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## 511 Documents

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**COGCC**

# **Fifth Creek Energy Operating Company, LLC**

Cause No. 421

Docket No. 170900556

BEFORE THE OIL AND GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO

IN THE MATTER OF THE APPLICATION OF ) CAUSE NO. 421  
FIFTH CREEK ENERGY OPERATING )  
COMPANY, LLC FOR AN ORDER ) DOCKET NO. 170900556  
AUTHORIZING ADDITIONAL WELLS IN SIX (6) ) TYPE: ADDITIONAL WELLS  
APPROXIMATE 1,280-ACRE DRILLING AND )  
SPACING UNITS ESTABLISHED FOR )  
SECTIONS 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 )  
AND 18, TOWNSHIP 11 NORTH, RANGE 63 )  
WEST, 6TH P.M., FOR PRODUCTION FROM )  
THE NIOBRARA FORMATION, HEREFORD )  
FIELD, WELD COUNTY, COLORADO. )

**REQUEST FOR RECOMMENDATION OF**  
**APPROVAL OF APPLICATION WITHOUT A HEARING**

Fifth Creek Energy Operating Company, LLC ("Applicant"), by and through its undersigned attorneys, hereby requests pursuant to Rule 511.a. of the Rules of Regulations of the Colorado Oil and Gas Conservation Commission for the Director to recommend approval of its July 13, 2017, verified application ("Application") and the supporting exhibits without a hearing.

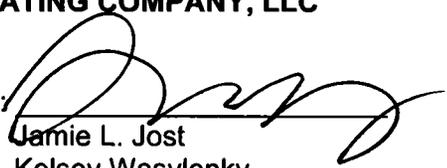
Applicant requests that the above-captioned matter be approved based upon: (i) the merits of the Application, and (ii) Applicant's sworn written testimony verifying sufficient facts along with exhibits that adequately support the relief requested in the Application. To Applicant's information and belief, no protests were timely filed in this matter.

WHEREFORE, Applicant requests that its request for a recommendation for approval of its Application without a hearing be granted.

DATED this 17<sup>th</sup> day of August 2017.

Respectfully submitted,

**FIFTH CREEK ENERGY OPERATING COMPANY, LLC**

By: 

Jamie L. Jost  
Kelsey Wasylenky  
Jost Energy Law, P.C.  
Attorney for Applicant  
1401 17<sup>th</sup> St., Suite 370  
Denver, Colorado 80202  
(720) 446-5620

**Fifth Creek Energy Operating Company, LLC  
Teale Stone - Land Testimony  
Cause No. 421; Docket No. 170900556  
Increased Density – Niobrara Formation  
Wattenberg Field, Weld County, Colorado**

September 2017 Colorado Oil and Gas Conservation Commission Hearing

My name is Teale Stone, and I am currently employed as a Senior Landman at Fifth Creek Energy Operating Company, LLC (“Applicant”). I have over five years of professional experience in oil and gas land work and I am familiar with the lands subject to, and matters set forth in, the verified application (“Application”).

In support of Applicant’s Application and my sworn testimony herein, I am submitting six (6) exhibits. This testimony and exhibits provide the supporting basis for approval of the Applicant’s request for an order to authorize an additional seven (7) horizontal wells, for a total of fifteen (15) horizontal wells, in each of six (6) approximate 1,280-acre drilling and spacing units established by Order No. 421-86 for Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18, Township 11 North, Range 63 West, 6th P.M., for the efficient and economic development of oil, gas and associated hydrocarbons from the Niobrara Formation underlying the below-described lands.

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 7: All

Section 18: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 8: All

Section 17: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 9: All

Section 16: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 10: All

Section 15: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 11: All

Section 14: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.  
Section 12: All  
Section 13: All  
1,280 acres, more or less, Weld County, Colorado

Exhibit 1: Leasehold Ownership Map:

Exhibit 1 is a map showing the location of the Application Lands and the leasehold ownership. Upon information and belief, the following parties own leasehold or unleased mineral interests in the Application Lands:

Clear Creek Fund I-A, LP  
8 North, LLC  
Jamestown Resources, LLC

Exhibit 2: Mineral Ownership Map:

Exhibit 2 is a map showing the mineral ownership of the Application Lands, which is owned in fee.

Exhibit 3: Property Location Plat:

Attached as Exhibit 3 is a Property Location Plat. The Applicant will conform to its statement that the treated perforation of the Wells within the Niobrara Formation will not be closer than 300 feet from the unit boundaries of the 1,280.00-acre drilling and spacing unit and not less than 150 feet from the treated interval of another well within the unit.

Exhibit 4: Surface Ownership Map:

Exhibit 4 is a map showing the surface ownership of the Application Lands, which is owned in fee.

Exhibit 5: Topographic Map:

Exhibit 5 is a map showing the topography of the Application Lands. Approval of the Application for a drilling and spacing unit would allow for a less impactful surface development plan.

Exhibit 6: Interested Parties:

Attached as Exhibit 6 are interested parties within the Application Lands. Based upon our examination of relevant documents all of the interested parties received proper notice. As of the date of this testimony, the Applicant is not aware of any unresolved protests or objections to the Application.

**Affirmation**

The matters described herein were all conducted under my direction and control. I hereby swear that to the best of my knowledge and belief, all of the matters set forth herein and in the exhibits are true, correct, and accurate.

Teale Stone

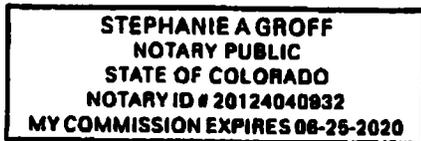
Teale Stone  
Senior Landman  
Fifth Creek Energy Operating Company, LLC

STATE OF COLORADO                    )  
  ) ss.  
COUNTY OF ARAPAHOE                )

The foregoing instrument was subscribed and sworn to before me this 1<sup>st</sup> day of August 2017, by Teale Stone, Senior Landman for Fifth Creek Energy Operating Company, LLC.

Witness my hand and official seal.

[SEAL]



My commission expires: June 22, 2020

Stephanie A Groff

Notary Public

# Teale Philip Stone

---

1850 Bassett Street #401  
Denver, CO 80202  
(918) 694-3231 teale.stone@gmail.com

## EDUCATION

**B.S. in Business Administration – 2011**

**UNIVERSITY OF DENVER**

Major: Management through the Daniels College of Business

- Dean's List
- Academic All Conference (Soccer)

**Petroleum Land Management Certificate – Expected 2017**

**UNIVERSITY OF DENVER**

**CASCIA HALL PREPARATORY SCHOOL - 2007**

Tulsa, Oklahoma

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## EXPERIENCE

**Fifth Creek Energy Operating Company, LLC**

Denver, Colorado

Senior Landman

**March 2017 – Present**

- Oversee all Land Operation tasks, including but not limited to managing brokers, ordering and curing title, clearing surface locations for drill sites, assisting in acquisitions, and planning for all future development.

**BILL BARRETT CORPORATION**

Denver, Colorado

Landman I – Uinta Basin and DJ Basin

**August 2014 to March 2017**

- Nearly 5 years of professional in house land experience with a primary focus in the Rocky Mountain Region (Utah, Colorado, Wyoming and New Mexico).
- Prepare and present Uinta Basin and DJ Basin Asset Status Reports directly to Senior Management on a weekly basis.
- Perform aspects of title research, fee and federal leasing, purchasing fee working interests and aid in the maintenance of multiple drilling prospects throughout the Uinta and DJ Basin.
- Operations Land Lead on BBC's recent divestiture of over 120,000 net acres in the Uinta Basin which closed in July of 2016.
- Source and evaluate potential acquisitions and acreage swaps of all sizes within the DJ Basin.
- Negotiate and draft JOAs, acquire various surface and subsurface contracts from fee mineral owners, Bureau of Land Management, and Bureau of Indian Affairs.
- Extensive work dealing with Exploration Development Agreements, Joint Development Agreements and Farmout Agreements throughout BBC's assets in the Uinta and DJ Basin
- Calculate Net Revenue Interests, Gross Working Interests, and Acreage Totals for multiple drilling prospects throughout the Uinta and DJ Basin.
- Manage all Operated and Non-Operated Wells still owned by BBC within the Uinta Basin.
- Point of contact for multiple attorneys and coordinating the ordering of Drilling and Division Order Title Opinions.
- Manage two field brokerage firms to direct leasing efforts, help with Surface Use Agreements and Right of Ways across Public, Private, BIA, and Division of Wildlife lands.
- Testified before the Utah Division of Oil, Gas and Mining several times regarding Compulsory Force Pooling and various Spacing Orders.
- Maintain and manage company owned surface property throughout the Uinta Basin. Recently started assisting on the DJ Basin Surface Team.
- Certified Registered Landman with the AAPL. Seeking RPL Certificate in 2017.

**BILL BARRETT CORPORATION**

Denver, Colorado

Land Technician I & II – Uinta Basin

**March 2012 to August 2014**

- Help manage various assets within the Uinta Basin

# Teale Philip Stone

---

1850 Bassett Street #401

Denver, CO 80202

(918) 694-3231 teale.stone@gmail.com

- Help draft Operating Agreements, AFE's, Fee Assignments, and Leases & Assignments for the Bureau of Indian Affairs
- Performance of regular data entry tasks (Oildex, Wellview, and Excalibur)
- Proficient in Microsoft Excel

## **KROENKE SPORTS & ENTERTAINMEN**

**October 2011 – March 2012**

Denver, Colorado

### Marketing Team

- In game marketing before, during and after all sporting events located at the Pepsi Center
- Promoted Altitude Sports Network

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## COMMUNITY SERVICE/LEADERSHIP

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### **2014 ENGEN CLASS GRADUATE**

- Colorado Oil and Gas Association sponsored group for Young Professionals in Energy
- Currently serving as board member for the program.

### **AAPL**

- Registered Landman

### **UNIVERSITY OF DENVER SOCCER**

- Team Captain
- NCAA Tournament Appearances 2008 and 2010

### **CAMBUUR SOCCER CLUB**

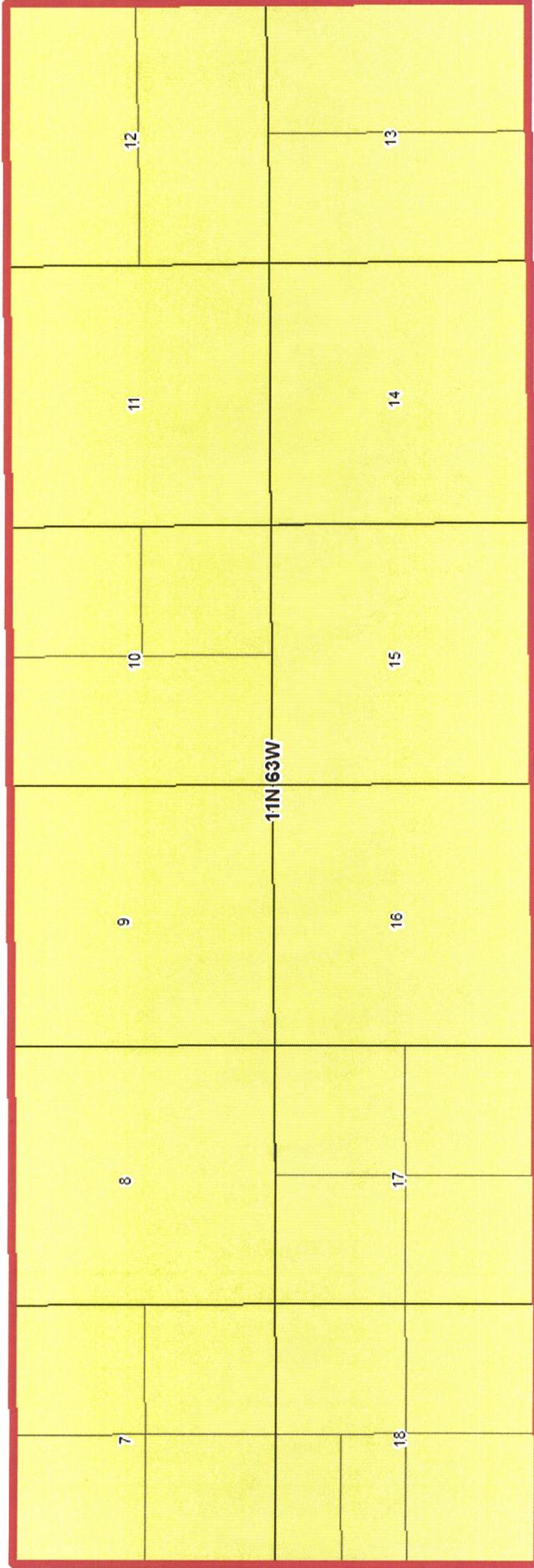
- Played for Professional Soccer Team located in Leeuwarden, Netherlands in 2008

### **YOU CAN PLAY PROJECT**

- Manager of College Operations. Served as the liaison between the organization, various College and Universities, and the NCAA. "You Can Play" is a Community Service/Non-Profit Organization visit [youcanplayproject.org](http://youcanplayproject.org) for more information.

# Exhibit 1

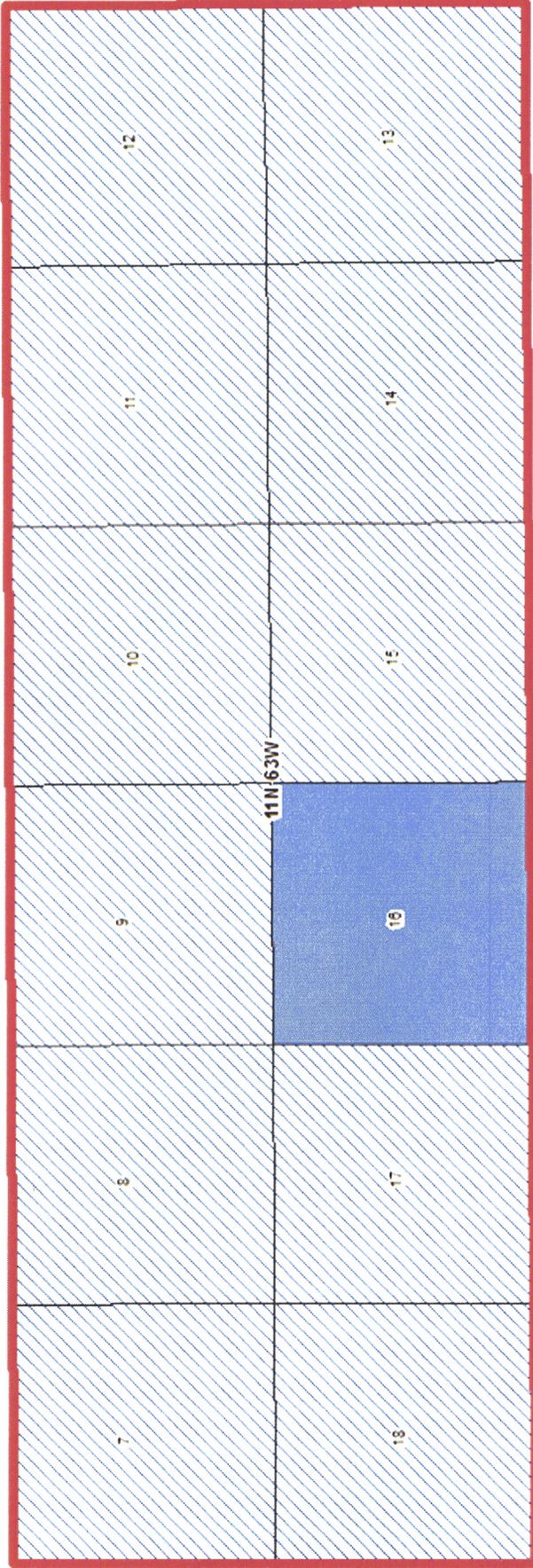
## Leasehold Ownership



- Fee Leasehold
- Application Lands

# Exhibit 2

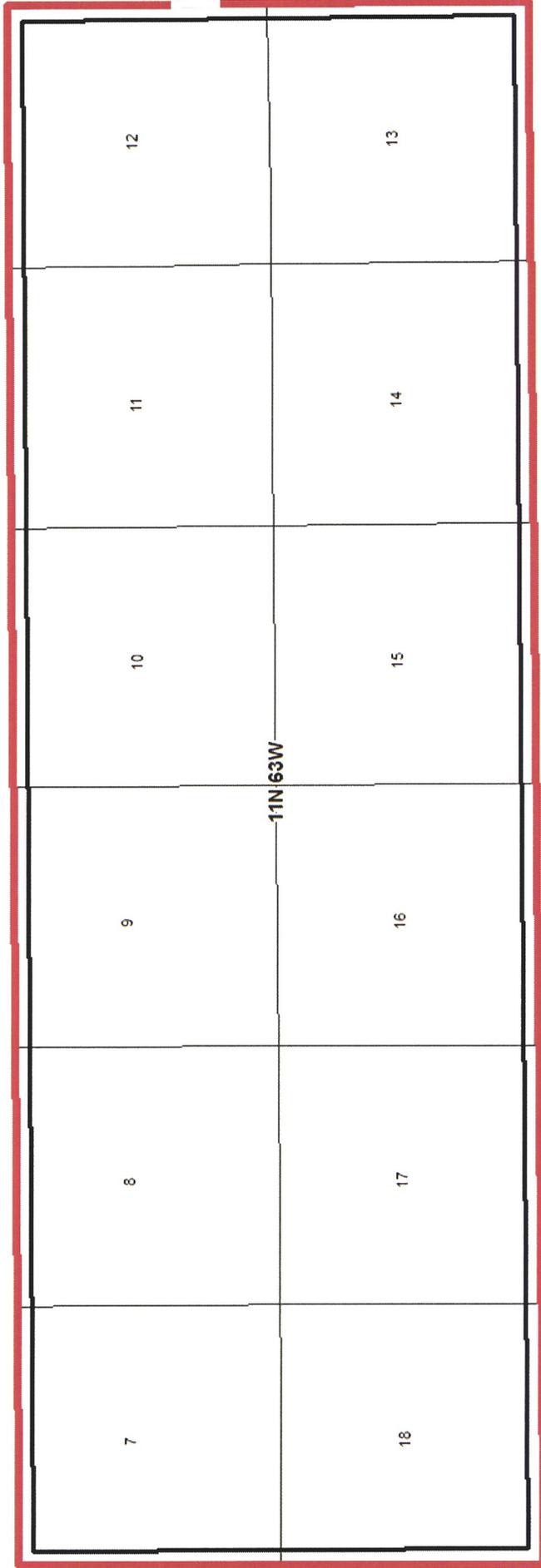
## Mineral Ownership



- State Minerals
- Fee Minerals
- Application Lands

# Exhibit 3

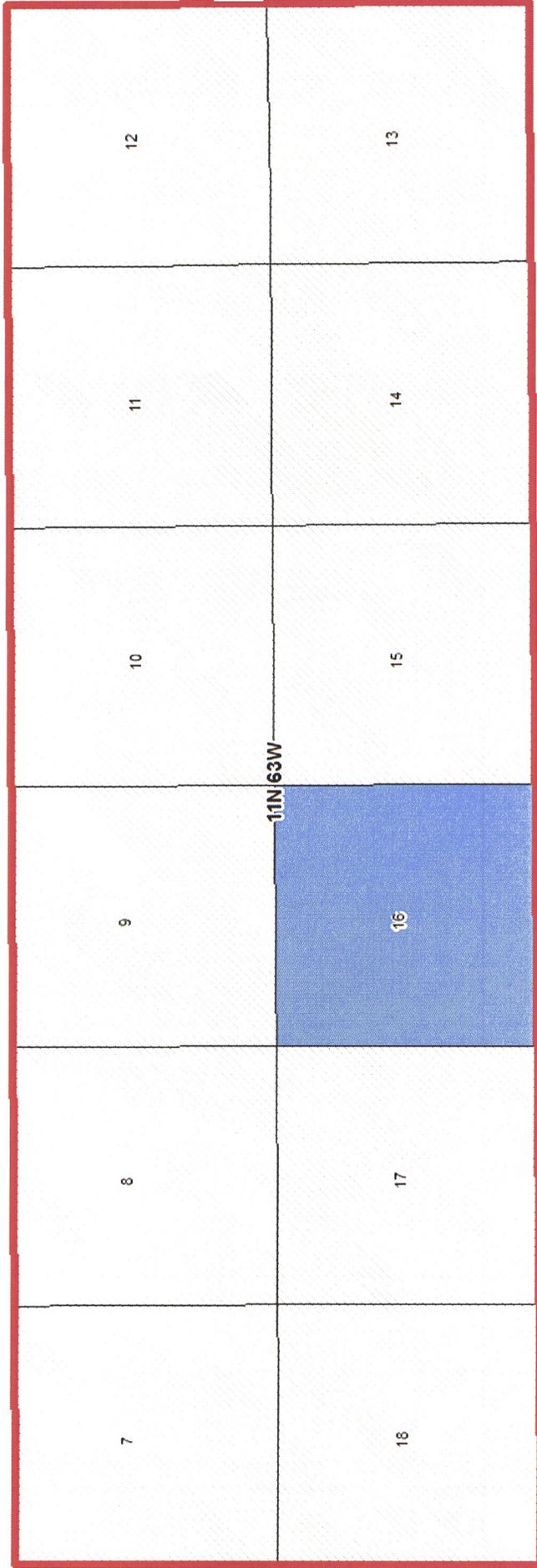
## Property Location Plat



- 300' Setback
- Application Lands

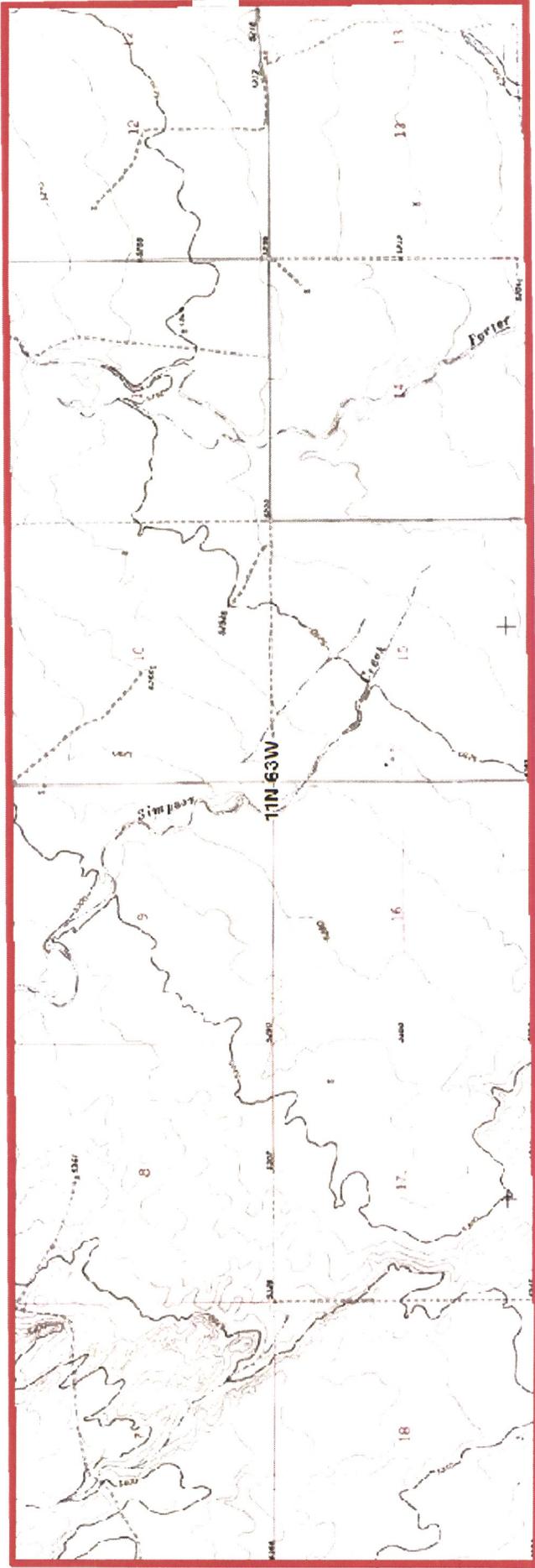
# Exhibit 4

## Surface Ownership



- State Surface
- Fee Surface
- Application Lands

# Exhibit 5 Topography



 Application Lands

**Exhibit 6**  
**ID - T11N-R63W - 6 Northern Units**

FIFTH CREEK ENERGY OPERATING  
COMPANY LLC  
5251 DTC PARKWAY SUITE 420  
GREENWOOD VILLAGE, CO 80110

LOUANNE TIMM & PAUL W TIMM  
29451 W CR 130  
GROVER, CO 80729-0000

8 NORTH LLC  
370 17TH ST SUITE 5300  
DENVER, CO 8020-20000

BRENT A OSWALD  
1304 YORKSHIRE DR  
AUSTIN, TX 78723-0000

CENTENNIAL MINERAL HOLDINGS LLC  
SUITE 200 5950 CEDAR SPRINGS ROAD  
DALLAS, TX 75235-0000

DOUBLE EAGLE ENER G ROCKIES LLC  
1401 BALLINGER ST NO 203  
FORT WORTH, TX 76102-0000

JAMESTOWN RESOURCES LLC C/O BLACK  
FALCON ENERGY LLC  
600 TRAVIS STREET SUITE 4750  
HOUSTON, TX 77002-0000

JESSE L WHITE JLW INVESTMENT LLC  
351 GLENCOE ST  
DENVER, CO 80220-0000

JH PETROLEUM LLC  
P O BOX 621128  
LITTLETON, CO 80162-1128

KELLY V OSWALD  
5638 SANFORD RD  
HOUSTON, TX 77096-0000

LOUIS A OSWALD III TSTE OF OSWALD  
FAMILY TRUST DTD 4-27-98  
P O BOX 280969  
LAKEWOOD, CO 80228-0969

LOUIS A OSWALD JR AND MARY G  
OSWALD  
13939 BRETAGNE DR  
HOUSTON, TX 77015-0000

MARK T COX III PARTNERSHIP ELIZABETH J  
COX, SOLE SURVIVING PARTNER P O  
BOX 47  
CHEYENNE, WY 82003-0047

MEADER RANCH INC CHARLES P MEADER,  
PRESIDENT  
65009 WCR 67  
GROVER, CO 80729-0000

OLD WEST TOURS  
PMB 1989 110 E CENTER STREET  
MADISON, SD 57042-2908

SSALJD INVESTMENT GROUP LLC  
P O BOX 621128  
LITTLETON, CO 80162-1128

OIL AND GAS INVESTORS LLC  
P O BOX 608  
SANDPOINT, ID 83864-0000

CHOCTAW ENERGY LTD  
P O BOX 6387  
SAN ANTONIO, TX 78209-6387

DENKAI ANIMAL SANCTUARY A COLORADO  
NON-PROFIT CORPORATION FLOSS  
BLACKBURN PRESIDENT  
36710 WCR 126  
GROVER, CO 80729-0000

E RAY REICHLEY  
1005 32ND AVE  
GREELEY, CO 80634-0000

MESQUITE DEVELOPMENT INC  
208 PRINZ  
SAN ANTONIO, TX 78213-0000

RAYMOND W THOMAS  
3771 COUNTY ROAD P  
WIGGINS, CO 8065-40000

RONALD W THOMAS  
11923 GRANITE WOODS LOOP  
VENICE, FL 3429-20000

ANADARKO E&P ONSHORE LLC  
P O BOX 730875  
DALLAS, TX 75373-0875

ELDER LAMBERT AND MARTIN LLC  
3136 LONGHORN CT  
FORT COLLINS, CO 80526-0000

EOG RESOURCES INC  
P O BOX 840321  
DALLAS, TX 75284-0321

G WARREN SMITH II  
101 AYYAR COURT  
SLIPPERY ROCK, PA 16057-0000

J B LAMBERT LLC  
5433 APPLE DR  
FORT COLLINS, CO 80526-0000

LOYD FARMS  
66732 WCR 87  
GROVER, CO 807290-000

SHIRLEY SMITH FONDA  
1956 NORWOOD LANE  
STATE COLLEGE, PA 16803-0000

ALVEENA DIANE PONCE  
6545 S ARBUTUS CIRCLE APT 1226  
LITTLETON, CO 80127-0000

ALVIN L WALKER & BERNICE R WALKER  
27110 115TH ST  
TREVOR, WI 53179-0000

COBANK FCB SUCCESSOR TO US AGBANK  
FCB  
245 N WACO ST  
WICHITA, KS 6720-20000

DARRELL W ANDERSON  
856 SOUTH QUIVAS ST  
DENVER, CO 80223-0000

DORRIS KINDVALL  
1522 CONSTITUTION BLVD #279  
SALINAS, CA 93905-0000

EMILY DOUGLASS AS PERS REPR OF  
THE BILLY JOE DOUGLASS EST  
938 SILVER LEAF PL  
LOVELAND, CO 80538-3316

GENE WALKER  
P O BOX 2625  
LONGMONT, CO 80502-0000

GLENDA RAMIREZ  
3503 DAHLIA STREET  
EVANS, CO 80620-0000

JOAN BARTHOLOMEW  
P O BOX 233  
PLATTEVILLE, CO 80651-0233

JOE BURBACH AND CHRISTINE BURBACH  
6150 MALLOW GRN  
FREDERICK, CO 80530-7096

LUCKY J BURBACH  
5163 ROAD 202  
CARPENTER, WY 82054-0000

PHILIP D MCKAY & ELLA L MCKAY  
2146 VIA NUEVO  
SANTA MARIA, CA 93458-0000

ROBERT J BURBACH TRUST LUCKY J  
BURBACH TRUSTEE  
5163 ROAD 202  
CARPENTER, WY 82054-0000

RODNEY WALKER  
408 N 7TH AVE  
STERLING, CO 80751-0000

SHARRON A BICKING TSTE HOWARD E  
BICKING & SHARRON A BICKING REV  
LIVING TRUST  
1287 INCA DOVE CIRCLE  
LOVELAND, CO 80537-0000

SHIRLEY BUNNEY  
1021 PINWOOD PL  
THE VILLAGES, FL 32162-0000

WILLARD T BURBACH & ARLENE M  
BURBACH  
33610 CR 31  
GREELEY, CO 80631-0000

CONNIE MAE ARMIT CMA INVESTMENTS  
LLC  
760 SUMMERWOOD LN SW  
VERO BEACH, FL 32962-7061

KENYON K AYARS AND NORMA J AYARS  
63546 WCR 67  
GROVER, CO 80729-0000

B H C H MINERAL LTD  
P O BOX 1817  
SAN ANTONIO, TX 78296-1817

BUFFALO HOLDINGS LLC  
P O BOX 2158  
DENVER, CO 80201-0000

FREDERICKSBURG ROYALTY LTD  
PO BOX 1481  
SAN ANTONIO, TX 78295-1481

KAREN R HALEY TRUSTEE KAREN R HALEY  
REVOCABLE TRUST  
5685 SOUTH BELLAIRE COURT  
GREENWOOD VILLA, CO 80121-0000

MCMAHON ENERGY PARTNERS LP  
4545 S MONACO ST NO 144  
DENVER, CO 80237-0000

RICHARD W MANN AND LAURILLA J MANN  
23510 STATE HIGHWAY 257  
MILLIKEN, CO 80543-0000

TOFTE ENERGY PARTNERS LIMITED  
PARTNERSHIP  
P O BOX 4221  
CASPER, WY 82604-0000

BEN A REID  
5071 CEDAR CREEK DR  
HOUSTON, TX 77056-0000

BILLY SHAW  
2726 BISSONNET STE 240 PMB 63  
HOUSTON, TX 77005-1362

COLORADO STATE BOARD OF LAND  
COMMISSIONERS  
1127 SHERMAN STREET SUITE 300  
DENVER, CO 80203-0000

CPX PICEANCE HOLDINGS LLC  
ATTN WARD GILTNER  
880 WOLVERINE CT  
CASTLE ROCK, CO 80108-9082

DAN A MAGEE  
136 THUNDER RD  
KERRVILLE, TX 78028-0000

EDWARD A HIRS III C/O HILLHOUSE  
RESOURCES LLC  
4265 SAN FELIPE SUITE 1100  
HOUSTON, TX 77027-0000

ERIN K GOERGES  
4265 SAN FELIPE STE 1100  
HOUSTON, TX 77027-0000

FREDDIE L DAUME  
2414 WATTS RD  
IOWA PARK, TX 76367-0000

GARY L PRICE  
PO BOX 5945  
KINGWOOD, TX 773250000

HARRY FENDRICH THE FENDRICH FAMILY  
PARTNERSHIP LP  
28 WARREN STREET  
CHARLESTON, SC 29403-0000

ILENE GOVERNALE  
2247 TRIWAY LN  
HOUSTON, TX 77043-0000

JACK ROSENTHAL  
877 S PEARL ST  
DENVER, CO 80209-0000

JAMES H GLANVILLE 2007 IRREV TR DTD 6-  
7-07 JILL GLANVILLE ROBERT PARSLEY &  
SHAWN MILTON GLANVILLE TTEES 421  
BUCKINGHAM DR  
HOUSTON, TX 77024-0000

JILL S GLANVILLE  
421 BUCKINGHAM DR  
HOUSTON, TX 77024-0000

JOHN C HARMS  
5 MEADOWBROOK RD  
LITTLETON, CO 80120-0000

K DENTON CRANFORD  
3707 VILLA PINES DRIVE  
KINGWOOD, TX 77339-0000

KAREN JONES DAWSON  
20806 TALLOW VIEW LANE  
CYPRESS, TX 77433-0000

LRW ROYALTIES LLC  
P O BOX 440483  
HOUSTON, TX 77244-0000

MARY E LISA LEHMAN  
1827 GRANT ST NO. 502  
DENVER, CO 8020-30000

MITCH W HALE  
1149 FRIES RD  
HOUSTON, TX 77055-0000

NANCY W FENDRICH THE FENDRICH  
FAMILY PARTNERSHIP LP  
28 WARREN STREET  
CHARLESTON, SC 2940-30000

RANDALL B RICE  
249 NORTHRIDGE  
NEW BRAUNFELS, TX 78132-0000

RICHARD S BISHOP  
13622 KINGSRIDE LN  
HOUSTON, TX 77079-0000

THE FRASER IAN DAWSON SPECIAL NEEDS  
TRUST C/O ALISTAIR B DAWSON  
11518 SHADOW WAY  
HOUSTON, TX 77024-0000

WILLIAM A KELLY  
2371 LAKE VILLAGE DR  
KINGWOOD, TX 77339-0000

WILLIAM R GLAZNER  
3704 GARROTT STREET  
HOUSTON, TX 77006-4424

WILLOW STREET PARTNERS LP  
510 BERING DRIVE SUITE NO 300  
HOUSTON, TX 77057-0000

GILBERT MINERAL LLP  
68 INDIGO WAY  
CASTLE ROCK, CO 80108-0000

MARIANA L ROSSI TRUST LARRY J ROSSI  
CO-TRUSTEE  
9481 WEST WESLEY DRIVE  
LAKEWOOD, CO 80227-0000

SCOTT W TIMM & STEPHANIE TIMM  
59970 W CR 67  
GROVER, CO 80729-0000

TANYA T WAHLERT & JEFF WAHLERT  
31530 W CR 128  
GROVER, CO 80729-0000

AUDREY E TIBBETTS C/O AVALON CARE  
CENTER-SONORA  
19929 GREENLEY RD  
SONORA, CA 95370-0000

BRIAN FARRINGTON  
3780 HIGH GREEN DRIVE  
MARIETTA, GA 30068-0000

GEOFFREY L HARMER AND JANE KHARMER  
TRUSTEES OF THE HARMER FAMILY REVOC  
LVNG TRUST DTD 05/04/2000  
1392 EL MORO DR  
CAMPBELL, CA 95008-3306

GERRY A BECKLEY & MARY ALAN R  
BECKLEY TTEES THE BECKLEY LVG TR UTD  
3-29-20  
4022 ELIZABETH LN  
FAIRFAX, VA 22032-0000

JAMES D WEITH  
5434 TYLER PARK LN  
KATY, TX 77494-1526

JANICE K ANDREWS  
1235 N STATE ROAD 5  
LARWILL, IN 46764-0000

LISA ANN SMITH  
414 N SPRUCE ST  
COLO SPGS, CO 80905-0000

MARY LOUISE ROBSON  
10290 IMPERIAL AVENUE  
CUPERTINO, CA 95014-0000

MICHE JO KEELING  
395646 CONCESSION2 RR NUM 1  
WILLIAMSFORD, ON N0H 2V0 CANADA

NANCY RINEHART  
2751 OYSTER CREEK DR  
ENGLEWOOD, FL 34224-5642

SALLY LYNNE EISENTRAUT  
414 N SPRUCE ST  
COLO SPGS, CO 80905-0000

KENT KUSTER  
COLORADO DEPARTMENT OF  
PUBLIC HEALTH & ENVIRONMENT  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530

BRANDON MARETTE  
ENERGY LIAISON  
COLORADO PARKS AND WILDLIFE  
NORTHEAST REGIONAL OFFICE  
6060 BROADWAY  
DENVER, CO 80216

TROY SWAIN  
WELD COUNTY  
DEPARTMENT OF PLANNING SERVICES  
1555 NORTH 17<sup>TH</sup> AVENUE  
GREELEY, CO 80631

BURNELL HARRIS  
516 PERSONS RD  
CHEYENNE, WY 82007-0000

DAVID L SORENSEN AND PEGGY L  
SORENSEN  
1514 28TH AVE PLACE  
GREELEY, CO 80634-0000

EDWARD D SORENSEN AND MARGARET  
JEAN SORENSEN  
325 S 28TH AVE  
BRIGHTON, CO 80601-0000

ETTIE P BLAKE LIVING TRUST DTD 8-15-88  
C/O FRANCIS W BLAKE  
5700 E COUNTY ROAD 48  
FORT COLLINS, CO 80524-0000

FRANCIS W BLAKE AND ESTHER JOANNE  
BLAKE 5700 EAST COUNTRY RD 48  
FORT COLLINS, CO 80524-0000

GAYLE H WATKINSON & SALLY WATKINSON  
205 ORILLA DEL LAGO  
FORT COLLINS, CO 80525-0000

LARRY SORENSEN  
P O BOX 102  
NEW RAYMER, CO 80742-0000

NUSSBAUM RANCHING C E NUSSBAUM, D L  
NUSSBAUM AND C P NUSSBAUM  
39994 WCR 126  
GROVER, CO 80729-0000

RICHARD LAYCOCK AND CHARLENE  
LAYCOCK  
3537 GROVE DR  
CHEYENNE, WY 82001-0000

ROGER R SORENSEN AND JANICE E  
SORENSEN  
P O BOX 102  
NEW RAYMER, CO 80742-0000

SWSMK ENERGY LLC  
1842 EMERALD WAY  
LYNDEN, WA 98264-0000

ANITA JEANNE HARTINGER  
P O BOX 273377  
FORT COLLINS, CO 80527-0000

GLENDIA K NEAL AND ALLEN B NEAL  
23679 STRATO RIM DR  
RAPID CITY, SD 57702-0000

JAMES D PHILP & MARY BETH PHILP P O  
BOX 1032  
BIG SANDY, TX 75755-0000

MARTHA E OLIVER  
2631 S 106 RD  
ALAMOSA, CO 811010000

PATRICIA M BLACKBURN  
167 WYNDHAM WAY  
GRAND JUNCTION, CO 81507-1579

PHYLLIS J DOWELL  
P O BOX 885  
LITTLETON, CO 80160-0885

SUSAN CAROL PHILP  
15 HARBORVIEW DR  
KINGSTON, MA 23642-291

ARNOLD G FISCUS  
PO BOX 200313  
EVANS, CO 80620-0000

ASPEN LEAF LLC  
P O BOX 1488  
MUSTANG, OK 73064-0000

BERNICE G ALDRICH  
626 ELWOOD STREET  
STERLING, CO 80751-00000

BONNIE G KIRSCHBAUM  
PO BOX 54  
MERINO, CO 80741-0000

CHARLES W & PATTY N BROWN LLC  
P O BOX 587  
MARLOW, OK 73055-0000

DAPCO LLC  
1776 S JACKSON ST STE 1000  
DENVER, CO 80210-0000

GERALD E FISCUS  
2520 CHANNEL VISTA DR  
JUNEAU, AK 99801-0000

HELEN BURBACH  
35744 WCR 130  
GROVER, CO 80709-0000

HOLLY MERCER  
505 SPLIT RAIL CT  
SPARKS, NV 89441-0000

JAMES M MORRIS  
2121 REDHEAD DR  
JOHNSTOWN, CO 80534-0000

JOELYN F WEST AKA JOELYN F EASTMAN  
PO BOX 1363  
COLLEYVILLE, TX 76034-0000

KIMBERLY REDDIG  
P O BOX 2591  
SPARKS, NV 89432-0000

MAP2009-OK  
PO BOX 248833  
OKLAHOMA CITY, OK 73124-8833

MARSHA J CLARK  
1102 S 11TH AVENUE  
STERLING, CO 80751-0000

RALPH L FISCUS  
PO BOX 165  
LAPORTE, CO 80535-0000

SHERRIL B SCHARF  
PO BOX 42  
MERINO, CO 80741-0000

SHIRLEY FAMILY 1993 TRUST THAD  
SHIRLEY THOR SHIRLEY AND ERIC SHIRLEY  
TSTES  
P O BOX 189  
CLAYTON, CA 94517-0000

EOG RESOURCES INC  
DOMINION PLAZA 600 17TH ST #1000N  
DENVER, CO 80202

AARON M MARTIN AND SABRINA M MARTIN  
P O BOX 462  
CARPENTER, WY 82054-0000

CHERYL J HAUER AND KEVIN D HAUER  
166 COUNTY RD 148  
CARPENTER, WY 82054-0000

DALE R MARTIN AND SHARON A MARTIN  
PO BOX 391  
CARPENTER, WY 82054-0000

DANIEL J MARTIN AND LANELLE R MARTIN  
4025 CR 49E  
KIMBALL, NE 69145-0000

GARY W SMITH AND NORMA J SMITH  
BOX 365  
CARPENTER, WY 82054-0000

JERRY L MARTIN AND ANDREA R MARTIN  
170 COUNTY RD 148  
CARPENTER, WY 82054-0000

LEMON CREEK OIL & GAS LTD  
P O BOX 192199  
DALLAS, TX 75219-8514

TERRE VERTE COMPANY INC  
PO BOX 90265  
SAN DIEGO, CA 92165-0000

TODD A MARTIN AND APRIL K MARTIN  
169 COUNTY RD 148  
CARPENTER, WY 82054-0000

BONNIE J ARNOLD  
4800 TABOR ST APT 147  
WHEAT RIDGE, CO 800332112

CLARA MARKUS  
P O BOX 144  
SUGAR CITY, CO 81076-0000

DELORES J WORNER 2009 TR  
4085 DELAVAN ROAD  
DELAVAN, IL 61734-0000

JOHN C GLENN  
602 CHURCH DRIVE  
INMAN, KS 67546-0000

JOYCE SEAL  
2607 ZEPHYR DRIVE  
COLORADO SPGS, CO 80920-3826

JUDY L HODGES  
609 ASPEN DR  
COLORADO SPGS, CO 80911-0000

LARRY J KING  
9637 WEST OHIO  
LAKEWOOD, CO 8022-80000

LOIS GARDNER INDIVIDUALLY  
935 LAKESIDE COURT  
GRAND JUNCTION, CO 81506-0000

LORENZ FAMILY TRUST FREDRICK L  
LORENZ TSTEE  
8331 BARKLEY DRIVE  
LINCOLN, NE 68516-0000

PHYLLIS SWETNAM  
64151 N RAMONA RD  
MONTROSE, CO 8140-30000

SUE KING & LARRY KING  
9637 W OHIO AVE  
LAKEWOOD, CO 80226-0000

TOM DEAKINS & DONNA DEAKINS  
531 CR 174  
CRAIG, CO 81625-0000

BEULAH L CREEK LORRAINE A HOWARD  
POA  
12802 E 31ST AVE  
AURORA, CO 80011-1807

LARRY W PEVLER & S IRENE PEVLER  
61497 WCR 63  
GROVER, CO 8072-90000

PAUL W TIMM & LOUANNE TIMM & SCOTT  
TIMM AND STEPHANIE TIMM  
29541 WCR 130  
GROVER, CO 80729-0000

ARDATH A PEARSON AND NICHOLAS  
PEARSON  
P O BOX 1977  
OVERGAARD, AZ 85933-1977

BARBARA L RICHARDSON AND  
CLEMENT G RICHARDSON, JR, TTES OF  
THE 1999 CLEMENT G RICHARDSON &  
BARBARA L RICHARDSON FMLY TR DTD  
4/29/99;  
16629 TORO HLS CT  
SALINAS, CA 93908-0000

DALE A AYARS AND MARY FRANCES AYARS  
3023 W 109TH PL  
WESTMINSTER, CO 80031-6825

J & M CROSS TRUST OLLIE RUTH CROSS  
TSTEE  
328 CLAY RD  
GRENADA, MS 38901-0000

SUZANNE R HARPER  
725 MADISON ST  
SANTA CLARA, CA 95050-0000

ACO VENTURES LLC  
P O BOX 753  
ARNAUDVILLE, LA 70512-0000

ALBERT GOODIS TSTE ALBERT GOODIS  
REVOCABLE LIVING TRUST 4-4-00  
111 WATER ROCK CIRCLE  
WAYNESVILLE, NC 28786-0000

ARNOLD GLEIT  
4301 NORTH OCEAN BLVD APT 506A  
BOCA RATON, FL 33431-0000

BAMBI FERNANDEZ 2004 TRUST  
1637 EDMONTON AVE  
SUNNYVALE, CA 94087-5202

BANKIM PATEL AND HEMMA PATEL  
9162 CEDAR RIDGE DR  
GRANITE BAY, CA 95746-0000

BARBARA R BUCK TSTE BARBARA R BUCK  
TR DTD 5-29-06  
111 WATER ROCK CIRCLE  
WAYNESVILLE, NC 28786-0000

CASEY E HARLESS AND NICHOLE M  
HARLESS  
15573 E 109TH AVE  
COMMERCE CITY, CO 80022-9867

CHARLES EVANS  
3028 CALLE DE LAREDO  
LAS VEGAS, NV 89102-0000

CHARLES FULLER CHARLES FULLER 2006  
TRUST MORGAN STANLEY 101-088923-066  
101 CALIFORNIA ST 3RD FLOOR  
SAN FRANCISCO, CA 94111-0000

CIRRUS MINERALS LLC  
330 MARSHALL ST STE 1200  
SHREVEPORT, LA 71101-0000

CRAIG EMMANUEL  
P O BOX 86  
LARAMIE, WY 82037-0086

DALE N THORP  
14 AUTUMN WAY  
UNIONVILLE, CT 60850-000

DANIEL VAN ZEE  
10565 W 26TH AVE  
WHEAT RIDGE, CO 80215-0000

DENIS M DESMOND TRUSTEE THE  
DESMOND FAMILY LIVING TR  
111 HIDDEN VALLEY DRIVE  
JOPLIN, MO 64804-5061

FAMILY TREE CORPORATION  
P O BOX 260498  
LAKEWOOD, CO 80226-0000

FREDERICK H J & RITA ANN WYEN LIVING  
TRUST AGREEMENT  
2564 MIDDLE URBANA RD  
SPRINGFIELD, OH 45502-8215

FREDERICK J MURRELL  
11023 GATEWOOD DR S-103  
BRADENTON, FL 34211-0000

FRONTROW INVESTMENTS LLC  
809 BERGWACHT PLACE  
COUPEVILLE, WA 98239-0000

HYDROCARBON MINERALS II LLC  
P O BOX 2157  
BRIDGEVIEW, IL 60455-0000

JAMES S WITHERELL TRUST DATED  
06/17/1997 JAMES S WITHERELL TRUSTEE  
2610 DEEP CUT ROAD  
WOODSTOCK, IL 60098-9743

JONATHAN EVERETT VAN ZEE  
1933 E 164TH PLACE  
THORNTON, CO 80602-0000

KATHRYN VANCE ERNEMANN  
127 NE MCALISTER RD  
BURLESON, TX 76028-0000

KEITH M FOSTER AND LISA M FOSTER  
13824 W AMHERST WAY  
LAKEWOOD, CO 80228-0000

KENNETH C JERABEK  
13307 S 208TH DR  
BUCKEYE, AZ 85326-0000

LAWRENCE E NAUMAN II  
P O BOX 189  
RELIANCE, WY 82943-0000

MARCEIL MALAK  
7444 MEINERS RD  
LEDBETTER, TX 78946-0000

MARIEMOUNT PROPERTIES INC  
VAN OLIVER  
3501 HANOVER ST  
DALLAS, TX 75225-7435

MARK A HOUGH AND ANA M HOUGH  
22021 N 65TH AVE  
GLENDALE, AZ 85310-0000

MARK VAN ZEE  
2214 SMITH DR  
LONGMONT, CO 80501-0000

MARKER INVESTMENTS LLC  
5008 AUGUSTA ST  
HOUSTON, TX 77007-7206

MARY A DAWSON TST DAVID D DAWSON  
AND MARY DAWSON TRUST  
312 TANGLE WOOD LANE  
HIGHLAND VILL, TX 75077-0000

MILDRED HOLEMAN  
P O BOX 10008  
HOUSTON, TX 77206-0008

MURRAY A LEWIS  
4181 SOUTHPOINT DR E SUITE 400  
JACKSONVILLE, FL 322160000

O P LEONARD JR INVESTMENT CO LTD  
P O BOX 1718  
FORT WORTH, TX 76101-0000

RDMB HOLDINGS INC  
3106 DRUID HILL DR  
DES MOINES, IA 50315-0000

ROY E BUCEK AND VERA C  
BUCEKREVOCABLE LIVING TRUST  
103 UPTON AVE  
SCHULENBURG, TX 78956-0000

SAMUEL W MCWHORTER  
2411 SOCARRO  
CARLSBAD, NM 88220-0000

SARAH DICKSON AND KEITH MATHIS  
8332 FM 230  
LOVELADY, TX 75851-0000

TED KENNEDY  
3948 RANCHERO DR  
ANN ARBOR, MI 48108-0000

THOMAS J BUCKLEY  
2310 ROYAL OAKS DR  
MANSFIELD, TX 76063-5314

VIPAL PATEL  
2772 CARRADALE DR  
ROSEDALE, CA 95661-0000

VLADIMIR SENKOV AND KRISTINA SENKOV  
232 LITTLEFIELD RD  
BOXBOROUGH, MA 17190-000

WICAGPI TRUST BY WILLIAM N GILLESPIE  
TRUSTEE  
531 ROSARITA DR  
FULLERTON, CA 92835-1860

WILLIAM L JONES  
P O BOX 534  
PALESTINE, TX 75802-0534

WILLIAM T VOGT JR SOUTH TOWER  
800 N SHORELINE SUITE 2550  
CORPUS CHRISTI, TX 78401-0000

ALEXIS ELIZABETH FERRIS  
1405 TENNYSON ST  
DENVER, CO 80204-0000

CLAUDIA SPRINGER  
275 AIDEN STREET  
HEPPNER, OR 97834

CORA AMANDA JESSOP AKA IRENE E  
JESSOP ZELMA KAY SUTTON POA  
903 CAHILL DR  
CHEYENNE, WY 82001-0000

GERALD L FRERICHS  
834 NORTH HEWITT AVE  
HASTINGS, NE 68901-0000

HOWARD W JESSOP & ELEANOR ELAINE  
JESSOP  
P O BOX 837  
PINE BLUFFS, WY 82082-0000

JAMES THOMAS FERRIS  
1240 S BALSAM ST  
DENVER, CO 80232-0000

JAMILIE LISA FYNBOH  
2726 S OSCEOLA WAY  
DENVER, CO 80236-0000

JIMMY DALE JESSOP AND SHIRLEE ANN  
JESSOP  
504 E 5TH ST  
VINTON, IA 52349-0000

JO A STILL AKA JOANN STILL  
912 CAHILL DR  
CHEYENNE, WY 82001-0000

JOHN L FRERICHS  
PO BOX 384  
CAIRO, N 68824-0000

LILY MARIE SCHEIB  
4809 ANGELINE LN  
MASON, OH 45040-0000

LONNY D FRERICHS  
131 E 5TH ST  
HASTINGS, NE 68901-5229

LUELLA MAE DUNAFON  
9625 SE PARDEE STREET  
PORTLAND, OR 97266-0000

MARK LAND CO LLP  
3302 CREEK SIDE DRIVE  
OSHKOSH, WI 54904-0000

NAJLA ZAHIA FERRIS  
8165 W 19TH AVE  
LAKEWOOD, CO 80214-0000

PHILLIP L JESSOP SR AKA PHILLIP JESSOP  
P O BOX 642  
OMAHA, NE 68101-0642

ROCKY W KERKMAN  
1519 N WILLOW  
AVOCA, IA 51521-0000

RODNEY A KERKMAN & STACY A KERKMAN  
229 E GRAHAM AVE  
COUNCIL BLUFFS, IA 51503-6670

ALEXIS ELIZABETH FERRIS  
1405 TENNYSON ST  
DENVER, CO 80204-0000

IRMA ANDERSON  
2021 CHURCH STREET APT D26  
ALAMOSA, CO 81101-0000

JACK CANON INDIVIDUALLY AND AS HEIR  
TO THE ESTATE OF MAX CANON  
117 EAST 24TH STREET  
TULSA, OK 74114-0000

JAMES THOMAS FERRIS  
1240 S BALSAM ST  
DENVER, CO 80232-0000

JAMILIE LISA FYNBOH  
2726 S OSCEOLA WAY  
DENVER, CO 80236-0000

JOE BURBACH AND CHRISTINE BURBACH  
6150 MALLOW GRN  
FREDERICK, CO 80530-7096

NAJLA ZAHIA FERRIS  
8165 W 19TH AVE  
LAKEWOOD, CO 80214-0000

ROBERT J BURBACH TRUST LUCKY J  
BURBACH TRUSTEE  
5163 ROAD 202  
CARPENTER, WY 82054-0000

RODNEY WALKER  
408 N 7TH AVE  
STERLING, CO 80751-0000

SHARRON A BICKING TSTE HOWARD E  
BICKING & SHARRON A BICKING REV  
LIVING TRUST  
1287 INCA DOVE CIRCLE  
LOVELAND, CO 80537-0000

MARC ANTHONY  
6401 Dr., Apt 1104  
PLANO, TX 75024

STEPHEN F. DEAVER  
615 W 42ND ST  
SCOTTSBLUFF, NE 69361

JEFF TRACY  
1416 8TH AVE  
SCOTTSBLUFF, NE 69361

TAMMY TENLEY  
11060 HAT CREEK LN.  
DAVIDSON, NC 28036

SCOTT ROHRBOUCK  
571 HOURGLASS CT.  
LOVELAND, CO 80537

TERRY ROHRBOUCK  
10648 HURON ST., APT. 1503  
NORTHGLENN, CO 80234

GARY D. ROHRBOUCK  
2170 PACIFIC BLVD.  
GERING, NE 69341

FOOD FOR THE POOR  
6401 LYONS RD.  
COCONUT CREEK, FL 33073

CATHOLIC RELIEF SERVICES  
228 W. LEXINGTON ST.  
BALTIMORE, MD 21201

CENTER OF ACTION AND CONTEMPLATION  
P O BOX 12464  
ALBUQUERQUE, NM 87195

MARYCREST FOR RETIRED SISTERS  
FOUNDATIONSISTERS OF ST. FRANCIS  
(NKA MARYCREST CONVENT - SISTERS OF  
ST. FRANCIS)  
2851 W. 52ND AVE.  
DENVER, CO 80221

ANADARKO LAND CORP  
1099 18TH STREET SUITE 1800  
DENVER, CO 80202

LORENZ FAMILY TRUST  
FREDRICK L LORENZ TSTEE  
8331 BARKLEY DRIVE  
LINCOLN, NE 68516-0000

EOG RESOURCES, INC.  
600 17TH ST SUITE 1000N  
DENVER, CO 80202

OKREEK OIL & GAS II, LLC  
475 17<sup>TH</sup> ST., STE 1350  
DENVER, CO 80202

PAWNEE BUTTE ROYALTIES, LLC  
P.O. BOX 4631  
ENGLEWOOD, CO 80155

**Fifth Creek Energy Operating Company, LLC**  
**Benjamin C Burke - Geology Testimony**  
Cause No. 421; Docket No. 170900556  
Increased Density – Niobrara Formation  
Wattenberg Field, Weld County, Colorado

September 2017 Colorado Oil and Gas Conservation Commission Hearing

My name is Benjamin C. Burke, and I am currently employed as the Geoscience Manager for Fifth Creek Energy Operating Company, LLC (“Applicant”). I earned a Bachelors of Arts in Geology from Bowdoin College, a Masters of Business Administration from Texas A&M University, and a PhD in Earth Sciences from Dartmouth College. I have 14 years of private sector geology experience, 12 of which is in the oil and gas industry. I am familiar with the lands described, and the matters set forth in, the verified application (“Application”) subject to the above-referenced docket.

In support of Applicant’s Application and my sworn testimony herein, I am submitting five (5) exhibits. This testimony and exhibits provide the supporting basis for approval of the Applicant’s request for an order to authorize an additional seven (7) horizontal wells, for a total of fifteen (15) horizontal wells, in each of six (6) approximate 1,280-acre drilling and spacing units established by Order No. 421-86 for Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18, Township 11 North, Range 63 West, 6th P.M., for the efficient and economic development of oil, gas and associated hydrocarbons from the Niobrara Formation underlying the below-described lands.

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 7: All

Section 18: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 8: All

Section 17: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 9: All

Section 16: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 10: All

Section 15: All

1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.

Section 11: All  
Section 14: All  
1,280 acres, more or less, Weld County, Colorado

Township 11 North, Range 63 West, 6<sup>th</sup> P.M.  
Section 12: All  
Section 13: All  
1,280 acres, more or less, Weld County, Colorado

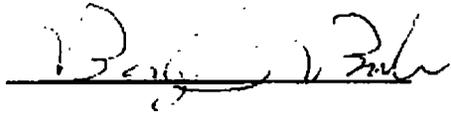
1. Exhibit G-1 – Structure Contour Map – Top Niobrara with offset well locations  
Exhibit G-1 is a structure map constructed on the top of the Niobrara Formation. The contour interval of the map is 25 feet. The Niobrara is gently dipping to the west in the mapped area.
2. Exhibit G-2 – Isopach Map – Niobrara with offset well locations  
Exhibit G-2 is an isopach map of the Niobrara Formation measured in feet. The contour interval of Niobrara thickness is 10 feet. Total thickness across the Application Lands ranges from approximately 230-260 feet.
3. Exhibit G-3 – Cross Section showing Niobrara section.  
Exhibit G-3 is a cross section that includes the entire Niobrara Formation. This cross section and the isopach maps show the Niobrara intervals to be present and continuous throughout the Application Lands.
4. Exhibit G-4 – Hereford Field Type Log.  
Exhibit G-4 is a type log showing the Formations and Members of the Cretaceous-aged lithology present in the Lamotta 5-01M (05-123-30556). The Lamotta well is located in Section 1, 11N 63W and has wireline logs that are typical of the geology of the Hereford Field. The wireline logs shown in the type section are the gamma ray, deep resistivity, and density porosity.
5. Exhibit G-5 – Offset Well Locations  
Exhibit G-5 shows well locations on and in the vicinity of the Application Lands, according to the COGCC reference base map as of August 3, 2017.

The stratigraphy, geochemistry, and pressure data reviewed show that the additional wells in the Niobrara are necessary to adequately and economically recover the oil, gas and associated hydrocarbons from the Niobrara Formation.

Dated this 14<sup>th</sup> day of August 2017

**Affirmation**

The matters described herein were all conducted under my direction and control. I hereby swear that to the best of my knowledge and belief, all of the matters set forth herein and in the exhibits are true, correct, and accurate.



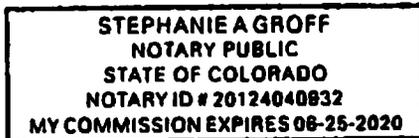
Benjamin C. Burke  
Geoscience Manager  
Fifth Creek Energy Operating Company, LLC

STATE OF COLORADO                    )  
  ) ss.  
COUNTY OF Arapahoe                    )

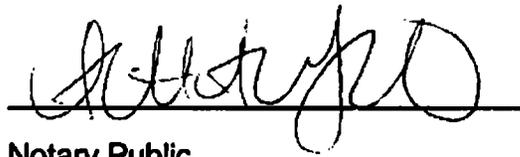
The foregoing instrument was subscribed and sworn to before me this 14<sup>th</sup> day of August, 2017, by Benjamin C. Burke, Geoscience Manager for Fifth Creek Energy Operating Company, LLC.

Witness my hand and official seal.

[SEAL]



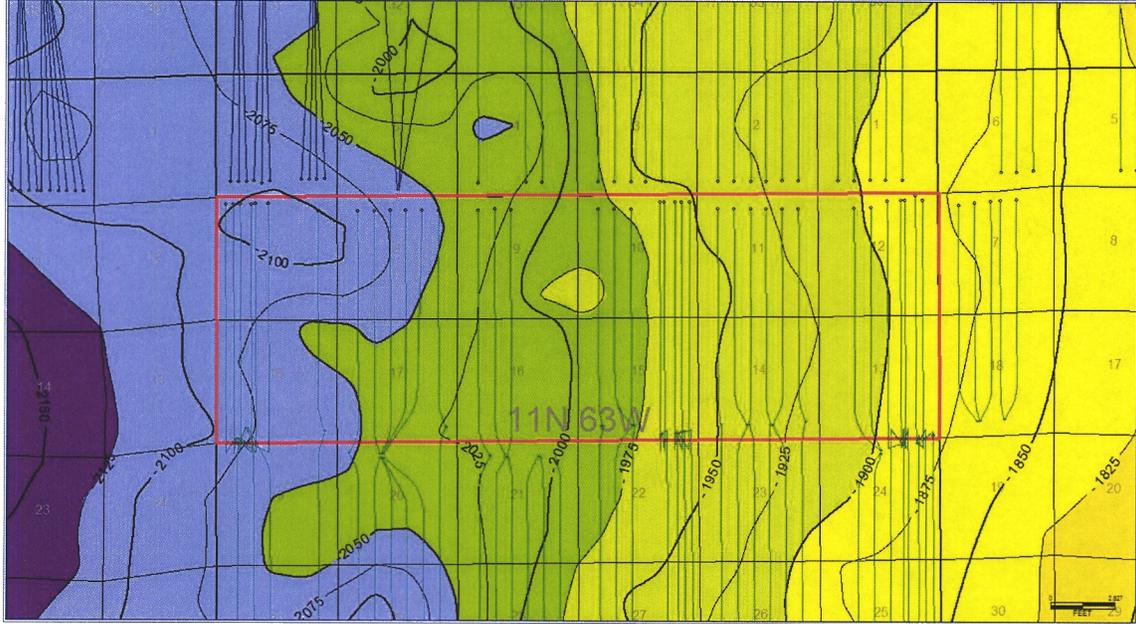
My commission expires: June 25 2020



Notary Public

# Exhibit G-1

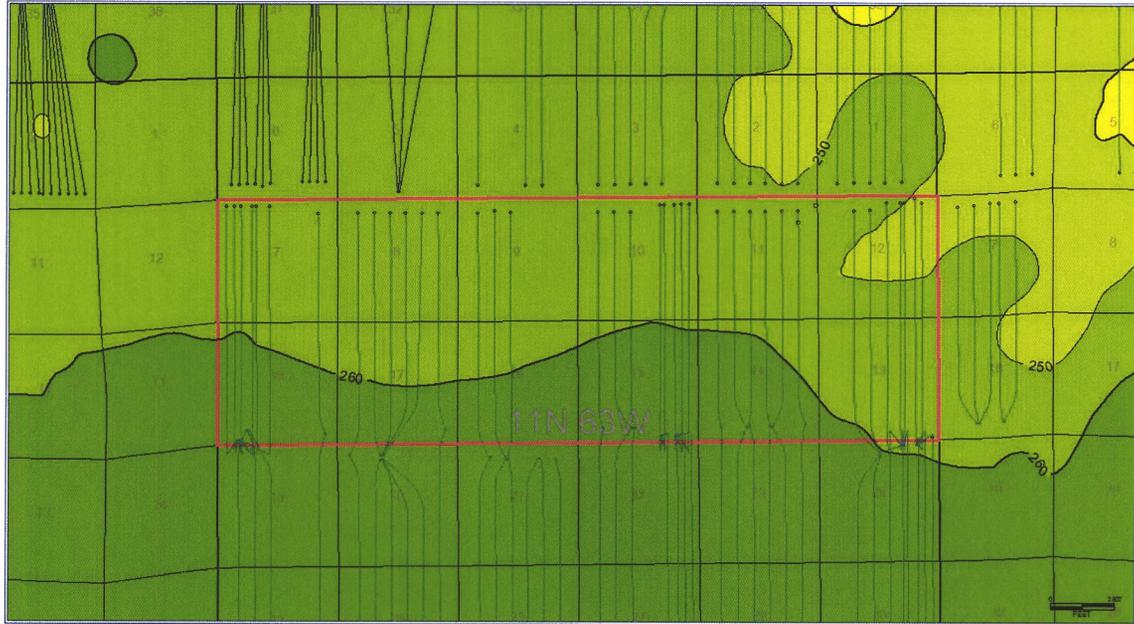
## Structure Contour Map on the top of the Niobrara Formation



25 ft contour intervals

## Exhibit G-2

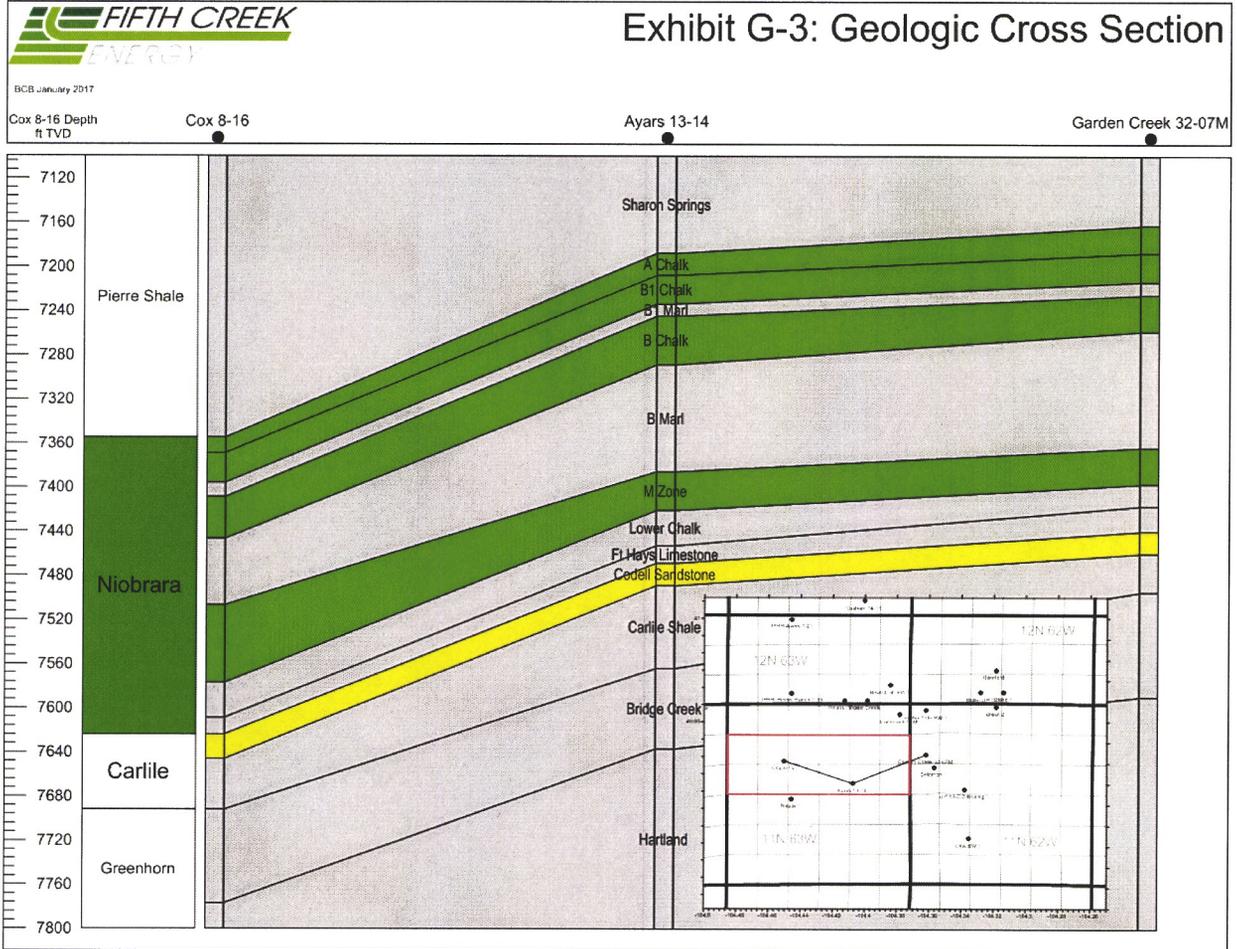
### Isopach Map on the top of the Niobrara Formation



10 ft isopach intervals

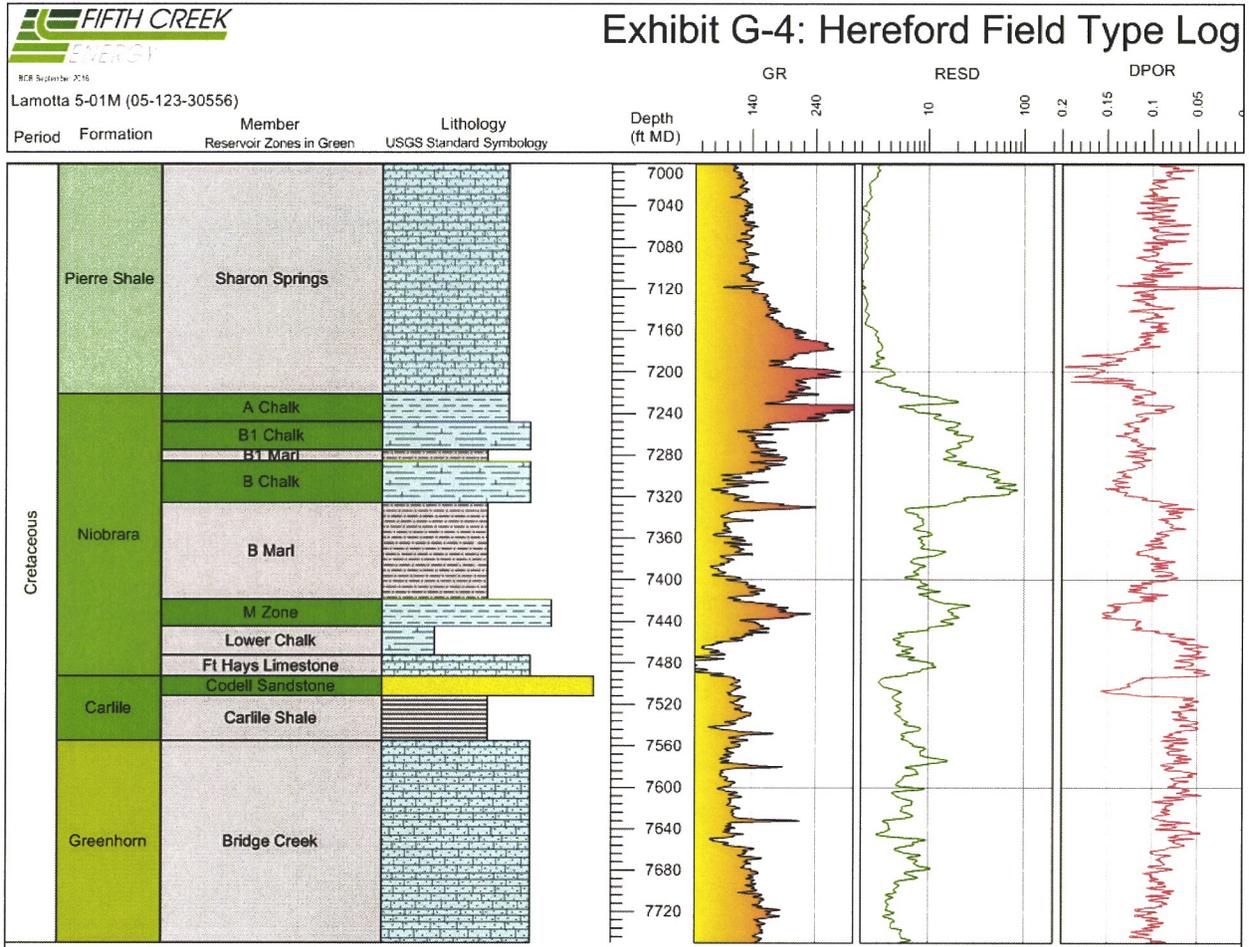
# Exhibit G-3

## Cross section showing Niobrara section



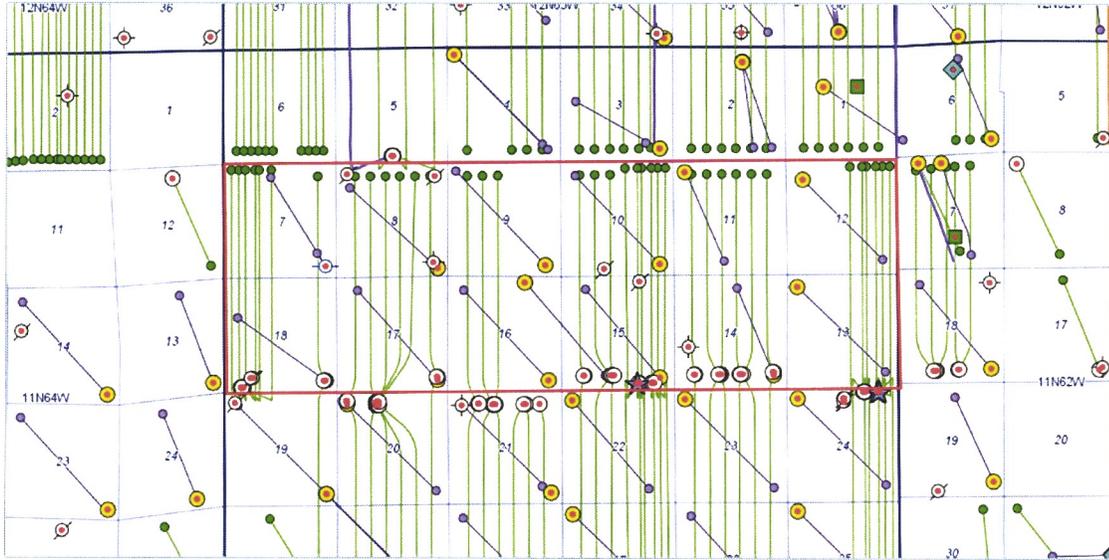
# Exhibit G-4

Type log showing formations and lithology present



# Exhibit G-5

## Offset Well Locations



COGCC GIS Well Database, retrieved August 3, 2017

**Fifth Creek Energy Operating Company, LLC**  
**Engineering Testimony – William Irwin**  
Cause No. 421  
Docket No. 170900556

**September 2017 Colorado Oil and Gas Conservation Commission Hearing**

My name is William Irwin and I am currently employed as the Engineering Advisor for Fifth Creek Energy Operating Company, LLC (“Fifth Creek”). I hold a Bachelor’s of Science in Petroleum Engineering from Montana Tech. I have 32 years of experience in oil and gas engineering. I am familiar with the lands subject to, and matters set forth in, the verified application (“Application”) subject to the above-referenced docket.

In support of Fifth Creek’s Application in the above referenced docket, I am submitting three (3) exhibits along with this sworn testimony. This Application requests an order to approve an additional seven (7) horizontal wells, for a total of fifteen (15) horizontal wells, in DSU #1, DSU #2, DSU #3, DSU #4, DSU #5 and DSU #6, to require that the productive interval of each additional proposed horizontal well in each approximate 1,280-acre drilling and spacing unit shall be no closer than 300 feet from the boundaries of the unit (regardless of the lease lines within the unit) and all horizontal wells shall be no closer than 150 feet from the productive interval of another well producing from the same source of supply within the unit, unless an exception is granted by the Director, and providing that the wells will be drilled from no more than five well pads, including the existing wellpads, in each of the six drilling and spacing units to be located within such unit or adjacent thereto, unless an exception is granted by the Director, consistent with Order No. 421-85 underlying the following lands (“Application Lands”):

Township 11 North, Range 63 West, 6th P.M.

Section 7: All  
Section 18: All

(“DSU #1”)

Township 11 North, Range 63 West, 6th P.M.

Section 8: All  
Section 17: All

(“DSU #2”)

Township 11 North, Range 63 West, 6th P.M.

Section 9: All  
Section 16: All

(“DSU #3”)

Township 11 North, Range 63 West, 6th P.M.

Section 10: All  
Section 15: All

(“DSU #4”)

Township 11 North, Range 63 West, 6th P.M.

Section 11: All  
Section 14: All

(“DSU #5”)

Township 11 North, Range 63 West, 6th P.M.

Section 12: All  
Section 13: All

(“DSU #6”)

**1. Exhibit E-1 – OOIP and EUR Calculations**

Exhibit E-1 shows OOIP calculations, estimated ultimate recovery, and drainage area for fifteen Niobrara Formation wells drilled in a 1280-acre drilling and spacing unit within the underlying the Application Lands as compared to eight wells drilled in the same drilling and spacing unit. The improved recovery factor by 47% shows the drilling of up to fifteen wells will promote efficient drainage, protect correlative rights and prevent waste in a 1280-acre unit versus only drilling eight wells. These reserves would not be fully recovered without the application of horizontal well technology in a 1280-acre drilling and spacing unit.

**2. Exhibit E-2 – Analog Well Evaluation**

Exhibit E-2 reflects an evaluation of analog 2-section lateral well results in Table A and 1-section lateral well results in Table B. Estimated ultimate recovery and associated drainage area are calculated through decline curve analysis utilizing available public data and the inclusion of one new well drill by the Fifth Creek underlying the Application Lands. The 2-section lateral analog wells have an average lateral length of 9,261’ and average estimated ultimate recovery of 431,333 bbl for the Niobrara Formation, for a drainage per well of 85 acres. The 1-section lateral analog wells have an average lateral length of 4,143’ and average estimated ultimate recovery of 191,000 bbl for the Niobrara Formation, for a drainage area per well of 38 acres. These estimates are within a reasonable expected range and support the Application.

**3. Exhibit E-3 – Economic Analysis**

Economic calculations show in improved value of 50% by drilling on 1280-acre units with total of 15 wells versus not developing the resource in an efficient, scientific manner. This result leads to the conclusion that reserves will not be appropriately accessed or drained in a tight unconventional resource with only eight wells per 1280 acre spacing unit, therefore leaving reserves under-developed and creating waste.

## **Conclusions**

Based on each drilling and spacing unit area of 1,280 acres, the drainage calculations are consistent with the development of up to fifteen Niobrara horizontal wells. This testimony and attached exhibits support my conclusion that the drilling, completion, and production of up to fifteen horizontal wells within each proposed drilling and spacing unit will increase total recovery and reduce resource waste relative to an eight-well 1280-acre drilling and spacing unit. In addition, the proposed development plan can be accomplished in an economic and efficient manner while protecting correlative rights.

**Affirmation**

The matters described herein were all conducted under my direction and control. To the best of my knowledge and belief, all of the matters set forth herein and in the exhibits are true, correct, and accurate.

  
\_\_\_\_\_  
William Irwin  
Engineering Advisor  
Fifth Creek Energy Operating Company, LLC

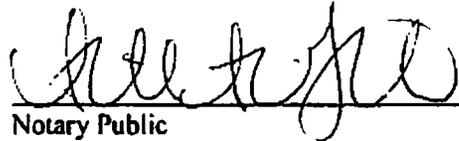
State of Colorado     )  
  ) ss.  
County of                 )

The foregoing instrument was subscribed and sworn to before me this 16<sup>th</sup> day of August, 2017, by William Irwin as Engineering Advisor for Fifth Creek Energy Operating Company, LLC.

Witness my hand and official seal

[SEAL]



  
\_\_\_\_\_  
Notary Public

My commission expires: June 25 2020

**William (Bill) L. Irwin, P.E., Senior Engineering Advisor**

Mr. Irwin has a Bachelor of Science Degree in Petroleum Engineering from Montana Tech, and over 30 years of oil industry experience. In his most recent role as Vice President of Operations with Bakken Hunter, LLC, a division of Magnum Hunter Resources Corporation (MHR), he was instrumental in developing significant Bakken and Three Forks shale oil assets; using modern unconventional resource drilling and completion techniques. These techniques include horizontal drilling and multistage hydraulic fracturing. In addition, his facilities team planned, permitted, constructed and commissioned numerous field gathering and processing facilities. These cutting edge facilities produced, in record time, a cross-border, FERC regulated gas pipeline.

Prior to joining the MHR, Mr. Irwin was the Founder, President, and CEO of Pinon Oil & Gas Ltd. (1997) and Red Mike Energy Inc. (2000). Both private exploration and production companies primarily operated in southern Alberta. From 2007 to 2010, he was the Vice President, Business Development and Board Advisor for Fractal Systems Inc.; an oil services company with proprietary heavy oil viscosity reduction, and partial upgrading technology.

From 1994 through 1997 he was the Operations Manager for Tidal Resources Inc. (Tidal) in Canada and North Dakota. Tidal was a leader in the implementation of horizontal drilling technology to legacy assets in North Dakota. Prior to 1994, Mr. Irwin held varying technical and management roles with Unocal Corp and Quintana Petroleum Corporation in Canada, Colorado, New Mexico, Texas, and Utah. Mr. Irwin is a registered Professional Engineer in Alberta and is an accepted professional engineering witness in North Dakota and New Mexico.

**Exhibit E-1 OOIP  
OOIP and EUR Calculations**

Date: 8/1/17

Reference Sections:

Engineer: William L. Irwin

Key Variables & Assumptions	8 Niobrara wells	15 Niobrara wells	
Porosity ( $\phi$ )	10%	10%	Median porosity for Niobrara
Water Saturation ( $S_w$ )	75%	75%	Core-based corrected saturation
Area (A)	1280	1280	acres
Height (h)	272	272	feet
Oil Formation Volume Factor ( $B_o$ )	1.5	1.5	bb/STB

**Calculation Original Oil in Place**

Estimated Oil Equivalent in Place:	45,017,088	45,017,088	Bbl oil
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**Niobrara Well Performance**

	8	15	Density of wells
Horizontal Well Count	8	15	
Drainage area for 1 well	85	85	acres
Average EUR per well	431,333	431,333	Bbl oil
Estimated Total Oil	3,450,667	6,470,000	Bbl of oil (total 8 wells, total 15 wells)
Estimated Rf of OOIP	7.7%	14.4%	

**Comparison of Recovery Factors**

Total increased Rf	47%	Increase in Recovery factor due to increase in well density
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*Symbols, Terminology, and Equations*

$\phi$	Porosity as %	Rf	Recovery Factor, %
h	height, feet	bbl	barrel of oil, 42 gallons
A	Area, acres (1 acre is 42,560 ft <sup>2</sup> )	STB	Stock Tank Barrel
$B_o$	Oil Formation Volume Factor, bbl/STB		
$S_w$	Water Saturation as %		
OOIP	Original Oil in Place, bbls	EUR	Estimated Ultimate Recovery, BBL of oil
	OOIP = 7758 A h $\phi$ (1- $S_w$ ) / $B_o$		EUR = 7758 (A) (Rf) (h) $\phi$ (1- $S_w$ ) / ( $B_o$ )

Exhibit E-2  
Analog Well Evaluation

Date: 8/1/17

Reference Sections:

Engineer: William L. Irwin

Table A: 2-Section Laterals

Type	Zone	API	Township	Range	Section	Lateral Length (ft)	EUR (MBO)	Net Thickness (h, ft)	Average Porosity (φ, %)	Average Water Saturation (Sw, %)	Recovery Factor (Rf, %)	Bo (Rb/STB)	Drainage Area (A, acres)
JUBILEE 113-1609H	Niobrara	49-021-21078	13N	65W	16, 9	8,875	237,000	272	10%	75%	14.5%	1.50	46
JUBILEE 151-1034H	Niobrara	49-021-21087	13N	65W	10, 34	9,484	557,000	272	10%	75%	14.5%	1.50	109
JUBILEE 153-1034H	Niobrara	49-021-21082	13N	65W	10, 34	9,371	353,000	272	10%	75%	14.5%	1.50	69
JUBILEE 154-1034H	Niobrara	49-021-21086	13N	65W	10, 34	9,365	685,000	272	10%	75%	14.5%	1.50	134
JUBILEE 194-2311H	Niobrara	49-021-21094	13N	65W	23, 11	9,515	338,000	272	10%	75%	14.5%	1.50	66
Fox Creek 222-3422H	Niobrara	05-123-42582	12N	63W	34, 22	8,955	418,000	272	10%	75%	14.5%	1.50	82
<b>Averages</b>						<b>9,261</b>	<b>431,333</b>	<b>272</b>	<b>10%</b>	<b>75%</b>	<b>14.5%</b>	<b>1.50</b>	<b>85</b>

Table B: 1-Section Laterals

Type	Zone	API	Township	Range	Section	Lateral Length (ft)	EUR (MBO)	Net Thickness (h, ft)	Average Porosity (φ, %)	Average Water Saturation (Sw, %)	Recovery Factor (Rf, %)	Bo (Rb/STB)	Drainage Area (A, acres)
CASPER 1-26H	Niobrara	49-021-21111	16N	65W	25	4,468	241	272	10%	75%	14.5%	1.50	47
CRITTER CREEK 21-26H	Niobrara	05-123-31796	11N	63W	26	4,655	148	272	10%	75%	14.5%	1.50	29
CRITTER CREEK 22-27H	Niobrara	05-123-31507	11N	63W	27	4,955	52	272	10%	75%	14.5%	1.50	10
CRITTER CREEK 29-02H	Niobrara	05-123-33687	11N	63W	2	3,117	60	272	10%	75%	14.5%	1.50	12
CRITTER CREEK 30-26H	Niobrara	05-123-32328	11N	63W	26	4,266	94	272	10%	75%	14.5%	1.50	18
CRITTER CREEK 34-16H	Niobrara	05-123-33103	11N	63W	16	4,736	169	272	10%	75%	14.5%	1.50	33
ELMER 8-31H	Niobrara	05-123-30584	12N	62W	31	1,827	318	272	10%	75%	14.5%	1.50	62
ELSIE 7-34H	Niobrara	05-123-30631	12N	63W	34	4,930	473	272	10%	75%	14.5%	1.50	93
FOX CREEK 1-35H	Niobrara	05-123-31385	12N	63W	35	4,669	256	272	10%	75%	14.5%	1.50	50
FOX CREEK 2-25H	Niobrara	05-123-31400	12N	63W	25	3,776	168	272	10%	75%	14.5%	1.50	33
FOX CREEK 3-26H	Niobrara	05-123-31417	12N	63W	26	3,987	247	272	10%	75%	14.5%	1.50	48
FOX CREEK 6-33H	Niobrara	05-123-31558	12N	63W	33	4,140	37	272	10%	75%	14.5%	1.50	7
ROSIE 1-35H	Niobrara	49-021-21009	16N	65W	35	4,327	225	272	10%	75%	14.5%	1.50	44
<b>Averages</b>						<b>4,143</b>	<b>191</b>	<b>272</b>	<b>10%</b>	<b>75%</b>	<b>14.5%</b>	<b>1.50</b>	<b>38</b>

$$\text{Drainage Area (acres)} = \frac{(EUR_{1-sec} \cdot B_o) (5.615 \frac{ft^3}{bbl})}{(RF)(\phi)(1 - S_w)(h)(43,560 \frac{ft^2}{acre})}$$

Where:

RF = Recovery Factor, %

φ = Porosity, %

S<sub>w</sub> = Water Saturation, %

h = Net Thickness, ft

B<sub>o</sub> = Oil Formation Volume Factor, RB/STB

EUR<sub>1-sec</sub> = Estimated Ultimate Oil Recovery, bbls

Note: 1-section lateral average drainage area calculates to roughly half of 2-section lateral - check

**Exhibit E-3  
Economic Analysis**

Date: 8/1/17

Reference Sections:

Engineer: William L. Irwin

**Key Variables & Assumptions**

	Type Well 8	Type Well 15	8 wells	15 wells	
Capex	\$ 5,800	\$ 5,600	\$ 46,400	\$ 84,000	M\$ Pad development and shared facilities lowers cost by \$200 M\$
LOE	\$ 13,000	\$ 13,000	\$ 13,000	\$ 13,000	Monthly operating expenses per well, \$
Total Equivalent EUR	503	503	4,026	7,548	Estimated ultimate recovery, MBOE
EUR, Oil	431	431	3,451	6,470	Estimated oil recovery, Mbbls
EUR, Gas	431	431	3,451	6,470	Estimated gas recovery, Mscf (assuming 1,000 scf/bbl)
WI	100	100	100	100	Estimated Working Interest
NRI	86	86	86	86	Estimated Net Revenue Interest
Oil Price	\$ 50.00	\$ 50.00	\$ 50.00	\$ 50.00	\$/bbl, Estimated realized price, includes differential from Nymex
Gas Price	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$/Mcf, Estimated realized price, includes differential from Henry Hub

**Economic Outputs**

BT NPV10	\$ 2,987	\$ 3,187	\$ 23,896	\$ 47,805	M\$, Net present value discounted at 10%
BT ROR	41%	57%	41%	57%	Rate of Return as %

**Estimated Improved Value**

				50%	Due to improved Recovery Factor from increase in well density and pad development lowering per well cost.
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