



**Application for Overlapping Temporary Spacing Unit
Increased Well Density
200' Heel/Toe & 500' Lateral Setback**

**All of Sec. 18 & 19, Township 26 North, Range 59 East
Richland County, Montana**



Docket Number 22-2021 & 23-2021

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EXHIBIT L-1
Regional Locator Map
Overlapping Temporary Spacing Unit
T26N-R59E, Sections 18 & 19
Richland County, Montana

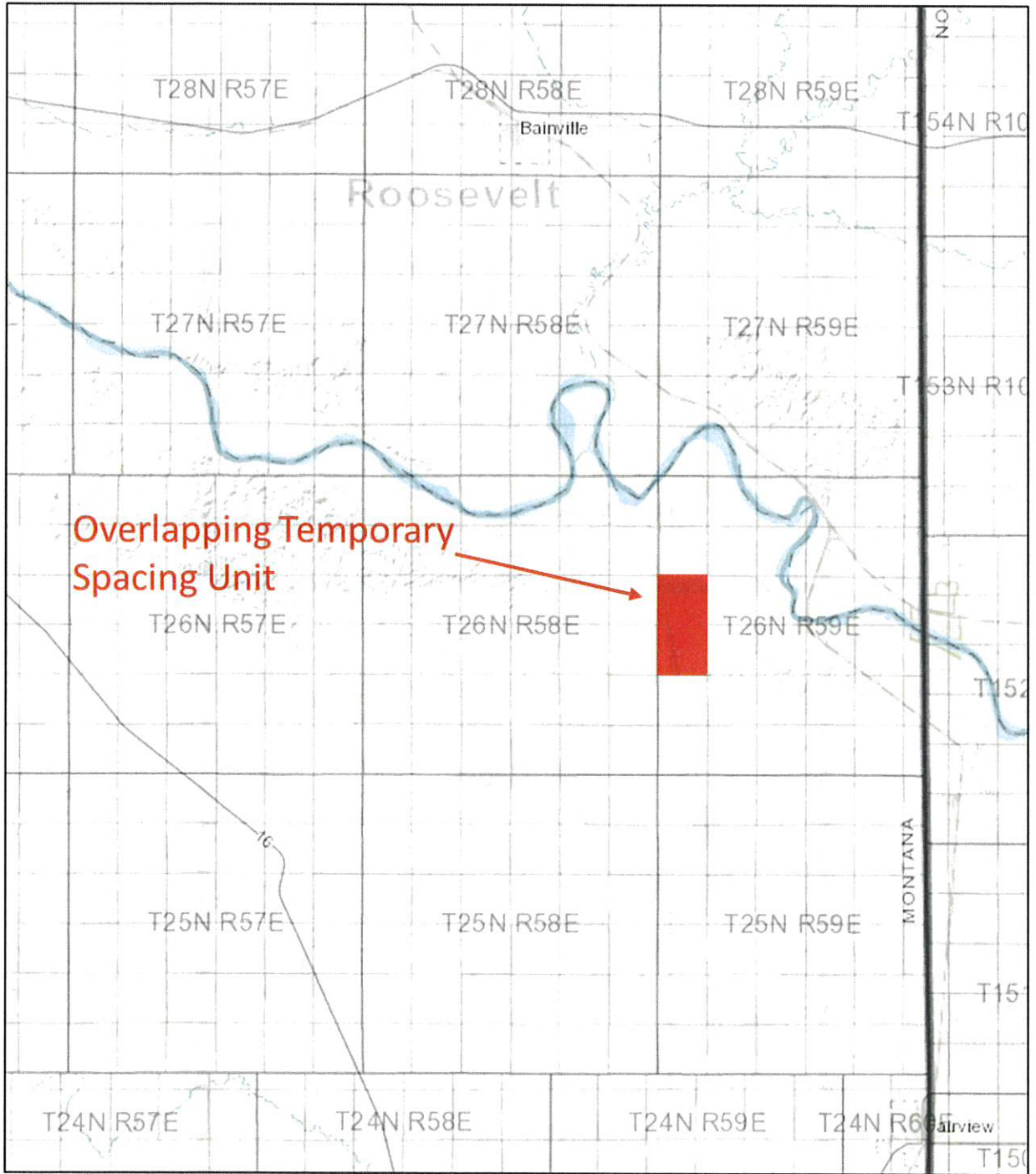


EXHIBIT L-2

Tract Map

T26N-R59E, Sections 18 & 19
Richland County, Montana

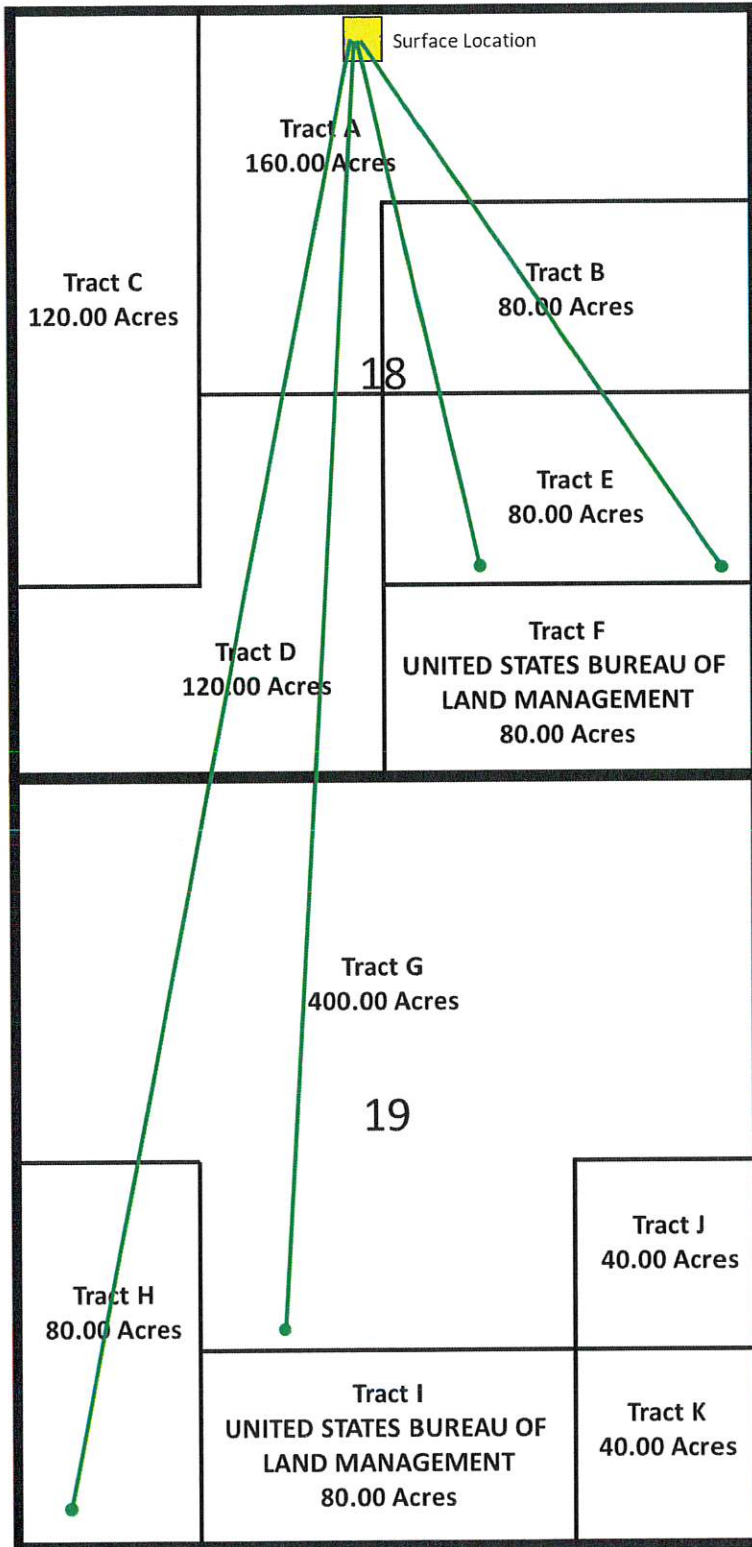


EXHIBIT L-3
Ownership Schedule
T26N-R59E, Sections 18 & 19
Richland County, Montana

Working Interest Summary	NMA	WI
Bison Oil & Gas III, LLC	146.49	11.44%
OTHERS	1133.51	88.56%
	1280	100.00%

Exhibit G-1

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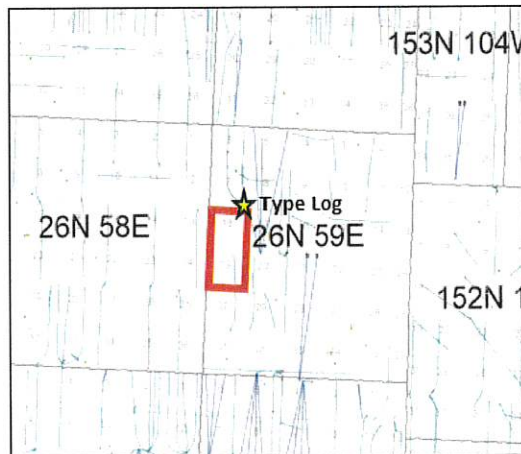
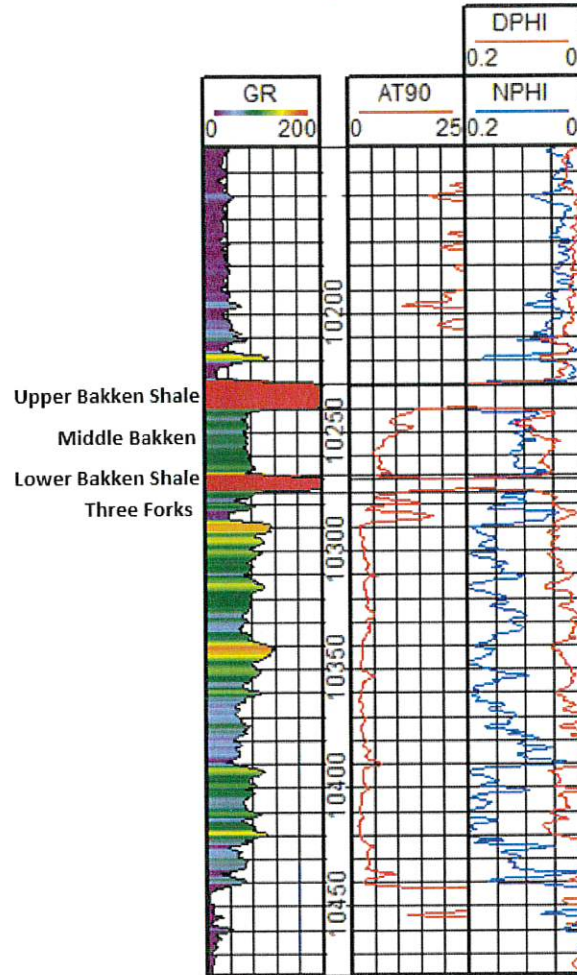


Exhibit G-2

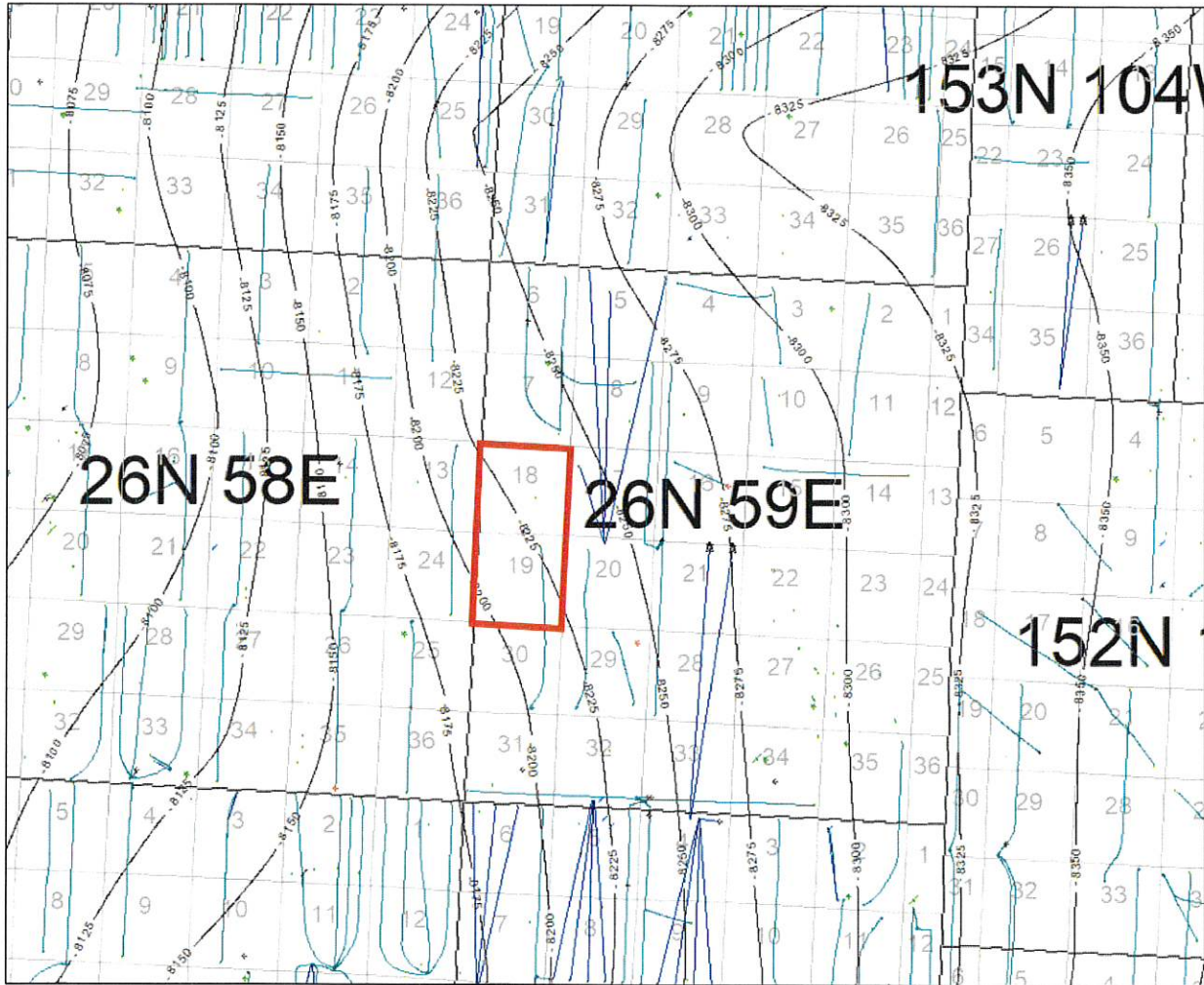


Exhibit G-3

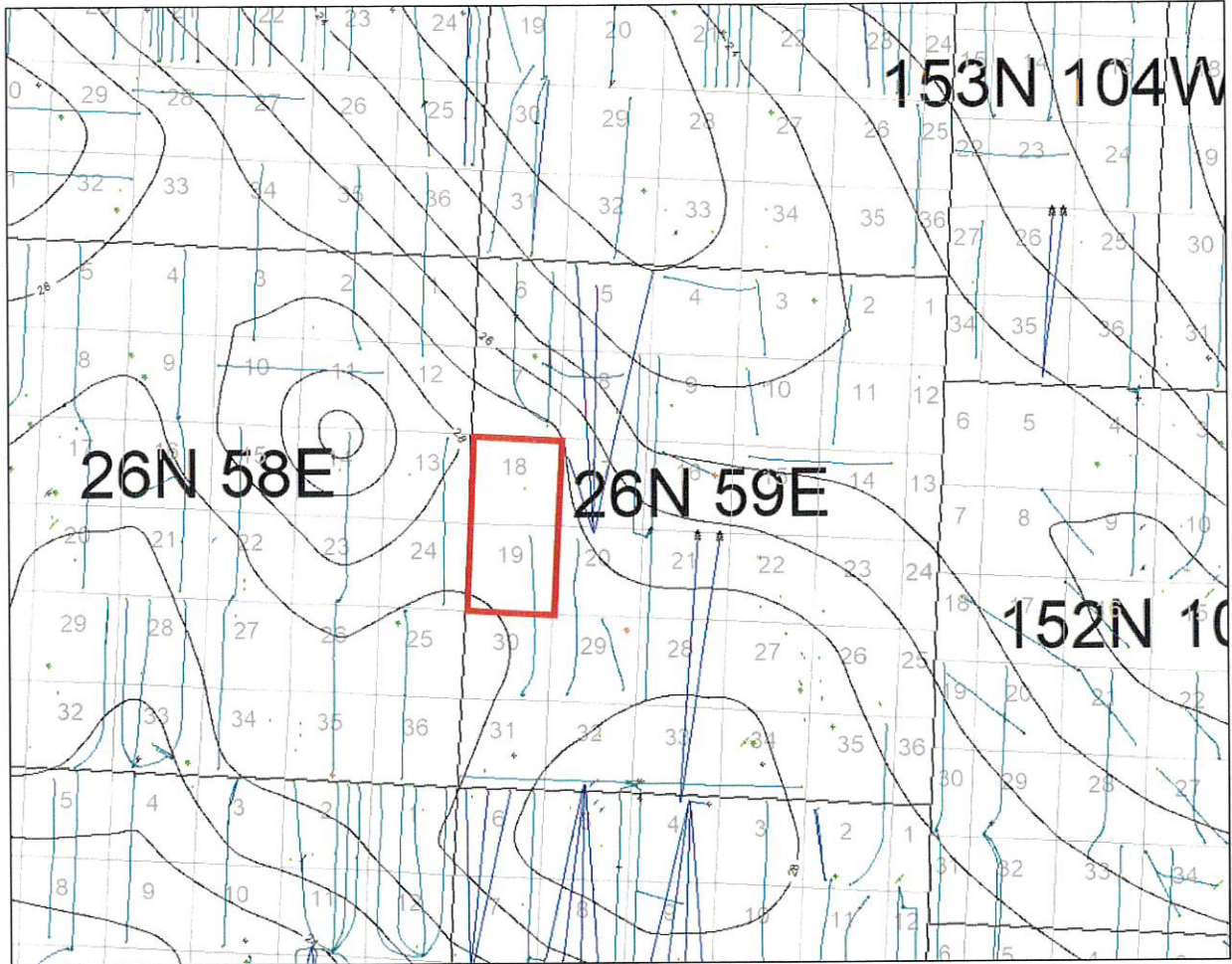


Exhibit G-4

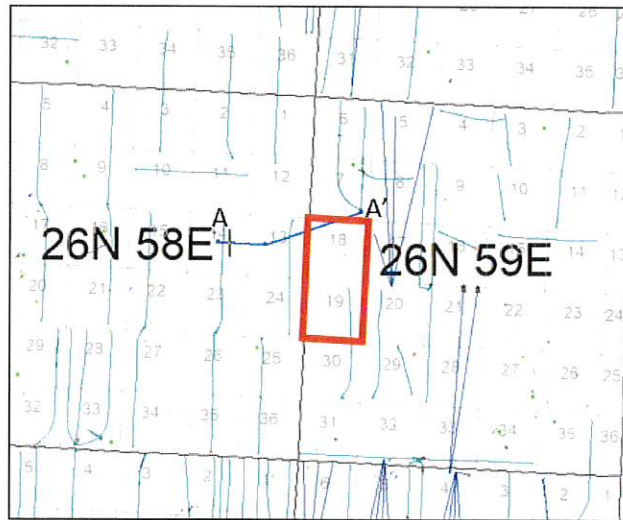
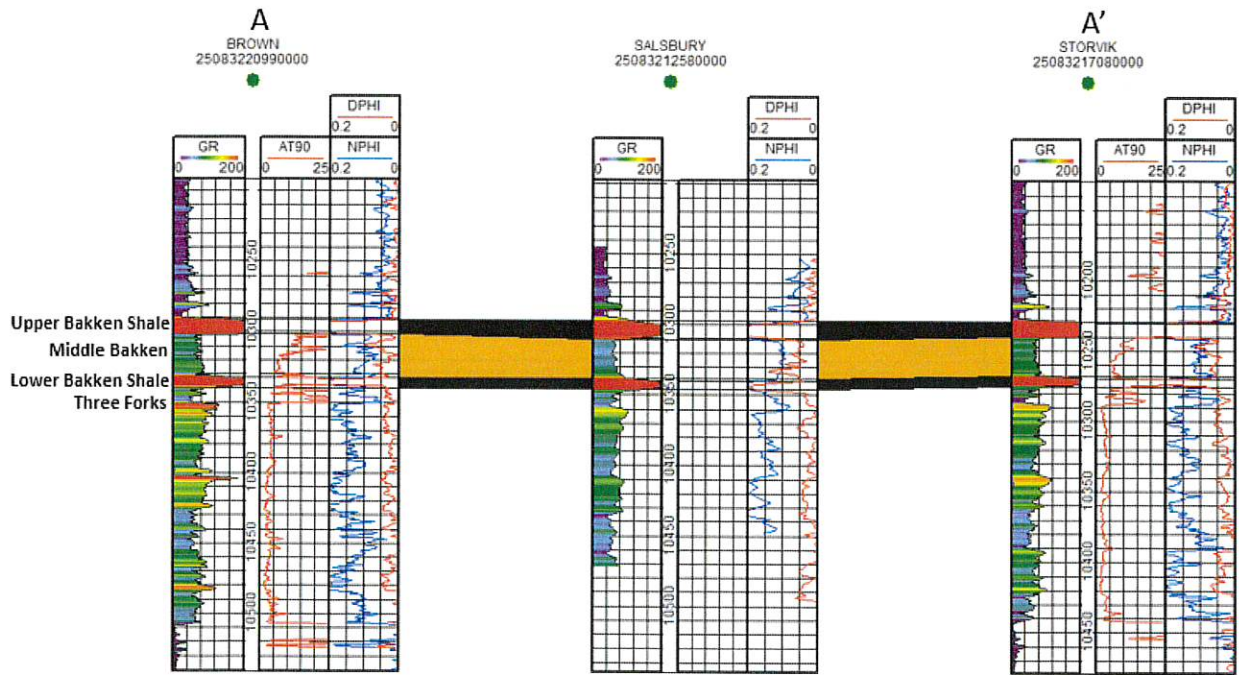


Exhibit G-5

Variables and calculations for Bakken wells

A	640 acres	640 acre spacing unit
h	46 ft.	Base of Lower Bakken Shale to top of Upper Bakken Shale
phi	7.0%	log data
Sw	30%	Core data
Bo	1.6	Vasquez and Beggs method using solution GOR 1100, corrected gas gravity 0.95, reservoir temp 220F, oil gravity 40 API
Rf	18%	Based on our EUR and OOIP calculations for 640 spacing
OOIP (BOE)	7,000,000	$(7758 * A * h * \text{phi} * (1-Sw)) / Bo$
EUR (BOE)	318,000	Decline curve analysis of nearby wells

A	1280 acres	1280 acre spacing unit
h	46 ft.	Base of Lower Bakken Shale to top of Upper Bakken Shale
phi	7.0%	log data
Sw	30%	Core data
Bo	1.6	Vasquez and Beggs method using solution GOR 1100, corrected gas gravity 0.95, reservoir temp 220F, oil gravity 40 API
Rf	18%	Based on our EUR and OOIP calculations for 1280 spacing
OOIP (BOE)	14,000,000	$(7758 * A * h * \text{phi} * (1-Sw)) / Bo$
EUR (BOE)	646,000	Decline curve analysis of nearby wells

EUR - estimated ultimate recovery (BOE)

Rf - recovery factor (%)

OOIP - original oil in place (BOE)

A - area (acres)

h - net pay (ft.)

phi - porosity (%)

So - oil saturation (%)

Sw - water saturation (%)

Bo - formation volume factor (RB/STB)

Exhibit E-1

2 Mile Lateral Single Well Economics

EUR	644	MBOE
Working Interest	100	%
Net Revenue Interest	80	%
Commodity Pricing	3/19/2021 Strip Pricing	
Net Investment	6,100	\$M
Net Fixed Operating Expense	10,000	\$/month
Net Variable Operating Expense	6.00	\$/bbl
Severance Tax	957	\$M
NPV 10	3,502	\$M
IRR	59.9	%
Undiscounted ROI	1.9	Net/Invest
Undiscounted Payout	1.1	Years

1 Mile Lateral Single Well Economics

EUR	318	MBOE
Working Interest	100	%
Net Revenue Interest	80	%
Commodity Pricing	3/19/2021 Strip Pricing	
Net Investment	4,900	\$M
Net Fixed Operating Expense	10,000	\$/month
Net Variable Operating Expense	6.00	\$/bbl
Severance Tax	376	\$M
NPV 10	--	\$M
IRR	--	%
Undiscounted ROI	1.0	Net/Invest
Undiscounted Payout	11.0	Years

AFFIDAVIT

MBOGC Docket 22-2021 & 23-201

State of Colorado)

County of Denver)

Travis Barrett, being first duly sworn, deposes and states:

I am employed as a Senior Staff Landman for Bison Oil & Gas III, LLC ("Bison"). I graduated from Colorado State University in 2009 with a BA in Political Science and later from Western Colorado State University in 2010 with a BS in Business- Professional Land and Resource Management. I have over 10 years of experience in land work as related to the Oil and Gas industry. I have worked on and/or overseen all land matters related to the Application Lands, including Bison's anticipated surface locations for development. A summary of my qualifications is attached.

In support of the Application, I submit the following sworn testimony and exhibits.

Exhibit L-1 is a Regional Locator Map identifying the location of the Overlapping Temporary Spacing Unit.

Exhibit L-2 is a Tract Map which indicates the various tracts within the Overlapping Temporary Spacing Unit.

Exhibit L-3 is the Ownership Schedule which identifies Bison's current Working Interest in the Overlapping Temporary Spacing Unit.

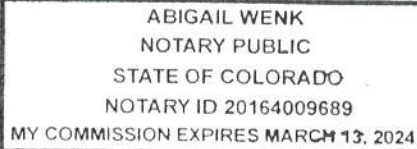


Travis Barrett
Senior Staff Landman
Bison Oil & Gas III, LLC

Subscribed and sworn before me on this 26th day of March 2021.



Notary Public



Travis Barrett, RPL

Denver, CO

tbarrett@bisonog.com

Work Experience

Bison Oil & Gas II & III, LLC, Denver, CO

September 2019- Present

Senior Staff Landman

- Negotiate, Manage and Assist in Acquisitions and Divestitures
- Oversee and manage brokerage activity in active leasing plays
- Negotiate Farmouts, Term Assignments, Acreage Trades, etc.
- Handle Pooling Agreements and other permitting duties as related to Land
- Work with team Geologists and Engineers to execute leasing, title, and permitting efforts in exploration and development areas

Whiting Petroleum Corporation, Denver, CO

January 2012- August 2019

Team Lead Landman- Mid Continent, Permian and Gulf Coast

- Team Lead for the Mid Continent, Permian and Gulf Coast regions that encompass prospects in Michigan, Oklahoma, Louisiana, Arkansas, New Mexico and Texas.
- Work with BD and Exploration Teams to vet acreage positions and challenges for companies/assets of interest.
- Negotiate, Manage and Assist in Acquisitions and Divestitures totaling over \$1.8B since 2013
- Work with team Geologists and Engineers to execute the most effective leasing, title, and permitting efforts in exploration areas (acquired 294,000 net acres through grassroots leasing and acquisitions in priority areas in 2014).
- Oversee and manage brokerage activity in active leasing plays (25 man crew in Michigan, 12 man crew in TX, 5 man crew in Louisiana).
- Negotiate Farmouts, Term Assignments, Acreage Trades, etc.
- Handle Pooling Agreements and other permitting duties as related to Land
- Work with Broker and Title Attorneys to order and prioritize all Abstracts and Title Opinions
- Coordinate AMI efforts with prospect partners
- Handle issues, maintenance, and AFEs affecting Legacy Properties
- Due Diligence
- Prepare JOAs, AFE Proposals, etc.

Land Coordinator- Northern Rockies, January 2012-July 2013

- Negotiate Acreage trades
- Negotiate and purchase working interests in operated wells
- Work with broker to acquire acreage and identify expiring competitor acreage for top leasing
- Monitor Lease Expirations to adjust drilling schedule or take necessary steps to protect companyleasehold.
- Proposing wells/AFE's
- Prepare and execute JOAs, UAs, CAs, Declarations of Unitization, etc.

Springfield Oil Company, Hot Springs, SD

May 2010- January 2012

Landman

- Running Title
- Meeting with landowners
- Preparing Title Memorandums and Ownership reports
- Abstracting
- Title Curative
- Experience working in Colorado, North Dakota, Montana and Kansas

EDUCATION

- **Western State Colorado University, Gunnison, CO May 2010**
 - BS Business- Professional Land and Resources Management
- **Colorado State University, Fort Collins, CO**
 - BA Political Science- Energy Policy **July 2009**
 - Minor: Business

AFFIDAVIT

MBOGC Docket 22-2021 & 23-2021

State of Colorado)

County of Denver)

Ian Hogan, being first duly sworn, deposes and states:

I am currently employed as the Vice President of Geoscience with Bison Oil & Gas III, LLC. I have a Bachelors of Science degree in environment science from U.C. Santa Barbara and a Masters of Science degree in geology from Colorado State University. I have over 7 years of experience as a geologist in the oil and gas industry and am familiar with the geologic characteristics on the Applications Lands. The following Geology Exhibits detailed below were prepared by me and to the best of my knowledge; all of the matters set forth are true, correct, and accurate.

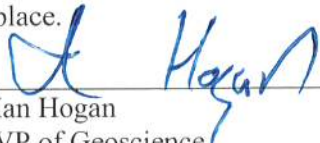
Exhibit G-1 is a type log from the Storvik 1-7 well, located in Section 7, T26N-R59E, which is approximately four miles west of the Application Lands. The type log includes gamma, resistivity, and neutron and density porosity logs in order to show the character of the Bakken formation and Three Forks formation in this area.

Exhibit G-2 presents a subsea structure map constructed on top of the Bakken formation. The regional dip for the Bakken formation underlying the Application Lands is approximately 25 feet per mile down to the east toward the structural basin axis.

Exhibit G-3 presents an isopach map of the Middle Bakken. Across the Application Lands, the average thickness of the Middle Bakken is 25 ft.

Exhibit G-4 shows a geologic cross section across the Application Lands. The cross section includes gamma in track 1, resistivity in track 2, and neutron and density porosity in track 3. The cross section shows that the Upper Bakken Shale, Middle Bakken, Lower Bakken Shale, and Three Forks are present and of similar thickness across the acreage and the logs are characteristic of productive targets. Both the Bakken and Three Forks are ubiquitous under the Application Lands.

Exhibit G-5 presents Bakken reservoir characteristics and a volumetric calculation showing the estimated oil recovery in the 1920-acre spacing on the Application Lands. Wells are planned in the Middle Bakken. OOIP was calculated for the stratigraphic unit bounded by the base of the Lower Bakken Shale to the top of the Upper Bakken Shale. Core data shows that this interval has favorable fluid saturations and reservoir characteristics. Logs run across this interval show strong resistivity responses and high porosity. There is an estimated 21 MMBOE within this stratigraphic unit in a 1920-acre spacing unit, of which Bison hopes to recover up to 18% of the oil in place.



Ian Hogan
VP of Geoscience
Bison Oil & Gas III, LLC

Subscribed and sworn before me on this 26th day of March 2021.



Notary Public

ABIGAIL WENK
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20164009689
MY COMMISSION EXPIRES MARCH 13, 2024

Skills

- Petra, SES, Kingdom, Microsoft Office, Spotfire
- Well log analysis, well planning, geosteering, play mapping, prospect generation, deal evaluation

Experience

Bison Oil & Gas III, LLC (Denver, CO)

October 2019 – Current

Vice President of Geoscience

- Evaluated multiple assets in various basins across the Rockies including the DJ, Williston, Powder, Green River, and Uinta
- Defined geologic boundaries to a prospect in the Williston Basin in Roosevelt County and Richland County, MT

Bison Oil & Gas II, LLC (Denver, CO)

December 2016 – Current

Vice President of Geoscience

- Defined geologic boundaries to a prospect in Weld County, CO
- Assisted in the permitting and well planning processes of over 100 wells

Bison Oil & Gas, LLC (Denver, CO)

March 2016 – December 2016

Senior Geologist

- Evaluated lease and mineral acquisitions in the DJ, Powder, and San Juan Basins
- Mapped and evaluated the Niobrara and Codell throughout the DJ basin and identified top tier acreage, identified secondary targets, and assisted in numerous capacities in the acreage acquisition process
- Defined geologic boundaries to a sweet spot in Arapahoe and Adams County, CO and conducted detailed reservoir characteristic, maturity, structural, and seismic studies to understand and evaluate the area
- Assisted in the permitting and well planning processes of over 200 wells
- Steered one Niobrara B horizontal well with a percentage of 92% in zone

Hogan Geologic Consulting, LLC (Denver, CO)

November 2015 – March 2016

Geologist

- Evaluated numerous deals in the DJ Basin from a geologic and economic standpoint
- Consulted for Bison Oil and Gas with duties including building regional maps, evaluating deals, locating top tier acreage using well logs, core, production data, and identifying secondary targets

Fidelity Exploration and Production Company (Denver, CO)

May 2013 – November 2015

Geologist, Williston Basin Asset Team

- Planned and steered Bakken and Three Forks wells in Mountrail and Stark Counties
- Identified and mapped sweet spots in Stark County for new drill prioritization. Sweet spots were characterized using resistivity anomalies, source rock parameters, reservoir characteristics, core data and core observations, volumetric calculations, and structural features identified on 3D seismic

- Evaluated reservoir characteristics from logs, cores, thin sections, production, and competitor activity and used this data to recommend new landing points in the Three Forks and Bakken
- Re-evaluated LWD data from 40 Bakken, Three Forks, and Pronghorn wells in SES to correlate %-in-zone with EUR and used this data to identify optimal target zones, specifically in the Pronghorn
- Evaluated and ranked over 40 re-frac candidates in Mountrail County
- Identified upside over Fidelity acreage, prepared the geologic portion of the Williston management presentation package, and presented to potential buyers for the company marketing process

Geologist, East Texas Asset Team

- Mapped prospective regions in the Taylor Sand member of the Cotton Valley
- Completed a production log study of 21 wells and used it in conjunction with open hole logs to identify two secondary horizontal targets in the upper Cotton Valley

Geologist, Paradox Basin Exploration Team

- Defined limits of a play fairway using well log, core, geochem, and production data
- Member of an interdisciplinary team that identified four prospects totaling ~70k acres using geologic and land considerations, then outlined an acquisition, exploration, and development plan with economics for each prospect
- Assisted in evaluating uphole target zones, identified seven prospective targets, planned and drilled three exploratory wells
- Developed and tested a method of geosteering in salt using a handheld XRF device on cuttings to determine position when faulted out of target zone
- Designed and managed a field-wide water testing program and used results to help determine the source of produced water in several wells
- Identified porosity and fractures using triple combo, OBMI, mud log, and real time mass spec data in horizontal wells to attempt to optimize perforation intervals and to map shows

Colorado State University (Fort Collins, CO)

August 2011 – May 2013

Teaching Assistant

- Sedimentary petrology and geochemistry, sedimentary section of field camp, historical geology

Education

Colorado State University (Fort Collins, CO)

August 2011 – May 2013

Master of Science in Geology (Sedimentology/Stratigraphy); GPA: 4.00

- Thesis: Paleo-Fluid Migration and Diagenesis in the Pennsylvanian-Permian Fountain Formation

Santa Barbara City College (Santa Barbara, CA)

August 2010 – May 2011

GPA: 4.00

- Completed all prerequisite geoscience courses including two months of field courses

University of California, Santa Barbara (Santa Barbara, CA)

August 2008 - June 2010

Bachelor of Science in Environmental Science; GPA: 3.04

Industry Related Short Courses

- PTTC Decline Curve Analysis and Economics (1-day course)
- AAPG RMS: Source Rocks 101 (1-day course)

- Petroskills: Basic Reservoir Engineering (5-day course)
- AAPG: Basic Well Log Analysis (5-day course)
- Mark Rowan: Salt Tectonics (1-day course)
- AAPG Winter Expo: Geological Interpretation of Seismic Data (2-day course)
- AAPG Winter Expo: Carbonate Seismic Sequence Stratigraphy (1-day course)
- AAPG Winter Expo: Carbonate Depositional Systems (1-day course)
- GSA/ExxonMobil/ConocoPhillips: Introduction to Petroleum Structural Geology (2-day course)
- AAPG/Nobel Energy: We Made a Discovery! Now what? (2-day course)
- GSA/ExxonMobil: Bighorn Basin Field Seminar (7-day field course)
- SEPM/ExxonMobil: Sequence Stratigraphy for Graduate Students (2-day course)
- SEPM/ExxonMobil: Deltas: Processes, Stratigraphy, and Reservoirs (2-day course)
- Wrangell Mountains Center: Intensive field studies program with emphasis on geomorphology and sedimentology (7-week course)

Awards and Scholarships

- 2012 GSA/ExxonMobil Bighorn Basin Field Award
- 2012 Rocky Mountain Association of Geologists CSU Scholarship
- 2012 GSA Research Grants in Aid recipient
- 2011 American Petroleum Institute California Coastal Chapter Academic Achievement Award
- 2011 SBCC Earth Sciences Harold Alexander Award, Vic Calloway Award, Thomas Bennett Scholarship, and Karen Armstrong Scholarship

Publications

- Hogan, I., Sutton, S. (2014) The role of mudstone baffles in controlling fluid pathways in a fluvial sandstone: a study in the Pennsylvanian-Permian Fountain Formation, northern Colorado, U.S.A. *Journal of Sedimentary Research*, 84 (11), 1064-1078
- Hogan, I. (2013) *Paleo-fluid migration and diagenesis in the Pennsylvanian-Permian Fountain Formation*. Master's Thesis. Colorado State University, Fort Collins, CO.
- Hogan, I., Sutton, S. (2012) *Controls on paleo-fluids and fluid flow in the Pennsylvanian-Permian Fountain Formation* (Abstract). Geological Society of America Annual Meeting. Charlotte, North Carolina.

Affiliations

- AAPG, RMAG

AFFIDAVIT

MBOGC Docket 22-2021 & 23-2021

State of Colorado)

County of Denver)

Elizabeth Wilson, being first duly sworn, deposes and states:

My name is Elizabeth Wilson, and I am currently employed as a Senior Staff Reserves and Business Development Engineer at Bison Oil & Gas III, LLC. I received a Bachelor's Degree in Chemical Engineering with a minor in Business from the University of Kansas. I have over 10 years of oil and gas experience with an emphasis on production engineering and oil and gas economics. A summary of my qualifications is attached. The following exhibit was prepared by me and is true and correct to the best of my knowledge and belief.

Exhibit E-1 is a summary of the well economics for the wells to be drilled in the Temporary Spacing Unit.

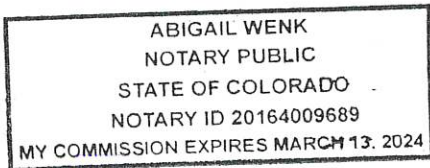


Elizabeth Wilson
Senior Staff Reserves and Business Development Engineer
Bison Oil & Gas III, LLC

Subscribed and sworn before me on this 26th day of March 2021.



Notary Public



Katherine Elizabeth Wilson

ekane@bisonog.com • (720) 644-6997

EXPERIENCE

Bison Oil & Gas III, LLC

10/19-Present *Senior Staff Reserves and Business Development Engineer*

- Evaluate oil and gas prospects to determine the technical and economic feasibility of commercial development

Bison Oil & Gas II, LLC

12/16-Present *Senior Staff Reserves and Business Development Engineer*

- Evaluate oil and gas prospects to determine the technical and economic feasibility of commercial development
- Manage daily operations of producing wells
 - Monitor daily production and collaborate with contract pumpers to perform diagnostics on wells when production is not as expected
 - Create and manage the production and lease operating expense budget
 - Evaluate economics of downhole and surface projects to improve production of wells
 - Communicate with regulatory agencies to ensure all wells are in compliance with regulations

Bison Oil & Gas, LLC

8/16-Present *Senior Production Engineer*

- Evaluate potential oil and gas prospects to determine the technical and economic feasibility of commercial development
- Manage all drillout and flowback activities to bring new wells on-line
- Manage daily operations of producing wells
 - Monitor daily production and collaborate with contract pumpers to perform diagnostics on wells when production is not as expected
 - Create and manage the production and lease operating expense budget
 - Evaluate economics of downhole and surface projects to improve production of wells
 - Communicate with regulatory agencies to ensure all wells are in compliance with regulations

Drillnomics

10/15-Present *Economics Engineer*

- Provide engineering services and customer support to current and new subscribers of Drillnomics, a web based decline curve analysis and economic evaluation software tool
 - Conduct web demonstrations of the software for current and potential subscribers to demonstrate the power of the tool and answer questions from any users
 - Focus on continuous improvement through collaboration with the Chief Technology Officer to resolve any issues in the programming and bring new features and enhancements to the software
- Completed a project to redesign the architecture of the program in order to improve accuracy of and streamline economic calculations, add new functionality, and improve calculation and report generation speed

Buffalo Royalties

10/15-Present *Acquisitions Engineer*

- Provide engineering evaluations of producing and non-producing properties in many of the largest and highest profile basins in the United States to assign a value to the mineral rights
 - Evaluations include a technical evaluation of the potential of the reservoir and an economic evaluation of the expected production from the reservoir

- Create professional presentations highlighting the value of the acreage as well as rate of return sensitivities and other risks to send to potential mineral buyers

ConocoPhillips

01/15-10/15 *Senior Production Engineer - San Juan Basin, Farmington, New Mexico*

- Evaluated the economics of downhole and surface facilities projects to restore or improve production for nearly 1,000 natural gas wells, totaling approximately 105 MMcfd
- Completed routine production surveillance to identify optimization opportunities
 - Targeted and met a 2% increase in production volume through optimizations
- Collaborated with Operations employees daily to diagnose and solve problems with wells, including lost production, operational inefficiencies, and regulatory and safety concerns
- Communicated with the regulatory agencies to ensure all wells were in compliance with regulations

04/12-01/15 *Senior Artificial Lift Engineer - San Juan Basin, Farmington, New Mexico*

- Managed the implementation and surveillance of multiple pilot projects to reduce the failure rate and increase production on wells requiring artificial lift
 - Developed processes for candidate selection and perform an economic analysis on all candidates
 - Led surveillance and troubleshooting efforts to ensure the wells were optimized after the projects are completed
 - The success of these programs resulted in over \$200M annual expense savings and uplift of 2.1 MMcfd in 2014
- Maintained design standards that foster continuous improvement for rod pumping systems on approximately 1,200 natural gas wells
- Performed failure tracking and analysis on rod pumped wells
 - Worked with multidisciplinary teams to review the analyses and adjust workover procedures to reflect analysis findings
- Coauthored and published a technical paper on the success of rod pumping deviated natural gas wells
- Delivered three presentations to the industry at Artificial Lift conferences to audiences of 200+ individuals from other operating companies, service companies and vendors
- Mentored three interns on their technical projects and trained several new hire engineers on rod pumping standards

08/10-03/12 *Associate Production/Facilities Engineer - San Juan Basin, Farmington, New Mexico*

- Refined and managed a chemical monitoring and treatment program for approximately 5,500 natural gas wells and associated gas and water gathering pipelines and produced water disposal facilities
 - Interpret analytical lab results of water and solid deposit samples
 - Develop and approve chemical treatment recommendations based on analytical data
- Led multiple projects to improve chemical application to reduce the cost and improve the effectiveness of flow assurance and corrosion chemicals
- Organize and expand the corrosion monitoring program through the use of corrosion coupons
- Proficient in different chemistries of corrosion and flow assurance chemicals, chemical application methods, and sampling, analysis, and monitoring techniques
 - Provided training to other engineers and field operators on these topics

06/09 - 08/09 *Engineering Intern - San Juan Basin, Farmington, New Mexico*

06/08 - 08/08 *Engineering Intern - Lost Cabin Gas Plant, Lysite, Wyoming*

Green Country Petrophysics

06/07 - 08/07 *Engineering Intern for ConocoPhillips - Bartlesville, Oklahoma*

EDUCATION

University of Kansas - May 2010

B.S., Chemical Engineering with a minor in Business

GPA 3.99, Engineering GPA 4.0