile Fed 14C-2323	4900536561	Canyon	67	0.02	400	730,000	4,098,646	987
Hall 14C-2633	4900533798	Canyon	69	0.02	2000	3,650,000	20,493,229	2,174
Scott Fed 14C-2733	4900536148	Canyon	30	0.02	2000	3,650,000	20,493,229	3,297
Scott Fed 14C-2833	4900532988	Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Lynde 14C-3032	4900533407	Canyon	59.2	0.02	400	730,000	4,098,646	1,050
Butcher 14C-3033	4900543127	Canyon	18	0.02	400	730,000	4,098,646	1,904
Butcher 14C-3133	4900549248	Canyon	51	0.02	400	730,000	4,098,646	1,131
Landeck Fed 14C-323	4900531858	Canyon	63	0.02	2000	3,650,000	20,493,229	2,275
Lindquist 14C-3333	4900533700	Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Scott 14C-3433	4900533833	Canyon	37	0.02	2000	3,650,000	20,493,229	2,969
Landeck 14C-423	4900538625	Canyon	57	0.02	2000	3,650,000	20,493,229	2,392
Twenty Mile 14C-523	4900538703	Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Twenty Mile 14C-623	4900542514	Canyon	20	0.02	400	730,000	4,098,646	1,806
Hensley 14LC-2233	4900534851	Lower Canyon	39	0.02	400	730,000	4,098,646	1,293
Scott Fed 14LC-2733	4900536147	Lower Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Scott Fed 14LC-2833	4900532993	Lower Canyon	28	0.02	2000	3,650,000	20,493,229	3,413

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Butcher 14LC-2933	4900534709	Lower Canyon	26	0.02	2000	3,650,000	20,493,229	3,542
Butcher 14LC-3033	4900536574	Lower Canyon	23	0.02	400	730,000	4,098,646	1,684
Butcher 14LC-3133	4900539309	Lower Canyon	34	0.02	400	730,000	4,098,646	1,385
Lindquist 14LC-3233	4900534704	Lower Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Scott 14LC-3433	4900533832	Lower Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
State Bulkley 14LC-3634	4900543200	Lower Canyon	22	0.02	400	730,000	4,098,646	1,722
Twenty Mile 14LC-523	4900539579	Lower Canyon	30	0.02	2000	3,650,000	20,493,229	3,297
Twenty Mile 14LC-623	4900538700	Lower Canyon	11	0.02	400	730,000	4,098,646	2,435
Landeck 14WA-1023	4900545422	Wall	29	0.02	2000	3,650,000	20,493,229	3,354
Landeck 14WA-223	4900544069	Wall	25	0.02	2000	3,650,000	20,493,229	3,612
Lindquist 14WA-3233	4900533716	Wall	18	0.02	2000	3,650,000	20,493,229	4,257
Lindquist 14WA-3333	4900545475	Wall	27	0.02	2000	3,650,000	20,493,229	3,476
Scott 14WA-3433	4900545579	Wall	22	0.02	2000	3,650,000	20,493,229	3,850
Hall 14WA-3533	4900547669	Wall	25	0.02	2000	3,650,000	20,493,229	3,612
Landeck 14WA-423	4900544043	Wall	36	0.02	2000	3,650,000	20,493,229	3,010
Butcher 21LC-3233	4900533350	Lower Canyon	29.5	0.02	2000	3,650,000	20,493,229	3,325
Hensley 21WA-3333	4900533421	Wall	26	0.02	2000	3,650,000	20,493,229	3,542
Landeck 21C-1023	4900531877	Canyon	75.2	0.02	2000	3,650,000	20,493,229	2,083
Hinkes 21C-1123	4900532664	Canyon	73	0.02	2000	3,650,000	20,493,229	2,114
Twenty Mile 21C-1523	4900535101	Canyon	68	0.02	2000	3,650,000	20,493,229	2,190
Landeck Fed 21C-223	4900536142	Canyon	71	0.02	2000	3,650,000	20,493,229	2,143
Twenty Mile 21C-2323	4900543661	Canyon	55	0.02	2000	3,650,000	20,493,229	2,435
State 21C-2733	4900534790	Canyon	34	0.02	400	730,000	4,098,646	1,385
Lynde 21C-3032	4900533417	Canyon	22	0.02	400	730,000	4,098,646	1,722
Butcher 21C-3133	4900542502	Canyon	24	0.02	2000	3,650,000	20,493,229	3,686
Landeck 21C-323	4900538702	Canyon	68	0.02	2000	3,650,000	20,493,229	2,190
Butcher 21C-3233	4900533718	Canyon	17	0.02	2000	3,650,000	20,493,229	4,380
Hensley 21C-3333	4900533806	Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Hall Fed 21C-3433	4900536139	Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Landeck 21C-423	4900534725	Canyon	37	0.02	2000	3,650,000	20,493,229	2,969
Bowen 21C-623	4900543150	Canyon	26	0.02	2000	3,650,000	20,493,229	3,542
Harris Fed 21C-823	4900538820	Canyon	35	0.02	2000	3,650,000	20,493,229	3,053
State 21LC-2733	4900534791	Lower Canyon	33	0.02	400	730,000	4,098,646	1,406
Butcher 21LC-3133	4900536748	Lower Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
Hall Fed 21LC-3433	4900536140	Lower Canyon	37	0.02	2000	3,650,000	20,493,229	2,969
State Bulkley 21LC-3634	4900543193	Lower Canyon	22	0.02	400	730,000	4,098,646	1,722

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Landeck 21LC-423	4900534726	Lower Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Butcher Fed 21LC-523	4900532955	Lower Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
Bowen 21LC-623	4900536754	Lower Canyon	21	0.02	2000	3,650,000	20,493,229	3,941
Taylor Fed 21LC-823	4900538821	Lower Canyon	29	0.02	2000	3,650,000	20,493,229	3,354
Landeck 21WA-1023	4900531744	Wall	17	0.02	2000	3,650,000	20,493,229	4,380
Landeck 21WA-323	4900544048	Wall	19	0.02	2000	3,650,000	20,493,229	4,143
State Bulkley 21WA-3634	4900533260	Wall	22	0.02	400	730,000	4,098,646	1,722
Landeck21WA-423	4900544042	Wall	32	0.02	2000	3,650,000	20,493,229	3,193
Twenty Mile 21WA-923	4900538613	Wall	28	0.02	2000	3,650,000	20,493,229	3,413
ST 22A-1623	4900531881	Anderson	40	0.02	2000	3,650,000	20,493,229	2,856
Hall 22C-123	4900532667	Canyon	56.2	0.02	400	730,000	4,098,646	1,077
Hall 22C-2533	4900533797	Canyon	64	0.02	2000	3,650,000	20,493,229	2,257
Lynde 22C-3032	4900532500	Canyon	34	0.02	400	730,000	4,098,646	1,385
Hall Fed 22C-3533	4900532985	Canyon	84	0.02	2000	3,650,000	20,493,229	1,970
State 22C-3633	4900533913	Canyon	56	0.02	2000	3,650,000	20,493,229	2,413
Butcher 23LC-2933	4900533346	Lower Canyon	23	0.02	400	730,000	4,098,646	1,684
Reile 23LC-3333	4900533356	Lower Canyon	21	0.02	2000	3,650,000	20,493,229	3,941
Hinkes 23A-1123	4900544098	Anderson	44	0.02	2000	3,650,000	20,493,229	2,723
ST 23A-1623	4900531702	Anderson	42.5	0.02	2000	3,650,000	20,493,229	2,770
Butcher 23A-3033	4900542503	Anderson	21	0.02	400	730,000	4,098,646	1,762
Landeck 23C-1023	4900532329	Canyon	71	0.02	2000	3,650,000	20,493,229	2,143
ST 23C-1623	4900531800	Canyon	74	0.02	2000	3,650,000	20,493,229	2,099
Landeck 23C-223	4900535593	Canyon	63	0.02	2000	3,650,000	20,493,229	2,275
Hensley 23C-2733	4900533827	Canyon	31	0.02	2000	3,650,000	20,493,229	3,244
Butcher 23C-2933	4900533702	Canyon	18	0.02	400	730,000	4,098,646	1,904
Lynde 23C-3032	4900533416	Canyon	59	0.02	400	730,000	4,098,646	1,051
Bowen 23C-3133	4900543128	Canyon	10	0.02	400	730,000	4,098,646	2,554
Landeck 23C-323	4900531023	Canyon	41	0.02	2000	3,650,000	20,493,229	2,820
Butcher 23C-3233	4900534705	Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Reile 23C-3333	4900542508	Canyon	49	0.02	2000	3,650,000	20,493,229	2,580
Landeck 23C-3433	4900531155	Canyon	36	0.02	2000	3,650,000	20,493,229	3,010
Landeck 23C-423	4900531152	Canyon	45	0.02	2000	3,650,000	20,493,229	2,692
Butcher 23C-523	4900538701	Canyon	35	0.02	2000	3,650,000	20,493,229	3,053
Hensley 23LC-2233	4900538691	Lower Canyon	28	0.02	400	730,000	4,098,646	1,526
Hensley 23LC-2733	4900533826	Lower Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Hensley 23LC-2833	4900533342	Lower Canyon	36	0.02	2000	3,650,000	20,493,229	3,010

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Butcher 23LC-3033	4900536750	Lower Canyon	24.2	0.02	400	730,000	4,098,646	1,642
Bowen 23LC-3133	4900538687	Lower Canyon	30	0.02	2000	3,650,000	20,493,229	3,297
Butcher 23LC-3233	4900534706	Lower Canyon	15	0.02	2000	3,650,000	20,493,229	4,663
State Bulkley 23LC-3634	4900543195	Lower Canyon	21	0.02	400	730,000	4,098,646	1,762
Twenty Mile 23LC-623	4900538827	Lower Canyon	28	0.02	400	730,000	4,098,646	1,526
Landeck 23WA-1023	4900544025	Wall	30	0.02	2000	3,650,000	20,493,229	3,297
Hinkes 23WA-1123	4900532532	Wall	25	0.02	2000	3,650,000	20,493,229	3,612
Landeck 23WA-323	4900532907	Wall	51	0.02	2000	3,650,000	20,493,229	2,529
Landeck 23WA-3433	4900534848	Wall	31	0.02	2000	3,650,000	20,493,229	3,244
State Bulkley 23WA-3634	4900543194	Wall	30	0.02	400	730,000	4,098,646	1,475
Landeck 23WA-423	4900544041	Wall	25	0.02	2000	3,650,000	20,493,229	3,612
Butcher 23WA-523	4900536756	Wall	28	0.02	2000	3,650,000	20,493,229	3,413
Taylor Fed 23WA-823	4900538822	Wall	29	0.02	400	730,000	4,098,646	1,500
ST 24A-1623	4900531703	Anderson	38.5	0.02	400	730,000	4,098,646	1,302
24B2-323	4900535501	Wall	35.2	0.02	2000	3,650,000	20,493,229	3,044
Lynde 24C2-3032	4900531882	Canyon	59	0.02	400	730,000	4,098,646	1,051
Hall 24C-2433	4900538689	Canyon	58	0.02	400	730,000	4,098,646	1,061
Hall Fed 24C-2533	4900532960	Canyon	54.2	0.02	2000	3,650,000	20,493,229	2,453
Hall Fed 24C-2633	4900536145	Canyon	65	0.02	2000	3,650,000	20,493,229	2,240
State 24C-3533	4900532983	Canyon	74	0.02	2000	3,650,000	20,493,229	2,099
State 24C-3633	4900533912	Canyon	62	0.02	2000	3,650,000	20,493,229	2,294
Twenty Mile 24C-923	4900532222	Canyon	65	0.02	2000	3,650,000	20,493,229	2,240
Lynde 31C-2533	4900532499	Canyon	66	0.02	400	730,000	4,098,646	994
Hall Fed 31C-3533	4900532962	Canyon	72	0.02	2000	3,650,000	20,493,229	2,128
State 31C-3633	4900533911	Canyon	59	0.02	2000	3,650,000	20,493,229	2,351
Butcher 31C-523	4900533830	Canyon	29	0.02	2000	3,650,000	20,493,229	3,354
Scott 31LC-3233	4900533935	Lower Canyon	26	0.02	2000	3,650,000	20,493,229	3,542
Butcher 31LC-523	4900533411	Lower Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Lindquist 32LC-3233	4900533351	Lower Canyon	31	0.02	2000	3,650,000	20,493,229	3,244
Scott 32LC-3333	4900533420	Lower Canyon	27	0.02	2000	3,650,000	20,493,229	3,476
ST 32A-1623	4900531705	Anderson	44	0.02	2000	3,650,000	20,493,229	2,723
Twenty Mile 32A-2223	4900544076	Anderson	35	0.02	400	730,000	4,098,646	1,365
Landeck 32A-323	4900545427	Anderson	29	0.02	2000	3,650,000	20,493,229	3,354
Landeck 32A-3433	4900545571	Anderson	18	0.02	2000	3,650,000	20,493,229	4,257
Twenty Mile 32A-623	4900542507	Anderson	30	0.02	2000	3,650,000	20,493,229	3,297
Twenty Mile 32C-1523	4900535100	Canyon	63	0.02	2000	3,650,000	20,493,229	2,275

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
ST 32C-1623	4900533720	Canyon	61	0.02	2000	3,650,000	20,493,229	2,312
Hall Fed 32C2-2633	4900535761	Canyon	63	0.02	2000	3,650,000	20,493,229	2,275
Lynde 32C-2533	4900533937	Canyon	64	0.02	2000	3,650,000	20,493,229	2,257
Hensley Trust 32C-2733	4900531147	Canyon	29	0.02	2000	3,650,000	20,493,229	3,354
32C-323	4900531040	Canyon	78	0.02	2000	3,650,000	20,493,229	2,045
Lindquist 32C-3233	4900533717	Canyon	22	0.02	2000	3,650,000	20,493,229	3,850
Scott 32C-3333	4900533837	Canyon	23	0.02	2000	3,650,000	20,493,229	3,766
Landeck 32C-3433	4900536577	Canyon	52	0.02	2000	3,650,000	20,493,229	2,504
Taylor 32C-823	4900538610	Canyon	67	0.02	2000	3,650,000	20,493,229	2,206
Twenty Mile 32C-923	4900538621	Canyon	49	0.02	2000	3,650,000	20,493,229	2,580
Scott 32LC-2933	4900533347	Lower Canyon	25	0.02	400	730,000	4,098,646	1,615
Butcher 32LC-3133	4900536576	Lower Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
State Bulkley 32LC-3634	4900543196	Lower Canyon	21	0.02	2000	3,650,000	20,493,229	3,941
Twenty Mile 32LC-623	4900536572	Lower Canyon	38	0.02	2000	3,650,000	20,493,229	2,930
Hinkes 32WA-1023	4900532487	Wall	22	0.02	2000	3,650,000	20,493,229	3,850
Hall 32WA-1123	4900544024	Wall	23	0.02	400	730,000	4,098,646	1,684
Twenty Mile 32WA-1423	4900538838	Wall	35	0.02	400	730,000	4,098,646	1,365
Landeck 32WA-323	4900544050	Wall	23	0.02	2000	3,650,000	20,493,229	3,766
Scott 32WA-3333	4900545478	Wall	23	0.02	2000	3,650,000	20,493,229	3,766
Landeck 32WA-3433	4900545570	Wall	24	0.02	2000	3,650,000	20,493,229	3,686
State Bulkley 32WA-3634	4900543197	Wall	25	0.02	2000	3,650,000	20,493,229	3,612
ST 33A2-1623	4900547733	Anderson	54	0.02	2000	3,650,000	20,493,229	2,458
Lynde 33C-2533	4900532498	Canyon	63	0.02	2000	3,650,000	20,493,229	2,275
Hall Fed 33C-3533	4900532984	Canyon	69	0.02	2000	3,650,000	20,493,229	2,174
Hensley 34LC-2133	4900533340	Lower Canyon	30	0.02	400	730,000	4,098,646	1,475
Landeck 34A-323	4900545426	Anderson	34	0.02	2000	3,650,000	20,493,229	3,097
Hinkes 34C-1023	4900532331	Canyon	66.2	0.02	2000	3,650,000	20,493,229	2,220
ST 34C-1623	4900533721	Canyon	65	0.02	400	730,000	4,098,646	1,002
Hensley 34C-2133	4900533802	Canyon	18	0.02	400	730,000	4,098,646	1,904
Twenty Mile Fed 34C-2223	4900536562	Canyon	63	0.02	400	730,000	4,098,646	1,018
Hensley 34C2-2833	4900534849	Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
Lynde 34C-2533	4900534846	Canyon	61	0.02	2000	3,650,000	20,493,229	2,312
Hensley 34C-2733	4900538688	Canyon	26	0.02	2000	3,650,000	20,493,229	3,542
Butcher 34C-3033	4900542518	Canyon	21	0.02	2000	3,650,000	20,493,229	3,941
Lindquist 34C-3133	4900543151	Canyon	28	0.02	2000	3,650,000	20,493,229	3,413
Landeck 34C-323	4900530937	Canyon	96	0.02	2000	3,650,000	20,493,229	1,843

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Butcher 34C-3233	4900542509	Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
Reile 34C-3333	4900542516	Canyon	19	0.02	2000	3,650,000	20,493,229	4,143
Twenty Mile 34C-623	4900542510	Canyon	22	0.02	2000	3,650,000	20,493,229	3,850
Taylor 34C-823	4900538611	Canyon	76	0.02	400	730,000	4,098,646	926
Taylor 34C-923	4900538614	Canyon	74	0.02	2000	3,650,000	20,493,229	2,099
Hensley 34LC-2833	4900533344	Lower Canyon	30.5	0.02	2000	3,650,000	20,493,229	3,270
Scott 34LC-2933	4900534703	Lower Canyon	25	0.02	2000	3,650,000	20,493,229	3,612
Butcher 34LC-3033	4900536749	Lower Canyon	23	0.02	2000	3,650,000	20,493,229	3,766
Lindquist 34LC-3133	4900533701	Lower Canyon	28	0.02	2000	3,650,000	20,493,229	3,413
Reile 34LC-3333	4900533419	Lower Canyon	22	0.02	2000	3,650,000	20,493,229	3,850
State Bulkley 34LC-3634	4900542952	Lower Canyon	21	0.02	400	730,000	4,098,646	1,762
Twenty Mile 34LC-623	4900538699	Lower Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
Hinkes 34WA-1023	4900544028	Wall	21	0.02	2000	3,650,000	20,493,229	3,941
Twenty Mile 34WA-1123	4900544035	Wall	21	0.02	400	730,000	4,098,646	1,762
Landeck 34WA-323	4900533714	Wall	20	0.02	2000	3,650,000	20,493,229	4,038
Butcher 34WA-3233	4900534710	Wall	27	0.02	2000	3,650,000	20,493,229	3,476
State Bulkley 34WA-3634	4900543198	Wall	23	0.02	400	730,000	4,098,646	1,684
State Bulkley 43WA-3634	4900542950	Wall	23	0.02	2000	3,650,000	20,493,229	3,766
Landeck 34WA-423	4900538624	Wall	30	0.02	2000	3,650,000	20,493,229	3,297
Hinkes 41A-1023	4900544083	Anderson	32	0.02	2000	3,650,000	20,493,229	3,193
Twenty Mile 41A-1523	4900544075	Anderson	32	0.02	2000	3,650,000	20,493,229	3,193
ST 41A-1623	4900549476	Anderson	49	0.02	2000	3,650,000	20,493,229	2,580
Twenty Mile 41A-2223	4900544077	Anderson	45	0.02	2000	3,650,000	20,493,229	2,692
Scott 41A-3233	4900533829	Anderson	33.7	0.02	2000	3,650,000	20,493,229	3,111
Hinkes 41C-1023	4900532326	Canyon	71	0.02	2000	3,650,000	20,493,229	2,143
Twenty Mile 41C-1523	4900532187	Canyon	59.5	0.02	2000	3,650,000	20,493,229	2,341
Twenty Mile 41C-2223	4900535096	Canyon	59	0.02	2000	3,650,000	20,493,229	2,351
Lynde 41C-2533	4900534850	Canyon	56	0.02	400	730,000	4,098,646	1,079
Butcher State 41C-2833	4900533915	Canyon	29	0.02	2000	3,650,000	20,493,229	3,354
41C-323	4900533107	Canyon	71	0.02	2000	3,650,000	20,493,229	2,143
Scott 41C-3333	4900533804	Canyon	32	0.02	2000	3,650,000	20,493,229	3,193
Hall 41C-3433	4900536569	Canyon	75	0.02	2000	3,650,000	20,493,229	2,085
Twenty Mile 41C-723	4900538630	Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Butcher 41LC-2833	4900533470	Lower Canyon	33	0.02	2000	3,650,000	20,493,229	3,144
Butcher 41LC-3133	4900535603	Lower Canyon	23	0.02	2000	3,650,000	20,493,229	3,766
State Bulkley 41LC-3634	4900543191	Lower Canyon	37	0.02	2000	3,650,000	20,493,229	2,969

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Lindquist 41LC-623	4900538697	Lower Canyon	31	0.02	2000	3,650,000	20,493,229	3,244
Twenty Mile 41LC-723	4900538622	Lower Canyon	20	0.02	2000	3,650,000	20,493,229	4,038
Scott 41WA-3233	4900533352	Wall	34	0.02	2000	3,650,000	20,493,229	3,097
Scott 41WA-3333	4900533803	Wall	26	0.02	2000	3,650,000	20,493,229	3,542
State Bulkley 41WA-3634	4900543192	Wall	22	0.02	2000	3,650,000	20,493,229	3,850
Butcher 42WA-523	4900533409	Wall	27	0.02	2000	3,650,000	20,493,229	3,476
ST 42A-1623	4900531706	Anderson	42	0.02	2000	3,650,000	20,493,229	2,787
Landeck State 42B-423	4900533281	Wall	26	0.02	2000	3,650,000	20,493,229	3,542
Lynde 42C-2533	4900532086	Canyon	66	0.02	2000	3,650,000	20,493,229	2,223
Hall Fed 42C-2633	4900536146	Canyon	64	0.02	2000	3,650,000	20,493,229	2,257
Hall 42C-3533	4900534794	Canyon	66	0.02	2000	3,650,000	20,493,229	2,223
State 42C-3633	4900533909	Canyon	52	0.02	400	730,000	4,098,646	1,120
Butcher 42C-523	4900533705	Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
Scott 43LC-2833	4900533345	Lower Canyon	22	0.02	2000	3,650,000	20,493,229	3,850
Scott 43LC-2933	4900533349	Lower Canyon	29	0.02	2000	3,650,000	20,493,229	3,354
Lindquist 43LC-3233	4900533353	Lower Canyon	30	0.02	2000	3,650,000	20,493,229	3,297
Hinkes 43A-1023	4900544082	Anderson	66.5	0.02	2000	3,650,000	20,493,229	2,215
Twenty Mile 43A-1523	4900544074	Anderson	30	0.02	2000	3,650,000	20,493,229	3,297
Scott 43A-2933	4900533831	Anderson	17	0.02	2000	3,650,000	20,493,229	4,380
Landeck 43A-323	4900545424	Anderson	30	0.02	2000	3,650,000	20,493,229	3,297
Twenty Mile 43A-623	4900543129	Anderson	23	0.02	2000	3,650,000	20,493,229	3,766
Hinkes 43C-1023	4900532330	Canyon	60.2	0.02	2000	3,650,000	20,493,229	2,328
Twenty Mile 43C-1523	4900535098	Canyon	62	0.02	2000	3,650,000	20,493,229	2,294
ST 43C-1623	4900533719	Canyon	54	0.02	2000	3,650,000	20,493,229	2,458
Twenty Mile Fed 43C-2223	4900536565	Canyon	55	0.02	2000	3,650,000	20,493,229	2,435
Hall 43C-223	4900531052	Canyon	56.2	0.02	2000	3,650,000	20,493,229	2,409
Triton 43C-2323	4900535597	Canyon	60	0.02	400	730,000	4,098,646	1,043
Lynde 43C-2533	4900535602	Canyon	65	0.02	2000	3,650,000	20,493,229	2,240
Scott 43C-2833	4900534142	Canyon	35	0.02	2000	3,650,000	20,493,229	3,053
Butcher 43C-3033	4900544269	Canyon	19	0.02	400	730,000	4,098,646	1,853
Bowen 43C-3133	4900545455	Canyon	17	0.02	2000	3,650,000	20,493,229	4,380
Landeck 43C-323	4900531025	Canyon	69	0.02	2000	3,650,000	20,493,229	2,174
Lindquist 43C-3233	4900533828	Canyon	43	0.02	2000	3,650,000	20,493,229	2,754
Scott 43C-3333	4900533836	Canyon	35	0.02	2000	3,650,000	20,493,229	3,053
Landeck 43C-3433	4900537808	Canyon	81	0.02	2000	3,650,000	20,493,229	2,007
Butcher 43LC-3033	4900536575	Lower Canyon	26.5	0.02	400	730,000	4,098,646	1,569

Exhibit E-3
Proposed Injection Facilities Fill-up calculation table

			H	P			V	R
Well Name	Api Number	Formation	Coal Thickness	Porosity	Injection Rate (bwpd)	5Yr Injection volume (bbls)	5yr Injection volume (Cubic / Feet)	Radius of Volumetric fillup (feet)
Bowen 43LC-3133	4900538686	Lower Canyon	34	0.02	2000	3,650,000	20,493,229	3,097
State Bulkley 43LC-3634	4900542951	Lower Canyon	35	0.02	400	730,000	4,098,646	1,365
Hall 43WA-223	4900544066	Wall	20	0.02	400	730,000	4,098,646	1,806
Landeck 43WA2-323	4900544049	Wall	21	0.02	2000	3,650,000	20,493,229	3,941
Scott 43WA-3333	4900533418	Wall	21	0.02	2000	3,650,000	20,493,229	3,941
Landeck 43WA-423	4900536571	Wall	25	0.02	2000	3,650,000	20,493,229	3,612
Twenty Mile 43WA-623	4900536573	Wall	24	0.02	2000	3,650,000	20,493,229	3,686
Taylor 43WA-823	4900538612	Wall	24	0.02	400	730,000	4,098,646	1,649
Lynde 44C-2533	4900532091	Canyon	58	0.02	400	730,000	4,098,646	1,061
Hall 44C-2633	4900531043	Canyon	60	0.02	2000	3,650,000	20,493,229	2,332
Hall 44C-3533	4900534795	Canyon	74	0.02	2000	3,650,000	20,493,229	2,099
Landeck 44WA-3433	4900533109	Wall	22	0.02	2000	3,650,000	20,493,229	3,850

Exhibit E-4:
Facilities and Associated Permits within the Project AOR

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.52207	-105.58674	52N	73W	1	NW	NW	HALL 11C-123	PATRIOT ENERGY RESOURCES LLC	4900532668	SI	4135	P109051.0W	3/5/1998	Re-applied	CBM; MIS;	362	Canyon coal	N	WY0036285
Applicant CBM Well	44.51823	-105.5812	52N	73W	1	SE	NW	HALL 22C-123	PATRIOT ENERGY RESOURCES LLC	4900532667	SI	4156	P109050.0W	3/5/1998	Re-applied	CBM; MIS;	346	Canyon coal	N	WY0036285
Applicant CBM Well	44.51489	-105.58673	52N	73W	1	NW	SW	HALL 13C-123	PATRIOT ENERGY RESOURCES LLC	4900531098	SI	4166	P103474.0W	8/9/1996	Re-applied	CBM; STK	370	Canyon coal	N	WY0036285
Applicant CBM Well	44.51084	-105.58834	52N	73W	1	SW	SW	HALL 14C-123	PATRIOT ENERGY RESOURCES LLC	4900532665	SI	4244	P109040.0W	3/4/1998	Re-applied	CBM; MIS;	456	Canyon coal	N	WY0036285
Applicant CBM Well	44.52188	-105.60214	52N	73W	2	NE	NW	LANDECK FED 21C-223	PATRIOT ENERGY RESOURCES LLC	4900536142	SI	4198	P118218.0W	8/16/1999	Complete	CBM; STK	498	Canyon coal	N	WY0036285
Applicant CBM Well	44.51759	-105.60801	52N	73W	2	SW	NW	LANDECK 12C-223	PATRIOT ENERGY RESOURCES LLC	4900533105	SI	4171	P177789.0W	9/28/2006	Complete	CBM; STK	489	Canyon coal	N	WY0036293
Applicant CBM Well	44.5174	-105.60912	52N	73W	2	SW	NW	LANDECK 12WA-223	PATRIOT ENERGY RESOURCES LLC	4900544068	SI	4175	P131903.0W	1/3/2001	Complete	CBM	775	Wall coal	N	WY0036293
Applicant CBM Well	44.51782	-105.60935	52N	73W	2	SW	NW	LANDECK 12A-223	PATRIOT ENERGY RESOURCES LLC	4900545431	SI	4172.7	P135506.0W	5/30/2001	Complete	CBM	170	Anderson coal	N	WY0036293
Applicant CBM Well	44.51357	-105.59342	52N	73W	2	NE	SE	HALL 43C-223	PATRIOT ENERGY RESOURCES LLC	4900531052	DP	4172	P103186.0W	7/29/1996	Incomplete	CBM; MIS;	390	Canyon coal		WY0036285
Applicant CBM Well	44.51371	-105.59413	52N	73W	2	NE	SE	HALL 43WA-223	PATRIOT ENERGY RESOURCES LLC	4900544066	SI	4170	P131897.0W	1/3/2001	Complete	CBM	691	Wall coal	N	WY0036285
Applicant CBM Well	44.51417	-105.60353	52N	73W	2	NE	SW	LANDECK 23C-223	PATRIOT ENERGY RESOURCES LLC	4900535593	SI	4205	P116607.0W	7/2/1999	Complete	CBM; STK	494	Canyon coal	N	WY0036293
Applicant CBM Well	44.50983	-105.60926	52N	73W	2	SW	SW	LANDECK 14C-223	PATRIOT ENERGY RESOURCES LLC	4900534792	SI	4180	P114990.0W	4/5/1999	Re-applied	CBM; STK	485	Canyon coal		WY0036293
Applicant CBM Well	44.50941	-105.60989	52N	73W	2	SW	SW	LANDECK 14WA-223	PATRIOT ENERGY RESOURCES LLC	4900544069	SI	4173.4	P131901.0W	1/3/2001	Complete	CBM	800	Wall coal	N	WY0036293
Applicant CBM Well	44.50925	-105.61025	52N	73W	2	SW	SW	LANDECK 14A-223	PATRIOT ENERGY RESOURCES LLC	4900545432	SI	4169.4	P135508.0W	5/30/2001	Re-applied	CBM	210	Anderson coal		WY0036293
Applicant CBM Well	44.5217	-105.61245	52N	73W	3	NE	NE	LANDECK 41C-323	PATRIOT ENERGY RESOURCES LLC	4900533107	SI	4164	P177786.0W	9/28/2006	Complete	CBM; STK	499	Canyon coal	N	WY0036293
Applicant CBM Well	44.51781	-105.6181	52N	73W	3	SW	NE	LANDECK 32C-323	PATRIOT ENERGY RESOURCES LLC	4900531040	SI	4137	P103187.0W	7/29/1996		CBM; MIS;	490	Canyon coal		WY0036293
Applicant CBM Well	44.51804	-105.61921	52N	73W	3	SW	NE	LANDECK 32WA-323	PATRIOT ENERGY RESOURCES LLC	4900544050	SI	4138	P131895.0W	1/3/2001	Complete	CBM	787	Wall coal	N	WY0036293
Applicant CBM Well	44.51769	-105.61941	52N	73W	3	SW	NE	LANDECK 32A-323	PATRIOT ENERGY RESOURCES LLC	4900545427	SI	4138.4	P135514.0W	5/30/2001	Complete	CBM	182	Anderson coal	N	WY0036293
Applicant CBM Well	44.52143	-105.62292	52N	73W	3	NE	NW	LANDECK 21C-323	PATRIOT ENERGY RESOURCES LLC	4900538702	SI	4150	P120887.0W	11/15/1999	Re-applied	CBM; STK	530	Canyon coal		WY0036293
Applicant CBM Well	44.52152	-105.62378	52N	73W	3	NE	NW	LANDECK 21WA-323	PATRIOT ENERGY RESOURCES LLC	4900544048	SI	4140	P131896.0W	1/3/2001	Complete	CBM	809	Wall coal	N	WY0036293
Applicant CBM Well	44.51341	-105.61304	52N	73W	3	NE	SE	LANDECK 43C-323	PATRIOT ENERGY RESOURCES LLC	4900531025	SI	4137	P102866.0W	7/9/1996		CBM; MIS;	497	Canyon coal		WY0036293
Applicant CBM Well	44.51333	-105.61475	52N	73W	3	NE	SE	LANDECK 43WA2-323	PATRIOT ENERGY RESOURCES LLC	4900544049	SI	4160	P131893.0W	1/3/2001	Complete	CBM	785	Wall coal	N	WY0036293
Applicant CBM Well	44.51348	-105.61415	52N	73W	3	NE	SE	LANDECK 43A-323	PATRIOT ENERGY RESOURCES LLC	4900545424	SI	4170.6	P135519.0W	5/30/2001	Complete	CBM	179	Anderson coal	N	WY0036293
Applicant CBM Well	44.50981	-105.62054	52N	73W	3	SW	SE	LANDECK 34C-323	PATRIOT ENERGY RESOURCES LLC	4900530937	SI	4115	P159038.0W	5/13/2004	Complete	CBM	499	Canyon coal	N	WY0036293
Applicant CBM Well	44.50983	-105.61913	52N	73W	3	SW	SE	LANDECK 34WA2-323	PATRIOT ENERGY RESOURCES LLC	4900533714	SI	4111	P106788.0W	7/25/1997		CBM; STK	730	Wall coal	N	WY0036293
Applicant CBM Well	44.50951	-105.61972	52N	73W	3	SW	SE	LANDECK 34A-323	PATRIOT ENERGY RESOURCES LLC	4900545426	SI	4112.4	P135516.0W	5/30/2001	Complete	CBM	153	Anderson coal	N	WY0036293
Applicant CBM Well	44.51344	-105.62347	52N	73W	3	NE	SW	LANDECK 23C-323	PATRIOT ENERGY RESOURCES LLC	4900531023	SI	4103	P102865.0W	7/9/1996	Complete	CBM; MIS;	414	Canyon coal	N	WY0036293
Applicant CBM Well	44.51369	-105.62452	52N	73W	3	NE	SW	LANDECK 23WA-323	PATRIOT ENERGY RESOURCES LLC	4900532907	SI	4102	P110216.0W	5/21/1998	Re-applied	CBM; STK	800	Wall coal	N	WY0036293
Applicant CBM Well	44.50966	-105.62465	52N	73W	3	SE	SW	LANDECK 24B2-323	PATRIOT ENERGY RESOURCES LLC	4900535501	SI	4117	P116620.0W	7/2/1999	Complete	CBM; STK	788	Wall coal	N	WY0036293

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.50958	-105.63015	52N	73W	3	SW	SW	LANDECK FED 14C-323	PATRIOT ENERGY RESOURCES LLC	4900531858	PG	4123	P159036.0W	5/13/2004	Complete	CBM	740	Canyon coal	N	WY0036293
Applicant CBM Well	44.51785	-105.63337	52N	73W	4	SE	NE	LANDECK STATE 42B-423	PATRIOT ENERGY RESOURCES LLC	4900533281	SI	4137	P108930.0W	2/23/1998	Re-applied	CBM; STK	840	Wall coal	N	WY0036293
Applicant CBM Well	44.52171	-105.64378	52N	73W	4	NE	NW	LANDECK STATE 21C-423	PATRIOT ENERGY RESOURCES LLC	4900534725	SI	4128	P114678.0W	3/22/1999	Re-applied	CBM; STK	366	Canyon coal		WY0036374
Applicant CBM Well	44.52156	-105.64375	52N	73W	4	NE	NW	LANDECK STATE 21LC-423	PATRIOT ENERGY RESOURCES LLC	4900534726	SI	4127	P114679.0W	3/22/1999	Complete	CBM; STK	507	Lower Canyon coal		WY0036374
Applicant CBM Well	44.5211	-105.64381	52N	73W	4	NE	NW	LANDECK 21WA-423	PATRIOT ENERGY RESOURCES LLC	4900544042	SI	4110.4	P132267.0W	1/17/2001	Complete	CBM	791	Wall coal	N	WY0036374
Applicant CBM Well	44.51811	-105.65	52N	73W	4	SW	NW	BUTCHER FEDERAL 12LC-423	PATRIOT ENERGY RESOURCES LLC	4900532954	SI	4104	P159043.0W	5/13/2004	Complete	CBM	402	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.51357	-105.63421	52N	73W	4	NE	SE	LANDECK 43WA-423	PATRIOT ENERGY RESOURCES LLC	4900536571	SI	4113	P119226.0W	9/20/1999	Re-applied	CBM; STK	813	Wall coal		WY0036374
Applicant CBM Well	44.50908	-105.64098	52N	73W	4	SW	SE	LANDECK 34WA-423	PATRIOT ENERGY RESOURCES LLC	4900538624	SI	4138	P162009.0W	8/6/2004	Complete	CBM	839	Wall coal	N	WY0036374
Applicant CBM Well	44.51365	-105.64508	52N	73W	4	NE	SW	LANDECK 23C-423	PATRIOT ENERGY RESOURCES LLC	4900531152	SI	4117	P124731.0W	4/3/2000	Complete	CBM; STK	477	Canyon coal	N	WY0036374
Applicant CBM Well	44.51371	-105.64595	52N	73W	4	NE	SW	LANDECK 23WA-423	PATRIOT ENERGY RESOURCES LLC	4900544041	SI	4122.4	P132268.0W	1/17/2001	Complete	CBM	805	Wall coal	N	WY0036374
Applicant CBM Well	44.50897	-105.6502	52N	73W	4	SW	SW	LANDECK 14C-423	PATRIOT ENERGY RESOURCES LLC	4900538625	SI	4144	P159037.0W	5/13/2004	Complete	CBM	553	Canyon coal	N	WY0036374
Applicant CBM Well	44.50929	-105.65121	52N	73W	4	SW	SW	LANDECK 14WA-423	PATRIOT ENERGY RESOURCES LLC	4900544043	SI	4145.1	P132266.0W	1/17/2001	Complete	CBM	855	Wall coal	N	WY0036374
Applicant CBM Well	44.52132	-105.65947	52N	73W	5	NW	NE	BUTCHER 31LC-523	PATRIOT ENERGY RESOURCES LLC	4900533411	SI	4116	P111693.0W	9/11/1998	Complete	CBM; STK	533	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52141	-105.65935	52N	73W	5	NW	NE	BUTCHER 31C-523	PATRIOT ENERGY RESOURCES LLC	4900533830	SI	4116	P112935.0W	11/19/1998	Complete	CBM; STK	376	Canyon coal	N	WY0036374
Applicant CBM Well	44.51737	-105.65486	52N	73W	5	SE	NE	BUTCHER 42 WA-523	PATRIOT ENERGY RESOURCES LLC	4900533409	SI	4116	P111694.0W	9/11/1998	Complete	CBM; STK	806	Wall coal	N	WY0036374
Applicant CBM Well	44.51737	-105.65467	52N	73W	5	SE	NE	BUTCHER 42C-523	PATRIOT ENERGY RESOURCES LLC	4900533705	SI	4116	P112710.0W	11/3/1998	Complete	CBM; STK	412	Canyon coal	N	WY0036374
Applicant CBM Well	44.52134	-105.66367	52N	73W	5	NE	NW	BUTCHER FEDERAL 21LC-523	PATRIOT ENERGY RESOURCES LLC	4900532955	SI	4132	P159042.0W	5/13/2004	Complete	CBM	570	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.51675	-105.66927	52N	73W	5	SW	NW	LINDQUIST 12C-523	PATRIOT ENERGY RESOURCES LLC	4900534711	SI	4192	P114665.0W	3/22/1999	Complete	CBM; STK	480	Canyon coal		WY0036374
Applicant CBM Well	44.51684	-105.66915	52N	73W	5	SW	NW	LINDQUIST 12LC-523	PATRIOT ENERGY RESOURCES LLC	4900534712	SI	4191	P114666.0W	3/22/1999	Complete	CBM; STK	641	Lower Canyon coal		WY0036374
Applicant CBM Well	44.51246	-105.66388	52N	73W	5	NE	SW	BUTCHER 23WA-523	PATRIOT ENERGY RESOURCES LLC	4900536756	SI	4125	P119415.0W	9/30/1999	Complete	CBM; STK	908	Wall coal	N	WY0036374
Applicant CBM Well	44.51244	-105.66415	52N	73W	5	NE	SW	BUTCHER 23C-523	PATRIOT ENERGY RESOURCES LLC	4900538701	SI	4124	P120889.0W	11/15/1999	Complete	CBM; STK	435	Canyon coal	N	WY0036374
Applicant CBM Well	44.509	-105.67038	52N	73W	5	SW	SW	TWENTY MILE 14C-523	PATRIOT ENERGY RESOURCES LLC	4900538703	SI	4158	P120888.0W	11/15/1999	Re-applied	CBM; STK	504	Canyon coal		WY0036374
Applicant CBM Well	44.50907	-105.67118	52N	73W	5	SW	SW	TWENTY MILE 14LC-523	PATRIOT ENERGY RESOURCES LLC	4900539579	SI	4157	P159022.0W	5/13/2004	Complete	CBM	1050	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52117	-105.67382	52N	73W	6	NE	NE	LINDQUIST 41LC-623	PATRIOT ENERGY RESOURCES LLC	4900538697	SI	4178	P120893.0W	11/15/1999	Re-applied	CBM; STK	635	Lower Canyon coal		WY0036374
Applicant CBM Well	44.51713	-105.68002	52N	73W	6	SW	NE	TWENTY MILE 32LC-623	PATRIOT ENERGY RESOURCES LLC	4900536572	SI	4243	P191847.0W	10/8/2009	Complete	CBM	1200	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.51711	-105.68	52N	73W	6	SW	NE	TWENTY MILE 32A-623	PATRIOT ENERGY RESOURCES LLC	4900542507	SI	4245	P129696.0W	9/6/2000	Complete	CBM	540	Anderson coal	N	WY0036374
Applicant CBM Well	44.52193	-105.70183	52N	73W	6	NE	NW	BOWEN 21LC-623	PATRIOT ENERGY RESOURCES LLC	4900536754	SI	4241	P159044.0W	5/13/2004	Complete	CBM	1200	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52183	-105.68489	52N	73W	6	NE	NW	BOWEN 21C-623	PATRIOT ENERGY RESOURCES LLC	4900543150	SI	4240	P130150.0W	10/9/2000	Complete	CBM	583	Canyon coal	N	WY0036374
Applicant CBM Well	44.51682	-105.68957	52N	73W	6	SW	NW	TWENTY MILE 12A-623	PATRIOT ENERGY RESOURCES LLC	4900536755	SI	4497	P119416.0W	9/30/1999	Re-applied	CBM; STK	1021	Anderson coal		WY0036374

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.5175	-105.69025	52N	73W	6	SW	NW	TWENTY MILE 12LC2-623	PATRIOT ENERGY RESOURCES LLC	4900548331	SI	4484.4	P141401.0W	12/12/2001	Complete	CBM	1020	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.51236	-105.67557	52N	73W	6	NE	SE	TWENTY MILE 43WA-623	PATRIOT ENERGY RESOURCES LLC	4900536573	SI	4231	P174684.0W	4/25/2006		CBM	1005	Wall coal		WY0036374
Applicant CBM Well	44.51263	-105.67461	52N	73W	6	NE	SE	TWENTY MILE 43A-623	PATRIOT ENERGY RESOURCES LLC	4900543129	SI	4231	P129697.0W	9/6/2000	Complete	CBM	518	Anderson coal	N	WY0036374
Applicant CBM Well	44.50858	-105.68184	52N	73W	6	SW	SE	TWENTY MILE 34LC-623	PATRIOT ENERGY RESOURCES LLC	4900538699	SI	4312	P191848.0W	10/8/2009	Complete	CBM	1250	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.50846	-105.68194	52N	73W	6	SW	SE	TWENTY MILE 34C-623	PATRIOT ENERGY RESOURCES LLC	4900542510	SI	4306	P129698.0W	9/6/2000	Complete	CBM	635	Canyon coal	N	WY0036374
Applicant CBM Well	44.51329	-105.6856	52N	73W	6	NE	SW	TWENTY MILE FED 23LC-623	PATRIOT ENERGY RESOURCES LLC	4900538827	SI	4318	P137576.0W	7/23/2001	Complete	CBM	808	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.50927	-105.69128	52N	73W	6	SW	SW	TWENTY MILE 14LC-623	PATRIOT ENERGY RESOURCES LLC	4900538700	SI	4417	P191845.0W	10/8/2009	Complete	CBM	1400	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.50924	-105.69102	52N	73W	6	SW	SW	TWENTY MILE 14C-623	PATRIOT ENERGY RESOURCES LLC	4900542514	SI	4424	P129782.0W	9/20/2000	Complete	CBM	754	Canyon coal	N	WY0036374
Applicant CBM Well	44.50531	-105.67598	52N	73W	7	NE	NE	20 MILE 41LC-723	PATRIOT ENERGY RESOURCES LLC	4900538622	SI	4220	P130131.0W	9/28/2000	Complete	CBM	660	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.50533	-105.67569	52N	73W	7	NE	NE	20 MILE 41C-723	PATRIOT ENERGY RESOURCES LLC	4900538630	SI	4218	P122283.0W	11/22/1999	Re-applied	CBM; STK	597	Canyon coal		WY0036374
Applicant CBM Well	44.50201	-105.66148	52N	73W	8	SW	NE	TAYLOR 32C-823	PATRIOT ENERGY RESOURCES LLC	4900538610	SI	4151	P191844.0W	10/8/2009	Complete	CBM	1020	Canyon coal	N	WY0036374
Applicant CBM Well	44.50581	-105.66709	52N	73W	8	NE	NW	HARRIS FEDERAL 21C-823	PATRIOT ENERGY RESOURCES LLC	4900538820	SI	4144	P137572.0W	7/23/2001	Complete	CBM	482	Canyon coal	N	WY0036374
Applicant CBM Well	44.50581	-105.66709	52N	73W	8	NE	NW	HARRIS FEDERAL 21LC-823	PATRIOT ENERGY RESOURCES LLC	4900538821	SI	4143	P137573.0W	7/23/2001	Complete	CBM	581	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.50161	-105.6719	52N	73W	8	SW	NW	HARRIS FEDERAL 12C-823	PATRIOT ENERGY RESOURCES LLC	4900538818	SI	4180	P137570.0W	7/23/2001	Complete	CBM	600	Canyon coal	N	WY0036374
Applicant CBM Well	44.49833	-105.65635	52N	73W	8	NE	SE	TAYLOR 43WA-823	PATRIOT ENERGY RESOURCES LLC	4900538612	SI	4164	P174687.0W	4/26/2006	Complete	CBM	881	Wall coal		WY0036374
Applicant CBM Well	44.49457	-105.66213	52N	73W	8	SW	SE	TAYLOR 34C-823	PATRIOT ENERGY RESOURCES LLC	4900538611	PG	4165	P147151.0W	9/10/2002	Complete	CBM	1025	Canyon coal	N	WY0036374
Applicant CBM Well	44.49825	-105.66611	52N	73W	8	NE	SW	TAYLOR FEDERAL 23WA-823	PATRIOT ENERGY RESOURCES LLC	4900538822	SI	4158	P137574.0W	7/23/2001	Complete	CBM	903	Wall coal	N	WY0036374
Applicant CBM Well	44.50203	-105.64119	52N	73W	9	SW	NE	20 MILE 32C-923	PATRIOT ENERGY RESOURCES LLC	4900538621	SI	4180	P122285.0W	11/22/1999	Re-applied	CBM; STK	1000	Canyon coal		WY0036374
Applicant CBM Well	44.50563	-105.64636	52N	73W	9	NE	NW	20 MILE 21WA-923	PATRIOT ENERGY RESOURCES LLC	4900538613	SI	4175	P174725.0W	5/5/2006		CBM	911	Wall coal		WY0036374
Applicant CBM Well	44.49456	-105.64032	52N	73W	9	SW	SE	20 MILE 34C-923	PATRIOT ENERGY RESOURCES LLC	4900538614	SI	4292	P130132.0W	9/28/2000	Complete	CBM	718	Canyon coal	N	WY0036374
Applicant CBM Well	44.49414	-105.64551	52N	73W	9	SE	SW	TWENTY MILE 24C-923	PATRIOT ENERGY RESOURCES LLC	4900532222	SI	4273	P159021.0W	5/13/2004	Complete	CBM	700	Canyon coal	N	WY0036374
Applicant CBM Well	44.50572	-105.61472	52N	73W	10	NE	NE	HINKES 41C-1023	PATRIOT ENERGY RESOURCES LLC	4900532326	SI	4140	P178790.0W	11/22/2006	Complete	CBM; STK	900	Canyon coal	N	WY0036293
Applicant CBM Well	44.50585	-105.61563	52N	73W	10	NE	NE	HINKES 41A-1023	PATRIOT ENERGY RESOURCES LLC	4900544083	SI	4141.5	P131909.0W	1/3/2001	Complete	CBM	152	Anderson coal	N	WY0036293
Applicant CBM Well	44.50214	-105.62009	52N	73W	10	SW	NE	HINKES 32WA-1023	PATRIOT ENERGY RESOURCES LLC	4900532487	SI	4129	P108241.0W	11/26/1997		CBM; STK	802	Wall coal	N	WY0036293
Applicant CBM Well	44.50604	-105.6247	52N	73W	10	NE	NW	LANDECK 21WA-1023	PATRIOT ENERGY RESOURCES LLC	4900531744	SI	4123	P106271.0W	5/29/1997	Re-applied	CBM; STK	750	Wall coal		WY0036293
Applicant CBM Well	44.50517	-105.6246	52N	73W	10	NE	NW	LANDECK 21C-1023	PATRIOT ENERGY RESOURCES LLC	4900531877	SI	4123	P109589.0W	4/9/1998	Re-applied	CBM; STK	473	Canyon coal		WY0036293
Applicant CBM Well	44.5021	-105.6302	52N	73W	10	SW	NW	LANDECK 12WA-1023	PATRIOT ENERGY RESOURCES LLC	4900531874	SI	4228	P129780.0W	9/20/2000		CBM	915	Wall coal		WY0036293
Applicant CBM Well	44.50175	-105.63082	52N	73W	10	SW	NW	LANDECK 12C-1023	PATRIOT ENERGY RESOURCES LLC	4900542511	SI	4232	P129443.0W	9/13/2000	Complete	CBM	614	Canyon coal	N	WY0036293
Applicant CBM Well	44.4986	-105.6145	52N	73W	10	NE	SE	HINKES 43C-1023	PATRIOT ENERGY RESOURCES LLC	4900532330	SI	4146	P178788.0W	11/22/2006		CBM; STK	445	Canyon coal	N	WY0036293

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.4988	-105.6151	52N	73W	10	NE	SE	HINKES 43A-1023	PATRIOT ENERGY RESOURCES LLC	4900544082	SI	4147.9	P131911.0W	1/3/2001	Complete	CBM	209	Anderson coal		WY0036293
Applicant CBM Well	44.49431	-105.61947	52N	73W	10	SW	SE	HINKES 34C-1023	PATRIOT ENERGY RESOURCES LLC	4900532331	SI	4160	P178787.0W	11/22/2006	Complete	CBM; STK	480	Canyon coal	N	WY0036293
Applicant CBM Well	44.49443	-105.61989	52N	73W	10	SW	SE	HINKES 34WA-1023	PATRIOT ENERGY RESOURCES LLC	4900544028	SI	4159.8	P131908.0W	1/3/2001	Complete	CBM	823	Wall coal	N	WY0036293
Applicant CBM Well	44.49832	-105.62523	52N	73W	10	NE	SW	LANDECK 23C-1023	PATRIOT ENERGY RESOURCES LLC	4900532329	SI	4184	P159035.0W	5/13/2004	Complete	CBM	825	Canyon coal	N	WY0036293
Applicant CBM Well	44.4988	-105.62569	52N	73W	10	NE	SW	LANDECK 23WA-1023	PATRIOT ENERGY RESOURCES LLC	4900544025	SI	4183	P131905.0W	1/3/2001	Complete	CBM	858	Wall coal	N	WY0036293
Applicant CBM Well	44.4945	-105.6315	52N	73W	10	SW	SW	LANDECK 14WA-1023	PATRIOT ENERGY RESOURCES LLC	4900545422	SI	4335	P135507.0W	5/30/2001	Complete	CBM	1051	Wall coal	N	WY0036293
Applicant CBM Well	44.50256	-105.60062	52N	73W	11	SW	NE	HALL 32WA-1123	PATRIOT ENERGY RESOURCES LLC	4900544024	SI	4210.6	P131920.0W	1/3/2001	Complete	CBM	803	Wall coal	N	WY0036293
Applicant CBM Well	44.50624	-105.60454	52N	73W	11	NE	NW	HINKES 21C-1123	PATRIOT ENERGY RESOURCES LLC	4900532664	SI	4176	P131915.0W	1/3/2001	Re-applied	CBM	456	Canyon coal		WY0036285
Applicant CBM Well	44.50251	-105.6096	52N	73W	11	SW	NW	HINKES 12C-1123	PATRIOT ENERGY RESOURCES LLC	4900532328	SI	4131	P178789.0W	11/22/2006	Complete	CBM; STK	850	Canyon coal	N	WY0036293
Applicant CBM Well	44.50254	-105.61048	52N	73W	11	SW	NW	HINKES 12A-1123	PATRIOT ENERGY RESOURCES LLC	4900543139	SI	4133	P131652.0W	12/26/2000	Complete	CBM	230	Anderson coal	N	WY0036293
Applicant CBM Well	44.49516	-105.59986	52N	73W	11	SW	SE	TWENTY MILE 34WA-1123	PATRIOT ENERGY RESOURCES LLC	4900544035	SI	4182.3	P132273.0W	1/17/2001	Complete	CBM	792	Wall coal	N	WY0036293
Applicant CBM Well	44.49877	-105.60476	52N	73W	11	NE	SW	HINKES 23WA-1123	PATRIOT ENERGY RESOURCES LLC	4900532532	SI	4150	P108866.0W	2/6/1998	Re-applied	CBM; STK	751	Wall coal		WY0036293
Applicant CBM Well	44.4983	-105.60517	52N	73W	11	NE	SW	HINKES 23A-1123	PATRIOT ENERGY RESOURCES LLC	4900544098	SI	4150.2	P131917.0W	1/3/2001	Complete	CBM	287	Anderson coal	N	WY0036293
Applicant CBM Well	44.49496	-105.60989	52N	73W	11	SW	SW	HINKES 14C-1123	PATRIOT ENERGY RESOURCES LLC	4900532332	SI	4159	P178786.0W	11/22/2006	Complete	CBM; STK	470	Canyon coal	N	WY0036293
Applicant CBM Well	44.49528	-105.61078	52N	73W	11	SW	SW	HINKES 14A-1123	PATRIOT ENERGY RESOURCES LLC	4900543134	SI	4159	P131651.0W	12/26/2000	Complete	CBM	200	Anderson coal	N	WY0036293
Applicant CBM Well	44.48777	-105.60033	52N	73W	14	SW	NE	TWENTY MILE 32WA-1423	PATRIOT ENERGY RESOURCES LLC	4900538838	SI	4195	P122295.0W	12/8/1999	Complete	CBM; STK	812	Wall coal	N	WY0036293
Applicant CBM Well	44.48903	-105.60995	52N	73W	14	SW	NW	TWENTY MILE 12C2-1423	PATRIOT ENERGY RESOURCES LLC	4900539441	SI	4271	P159023.0W	5/13/2004		CBM	975	Canyon coal	N	WY0036293
Applicant CBM Well	44.48013	-105.61028	52N	73W	14	SW	SW	TWENTY MILE 14C-1423	PATRIOT ENERGY RESOURCES LLC	4900535595	SI	4237	P116609.0W	7/2/1999	Re-applied	CBM; STK	555	Canyon coal		WY0036293
Applicant CBM Well	44.49118	-105.61511	52N	73W	15	NE	NE	TWENTY MILE 41C-1523	PATRIOT ENERGY RESOURCES LLC	4900532187	SI	4170	P191849.0W	10/8/2009	Complete	CBM	900	Canyon coal	N	WY0036293
Applicant CBM Well	44.49097	-105.61589	52N	73W	15	NE	NE	TWENTY MILE 41A-1523	PATRIOT ENERGY RESOURCES LLC	4900544075	SI	4167	P132289.0W	1/17/2001	Complete	CBM	206	Anderson coal	N	WY0036293
Applicant CBM Well	44.48749	-105.62018	52N	73W	15	SW	NE	TWENTY MILE 32C-1523	PATRIOT ENERGY RESOURCES LLC	4900535100	SI	4199	P115817.0W	5/10/1999	Re-applied	CBM; STK	560	Canyon coal		WY0036293
Applicant CBM Well	44.49185	-105.62495	52N	73W	15	NE	NW	TWENTY MILE 21C-1523	PATRIOT ENERGY RESOURCES LLC	4900535101	SI	4227	P191846.0W	10/8/2009	Complete	CBM	1020	Canyon coal	N	WY0036293
Applicant CBM Well	44.48369	-105.61511	52N	73W	15	NE	SE	TWENTY MILE 43C-1523	PATRIOT ENERGY RESOURCES LLC	4900535098	SI	4205	P115819.0W	5/10/1999	Re-applied	CBM; STK	532	Canyon coal		WY0036293
Applicant CBM Well	44.48365	-105.61594	52N	73W	15	NE	SE	TWENTY MILE 43A-1523	PATRIOT ENERGY RESOURCES LLC	4900544074	SI	4195.6	P132288.0W	1/17/2001	Complete	CBM	223	Anderson coal	N	WY0036293
Applicant CBM Well	44.49011	-105.63609	52N	73W	16	NE	NE	STATE 41A-1623	PATRIOT ENERGY RESOURCES LLC	4900549476	SI	4295	P159020.0W	5/13/2004	Complete	CBM	407	Anderson coal	N	WY0036374
Applicant CBM Well	44.48766	-105.63581	52N	73W	16	SE	NE	STATE 42A-16	PATRIOT ENERGY RESOURCES LLC	4900531706	SI	4350	P105625.0W	4/28/1997	Complete	CBM; MIS;	467	Anderson coal	N	WY0036374
Applicant CBM Well	44.48755	-105.64077	52N	73W	16	SW	NE	STATE 32A-16	PATRIOT ENERGY RESOURCES LLC	4900531705	SI	4338	P105626.0W	4/28/1997	Complete	CBM; MIS;	427	Anderson coal	N	WY0036374
Applicant CBM Well	44.48742	-105.64089	52N	73W	16	SW	NE	STATE 32C-1623	PATRIOT ENERGY RESOURCES LLC	4900533720	SI	4336	P112696.0W	11/3/1998	Complete	CBM; STK	713	Canyon coal	N	WY0036374
Applicant CBM Well	44.48704	-105.64555	52N	73W	16	SE	NW	STATE 22A-1623	PATRIOT ENERGY RESOURCES LLC	4900531881	SI	4238	P159025.0W	5/13/2004	Complete	CBM	528	Anderson coal	N	WY0036374

Exhibit E-4:
Facilities and Associated Permits within the Project AOR

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.48728	-105.65067	52N	73W	16	SW	NW	STATE 12C-16	PATRIOT ENERGY RESOURCES LLC	4900531707	SI	4234	P105627.0W	4/28/1997	Complete	CBM; MIS;	652	Canyon coal	N	WY0036374
Applicant CBM Well	44.48341	-105.6359	52N	73W	16	NE	SE	STATE 43C-1623	PATRIOT ENERGY RESOURCES LLC	4900533719	SI	4401	P112698.0W	11/3/1998	Complete	CBM; STK	804	Canyon coal	N	WY0036374
Applicant CBM Well	44.48416	-105.64063	52N	73W	16	NW	SE	STATE 33A2-1623	PATRIOT ENERGY RESOURCES LLC	4900547733	SI	4362.4	P159050.0W	5/13/2004	Complete	CBM	468	Anderson coal	N	WY0036374
Applicant CBM Well	44.47982	-105.64099	52N	73W	16	SW	SE	STATE 34C-1623	PATRIOT ENERGY RESOURCES LLC	4900533721	SI	4348	P112697.0W	11/3/1998	Complete	CBM; STK	784	Canyon coal	N	WY0036374
Applicant CBM Well	44.48364	-105.64567	52N	73W	16	NE	SW	STATE 23A-16	PATRIOT ENERGY RESOURCES LLC	4900531702	SI	4287	P105624.0W	4/28/1997	Complete	CBM; MIS;	378	Anderson coal	N	WY0036374
Applicant CBM Well	44.48341	-105.6462	52N	73W	16	NE	SW	STATE 23C-1623	PATRIOT ENERGY RESOURCES LLC	4900531800	SI	4284	P128648.0W	8/22/2000	Re-applied	CBM	673	Canyon coal		WY0036374
Applicant CBM Well	44.48	-105.64624	52N	73W	16	SE	SW	STATE 24A-16	PATRIOT ENERGY RESOURCES LLC	4900531703	SI	4302	P105622.0W	4/28/1997	Complete	CBM; MIS;	387	Anderson coal	N	WY0036374
Applicant CBM Well	44.4765	-105.61515	52N	73W	22	NE	NE	TWENTY MILE 41C-2223	PATRIOT ENERGY RESOURCES LLC	4900535096	SI	4219	P159019.0W	5/13/2004	Complete	CBM	535	Canyon coal	N	WY0036293
Applicant CBM Well	44.47699	-105.61567	52N	73W	22	NE	NE	TWENTY MILE 41A-2223	PATRIOT ENERGY RESOURCES LLC	4900544077	SI	4220.1	P132291.0W	1/17/2001	Complete	CBM	247	Anderson coal	N	WY0036293
Applicant CBM Well	44.47337	-105.62098	52N	73W	22	SW	NE	TWENTY MILE 32A-2223	PATRIOT ENERGY RESOURCES LLC	4900544076	SI	4274.4	P132290.0W	1/17/2001	Complete	CBM	310	Anderson coal	N	WY0036293
Applicant CBM Well	44.46948	-105.61508	52N	73W	22	NE	SE	TWENTY MILE FED 43C-2223	PATRIOT ENERGY RESOURCES LLC	4900536565	SI	4268	P137337.0W	7/25/2001	Complete	CBM	582	Canyon coal	N	WY0036293
Applicant CBM Well	44.46587	-105.62067	52N	73W	22	SW	SE	TWENTY MILE FEDERAL 34C-2223	PATRIOT ENERGY RESOURCES LLC	4900536562	SI	4328	P137334.0W	7/25/2001	Complete	CBM	699	Canyon coal	N	WY0036293
Applicant CBM Well	44.47748	-105.60562	52N	73W	23	NE	NW	TWENTY MILE 21C-2323	PATRIOT ENERGY RESOURCES LLC	4900543661	SI	5357.88	P127901.0W	7/31/2000	Complete	CBM	632	Canyon coal	N	WY0036293
Applicant CBM Well	44.46973	-105.5949	52N	73W	23	NE	SE	TRITON 43C-2323	PATRIOT ENERGY RESOURCES LLC	4900535597	SI	4413	P116611.0W	7/2/1999	Complete	CBM; STK	657	Canyon coal	N	WY0036293
Applicant CBM Well	44.4659	-105.60996	52N	73W	23	SW	SW	TWENTY MILE FEDERAL 14C-2323	PATRIOT ENERGY RESOURCES LLC	4900536561	SI	4299	P137328.0W	7/25/2001		CBM	619	Canyon coal		WY0036293
Applicant CBM Well	44.5516	-105.56717	53N	72W	30	NE	NW	LYNDE 21C-3032	PATRIOT ENERGY RESOURCES LLC	4900533417	SI	4094	P111697.0W	9/11/1998	Complete	CBM; STK	195	Canyon coal	N	WY0036285
Applicant CBM Well	44.55162	-105.5716	53N	72W	30	NW	NW	LYNDE 11C-3032	PATRIOT ENERGY RESOURCES LLC	4900532087	SI	4077	P107669.0W	9/18/1997	Complete	CBM; STK	270	Canyon coal	N	WY0036285
Applicant CBM Well	44.54796	-105.56713	53N	72W	30	SE	NW	LYNDE 22C-3032	PATRIOT ENERGY RESOURCES LLC	4900532500	SI	4076	P108731.0W	1/28/1998	Re-applied	CBM; STK	197	Canyon coal	N	WY0036285
Applicant CBM Well	44.54794	-105.57167	53N	72W	30	SW	NW	LYNDE 12C-3032	PATRIOT ENERGY RESOURCES LLC	4900533223	SI	4082	P110962.0W	7/21/1998	Complete	CBM; STK	243	Canyon coal	N	WY0036285
Applicant CBM Well	44.54426	-105.56709	53N	72W	30	NE	SW	LYNDE 23C-3032	PATRIOT ENERGY RESOURCES LLC	4900533416	SI	4081	P111698.0W	9/11/1998	Complete	CBM; STK	232	Canyon coal	N	WY0036285
Applicant CBM Well	44.54382	-105.57136	53N	72W	30	NW	SW	LYNDE 13C-3032	PATRIOT ENERGY RESOURCES LLC	4900531746	SI	4154	P106328.0W	6/6/1997	Complete	CBM; STK	317	Canyon coal	N	WY0036285
Applicant CBM Well	44.54083	-105.56637	53N	72W	30	SE	SW	LYNDE 24C2-3032	PATRIOT ENERGY RESOURCES LLC	4900531882	SI	4105	P159032.0W	5/13/2004	Complete	CBM	224	Canyon coal	N	WY0036285
Applicant CBM Well	44.54063	-105.57159	53N	72W	30	SW	SW	LYNDE 14C-3032	PATRIOT ENERGY RESOURCES LLC	4900533407	SI	4149	P111696.0W	9/11/1998	Complete	CBM; STK	299	Canyon coal	N	WY0036285
Applicant CBM Well	44.55461	-105.64329	53N	73W	21	SW	SE	HENSLEY 34 LC-2133	PATRIOT ENERGY RESOURCES LLC	4900533340	SI	4023	P111547.0W	8/24/1998	Complete	CBM; STK	371	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.55474	-105.64331	53N	73W	21	SW	SE	HENSLEY 34C-2133	PATRIOT ENERGY RESOURCES LLC	4900533802	SI	4023	P112798.0W	11/16/1998	Complete	CBM; STK	210	Canyon coal	N	WY0036374
Applicant CBM Well	44.5585	-105.62729	53N	73W	22	NE	SW	HENSLEY 23LC-2233	PATRIOT ENERGY RESOURCES LLC	4900538691	SI	3993	P120899.0W	11/15/1999	Complete	CBM; STK	327	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.55468	-105.63371	53N	73W	22	SW	SW	HENSLEY 14LC-2233	PATRIOT ENERGY RESOURCES LLC	4900534851	SI	4016	P115196.0W	4/14/1999	Complete	CBM; STK	376	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.55454	-105.63342	53N	73W	22	SW	SW	HENSLEY 14C-2233	PATRIOT ENERGY RESOURCES LLC	4900534852	SI	4017	P115197.0W	4/14/1999	Complete	CBM; STK	250	Canyon coal	N	WY0036374
Applicant CBM Well	44.55518	-105.58665	53N	73W	24	SE	SW	HALL 24C-2433	PATRIOT ENERGY RESOURCES LLC	4900538689	SI	4150	P120901.0W	11/15/1999	Complete	CBM; STK	397	Canyon coal	N	WY0036285

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.55141	-105.57676	53N	73W	25	NE	NE	LYNDE 41C-2533	PATRIOT ENERGY RESOURCES LLC	4900534850	SI	4098	P115194.0W	4/14/1999	Complete	CBM; STK	284	Canyon coal	N	WY0036285
Applicant CBM Well	44.55158	-105.5818	53N	73W	25	NW	NE	LYNDE 31C-2533	PATRIOT ENERGY RESOURCES LLC	4900532499	SI	4142	P177785.0W	9/28/2006	Complete	CBM; STK	395	Canyon coal	N	WY0036285
Applicant CBM Well	44.5479	-105.57696	53N	73W	25	SE	NE	LYNDE 42C-2533	PATRIOT ENERGY RESOURCES LLC	4900532086	SI	4118	P178791.0W	11/22/2006	Complete	CBM; STK	325	Canyon coal	N	WY0036285
Applicant CBM Well	44.54801	-105.58171	53N	73W	25	SW	NE	LYNDE 32C-2533	PATRIOT ENERGY RESOURCES LLC	4900533937	SI	4173	P113427.0W	12/21/1998	Complete	CBM; STK	424	Canyon coal	N	WY0036285
Applicant CBM Well	44.55155	-105.59193	53N	73W	25	NW	NW	HALL 11C-2533	PATRIOT ENERGY RESOURCES LLC	4900533805	SI	4079	P112796.0W	11/16/1998	Complete	CBM; STK	331	Canyon coal	N	WY0036285
Applicant CBM Well	44.54762	-105.58645	53N	73W	25	SE	NW	HALL 22C-2533	PATRIOT ENERGY RESOURCES LLC	4900533797	SI	4140	P112803.0W	11/16/1998	Complete	CBM; STK	387	Canyon coal	N	WY0036285
Applicant CBM Well	44.54428	-105.57649	53N	73W	25	NE	SE	LYNDE 43C-2533	PATRIOT ENERGY RESOURCES LLC	4900535602	SI	4187	P159031.0W	5/13/2004	Complete	CBM	400	Canyon coal	N	WY0036285
Applicant CBM Well	44.54427	-105.58174	53N	73W	25	NW	SE	LYNDE 33C-2533	PATRIOT ENERGY RESOURCES LLC	4900532498	SI	4150	P108729.0W	1/28/1998	Re-applied	CBM; STK	396	Canyon coal	N	WY0036285
Applicant CBM Well	44.54064	-105.57642	53N	73W	25	SE	SE	LYNDE 44C-2533	PATRIOT ENERGY RESOURCES LLC	4900532091	SI	4149	P107671.0W	9/18/1997	Complete	CBM; STK	340	Canyon coal	N	WY0036285
Applicant CBM Well	44.54063	-105.58147	53N	73W	25	SW	SE	LYNDE 34C-2533	PATRIOT ENERGY RESOURCES LLC	4900534846	NI	4182	P115195.0W	4/14/1999	Complete	CBM; STK	416	Canyon coal	N	WY0036285
Applicant CBM Well	44.54446	-105.59204	53N	73W	25	NW	SW	HALL FEDERAL 13C-2533	PATRIOT ENERGY RESOURCES LLC	4900532959	SI	4128	P177788.0W	9/28/2006	Complete	CBM; STK	379	Canyon coal	N	WY0036285
Applicant CBM Well	44.54032	-105.58657	53N	73W	25	SE	SW	HALL REDERAL 24C-2533	PATRIOT ENERGY RESOURCES LLC	4900532960	SI	4156	P177784.0W	9/28/2006	Complete	CBM; STK	367	Canyon coal	N	WY0036285
Applicant CBM Well	44.5479	-105.59693	53N	73W	26	SE	NE	HALL FED 42C-2633	PATRIOT ENERGY RESOURCES LLC	4900536146	NI	4094	P118215.0W	8/16/1999	Complete	CBM; STK	383	Canyon coal	N	
Applicant CBM Well	44.54762	-105.6028	53N	73W	26	SW	NE	HALL FEDERAL 32C2-2633	PATRIOT ENERGY RESOURCES LLC	4900535761	SI	4038	P159039.0W	5/13/2004	Complete	CBM	307	Canyon coal	N	WY0036285
Applicant CBM Well	44.55097	-105.61267	53N	73W	26	NW	NW	HALL FED 11C-2633	PATRIOT ENERGY RESOURCES LLC	4900536143	SI	4058	P118212.0W	8/16/1999	Complete	CBM; STK	385	Canyon coal	N	WY0036285
Applicant CBM Well	44.54063	-105.59684	53N	73W	26	SE	SE	HALL 44C-2633	PATRIOT ENERGY RESOURCES LLC	4900531043	SI	4047	P127663.0W	7/17/2000	Complete	CBM	317	Canyon coal	N	WY0036285
Applicant CBM Well	44.54433	-105.61253	53N	73W	26	NW	SW	HALL FED 13C-2633	PATRIOT ENERGY RESOURCES LLC	4900536144	SI	4093	P118213.0W	8/16/1999	Complete	CBM; STK	423	Canyon coal	N	WY0036285
Applicant CBM Well	44.54062	-105.60721	53N	73W	26	SE	SW	HALL FED 24C-2633	PATRIOT ENERGY RESOURCES LLC	4900536145	SI	4094	P118214.0W	8/16/1999	Complete	CBM; STK	403	Canyon coal	N	WY0036285
Applicant CBM Well	44.54056	-105.6124	53N	73W	26	SW	SW	HALL 14C-2633	PATRIOT ENERGY RESOURCES LLC	4900533798	SI	4153	P112804.0W	11/16/1998	Complete	CBM; STK	483	Canyon coal	N	WY0036374
Applicant CBM Well	44.54713	-105.62356	53N	73W	27	SW	NE	HENSLEY TRUST 32C-2733	PATRIOT ENERGY RESOURCES LLC	4900531147	SI	4090	P125098.0W	5/1/2000	Complete	CBM; STK	304	Canyon coal	N	WY0036374
Applicant CBM Well	44.55122	-105.6284	53N	73W	27	NE	NW	STATE 21C-2733	PATRIOT ENERGY RESOURCES LLC	4900534790	SI	4054	P114987.0W	4/5/1999	Complete	CBM; STK	296	Canyon coal	N	WY0036374
Applicant CBM Well	44.55107	-105.62822	53N	73W	27	NE	NW	STATE 21LC-2733	PATRIOT ENERGY RESOURCES LLC	4900534791	SI	4056	P114988.0W	4/5/1999	Complete	CBM; STK	413	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54719	-105.63365	53N	73W	27	SW	NW	SCOTT FEDERAL 12C-2733	PATRIOT ENERGY RESOURCES LLC	4900532987	SI	4132	P159028.0W	5/13/2004	Complete	CBM	351	Canyon coal	N	WY0036374
Applicant CBM Well	44.54055	-105.62253	53N	73W	27	SW	SE	HENSLEY 34C-2733	PATRIOT ENERGY RESOURCES LLC	4900538688	SI	4163	P120902.0W	11/15/1999	Complete	CBM; STK	407	Canyon coal	N	WY0036374
Applicant CBM Well	44.54449	-105.62779	53N	73W	27	NE	SW	HENSLEY 23LC-2733	PATRIOT ENERGY RESOURCES LLC	4900533826	SI	4121	P112943.0W	11/19/1998	Complete	CBM; STK	495	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54459	-105.6275	53N	73W	27	NE	SW	HENSLEY 23C-2733	PATRIOT ENERGY RESOURCES LLC	4900533827	SI	4128	P112942.0W	11/19/1998	Complete	CBM; STK	353	Canyon coal	N	WY0036374
Applicant CBM Well	44.54026	-105.63302	53N	73W	27	SW	SW	SCOTT FED 14LC-2733	PATRIOT ENERGY RESOURCES LLC	4900536147	SI	4073	P118220.0W	8/16/1999	Complete	CBM; STK	478	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.5404	-105.63302	53N	73W	27	SW	SW	SCOTT FED 14C-2733	PATRIOT ENERGY RESOURCES LLC	4900536148	SI	4071	P118219.0W	8/16/1999	Complete	CBM; STK	312	Canyon coal	N	WY0036374
Applicant CBM Well	44.5513	-105.6389	53N	73W	28	NE	NE	BUTCHER STATE 41LC-2833	PATRIOT ENERGY RESOURCES LLC	4900533470	SI	4039	P111564.0W	8/24/1998	Complete	CBM; STK	393	Lower Canyon coal	N	WY0036374

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.55123	-105.6388	53N	73W	28	NE	NE	BUTCHER STATE 41C-2833	PATRIOT ENERGY RESOURCES LLC	4900533915	SI	4042	P112802.0W	11/16/1998	Complete	CBM; STK	252	Canyon coal	N	WY0036374
Applicant CBM Well	44.54746	-105.65355	53N	73W	28	SW	NW	HENSLEY 12WA-2833	PATRIOT ENERGY RESOURCES LLC	4900531743	SI	4116	P106270.0W	1/12/1998	Re-applied	CBM; STK	816	Wall coal		WY0036188
Applicant CBM Well	44.54734	-105.65359	53N	73W	28	SW	NW	HENSLEY 12 LC-2833	PATRIOT ENERGY RESOURCES LLC	4900533341	PG	4118	P111548.0W	8/24/1998	Complete	CBM; STK	508	Lower Canyon coal	N	WY0036188
Applicant CBM Well	44.54727	-105.65382	53N	73W	28	SW	NW	HENSLEY 12C-2833	PATRIOT ENERGY RESOURCES LLC	4900533799	SI	4039	P112801.0W	11/16/1998	Complete	CBM; STK	361	Canyon coal	N	WY0036188
Applicant CBM Well	44.54364	-105.63808	53N	73W	28	NE	SE	SCOTT 43 LC-2833	PATRIOT ENERGY RESOURCES LLC	4900533345	SI	4043	P111552.0W	8/24/1998	Complete	CBM; STK	461	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54358	-105.63793	53N	73W	28	NE	SE	SCOTT 43C-2833	PATRIOT ENERGY RESOURCES LLC	4900534142	SI	4042	P113779.0W	1/25/1999	Complete	CBM; STK	271	Canyon coal	N	WY0036374
Applicant CBM Well	44.54006	-105.64294	53N	73W	28	SW	SE	HENSLEY 34LC-2833	PATRIOT ENERGY RESOURCES LLC	4900533344	SI	4044	P111551.0W	8/24/1998	Complete	CBM; STK	447	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.5402	-105.64323	53N	73W	28	SW	SE	HENSLEY 34C2-2833	PATRIOT ENERGY RESOURCES LLC	4900534849	SI	4042	P115192.0W	4/14/1999	Complete	CBM; STK	273	Canyon coal	N	WY0036374
Applicant CBM Well	44.54402	-105.64906	53N	73W	28	NE	SW	HENSLEY 23LC-2833	PATRIOT ENERGY RESOURCES LLC	4900533342	SI	4100	P111549.0W	8/24/1998	Complete	CBM; STK	498	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54389	-105.65306	53N	73W	28	NW	SW	HENSLEY FEDERAL 13LC-2833	PATRIOT ENERGY RESOURCES LLC	4900532891	PS	4111	P179270.0W	11/13/2006	Complete	CBM; STK	517	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54013	-105.65393	53N	73W	28	SW	SW	SCOTT FEDERAL 14C-2833	PATRIOT ENERGY RESOURCES LLC	4900532988	SI	4066	P110953.0W	7/8/1998	Complete	CBM; STK	328	Canyon coal	N	WY0036374
Applicant CBM Well	44.53994	-105.65377	53N	73W	28	SW	SW	SCOTT FEDERAL 14LC-2833	PATRIOT ENERGY RESOURCES LLC	4900532993	SI	4066	P177791.0W	9/28/2006	Complete	CBM; STK	441	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54745	-105.66379	53N	73W	29	SW	NE	SCOTT 32LC-2933	PATRIOT ENERGY RESOURCES LLC	4900533347	SI	4085	P111554.0W	8/24/1998	Complete	CBM; STK	498	Lower Canyon coal	N	WY0036188
Applicant CBM Well	44.54355	-105.65861	53N	73W	29	NE	SE	SCOTT 43 LC-2933	PATRIOT ENERGY RESOURCES LLC	4900533349	SI	4135	P111556.0W	8/24/1998	Complete	CBM; STK	539	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.54357	-105.65884	53N	73W	29	NE	SE	SCOTT 43A-2933	PATRIOT ENERGY RESOURCES LLC	4900533831	SI	4134	P130771.0W	10/30/2000	Complete	CBM	386	Anderson coal	N	WY0036374
Applicant CBM Well	44.54037	-105.66356	53N	73W	29	SW	SE	SCOTT 34LC-2933	PATRIOT ENERGY RESOURCES LLC	4900534703	SI	4152	P114673.0W	3/22/1999	Complete	CBM; STK	542	Lower Canyon coal		WY0036374
Applicant CBM Well	44.54362	-105.66852	53N	73W	29	NE	SW	BUTCHER 23 LC-2933	PATRIOT ENERGY RESOURCES LLC	4900533346	SI	4124	P111553.0W	8/24/1998	Complete	CBM; STK	567	Lower Canyon coal	N	WY0036188
Applicant CBM Well	44.54376	-105.66852	53N	73W	29	NE	SW	BUTCHER 23C-2933	PATRIOT ENERGY RESOURCES LLC	4900533702	SI	4122	P112708.0W	11/3/1998	Complete	CBM; STK	388	Canyon coal	N	WY0036188
Applicant CBM Well	44.54018	-105.67335	53N	73W	29	SW	SW	BUTCHER 14LC-2933	PATRIOT ENERGY RESOURCES LLC	4900534709	SI	4166	P174686.0W	4/25/2006	Re-applied	CBM	630	Lower Canyon coal		WY0036188
Applicant CBM Well	44.54031	-105.67361	53N	73W	29	SW	SW	BUTCHER 14A-2933	PATRIOT ENERGY RESOURCES LLC	4900543149	SI	4165	P130770.0W	10/30/2000	Complete	CBM	485	Anderson coal	N	WY0036188
Applicant CBM Well	44.54305	-105.67838	53N	73W	30	NE	SE	BUTCHER 43LC-3033	PATRIOT ENERGY RESOURCES LLC	4900536575	SI	4148	P119228.0W	9/20/1999	Re-applied	CBM; STK	613	Lower Canyon coal		WY0036188
Applicant CBM Well	44.5432	-105.67883	53N	73W	30	NE	SE	BUTCHER 43C-3033	PATRIOT ENERGY RESOURCES LLC	4900544269	PG	4150	P130151.0W	10/9/2000	Complete	CBM	471	Canyon coal	N	WY0036188
Applicant CBM Well	44.54027	-105.68363	53N	73W	30	SW	SE	BUTCHER 34LC-3033	PATRIOT ENERGY RESOURCES LLC	4900536749	SI	4161	P142259.0W	1/24/2002	Complete	CBM	653	Lower Canyon coal	N	WY0036188
Applicant CBM Well	44.54047	-105.68454	53N	73W	30	SW	SE	BUTCHER 34C-3033	PATRIOT ENERGY RESOURCES LLC	4900542518	SI	4161	P129778.0W	9/20/2000	Complete	CBM	540	Canyon coal	N	WY0036188
Applicant CBM Well	44.54394	-105.68905	53N	73W	30	NE	SW	BUTCHER 23LC-3033	PATRIOT ENERGY RESOURCES LLC	4900536750	SI	4108	P119421.0W	9/30/1999	Re-applied	CBM; STK	648	Lower Canyon coal		WY0036188
Applicant CBM Well	44.54376	-105.68961	53N	73W	30	NE	SW	BUTCHER 23A-3033	PATRIOT ENERGY RESOURCES LLC	4900542503	SI	4108	P129777.0W	9/20/2000	Complete	CBM	540	Anderson coal	N	WY0036188
Applicant CBM Well	44.54065	-105.69332	53N	73W	30	SW	SW	BUTCHER 14LC-3033	PATRIOT ENERGY RESOURCES LLC	4900536574	SI	4123	P119223.0W	9/20/1999	Re-applied	CBM; STK	667	Lower Canyon coal		WY0036188
Applicant CBM Well	44.54049	-105.6935	53N	73W	30	SW	SW	BUTCHER 14C-3033	PATRIOT ENERGY RESOURCES LLC	4900543127	SI	4125	P130153.0W	10/9/2000	Complete	CBM	540	Canyon coal	N	WY0036188
Applicant CBM Well	44.53674	-105.67841	53N	73W	31	NE	NE	BUTCHER 41LC-3133	PATRIOT ENERGY RESOURCES LLC	4900535603	SI	4187	P129779.0W	9/20/2000		CBM	653	Lower Canyon coal		WY0036188

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Applicant CBM Well	44.53306	-105.68313	53N	73W	31	SW	NE	BUTCHER 32LC-3133	PATRIOT ENERGY RESOURCES LLC	4900536576	SI	4258	P119229.0W	9/20/1999	Re-applied	CBM; STK	757	Lower Canyon coal		WY0036188
Applicant CBM Well	44.53684	-105.68922	53N	73W	31	NE	NW	BUTCHER 21LC-3133	PATRIOT ENERGY RESOURCES LLC	4900536748	SI	4163	P119423.0W	9/30/1999	Re-applied	CBM; STK	685	Lower Canyon coal		WY0036188
Applicant CBM Well	44.53716	-105.68937	53N	73W	31	NE	NW	BUTCHER 21C-3133	PATRIOT ENERGY RESOURCES LLC	4900542502	SI	4160	P129776.0W	9/20/2000	Complete	CBM	548	Canyon coal	N	WY0036188
Applicant CBM Well	44.529	-105.67843	53N	73W	31	NE	SE	BOWEN 43LC-3133	PATRIOT ENERGY RESOURCES LLC	4900538686	TA	4252	P120904.0W	11/15/1999	Re-applied	CBM; STK	702	Lower Canyon coal		WY0036188
Applicant CBM Well	44.52878	-105.67842	53N	73W	31	NE	SE	BOWEN 43C-3133	PATRIOT ENERGY RESOURCES LLC	4900545455	SI	4252	P159048.0W	5/13/2004	Complete	CBM	578	Canyon coal	N	WY0036188
Applicant CBM Well	44.52544	-105.68348	53N	73W	31	SW	SE	LINDQUIST 34LC-3133	PATRIOT ENERGY RESOURCES LLC	4900533701	SI	4236	P159033.0W	5/13/2004	Complete	CBM	740	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52566	-105.68442	53N	73W	31	SW	SE	LINDQUIST 34C-3133	PATRIOT ENERGY RESOURCES LLC	4900543151	SI	4238	P130317.0W	10/12/2000	Complete	CBM	563	Canyon coal	N	WY0036374
Applicant CBM Well	44.52871	-105.68887	53N	73W	31	NE	SW	BOWEN 23LC-3133	PATRIOT ENERGY RESOURCES LLC	4900538687	SI	4291	P120903.0W	11/15/1999	Re-applied	CBM; STK	783	Lower Canyon coal		WY0036188
Applicant CBM Well	44.52883	-105.68861	53N	73W	31	NE	SW	BOWEN 23C-3133	PATRIOT ENERGY RESOURCES LLC	4900543128	SI	4289	P130149.0W	10/9/2000	Complete	CBM	654	Canyon coal	N	WY0036188
Applicant CBM Well	44.52484	-105.6937	53N	73W	31	SW	SW	BUTCHER 14LC-3133	PATRIOT ENERGY RESOURCES LLC	4900539309	SI	4412	P122292.0W	12/8/1999	Re-applied	CBM; STK	960	Lower Canyon coal		WY0036188
Applicant CBM Well	44.52488	-105.6937	53N	73W	31	SW	SW	BUTCHER 14C-3133	PATRIOT ENERGY RESOURCES LLC	4900549248	SI	4406	P130152.0W	10/9/2000	Re-applied	CBM	807	Canyon coal		WY0036188
Applicant CBM Well	44.53662	-105.65861	53N	73W	32	NE	NE	SCOTT 41WA-3233	PATRIOT ENERGY RESOURCES LLC	4900533352	SI	4101	P111559.0W	8/24/1998	Complete	CBM; STK	870	Wall coal	N	WY0036374
Applicant CBM Well	44.53675	-105.65861	53N	73W	32	NE	NE	SCOTT 41A-3233	PATRIOT ENERGY RESOURCES LLC	4900533829	SI	4099	P112945.0W	11/19/1998	Complete	CBM; STK	367	Anderson coal	N	WY0036374
Applicant CBM Well	44.53665	-105.66359	53N	73W	32	NW	NE	SCOTT 31LC-3233	PATRIOT ENERGY RESOURCES LLC	4900533935	SI	4128	P159027.0W	5/13/2004	Complete	CBM	540	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.53307	-105.66378	53N	73W	32	SW	NE	LINDQUIST 32 LC-3233	PATRIOT ENERGY RESOURCES LLC	4900533351	SI	4123	P111558.0W	8/24/1998	Complete	CBM; STK	561	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.53321	-105.66378	53N	73W	32	SW	NE	LINQUIST 32C-3233	PATRIOT ENERGY RESOURCES LLC	4900533717	SI	4124	P112705.0W	11/3/1998	Complete	CBM; STK	385	Canyon coal	N	WY0036374
Applicant CBM Well	44.53661	-105.66853	53N	73W	32	NE	NW	BUTCHER 21 LC-3233	PATRIOT ENERGY RESOURCES LLC	4900533350	SI	4145	P111557.0W	8/24/1998	Complete	CBM; STK	597	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.53672	-105.66841	53N	73W	32	NE	NW	BUTCHER 21C-3233	PATRIOT ENERGY RESOURCES LLC	4900533718	SI	4143	P112709.0W	11/3/1998	Complete	CBM; STK	424	Canyon coal	N	WY0036374
Applicant CBM Well	44.53294	-105.67356	53N	73W	32	SW	NW	BOWEN 12C-3233	PATRIOT ENERGY RESOURCES LLC	4900535604	SI	4181	P130769.0W	10/30/2000	Complete	CBM	498	Canyon coal	N	WY0036374
Applicant CBM Well	44.53281	-105.67348	53N	73W	32	SW	NW	BOWEN 12WA-3233	PATRIOT ENERGY RESOURCES LLC	4900535605	SI	4183	P116618.0W	7/2/1999	Complete	CBM; STK	997	Wall coal	N	WY0036374
Applicant CBM Well	44.52933	-105.65883	53N	73W	32	NE	SE	LINDQUIST 43 LC-3233	PATRIOT ENERGY RESOURCES LLC	4900533353	SI	4102	P111560.0W	8/24/1998	Complete	CBM; STK	538	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52931	-105.65865	53N	73W	32	NE	SE	LINDQUIST 43C-3233	PATRIOT ENERGY RESOURCES LLC	4900533828	SI	4102	P112946.0W	11/19/1998	Complete	CBM; STK	384	Canyon coal	N	WY0036374
Applicant CBM Well	44.52551	-105.66396	53N	73W	32	SW	SE	BUTCHER 34WA-3233	PATRIOT ENERGY RESOURCES LLC	4900534710	SI	4131	P140604.0W	11/1/2001	Re-applied	CBM	860	Wall coal		WY0036374
Applicant CBM Well	44.52564	-105.66449	53N	73W	32	SW	SE	BUTCHER 34C-3233	PATRIOT ENERGY RESOURCES LLC	4900542509	SI	4130	P129689.0W	9/6/2000	Complete	CBM	394	Canyon coal	N	WY0036374
Applicant CBM Well	44.5298	-105.66817	53N	73W	32	NE	SW	BUTCHER 23C-3233	PATRIOT ENERGY RESOURCES LLC	4900534705	SI	4204	P135540.0W	5/30/2001	Re-applied	CBM	530	Canyon coal		WY0036374
Applicant CBM Well	44.52979	-105.66819	53N	73W	32	NE	SW	BUTCHER 23LC-3233	PATRIOT ENERGY RESOURCES LLC	4900534706	SI	4202	P114676.0W	3/22/1999	Complete	CBM; STK	1100	Lower Canyon coal		WY0036374
Applicant CBM Well	44.5255	-105.67357	53N	73W	32	SW	SW	LINDQUIST 14WA-3233	PATRIOT ENERGY RESOURCES LLC	4900533716	SI	4175	P140899.0W	11/15/2001	Re-applied	CBM	965	Wall coal		WY0036374
Applicant CBM Well	44.52563	-105.67356	53N	73W	32	SW	SW	LINDQUIST 14LC-3233	PATRIOT ENERGY RESOURCES LLC	4900534704	SI	4175	P112704.0W	11/3/1998	Complete	CBM; STK	641	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.53687	-105.63802	53N	73W	33	NE	NE	SCOTT 41WA-3333	PATRIOT ENERGY RESOURCES LLC	4900533803	SI	4025	P112797.0W	11/16/1998	Complete	CBM; STK	850	Wall coal	N	WY0036374

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Applicant CBM Well	44.53677	-105.63787	53N	73W	33	NE	NE	SCOTT 41C-3333	PATRIOT ENERGY RESOURCES LLC	4900533804	PG	4026	P112806.0W	11/16/1998	Complete	CBM; STK	278	Canyon coal	N	WY0036374
Applicant CBM Well	44.5334	-105.64324	53N	73W	33	SW	NE	SCOTT 32 LC-3333	PATRIOT ENERGY RESOURCES LLC	4900533420	SI	4070	P111700.0W	9/11/1998	Complete	CBM; STK	475	Lower Canyon coal	N	WY0036293
Applicant CBM Well	44.53325	-105.64324	53N	73W	33	SW	NE	SCOTT 32C-3333	PATRIOT ENERGY RESOURCES LLC	4900533837	SI	4068	P112936.0W	11/19/1998	Complete	CBM; STK	298	Canyon coal	N	WY0036293
Applicant CBM Well	44.5336	-105.64416	53N	73W	33	SW	NE	SCOTT 32WA-3333	PATRIOT ENERGY RESOURCES LLC	4900545478	SI	4079.8	P135532.0W	5/30/2001	Complete	CBM	769	Wall coal	N	WY0036374
Applicant CBM Well	44.53669	-105.64827	53N	73W	33	NE	NW	HENSLEY 21WA-3333	PATRIOT ENERGY RESOURCES LLC	4900533421	SI	4067	P111699.0W	9/11/1998	Complete	CBM; STK	799	Wall coal	N	WY0036374
Applicant CBM Well	44.53684	-105.64846	53N	73W	33	NE	NW	HENSLEY 21C-3333	PATRIOT ENERGY RESOURCES LLC	4900533806	SI	4067	P112795.0W	11/16/1998	Complete	CBM; STK	308	Canyon coal	N	WY0036374
Applicant CBM Well	44.53304	-105.65362	53N	73W	33	SW	NW	LINDQUIST 12 LC-3333	PATRIOT ENERGY RESOURCES LLC	4900533354	SI	4085	P111561.0W	8/24/1998	Complete	CBM; STK	521	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.53296	-105.65387	53N	73W	33	SW	NW	LINDQUIST 12A-3333	PATRIOT ENERGY RESOURCES LLC	4900533807	SI	4086	P159034.0W	5/13/2004	Complete	CBM	350	Anderson coal	N	WY0036374
Applicant CBM Well	44.53327	-105.65393	53N	73W	33	SW	NW	LINDQUIST 12WA-3333	PATRIOT ENERGY RESOURCES LLC	4900545474	SI	4085.9	P135522.0W	5/30/2001	Complete	CBM	823	Wall coal	N	WY0036374
Applicant CBM Well	44.52952	-105.63798	53N	73W	33	NE	SE	SCOTT 43WA-3333	PATRIOT ENERGY RESOURCES LLC	4900533418	SI	4060	P111688.0W	9/11/1998	Complete	CBM; STK	736	Wall coal	N	WY0036293
Applicant CBM Well	44.5294	-105.63802	53N	73W	33	NE	SE	SCOTT 43C-3333	PATRIOT ENERGY RESOURCES LLC	4900533836	SI	4060	P112937.0W	11/19/1998	Complete	CBM; STK	299	Canyon coal	N	WY0036293
Applicant CBM Well	44.52532	-105.64304	53N	73W	33	SW	SE	REILE 34 LC-3333	PATRIOT ENERGY RESOURCES LLC	4900533419	SI	4088	P111701.0W	9/11/1998	Complete	CBM; STK	468	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52545	-105.6434	53N	73W	33	SW	SE	REILE 34C-3333	PATRIOT ENERGY RESOURCES LLC	4900542516	SI	4088	P129695.0W	9/6/2000	Complete	CBM	326	Canyon coal	N	WY0036374
Applicant CBM Well	44.52925	-105.64805	53N	73W	33	NE	SW	REILE 23 LC-3333	PATRIOT ENERGY RESOURCES LLC	4900533356	SI	4067	P128650.0W	8/22/2000	Complete	CBM	464	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52932	-105.64874	53N	73W	33	NE	SW	REILE 23C-3333	PATRIOT ENERGY RESOURCES LLC	4900542508	SI	4069	P129692.0W	9/6/2000	Complete	CBM	338	Canyon coal	N	WY0036374
Applicant CBM Well	44.52547	-105.65383	53N	73W	33	SW	SW	LINDQUIST 14 LC-3333	PATRIOT ENERGY RESOURCES LLC	4900533355	SI	4144	P111562.0W	8/24/1998	Complete	CBM; STK	569	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.52556	-105.65369	53N	73W	33	SW	SW	LINDQUIST 14C-3333	PATRIOT ENERGY RESOURCES LLC	4900533700	SI	4146	P112706.0W	11/3/1998	Complete	CBM; STK	402	Canyon coal	N	WY0036374
Applicant CBM Well	44.52591	-105.65437	53N	73W	33	SW	SW	LINDQUIST 14WA-3333	PATRIOT ENERGY RESOURCES LLC	4900545475	SI	4141.4	P135524.0W	5/30/2001	Complete	CBM	839	Wall coal	N	WY0036374
Applicant CBM Well	44.53696	-105.61729	53N	73W	34	NE	NE	HALL 41C-3433	PATRIOT ENERGY RESOURCES LLC	4900536569	SI	4125	P119231.0W	9/20/1999	Complete	CBM; STK	478	Canyon coal	N	WY0036374
Applicant CBM Well	44.53335	-105.62221	53N	73W	34	SW	NE	LANDECK 32C-3433	PATRIOT ENERGY RESOURCES LLC	4900536577	SI	4145	P119230.0W	9/20/1999	Complete	CBM; STK	475	Canyon coal	N	WY0036293
Applicant CBM Well	44.53309	-105.62357	53N	73W	34	SW	NE	LANDECK 32WA-3433	PATRIOT ENERGY RESOURCES LLC	4900545570	SI	4158.4	P135512.0W	5/30/2001	Complete	CBM	797	Wall coal	N	WY0036293
Applicant CBM Well	44.53313	-105.62295	53N	73W	34	SW	NE	LANDECK 32A-3433	PATRIOT ENERGY RESOURCES LLC	4900545571	SI	4154	P135515.0W	5/30/2001	Complete	CBM	163	Anderson coal	N	WY0036293
Applicant CBM Well	44.53739	-105.62724	53N	73W	34	NE	NW	HALL FEDERAL 21C-3433	PATRIOT ENERGY RESOURCES LLC	4900536139	SI	4104	P118217.0W	8/16/1999	Complete	CBM; STK	340	Canyon coal	N	WY0036374
Applicant CBM Well	44.53725	-105.62724	53N	73W	34	NE	NW	HALL FEDERAL 21LC-3433	PATRIOT ENERGY RESOURCES LLC	4900536140	SI	4103	P118216.0W	8/16/1999	Complete	CBM; STK	472	Lower Canyon coal	N	WY0036374
Applicant CBM Well	44.53379	-105.63265	53N	73W	34	SW	NW	SCOTT 12LC-3433	PATRIOT ENERGY RESOURCES LLC	4900533834	SI	4039	P112939.0W	11/19/1998	Complete	CBM; STK	459	Lower Canyon coal	N	WY0036293
Applicant CBM Well	44.53366	-105.63266	53N	73W	34	SW	NW	SCOTT 12C-3433	PATRIOT ENERGY RESOURCES LLC	4900533835	SI	4039	P112938.0W	11/19/1998	Complete	CBM; STK	291	Canyon coal	N	WY0036293
Applicant CBM Well	44.53401	-105.63397	53N	73W	34	SW	NW	SCOTT 12WA-3433	PATRIOT ENERGY RESOURCES LLC	4900545581	SI	4047.6	P135528.0W	5/30/2001	Complete	CBM	723	Wall coal	N	WY0036293
Applicant CBM Well	44.5295	-105.61709	53N	73W	34	NE	SE	LANDECK 43C-3433	PATRIOT ENERGY RESOURCES LLC	4900537808	SI	4156	P120602.0W	11/5/1999	Complete	CBM; STK	503	Canyon coal	N	WY0036293
Applicant CBM Well	44.52607	-105.61757	53N	73W	34	SE	SE	LANDECK 44WA-3433	PATRIOT ENERGY RESOURCES LLC	4900533109	SI	4166	P110637.0W	6/24/1998	Complete	CBM; STK	795	Wall coal	N	WY0036293

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Applicant CBM Well	44.53207	-105.62788	53N	73W	34	NE	SW	LANDECK 23C-3433	PATRIOT ENERGY RESOURCES LLC	4900531155	SI	4092	P114991.0W	4/5/1999	Complete	CBM; STK	361	Canyon coal	N	WY0036293
Applicant CBM Well	44.52981	-105.627	53N	73W	34	NE	SW	LANDECK 23WA-3433	PATRIOT ENERGY RESOURCES LLC	4900534848	SI	4098	P115191.0W	4/14/1999	Complete	CBM; STK	850	Wall coal	N	WY0036293
Applicant CBM Well	44.52523	-105.63331	53N	73W	34	SW	SW	SCOTT 14LC-3433	PATRIOT ENERGY RESOURCES LLC	4900533832	SI	4068	P112941.0W	11/19/1998	Complete	CBM; STK	492	Lower Canyon coal	N	WY0036293
Applicant CBM Well	44.5252	-105.63279	53N	73W	34	SW	SW	SCOTT 14C-3433	PATRIOT ENERGY RESOURCES LLC	4900533833	SI	4065	P112940.0W	11/19/1998	Complete	CBM; STK	363	Canyon coal	N	WY0036293
Applicant CBM Well	44.52617	-105.63356	53N	73W	34	SW	SW	SCOTT 14WA-3433	PATRIOT ENERGY RESOURCES LLC	4900545579	SI	4068.9	P135530.0W	5/30/2001	Complete	CBM	757	Wall coal	N	WY0036293
Applicant CBM Well	44.52618	-105.63311	53N	73W	34	SW	SW	SCOTT 14A-3433	PATRIOT ENERGY RESOURCES LLC	4900545580	SI	4072.6	P135529.0W	5/30/2001	Complete	CBM	132	Anderson coal	N	WY0036293
Applicant CBM Well	44.53688	-105.60145	53N	73W	35	NW	NE	HALL FEDERAL 31C-3533	PATRIOT ENERGY RESOURCES LLC	4900532962	SI	4077	P110925.0W	7/8/1998	Re-applied	CBM; STK	363	Canyon coal	N	WY0036285
Applicant CBM Well	44.53349	-105.59685	53N	73W	35	SE	NE	HALL 42C-3533	PATRIOT ENERGY RESOURCES LLC	4900534794	SI	4046	P114993.0W	4/5/1999	Complete	CBM; STK	347	Canyon coal	N	WY0036285
Applicant CBM Well	44.53696	-105.6122	53N	73W	35	NW	NW	HALL 11C-3533	PATRIOT ENERGY RESOURCES LLC	4900534793	SI	4181	P114992.0W	4/5/1999	Complete	CBM; STK	504	Canyon coal	N	WY0036374
Applicant CBM Well	44.5332	-105.60711	53N	73W	35	SE	NW	HALL FEDERAL 22C-3533	PATRIOT ENERGY RESOURCES LLC	4900532985	SI	4132	P177793.0W	9/28/2006	Complete	CBM; STK	457	Canyon coal	N	WY0036285
Applicant CBM Well	44.53364	-105.61264	53N	73W	35	SW	NW	HALL 12WA-3533	PATRIOT ENERGY RESOURCES LLC	4900545577	SI	4182.6	P135552.0W	5/30/2001	Complete	CBM	819	Wall coal	N	WY0036374
Applicant CBM Well	44.53331	-105.6126	53N	73W	35	SW	NW	HALL 12A-3533	PATRIOT ENERGY RESOURCES LLC	4900545578	SI	4177.1	P135551.0W	5/30/2001	Re-applied	CBM	157	Anderson coal		WY0036374
Applicant CBM Well	44.52933	-105.6018	53N	73W	35	NW	SE	HALL FEDERAL 33C-3533	PATRIOT ENERGY RESOURCES LLC	4900532984	SI	4113	P177792.0W	9/28/2006	Re-applied to add CBM use	STK	404	Canyon coal	N	WY0036285
Applicant CBM Well	44.52582	-105.59682	53N	73W	35	SE	SE	HALL 44C-3533	PATRIOT ENERGY RESOURCES LLC	4900534795	SI	4088	P114994.0W	4/5/1999	Complete	CBM; STK	389	Canyon coal	N	WY0036285
Applicant CBM Well	44.52963	-105.61137	53N	73W	35	NW	SW	HALL 13C-3533	PATRIOT ENERGY RESOURCES LLC	4900533110	SI	4178	P177790.0W	9/28/2006	Complete	CBM; STK	522	Canyon coal	N	WY0036293
Applicant CBM Well	44.52535	-105.60631	53N	73W	35	SE	SW	HALL FEDERAL 24C-3533	PATRIOT ENERGY RESOURCES LLC	4900532983	SI	4145	P177787.0W	9/28/2006	Complete	CBM; STK	464	Canyon coal		WY0036285
Applicant CBM Well	44.52575	-105.61277	53N	73W	35	SW	SW	HALL 14A-3533	PATRIOT ENERGY RESOURCES LLC	4900545576	SI	4183.3	P135554.0W	5/30/2001	Complete	CBM	180	Anderson coal	N	WY0036293
Applicant CBM Well	44.52553	-105.61254	53N	73W	35	SW	SW	HALL 14WA-3533	PATRIOT ENERGY RESOURCES LLC	4900547669	SI	4183.7	P140606.0W	11/1/2001	Complete	CBM	806	Wall coal	N	WY0036293
Applicant CBM Well	44.53724	-105.58151	53N	73W	36	NW	NE	STATE 31C-3633	PATRIOT ENERGY RESOURCES LLC	4900533911	SI	4126	P111707.0W	9/11/1998	Complete	CBM; STK	305	Canyon coal	N	WY0036285
Applicant CBM Well	44.53318	-105.57593	53N	73W	36	SE	NE	STATE 42C-3633	PATRIOT ENERGY RESOURCES LLC	4900533909	SI	4145	P111709.0W	9/11/1998	Complete	CBM; STK	303	Canyon coal	N	WY0036285
Applicant CBM Well	44.53709	-105.59118	53N	73W	36	NW	NW	STATE 11C-3633	PATRIOT ENERGY RESOURCES LLC	4900533822	SI	4066	P111703.0W	9/11/1998	Complete	CBM; STK	332	Canyon coal	N	WY0036285
Applicant CBM Well	44.53329	-105.58579	53N	73W	36	SE	NW	STATE 22C-3633	PATRIOT ENERGY RESOURCES LLC	4900533913	SI	4198	P111705.0W	9/11/1998	Complete	CBM; STK	406	Canyon coal	N	WY0036285
Applicant CBM Well	44.52568	-105.58623	53N	73W	36	SE	SW	STATE 24C-3633	PATRIOT ENERGY RESOURCES LLC	4900533912	SI	4154	P111706.0W	9/11/1998	Complete	CBM; STK	411	Canyon coal	N	WY0036285
Applicant CBM Well	44.5407	-105.7151	53N	74W	25	SW	SW	BULKLEY 14-2534	PATRIOT ENERGY RESOURCES LLC	4900556931	SI	4185	P173037.0W	2/1/2006		CBM; STK	764	Lower Canyon coal		WY0036188
Applicant CBM Well	44.5364	-105.69982	53N	74W	36	NE	NE	STATE BULKLEY 41LC-3634	PATRIOT ENERGY RESOURCES LLC	4900543191	SI	4214.7	P164053.0W	11/16/2004		CBM; MIS	787	Lower Canyon coal		WY0036188
Applicant CBM Well	44.53645	-105.69982	53N	74W	36	NE	NE	STATE BULKLEY 41WA-3634	PATRIOT ENERGY RESOURCES LLC	4900543192	SI	4215	P131503.0W	12/15/2000	Re-applied	CBM; STK	1000	Wall coal		WY0036188
Applicant CBM Well	44.53354	-105.70377	53N	74W	36	SW	NE	STATE BULKLEY 32LC-3634	PATRIOT ENERGY RESOURCES LLC	4900543196	SI	4218.4	P131504.0W	12/15/2000		CBM; STK	784	Lower Canyon coal		WY0036188
Applicant CBM Well	44.53342	-105.70353	53N	74W	36	SW	NE	STATE BULKLEY 32WA-3634	PATRIOT ENERGY RESOURCES LLC	4900543197	SI	4219.8	P164050.0W	11/16/2004		CBM; MIS	1000	Wall coal		WY0036188
Applicant CBM Well	44.5366	-105.70903	53N	74W	36	NE	NW	STATE BULKLEY 21WA-3634	PATRIOT ENERGY RESOURCES LLC	4900533260	SI	4167	P164046.0W	11/16/2004		CBM; MIS	1200	Wall coal		WY0036188

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Applicant CBM Well	44.53686	-105.70935	53N	74W	36	NE	NW	STATE BULKLEY 21LC-3634	PATRIOT ENERGY RESOURCES LLC	4900543193	SI	4152.5	P164045.0W	11/16/2004		CBM; MIS	742	Lower Canyon coal		WY0036188
Applicant CBM Well	44.53292	-105.71407	53N	74W	36	SW	NW	STATE BULKLEY 12A-3634	PATRIOT ENERGY RESOURCES LLC	4900533261	SI	4185	P113101.0W	11/23/1998		CBM; STK	1200	Anderson coal		WY0036188
Applicant CBM Well	44.53307	-105.71461	53N	74W	36	SW	NW	STATE BULKLEY 12LC-3634	PATRIOT ENERGY RESOURCES LLC	4900542926	SI	4173.5	P164042.0W	11/16/2004		CBM; MIS	782	Lower Canyon coal		WY0036188
Applicant CBM Well	44.52981	-105.70044	53N	74W	36	NE	SE	STATE BULKLEY 43WA-3634	PATRIOT ENERGY RESOURCES LLC	4900542950	SI	4342.3	P164038.0W	11/16/2004		CBM; MIS	1000	Wall coal		
Applicant CBM Well	44.53002	-105.70042	53N	74W	36	NE	SE	STATE BULKLEY 43LC-3634	PATRIOT ENERGY RESOURCES LLC	4900542951	SI	4341.7	P164039.0W	11/16/2004		CBM; MIS	914	Lower Canyon coal		WY0036188
Applicant CBM Well	44.52533	-105.70464	53N	74W	36	SW	SE	STATE BULKLEY 34LC-3634	PATRIOT ENERGY RESOURCES LLC	4900542952	SI	4280.1	P164051.0W	11/16/2004	Complete	MIS; CBM	863	Lower Canyon coal	N	WY0036188
Applicant CBM Well	44.52553	-105.70456	53N	74W	36	SW	SE	STATE BULKLEY 34WA-3634	PATRIOT ENERGY RESOURCES LLC	4900543198	SI	4280.3	P164052.0W	11/16/2004		CBM; MIS	1000	Wall coal		WY0036188
Applicant CBM Well	44.52921	-105.70889	53N	74W	36	NE	SW	STATE BULKLEY 23WA-3634	PATRIOT ENERGY RESOURCES LLC	4900543194	SI	4202	P131510.0W	12/15/2000	Complete	CBM; STK	1000	Wall coal	N	WY0036188
Applicant CBM Well	44.5296	-105.70919	53N	74W	36	NE	SW	STATE BULKLEY 23LC-3634	PATRIOT ENERGY RESOURCES LLC	4900543195	SI	4190.6	P164047.0W	11/16/2004	Complete	CBM; MIS	1000	Lower Canyon coal	N	WY0036188
Applicant CBM Well	44.52595	-105.71436	53N	74W	36	SW	SW	STATE BULKLEY 14LC-3634	PATRIOT ENERGY RESOURCES LLC	4900543200	SI	4233.8	P164043.0W	11/16/2004	Complete	CBM; MIS	1000	Lower Canyon coal	N	WY0036188
CBM	44.51495	-105.57668	52N	73W	1	NW	SE	HALL 33C-123	USA EXPLORATION & PRODUCTION LLC	4900532732	PG	4176	none found				331	Canyon coal		
CBM	44.52111	-105.64916	52N	73W	4	NW	NW	SOUKUP DRAW CS STATE 8	YATES PETROLEUM CORPORATION	4900540226	NI	4094	P124206.0W	3/20/2000	Complete	CBM	782	Wall coal	N	
CBM	44.50628	-105.58886	52N	73W	12	NW	NW	COOK 11C-1223	USA EXPLORATION & PRODUCTION LLC	4900532407	PG	4235	none found				497	Canyon coal		
CBM	44.50346	-105.58831	52N	73W	12	SW	NW	COOK 12C-1223	USA EXPLORATION & PRODUCTION LLC	4900532408	PS	4287	P108424.0W	12/29/1997	Cancelled	CBM; STK	539	Canyon coal	N	
CBM	44.50243	-105.58908	52N	73W	12	SW	NW	COOK 12A-1223	USA EXPLORATION & PRODUCTION LLC	4900542577	PG	4286	P130156.0W	10/9/2000	Complete	CBM	312	Anderson coal	N	
CBM	44.50306	-105.58806	52N	73W	12	SW	NW	COOK 12W-1223	USA EXPLORATION & PRODUCTION LLC	4900547796	PG	4273	P142354.0W	1/30/2002	Complete	CBM; STK	834	Wall coal	N	
CBM	44.49893	-105.58882	52N	73W	12	NW	SW	COOK 13C-1223	USA EXPLORATION & PRODUCTION LLC	4900532405	PG	4270	none found				522	Canyon coal		
CBM	44.49597	-105.5885	52N	73W	12	SW	SW	COOK 14C-1223	USA EXPLORATION & PRODUCTION LLC	4900532404	PS	4265	P108426.0W	12/29/1997	Cancelled	CBM; STK	520	Canyon coal	N	
CBM	44.49474	-105.5886	52N	73W	12	SW	SW	COOK 14A-1223	USA EXPLORATION & PRODUCTION LLC	4900542578	PG	4254	P131321.0W	11/30/2000	Complete	CBM	295	Anderson coal	N	
CBM	44.47681	-105.59464	52N	73W	23	NE	NE	MOREL 41C-2323	USA EXPLORATION & PRODUCTION LLC	4900536248	PS	4257	P118851.0W	8/30/1999	Complete	CBM; STK	530	Canyon coal	N	
CBM	44.47673	-105.59509	52N	73W	23	NE	NE	MOREL 41A-2323	USA EXPLORATION & PRODUCTION LLC	4900551906	PS	4215	P161032.0W	7/20/2004	Complete	CBM	308	Anderson coal	N	
CBM	44.47271	-105.59384	52N	73W	23	SE	NE	TRITON 42C-2323	USA EXPLORATION & PRODUCTION LLC	4900532657	PG	4319	P108931.0W	2/23/1998	Cancelled	CBM; STK	576	Canyon coal	N	
CBM	44.47338	-105.58884	52N	73W	24	SW	NW	MOREL 12C-2423	USA EXPLORATION & PRODUCTION LLC	4900536247	TA	4310	P118850.0W	8/30/1999	Complete	CBM; STK	570	Canyon coal	N	
CBM	44.55825	-105.63859	53N	73W	21	NE	SE	SCOTT 43LC-2133	THREE FORKS RESOURCES LLC	4900549661	PG	4044.8	P145818.0W	7/2/2002		CBM	399	Lower Canyon coal		
CBM	44.55852	-105.64919	53N	73W	21	NE	SW	SCOTT 23LC-2133	THREE FORKS RESOURCES LLC	4900549662	PG	4016.8	P145817.0W	7/2/2002		CBM	506	Lower Canyon coal		
CBM	44.55505	-105.65378	53N	73W	21	SW	SW	SCOTT 14LC-2133	THREE FORKS RESOURCES LLC	4900549659	PG	4026.2	P145815.0W	7/2/2002		CBM	557	Lower Canyon coal		
CBM	44.56227	-105.62308	53N	73W	22	SW	NE	WC 07CC-22-53-73	PINNACLE GAS RESOURCES INC	4900553026	PS	3982	P173364.0W	6/17/2005		CBM	365	Cook and Canyon coals		
CBM	44.56251	-105.63323	53N	73W	22	SW	NW	WC FED 05-CW-22-53-73	PINNACLE GAS RESOURCES INC	4900553885	SI	4023	P156077.0W	1/6/2004	Cancelled	CBM; MIS	748	Canyon and Wall coals		
CBM	44.55527	-105.60204	53N	73W	23	SW	SE	WC FED 15CW-23-53-73	PINNACLE GAS RESOURCES INC	4900553893	SI	4014	P156703.0W	1/22/2004		CBM; MIS	748	Canyon and Wall coals		

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Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
CBM	44.55485	-105.61277	53N	73W	23	SW	SW	WC FED 13CW-23-53-73	PINNACLE GAS RESOURCES INC	4900553886	SI	4015	P156090.0W	1/6/2004		CBM; MIS	684	Canyon and Wall coals		
CBM	44.55161	-105.60826	53N	73W	26	NE	NW	WC 03CC-26-53-73	PINNACLE GAS RESOURCES INC	4900553023	SI	4000	P163430.0W	10/27/2004	Complete	CBM	325	Cook and Canyon coals	N	
CBM	44.55175	-105.60826	53N	73W	26	NE	NW	WC 03WP-26-53-73	PINNACLE GAS RESOURCES INC	4900553035	SI	3999	P174190.0W	4/4/2006	Complete	CBM	685	Wall coal	N	
CBM	44.52963	-105.58148	53N	73W	36	NW	SE	STATE 33C-3633	USA EXPLORATION & PRODUCTION LLC	4900533910	PG	4193	P111708.0W	9/11/1998	Complete	CBM; STK	395	Canyon coal	N	
CBM	44.5262	-105.57646	53N	73W	36	SE	SE	STATE 44C-3633	USA EXPLORATION & PRODUCTION LLC	4900533908	PG	4179	P111687.0W	9/11/1998	Complete	CBM; STK	358	Canyon coal	N	
Oil well	44.50174	-105.68593	52N	73W	7	SE	NW	BALL FEDERAL 2G 0	DEVON ENERGY PRODUCTION COMPANY LP	4900523898	PG	4424	n/a				8626	Muddy Formation		
Oil well	44.49453	-105.68705	52N	73W	7	SE	SW	BALL FED W-34720 3	BANDING M R INC	4900524042	GL	4345	n/a				8569	Muddy Formation		
Oil well	44.47987	-105.65599	52N	73W	17	SE	SE	APOSTOLOS W-050233 2-1	DEVON ENERGY PRODUCTION COMPANY LP	4900521860	SI	4229	n/a				8320	Muddy Formation		
Oil well	44.55506	-105.66819	53N	73W	20	SE	SW	EISELE FEE 2-G	OILFIELD SALVAGE & SERVICE COMPANY	4900521872	PO	4049	n/a				8038	Muddy Formation		
Oil well	44.53659	-105.71376	53N	74W	36	NW	NW	UTE 2	BANDING M R INC	4900524106	PO	4172	n/a				8441	Muddy Formation		
Gas well	44.48365	-105.65154	52N	73W	16	NW	SW	STATE 1-52	P & M PETROLEUM MANAGEMENT LLC	4900523813	PR	4298	n/a				8448	Muddy Formation		
Domestic well			52N	73W	4	NE	NW	MOREL PLACE #1	TWENTY MILE LAND CO LLC				P157156.0W	3/19/2004	Complete	DOM_ GW	750	Interval between Lower Canyon and Wall coals (625 - 670')	Y	
Domestic well			52N	73W	4	NE	SW	LANDECK #2	William A. Paul & Elizabeth Landeck				P166520.0W	4/4/2005	Complete	DOM_ GW	725	Interval between Lower Canyon and Wall coals (590 - 650')	Y	
Domestic well			52N	73W	4	SE	SW	ROBINSON #4	William A. Paul & Elizabeth Landeck				P10236.0P	4/30/1945	Complete	DOM_ GW;	226	Interval not listed, but TD indicates well possibly includes Anderson coal in	N	
Domestic well			52N	73W	8	NE	NE	FERLIN # 1	Ferlin LeRoy Harris				P138462.0W	8/29/2001	Complete	DOM_ GW;	960	Interval beneath Wall coal (910 - 940')	N	
Domestic well			52N	73W	14	NW	NW	MOREL #1	Maurice Morel				P8543.0P	12/31/1942	Complete	DOM_ GW;	185	Interval above Smith coal (TD = 185')	N	
Domestic well			52N	73W	14	SE	NW	JANISH #1	Dave Janish				P103580.0W	8/23/1996	Complete	DOM_ GW	790	Interval between Canyon and Lower Canyon coals (694 - 754')	N	
Domestic well			52N	73W	14	SW	SE	DIRT WORLD #1	Chuck and Marria Ruiz				P179243.0W	1/18/2007	Complete	DOM_ GW;	1104	Interval below Wall coal (938 - 1076')	N	
Domestic well			52N	73W	23	SE	NE	CODY # 1	CODY JOSLYN				P149408.0W	2/19/2003		DOM_ GW;		unknown		
Domestic well			52N	73W	24	SW	NW	SCOTT JOSLYN #1	SCOTT JOSLYN				P149409.0W	2/19/2003		DOM_ GW;		unknown		
Domestic well			52N	73W	25	NW	NW	KLINE #1	THOMAS KLINE				P180530.0W	3/16/2007		DOM_ GW		unknown		
Domestic well			52N	73W	25	NW	NW	SULLIVAN #1	CHARLES P. SULLIVAN				P69602.0W	3/7/1985	Complete	DOM_ GW	820	Interval between Canyon/Lower Canyon and Wall (740 - 815')	N	
Domestic well			52N	73W	25			ROGERS #1	RALPH & LAURA ROGERS				P178868.0W	12/12/2006		DOM_ GW		unknown		
Domestic well			52N	73W	26	NE	NW	ELDRIDGE #2	EDWARD W. & LINDA K. ELDRIDGE				P181995.0W	2/16/2007	Complete	DOM_ GW;	930	Producing interval not given, but could include Canyon and Wall coals (TD =	N	
Domestic well			53N	72W	19	SW	SE	LANDECK #11	William A. Paul & Elizabeth Landeck				P77545.0W	7/7/1988	Complete	DOM_ GW;	784	Producing interval not given, but could include Canyon and Wall coals (TD =	N	
Domestic well			53N	72W	31	NE	NW	HOUSE WELL #1	Richard & Judy Lynde				P115517.0W	4/26/1999	Complete	DOM_ GW;	360	Interval between Canyon/Lower Canyon and Wall coals (310 - 360')	N	
Domestic well			53N	73W	20	SE	SW	MARION SCOTT HEADQUARTERS	MARION SCOTT				P170381.0W	11/3/2005		DOM_ GW		unknown		
Domestic well			53N	73W	20	SE	SW	SCOTT H Q #2	Harold W. Scott				P4917.0P	3/1/1969	Complete	DOM_ GW;	270	Interval that may include Smith coal (TD = 270')	N	
Domestic well			53N	73W	29	SE	NE	WILLIAMS #2	Harold W. Scott				P28854.0W	1/14/1975	Complete	DOM_ GW;	356	Broad interval which includes Canyon coal (260 - 345')	Y	

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Domestic well			53N	73W	29	SE	SE	ENL. WILLIAM #1	CINDY DAWSON				P177990.0W	10/30/2006		DOM_GW		Interval not listed, but TD indicates well could produce from any coal or sand		
Domestic well			53N	73W	33	SE	NE	FIEDORA WELL NO. 1	MARION SCOTT				P170382.0W	11/3/2005		DOM_GW		Interval between Lower Canyon and Wall coals (672 - 682')		
Domestic well			53N	73W	33	SW	NW	LINDQUIST #2	R DANIEL LINDQUIST				P170664.0W	9/26/2005	Complete	DOM_GW	906	Interval not listed, but TD indicates well could produce from any coal or sand	N	
Domestic well			53N	73W	33	SW	NW	CHAD #1	Randy Bulkley				P92989.0W	9/16/1993	Complete	DOM_GW;	300	Interval not listed, but TD indicates well could produce from any coal or sand	N	
Domestic well			53N	73W	33	SW	SE	TAR #1	TROY REILE				P193332.0W	7/9/2010	Complete	DOM_GW	1043	Broad interval which includes Wall coal (708 - 888')	N	
Domestic well			53N	73W	33	NE	SW	REILE #1	MARION SCOTT				P66546.0W	3/8/1984	Complete	DOM_GW;	390	Interval between Canyon and Lower Canyon coals (340 - 390')	N	
Domestic well			53N	73W	33	NE	SW	REILE WW002	JAY R. AND JAMI JO. SCHROEDER				P190997.0W	7/15/2009	Complete	DOM_GW	883	Interval beneath Wall coal (838 - 848')	N	
Industrial well			52N	73W	10	NW	NW	LANDECK-527310 NWNW	THUNDER CREEK GAS SERVICES, LLC				P189751.0W	1/21/2009	Incomplete	IND_GW; MIS	500	Interval that includes the Anderson and Canyon coals (86 - 500')		
Misc. well			52N	73W	23	SW	NE	MOREL #1	GREEN VALLEY ESTATES IMPROVEMENT & SERVICE DIST.				P91376.0W	4/14/1993	Fully Adjudicated	MIS	1260	Interval below Wall coal (1090 - 1230')	Y	
Misc. well			52N	73W	23	SW	NE	MOREL #1	CORP. OF THE PERSIDING BISHOP				CR UW09/110	4/14/1993		MIS		same as P91376.0W		
Monitoring well			52N	73W	4	NE	SE	DW1	Gulf Mineral Resources				P44954.0W	8/18/1978	Complete	MON	591	Interval that includes the Anderson coal (117 - 228')	Y	
Monitoring well			52N	73W	14	SW	NE	NRH 1067 B	Powder River Coal Company				P79170.0W	2/28/1989	Complete	MON	219	Interval above Smith coal (TD = 219')	N	
Monitoring well			52N	73W	14	SE	SE	GVE-MW2	GREEN VALLEY ESTATES IMPROVEMENT & SERVICE DIST.				P94590.0W	2/18/1994	Complete	MON	33	Interval above Smith coal (TD = 33')	Y	
Monitoring well			52N	73W	14	SE	SE	GVE-MW3	GREEN VALLEY ESTATES IMPROVEMENT & SERVICE DIST.				P94591.0W	2/18/1994		MON	33	Interval above Smith coal (TD = 33')	Y	
Monitoring well			52N	73W	14	SE	SE	GVE-MW4	GREEN VALLEY ESTATES IMPROVEMENT & SERVICE DIST.				P94592.0W	2/18/1994		MON	33	Interval above Smith coal (TD = 33')	Y	
Monitoring well			53N	72W	30	SE	SW	BARBOUR ST 3032-1	REDSTONE RESOURCES, INC				P101088.0W	12/18/1995		MON	320	Producing interval not given, but could include Anderson and Canyon coals (TD	N	
Monitoring well	44.54479	-105.60174	53N	73W	26	NW	SE	HALL 33-2633	PATRIOT ENERGY RESOURCES LLC	4900531001	SI	4155	P102743.0W	6/26/1996		CBM; STK	299	Canyon coal	N	n/a
Stock well			52N	73W	3	SW	NE	LANDECK CAMBELL STOCKWELL #1	PAUL AND NANCY LANDECK				P192051.0W	1/19/2010	Complete	STK	90	Interval between Anderson and Canyon coal (214 - 254')	N	
Stock well			52N	73W	4	NW	NW	LANDECK SOUKUP DRAW #8	PAUL LANDECK				P192716.0W	3/29/2010	Incomplete	STK		Iinterval between Lower Canyon and Wall coals (560 - 590')		
Stock well			52N	73W	4	NW	SE	B4 15C	William A. Paul & Elizabeth Landeck				P79010.0W	1/30/1989	Incomplete	STK		Canyon / Lower Canyon coal interval (446 - 525')		
Stock well			52N	73W	4	NW	SE	B4 14	William A. Paul & Elizabeth Landeck				P79011.0W	1/30/1989	Incomplete	STK		Canyon / Lower Canyon coal interval (453 - 528')		
Stock well			52N	73W	4	NW	SE	B4 13C	William A. Paul & Elizabeth Landeck				P79012.0W	1/30/1989	Incomplete	STK		Interval between Lower Canyon and Wall coals (540 - 630')		
Stock well			52N	73W	5	SE	NE	BUTCHER #42S-523	GEORGIA L BARBOUR				P102544.0W	6/6/1996		STK	702	Interval not listed, but TD indicates well could produce from any coal or sand	N	
Stock well			52N	73W	5	SE	NW	Nelle Butcher Trust #1	NELLE BUTCHER TRUST, FIRST INTERSTATE BANK, TRUSTEE				P111767.0W	9/15/1998	Incomplete	STK	270	Interval not listed, but TD indicates well could produce from any coal or sand	N	
Stock well			52N	73W	5	SE	NW	JAKE #1	Clarence Butcher				P4431.0W	10/31/1969	Complete	STK	550	Interval not listed, but TD indicates well could produce from any coal or sand	N	
Stock well			52N	73W	9	NE	NW	BARRET #1	TWENTY MILE LAND CO LLC				P67072.0W	4/25/1984	Complete	STK	340	Anderson coal interval (198 - 251')	N	
Stock well			52N	73W	10	NW	NW	ROBINSON #3	WILLIAM A PAUL AND ELIZABETH LANDECK				P10235.0P	12/31/1941	Complete	STK	209	Interval that could include the Anderson coal (TD = 209')	N	
Stock well			52N	73W	14	NE	NW	MOREL #3	Maurice Morel				P8545.0P	12/31/1915	Complete	STK	4	Interval above Anderson coal (0 - 4')	N	
Stock well			52N	73W	14	SE	NW	MOREL #4	Maurice Morel				P8412.0W	3/18/1971	Complete	STK	84	Interval above Smith coal (25 - 70')	N	

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Stock well			52N	73W	14	NE	SE	PITT #1	REGINALD PARNELL				P15860.0W	10/24/1972	Complete	STK	102	Interval above Smith coal (70 - 97')	N	
Stock well			52N	73W	14	SW	SE	HARDY A1	KELLY HARDY				P94853.0W	3/25/1994	Complete	STK	222	Interval that may include Smith coal (146 - 220')	N	
Stock well			52N	73W	15	SE	NE	MOREL #2	Maurice Morel				P8544.0P	11/16/1960	Complete	STK	120	Interval above Smith coal (80 - 100')	N	
Stock well			52N	73W	16	NW	NW	16-1	Daly Livestock Co.				P52382.0W	5/28/1980	Complete	STK	184	Interval above Smith coal (100 - 137')	N	
Stock well			52N	73W	23	SE	SE	CARLSON #1	Triton Coal Co., LLC				P21099.0P	1/9/1973	Complete	STK	370	Smith and Anderson coals 310 - 360'	N	
Stock well			53N	72W	31	NW	NE	STEINER NW #2E	BYRON F/MARJORIE OEDEKOVEN				P115508.0W	4/16/1999	Complete	STK	210	Producing interval not given, but could include Anderson coal (TD = 210')	N	
Stock well			53N	73W	20	SE	SE	NO WILDCAT MEADOW #1	Harold W. Scott				P4055.0P	11/22/1959	Complete	STK	127	Interval above Smith coal (TD = 127')	N	
Stock well			53N	73W	21	SW	SE	NORTH WILDCAT MEADOW #2	MARION SCOTT				P22125.0P	12/31/1956	Complete	STK	100	Interval above Canyon coal (based on TD). Anderson coal eroded at this	N	
Stock well			53N	73W	22	SE	SW	MARVEL #1	Clarence Butcher				P2385.0W	10/31/1968		IRR_GW; STK	220	Interval above Canyon coal (based on TD), Anderson coal eroded at this	N	
Stock well			53N	73W	24	NW	SE	NORTH PASTURE #1	Richard & Judy Lynde				P115516.0W	4/26/1999	Complete	STK	340	Interval between Anderson and Canyon coal (220 - 280')	N	
Stock well			53N	73W	25	SE	SE	BAM 30	Richard & Judy Lynde				P52285.0W	5/29/1980	Complete	STK	330	Canyon coal (306 - 330')	N	
Stock well			53N	73W	25	SE	SE	WEST PASTURE WELL #1	Richard & Judy Lynde				P115518.0W	4/26/1999	Complete	STK	254	Interval between Anderson and Canyon coal (214 - 254'	N	
Stock well			53N	73W	26	NW	SW	HALL #14	DEAN W. & ELDEE HALL				P2635.0W	6/26/1969	Complete	STK	112	Interval above Anderson coal (65 - 105')	N	
Stock well			53N	73W	29	SE	SE	WILLIAMS #1	CINDY DAWSON				P22132.0P	12/31/1929	Complete	STK	160	n/a, now under P177990W	N	
Stock well			53N	73W	29	NE	SW	BARBOUR #1	GEORGIA L BARBOUR				P110352.0W	6/11/1998	Complete	STK	120	Interval above Anderson coal (15 - 120')	N	
Stock well			53N	73W	31	SE	SE	LINDQUIST #1	R DANIEL LINDQUIST				P170663.0W	9/26/2005	Complete	STK	160	Interval not listed, but TD indicates completion interval is above Anderson	N	
Stock well			53N	73W	31	SE	SE	HAZER #1	RANDY BULKLEY				P92988.0W	9/16/1993	Complete	STK	300	Interval not listed, but TD indicates well could produce from any coal or sand	N	
Stock well			53N	73W	33	NW	SE	SOUTH WILDCAT SPRING #1 FLOWING	MARION SCOTT				P22123.0P	1/31/1969	Complete	STK	10	Interval above Anderson coal (0 - 10')	N	
Stock well			53N	73W	33	NW	SE	SOUTH WILD CAT #2	MARION H. SCOTT				P53036.0W	7/16/1980	Complete	STK	410	Interval between Canyon and Lower Canyon coals (320 - 400')	N	
Stock well			53N	73W	33	NW	SE	SOUTH WILDCAT #2	MARION H. SCOTT				P69323.0W	2/4/1985	Complete	STK	410	Revised information for P53036W. Interval between Canyon and Lower	N	
Stock well			53N	73W	34	NW	NW	SOUTH WILDCAT #1	MARION SCOTT				P22124.0P	12/31/1955	Complete	STK	130	Interval not listed, but TD indicates well possibly includes Anderson coal in	N	
Stock well			53N	73W	36	SW	SW	#5 HALL	DEAN W. HALL				P3262.0P	6/30/1938	Complete	STK	110	Interval above Anderson coal (TD = 110')		
Stock well			53N	74W	25	SE	SE	PRESTON #1	Clarence Butcher				P2388.0W	10/31/1968		MIS; STK	260	Interval which includes Anderson coal (195 - 254')	N	
Stock well			53N	74W	35	NE	NE	DUTCH #1 (DEEPENED)	RANDY & GAIL K. BULKLEY				P2512.0W	6/23/1968	Complete	STK	290	Interval above Smith coal (170 - 205')	N	
Surface Water			52N	73W	1	SW	NW	South Pasture Stock Reservoir	DEAN W. HALL				P6121.0S	7/31/1967	Unadjudicated	STO				
Surface Water			52N	73W	1			HALL-TATE #4 STOCK RESERVOIR	William A. Paul & Elizabeth Landeck				P18370.0S	9/13/2001	Complete	STO				
Surface Water			52N	73W	2	NW	NE	HALL-TATE #7 STOCK RESERVOIR	PATRIOT ENERGY RESOURCES LLC				P15431.0S	10/12/2001	Complete	STO				
Surface Water			52N	73W	2	SE	SE	REDTAIL STOCK RESERVOIR	David and Rhoda Tate				P16540.0S	4/19/2002	Complete	STO				
Surface Water			52N	73W	2			Hall-Tate #5 Stock Reservoir	DEVON ENERGY PRODUCTION COMPANY LP				P15502.0S	9/7/2001	Unadjudicated	STO				

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Surface Water			52N	73W	3	NW	SE	ENL OF MCKAY RESERVOIR	William A. Paul & Elizabeth Landeck				P12795.0R	9/13/2001	Complete	STO				
Surface Water			52N	73W	3	NW	SE	McKay Stock Reservoir	William A. Paul & Elizabeth Landeck				P7138.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			52N	73W	3	NW	SE	McKay Stock Reservoir	WILLIAM A. LANDECK				CR CR07/063	9/7/1971		STO				
Surface Water			52N	73W	3	SW	SE	LANDECK #10 STOCK RESERVOIR	WILLIAM A PAUL AND ELIZABETH LANDECK				P16362.0S	4/19/2002	Complete	STO				
Surface Water			52N	73W	3	NE	SW	Robinson #1 Stock Reservoir	William A. Paul & Elizabeth Landeck				P7136.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			52N	73W	3	NE	SW	Robinson #1 Stock Reservoir	WILLIAM A. LANDECK				CR CR07/062	9/7/1971		STO				
Surface Water			52N	73W	3			SOUKUP DRAW PR-3 STOCK RESERVOIR	WILLIAM A PAUL AND ELIZABETH LANDECK				P18352.0S	2/12/2007	Incomplete	STO				
Surface Water			52N	73W	4	NW	NW	JEAN 2 STOCK RESERVOIR	William A. Paul & Elizabeth Landeck				P16465.0S	8/28/2000	Complete	STO				
Surface Water			52N	73W	4	NW	NW	Robinson #4 Stock Reservoir	William A. Paul & Elizabeth Landeck				P7135.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			52N	73W	4	NW	NW	Robinson #4 Stock Reservoir	WILLIAM A. LANDECK				CR CR07/059	9/7/1971		STO				
Surface Water			52N	73W	4	SW	NW	ENL ROBINSON #3 RESERVOIR	WILLIAM A PAUL AND ELIZABETH LANDECK				P12509.0R	4/20/2006	Complete	FIS; STO;				
Surface Water			52N	73W	4	SW	NW	Robinson #3 Stock Reservoir	William A. Paul & Elizabeth Landeck				P7141.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			52N	73W	4	SW	NW	Robinson #3 Stock Reservoir	WILLIAM A. LANDECK				CR CR07/061	9/7/1971		STO				
Surface Water			52N	73W	4	SW	SE	Robinson #2 Stock Reservoir	William A. Paul & Elizabeth Landeck				P7134.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			52N	73W	4	SW	SE	Robinson #2 Stock Reservoir	WILLIAM A. LANDECK				CR CR07/060	9/7/1971		STO				
Surface Water			52N	73W	5	NW	SW	BUTCHER STOCK RESERVOIR	PATRIOT ENERGY RESOURCES LLC				P15447.0S	4/19/2002	Complete	STO				
Surface Water			52N	73W	5	SE	SW	JACOB H. YOHS STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16477.0S	4/25/2002	Complete	STO				
Surface Water			52N	73W	5			Lindquist #4 Stock Reservoir	R DANIEL LINDQUIST				P16324.0S	1/19/2001	Unadjudicated	STO				
Surface Water			52N	73W	6	SW	NE	FRED W. THURMOND STOCK	TWENTY MILE LAND CO LLC				P16481.0S	4/25/2002	Complete	STO				
Surface Water			52N	73W	6	SW	NE	ENL OF FRED W. THURMOND STOCK	TWENTY MILE LAND CO LLC				P19111.0S	12/29/2008	Incomplete	STO				
Surface Water			52N	73W	8	SW	NE	HARRIS #2 STOCK RESERVOIR	Ferlin LeRoy Harris				P16388.0S	6/25/2001	Complete	STO				
Surface Water			52N	73W	8	SW	NE	HARRIS #1 STOCK RESERVOIR	Ferlin LeRoy Harris				P16422.0S	7/2/2001	Complete	STO				
Surface Water			52N	73W	8	NW	NW	HARLEY P. HENSLEY STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16480.0S	4/25/2002	Complete	STO				
Surface Water			52N	73W	9	SE	NW	BARRETT STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16811.0S	6/6/2005	Complete	STO				
Surface Water			52N	73W	9	NW	SE	TWENTY MILE LAND COMPANY #27	TWENTY MILE LAND CO LLC				P16022.0S	9/13/2004	Complete	STO				
Surface Water			52N	73W	9	NW	SE	TWENTY MILE LAND COMPANY #27	TWENTY MILE LAND CO LLC				P19254.0S	5/28/2009	Complete	STO				
Surface Water			52N	73W	10	NW	NE	LANDECK #11 STOCK RESERVOIR	WILLIAM A PAUL AND ELIZABETH LANDECK				P16363.0S	4/19/2002	Complete	STO				
Surface Water			52N	73W	10			ROSALIE KENNEY STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16325.0S	11/15/2002	Complete	STO				
Surface Water			52N	73W	11	NE	SW	EDWARD B. KENNY STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16482.0S	4/25/2002	Complete	STO				

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Surface Water			52N	73W	12	NE	NW	COOK #1 STOCK RESERVOIR	DEAN COOK				P19034.0S	11/10/2008	Complete	STO				
Surface Water			52N	73W	14	NW	NE	STANLEY A. SOUKUP #2 STOCK	TWENTY MILE LAND CO LLC				P16541.0S	4/8/2002	Complete	STO				
Surface Water			52N	73W	15	NE	NE	STANLEY A. SOUKUP STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16478.0S	4/25/2002	Complete	STO				
Surface Water			52N	73W	16	SW	NE	DAFFY #1 STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16665.0S	7/2/2001	Complete	STO				
Surface Water			52N	73W	16	SE	SW	DAFFY #2 STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16666.0S	7/2/2001	Complete	STO				
Surface Water			52N	73W	17	NE	NW	TWIN RESERVOIR T52NR73W17NENW	TWENTY MILE LAND CO LLC				P16501.0S	12/12/2002	Complete	STO				
Surface Water			52N	73W	22	NE	SE	WILLIAM R. FOX #1 STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16542.0S	5/9/2002	Complete	STO				
Surface Water			52N	73W	23	SE	NE	ENL. CARLSON STOCK RESERVOIR	BUCKSKIN MINING CO.				P18579.0S	1/24/2003	Complete	STO				
Surface Water			52N	73W	23	NW	NW	MARTIN P. CARLSON STOCK RESERVOIR	TWENTY MILE LAND CO LLC				P16479.0S	4/25/2002	Complete	STO				
Surface Water			52N	73W	23	NE	SE	Carlson Stock Reservoir	BUCKSKIN MINING CO.				P6759.0S	7/24/1970	Unadjudicated	STO				
Surface Water			52N	73W	23	SE	SW	CHARLIE STOCK RESERVOIR	BUCKSKIN MINING CO.				P1848.0S	2/4/1957	Complete	STO				
Surface Water			52N	73W	23			Triton #6 Stock Reservoir	BUCKSKIN MINING CO.				P16421.0S	9/11/2002	Unadjudicated	STO				
Surface Water			53N	72W	19	SW	SE	Landeck No. 1 Stock Reservoir	William Landeck				P7130.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			53N	72W	19	SW	SE	Landeck No. 1 Stock Reservoir	WILLIAM A. LANDECK				CR CR07/055	9/7/1971		STO				
Surface Water			53N	72W	30	SE	NW	LYNDE #3 STOCK RESERVOIR	RICHARD AND JUDY LYNDE				P18669.0S	4/19/2002	Complete	STO				
Surface Water			53N	72W	30	SW	SE	Calf Creek No. 2 Stock Reservoir	William A. Paul & Elizabeth Landeck				P7139.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			53N	72W	30	SW	SE	Calf Creek No. 2 Stock Reservoir	WILLIAM A. LANDECK				CR CR07/053	9/7/1971		STO				
Surface Water			53N	72W	30	SW	SW	LYNDE #4 STOCK RESERVOIR	RICHARD AND JUDY LYNDE				P18670.0S	4/19/2002	Complete	STO				
Surface Water			53N	72W	31	NE	NW	LYNDE #5 STOCK RESERVOIR	RICHARD AND JUDY LYNDE				P18671.0S	4/19/2002	Complete	STO				
Surface Water			53N	72W	31	NW	NW	LYNDE #6 STOCK RESERVOIR	RICHARD AND JUDY LYNDE				P16627.0S	12/4/2001	Complete	STO				
Surface Water			53N	72W	31	NW	SW	Spangler Stock Reservoir	William A. Paul & Elizabeth Landeck				P7137.0S	9/7/1971	Fully Adjudicated	STO				
Surface Water			53N	72W	31	NW	SW	Spangler Stock Reservoir	WILLIAM A. LANDECK				CR CR07/058	9/7/1971		STO				
Surface Water			53N	73W	20	SE	SW	Scott's Spreader System	ALBERT J BETTY LOU FARIS				CR CC80/071	8/11/1966		IRR_SW				
Surface Water			53N	73W	22	SW	NE	Hall Spreader System No. 2	DEAN W. HALL				P22834.0D	7/26/1966	Unadjudicated	IRR_SW				
Surface Water			53N	73W	22	NE	SW	Hensley Spreader System	W. A. HENSLEY				P23203.0D	8/1/1966	Fully Adjudicated	IRR_SW				
Surface Water			53N	73W	23	SE	SW	TATE #1 STOCK RESERVOIR	JOY LUCILLE AND DEAN W HALL TRUST				P15634.0S	4/19/2002	Complete	STO				
Surface Water			53N	73W	25	SE	NE	HALL-TATE #1 STOCK RESERVOIR	PATRIOT ENERGY RESOURCES LLC				P15581.0S	8/17/2001	Complete	STO				
Surface Water			53N	73W	25	SE	NE	LYNDE #2 STOCK RESERVOIR	RICHARD AND JUDY LYNDE				P18668.0S	4/19/2002	Complete	STO				
Surface Water			53N	73W	25	SW	NW	LYNDE #1 STOCK RESERVOIR	RICHARD LYNDE				P15606.0S	4/19/2002	Complete	STO				

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Surface Water			53N	73W	26	SE	SE	MUMAN STOCK RESERVOIR	JOY LUCILLE HALL				P4945.0S	12/1/1964	Complete	STO				
Surface Water			53N	73W	27	NE	NW	MICKEY #2 STOCK RESERVOIR	ANITA STUART				P14364.0S	7/16/2001	Complete	STO				
Surface Water			53N	73W	27	SE	SW	HENSLEY LAND 2733 STOCK RESERVOIR	First Interstate Bank				P19105.0S	12/8/2008	Complete	STO				
Surface Water			53N	73W	28	NW	NE	Marvel Spring Pipe Line	Clarence Butcher				P23227.0D	10/31/1968	Fully Adjudicated	STO				
Surface Water			53N	73W	28	NW	NE	Marvel Spring Pipe Line	ROBERT C NANCY BERLIN				CR CC79/277	10/31/1968		STO				
Surface Water			53N	73W	28	SE	NE	HANNA #1 STOCK RESERVOIR	William Hensley Trust				P15594.0S	1/19/2001	Complete	STO				
Surface Water			53N	73W	28	NE	SE	Gilstrap Reservoir	Ray E. Gilstrap				P4652.0R	5/10/1937	Unadjudicated	STO				
Surface Water			53N	73W	28	SE	SW	NATASHA #1 STOCK RESERVOIR	William Hensley Trust				P15607.0S	1/19/2001	Complete	STO				
Surface Water			53N	73W	29	NW	SE	BOWAN #14 STOCK RESERVOIR	MARION SCOTT				P16213.0S	9/8/2000	Complete	STO				
Surface Water			53N	73W	29	SE	SW	BLOCK STOCK RESERVOIR	ANITA STUART				P15568.0S	4/19/2002	Complete	STO				
Surface Water			53N	73W	30	SW	NW	SAMPSON #1 STOCK RESERVOIR	PATRIOT ENERGY RESOURCES LLC				P15857.0S	6/9/2004	Complete	STO				
Surface Water			53N	73W	30	NW	SE	BRONWYN 2 STOCK RESERVOIR	ANITA STUART				P15617.0S	8/28/2000	Complete	STO				
Surface Water			53N	73W	30	SW	SE	KYRA #1 STOCK RESERVOIR	ANITA STUART				P15608.0S	4/19/2002	Complete	STO				
Surface Water			53N	73W	30	NW	SW	ENL. OF BRONWYN (P15618S)	PATRIOT ENERGY RESOURCES LLC				P12748.0R	9/7/2006	Complete	IRR_SW ; STO;				
Surface Water			53N	73W	30	NW	SW	BRONWYN 1 STOCK RESERVOIR	ANITA STUART				P15618.0S	8/28/2000	Complete	STO				
Surface Water			53N	73W	31	SW	NW	JEAN #1 STOCK RESERVOIR	ANITA STUART				P15609.0S	4/19/2002	Complete	STO				
Surface Water			53N	73W	31	NW	SE	LINDQUIST #3 STOCK RESERVOIR	R DANIEL LINDQUIST				P15837.0S	1/19/2001	Complete	STO				
Surface Water			53N	73W	31			Lindquist #3 Upper Stock Reservoir	R DANIEL LINDQUIST				P15836.0S	6/17/2004	Unadjudicated	STO				
Surface Water			53N	73W	32	NE	NE	WILLIAMS STOCK RESERVOIR	MARION SCOTT				P16364.0S	4/19/2002	Complete	STO				
Surface Water			53N	73W	32	NW	SE	PEGGY #1 STOCK RESERVOIR	ANITA STUART				P16321.0S	1/19/2001	Complete	STO				
Surface Water			53N	73W	32	NW	SE	LINDQUIST #1 STOCK RESERVOIR	R DANIEL LINDQUIST				P16322.0S	1/19/2001	Complete	STO				
Surface Water			53N	73W	32	NW	SE	LINDQUIST #2 STOCK RESERVOIR	R DANIEL LINDQUIST				P16323.0S	1/19/2001	Complete	STO				
Surface Water			53N	73W	33	NW	NW	Fletcher Reservoir	Clarence Butcher				P7170.0R	10/31/1968	Fully Adjudicated	IND_S W;				
Surface Water			53N	73W	33	NW	NW	Fletcher Reservoir	ROBERT C NANCY BERLIN				CR CR13/308	10/31/1968		IND_S W; STO				
Surface Water			53N	73W	33	NE	SE	DARCI RESERVOIR	MARION SCOTT				P12831.0R	2/26/2007	Incomplete	FIS; STO;				
Surface Water			53N	73W	35	SW	NW	HALL-TATE #2 STOCK RESERVOIR	PATRIOT ENERGY RESOURCES LLC				P15582.0S	8/17/2001	Complete	STO				
Surface Water			53N	73W	35	NW	SE	Landik Draw Stock Reservoir	DEAN W. HALL				P6012.0S	7/31/1967	Unadjudicated	STO				
Surface Water			53N	73W	36	SE	SW	HALL - TATE #3 STOCK RESERVOIR	WYO STATE OFFICE OF LANDS & INVESTMENTS				P15501.0S	9/7/2001	Complete	STO				
Surface Water			53N	74W	25	SE	SE	Tom Cat Reservoir	W.P. Ricketts				P855.0R	6/7/1906	Fully Adjudicated	DOM_S W;				

Facility Type	WOGCC Latitude	WOGCC Longitude	Town-ship	Range	Sec.	Qtr 1	Qtr 2	Facility Name	Operator or Water Right Holder	API Number (if O&G well)	O&G Status	Elevation	WR Number	PriorityDate	Water Right Status	WR Uses	Total Depth	Producing Interval (if a well)	Chemical Analysis (Y/N)	WYPDES Permit
Surface Water			53N	74W	25	SE	SE	Tom Cat Reservoir	W. P. RICKETTS				CR CC26/287	6/7/1906		DOM_SW; STO				
Surface Water			53N	74W	25	NW	SW	Gillstrap Ditch No. 1	RUTH GILLSTRAP				P11623.0D	12/20/1912	Fully Adjudicated	DOM_SW;				
Surface Water			53N	74W	25	NW	SW	Gillstrap Ditch No. 2	RUTH GILLSTRAP				P11624.0D	12/20/1912	Fully Adjudicated	DOM_SW;				
Surface Water			53N	74W	25	NW	SW	Gilstrap Reservoir	RUTH & PRESTON GILSTRAP				P2434.0R	12/20/1912	Fully Adjudicated	DOM_SW;				
Surface Water			53N	74W	25	NW	SW	Gilstrap Reservoir	RUTH GILSTRAP				CR CC35/472	12/20/1912		IRR_SW; STO				
Surface Water			53N	74W	25	NW	SW	Gillstrap Ditch No. 1	RUTH GILSTRAP				CR CC35/473	12/20/1912		DOM_SW;				
Surface Water			53N	74W	25	NW	SW	Gillstrap Ditch No. 2	RUTH GILSTRAP				CR CC35/474	12/20/1912		DOM_SW;				
Surface Water			53N	74W	25	NW	SW	Gillstrap Ditch No. 1	RUTH I. GILSTRAP				CR CC36/245	12/20/1912		DOM_SW;				
Surface Water			53N	74W	25			Hazer Stock Reservoir	Randy & Gail Bulkley				P15435.0S	11/29/2002	Unadjudicated	STO				
Surface Water			53N	74W	26			Wyatt Stock Reservoir	Randy & Gail Bulkley				P15440.0S	11/29/2002	Unadjudicated	STO				
Surface Water			53N	74W	35	NE	NE	ENL OF DUTCH RESERVOIR	Randy and Gail Bulkley				P13030.0R	8/24/2007	Complete	IRR_SW				
Surface Water			53N	74W	35	NE	NE	Dutch Stock Reservoir	Clarence Butcher				P6251.0S	10/31/1968		STO				
Surface Water			53N	74W	36	NE	NW	ENL OF SCHOOL SECTION (P9441S)	PRIMA OIL & GAS COMPANY				P18391.0S	6/29/2001	Complete	STO				
Surface Water			53N	74W	36	NE	NW	School Section Stock Reservoir	Randy and Gail Bulkley				P9441.0S	6/29/1984		STO				

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Proposed Injection Facilities Construction Details Table

			A				B	C			D				H*	G			F
Well Name	API Number	Formation	Elevation	Surf Csg Size	Surf Csg Weight	Surf Csg Top	Surf Csg Bottom	Prod Csg Size	Prod Csg Weight	Prod Csg Top	Prod Csg Bottom	Liner Size	Liner Top	Liner Bottom	Underream Size	Underream Top	Underream Bottom	Perforation Zones	TD
Hall 11C-123	4900532668	Canyon	4295.5					7"	17	Surf	294.8				10 1/2"	296	358		362
Hall 11C-2533	4900533805	Canyon	4067	10"	PVC	Surf	70'	7"	17	Surf	272					274	328		331
Hall Fed 11C-2633	4900536143	Canyon	4093					7"	17	Surf	317				12 1/2"	319	380		385
Lynde 11C-3032	4900532087	Canyon	4149					5 1/2"	17	Surf	214					216	246		248
Hall 11C-3533	4900534793	Canyon	4046					7"	17	Surf	437				14"	435	503		504
State 11C-3633	4900533822	Canyon	4121					7"	17	Surf	272				10 1/2"	274	329		332
Hensley 12LC-2833	4900533341	Lower Canyon	4100					7"	17	Surf	475				10 1/2"	477	505		508
Lindquist 12LC-3333	4900533354	Lower Canyon	4144					7"	17	Surf	490					492	518		521
Hinkes 12A-1123	4900543139	Anderson	4095	9 5/8"	26	Surf	60'	7"	17	Surf	193					194	228		230
Landeck 12A-223	4900545431	Anderson	4169.4	9 5/8"	29	Surf	61'	7"	17	Surf	140					140	168		170
Lindquist 12A-3333	4900533807	Anderson	4066					7"	17	Surf	311				10 1/2"	313	347		350
Hall 12A-3533	4900545578	Anderson	4068.9	10 3/4"	29	Surf	61'	7"	17	Surf	121					123	145		146
State Bulkley 12A-3634	4900533261	Anderson	4137					7"	17	Surf	293					293	318		318
Twenty Mile 12A-623	4900536755	Anderson	4125	9 5/8"	26	Surf		7"	17	Surf	990				14"	556	572	556-572'	780
Landeck 12C-1023	4900542511	Canyon	4424	9 5/8"		Surf	393'	7"		Surf	858					534	610		614
Hinkes 12C-1123	4900532328	Canyon	4184					5 1/2"	17	Surf	364					361	425		425
ST 12C-1623	4900531707	Canyon	4116					5 1/2"	17	Surf	585.5					587	652		652
Twenty Mile 12C2-1423	4900539441	Canyon	4402	9 5/8"	26	Surf	58.5	7"	17	Surf	515				12 1/2"	515	575		515
Landeck 12C-223	4900533105	Canyon	4164					7"	17	Surf	417.8				10 1/2'	419	486		489
Scott Fed 12C-2733	4900532987	Canyon	4066					7"	17	Surf	311					314	348		351
Hensley 12C-2833	4900533799	Canyon	4023					7"	17	Surf	343				10 1/2"	343	358		361
Lynde 12C-3032	4900533223	Canyon	4167					7"	17	Surf	179.8				10 1/2"	181	240		243
Bowen 12C-3233	4900535604	Canyon	4183	9 5/8"	26	Surf	60'	7"	17	Surf	479					480	496		498
Scott 12C-3433	4900533835	Canyon	4060					7"	17	Surf	254					256	288		291
Lindquist 12C-523	4900534711	Canyon	4191					7"	17	Surf	451				12"	452	498		480
Taylor Fed 12C-823	4900538818	Canyon	4144	10 3/4"	29	Surf	63'	7"	17	Surf	562				14"	560	598		600
Twenty Mile 12LC2-623	4900548331	Lower Canyon	4406	10 3/4"	29	Surf	116'	7"	17	Surf	992				14"	996	1017		1020
Scott 12LC-3433	4900533834	Lower Canyon	4039					7"	17	Surf	425					427	455		459
State Bulkley 12LC-3634	4900542926	Lower Canyon	4342.3	10 3/4"	25.5	Surf	80'	7"	16	Surf	760				16"	762	780		782
Butcher 12LC-423	4900532954	Lower Canyon	4132					7"	20	Surf	484					486	516		521
Lindquist 12LC-523	4900534712	Lower Canyon	4128	10 3/4"	23.5	Surf	38'	7"	17	Surf	613				12"	614	639		641
Landeck 12WA-1023	4900531874	Wall	4123	9 5/8"		Surf	373'	7"		Surf	857					859	880		915
Landeck 12WA-223	4900544068	Wall	4173.4	9 5/8"	26	Surf	189'	7"	17	Surf	752	5.5"	667'	753'	14"	754	768		775
Hensley 12WA-2833	4900531743	Wall	4123					5 1/2"	17	Surf	787.5					790	814		816
Bowen 12WA-3233	4900535605	Wall	4038					7"	17	Surf	607	5.5"	0	964'		965	988		997
Lindquist 12WA-3333	4900545474	Wall	4141.4	10 3/4"	29	Surf	243	7"	17	Surf	799					800	823		823
Scott 12WA-3433	4900545581	Wall	4183.7	10 3/4"	29	Surf	103'	7"	17	Surf	704					704	721		723
Hall 12WA-3533	4900545577	Wall	4177.1	10 3/4"	29	Surf	194'	7"	17	Surf	804					806	817		819
Hall 13C-123	4900531098	Canyon	4090					7"	17	Surf	304.8				10 1/2"	306	366		370
Hall Fed 13C-2533	4900532959	Canyon	4156					7"	17	Surf	314				14"	315	378		379
Hall Fed 13C-2633	4900536144	Canyon	4094	10 3/4"	23.5	Surf	61	7"	17	Surf	353					354	418		423
Lynde 13C-3032	4900531746	Canyon	4284					5 1/2"	17	Surf	258				10 1/2"	257	317		317
Hall 13C-3533	4900533110	Canyon	4275.6					7"	20	Surf	444				10 1/2"	446	519		522
Hensley 13LC-2833	4900532891	Lower Canyon	4102	10"	17	Surf	35'	7"	17	Surf	483				10 1/2"	486	516		517
Lindquist 14LC-3333	4900533355	Lower Canyon	4067					7"	17	Surf	539				10 1/2"	540	566		569
Bulkley 14-2534	4900556931	Lower Canyon	4185	10 3/4"		Surf	105'	7"	17	Surf	717	5.5"	686	764	14"	717	756		764
Hinkes 14A-1123	4900543134	Anderson	4133	9 5/8"	26	Surf	60'	7"	17	Surf	166					158	190		200
Landeck 14A-223	4900545432	Anderson	4252	10 3/4"	29	Surf	61'	7"	17	Surf	172					173	208		210
Butcher 14A-2933	4900543149	Anderson	4240	9 5/8"	26	Surf	63'	7"	17	Surf	456					462	485		485
Scott 14A-3433	4900545580	Anderson	4047.6	10 3/4"	29	Surf	69.5'	7"	17	Surf	109					109	130		132
Hall 14A-3533	4900545576	Anderson	4182.6	10 3/4"	29	Surf	72'	7"	17	Surf	151					151	178		180

Exhibit E-5
Proposed Injection Facilities Construction Details Table

			A				B	C			D				H*	G			F
Well Name	API Number	Formation	Elevation	Surf Csg Size	Surf Csg Weight	Surf Csg Top	Surf Csg Bottom	Prod Csg Size	Prod Csg Weight	Prod Csg Top	Prod Csg Bottom	Liner Size	Liner Top	Liner Bottom	Underream Size	Underream Top	Underream Bottom	Perforation Zones	TD
Hinkes 14C-1123	4900532332	Canyon	4255					5 1/2"	17	Surf	405.8					407	458		460
Hall 14C-123	4900532665	Canyon	4156					7"	17	Surf	396.2				10 1/2"	397	453		456
Twenty Mile 14C-1423	4900535595	Canyon	4413					7"	17	Surf	490					488	553		555
Landeck 14C-223	4900534792	Canyon	4181					7	17	Surf	419					421	482		485
Hensley 14C-2233	4900534852	Canyon	4542					7"	17	Surf	200.8					203	228		232
Twenty Mile Fed 14C-2323	4900536561	Canyon	4328	10 3/4"	29	Surf	63'	7"	17	Surf	552					553	617		619
Hall 14C-2633	4900533798	Canyon	4039					7"	17	Surf	413					412	481		482
Scott Fed 14C-2733	4900536148	Canyon	4299					7"	17	Surf	282					285	310		312
Scott Fed 14C-2833	4900532988	Canyon	4066					7"	17	Surf	295				10 1/2"	297	325		328
Lynde 14C-3032	4900533407	Canyon	4116					7"	20	Surf	239.8				10 1/2"	241	296		299
Butcher 14C-3033	4900543127	Canyon	4289	9 5/8"	26	Surf	62'	7"	17	Surf	522					523	546		540
Butcher 14C-3133	4900549248	Canyon	4295	9 5/8"	26	Surf	78'	7"	17	Surf	756				14"	757	797		807
Landeck Fed 14C-323	4900531858	Canyon	4123					7"	23	Surf	451					452	514		514
Lindquist 14C-3333	4900533700	Canyon	4236					7"	17	Surf	368				10 1/2"	370	399		402
Scott 14C-3433	4900533833	Canyon	4039					7"	17	Surf	326					327	360		363
Landeck 14C-423	4900538625	Canyon	4218					7"	17	Surf	496					497	550		553
Twenty Mile 14C-523	4900538703	Canyon	4180					7"	17	Surf	471					473	503		504
Twenty Mile 14C-623	4900542514	Canyon	4088	9 5/8"	26	Surf	75'	7"	17	Surf	734					735	754		754
Hensley 14LC-2233	4900534851	Lower Canyon	4017					7"	17	Surf	337				12"	339	374		376
Scott Fed 14LC-2733	4900536147	Lower Canyon	4071					7"	17	Surf	444					442	476		478
Scott Fed 14LC-2833	4900532993	Lower Canyon	4320.6					7"	17	Surf	443				10 1/2"	466	494		496
Butcher 14LC-2933	4900534709	Lower Canyon	4131					7"	17	Surf	604					605	629		630
Butcher 14LC-3033	4900536574	Lower Canyon	4148					7"	17	Surf	644					646	665		667
Butcher 14LC-3133	4900539309	Lower Canyon	4271					7"	17	Surf	926					928	958		960
Lindquist 14LC-3233	4900534704	Lower Canyon	4204					7"	17	Surf	608					610	638		641
Scott 14LC-3433	4900533832	Lower Canyon	4065					7"	17	Surf	459				10 1/2"	461	489		492
State Bulkley 14LC-3634	4900543200	Lower Canyon	5357.88	10 3/4"	25.5	Surf	89'	7"	16	Surf	823					825	844		845
Twenty Mile 14LC-523	4900539579	Lower Canyon	4283					7"	17	Surf	583				14"	584	611		613
Twenty Mile 14LC-623	4900538700	Lower Canyon	4124					7"	17	Surf	911					913	925		922
Landeck 14WA-1023	4900545422	Wall	4170.6	10 3/4"	26	Surf	62'	7"	17	Surf	364	5.5"	279'	1022'		1022	1046		1051
Landeck 14WA-223	4900544069	Wall	4195.6	9 5/8"	26	Surf	197'	7"	17	Surf	446					774	799		800
Lindquist 14WA-3233	4900533716	Wall	4124					7"	17	Surf	447	5.5"	0	947	12"	941	962		965
Lindquist 14WA-3333	4900545475	Wall	4079.8	13 3/4"	29	Surf	283'	7"	17	Surf	826					827	851		853
Scott 14WA-3433	4900545579	Wall	4072.6	10 3/4"	29	Surf	225'	7"	17	Surf	735					737	754		757
Hall 14WA-3533	4900547669	Wall	4362.4	10 3/4"	29	Surf	212'	7"	17	Surf	781					782	806		806
Landeck 14WA-423	4900544043	Wall	4140	10 3/4"	29	Surf	253'	7"	17	Surf	819					820	850		855
Butcher 21LC-3233	4900533350	Lower Canyon	4123					7"	17	Surf	567.5					566.5	596		597
Hensley 21WA-3333	4900533421	Wall	4039					7"	17	Surf	465.5	5.5"	401'	773'		773	795		799
Landeck 21C-1023	4900531877	Canyon	4238					7"	17	Surf	397.8				10 1/2"	399	471		473
Hinkes 21C-1123	4900532664	Canyon	4244					7"	17	Surf	383				10 1/2"	385	453		456
Twenty Mile 21C-1523	4900535101	Canyon	4634					7"	17	Surf	502					500	569		570
Landeck Fed 21C-223	4900536142	Canyon	4058					7"	17	Surf	427					424	497		498
Twenty Mile 21C-2323	4900543661	Canyon	4271.7	9 5/8"	26	Surf	65'	7"	17	Surf	577					580	630		632
State 21C-2733	4900534790	Canyon	4056					7"	17	Surf	262					263	294		296
Lynde 21C-3032	4900533417	Canyon	4060					7"	17	Surf	173				10 1/2"	175	193		195
Butcher 21C-3133	4900542502	Canyon	4108	9 5/8"	26	Surf	62'	7"	17	Surf	524					525	545		548
Landeck 21C-323	4900538702	Canyon	4158					7"	17	Surf	462					459	529		530
Butcher 21C-3233	4900533718	Canyon	4401					7"	17	Surf	407					409	422		424
Hensley 21C-3333	4900533806	Canyon	4086					7"	17	Surf	275					277	306		308
Hall Fed 21C-3433	4900536139	Canyon	4103					7"	17	Surf	306					308	335		340
Landeck 21C-423	4900534725	Canyon	4127	10 3/4"	17	Surf	40.5'	7"	40.5	Surf	329				12"	331	362		366

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Proposed Injection Facilities Construction Details Table

			A				B	C			D				H*	G			F
Well Name	API Number	Formation	Elevation	Surf Csg Size	Surf Csg Weight	Surf Csg Top	Surf Csg Bottom	Prod Csg Size	Prod Csg Weight	Prod Csg Top	Prod Csg Bottom	Liner Size	Liner Top	Liner Bottom	Underream Size	Underream Top	Underream Bottom	Perforation Zones	TD
Bowen 21C-623	4900543150	Canyon	4238	9 5/8"	26	Surf	60'	7"	17	Surf	557	41.7'	542.8'	584.5'	14"	558	582		583
Harris Fed 21C-823	4900538820	Canyon	4143	10 3/4"	29	Surf	63'	7"	17	Surf	447					448	478		482
State 21LC-2733	4900534791	Lower Canyon	4180					7"	17	Surf	380					379	412		413
Butcher 21LC-3133	4900536748	Lower Canyon	4161					7"	17	Surf	653					651	684		685
Hall Fed 21LC-3433	4900536140	Lower Canyon	4198					7"	17	Surf	435				12 1/2"	437	467		472
State Bulkley 21LC-3634	4900543193	Lower Canyon	4202	10 3/4"	40.5	Surf	75'	7"	17	Surf	720					722	740		742
Landeck 21LC-423	4900534726	Lower Canyon	4245.1	10"	40.5	Surf	21'	7"	17	Surf	474					472	505.5		507
Butcher Fed 21LC-523	4900532955	Lower Canyon	4128					7"	17	Surf	538				10 1/2"	540	567		570
Bowen 21LC-623	4900536754	Lower Canyon	4497					7"		Surf	751					756	770		772
Taylor Fed 21LC-823	4900538821	Lower Canyon	4158	10 3/4"	29	Surf	63'	7"	17	Surf	552					553	579		581
Landeck 21WA-1023	4900531744	Wall	4154					5.5"	17	Surf	733					732	750		750
Landeck 21WA-323	4900544048	Wall	4160	9 5/8"	26	Surf	86'	7"	17	Surf	790					792	807		809
State Bulkley 21WA-3634	4900533260	Wall	4185	10 3/4"	25.5	Surf	109'	7"	16	Surf	1116				16"	1117	1136		1138
Landeck21WA-423	4900544042	Wall	4145.1	9 5/8"	26	Surf	169'	7"	17	Surf	759					760	791		791
Twenty Mile 21WA-923	4900538613	Wall	4292	10 3/4"		Surf	64'	7"	17	Surf	531	5.5"	487'	883'		884	904		911
ST 22A-1623	4900531881	Anderson	4105					5 1/2"	17	Surf	322					321	362		362
Hall 22C-123	4900532667	Canyon	4135					7"	17	Surf	289.8				10 1/2"	291	342		346
Hall 22C-2533	4900533797	Canyon	4153	10"	PVC	Surf	60'	7"	17	Surf	323				10 1/2"	325	385		387
Lynde 22C-3032	4900532500	Canyon	4150					7"	17	Surf	163					164	194		197
Hall Fed 22C-3533	4900532985	Canyon	4132					7"	17	Surf	373					376	449		457
State 22C-3633	4900533913	Canyon	4042					7"	17	Surf	350				10 1/2"	352	403		406
Butcher 23LC-2933	4900533346	Lower Canyon	4085					7"	17	Surf	544					546	564		567
Reile 23LC-3333	4900533356	Lower Canyon	4149	9 5/8"	26	Surf	60'	7"	17	Surf	463					464	484		484
Hinkes 23A-1123	4900544098	Anderson	4150	9 5/8"	26	Surf	60'	7"	17	Surf	243					245	281		287
ST 23A-1623	4900531702	Anderson	4302					5 1/2"	17	Surf	335.5					333.5	370.5		378
Butcher 23A-3033	4900542503	Anderson	4245	9 5/8"	26	Surf	54'	7"	17	Surf	519					522	539	179-199'	540
Landeck 23C-1023	4900532329	Canyon	4146					7"	20	Surf	512					506	579		583
ST 23C-1623	4900531800	Canyon	4228	9 5/8"	26	Surf	61	7"	17	Surf	599					601	670		673
Landeck 23C-223	4900535593	Canyon	4237					7"	17	Surf	431					429	493		494
Hensley 23C-2733	4900533827	Canyon	4102					7"	17	Surf	322					324	351		353
Butcher 23C-2933	4900533702	Canyon	4116					7"	17	Surf	370					372	386		388
Lynde 23C-3032	4900533416	Canyon	4094					7"	17	Surf	173				10 1/2"	175	229		232
Bowen 23C-3133	4900543128	Canyon	4231	9 5/8"	26	Surf	74'	7"	17	Surf	446					624	634		654
Landeck 23C-323	4900531023	Canyon	4137					7"	23	Surf	413					410	413	198.4-224.4	414
Butcher 23C-3233	4900534705	Canyon	4202					7"	17	Surf	497					496	529		530
Reile 23C-3333	4900542508	Canyon	4130	9 5/8"	26	Surf	60'	7"	17	Surf	289					291	336		338
Landeck 23C-3433	4900531155	Canyon	4287					7"	17	Surf	325				12"	327	357		361
Landeck 23C-423	4900531152	Canyon	4092					7"	17	Surf	432				12"	434	476		477
Butcher 23C-523	4900538701	Canyon	4150					7"	17	Surf	400					403	434		435
Hensley 23LC-2233	4900538691	Lower Canyon	4240					7"	17	Surf	299				14"	300	326		327
Hensley 23LC-2733	4900533826	Lower Canyon	4128					7"	17	Surf	462				10 1/2"	464	492		495
Hensley 23LC-2833	4900533342	Lower Canyon	4044					7"	20	Surf	462				10 1/2"	464	495		498
Butcher 23LC-3033	4900536750	Lower Canyon	4107					7"	17	Surf	623.8					624	645		648
Bowen 23LC-3133	4900538687	Lower Canyon	4163					7"	17	Surf	753					753	782		783
Butcher 23LC-3233	4900534706	Lower Canyon	4314					7"	17	Surf	629				12"	631	644		644
State Bulkley 23LC-3634	4900543195	Lower Canyon	4218.4	10 3/4"	25.5	Surf	86'	7"	16	Surf	772				16"	774	791		793
Twenty Mile 23LC-623	4900538827	Lower Canyon	4195	10 3/4"	29	Surf	85'	7"	17	Surf	780					781	806		808
Landeck 23WA-1023	4900544025	Wall	4159.8	9 5/8"	26	Surf	281'	7"	17	Surf	721	5.5"	0	828		828	851		858
Hinkes 23WA-1123	4900532532	Wall	4176					7"	17	Surf	726				10 1/2"	727	749		751
Landeck 23WA-323	4900532907	Wall	4124					7"	17	Surf	749					749	770		800
Landeck 23WA-3433	4900534848	Wall	4042	10 3/4"	23.5	Surf	20'	7"	17	Surf	458					455	487		489

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Proposed Injection Facilities Construction Details Table

			A				B	C			D				H*	G			F
Well Name	API Number	Formation	Elevation	Surf Csg Size	Surf Csg Weight	Surf Csg Top	Surf Csg Bottom	Prod Csg Size	Prod Csg Weight	Prod Csg Top	Prod Csg Bottom	Liner Size	Liner Top	Liner Bottom	Underream Size	Underream Top	Underream Bottom	Perforation Zones	TD
State Bulkley 23WA-3634	4900543194	Wall	4190.6	10 3/4"	25.5	Surf	105'	7"	16	Surf	1143					1154	1171		1173
Landeck 23WA-423	4900544041	Wall	4110.4	10 3/4"	26	Surf	210'	7"	17	Surf	369					805	830		832
Butcher 23WA-523	4900536756	Wall	4565					7	17	Surf	567	5.5"	476	880		880	904		908
Taylor Fed 23WA-823	4900538822	Wall	4318	10 3/4"	29	Surf	63'	7"	17	Surf	550	5.5"	467'	874'	14"	875	897		903
ST 24A-1623	4900531703	Anderson	4338					5 1/2"	17	Surf	348.5				10 1/2"	348	387		387
24B2-323	4900535501	Wall	4205	10"	40.5	Surf	80.8	7"	17	Surf	752.8					754	778		788
Lynde 24C2-3032	4900531882	Canyon	4118					5 1/2"		Surf	165					166	218		224
Hall 24C-2433	4900538689	Canyon	3993					7"	17	Surf	339				14"	341	396		397
Hall Fed 24C-2533	4900532960	Canyon	4077					7"	17	Surf	312.8				14"	314	367		367
Hall Fed 24C-2633	4900536145	Canyon	4094					7"	17	Surf	338					339	396		403
State 24C-3533	4900532983	Canyon	4113					7"	17	Surf	390				10 1/2"	392	462		464
State 24C-3633	4900533912	Canyon	4198	10"	40.5	Surf	118'	7"	17	Surf	349				10 1/2"	351	408		411
Twenty Mile 24C-923	4900532222	Canyon	4140	10"	PVC	Surf	115'	7"	17	Surf	626					622	690		691
Lynde 31C-2533	4900532499	Canyon	4076					5 1/2"	17	Surf	329				10 1/2"	331	393		395
Hall Fed 31C-3533	4900532962	Canyon	4145					7"	17	Surf	291					293	362		363
State 31C-3633	4900533911	Canyon	4154	10"	40.5	Surf	70'	7"	17	Surf	246				10 1/2"	249	302		305
Butcher 31C-523	4900533830	Canyon	4134					7"	17	Surf	347				10 1/2"	349	373		376
Scott 31LC-3233	4900533935	Lower Canyon	4173					7"	17	Surf	514				10 1/2"	516	537		540
Butcher 31LC-523	4900533411	Lower Canyon	4081					7"	20	Surf	519				10 1/2"	517.5	552.5		553
Lindquist 32LC-3233	4900533351	Lower Canyon	4101					7"	17	Surf	530					566.5	596		561
Scott 32LC-3333	4900533420	Lower Canyon	4067					7"	17	Surf	448					448	475		475
ST 32A-1623	4900531705	Anderson	4350					5 1/2"	17	Surf	383					383	425		427
Twenty Mile 32A-2223	4900544076	Anderson	4220.1	10 3/4"	26	Surf	60'	7"	17	Surf	273					274	303		308
Landeck 32A-323	4900545427	Anderson	4172.7	10 3/4"	29	Surf	77'	7"	17	Surf	153				14"	154	187		182
Landeck 32A-3433	4900545571	Anderson	4183.3	10 3/4"	29	Surf	61'	7"	17	Surf	145					148	160		163
Twenty Mile 32A-623	4900542507	Anderson	4069	9 5/8"	26	Surf	60'	7"	17	Surf	510				12 1/2"	512	537	255-272'	540
Twenty Mile 32C-1523	4900535100	Canyon	4227	10 3/4"	23.5	Surf	61'	7"	17	Surf	497					493	559		560
ST 32C-1623	4900533720	Canyon	4348	9 5/8"	26	Surf	60'	7"	17	Surf	652					653	713		713
Hall Fed 32C2-2633	4900535761	Canyon	4688.5					7"	17	Surf	244					245	305		307
Lynde 32C-2533	4900533937	Canyon	4042					7"	17	Surf	360				10 1/2"	362	422		424
Hensley Trust 32C-2733	4900531147	Canyon	4117					7"	17	Surf	275					277	303		304
32C-323	4900531040	Canyon	4047					7"	20	Surf	412					411	489		490
Lindquist 32C-3233	4900533717	Canyon	4143					7"	17	Surf	363					365	383		385
Scott 32C-3333	4900533837	Canyon	4638					7"	17	Surf	275				14"	276	302		298
Landeck 32C-3433	4900536577	Canyon	4163					7"	17	Surf	423					425	475		475
Taylor 32C-823	4900538610	Canyon	4165	9 5/8"	26	Surf	69	7"	17	Surf	539				10 1/2"	540	604		606
Twenty Mile 32C-923	4900538621	Canyon	4220					7"	17	Surf	548				12 1/2"	545	595		597
Scott 32LC-2933	4900533347	Lower Canyon	4135					7"	17	Surf	473					473	497		498
Butcher 32LC-3133	4900536576	Lower Canyon	4145					7"	17	Surf	725					727	756		757
State Bulkley 32LC-3634	4900543196	Lower Canyon	4219.8	10 3/4"	25.5	Surf	91'	7"	16	Surf	763				16"	765	782		784
Twenty Mile 32LC-623	4900536572	Lower Canyon	4231					7"	17	Surf	697				12"	694	734		735
Hinkes 32WA-1023	4900532487	Wall	4150					7"	17	Surf	419	5.5"	370'	780'		779	800		802
Hall 32WA-1123	4900544024	Wall	4183	10 3/4"	29	Surf	362'	7"	17	Surf	780					786	801		803
Twenty Mile 32WA-1423	4900538838	Wall	4094					7"	17	Surf	450	5.5"	418'	777'		774	793		812
Landeck 32WA-323	4900544050	Wall	4138	10 3/4"	29	Surf	212'	7"	17	Surf	764					766	785		787
Scott 32WA-3333	4900545478	Wall	4158.4	10 3/4"	29	Surf	189'	7"	17	Surf	782					782	803		805
Landeck 32WA-3433	4900545570	Wall	4154	10 3/4"	29	Surf	215'	7"	17	Surf	773					775	794		797
State Bulkley 32WA-3634	4900543197	Wall	4280.3	10 3/4"	25.5	Surf	109'	7"	16	Surf	1125					1122	1149		1150
ST 33A2-1623	4900547733	Anderson	4421.2					5 1/2"	17	Surf	414				10 1/2"	432	460		468
Lynde 33C-2533	4900532498	Canyon	4142					7"	17	Surf	333				10 1/2"	335	394		396
Hall Fed 33C-3533	4900532984	Canyon	4132					7"	17	Surf	335					338	402		404

Exhibit E-5
Proposed Injection Facilities Construction Details Table

			A				B	C			D				H*	G			F
Well Name	API Number	Formation	Elevation	Surf Csg Size	Surf Csg Weight	Surf Csg Top	Surf Csg Bottom	Prod Csg Size	Prod Csg Weight	Prod Csg Top	Prod Csg Bottom	Liner Size	Liner Top	Liner Bottom	Underream Size	Underream Top	Underream Bottom	Perforation Zones	TD
Hensley 34LC-2133	4900533340	Lower Canyon	4118					7"	17	Surf	341					340	370		371
Landeck 34A-323	4900545426	Anderson	4138.4	10 3/4"	29	Surf	62'	7"	16	Surf	119				14"	121	150		153
Hinkes 34C-1023	4900532331	Canyon	4159					5 1/2"	17	Surf	413.8				10 1/2"	415	478		480
ST 34C-1623	4900533721	Canyon	4305.1	9 5/8"	26	Surf	64.5'	7"	17	Surf	687				12 1/2"	687	750		752
Hensley 34C-2133	4900533802	Canyon	4025					7"	17	Surf	192				10 1/2"	194	207		210
Twenty Mile Fed 34C-2223	4900536562	Canyon	4268	10 3/4"	29	Surf	60'	7"	17	Surf	636					636	695		699
Hensley 34C2-2833	4900534849	Canyon	4098	10 3/4"	23.5	Surf	58'	7"	17	Surf	241				12"	240	272		273
Lynde 34C-2533	4900534846	Canyon	4098					7"	17	Surf	355					357	414		416
Hensley 34C-2733	4900538688	Canyon	4150					7"	17	Surf	381					383	405		407
Butcher 34C-3033	4900542518	Canyon	4173.5	9 5/8"	26	Surf	64'	7"	17	Surf	519					521	538		540
Lindquist 34C-3133	4900543151	Canyon	4214.7	9 5/8"	26	Surf	60'	7"	17	Surf	535				12 1/2"	540	562		563
Landeck 34C-323	4900530937	Canyon	4103					7"	17	Surf	390					390	486		499
Butcher 34C-3233	4900542509	Canyon	4306	9 5/8"	26	Surf	88'	7"	17	Surf	362					363	394		394
Reile 34C-3333	4900542516	Canyon	4161	9 5/8"	26	Surf	60'	7"	17	Surf	307					307	326		326
Twenty Mile 34C-623	4900542510	Canyon	4232	9 5/8"	26	Surf	61'	7"	17	Surf	613					614	632		635
Taylor 34C-823	4900538611	Canyon	4164	9 7/8"	26	Surf	68'	7"	17	Surf	526				10 1/2"	526	600		602
Taylor 34C-923	4900538614	Canyon	4180	9 5/8"	26	Surf	64'	7"	17	Surf	644					640	714		718
Hensley 34LC-2833	4900533344	Lower Canyon	4043	10"	PVC	Surf	40'	7"	20	Surf	416.5					418	445		447
Scott 34LC-2933	4900534703	Lower Canyon	4175					7"	17	Surf	517				14"	518	540		542
Butcher 34LC-3033	4900536749	Lower Canyon	4108					7"	17	Surf	630					628	650		653
Lindquist 34LC-3133	4900533701	Lower Canyon	4122					7"	17	Surf	712					711	730		740
Reile 34LC-3333	4900533419	Lower Canyon	4088	9 5/8"	26	Surf	60'	7"	17	Surf	446					447	468		468
State Bulkley 34LC-3634	4900542952	Lower Canyon	4404.3	10 3/4"	25.5	Surf	96'	7"	16	Surf	842				16"	843	860		863
Twenty Mile 34LC-623	4900538699	Lower Canyon	4417					7"	17	Surf	765				12 1/2"	765	795		797
Hinkes 34WA-1023	4900544028	Wall	4182.3	9 5/8"	26	Surf	175'	7"	17	Surf	802					802	823		823
Twenty Mile 34WA-1123	4900544035	Wall	4122.4	9 5/8"	26	Surf	365'	7"	17	Surf	771					770	788		792
Landeck 34WA-323	4900533714	Wall	4175	9 5/8"	26	Surf	161'	7"	17	Surf	710					711	729		730
Butcher 34WA-3233	4900534710	Wall	4192					7"	17	Surf	517	5.5"	463	833	14"	834	858		860
State Bulkley 34WA-3634	4900543198	Wall	4233.8	10 3/4"	25.5	Surf	134'	7"	16	Surf	1226				16"	1226	1247	1227-1247'	1249
State Bulkley 43WA-3634	4900542950	Wall	4342	10 3/4"	25.5	Surf	130'	7"	16	Surf	1243				16"	1245	1264		1266
Landeck 34WA-423	4900538624	Wall	4144					7"	17	Surf	466	5.5"	394'	809'	8"	809	833		839
Hinkes 41A-1023	4900544083	Anderson	4150.2	10 3/4"	29	Surf	64'	7"	17	Surf	120					121	150		152
Twenty Mile 41A-1523	4900544075	Anderson	4274.4	9 5/8"	26	Surf	61'	7"	17	Surf	174					176	206		206
ST 41A-1623	4900549476	Anderson	4363	8"		Surf	60'	5 1/2"	17	Surf	358					360	395		407
Twenty Mile 41A-2223	4900544077	Anderson	4147.9	10 3/4"	26	Surf	60'	7"	17	Surf	202					205	245		247
Scott 41A-3233	4900533829	Anderson	4116					7"	17	Surf	333.3					336	365		367
Hinkes 41C-1023	4900532326	Canyon	4131					5 1/2"	17	Surf	418					416	488		489
Twenty Mile 41C-1523	4900532187	Canyon	4273	10	PVC	Surf	58'	7"	23	Surf	436.5					433	493		496
Twenty Mile 41C-2223	4900535096	Canyon	4205					7"	17	Surf	476				14"	478	532		535
Lynde 41C-2533	4900534850	Canyon	4016					7"	17	Surf	228				10 1/2"	230	279		284
Butcher State 41C-2833	4900533915	Canyon	4128					7"	17	Surf	223					221	251		252
41C-323	4900533107	Canyon	4166					7"	17	Surf	428					425	498		499
Scott 41C-3333	4900533804	Canyon	4079					7"	17	Surf	246					251	276		278
Hall 41C-3433	4900536569	Canyon	4113					7"	17	Surf	403					405	476		478
Twenty Mile 41C-723	4900538630	Canyon	4252					7"	17	Surf	563					565	595		597
Butcher 41LC-2833	4900533470	Lower Canyon	4320.1					7"	17	Surf	360					360	388		393
Butcher 41LC-3133	4900535603	Lower Canyon	4181					7"	17	Surf	630					626	650		653
State Bulkley 41LC-3634	4900543191	Lower Canyon	4215	10 3/4"	25.5	Surf	92'	7"	16	Surf	750					751	770		787
Lindquist 41LC-623	4900538697	Lower Canyon	4312					7"	17	Surf	604				12"				635
Twenty Mile 41LC-723	4900538622	Lower Canyon	4138	9 5/8"	26	Surf	64.5'	7"	17	Surf	660					660	680		680
Scott 41WA-3233	4900533352	Wall	4102					7"	17	Surf	497	5.5"	0'	836'	12"	837	858		870

Exhibit E-5
Proposed Injection Facilities Construction Details Table

			A				B	C		D					H*	G			F
Well Name	API Number	Formation	Elevation	Surf Csg Size	Surf Csg Weight	Surf Csg Top	Surf Csg Bottom	Prod Csg Size	Prod Csg Weight	Prod Csg Top	Prod Csg Bottom	Liner Size	Liner Top	Liner Bottom	Underream Size	Underream Top	Underream Bottom	Perforation Zones	TD
Scott 41WA-3333	4900533803	Wall	4026					7"	17	Surf	394	5.5"	SURF	718		718	739		744
State Bulkley 41WA-3634	4900543192	Wall	4152.5	10 3/4"	25.5	Surf	127	7"	16	Surf	1130				16"	1138	1150		1152
Butcher 42WA-523	4900533409	Wall	4116					7"	17	Surf	496	5.5"	408'	779'	10 1/2"	782	801		806
ST 42A-1623	4900531706	Anderson	4234					5 1/2"	17	Surf	425					425	467		467
Landeck State 42B-423	4900533281	Wall	4450.1					7"	17	Surf	814				14"	815	837		840
Lynde 42C-2533	4900532086	Canyon	4077					5 1/2"	17	Surf	296				10 1/2"	295	361		362
Hall Fed 42C-2633	4900536146	Canyon	4073					7"	17	Surf	319					321	381		383
Hall 42C-3533	4900534794	Canyon	4088					7"	17	Surf	281				10 1/2"	279	346		347
State 42C-3633	4900533909	Canyon	4126					7"	17	Surf	251				10 1/2"	254	300		303
Butcher 42C-523	4900533705	Canyon	4111					7"	17	Surf	378				10 1/2"	380	409		412
Scott 43LC-2833	4900533345	Lower Canyon	4124	10 3/4"	23.5	Surf	47'	7"	17	Surf	439					438	459		461
Scott 43LC-2933	4900533349	Lower Canyon	4145	10 3/4"	23.5	Surf	35'	7"	17	Surf	510					511	539		539
Lindquist 43LC-3233	4900533353	Lower Canyon	4085					7"	17	Surf	508					506	537		538
Hinkes 43A-1023	4900544082	Anderson	4141.5	9 5/8"	26	Surf	35'	7"	17	Surf	142.5				12.5"	144	206		209
Twenty Mile 43A-1523	4900544074	Anderson	4167	9 5/8"	26	Surf	62'	7"	17	Surf	193					194	223		223
Scott 43A-2933	4900533831	Anderson	4068	9 5/8"	26	Surf	85'	7"	17	Surf	369					371	384		386
Landeck 43A-323	4900545424	Anderson	4112.4	10 3/4"	29	Surf	62'	7"	17	Surf	149					149	179		179
Twenty Mile 43A-623	4900543129	Anderson	4159	9 5/8"	26	Surf	60'	7"	26	Surf	495					496	513		518
Hinkes 43C-1023	4900532330	Canyon	4160					5 1/2"	17	Surf	384.8					386	444		445
Twenty Mile 43C-1523	4900535098	Canyon	4199	10 3/4"	23.5	Surf	72'	7'	17	Surf	470					478	530		532
ST 43C-1623	4900533719	Canyon	4336	9 5/8"	26	Surf	64.5'	7"	17	Surf	750					746	802		804
Twenty Mile Fed 43C-2223	4900536565	Canyon	4125	10 3/4"		Surf	64'	9 7/8"		Surf	527					522	580		582
Hall 43C-223	4900531052	Canyon	4166					7"	17	Surf	333.8					335	386		390
Triton 43C-2323	4900535597	Canyon	4406	10 3/4"	23.5	Surf	97'	7"	23.5	Surf	597					596	656		657
Lynde 43C-2533	4900535602	Canyon	4187					7"	17	Surf	335				12"	337	397		400
Scott 43C-2833	4900534142	Canyon	4243.2	10 3/4"	23.5	Surf	40'	7"	17	Surf	236				12"	239	269		271
Butcher 43C-3033	4900544269	Canyon	4349.6	9 5/8"	26	Surf	60'	7"	17	Surf	452				12 1/2"	453	468		471
Bowen 43C-3133	4900545455	Canyon	4085.9	9 5/8"	26	Surf	60'	7"	17	Surf	561					562	577		578
Landeck 43C-323	4900531025	Canyon	4137					7"	20	Surf	428					427	496		497
Lindquist 43C-3233	4900533828	Canyon	4099					7"	17	Surf	341				10 1/2"	343	381		384
Scott 43C-3333	4900533836	Canyon	4068					7"	17	Surf	264					266	297		299
Landeck 43C-3433	4900537808	Canyon	4417					7"	17	Surf	422					424	493		503
Butcher 43LC-3033	4900536575	Lower Canyon	4258					7"	17	Surf	586.5					587	611		613
Bowen 43LC-3133	4900538686	Lower Canyon	4086					7"	17	Surf	696					696	725		730
State Bulkley 43LC-3634	4900542951	Lower Canyon	4280.1	10 3/4"	25.5	Surf	93	7"	16	Surf	879				16"	890	912		914
Hall 43WA-223	4900544066	Wall	4175	9 5/8"	26	Surf	212'	7"	17	Surf	704					704	722		724
Landeck 43WA2-323	4900544049	Wall	4170	9 5/8"	26	Surf	84'	7"	17	Surf	764					765	784		785
Scott 43WA-3333	4900533418	Wall	4070					7"	17	Surf	432	5.5"	391	715		714	732		736
Landeck 43WA-423	4900536571	Wall	4243					7"	17	Surf	484	5.5"	415'	788'	14"	788	808		813
Twenty Mile 43WA-623	4900536573	Wall	4123					7"	17	Surf	678	5.5"	574'	981'	14"	981	1001		1005
Taylor 43WA-823	4900538612	Wall	4175	10 3/4"	26	Surf	69'	7"	17	Surf	526	5.5"	507'	857'	10 1/2"	858	878		881
Lynde 44C-2533	4900532091	Canyon	4170					5 1/2"	17	Surf	282					284	338		340
Hall 44C-2633	4900531043	Canyon	4047					7"	17	Surf	257				12 1/2"	258	315		317
Hall 44C-3533	4900534795	Canyon	4331					7"	17	Surf	315				10 1/2"	318	386		389
Landeck 44WA-3433	4900533109	Wall	4178					7"	17	Surf	444	5.5"	367'	773'		774	792		795

* This "H" corresponds to the Under-ream size on figure 3 in the Permit Attacments, not to be confused with the "H" used for the coal thickness in the AOR calculations.

Exhibit G-1
Underground Water Classification

WDEQ/WDQ Chapter 8 Standards				Patriot Energy Resources LLC samples collected for trace metals analysis												
CLASS	I - Domestic	II - Agriculture	III - Livestock	Site Name	14C-3033	14C-3433	14C-423	14C-523	43C-3433	14LC-2933	14LC-523	14LC-3433	14LC-3033	23LC-3233		
				Sample Date	8/24/2010	9/9/2010	8/27/2010	9/7/2010	5/19/2010	8/23/2010	8/23/2010	5/19/2010	5/19/2010	5/19/2010		
Parameter	Concentration	Concentration	Concentration	Sample Date	5/12/2011	5/11/2011	5/11/2011	5/12/2011	5/11/2011	5/12/2011	5/12/2011	5/11/2011	5/12/2011	5/11/2011	Units	Comments
				Canyon and Lower Canyon Wells												
Aluminum	---	5	5													
Ammonia	0.57	---	---		0.56	0.79	0.86	0.71	1.10	0.70	0.77	1.00	0.61	0.66	mg/L	Generally Exceeds Class I
Arsenic	0.05	0.1	0.2													
Barium	2	---	---		0.6	1.4	0.7	0.6	NT	0.7	0.6	NT	NT	NT	mg/L	
Beryllium	---	0.1	---													
Boron	0.75	0.75	5													
Cadmium	0.005	0.01	0.05													
Chloride	250	100	2000		14	10	10	15	12	11	17	9	12	13	mg/L	
Chromium	0.1	0.1	0.05													
Cobalt	---	0.05	1													
Copper	1	0.2	0.5													
Cyanide	0.2	---	---													
Fluoride	4	---	---													
Hydrogen Sulfide	0.05	---	---													
Iron	0.3	5	---		0.2	0.5	0.4	0.3	0.6	0.3	0.2	0.6	0.3	0.2	mg/L	Generally Exceeds Class I
Lead	0.015	5	0.1													
Lithium	---	2.5	---													
Manganese	0.05	0.2	---		0.03	0.03	0.04	0	NT	0.03	0.03	NT	NT	NT	mg/L	
Mercury	0.002	0	0.00005													
Nickel	---	0.2	---													
Nitrate	10	---	---		0	0	0	0	0	0	0	0	0	0	mg/L	
Nitrite	1	---	10													
(NO3+NO2)-N	---	---	100													
Oil and Grease	Virtually Free	10	10													
Phenol	0.001	---	---													
Selenium	0.05	0.02	0.05													
Silver	0.1	---	---													
Sulfate	250	200	3000		0	0.673	0	0	0.436	0	0	0.162	0	0.149	mg/L	
Total Dissolved Solids (TDS)	500	2000	5000		885	975	698	710	990	850	732	1040	773	720	mg/L	Exceeds Class I
Vanadium	0	0.1	0.1													
Zinc	5	2	25													
pH	6.5-8.5	4.5-9.0s.u.	6.5-8.5s.u		7.5	7.2	7.2	7.3	7.8	7.6	7.5	7.9	8.2	8.2		
SAR	---	8	---		12	11	8	12	8	11	9	8	11	10		Exceeds Class II
RSC	---	1.25 meq/L	---													
Combined Total Radium 226 and Radium 228	5pCi/L	5pCi/L	5pCi/L													
Total Strontium 90	8pCi/L	8pCi/L	8pCi/L													
Gross alpha particle radioactivity (including Radium 226 but Excluding Radon and Uranium	15pCi/L	15pCi/L	15pCi/L													
Total Coliform Bacteria	---	---	---		Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	None	
E. coli Coliform Bacteria	---	---	---		Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	None	
Iron Related Bacteria	---	---	---		25	9000	9000	2300	9000	2300	35000	9000	9000	Absent	CFU/mL	
Sulfate Reducing Bacteria	---	---	---												CFU/mL	

Exhibit G-1
Underground Water Classification

WDEQ/WDQ Chapter 8 Standards				Patriot Energy Resources LLC sample collected for trace metals analysis								
CLASS	I - Domestic	II - Agriculture	III - Livestock	Site Name	14A-2933	14A-3433	43A-623	43WA-623	23WA-3433	41WA-3233		
				Sample Date	8/23/2010	9/9/2010	8/24/2010	8/23/2010	9/9/2010	8/23/2010		
Parameter	Concentration	Concentration	Concentration	Sample Date	5/12/2011	5/11/2011	5/13/2011	5/12/2011	5/11/2011	5/13/2011	Units	Comments
				Anderson and Wall Wells								
Aluminum	---	5	5									
Ammonia	0.57	---	---		0.38	0.59	0.33	0.42	0.58	0.49	mg/L	
Arsenic	0.05	0.1	0.2									
Barium	2	---	---		0.4	0.1	0.3	0.3	0.6	0.4	mg/L	
Beryllium	---	0.1	---									
Boron	0.75	0.75	5									
Cadmium	0.005	0.01	0.05									
Chloride	250	100	2000		10	13	9	15	10	11	mg/L	
Chromium	0.1	0.1	0.05									
Cobalt	---	0.05	1									
Copper	1	0.2	0.5									
Cyanide	0.2	---	---									
Fluoride	4	---	---									
Hydrogen Sulfide	0.05	---	---									
Iron	0.3	5	---		0.2	0.5	0.2	0.5	0.3	0.3	mg/L	Generally exceeds class I
Lead	0.015	5	0.1									
Lithium	---	2.5	---									
Manganese	0.05	0.2	---		0.03	0.08	0.02	0.04	0.03	0.04	mg/L	
Mercury	0.002	0	0.00005									
Nickel	---	0.2	---									
Nitrate	10	---	---		0	0	0	0	0	0	mg/L	
Nitrite	1	---	10									
(NO3+NO2)-N	---	---	100									
Oil and Grease	Virtually Free	10	10									
Phenol	0.001	---	---									
Selenium	0.05	0.02	0.05									
Silver	0.1	---	---									
Sulfate	250	200	3000		22	580	1	0	0	0	mg/L	
Total Dissolved Solids (TDS)	500	2000	5000		708	1770	690	377	552	448	mg/L	Generally Exceeds Class I
Vanadium	0	0.1	0.1									
Zinc	5	2	25									
pH	6.5-8.5	4.5-9.0s.u.	6.5-8.5s.u		8.0	7.3	8.4	7.8	7.5	7.7		
SAR	---	8	---		12	14	12	9	11	9		Exceeds class II
RSC	---	1.25 meq/L	---									
Combined Total Radium 226 and Radium 228	5pCi/L	5pCi/L	5pCi/L									
Total Strontium 90	8pCi/L	8pCi/L	8pCi/L									
Gross alpha particle radioactivity (including Radium 226 but Excluding Radon and Uranium	15pCi/L	15pCi/L	15pCi/L									
Total Coliform Bacteria	---	---	---		Absent	Absent	Absent	Absent	Absent	Present		
E. coli Coliform Bacteria	---	---	---		Absent	Absent	Absent	Absent	Absent	Absent		
Iron Related Bacteria	---	---	---		Absent	9000	9000	9000	9000	9000	CFU/mL	
Sulfate Reducing Bacteria	---	---	---								CFU/mL	

Analyzed by Energy Laboratories Inc. - Gillette and Billings Laboratories

Exhibit G-2

Water Quality Analyses of Wellhead Samples

Well Number	Coal Seam	Sample Date	Bromide mg/L	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Nitrate mg/L	Phosphorus mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Sodium Adsorption Ratio	Specific Conductance µS/cm	Field Temperature °C	Field pH
12A-223	Anderson	10/21/2010	0	42	5	17	0	0.054	7	304	0.11	10	1834	20	6.98
12A-3333	Anderson	8/24/2010	0	30	8	12	0	0.021	7	284	0	11	1319	19	7.45
14A-2933	Anderson	8/23/2010	0	20	10	7	0	0.023	5	250	20	12	1058	16	7.99
14A-3433	Anderson	9/9/2010	0	108	13	45	0	0.024	10	663	839	14	3011	13	7.33
14A-3533	Anderson	10/21/2010	0	45	7	19	0	0.033	7	321	0.46	10	1615	15	7.32
23A-3033	Anderson	8/23/2010	0.13	28	14	10	0	0.034	6	289	0	12	1346	16	8.29
32A-3033	Anderson	8/23/2010	0	28	9	10	0	0.028	6	289	0	12	1383	15	8.24
32A-623	Anderson	8/24/2010	0	18	10	6	0	0.033	5	222	0	11	894	18	7.93
41A-3233	Anderson	8/23/2010	0	23	10	9	0	0.034	6	252	0	11	1166	15	7.50
43A-2933	Anderson	8/23/2010	0	34	11	14	0	0.024	9	301	200	11	1590	15	7.60
43A-623	Anderson	8/24/2010	0	19	9	7	0	0.028	5	232	0.18	12	983	18	8.39
12C-523	Canyon	8/27/2010	0.11	35	16	15	0	0.034	9	297	0	11	1421	20	7.44
14C-223	Canyon	9/7/2010	0	52	8	26	0	0.011	12	338	0	10	1618	21	6.85
14C-2233	Canyon	10/21/2010	0	39	13	21	0	0.042	8	296	66	10	1568	14	7.15
14C-3033	Canyon	8/24/2010	0.10	30	14	11	0	0.042	10	315	0	12	1327	20	7.46
14C-3433	Canyon	9/9/2010	0	46	10	24	0	0.039	10	373	2.24	11	1555	20	7.22
14C-423	Canyon	8/27/2010	0	35	10	16	0	0.034	9	236	0	8	1198	21	7.15
14C-523	Canyon	9/7/2010	0.11	26	15	12	0	0.036	8	290	0.22	12	1167	21	7.27
21C-3133	Canyon	8/23/2010	0.15	30	17	12	0	0.034	7	314	0.29	12	1438	20	8.05
21C-323	Canyon	9/7/2010	0	51	9	27	0	0.018	11	362	0	10	1650	20	6.88
23C-2733	Canyon	10/20/2010	0	42	10	23	0	0.031	9	308	0	9	1576	17	7.25
23C-2933	Canyon	8/25/2010	0	30	8	14	0	0.026	8	322	0	12	1316	20	7.62
23C-3233	Canyon	8/25/2010	0	27	9	12	0	0.046	7	291	0	12	1212	20	7.53
23C-3333	Canyon	8/24/2010	0	43	11	25	0	0.021	11	290	0	9	1424	21	7.05
32C-3233	Canyon	8/23/2010	0.15	25	18	13	0	0.046	8	258	0	10	1254	19	7.06
34C2-2833	Canyon	10/20/2010	0	45	12	26	0	0.030	11	303	0.23	9	1616	20	7.20
34C-3033	Canyon	8/23/2010	0.20	32	22	12	0	0.037	7	305	0	12	1436	21	8.37
34C-623	Canyon	8/24/2010	0	17	8	7	0	0.042	6	225	0	12	961	23	7.56
41C-723	Canyon	8/24/2010	0.12	25	17	10	0	0.036	8	219	0	9	1057	15	7.31
43C-323	Canyon	9/9/2010	0	50	10	27	0	0.008	11	341	0	10	1562	20	7.06
43C-3433	Canyon	9/7/2010	0	53	11	29	0	0.023	12	380	0.11	10	1746	19	6.85
12LC2-623	Lower Canyon	8/24/2010	0.11	29	15	11	0	0.021	8	278	0	11	1300	26	7.50
12LC-2833	Lower Canyon	10/21/2010	0	40	13	20	0	0.024	10	307	0	10	1681	20	7.31
12LC-3433	Lower Canyon	9/8/2010	0	52	10	31	0	0.029	13	399	0	11	1858	20	7.08
12LC-523	Lower Canyon	8/24/2010	0	30	11	13	0	0.033	9	238	0	9	1235	24	7.12
14LC-2233	Lower Canyon	10/21/2010	0	48	12	27	0	0.039	11	313	0	9	1637	17	7.17
14LC-2933	Lower Canyon	8/23/2010	0.10	32	11	14	0	0.034	10	286	0	11	1278	21	7.56
14LC-3033	Lower Canyon	8/23/2010	0.16	29	19	10	0	0.029	8	271	0	11	1276	22	8.19
14LC-3333	Lower Canyon	8/27/2010	0.11	41	15	22	0	0.023	11	293	0	9	1463	22	7.28
14LC-3433	Lower Canyon	9/9/2010	0	54	9	30	0	0.023	12	381	0	10	1592	20	7.18
14LC-523	Lower Canyon	8/23/2010	0.14	31	17	13	0	0.024	9	244	0	9	1112	23	7.48
21LC-3133	Lower Canyon	8/23/2010	0.21	28	15	9	0	0.031	8	251	0	10	1233	23	7.93
21LC-423	Lower Canyon	10/21/2010	0	47	12	26	0	0.033	11	267	0	8	1721	20	6.95
23LC-2733	Lower Canyon	10/20/2010	0	58	11	35	0	0.018	13	360	0	9	1916	19	7.00
23LC-2933	Lower Canyon	8/23/2010	0.14	35	16	18	0	0.028	10	284	0	10	1462	21	7.29
23LC-3233	Lower Canyon	8/23/2010	0.14	27	19	12	0	0.031	9	254	0.42	10	1215	22	7.04
23LC-3333	Lower Canyon	8/24/2010	0	45	11	25	0	0.026	12	281	0	8	1534	21	7.04
23LC-3634	Lower Canyon	9/13/2010	0	29	12	10	0	0.043	8	372	0	15	1380	24	7.26
31LC-3233	Lower Canyon	8/23/2010	0.14	29	17	15	0	0.042	9	258	0	10	1308	22	7.23

Exhibit G-2

Water Quality Analyses of Wellhead Samples

Well Number	Coal Seam	Sample Date	Bromide mg/L	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Nitrate mg/L	Phosphorus mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Sodium Adsorption Ratio	Specific Conductance µS/cm	Field Temperature °C	Field pH
31LC-523	Lower Canyon	8/25/2010	0	40	7	20	0	0.021	11	284	0	9	1302	22	7.39
32LC-3634	Lower Canyon	9/13/2010	0	25	12	9	0	0.033	7	324	0.28	14	1252	24	7.38
32LC-623	Lower Canyon	8/24/2010	0.12	31	16	12	0	0.028	9	265	0	10	1150	25	7.39
34LC-2133	Lower Canyon	10/21/2010	0	35	12	20	0	0.033	9	317	0	11	1588	16	7.26
34LC-3033	Lower Canyon	8/24/2010	0	27	11	10	0	0.067	8	255	0	11	1246	21	7.58
41LC-723	Lower Canyon	8/24/2010	0	29	13	10	0	0.028	8	224	0	9	1132	25	7.28
43LC-2933	Lower Canyon	8/23/2010	0	40	12	21	0	0.034	11	288	0	9	1507	20	7.15
12WA-2833	Wall	10/20/2010	0	11	12	5	0	0.043	6	158	0	10	700	24	7.42
12WA-3233	Wall	8/23/2010	0	13	14	4	0	0.049	6	135	0.48	9	651	26	7.48
12WA-3333	Wall	8/24/2010	0	13	11	5	0	0.059	6	139	0	8	715	27	7.45
14WA-3333	Wall	8/24/2010	0	11	12	4	0	0.078	6	138	0	9	681	27	7.36
21WA-323	Wall	9/7/2010	0	24	8	11	0	0.042	9	255	0	11	1140	25	7.07
23WA-3433	Wall	9/9/2010	0	17	10	8	0	0.035	8	213	0	11	858	24	7.46
32WA-3634	Wall	9/13/2010	0	17	11	7	0	0.045	10	261	0.14	13	1007	29	7.12
34WA-423	Wall	8/25/2010	0	7	13	3	0	0.034	5	134	0	11	548	27	7.50
41WA-3233	Wall	8/23/2010	0	14	11	5	0	0.042	6	159	0.22	9	708	25	7.74
41WA-3634	Wall	9/13/2010	0	16	11	6	0	0.055	8	204	0	11	850	28	7.32
42WA-523	Wall	8/24/2010	0	12	12	5	0	0.037	6	230	0.15	14	705	27	6.94
43WA2-323	Wall	9/7/2010	0	21	10	10	0	0.044	8	237	0	11	1002	25	7.29
43WA-623	Wall	8/23/2010	0	11	15	3	0	0.054	5	133	0.16	9	583	26	7.75

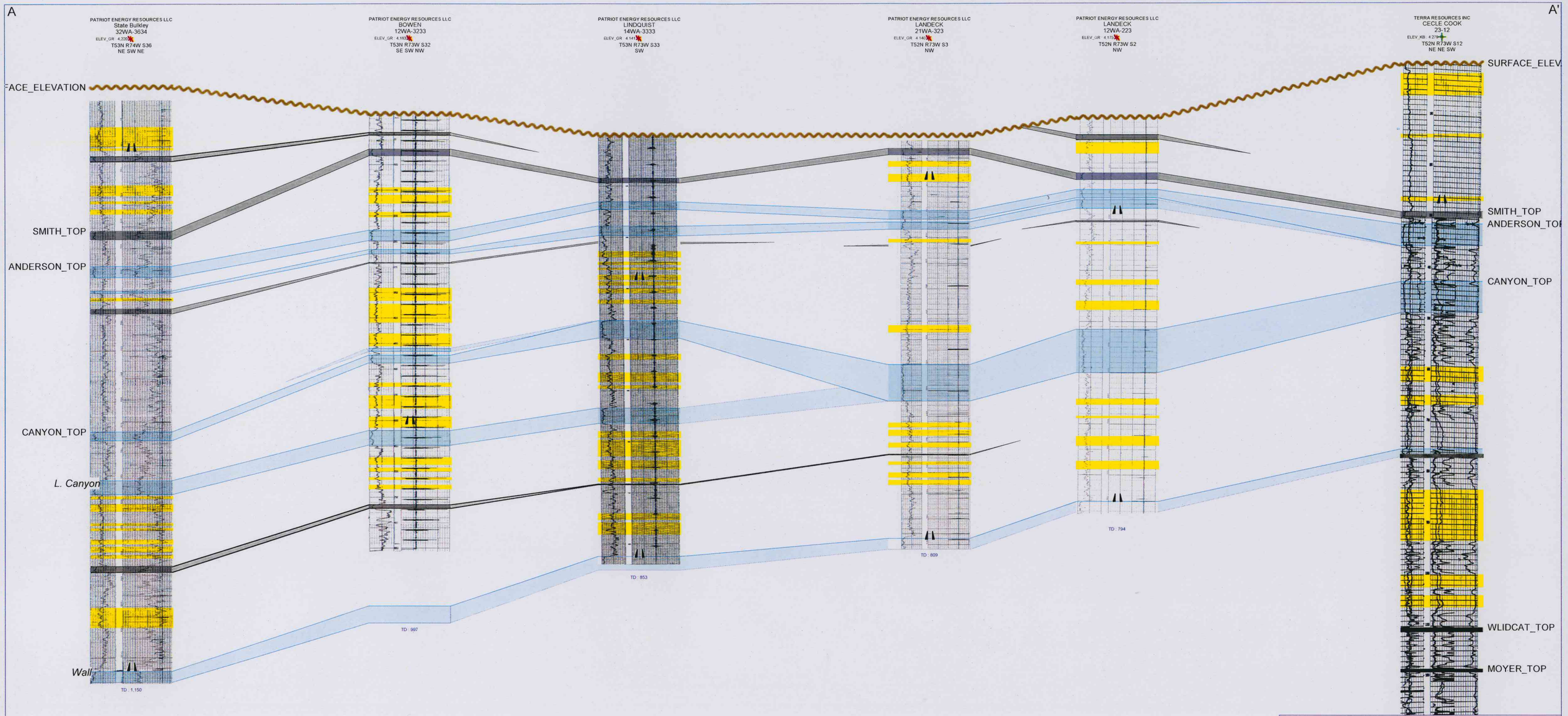

Exhibit G-3

Rough Draw UIC Application

Structural Cross-Section A- A'

Horizontal Scale = 1000.0
Vertical Scale = 50.0
Vertical Exaggeration = 20.0x

Shading Explanation:

Receiver coals are shaded blue
Other coals are shaded gray
Sands are shaded yellow
Claystones are the remaining lithology and are unshaded

By: Jason Burris

PETRA 5/15/2011 12:50:36 PM (RDUIC_2ndTry.CSP)

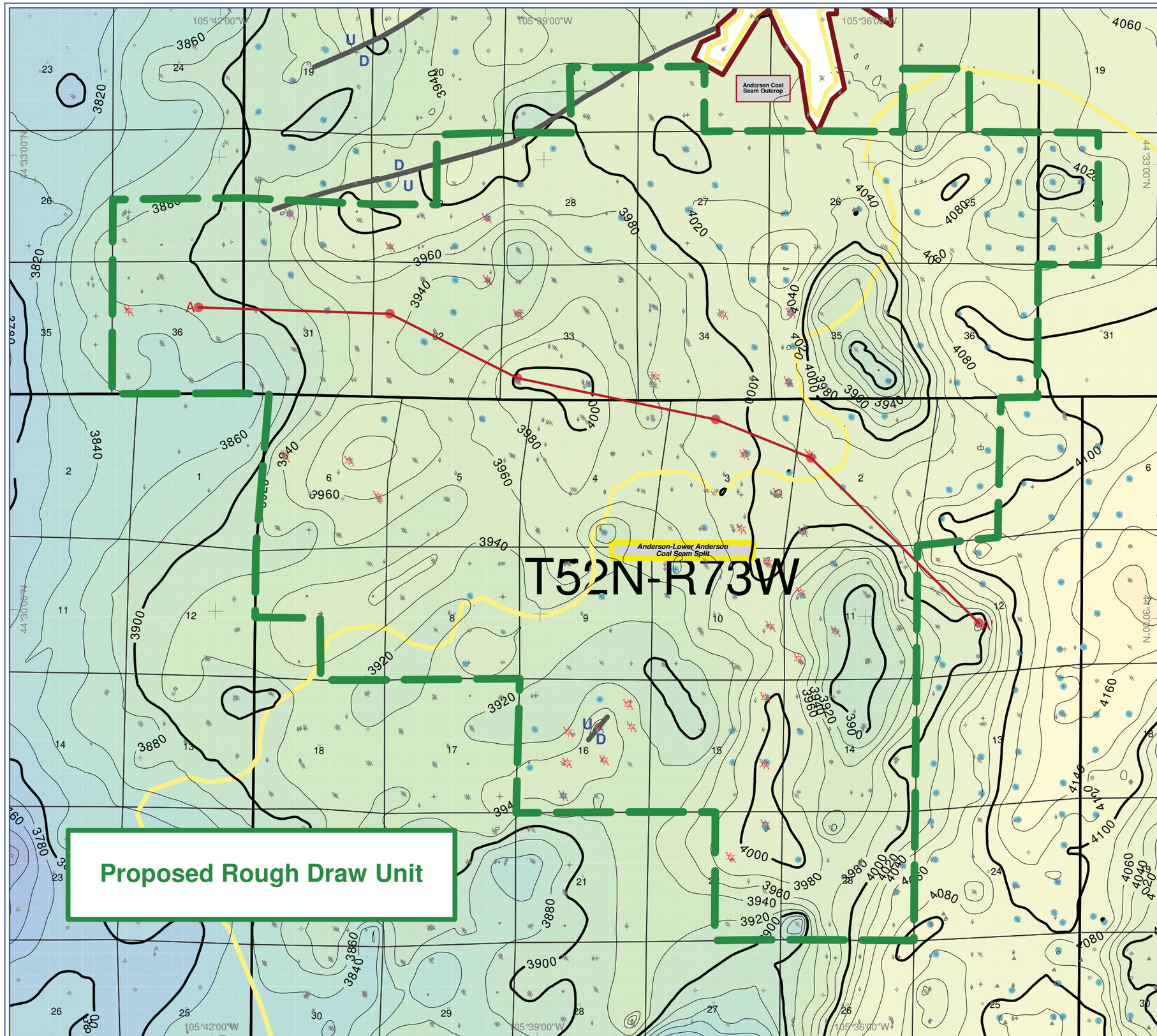

Exhibit G-4

Rough Draw UIC Application

Top of Anderson Structure Map

SYMBOL HIGHLIGHT

- WELLS WITHOUT LOGS
- CROSS SECTION WELLS

WELL SYMBOLS

- Abandoned GAS Well
- Abandoned Oil Well
- Dry Hole
- Gas Well
- Location
- Monitor-Monitor Well
- Oil Well
- Plugged and Abandoned
- Plugged & Abandoned Gas Well
- Permit Canceled Normal Line
- Shut In Gas Well
- Service Well
- Suspended Oil Well
- Water Well

REMARKS

CBM wells completed in mapped coal shown in red, all other zones and well types grayed out

0 — 5,000 FEET

May 22, 2011

PETRA 5/22/2011 2:10:19 PM

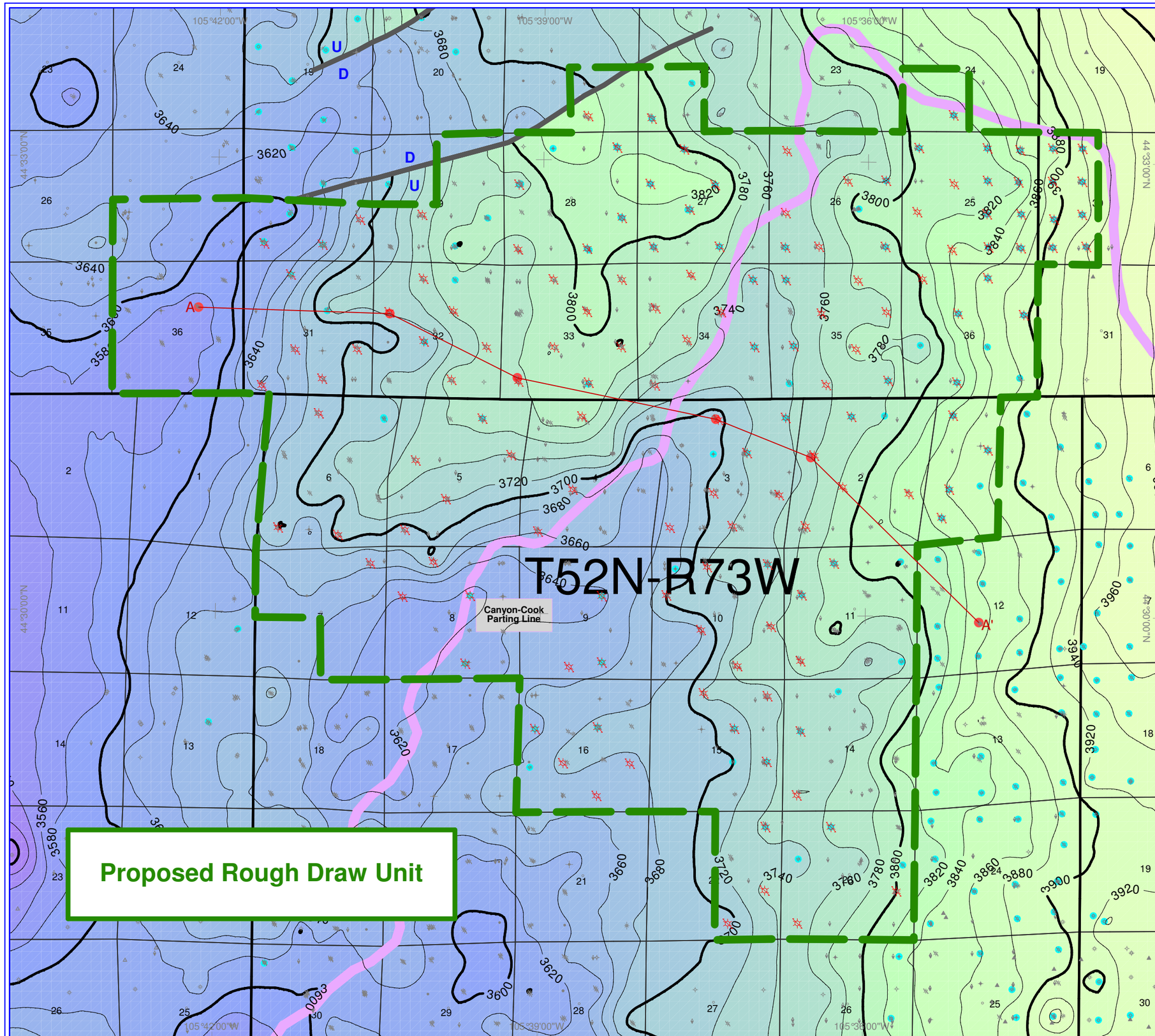

Exhibit G-5

Rough Draw UIC Application

Top of Canyon Structure Map

SYMBOL HIGHLIGHT

- WELLS WITHOUT LOGS
- CROSS SECTION WELLS

WELL SYMBOLS

- Abandoned GAS Well
- Abandoned Oil Well
- Dry Hole
- Gas Well
- Location
- Monitor-Monitor Well
- Oil Well
- Plugged and Abandoned
- Plugged & Abandoned Gas Well
- Permit Canceled Normal Line
- Shut In Gas Well
- Service Well
- Suspended Oil Well
- Water Well

REMARKS

CBM wells completed in mapped coal shown in red, all other zones and well types grayed out

0 — 5,000 FEET

May 17, 2011

PETRA 5/17/2011 3:17:05 PM

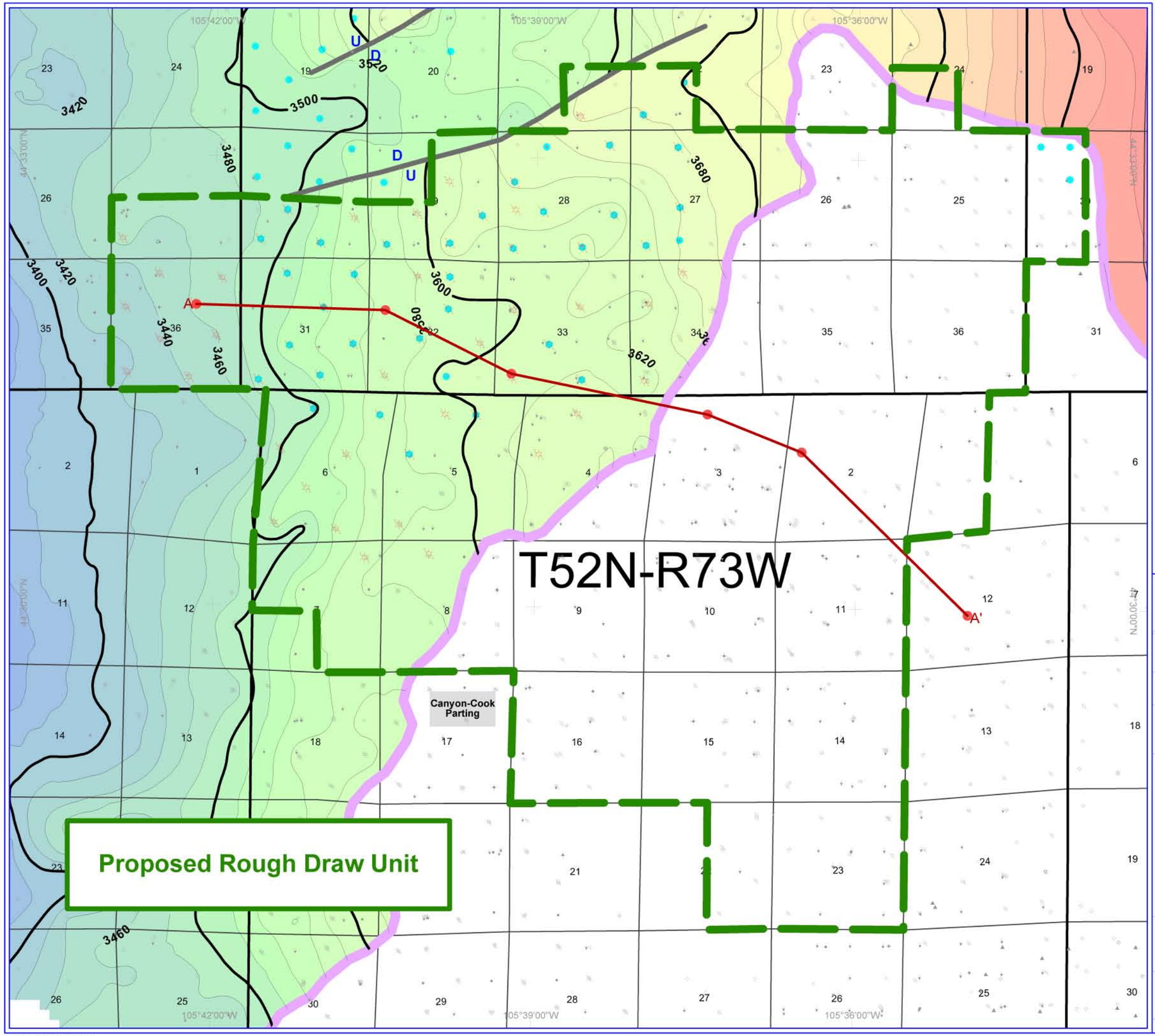

Exhibit G-6

Rough Draw UIC Application

Top of Lower Canyon Structure Map

SYMBOL HIGHLIGHT

- WELLS WITHOUT LOGS
- CROSS SECTION WELLS

WELL SYMBOLS

- Abandoned GAS Well
- Abandoned Oil Well
- Dry Hole
- Gas Well
- Location
- Monitor-Monitor Well
- Oil Well
- Plugged and Abandoned
- Plugged & Abandoned Gas Well
- Permit Canceled Normal Line
- Shut In Gas Well
- Service Well
- Suspended Oil Well
- Water Well

REMARKS

CBM wells completed in mapped coal shown in red, all other zones and well types grayed out

0 — 5,000 FEET

May 22, 2011

PETRA 5/22/2011 5:17:51 PM

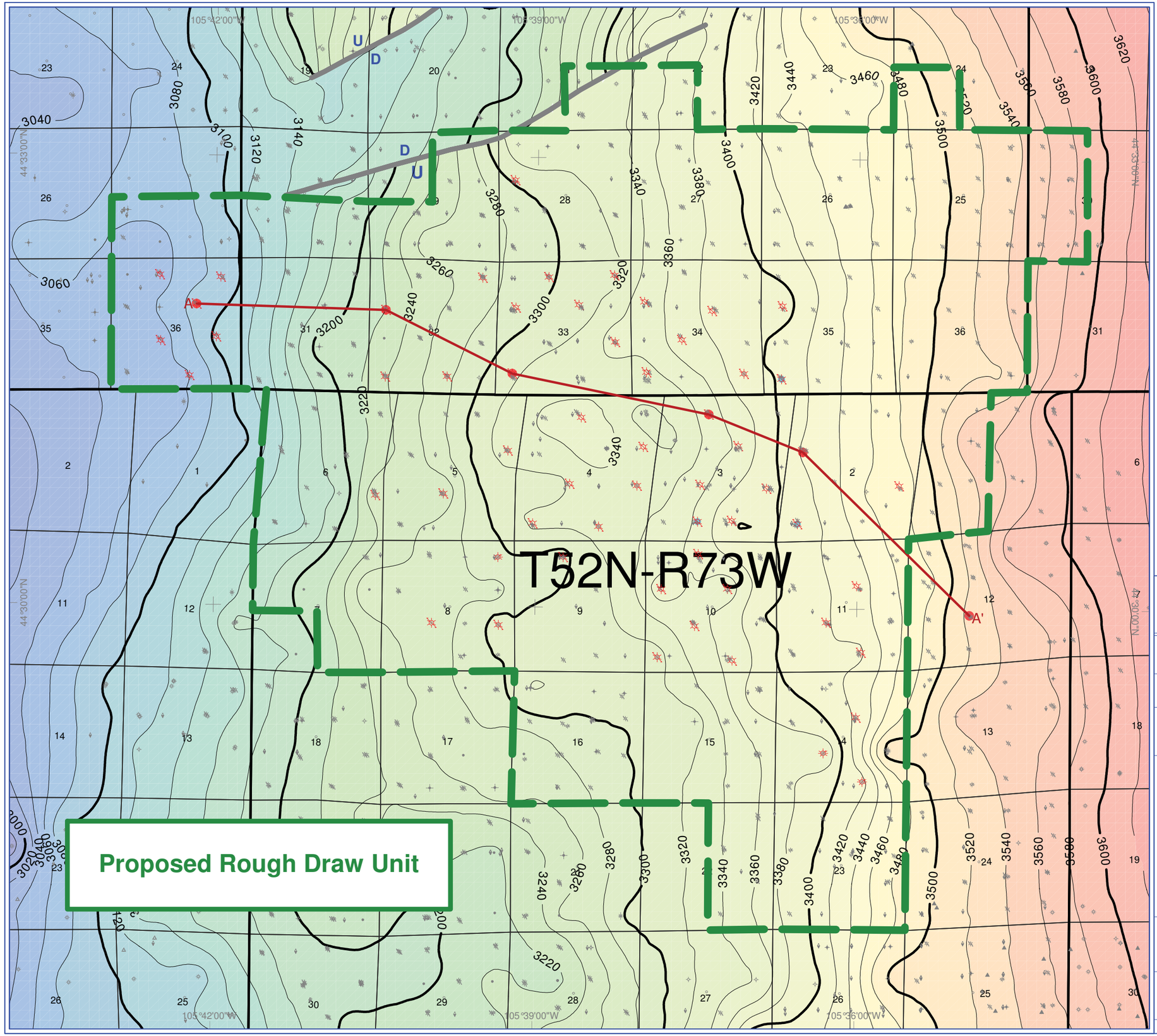

Exhibit G-7

Rough Draw UIC Application

Top of Wall Structure Map

SYMBOL HIGHLIGHT

- WELLS WITHOUT LOGS
- CROSS SECTION WELLS

WELL SYMBOLS

- Abandoned GAS Well
- Abandoned Oil Well
- Dry Hole
- Gas Well
- Location
- Monitor-Monitor Well
- Oil Well
- Plugged and Abandoned
- Plugged & Abandoned Gas Well
- Permit Canceled Normal Line
- Shut In Gas Well
- Service Well
- Suspended Oil Well
- Water Well

REMARKS

CBM wells completed in mapped coal shown in red, all other zones and well types grayed out

0 5,000
FEET

May 17, 2011

PETRA 5/17/2011 3:08:44 PM

Patriot Energy Resources LLC.
A Luca Technologies Inc. Company

500 Corporate Circle, Suite C
Golden, CO 80403
Phone 303 -534-4344
Fax 303-534-1446

Exhibit L-2

May 9, 2011

VIA CERTIFIED MAIL

PATRIOT ENERGY RESOURCES LLC
500 Corporate Circle, Suite C
Golden, CO 80401

RE: WDEQ Class V UIC Application

Dear Sir or Madam,

PATRIOT ENERGY RESOURCES LLC is proposing to inject coalbed methane (CBM) produced waters and nutrients in a multiphase project in order to enhance CBM production. PATRIOT is proposing to produce the CBM water from the Anderson, Canyon, Lower Canyon and Wall coal seams; amend the water with nutrients and return the waters to the coals (primarily the Canyon and Lower Canyon) as further outlined in its application to be filed with the WDEQ. The goal of the project is to return wells drilled in these coals to gas production. This notification is in accordance with the rules set forth by the Wyoming Department of Environmental Quality Underground Injection Control.

If you have any questions concerning this notification, please contact me at (303) 597-8232.

Sincerely,

Barbara Colton

Barbara Colton, CPL
Patriot Energy Resources LLC

Exhibit L-3:
Notification Table

Permit Applicant or Current Operator	CERTIFIED MAIL NUMBER	DATE MAILED	RETURN RECEIPT RETURNED	COMMENTS
Anita Stuart & Jane Michele Murray	7010 0290 0002 5707 9535	5/9/2011	5/12/2011	
Bill Butcher	7010 0290 0002 5700 9573	5/9/2011	5/18/2011	
BYRON F & MARJORIE OEDEKOVEN	7007 2680 0001 7075 7335	5/23/2011		
CHARLES & MARIA RUIZ	7007 2680 0001 7075 7342	5/23/2011		
Cindy Dawson	7010 0290 0002 5700 9580	5/9/2011		returned undeliverable-resent regular mail 5/24
CODY JOSLYN	7007 2680 0001 7075 7359	5/23/2011		
DALY LIVESTOCK COMPANY	7007 2680 0001 7075 7366	5/23/2011		
DAVID G JANISCH	7007 2680 0001 7075 7380	5/23/2011		
Dean W. Hall	7010 0290 0002 5700 9597	5/9/2011	5/18/2011	
DEVON ENERGY PRODUCTION COMPANY LP	7007 2680 0001 7075 7397	5/23/2011		
EDWARD W & LINDA K ELDRIDGE	7007 2680 0001 7075 7489	5/23/2011		
Ferlin LeRoy Harris	7010 0290 0002 5707 9603	5/9/2011	5/23/2011	
FIRST INTERSTATE BANK, TRUSTEE FOR W A HENSLEY LAND TRUST	7010 0290 0002 5700 6548	5/9/2011	5/18/2011	
GREEN VALLEY ESTATES IMPROVEMENT & SERVICE DIST.	7007 2680 0001 7075 7069	5/23/2011		
Helen E. Hinkes Trust (Hinkes Family LLC), Twenty Mile Land Co., LLC	7010 0290 0002 5700 6395	5/9/2011	5/18/2011	
Jacques Butcher	7010 0290 0002 5700 6401	5/9/2011	5/19/2011	
JANE MICHELLE MURRAY	7010 0290 0002 5700 9566	5/10/2011		
Jay R & Jami Jo Schroeder	7010 0290 0002 5700 6500	5/9/2011	5/18/2011	
JCC RANCH LLC	7007 2680 0001 7075 7076	5/23/2011		
KIEWIT MINING PROPERTIES INC	7007 2680 0001 7075 7083	5/23/2011		
M R Banding	7010 0290 0002 5700 6418	5/9/2011	5/18/2011	
Marion H & Mary C Scott	7010 0290 0002 5700 6517	5/9/2011	5/18/2011	
Marion H & Mary C Scott	7010 0290 0002 5700 6425	5/9/2011	5/18/2011	
MARY JO JOSLYN REVOCABLE TRUST	7007 2680 0001 7075 7090	5/23/2011		
NOBLE ENERGY INC (Successor in interest to Prima Oil & Gas Company)	7010 0290 0002 5700 6432	5/9/2011	5/12/2011	
NOBLE ENERGY INC (Successor in interest to Prima Oil & Gas Company)	7007 2680 0001 7075 7199			
OILFIELD SALVAGE & SERVICE COMPANY	7007 2680 0001 7075 7113	5/23/2011		
P & M PETROLEUM MANAGEMENT LLC	7007 2680 0001 7075 7205	5/23/2011		
PATRIOT ENERGY RESOURCES LLC				
Paul & Nancy Landeck	7010 0290 0002 5700 6449	5/9/2011	5/14/2011	
PINNACLE GAS RESOURCES INCORPORATED	7010 0290 0002 5700 6456	5/9/2011	5/18/2011	
POWDER RIVER COAL COMPANY	7007 2680 0001 7075 7120	5/23/2011		
R Daniel Lindquist	7010 0290 0002 5700 6463	5/9/2011	5/18/2011	
RALPH & LAURA ROGERS	7007 2680 0001 7075 7137	5/23/2011		
Randy & Gail Bulkley	7010 0290 0002 5700 6470	5/9/2011	5/18/2011	
Patrick E & Amanda J Fiedor	7010 0290 0002 5700 6487	5/9/2011	5/18/2011	
RICHARD AND JUDY LYNDE	7007 2680 0001 7075 7144	5/23/2011		
RONALD C KNIGHTEN	7007 2680 0001 7075 7373	5/23/2011		
THOMAS KLINE	7007 2680 0001 7075 7151	5/23/2011		
THREE FORKS RESOURCES LLC	7010 0290 0002 5700 6524	5/9/2011	5/18/2011	
THUNDER CREEK GAS SERVICES, LLC	7007 2680 0001 7075 7168	5/23/2011		
TROY REILE	7010 0290 0002 5700 6494	5/9/2011	5/18/2011	
TWENTY MILE LAND CO LLC	7010 0290 0002 5700 6531	5/9/2011	5/18/2011	
USA EXPLORATION & PRODUCTION LLC	7007 2680 0001 7075 7175	5/23/2011		
WILLIAMS PRODUCTION RMT COMPANY, LLC	7010 0290 0002 5700 6555	5/9/2011		
WYO STATE OFFICE OF LANDS & INVESTMENTS	7007 2680 0001 7075 7182	5/23/2011		
YATES PETROLEUM CORPORATION	7007 2680 0001 7075 7199	5/23/2011		