CHECK SHEET

Date: 9/30/99 REPERMIT 3-31-00 API Number: 025-21860

Company: ~~WBI Production, Inc.~~ Fidelity Exploration & Production Co.

Well Name: Federal 2115

County: Fallon

Field: Cedar Creek

Surf. Location: 1313 FNL 1398 FEL NW NE Lot: ___ Sec: 20 Twp: 5N Rng: 61E

Permit Number: 16054 16412 Drilling Fee: $25.00

Intention to Drill: 9/30/99 3-31-00 Expiration Date: 3/30/00 9-30-00

Mineral Ownership: ☐ Private ☐ State ☑ Federal ☐ Indian

Well Type: Vertical ☐ Multiple Laterals

Proposed Depth/Formation: MD: 1900 TVD: Eagle Formation

Drilling Unit 160 Acres Description: NE/4

Samples Required: ☐ ___ Received: Core Chips: 975 to 1045' 2-22-02

COMPLETION INFORMATION

Completion Date: October 1, 2001 TD: 1800' PBTD: 1759'

Completed As: Gas Well IP / Formation: 159 MCFD Eagle

Geological Well Report: N/A Mud Log: N/A

Sundry Notices: Change Rig Layout 11/26/99
Co. Name Chg rider 9-2-01

Subsequent Report of Abandonment: Received: ___ Approved: ___

Electric Logs: PND Log / 11-30-01

Miscellaneous: Core Analysis / 3-05-02

FORM NO. 4 R/8/00
LOCATE WELL CORRECTLY

		X	

(SUBMIT IN TRIPLICATE)
TO
BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA
2535 ST. JOHNS AVENUE BILLINGS, MONTNA 59102

ARM 36.22.307
ARM 36.22.1011
ARM 36.22.1013
ARM 36.22.1414

Received
Board of Oil & Gas Cons.
State of MT - Billings

COMPLETION REPORT

Company Fidelity Exploration & Production Company Lease Federal Well No. 2115

Address P.O. Box 1010, Glendive, MT 59330-1010 Field (or Area) Cedar Creek

The well is located 1313' FNL and 1398' FEL of Sec. 20

Sec. 20 ; T. T5N ; R. R61E ; County Fallon ; Elevation 2922' GL
(D.F., R.B., or G.L.)

Commenced drilling 07/22/01 ; Completed 10/01/01

Write the API# or the well name of another well on this lease if one exists N/A

The information given herewith is a complete and correct record of the well. The summary on this page is for the condition of the well at the above date.

Completed as Gas Well Signed Judy Schmitt Judy Schmitt
(oil well, gas well, dry hole) Title Operations Technician

API # 25-025-21860 Date November 26, 2001

(Bottom Hole Coordinates from Section Line)

IMPORTANT ZONES OF POROSITY

(denote oil by O, gas by G, water by W; state formation if known)

Judith River "G" From NA to NA

Eagle "G" From 945' to 1500'

CASING RECORD

Size Casing	Weight Per Ft.	Grade	Thread	Casing Set	From	To	Sack of Cement	Cut and Pulled from
7"	17#	H - 40	8 Rd	163'	0	157'	75	--
4.5"	10.5#	J - 55	8 Rd	1788'	0	1782'	235	--

TUBING RECORD

Size Tubing	Weight Per Ft.	Grade	Thread	Amount	Perforations
1.25"	2.3#	A-25	11 ½ V	1395.1'	Open End

COMPLETION RECORD

Rotary tools were used from 0' to 1800'

Cable tools were used from -- to ---

Total depth 1800 ft.; Plugged back to 1759 T.D.; Open hole from --- to ---

PERFORATIONS			ACIDIZED, SHOT SAND FRACED, CEMENTED			
INTERVAL		Number and	INTERVAL		Amounts of	
From	To	Size and Type	From	To	Material Used	Pressure
1350'	1360'	4	1350'	1360'	46,000# 12/20	1163#
1170'	1180'	4	1170'	1180'	45,100# 12/20	912#
1040'	1050'	4	1040'	1050'	45,400# 12/20	784#

(If P&A show plugs above)

INITIAL PRODUCTION

Well is producing from Eagle (pool) formation.

I.P. --- barrels of oil per --- hours ---
(pumping or flowing)

- 84 Mcf of gas per 24 hours.

--- barrels of water per --- hours, or --- % W.C.

(OVER)

INITIAL PRODUCTION-(Continued)

Initial 10-day average production ~~84 MCF/DAY~~ (bbl./day) (if taken)
Pressures (if measured): Tubing --- psi flowing; --- psi shut-in
Casing _____ psi flowing; _____ psi shut-in
Gravity _____° API (corrected to 60° F.)

Formation Volume Factor _____ Porosity _____ % Average Connate Water _____ %

Type of Trap _____

Producing mechanism _____

DRILL STEM TESTS

D.S.T. No.	From	To	Tool Open (Min.)	Shut-in	F.P.	S.I.P.	Recovery	Cushion
--	--	--	--	--	--	--	--	--

CORES

No.	Interval	Recovered
1	975' – 1005'	26'
2	1005' – 1035'	19'
3	1036' – 1066'	9'

LOG RUNS

Type	From	To
PND	1727'	700'

FORMATION RECORD

(Need no be filled out if Geologist sample description filed with Commission)

TOP / BOTTOM	SAMPLE AND CORE NO. AND DESCRIPTION	Top of Formation
NA	Judith River	NA
945' - 1500'	Eagle	945'

(Use additional sheets where needed to complete description)

Submit in quadruplicate to:

Montana Board of Oil and Gas Conservation
Billings or Shelby

Application for Permit

Lease Name: MTBIL020543

Lease Type (Private/State/Federal): Federal

Well Number: 2115

To: Drill ☒ Deepen ☐ Re-enter ☐

Unit Agreement Name: 8A

Operator: WBI Production, Inc.

Address: P. O. Box 131

City: Glendive State MT ZIP 59330-0131

Phone Number: 406-359-7200

Field Name or Wildcat: Cedar Creek

Objective Formation(s): Eagle

Location of Well (quarter-quarter section and footage measurements)
NW, NE, T5N, R61E, Sec. 20, 1313' FNL, 1398' FEL
(if directionally drilled, show both surface and bottom hole locations above)

Section, Township, and Range: Sec. 20, T5N, R61E

Proposed total depth	Formation at total depth	Elevation (indicate GL or KB)	County:
1900	Eagle	2922' GL	Fallon

Size and description of drilling/spacing unit	API number of another well on this lease (if any)	Anticipated spud date
160	None	July 2001

Hole size	Casing size	Weight/foot	Grade(API)	Depth	Sacks of Cement	Type of Cement
9.875"	7	17	H-40/8 RND	150	65	Class G
6.25"	4.5	10.5	J-55	1900	185	Class G

Describe Proposed Operations:
Describe or attach labeled diagram of blowout preventer equipment. Indicate if air drilled or describe mud program.

Plan to drill a 9-7/8" surface hole and set and cement to surface 150' of 7", 17 lb/ft surface casing. Install and test BOP equipment. Then drill a 6-1/4" hole to TD and set and cement to surface 4-1/2" 10.5 lb/ft production casing. The well will then be completed in the Eagle formation and fracture stimulated. A wellhead assembly will then be installed and 1-1/4" tubing will be run to below the perforations. The well will be connected and metered and placed on production. Unlined pits will be used with fresh water mud. Upon completion of the drilling activity the drilling mud will be hauled to a company owned pit or left to dry in the pits.

BOARD USE ONLY

Approved (date) APR 3 2001

By Accepted for record purposes only

Title

THIS PERMIT IS SUBJECT TO THE CONDITIONS OF APPROVAL STATED ON THE BACK.

Permit Fee #25.00

Check Number 547007

Permit Expires 10-3-01

Permit Number 17200

API Number 25-025 - 21860

Re-permit ☒

The undersigned hereby certifies that the information contained on this application is true and correct:

Signed (Agent)

John Kennah

Title: Staff Engineer

Date March 20, 2001

Samples Required: NONE X ALL ____ From ____ feet to ____ feet

Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO, Dry, washed cut delivered prepaid to:

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

Only freshwater based fluid may be used when drilling surface hole Rule 36.22.1001(5)

Saltwater Pits Shall Be Impermeable

SUPPLEMENTAL INFORMATION

Note: Additional information or attachments may be required by Rule or by special request.

1 Attach a survey plat certified by a registered surveyor. The survey plat must show the location of the well with reference to the nearest lines of an established public survey.

2 Attach an 8½ x 11" photocopy of that portion of a topographic map showing the well location, the access route from county or other established roads, residences, and water wells within a 2 mile radius of the well.

3 Attach a sketch of the well site showing the dimensions and orientation of the site, the size and location of pits, topsoil stockpile, and the estimated cut-fill at the corners and centerstake. (Note: the diagram need not be done by an engineer or surveyor). Attach a sketch of a top view and two side views of the reserve pit(s), if utilized. The reserve pit sketch must show the length, width, depth, cut and fill amount of freeboard, area of topsoil stockpile, and the height and width of berms.

4 Describe the type and amount of material or liner, if any, to be used to seal the reserve pit. If a synthetic liner is used, indicated the liner thickness (mils), bursting strength, tensile strength, tear strength, puncture resistance, hydrostatic resistance, or attach the manufacturer's specifications.

5 Describe the proposed plan for the treatment and/or the disposal of reserve pit fluids and solids after the well is drilled. If the operator intends to dispose of or treat the reserve pit contents off-site, specify the location and the method of waste treatment and disposal. (Note: The operator must comply with all applicable federal, state, county, and local laws and regulations with regard to the handling, transportation, treatment, and disposal of solid wastes.)

6 Does construction of the access road or location, or some other aspect of the drilling operation require additional federal, state, or local permits or authorizations? If yes, indicate the type of permit or authorization required:

- ☐ No additional permits needed
- ☐ Stream crossing permit (apply through county conservation district)
- ☐ Air quality permit (apply through Montana Department of Health and Environmental Sciences)
- ☐ Water discharge permit (apply through Montana Department of Health and Environmental Sciences)
- ☐ Water use permit (apply through Montana Department of Natural Resources an Conservation)
- ☐ Solid waste disposal permit (apply through Montana Department of Health and Environmental Sciences)
- ☐ State lands drilling authorization (apply through Montana Department of State Lands)
- ☒ Federal drilling permit (specify agency) USA (Bureau of Land Management)
- ☐ Other federal, state, county, or local permit or authorization: (specify type) _____

NOTICES:

1 Date and time of spudding must be reported to the Board verbally or in writing within 72 hours after the commencement of drilling operations.

2 The operator must give notice of drilling operations to the surface owner as required by Section 82-10-503, MCA, before the commencement of any surface activity.

BOARD USE ONLY	CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

WARNING: Failure to comply with conditions of approval may void this permit.

Submit in quadruplicate to:

Montana Board of Oil and Gas Conservation
Billings or Shelby

SEP 2000
Received
Board of Oil & Gas Cons.
State of MT / Billings

Lease Name: MTBIL020543

Lease Type (Private/State/Federal): Federal

Application for Permit

Well Number: 2115

To: Drill ☒ Deepen ☐ Re-enter ☐

Unit Agreement Name: 8A

Operator: WBI Production, Inc.

Address: P. O. Box 131

City: Glendive State MT ZIP 59330-0131

Phone Number: 406-359-7200

Field Name or Wildcat: Cedar Creek

Objective Formation(s): Eagle

Location of Well (quarter-quarter section and footage measurements)
NW, NE, T5N, R61E, Sec. 20, 1313' FNL, 1398' FEL
(if directionally drilled, show both surface and bottom hole locations above)

Section, Township, and Range: Sec. 20, T5N, R61E

Proposed total depth	Formation at total depth	Elevation (indicate GL or KB)	County:
1900	Eagle	2922' GL	Fallon

Size and description of drilling/spacing unit	API number of another well on this lease (if any)	Anticipated spud date
160	None	April 2001

Hole size	Casing size	Weight/foot	Grade(API)	Depth	Sacks of Cement	Type of Cement
9.875"	7	17	H-40/8 RND	150	65	Class G
6.25"	4.5	10.5	J-55	1900	185	Class G

Describe Proposed Operations:
Describe or attach labeled diagram of blowout preventer equipment. Indicate if air drilled or describe mud program.

Plan to drill a 9-7/8" surface hole and set and cement to surface 150' of 7", 17 lb/ft surface casing. Install and test BOP equipment. Then drill a 6-1/4" hole to TD and set and cement to surface 4-1/2" 10.5 lb/ft production casing. The well will then be completed in the Eagle formation and fracture stimulated. A wellhead assembly will then be installed and 1-1/4" tubing will be run to below the perforations. The well will be connected and metered and placed on production. Unlined pits will be used with fresh water mud. Upon completion of the drilling activity the drilling mud will be hauled to a company owned pit or left to dry in the pits.

BOARD USE ONLY

Approved (date) OCT - 2 2000

By Accepted for record purposes only

Title

THIS PERMIT IS SUBJECT TO THE CONDITIONS OF APPROVAL STATED ON THE BACK.

Permit Fee $250.00

Check Number 543457

Permit Expires 4-2-01

Permit Number 16836

API Number 25- 025 - 21860

Re-permit ☒

The undersigned hereby certifies that the information contained on this application is true and correct:

Signed (Agent) Q B Hag
Don Brutlag

Title: Gas Production & Storage Superintendent

Date August 31, 2000

Samples Required: NONE X ALL _____ From _____ feet to _____ feet

Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO, Dry, washed cut delivered prepaid to:
Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

Only freshwater based fluid may be used when drilling surface hole Rule 36.22.1001(5)

Saltwater Pits Shall Be Impermeable

SUPPLEMENTAL INFORMATION

Note: Additional information or attachments may be required by Rule or by special request.

1 Attach a survey plat certified by a registered surveyor. The survey plat must show the location of the well with reference to the nearest lines of an established public survey.

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3 Attach a sketch of the well site showing the dimensions and orientation of the site, the size and location of pits, topsoil stockpile, and the estimated cut-fill at the corners and centerstake. (Note: the diagram need not be done by an engineer or surveyor). Attach a sketch of a top view and two side views of the reserve pit(s), if utilized. The reserve pit sketch must show the length, width, depth, cut and fill amount of freeboard, area of topsoil stockpile, and the height and width of berms.

4 Describe the type and amount of material or liner, if any, to be used to seal the reserve pit. If a synthetic liner is used, indicated the liner thickness (mils), bursting strength, tensile strength, tear strength, puncture resistance, hydrostatic resistance, or attach the manufacturer's specifications.

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- ☐ Other federal, state, county, or local permit or authorization: (specify type) _____

NOTICES:

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BOARD USE ONLY	CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

WARNING: Failure to comply with conditions of approval may void this permit.

Submit in quadruplicate to:

Montana Board of Oil and Gas Conservation
Billings or Shelby

MAR 2000
Received
Board of Oil & Gas Cons.
State of MT / Billings

Lease Name: MTBIL020543

Lease Type (Private/State/Federal): Federal

Application for Permit

Well Number: 2115

To: Drill ☒ Deepen ☐ Re-enter ☐

Unit Agreement Name: 8A

Operator: WBI Production, Inc.

Address P. O. Box 131

Field Name or Wildcat: Cedar Creek

City Glendive State MT ZIP 59330-0131

Phone Number: 406-359-7200

Objective Formation(s): Eagle

Location of Well (quarter-quarter section and footage measurements)
NW, NE, T5N, R61E, Sec. 20, 1313' FNL, 1398' FEL
(if directionally drilled, show both surface and bottom hole locations above)

Section, Township, and Range: Sec. 20, T5N, R61E

Proposed total depth	Formation at total depth	Elevation (indicate GL or KB)	County:
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BOARD USE ONLY

Approved (date) MAR 31 2000 Permit Fee $250.00

By Accepted for record purposes only Check Number 540223

Title Permit Expires 9-30-00

THIS PERMIT IS SUBJECT TO THE CONDITIONS OF APPROVAL STATED ON THE BACK.

Permit Number 16412

API Number 25-025 - 21860

Re-permit ☒

The undersigned hereby certifies that the information contained on this application is true and correct:

Signed (Agent) D. B. Hag

Don Brutlag

Title: Gas Production & Storage Superintendent

Date February 29, 2000

Samples Required: NONE X ALL _____ From _____ feet to _____ feet

Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO, Dry, washed cut delivered prepaid to:

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

Only freshwater based fluid may be used when drilling surface hole Rule 36.22.1001(5)

Saltwater Pits Shall Be Impermeable

SUPPLEMENTAL INFORMATION

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- ☒ Federal drilling permit (specify agency) USA (BLM)
- ☐ Other federal, state, county, or local permit or authorization: (specify type) _____

NOTICES:

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2 The operator must give notice of drilling operations to the surface owner as required by Section 82-10-503, MCA, before the commencement of any surface activity.

BOARD USE ONLY	CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

WARNING: Failure to comply with conditions of approval may void this permit.

Submit in quadruplicate to:

Montana Board of Oil and Gas Conservation
Billings or Shelby

Application for Permit

Received
SEP 1999
Board of Oil & Gas Cons.
State of MT / Billings

Lease Name: MTBIL020543

Lease Type (Private/State/Federal): Federal

Well Number: 2115

To: Drill ☒ Deepen ☐ Re-enter ☐

Unit Agreement Name: 8A

Operator: WBI Production, Inc.

Address: P. O. Box 131

City: Glendive State: MT ZIP: 59330-0131

Phone Number: 406-359-7200

Field Name or Wildcat: Cedar Creek

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BOARD USE ONLY

Approved (date) SEP 30 1999

By Accepted for record purposes only

Title

THIS PERMIT IS SUBJECT TO THE CONDITIONS OF APPROVAL STATED ON THE BACK.

Permit Fee #25.00

Check Number 537456

Permit Expires 3-30-00

Permit Number 16054

API Number 25-025-21860

Re-permit ☐

The undersigned hereby certifies that the information contained on this application is true and correct:

Signed (Agent) Don Bruting

Title: Gas Production & Storage Superintendent

Date September 24, 1999

Samples Required: NONE ✓ ALL ____ From ____ feet to ____ feet

Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO, Dry, washed cut delivered prepaid to:

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

Saltwater Pits Shall Be Impermeable

Only freshwater based fluid may be used when drilling surface hole Rule 36.22.1001(5)

SUPPLEMENTAL INFORMATION

Note: Additional information or attachments may be required by Rule or by special request.

1 Attach a survey plat certified by a registered surveyor. The survey plat must show the location of the well with reference to the nearest lines of an established public survey.

2 Attach an 8½ x 11" photocopy of that portion of a topographic map showing the well location, the access route from county or other established roads, residences, and water wells within a mile radius of the well.

3 Attach a sketch of the well site showing the dimensions and orientation of the site, the size and location of pits, topsoil stockpile, and the estimated cut-fill at the corners and centerstake. (Note: the diagram need not be done by an engineer or surveyor). Attach a sketch of a top view and two side views of the reserve pit(s), if utilized. The reserve pit sketch must show the length, width, depth, cut and fill amount of freeboard, area of topsoil stockpile, and the height and width of berms.

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- ☐ No additional permits needed
- ☐ Stream crossing permit (apply through county conservation district)
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- ☐ Water discharge permit (apply through Montana Department of Health and Environmental Sciences)
- ☐ Water use permit (apply through Montana Department of Natural Resources an Conservation)
- ☐ Solid waste disposal permit (apply through Montana Department of Health and Environmental Sciences)
- ☐ State lands drilling authorization (apply through Montana Department of State Lands)
- ☒ Federal drilling permit (specify agency) USA (BLM)
- ☐ Other federal, state, county, or local permit or authorization: (specify type) _____

NOTICES:

1 Date and time of spudding must be reported to the Board verbally or in writing within 72 hours after the commencement of drilling operations.

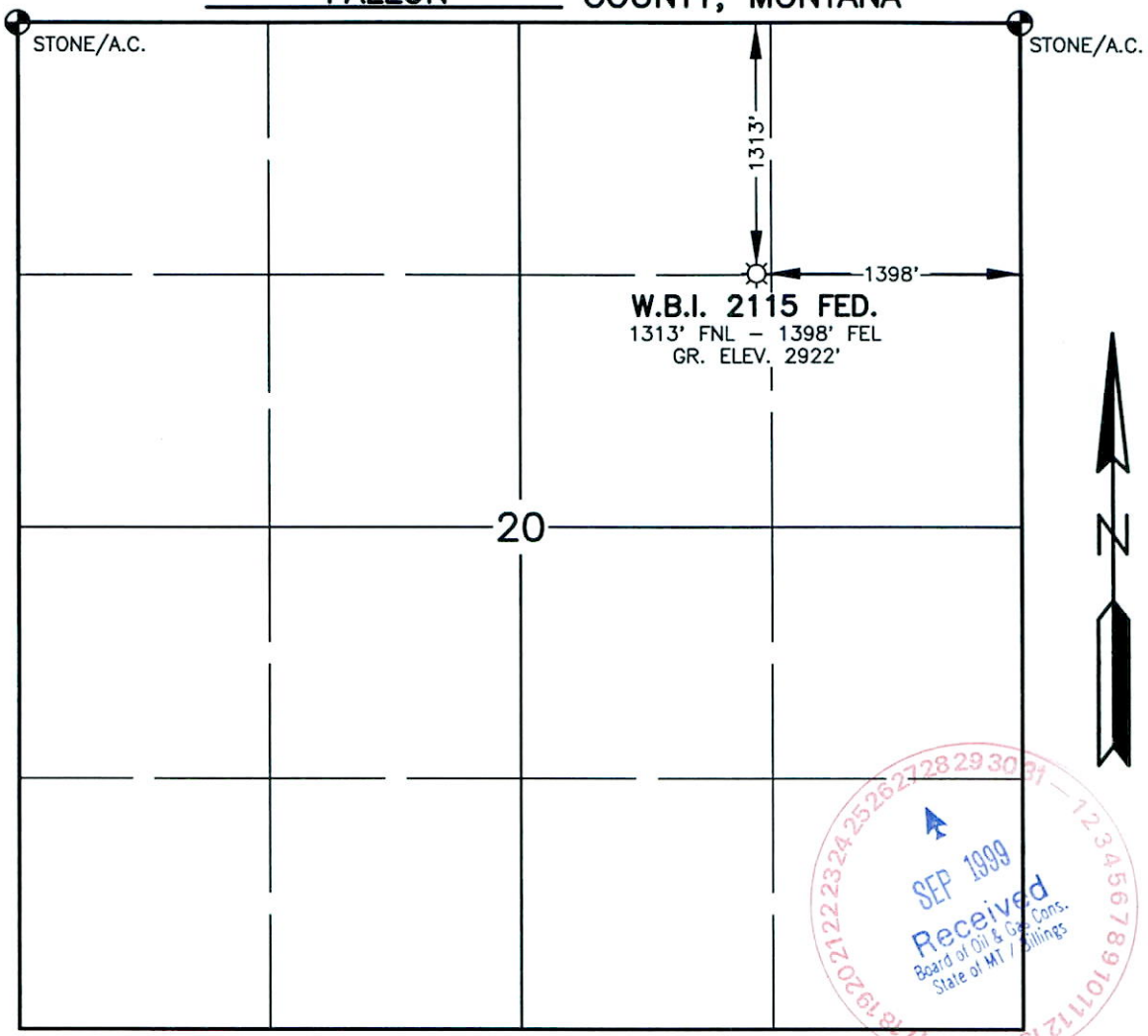
2 The operator must give notice of drilling operations to the surface owner as required by Section 82-10-503, MCA, before the commencement of any surface activity.

BOARD USE ONLY	CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

WARNING: Failure to comply with conditions of approval may void this permit.

WELL LOCATION PLAT
WILLISTON BASIN INTERSTATE PIPELINE COMPANY
NW 1/4 NE 1/4, SECTION 20, TWP. 5 N. – RGE. 61 E., P.M.M.
FALLON COUNTY, MONTANA



I, Robert W. Stanhope certify that this plat correctly represents work performed by me or under my responsible charge, and is true and correct to the best of my knowledge and belief.

MONTANA
ROBERT W. STANHOPE
9757 LS
REGISTERED LAND SURVEYOR

ROBERT W. STANHOPE
P.L.S. NO. 9757LS

U.S.A. (B.L.M.)
SURFACE OWNER

DATE STAKED 6-22-99

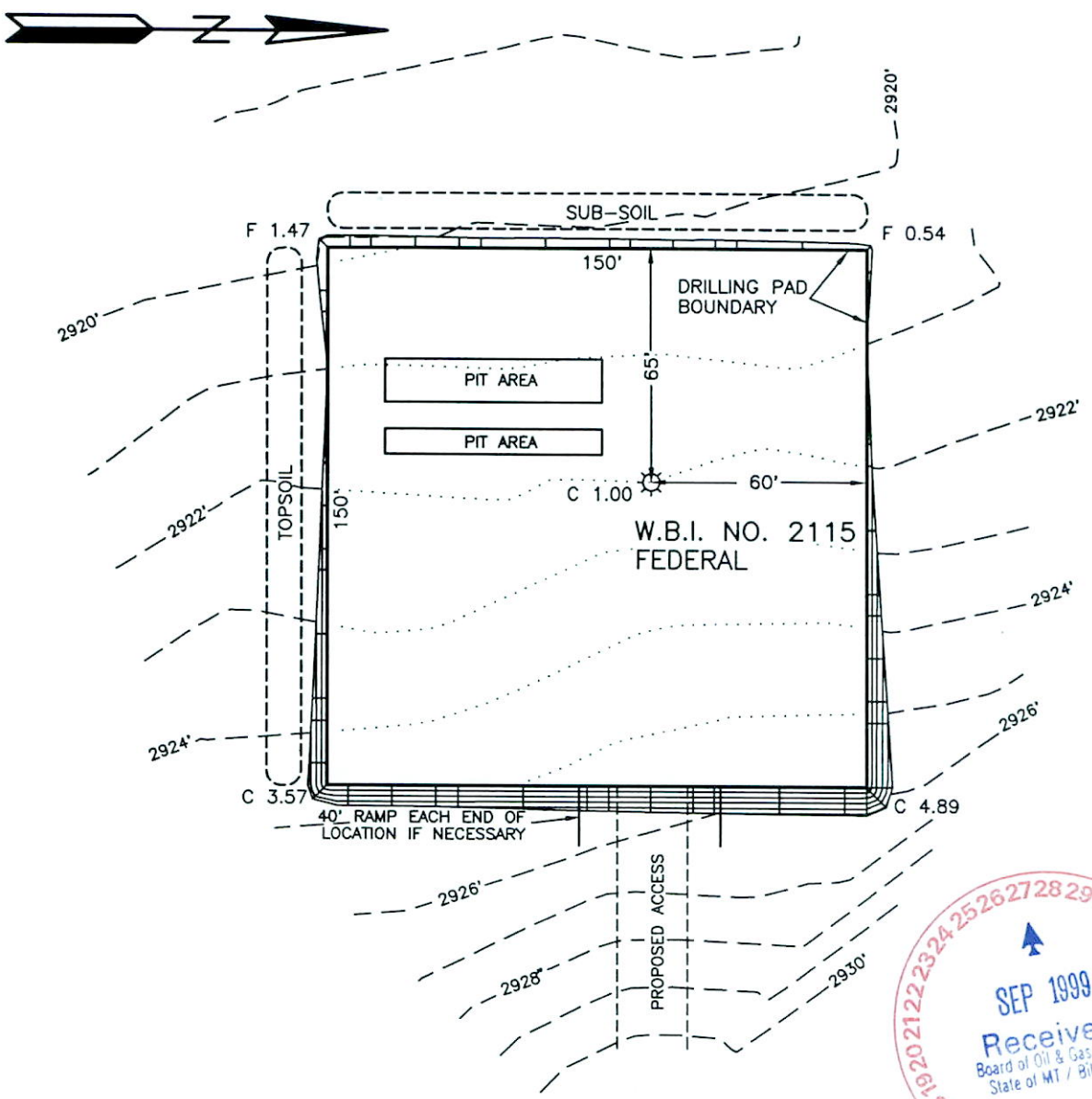
BASIS OF VERTICAL DATUM: U.S.G.S. TOPO

EXHIBIT NO. 1

WILLISTON BASIN
INTERSTATE PIPELINE COMPANY
A Subsidiary of MDU Resources Group, Inc.

W.B.I. NO. 2115 FEDERAL
WELL LOCATION
BAKER FIELD

DATE	DRAWN BY	SCALE	COMP. NO.	DRAWING NO.
6-28-99	M.P.S.	1" = 1000'	2115LOC	A-5-2463



ESTIMATED EARTHWORK

TOPSOIL (6" DEPTH)..... 417 C.Y.
EXCAVATION.....1072 C.Y.
FILL (W/10% SHRINKAGE)..... 99 C.Y.
WASTE MATERIAL..... 973 C.Y.
TOTAL EXCAVATION.....*1489 C.Y.

ACCESS ROAD – APPROX. 891' S. (VASSER)
2141' W. (BLM)

* PIT EXCAVATION NOT INCLUDED
FILL 3:1 SLOPES
CUT 1.5:1 SLOPES

EXISTING WELL ELEV. 2922.00'
GRADED WELL ELEV. 2921.00'

CONTOUR INTERVAL 1.0'

EXHIBIT NO. 2

NO	DATE	BY	REVISION

WILLISTON BASIN
INTERSTATE PIPELINE COMPANY
A Subsidiary of MDU Resources Group, Inc.

W.B.I. NO. 2115 FEDERAL WELL
DRILLING SITE LAYOUT

DATE	DRAWN BY	SCALE	COMP. NO.	DRAWING NO.
6-25-99	T.A.S.	1" = 50'	2115DSL	A-9-2450

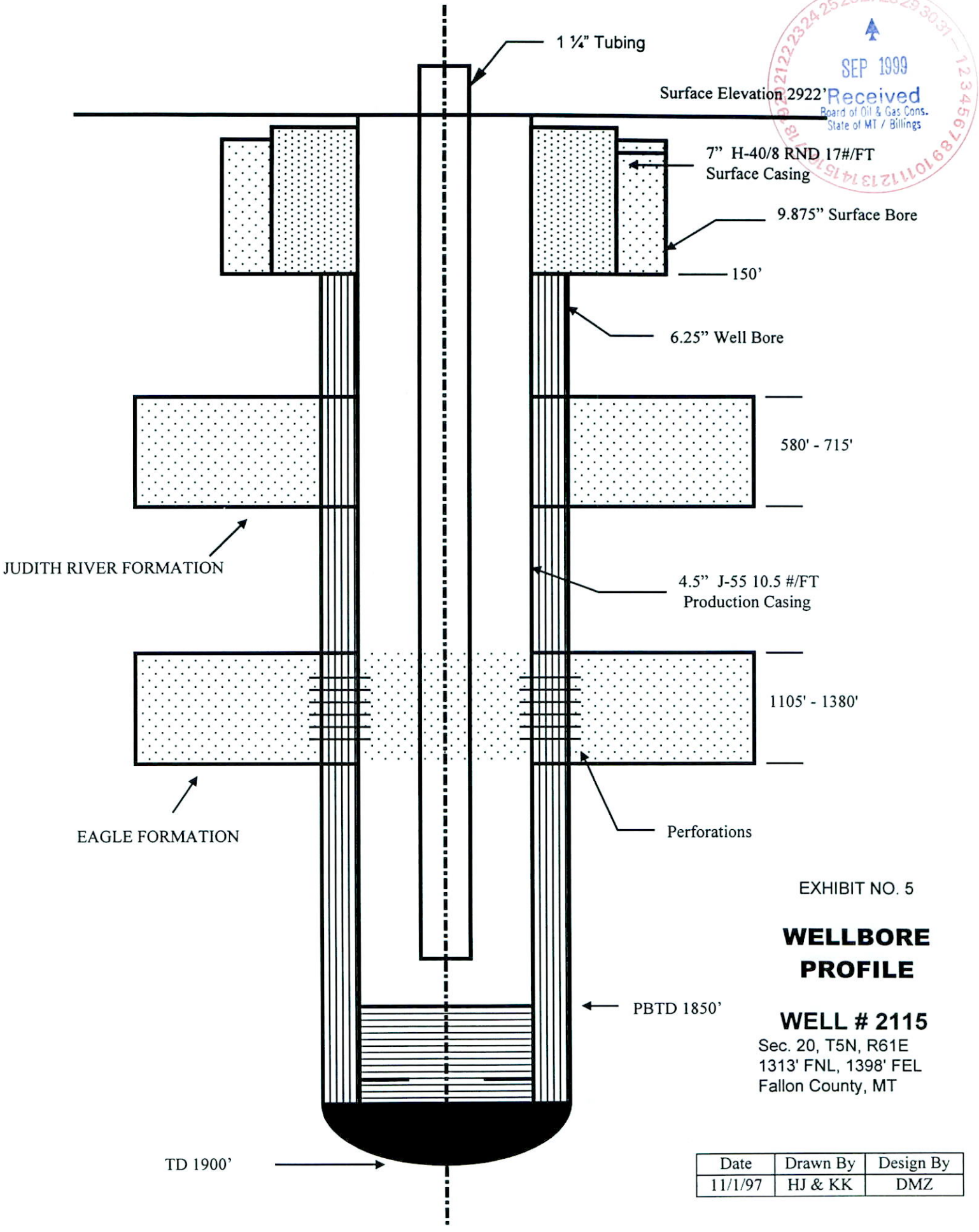


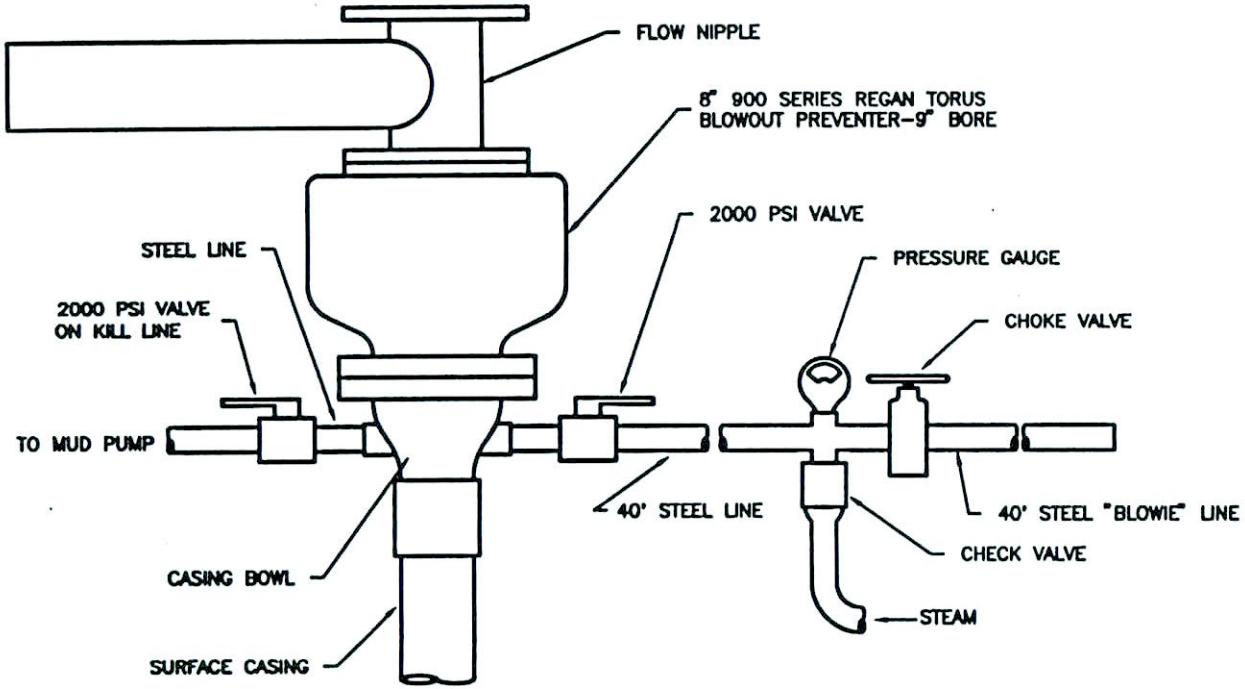
EXHIBIT NO. 5

WELLBORE PROFILE

WELL # 2115

Sec. 20, T5N, R61E
1313' FNL, 1398' FEL
Fallon County, MT

Date	Drawn By	Design By
11/1/97	HJ & KK	DMZ



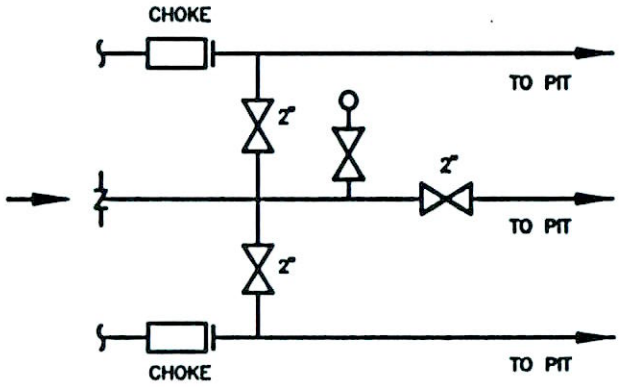


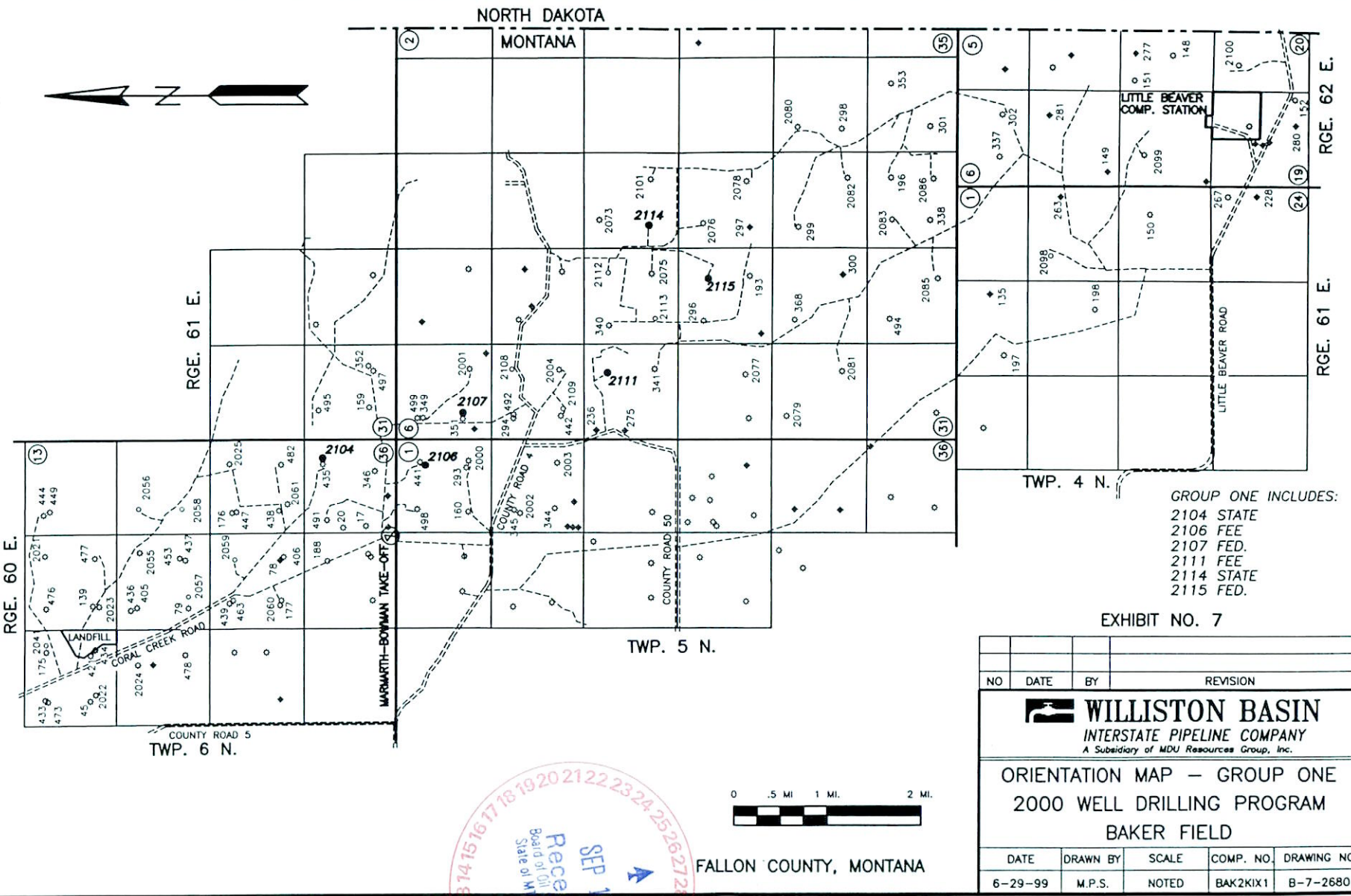
EXHIBIT 6

NO.	DATE	BY	DESIGN BY	REVISION

WILLISTON BASIN
INTERSTATE PIPELINE COMPANY
A Subsidiary of MDU Resources Group, Inc.

B.O.P. LAYOUT & SCHEMATIC

DATE	DRAWN BY	DESIGN BY	SCALE	COMP. NO.	DWG/SHEET NO.
2-22-95	T.A.S.	D.S.	NONE	A1560	A-6-1560



GROUP ONE INCLUDES:

2104 STATE
2106 FEE
2107 FED.
2111 FEE
2114 STATE
2115 FED.

EXHIBIT NO. 7

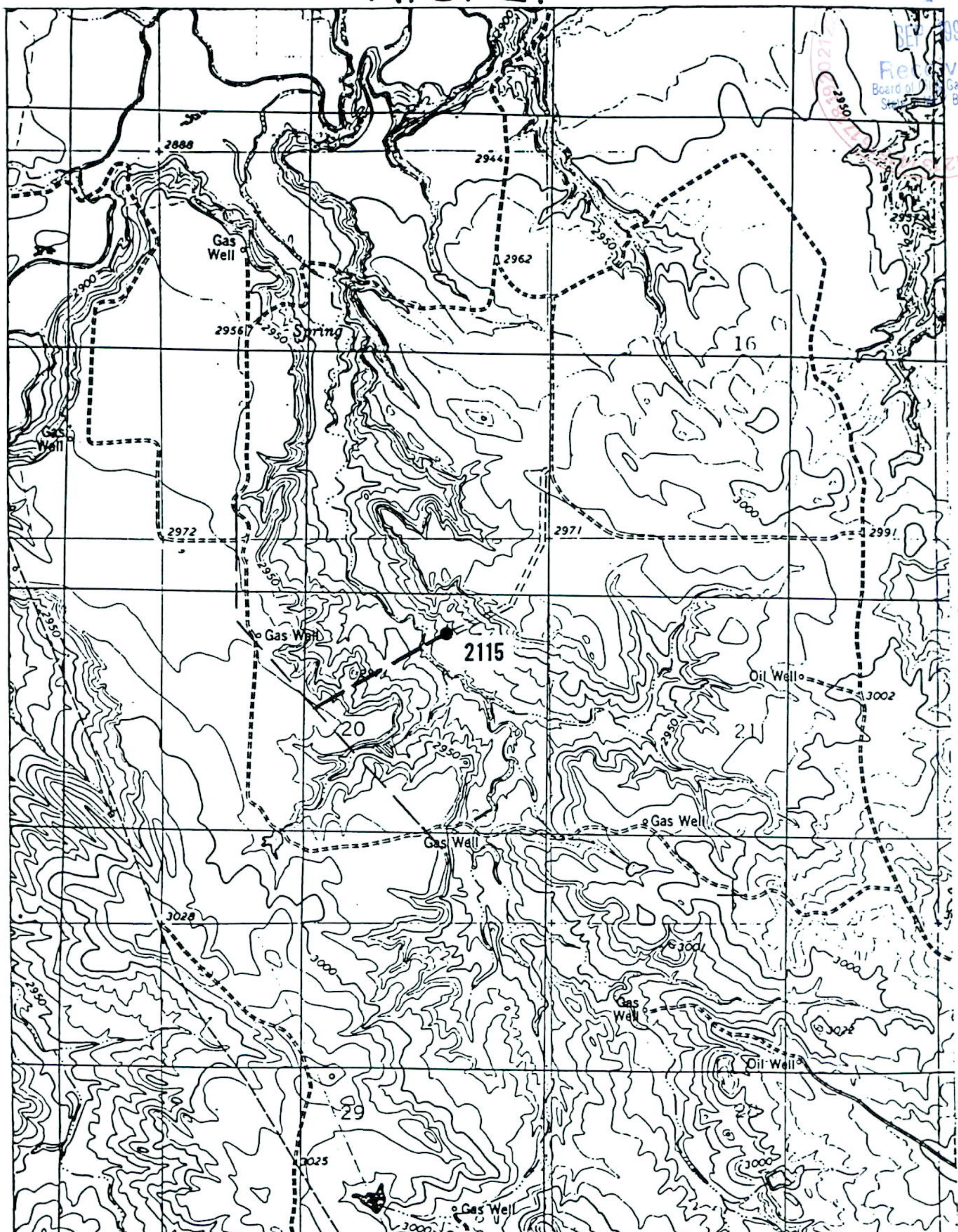
NO	DATE	BY	REVISION

WILLISTON BASIN
INTERSTATE PIPELINE COMPANY
A Subsidiary of MDU Resources Group, Inc.

ORIENTATION MAP – GROUP ONE
2000 WELL DRILLING PROGRAM
BAKER FIELD

DATE	DRAWN BY	SCALE	COMP. NO.	DRAWING NO.
6-29-99	M.P.S.	NOTED	BAK2KIX1	B-7-2680

R. 61 E.



T. 5 N.

● = LOCATION
— — — — = EXISTING LINE
= = = = = = = = ACCESS
—— —— —— = PROPOSED LINE

Submit In Quadruplicate To:

Montana Board of Oil and Gas Conservation

Billings or Shelby Office

Sundry Notices and Report of Wells

WBI Production, Inc. Address **P.O. Box 131** City **Glendive** State **MT** Zip Code **59330-0131** Telephone Number **406-359-7200** Telefax Number **406-359-7273**	Lease Name: MTBIL020543 Lease Type(Private/State/Federal: Federal Well Number: 2115 Unit Agreement Name: 8A
Location of well (1/4-1/4 section and footage measurements): NW NE, 20 , T5N , R61E , 1313' FNL, 1398' FEL If directionally or horizontally drilled, show both surface and bottom hole locations)	Field Name or Wildcat: Cedar Creek Section, Township, and Range: 20, T5N, R61E
API Number: State County Well 025 - 21860 Well Type (oil, gas, injection, other): Gas	County: Fallon

Received NOV 1999 Board of Oil & Gas Cons. State of MT / Billings

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Chemical Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Change in Well Status	☐
Supplemental Well History	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐
Other (specify) New Drilling Rig Layout	☒	Subsequent Report of Fracture Treatment or Production Status	☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary.
Indicate the intended starting date for proposed operations or the completion date for completed operations.

Enclosed is the revised exhibit for new Drilling Rig Layout

BOARD USE ONLY	
Approved NOV 29 1999 Date	The undersigned hereby certifies that the information contained on this application is true and correct:
Accepted for record purposes only Name Title	November 24, 1999 Judy Schmitt Judy Schmitt Date Signed (Agent)
	Gas Production and Storage Engineering Clerk Print Name & Title

102

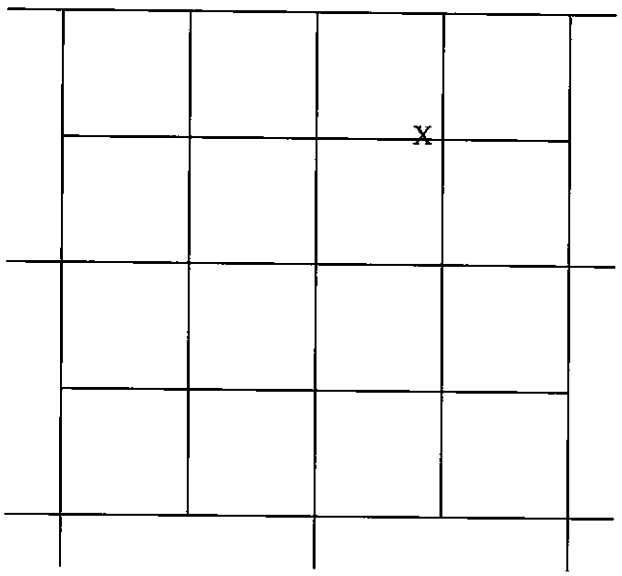
SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.

Section **20** Range **R61E**

Township **T5N**

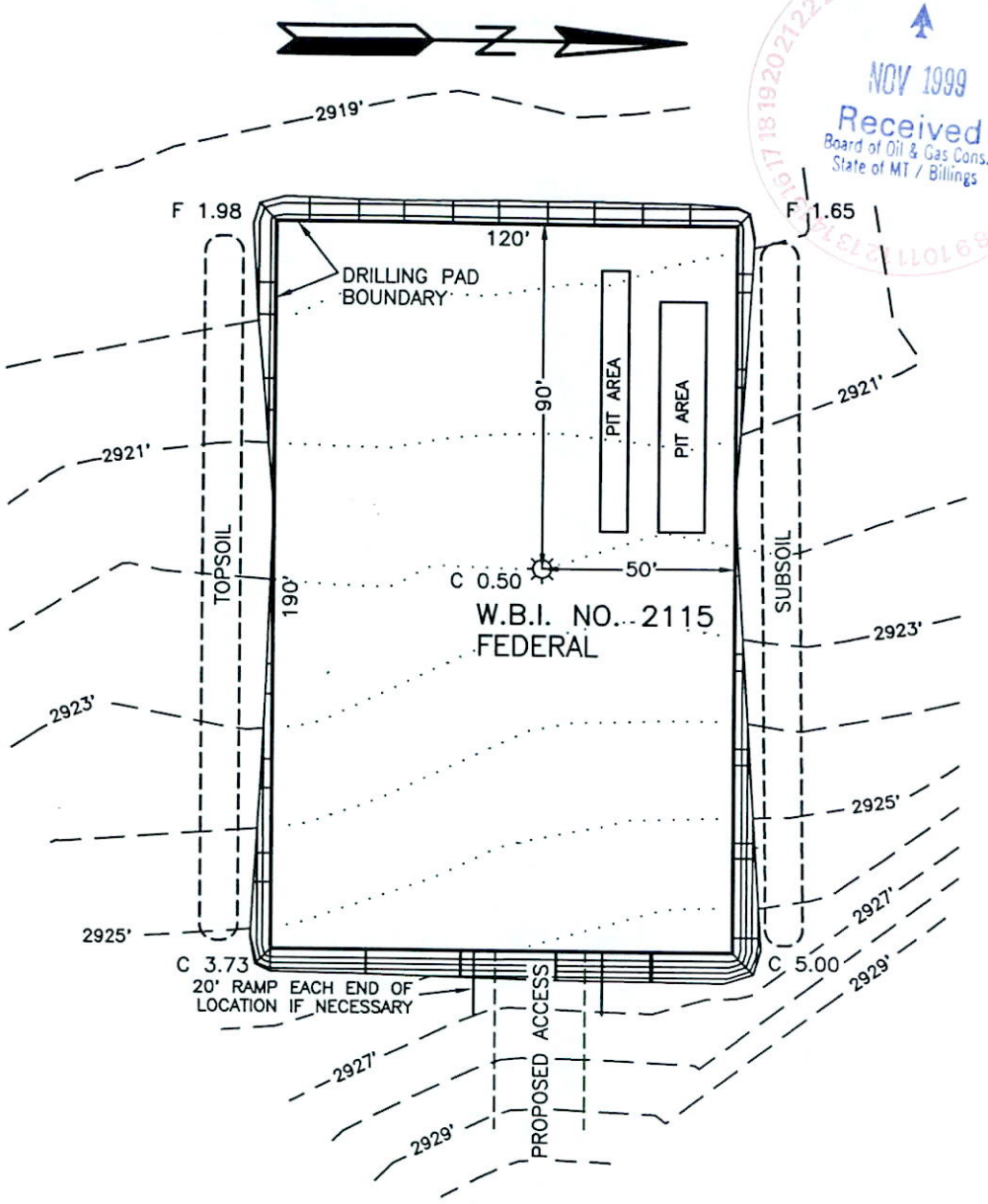


Scale: 1 inch = 2,000 feet

BOARD USE ONLY — CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Failure to comply with the conditions of approval may void this permit.



ESTIMATED EARTHWORK

TOPSOIL (6" DEPTH)	422	C.Y.
EXCAVATION	822	C.Y.
FILL (W/10% SHRINKAGE)	423	C.Y.
WASTE MATERIAL	399	C.Y.
TOTAL EXCAVATION	*1244	C.Y.

ACCESS ROAD – APPROX. 891' S. (VASSER)
2141' W. (BLM)

* PIT EXCAVATION NOT INCLUDED
FILL 3:1 SLOPES
CUT 1.5:1 SLOPES

EXISTING WELL ELEV. 2922.00'
GRADED WELL ELEV. 2921.50'

CONTOUR INTERVAL 1.0'

EXHIBIT NO. 2

1 11-22-99 T.A.S. LOCATION MOVED

WBI
PRODUCTION INC.
A Subsidiary of WBI Holdings, Inc.

W.B.I. NO. 2115 FEDERAL WELL
DRILLING SITE LAYOUT

DATE	DRAWN BY	SCALE	COMP. NO.	DRAWING NO.
6-25-99	T.A.S.	1" = 50'	2115DSL	A-9-2450

025-21860

SPUD INFORMATION

WELL NAME: Federal 21-15

API #: 25-025-21860

LOCATION: NW NE Sec. 20 T 5N R61E

SPUD TIME: 12:15 AM

Tentative ☐
Actual ☒

DATE: 7/22/01

DRILLING COMPANY: Ellenburg

RIG #: 2

CALLER'S NAME: Jeff Merkel

COMPANY NAME: Fidelity O+G

OTHER:

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
OIL AND GAS CONSERVATION DIVISION
STATE OF MONTANA
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102-4693

RECEIPT
Well Cuttings & Core Samples

COMPANY Fidelity Exploration & Production Co.

WELL NAME Federal 21I5

LOCATION 5N-61E-20: NWNE

SAMPLE INTERVAL	
DITCH	CORE
	975 to 1045'

RECEIVED FROM TerraTek, Inc.

BY K Maddaus

DATE 2-22-02

20-5N-16E

Core Analysis Program
2115 Well
Fallon County, Montana

Prepared for:

Fidelity Exploration & Production Company
1700 Lincoln, Suite 4600
Denver, Colorado 80203

Attn: Mr. John Genziano

TR01-500196
March 2002

TerraTek

TerraTek, Inc.
University Research Park
400 Wakara Way
Salt Lake City, Utah 84108 U.S.A.

025 21860

UNCONVENTIONAL CORE ANALYSIS

1 INTRODUCTION

This report presents the results of unconventional and advanced rock properties tests performed on plug samples taken from the Eagle Formation from the #2115 well in Fallon County, Montana. TerraTek personnel were at the wellsite to receive the three cores and to take samples for desorption analysis. The three coring runs were partially successful with recoveries of 86.7%, 64.4%, and 31.7%, respectively. At the TerraTek laboratories, bulk density, grain density, total (altered) porosity, and fluid saturation were measured on 22 plug samples.

Pulse decay permeability measurements were conducted on permeability samples 1 and 2, depths 1017.0 and 1043.7 feet, in order to determine matrix representative permeability at "as received" saturation conditions at or near net overburden conditions. These tests were conducted on selected samples representing different, client specified, reservoir and non-reservoir intervals. After careful examination of the core, a breakdown of the core-represented lithofacies was accomplished with the idea in mind that these facies should also be distinguishable on the wireline logs. Plug sample data (1 through 22) was used to represent the porosity and fluid saturations, whereas five samples were selected to represent the mineralogical characteristics (XRD) of the core. Samples used for porosity and saturation data were plugged, weighed, and immersed bulk volumes determined prior to analysis. The gas-filled porosity values were determined from the measured water saturation and total (altered) porosity.

2 PROCEDURES

2.1 Wellsite

TerraTek personnel were at the wellsite to receive the three cores and appropriate samples were taken for desorption analysis (results are presented in another report section). Overall recoveries of the conventional core were limited, ranging from 31.7% to 86.7%. Best-fit depths were marked and reported.

2.2 Core Processing

Cores were initially laid out in depth order on the core racks by core number. Most of the core could be extracted from the inner core barrel by using a push rod, although some sections required clam-shelling the inner core barrel (clam-shelling is a process of cutting the inner core barrel into to halves prior to removing the core). Next, the cores were fitted together piece by piece. The cores were then marked for orientation (red and black strips, red on right for uphole).

Plug sample sites were drilled based on depths selected by the client (Tables C1 and C2). One-inch diameter plug samples were drilled using tap water. The plugs were then surface

dried with a dry soft rag and wrapped circumferentially with Teflon tape prior to trimming to ¾ to 1 inch lengths. Once the samples were trimmed, they were washed of fines on the end surfaces, dried with a soft rag, and wrapped with Milar film prior to placing in marked ziplock bags. Plug endtrims were preserved in ziplock bags for XRD analysis and thin section work. Whole core sections were then wrapped in 3-4 layers of Milar film, marked for depth and orientation.

After plugging and wrapping, the cores were slabbed, marked again on the surface of the slabs for depth, and boxed. The butt sections were re-wrapped with Milar and re-marked, as necessary, prior to boxing. Cores were approximately 1/3 slabbed (1" slab thickness) and as a permanent record, the slabs were digitally imaged. XRD analyses, digital images, and petrography work is presented in a separate section.

2.3 Testing

Bulk volume determinations were made on client-specified plug samples by de-ionized water immersion; Teflon tape insured sample integrity during bulk volume testing. The plug samples were then placed in a humidity oven in order to dry the samples without damaging the clays. Tests were conducted on several samples prior to loading all the samples in the humidity oven to see at what humidity level the onset of desiccation cracks would form. Unfortunately, due to the already present stress-release microfractures, desiccation effects were not clearly discernable (stress-release microfractures tended to grow without the addition of desiccation cracks). After consulting with the client, we dried the samples at 140° F and 45% relative humidity, traditionally used for shaley samples, until stable weight conditions were attained.

Water saturations were determined gravimetrically using the initial weights and the final humidity dried weights. Dry weights with and without the Teflon wrap were recorded. Initial and final weights were corrected for Teflon weight. Initial Bulk Volumes were also corrected for Teflon volume. Grain Volumes were then measured using a Boyle's Law gas pyncnometer on the humidity-dried plugs. Final saturation and (altered) porosity data are reported in Table C3. Air permeability was also measured and reported on the dried, altered plugs.

2.4 Advanced Testing

The two pulse-decay permeability plugs, 1 and 2, which were selected to represent the non-reservoir and reservoir intervals, were each prepared for pulse-decay measurements by adding pre-weighed 18 mesh screens for gas distribution over the endfaces of the samples. The samples were then weighed with Teflon and screens. After loading each sample in a hydrostatic coreholder, the samples were then allowed to reach net overburden and pore pressure equilibrium. Equilibrium conditions initially required 15 minutes to 1 hour prior to each test because of the slightly plastic behavior of the samples in their "as received" saturation state. Sample permeabilities were then measured by the pulse-decay method. After the initial saturation tests were complete, the samples were re-weighed, placed in small ziplock bags and placed where they could receive low level heating (approximately 100-120° F) for approximately 24 hours. The samples were then removed carefully and re-weighed prior to testing again.

Each sample was tested three times at successively lower water saturations, in order to back calculate the matrix permeability at "as received" water saturations[1]. Permeability to nitrogen gas (Kg) was measured at a net overburden pressure of 700 psi (the minimum system overburden necessary to assure no bypass). As indicated in Table C4, measured permeabilities reflect a matrix structure that is probably related to sand or silt content within the shale/mudstone.

Visual indications of fracture development in the plugs were also noted. First, we tried to separate the matrix representative samples by the production zonation supplied by the client. Based on the two lithological zones interpreted in this well, both zones were represented. See Table C5 for general facies descriptions and depth intervals.

3 RESULTS

The unconventional rock properties measurements are summarized in Table C3. The gas-filled porosities (reported as % of bulk volume [BV]) were adjusted to account for the coring-induced microfracture volumes by subtracting 1% from the total measured porosities. Typical induced microfracture volumes are between 0.5% and 1.0% of the total porosity. Measured air permeabilities on the dried, altered plugs typically reflected the presence of stress-release microfractures, as well as the altered porosity matrix. As Tables C3 and C4 show, we cannot easily subdivide the Eagle reservoirs into similar petrologic facies: apparently, subtle differences in matrix structure and composition have a minor impact on storage capacity and a major impact on matrix permeability and therefore productivity.

Figure C1 presents gas-filled porosity, a function of bulk volume, versus the total porosity. The data scatter indicates that gas-filled porosity is *not* a direct function of total porosity, as in most reservoirs. The scatter is likely due to clay expansion altering the total measured porosity. Typically, the intercept value of a straight-line function through the data would be an indicator of what porosity value is needed before hydrocarbons in the form of free gas are observed in the formation. This method of evaluating the data is adapted from Luffel et al. (1992a[2] and 1992b[3]).

Figure C2 is a graph of the gas-filled porosity versus pulse-decay permeability data reported in Table C4. It is apparent from the graph that the non-reservoir and reservoir samples acted differently as the water saturation was altered. The exponential growth in permeability to gas for the reservoir sample suggests some kind of matrix structure or composition not present in the non-reservoir sample.

In Table C3, the total porosity is presented as a value representing the current sample conditions (i.e., humidity dried). A schematic diagram of the porosity system of the Eagle

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[1]The pulse-decay permeability method is described in a paper, SPE 28450.

[2] Luffel, D.L. and Guldry, F.K.: "New Core Analysis Methods for Measuring Reservoir Rock Properties of Devonian Shale," *JPT* (Nov 1992) 1184 - 1190.

[3] Luffel, D.L., Guldry, F.K. and Curtis, J.B.: "Evaluation of Devonian Shale with New Core and Log Analysis Methods," *JPT* (Nov 1992) 1192-1197.

Formation is offered in Figure C3. The total measured porosity value is an altered value and, according to corresponding XRD data, the samples contain 3.4-11% expandable mixed layered illite/smectite clays with a 40%-60% hydrous expandability. Samples also contain 0.8%-19.5% of 100% expandable smectite clay. These expandable clays do de-water during the humidity drying process. For example, if a sample contained 11% expandable mixed clays with a hydrous expandability of 60% and 0.8% of 100 % expandable smectite, then 7.4% of the total rock could contain water that would likely be removed during the humidity drying process. Also important is the matrix permeability, which likely controls how much water is introduced to the expandable clays in the drilling/coring process.

It is important to understand that the "total" porosity is not the same as effective porosity (or porosity present downhole in the reservoir). Because of the presence of the expandable clays, the "total" porosity should be viewed as a **dilated** porosity where 7.04-20.86 % of the clay-sized material in the rock contains expandable clays which could grossly alter the measured total porosity. These expandable clays could contain water bound to the clays after drilling/coring. Shrinkage in bulk volumes between 4.2% and 18.3% were measured from the samples due to the humidity drying process.

The effective *in situ* porosity can be approximated for the reservoir and non-reservoir rock where the alteration to the bulk volume is entirely due to the addition of free water on the expandable clays. It is likely that the expandable clays collected free water during the drilling/coring operations. This conclusion is supported by the fact that the 3.5-inch diameter core visibly swelled in the inner core barrel making it often difficult to remove. For example, sample 1-2 at 980.1 ft has a total porosity of 30.8%, a smectite content of 0.8% at 100% expandability, illite/smectite mixed-layer clays of 11% and illite/smectite expandability of 60%. Multiplying 11% by 60% yields a volume of 6.6% clay bound water from the mixed-layer clays, plus 0.8% from the 100% expandable smectite content, yielding a total of 7.4% of the clay-size material could contain additional water. The original bulk volume expansion could have been the result of free water binding to the clays. Alteration of bulk volume from "original "(after coring) to "current" (after humidity drying) was measured at 7.1% of bulk volume. This means that the clay-corrected porosity is likely on the order of 23.7%.

Based on XRD and bulk volume shrinkage data, reservoir samples were measured with greater altered values than non-reservoir samples, suggesting that matrix permeability may control the rate and, therefore, ultimate availability of expandable clays which were altered by the presence of free water. For example, sample 1-17 at 1040.1 ft has a measured total porosity of 27.5%, a smectite content of 16.8% and illite/smectite content of 7.0% (40% expandability). Multiplying 7% by 40% yields a potential volume of 2.8% mixed-layer clay bound water. Adding the 2.8% to the 16.8% of 100% expandable smectite yields a composite of 19.6% of the clay-size material that could contain adsorbed water. The measured bulk volume shrinkage amounted to 18.3%, which is only slightly less than that which could be accounted for by clay expansion. This result suggests that the matrix permeability is relatively good because nearly all of the available clay expansion sites were filled by free water. Likewise, sample 1-8 at 1011.9 ft, which has a smectite content of 19.5% and an illite/smectite content of 3.4% (40% hydrous expandability), yields a potential expandable clay volume of 20.9%. Based on the sample bulk volume change of only 7.1%, we can conclude that this non-reservoir sample has a low matrix permeability.

TerraTek
University Research Park
400 Wakara Way • Salt Lake City, Utah 84108
Telephone (801) 584-2400
FAX (801) 584-2406

Figure C4 is a graph depicting the volume changes inferred from porosity; saturation, XRD data and shrinkage data to account for the drilling/coring induced volume changes. It is meaningful, in an interpretive sense, that the client-identified reservoir samples had consistently higher bulk volume changes in percent than most of the non-reservoir rock for this well. Although the bulk volume shrinkage values do not consistently approximate the expandable clay volume measured by XRD, this fact suggests that the higher clay contents in the non-reservoir rock were less likely to be altered due to reduced matrix permeability. Obviously, the time of exposure to water in the form of drilling/coring fluids, core condition, and other factors could grossly alter this inferred relationship.

For this well, the reservoir and non-reservoir rock could be grossly separated by the percent change in bulk volume. These changes in bulk volume are presented in Table C6 along with predicted effective porosities based on bulk volume changes.

Table C1. Core Inventory

Core Number	Cored Interval (ft)	Recovered Interval (ft)	Recovery (%)
1	975-1005	975-1001.0	86.7
2	1005-1035	1005-1024.3	64.4
3	1036-1066	1036-1045.5	31.7

Table C2. Sample Inventory

Sample Number	Sample Depth (ft)	Desorption Intervals (ft)
1-1	976.20	
1-2	980.10	(1) 980-981
1-3	985.30	
1-4	989.70	(2) 989-990
1-5	995.30	
1-6	1000.70	
1-7	1006.80	(3) 1006-1007
1-8	1011.90	
1-9	1012.80	
1-10	1020.40	(4) 1020-1021
1-11	1022.30	
1-12	1024.00	
1-13	1036.50	
1-14	1037.30	
1-15	1038.10	
1-16	1039.10	
1-17	1040.10	(5) 1040-1041
1-18	1041.10	
1-19	1042.70	
1-20	1043.30	
1-21	1044.30	
1-22	1045.50	

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Table C3. Unconventional Core Analysis Test Results

Sample Number	Sample Depth (ft)	Effective Stress (psi)	Sample Length (in)	Sample Diameter (in)	Porosity (%)	Dry Bulk Density (g/cm^3)	As Received Bulk Density (g/cm^3)	Grain Density (g/cm^3)	Gas Permeability (md)	Water Saturation (%)	Total-1% Porosity (%)	Gas Filled Porosity (%)
1-1	976.20	400.00	1.947	0.990	28.24	1.90	2.169	2.652	9.113	94.29	27.24	1.56
1-2	980.10	400.00	1.785	0.995	30.76	1.85	2.134	2.672	1.156	92.38	29.76	2.27
1-3	985.30	400.00	1.692	0.998	29.03	1.88	2.150	2.647	0.706	93.66	28.03	1.78
1-4	989.70	400.00	0.763	0.987	30.25	1.85	2.128	2.646	5.177	93.47	29.25	1.91
1-5	995.30	400.00	1.718	0.982	32.31	1.79	2.083	2.638	8.947	91.92	31.31	2.53
1-6	1000.70	400.00	1.158	0.999	30.02	1.85	2.128	2.647	27.642	91.93	29.02	2.34
1-7	1006.80	400.00	1.608	0.988	30.54	1.82	2.103	2.619	0.137	92.89	29.54	2.10
1-8	1011.90	400.00	1.128	0.988	30.84	1.82	2.109	2.632	0.285	93.66	29.84	1.89
1-9	1012.80	400.00	0.939	0.993	29.18	1.89	2.156	2.664	0.081	92.31	28.18	2.17
1-10	1020.40	400.00	1.146	0.988	28.92	1.91	2.168	2.688	0.283	89.20	27.92	3.02
1-11	1022.30	400.00	1.222	1.000	28.86	1.92	2.164	2.694	0.074	85.51	27.86	4.04
1-12	1024.00	400.00	0.931	0.992	27.03	1.95	2.197	2.674	0.244	91.00	26.03	2.34
1-13	1036.50	400.00	1.776	0.983	30.72	1.83	2.115	2.648	0.779	91.28	29.72	2.59
1-14	1037.30	400.00	1.243	0.973	29.01	1.87	2.148	2.637	1.243	95.44	28.01	1.28
1-15	1038.10	400.00	1.847	0.981	28.25	1.92	2.180	2.676	2.089	91.92	27.25	2.20
1-16	1039.10	400.00	1.858	0.981	29.86	1.86	2.138	2.657	1.205	91.76	28.86	2.38
1-17	1040.10	400.00	1.750	0.977	27.49	1.93	2.187	2.663	0.339	93.22	26.49	1.80
1-18	1041.10	400.00	0.977	0.974	27.44	1.83	2.116	2.646	1.617	92.35	26.44	2.02
1-19	1042.70	400.00	1.880	0.977	30.48	1.85	2.125	2.657	1.207	91.17	29.48	2.60
1-20	1043.30	400.00	0.904	0.983	30.63	1.83	2.117	2.643	1.452	92.64	29.63	2.18
1-21	1044.30	400.00	1.891	0.978	28.75	1.89	2.156	2.657	0.676	91.37	27.75	2.39
1-22	1045.50	400.00	0.946	0.988	26.27	1.94	2.176	2.628	0.793	90.80	25.27	2.33

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Table C4. Advanced Unconventional Core Analysis Test Results

Sample Number	Sample Depth (ft)	Effective Stress (psi)	Sample Length (in)	Sample Diameter (in)	Gas Filled Porosity (%)	Bulk Density (g/cm^3)	Grain Density (g/cm^3)	Water Saturation (%)	Pulse Decay Permeability (md)
1orig	1017.0	700	0.854	0.964	4.48	2.174	2.656	85.04	N/A
1.1	1017.0	700	0.854	0.964	6.88	2.150	2.656	77.01	0.000233
1.2	1017.0	700	0.854	0.964	13.31	2.085	2.656	55.50	0.001448
1.3	1017.0	700	0.854	0.964	14.91	2.069	2.656	50.16	0.001555
1dry	1017.0	700	0.854	0.964	29.92	1.919	2.656	0.00	N/A
2orig	1043.7	700	0.742	0.975	5.01	2.175	2.660	82.10	N/A
2.1	1043.7	700	0.742	0.975	6.17	2.163	2.660	77.95	0.000257
2.2	1043.7	700	0.742	0.975	13.20	2.093	2.660	52.84	0.063796
2.3	1043.7	700	0.742	0.975	15.46	2.070	2.660	44.78	0.079496
2dry	1043.7	700	0.742	0.975	28.00	1.945	2.660	0.00	N/A

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Table C5. Eagle Formation - Facies Identification

Facies No.	Description
1	Shale/Mudstone
2	Shale/Mudstone interbedded with thin siltstone/sandstone laminae
3	Interbedded Sandstone/Siltstone/Shale/Mudstone. Generally less distinct bedding and more sandy in character. Homogenized in places, likely bioturbated.
4	Interbedded Shale/Mudstone with thinly bedded light gray Sandstone/Siltstone. Well cemented.
#2115 Well	
Lithology / Facies	**Depth Interval (ft)**
Facies 1	975.0-1024.0
Facies 3	1024.0-1024.3, 1036.0-1045.5
Siderite nodules	986.1-986.5, 989.8-990.1
Calcite rich beds	987.3-987.4, 991.5-991.7, 1014.1-1014.2
Natural fracture	1000.1-1000.5
Bentonites	996.0-996.1, 1000.0-1000.1, 1006.6-1006.9, 1007.9-1008.0, 1009.4-1009.5

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Table C6. Drilling/Coring Induced Bulk Volume Changes

Sample Number	Sample Depth (ft)	Total Porosity (%)	Smectite Content (%)	Smectite Expandability (%)	Illite/Smectite Content (%)	Illite/Smectite Expandability (%)	Expandable Clay Volume (%)	Change in Bulk Volume (%)	Corrected Effective Porosity (%)	Facies
1-1	976.2	28.2						4.64	23.6	1
1-2	980.1	30.8	0.8	100	11.0	60	7.40	7.06	23.7	1
1-3	985.3	29.0						6.20	22.8	1
1-4	989.7	30.3	15.8	100	9.3	40	19.52	4.19	26.1	1
1-5	995.3	32.3						7.99	24.3	1
1-6	1000.7	30.0						5.58	24.4	1
1-7	1006.8	30.5						4.95	25.6	1
1-8	1011.9	30.8	19.5	100	3.4	40	20.86	7.07	23.8	1
1-9	1012.8	29.2						5.40	23.8	1
1-10	1020.4	28.9	3.6	100	8.6	40	7.04	4.52	24.4	1
1-11	1022.3	28.9						Trimmed		1
1-12	1024.0	27.0						4.93	22.1	3
1-13	1036.5	30.7						8.04	22.7	3
1-14	1037.3	29.0						6.89	22.1	3
1-15	1038.1	28.3						6.86	21.4	3
1-16	1039.1	29.9						Trimmed		3
1-17	1040.1	27.5	16.8	100	7.0	40	19.60	18.26	9.2	3
1-18	1041.1	27.4						9.74	17.7	3
1-19	1042.7	30.5						8.08	22.4	3
1-20	1043.3	30.6						9.18	21.5	3
1-21	1044.3	28.7						Trimmed		3
1-22	1045.5	26.3						5.53	20.7	3

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Figure C1. Plot of Gas-Filled Porosity versus Total Porosity

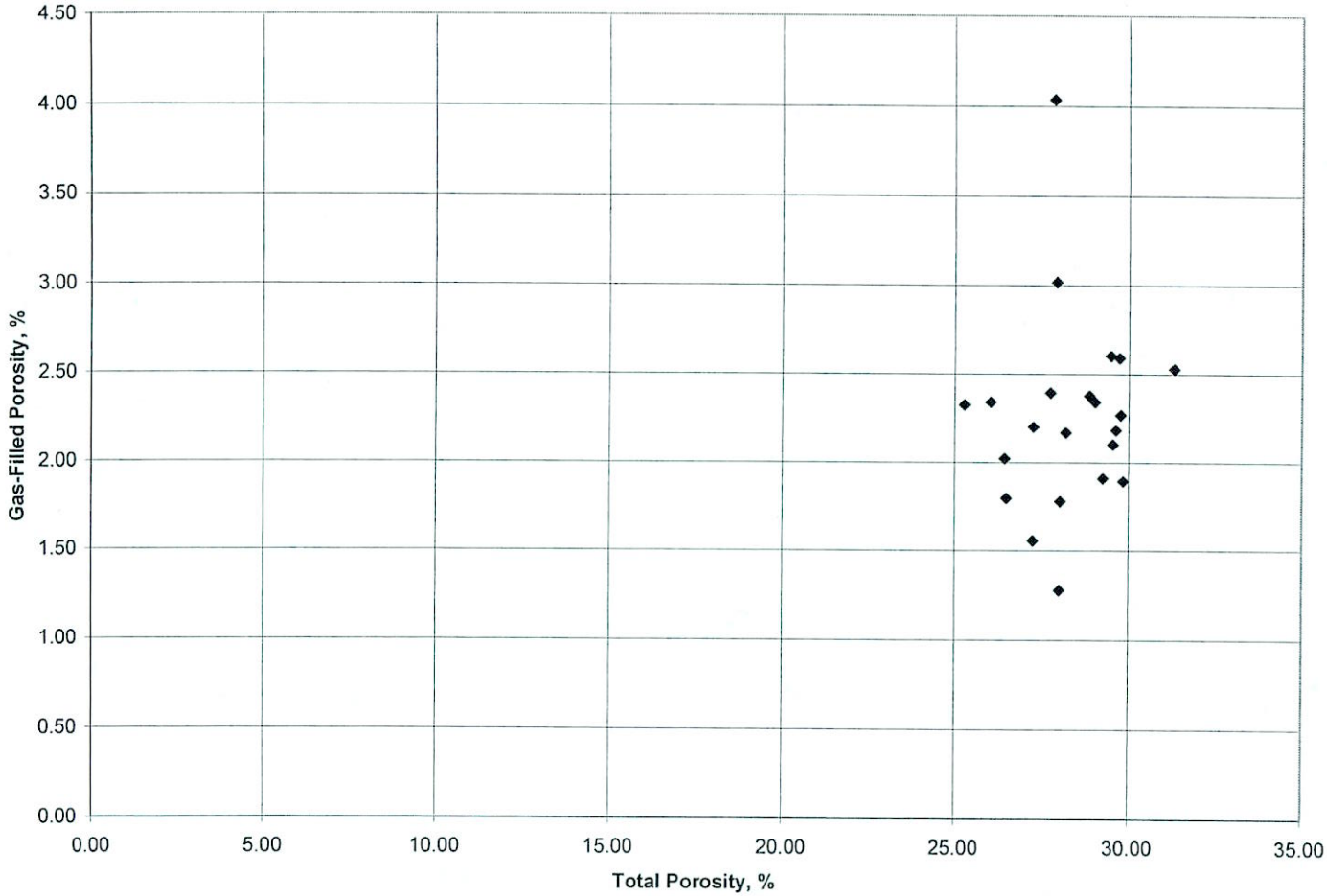

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Figure C2. Plot of Gas-Filled Porosity versus Pulse Decay Permeability

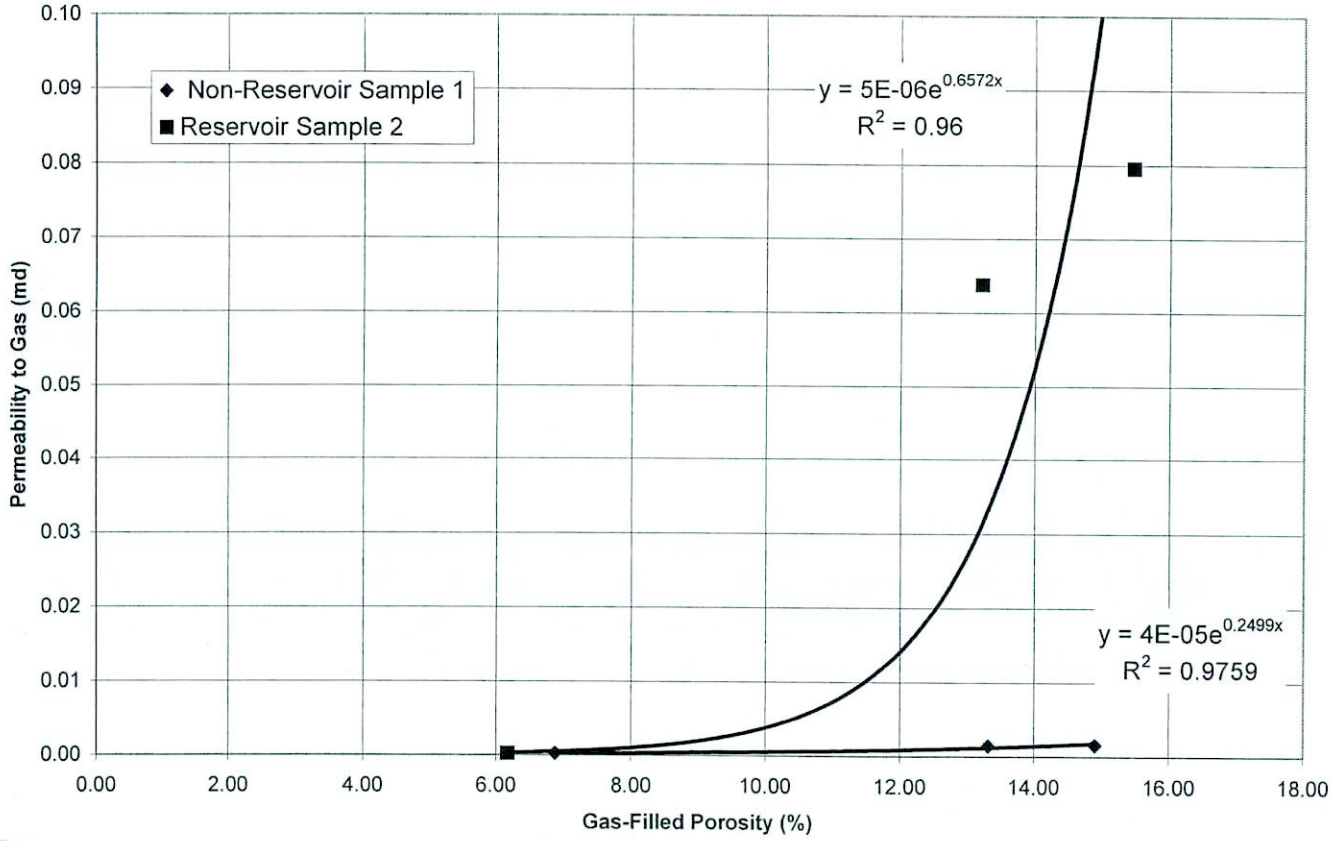

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Figure C3. Schematic of Eagle Porosity System

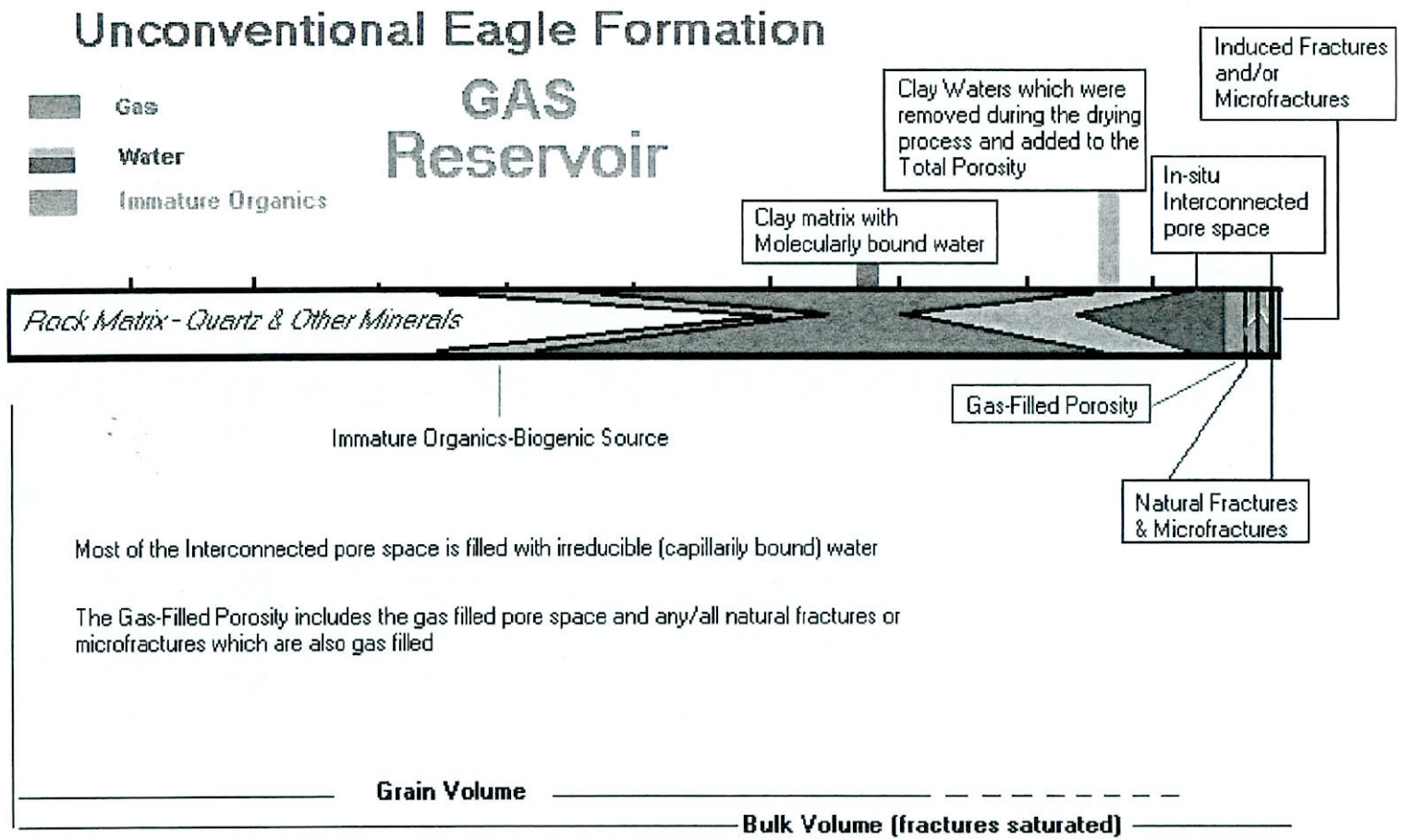

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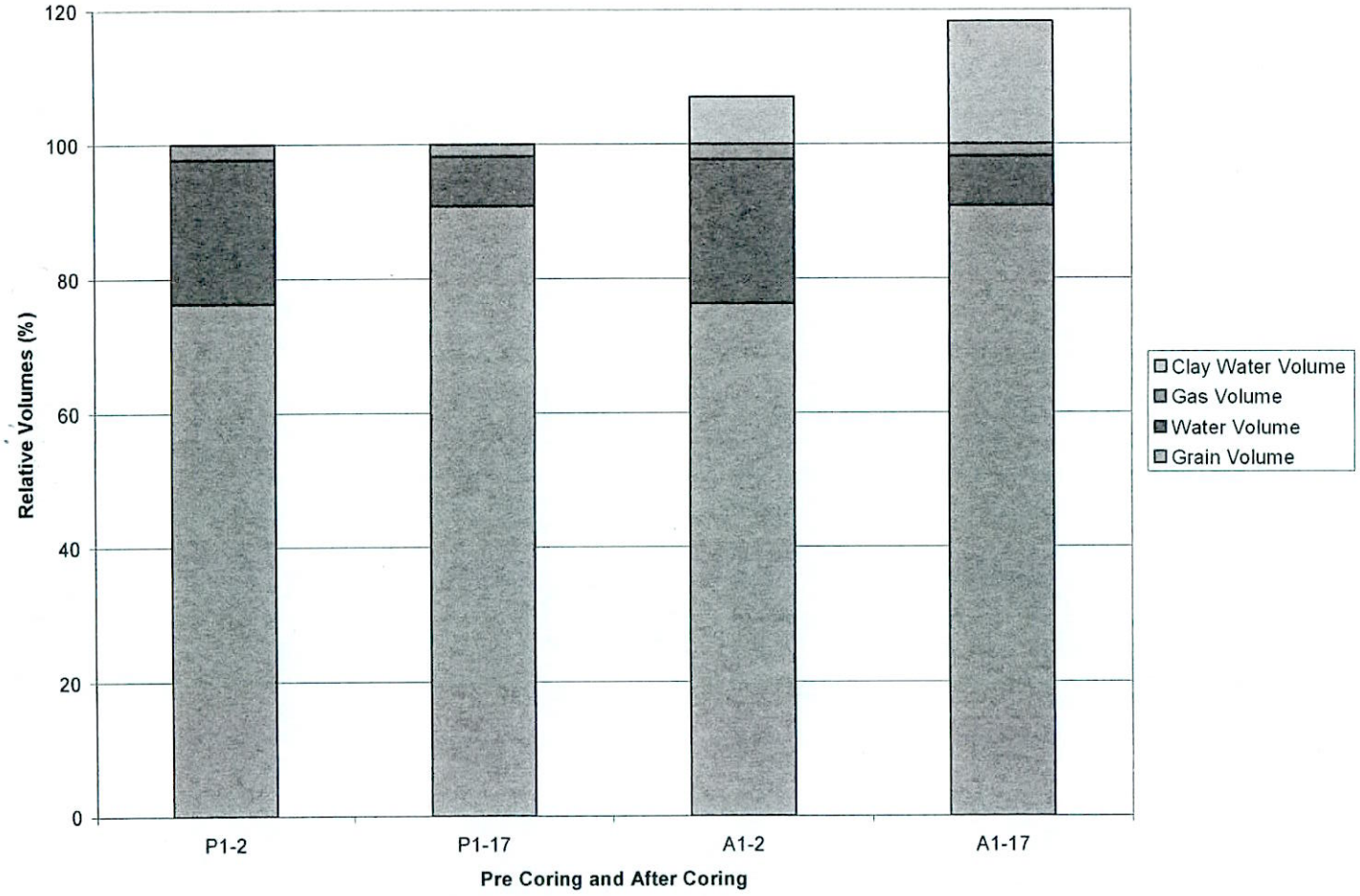
Figure C4. Histogram of Drilling/Coring-Induced Volume Change



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Gamma Log

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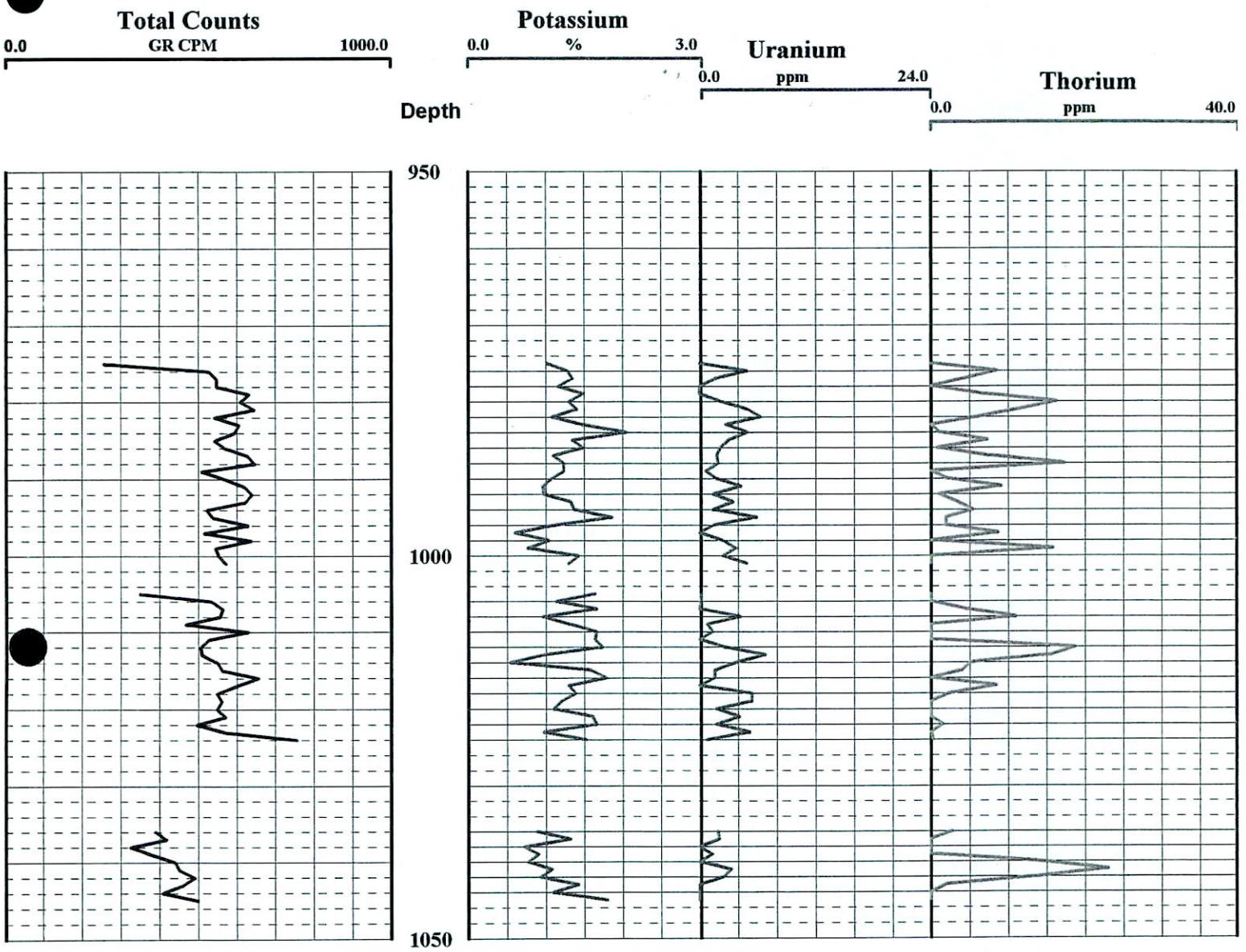
Fidelity Exploration
Well # 2115

TerraTek
COMPONENT GAMMA LOG

August 3, 2001
TerraTek No: 500196



CANISTER DESORPTION STUDY

1 INTRODUCTION

At the request of John Genziano with Fidelity E & P. a shale gas analysis program was attempted on shale samples recovered from the #2115-8A well located in Fallon Co., Montana.

The testing program consisted of canister desorption measurements on selected samples at wellsite and in the laboratory, with residual gas and total organic carbon measurements on selected samples from the canistered shales.

2 TEST PROCEDURES

2.1 Canister Desorption Measurements

Three whole core samples were placed in desorption canisters at wellsite. The canisters were maintained at a reservoir temperature of approximately 30° C. Desorption data were collected from the samples for a period of time on location. The canisters, containing the samples were then transported to TerraTek, Inc. in Salt Lake City for continued desorption.

Upon arrival at TerraTek, the canisters were brought to temperature and underwent continued long-term desorption.

2.2 Residual Gas Measurements

Residual gas measurements were performed on representative sub-samples on selected samples from the recovered core.

Measurement of the residual gas entailed sealing each sub-sample in a SPEX mill and crushing for approximately thirty seconds. The volume of released gas was then measured over a period of approximately 4 minutes.

The SPEX mill crushes a 100 gram sample to <200 mesh particle size by the centrifugal acceleration of a billet-ring system, within a sealed vessel. The released gas is then vented into a burette system for volumetric measurement. At this time, barometric pressure and ambient temperature are recorded for volume corrections to standard temperature and pressure.

Correction of the measured gas volumes to standard temperature and barometric pressure (60° F and 14.696 psi) was performed using equation (1).

$$\text{Volume}|_{STP}\ (\text{scm}^3) = \left\{ \frac{V_1\, P_1\, (T_2 + 273.16)}{(T_1 + 273.16)\, P_2} \right\} \qquad (1)$$

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where:

V_1 ..... Initial measured volume, cm^3 ,

P_1 ..... Barometric pressure during measurement of V_1, psi,

T_1 ..... Ambient temperature during measurement of V_1, °F,

P_2 ..... 14.696 psi, and,

T_2 ..... 60° F.

Gas content (scf/ton) was calculated by dividing the volume at STP (scm^3) by the mass of the sample (g), followed by a conversion of units, scm^3/g to scf/ton.

3 RESULTS

Unfortunately it was determined that the formation was not suitable for canister desorption techniques. Once the samples were placed in the canisters, most "evolved" gas measurements were negative values. Table D1 summarizes the residual gas and total organic carbon data from the canister desorption samples. The Appendix contains the desorption data sheets.

4 REFERENCES

Diamond, W.P. and Levine, J.R.,: *USBM,* RI 8515, "Direct Method Determination of the Gas Content of Coal," (1981) 36.

McLennan, J.D., Schafer, P.S., and Pratt, T.J.: *A Guide to Determining Coalbed Gas Content,* Gas Research Institute, Chicago, IL, (1995).

Mavor, M.J., "Measurement and Evaluation of Coal Sorption Isotherm Data", Society of Petroleum Engineers, SPE 20728, pp.157-169.

Table D1. Summary of Residual Gas and Total Organic Carbon Measurements

Sample No.	Depth (ft)	Measured Gas (cm^3)	Corrected Measured Gas (scm^3)	Crushed Weight (g)	Crushed Gas Content (scf/ton)	Total Organic Carbon (wt. %)
1	980-81	9.5	7.7	285.90	0.87	0.87
2	989-90	12.6	10.3	279.83	1.18	0.89
3	1006-07	16.9	13.8	223.87	1.97	1.03
4	1020-21	29.7	24.2	290.90	2.67	0.96
5	1040-41	23.8	19.4	327.60	1.90	0.75

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APPENDIX

Canister Desorption Data Sheets

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Canister Gas Desorption Data Sheet

Canister	Sample	Page
1	1	1 of 1

Operator	Fidelity E&P Co.			Canister Sealed		Location		Mud / Air	Original Wt.	Final Wt.
Well Name	2115			Date	Time	Sample Type	Conventional 3.5"	Mud	N/A	3712.94
County / State	Fallon / MT			07/23/01	02:20	Date Coring Starts -- Ends -- Surfaces		07/22/01 -- 07/23/01 -- 07/23/01		
Core Number	1	Depth (ft)	981-82	Temp. (°C)	24.9	Time Coring Starts -- Ends -- Surfaces		23:15 -- 00:14 -- 01:50		

Date (mm/dd/yr)	Time (hh:mm)	Elaspsed Time (hrs)	Barometric Pressure (inHg)	Ambient Temp. (°C)	Canister Temp. (°C)	Gas Volume Measurement (ml)	Corrected Volume (ml)	Cumulative Volume (l)	Cumulative Volume (sl)	Comments
07/23/01	02:20	0.000								
07/23/1	02:30	0.167	26.87	17.4	25.4	1.2	0.86	0.0009	0.0008	
07/23/1	02:40	0.333	26.87	17.1	26.0	0.4	0.03	0.0009	0.0008	
07/23/1	02:50	0.500	26.88	16.6	26.3	0.6	0.41	0.0013	0.0012	
07/23/1	03:00	0.667	26.88	16.9	26.8	0.0	-0.30	0.0010	0.0009	
07/23/1	03:10	0.833	26.88	17.4	26.8	0.0	0.03	0.0010	0.0009	
07/23/1	03:20	1.000	26.89	17.8	27.2	0.0	-0.25	0.0008	0.0007	
07/23/1	03:40	1.333	26.88	18.5	27.7	-0.8	-1.16	-0.0004	-0.0003	
07/23/1	04:00	1.667	26.88	18.1	28.2	-0.7	-1.08	-0.0015	-0.0013	
07/23/1	04:30	2.167	26.87	17.9	28.5	-2.6	-2.83	-0.0043	-0.0038	
07/23/1	05:00	2.667	24.84	17.7	28.9	-2.6	-19.23	-0.0235	-0.0196	
07/23/1	05:30	3.167	26.88	18.1	29.2	-3.0	11.99	-0.0115	-0.0090	
07/23/1	06:00	3.667	26.89	17.9	29.5	-1.5	-1.67	-0.0132	-0.0104	
07/23/1	07:15	4.917	26.88	23.8	30.2	-5.5	-6.02	-0.0192	-0.0157	
07/23/1	08:46	6.433	26.87	26.3	30.2	-9.4	-9.45	-0.0287	-0.0238	
07/23/1	11:00	8.667	26.87	27.3	30.1	-17.6	-17.52	-0.0462	-0.0389	
07/23/1	15:30	13.167	26.82	31.0	29.4	-21.5	-21.40	-0.0676	-0.0571	
07/23/1	23:00	20.667	26.95	20.5	30.3	-35.4	-35.06	-0.1026	-0.0880	
07/25/1	13:00	58.667	26.76	27.7	29.8	-63.0	-64.08	-0.1667	-0.1429	Transported to SLC
08/02/1	10:15	247.917	25.31	18.2	27.4	14.0	4.17	-0.1625	-0.1394	

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Canister Gas Desorption Data Sheet

Canister	Sample	Page
2	2	1 of 1

Operator	Fidelity E&P Co.			Canister Sealed		Location		Mud / Air	Original Wt.	Final Wt.
Well Name	2115			Date	Time	Sample Type	Conventional 3.5"	Mud	N/A	3814.92
County / State	Fallon / MT			07/23/01	02:20	Date Coring Starts -- Ends -- Surfaces		07/22/01 -- 07/23/01 -- 07/23/01		
Core Number	1	Depth (ft)	994-95	Temp. (°C)	24.4	Time Coring Starts -- Ends -- Surfaces		23:15 -- 00:14 -- 01:50		

Date (mm/dd/yr)	Time (hh:mm)	Elaspsed Time (hrs)	Barometric Pressure (inHg)	Ambient Temp. (°C)	Canister Temp. (°C)	Gas Volume Measurement (ml)	Corrected Volume (ml)	Cumulative Volume (l)	Cumulative Volume (sl)	Comments
07/23/01	02:20	0.000								
07/23/1	02:31	0.183	26.87	17.4	25.8	2.2	1.26	0.0013	0.0011	
07/23/1	02:41	0.350	26.87	17.1	26.8	1.0	0.36	0.0016	0.0014	
07/23/1	02:51	0.517	26.88	16.6	27.4	0.8	0.42	0.0020	0.0018	
07/23/1	03:01	0.683	26.88	16.9	28.1	1.5	1.06	0.0031	0.0028	
07/23/1	03:11	0.850	26.88	17.4	28.3	-1.0	-1.10	0.0020	0.0018	
07/23/1	03:21	1.017	26.89	17.8	28.8	-0.2	-0.52	0.0015	0.0013	
07/23/1	03:41	1.350	26.88	18.5	29.3	-2.0	-2.36	-0.0009	-0.0008	
07/23/1	04:01	1.683	26.88	18.1	30.0	-5.5	-6.01	-0.0069	-0.0061	
07/23/1	04:31	2.183	26.87	17.9	30.5	-8.2	-8.56	-0.0154	-0.0137	
07/23/1	05:08	2.800	24.84	17.7	30.6	-15.0	-31.41	-0.0469	-0.0395	
07/23/1	05:31	3.183	26.88	18.1	30.7	-10.0	5.12	-0.0417	-0.0350	
07/23/1	06:01	3.683	26.89	17.9	31.0	-6.5	-6.67	-0.0484	-0.0409	
07/23/1	07:16	4.933	26.88	23.8	31.4	-18.5	-18.82	-0.0672	-0.0573	
07/23/1	08:47	6.450	26.87	26.3	31.1	-21.4	-21.25	-0.0885	-0.0756	
07/23/1	11:01	8.683	26.87	27.3	30.5	-28.5	-28.09	-0.1166	-0.0998	
07/23/1	15:31	13.183	26.82	31.0	29.3	-37.5	-37.07	-0.1536	-0.1313	
07/23/1	23:01	20.683	26.95	20.5	30.8	-22.1	-22.15	-0.1758	-0.1508	
07/25/1	13:01	58.683	26.76	27.7	29.7	-10.0	-10.69	-0.1865	-0.1600	Transported to SLC
08/02/1	10:16	247.933	25.31	18.2	28.5	60.0	49.33	-0.1372	-0.1187	

Canister Gas Desorption Data Sheet

Canister	Sample	Page
3	3	1 of 1

Operator	Fidelity E&P Co.			Canister Sealed		Location		Mud / Air	Original Wt.	Final Wt.
Well Name	2115			Date	Time	Sample Type	Conventional 3.5"	Mud	N/A	3630.94
County / State	Fallon / MT			07/23/01	07:15	Date Coring Starts -- Ends -- Surfaces		07/23/01 -- 07/23/01 -- 07/23/01		
Core Number	2	Depth (ft)	1018-19	Temp. (°C)	24.4	Time Coring Starts -- Ends -- Surfaces		04:07 -- 04:57 -- 06:36		

Date (mm/dd/yr)	Time (hh:mm)	Elaspsed Time (hrs)	Barometric Pressure (inHg)	Ambient Temp. (°C)	Canister Temp. (°C)	Gas Volume Measurement (ml)	Corrected Volume (ml)	Cumulative Volume (l)	Cumulative Volume (sl)	Comments
07/23/01	07:15	0.000								
07/23/1	07:30	0.250	26.87	23.3	25.2	-7.0	-7.54	-0.0075	-0.0066	
07/23/1	07:45	0.500	26.86	23.2	26.1	-2.6	-3.25	-0.0108	-0.0094	
07/23/1	08:15	1.000	26.86	25.3	27.3	-7.0	-7.85	-0.0186	-0.0162	
07/23/1	08:45	1.500	26.87	26.3	28.1	-8.4	-8.83	-0.0275	-0.0238	
07/23/1	09:15	2.000	39.08	26.9	28.5	-9.0	53.31	0.0258	0.0430	
07/23/1	10:16	3.017	26.88	26.5	29.1	-17.5	-108.90	-0.0831	-0.0510	
07/23/1	11:15	4.000	26.87	27.7	29.6	-17.0	-17.38	-0.1004	-0.0659	
07/23/1	12:21	5.100	26.86	28.3	29.9	-11.0	-11.26	-0.1117	-0.0756	
07/23/1	14:21	7.100	26.84	29.7	29.3	-30.3	-30.04	-0.1417	-0.1012	
07/23/1	23:02	15.783	26.95	30.5	30.5	-123.0	-122.99	-0.2647	-0.2062	
07/25/1	13:02	53.783	26.76	28.1	29.7	-46.0	-46.90	-0.3116	-0.2463	Transported to SLC
08/02/1	10:17	243.033	25.31	18.2	28.0	55.0	44.68	-0.2669	-0.2090	

1 SCANNING ELECTRON MICROSCOPY (SEM)

1.1 Introduction and Analytical Procedures

Scanning electron microscopy (SEM) analysis was conducted on four core samples representing silty mudstone and shale from the Eagle Formation (Table P1). High-magnification imaging and concurrent elemental (EDX) analysis of shale samples was performed to illustrate typical clay morphology, clay composition, microporosity distribution and secondary mineralization. These samples, plus two additional samples, were also analyzed using x-ray diffraction (XRD) techniques to better quantify the reservoir mineralogy. These results are presented in the next report section.

A small, freshly broken portion of each sample was mounted on a standard SEM mount and sputter-coated with gold for approximately 60 seconds. The samples were then placed in a Leo 440 scanning electron microscope equipped with an Oxford energy dispersive x-ray spectrometer (EDX), examined, and imaged at a range of magnifications to document the morphology of the rock fabric and the pore system. Suspected expandable (smectite) clays were identified wherever possible. Annotated, digital SEM images are presented at the end of this report.

Table P1. Petrologic Sample Summary – Eagle Shale Cores

Sample Depth (ft)	Lithology	SEM / EDX Analysis	Bulk & Clay XRD Analysis
980.1	Shale / Mudstone	✓	✓
989.7	Shale / Mudstone	✓	✓
1012.0	Shale / Mudstone	✓	✓
1020.0	Shale / Mudstone		✓
1040.0	Shale / Mudstone	✓	✓

1.2 Discussion

All four studied samples are classified as poorly laminated, siliceous shales or mudstones. Microcrystalline matrix is argillaceous and hosts minor amounts of interspersed silt (mostly quartz and feldspar). Detrital clays are generally well compacted, although do not exhibit a pronounced preferred orientation, as would be expected in a well-laminated shale; post-depositional bioturbation, dewatering, or soft-sediment deformation may have disrupted the original clay orientation. Secondary minerals in the Eagle shales are sparse but include disseminated and replacive pyrite (Plates 3 and 10), minor dolomite, and rare siderite. All secondary minerals are microcrystalline.

Detrital clays comprising the matrix include a diverse assemblage of minerals. Corresponding

XRD data (Table P2) indicate a persistent abundance of illite accompanied by minor to moderate amounts of kaolinite, chlorite, mixed-layer illite/smectite, and expandable smectite. SEM observations confirm these findings as most high-magnification images exhibit a dominance of flaky illite clay (Plates 1, 2, 3, 4, 7, 9, 11 and 12). Sample depth 980 ft contains some intermixed mixed-layer clay in addition to pervasive illite, but no smectite. The three deeper samples, however, contain a higher proportion of expandable smectite. In many cases, individual clay species are difficult to differentiate, especially in the case of intermixed illite, kaolinite and chlorite. Smectite-rich clays, however, commonly exhibit a characteristic morphology of jagged, wavy or crenulated flakes (Plates 5, 6, 8 and 12). Concurrent EDX analysis can also confirm the presence of smectite.

Elemental analysis of suspected smectite or smectite-bearing clays using an EDX detector reveals some notable compositional trends. In nearly all cases, suspected smectite exhibits minor peaks for magnesium (Mg), sodium (Na), calcium (Ca) and iron (Fe), in addition to the dominant silicon (Si), aluminum (Al) and oxygen (O) peaks. These minor peaks are not unusual for smectite or mixed-layer expandable clays. More importantly, where Na and Ca peaks are sharp, the peak for Na is nearly always higher than the Ca peaks, strongly suggesting a sodic smectite composition throughout the reservoir (Plates 5, 6 and 8). If potassium (K) is detected in any appreciable quantity, the clay species is interpreted as illite or mixed-layer illite/smectite.

All four mudstones are visibly microporous, although minimal diagenetic dissolution has precluded the formation of extensive macroporosity. Most visible micropores are classified as intercrystalline voids between detrital clay flakes. Typical pore sizes are extremely small: nearly all pores are less than 5 microns and most are smaller than 1 micron.

A summary of the major textural and compositional characteristics in each of the three samples is briefly presented below:

1.3 Sample Descriptions

Sample Depth 980.1 ft

Textural Features – Microcrystalline clay matrix is tightly crystalline, well compacted but weakly laminated. Interspersed silt is clay-supported.

Clay Mineralogy – Detrital clay matrix is illite-rich and contains little or no pure smectite clay. Other clay species include kaolinite, chlorite and mixed-layer illite/smectite. Suspected mixed-layer (expandable) clays exhibit minor elemental peaks for K, Mg, Fe, Na and Ca. Mixed-layer clays containing both Na and Ca typically exhibit a higher proportion of Na.

Authigenic Mineralogy – Pyrite, dolomite and rare siderite microcrystals are present throughout the matrix.

Porosity – Tightly crystalline shale hosts only modest amounts of microporosity. Intercrystalline micropores associated with detrital clay structures are the dominant pore types.

Sample Depth 989.7 ft

Textural Features – Shale matrix is tightly crystalline, well compacted and poorly laminated.

Interspersed silt is clay-supported.

Clay Mineralogy – As in the previous sample, detrital clay matrix is illite-rich, although includes appreciable quantities of mixed-layer illite/smectite, kaolinite, chlorite and expandable smectite. Suspected smectite flakes yield EDX spectra showing minor peaks for Mg, Na, Ca, and Fe. Although both Na and Ca peaks are comparatively small, all EDX analyses indicate a higher proportion of Na than Ca in smectite. Clay species containing notable amounts of K are interpreted as illite or mixed-layer clays.

Authigenic Mineralogy – Pyrite, dolomite and rare siderite microcrystals are present throughout the matrix.

Porosity – Tightly crystalline shale hosts minor to moderate amounts of microporosity. Intercrystalline micropores associated with detrital clays are the dominant pore types.

Sample Depth 1012.0 ft

Textural Features – Microcrystalline clay matrix is tightly crystalline, well compacted but weakly laminated. Interspersed silt is clay-supported.

Clay Mineralogy – Overall clay mineralogy is most similar to that at depth 989.7 ft. Illite is dominant, although significant amounts of intermixed kaolinite, chlorite, 50/50 illite/smectite, and pure expandable smectite are also present. Close inspection of the matrix reveals concentrations of jagged, "corn flake"-style smectite flakes. Smectite composition is nearly always Na-rich, and may include minor amounts of Mg, Fe, and Ca. Clay species containing notable amounts of K are interpreted as illite or mixed-layer clays.

Authigenic Mineralogy – Pyrite, dolomite and rare siderite microcrystals are present throughout the matrix.

Porosity – Tightly crystalline shale hosts minor to moderate amounts of microporosity. Intercrystalline micropores associated with detrital clays are the dominant pore types.

Sample Depth 1040.1 ft

Textural Features – Microporous mudstone is poorly laminated but visibly siltier than other samples. Interspersed silt is matrix-supported.

Clay Mineralogy – Overall clay mineralogy is most similar to that at depths 989.7 ft and 1012 ft, although total clay abundance is reduced. Illite is the dominant clay species and commonly forms well-crystalline, slightly crenulated plates and flakes at random orientation. Minor quantities of expandable smectite, kaolinite, chlorite, and I/S are finely intermixed with illite. Where identified, smectite-bearing clays are slightly Na-rich, and may include minor amounts of Mg, Fe, and Ca. Clay species containing notable amounts of K are interpreted as illite or mixed-layer I/S.

Authigenic Mineralogy – Minor replacive pyrite dolomite are present throughout the matrix.

Porosity – Intercrystalline micropores associated with detrital clays are the dominant pore types.

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2 X-RAY DIFFRACTION (XRD) ANALYSIS

Semi-quantitative x-ray diffraction analysis was also conducted on five shale core samples from this well. Procedures and results are presented below.

X-ray Diffraction (XRD) Procedures

Bulk Analysis - A representative split from each of the crushed samples was ground in acetone in an agate mortar to <325 mesh (<45 microns). The ground rock material was spread on a glass slide and scanned 2°2θ per minute from 2° to 65° 2θ. Diagnostic peaks of minerals identified on the resulting diffractogram were rescanned on duplicate samples. Approximate weight percentages of mineral phases were determined by comparing diagnostic peak intensities with those generated by pure standard phases mixed in various known proportions. Data presented in this report are the average of three scanning runs.

Clay Analysis - Bulk samples were sonically disaggregated in de-ionized water, allowed to settle sufficiently to yield desired particle size (generally <2 microns or <5 microns), decanted, and centrifuged. The resulting slurries were smeared on glass slides, air dried, and x-rayed. If smectite was present, samples were vapor glycolated at 60° C, heated to 250° C, rescanned, heated to 550° C, and scanned a final time. Approximate weight percentages of clay minerals were determined by comparison with diagnostic peak intensities generated by pure reference clays in appropriate mixtures.

X-ray Diffraction (XRD) Results

The following tables present results of semi-quantitative x-ray diffraction analysis. Table P2 lists the bulk, or whole-rock, mineralogy in relative weight percent. The second table (Table P3) presents the relative weight percent of minerals in two size fractions: clay (< 4 microns) and sand/silt (> 4 microns). A few additional comments are included below:

- Non-clay minerals include abundant quartz, with minor plagioclase, potassium feldspar, dolomite, calcite, siderite and pyrite. Dolomite is the dominant carbonate mineral.
- The clay fractions of all three samples include abundant and well-crystalline illite, well-crystalline kaolinite, slightly degraded chlorite, and a 50/50 mixed-layer illite/smectite.
- Expandable clay is nearly absent at depth 980.1 ft, but is present in significant amounts in the deeper samples. The smectite profiles on the diffractograms *suggest* a sodic composition most similar to the species saponite.
- Organic, non-crystalline material may be present in these shales, but is not recognizable using x-ray diffraction techniques.

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Table P2. X-Ray Diffraction Data – Bulk Mineralogy (Weight Percent)

Mineral	980.1 ft	989.7 ft	1012.0 ft	1020.0 ft	1040.0 ft
QUARTZ	37.2	30.2	40.7	41.8	48.0
POTASSIUM FELDSPAR	1.4	1.3	1.1	1.6	1.7
PLAGIOCLASE	2.3	2.0	1.4	2.1	2.5
CALCITE	0.3	0.1	0.0	0.2	0.1
DOLOMITE	3.5	2.9	3.6	4.1	6.2
SIDERITE	1.0	0.7	0.5	0.4	0.3
PYRITE	1.1	1.4	1.3	1.0	3.4
TOTAL (NON-CLAY)	**46.8**	**38.5**	**48.6**	**51.1**	**62.1**
SMECTITE	0.4	9.4	10.1	1.7	5.7
ILLITE/SMECTITE (I/S)	6.0	5.5	1.7	3.9	2.4
ILLITE/MICA	21.6	26.7	23.4	26.6	17.4
KAOLINITE	13.7	11.2	8.8	8.9	6.3
CHLORITE	11.5	8.7	7.3	7.8	6.1
TOTAL (CLAY)	**53.2**	**61.5**	**51.4**	**48.9**	**37.9**
GRAND TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
RELATIVE CLAY ABUNDANCE					
% I/S Expandability	50	50	50	50	50
SMECTITE	1	15	20	3	15
ILLITE/SMECTITE (I/S)	11	9	3	8	6
ILLITE/MICA	41	43	46	54	46
KAOLINITE	26	18	17	18	17
CHLORITE	22	14	14	16	16
TOTAL	**100**	**100**	**100**	**100**	**100**

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Table P3. X-Ray Diffraction Data – Size Analysis / Clay Mineralogy (Weight Percent)

Mineral	980.1 ft	989.7 ft	1012.0 ft	1020.0 ft	1040.0 ft
CLAYS / MINERALS < 4 MICRONS					
Weight Percent	**55**	**59**	**52**	**46**	**34**
% I/S Expandability	50	50	50	50	50
SMECTITE	0.8	15.8	19.5	3.6	16.8
ILLITE/SMECTITE (I/S)	11.0	9.3	3.4	8.6	7.0
ILLITE/MICA	31.7	39.4	40.3	51.4	40.0
KAOLINITE	20.8	14.8	13.9	14.7	13.4
CHLORITE	15.3	8.9	10.0	10.5	11.0
QUARTZ	14.1	8.2	9.2	7.7	7.6
POTASSIUM FELDSPAR	0.9	0.8	0.8	1.0	1.1
PLAGIOCLASE	0.9	0.6	0.5	0.5	0.8
CALCITE	0.5	0.0	0.0	0.2	0.0
DOLOMITE	1.2	0.8	0.9	0.9	1.1
SIDERITE	1.5	0.8	0.7	0.5	0.5
PYRITE	1.1	0.8	1.0	0.5	0.7
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
MINERALS > 4 MICRONS					
Weight Percent	45	41	48	54	66
QUARTZ	65.1	62.5	74.4	70.7	68.7
POTASSIUM FELDSPAR	1.9	2.0	1.4	2.1	2.0
PLAGIOCLASE	4.0	4.0	2.5	3.4	3.3
CALCITE	0.2	0.2	0.0	0.2	0.1
DOLOMITE	6.3	6.0	6.5	6.8	8.8
SIDERITE	0.3	0.5	0.3	0.3	0.2
PYRITE	1.0	2.2	1.6	1.4	4.8
ILLITE/MICA	9.2	8.2	5.5	5.5	5.8
KAOLINITE	5.1	5.9	3.3	4.0	2.7
CHLORITE	6.8	8.5	4.5	5.6	3.6
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

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DIGITAL SEM IMAGES

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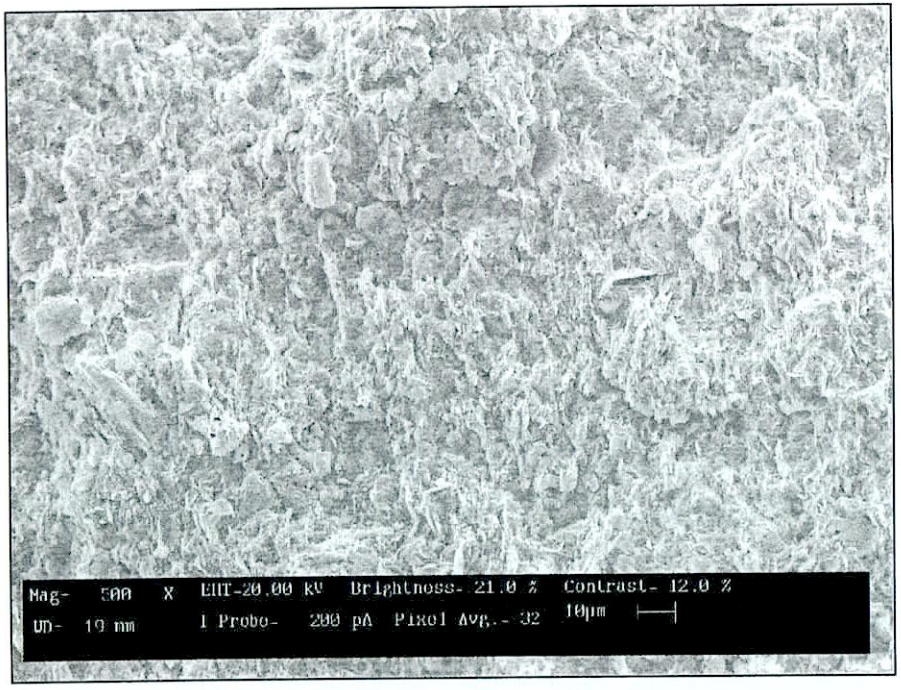
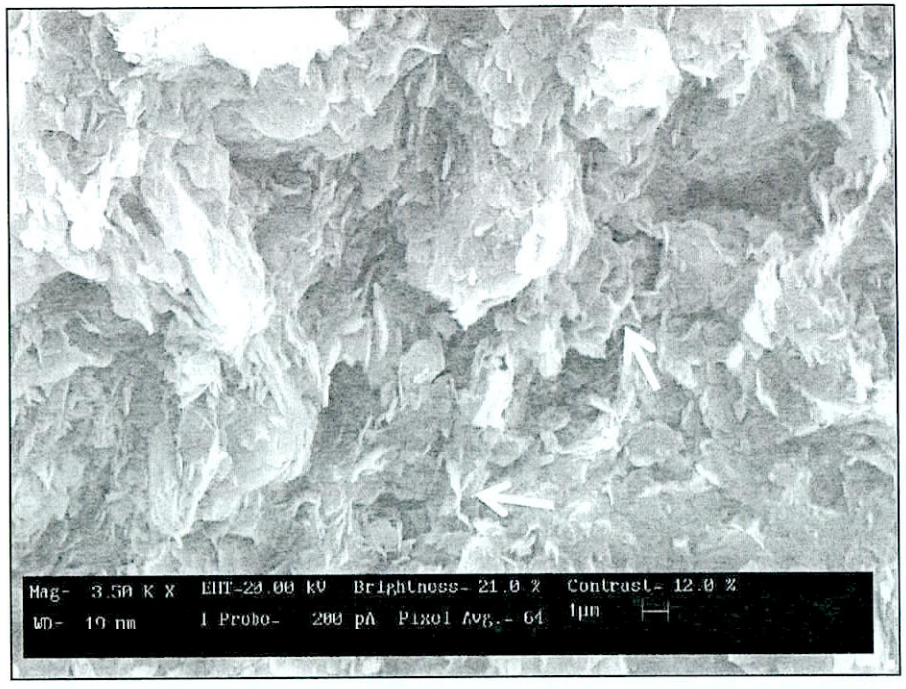
PLATE 1 (SEM)
Sample Depth: 980.1 ft



Low-magnification overview of shale/mudstone texture. Tight, microcrystalline matrix is composed of a variety of intermixed detrital clays, including pervasive illite, illite/smectite, kaolinite, and chlorite. Matrix-supported, detrital silt is also present in minor amounts. Microporosity is visible, although pore sizes are typically smaller than 5 microns. (Scale bar = 10 microns)



Higher-magnification view of matrix clays. Flaky illite/smectite is the dominant, most conspicuous clay species, although morphological distinction among the detrital clays is difficult. Crenulated and irregularly oriented clay flakes indicate possible bioturbation or soft-sediment disturbance shortly after deposition. Wavy clay flakes highlighted with **arrows** are likely composed of more expandable illite/smectite (allevardite). (Scale bar = 1 micron)

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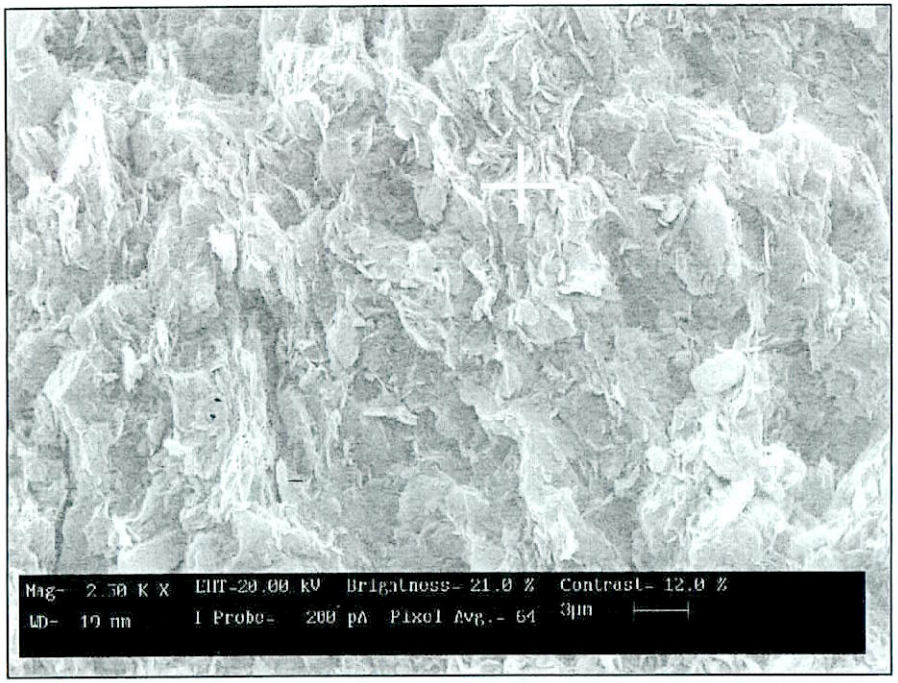
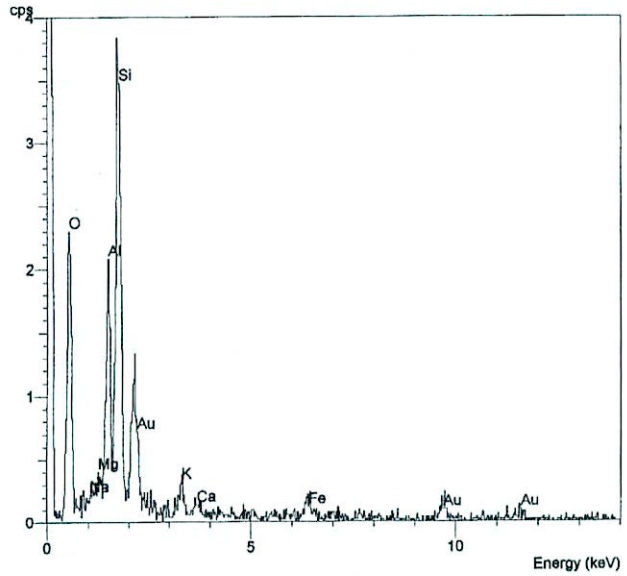
PLATE 2 (SEM)
Sample Depth: 980.1 ft



Compacted, aligned clay flakes are illustrated above at high magnification. Detrital clay matrix is generally tight and hosts only minor amounts of visible microporosity. Clay morphology indicates an illite-rich composition, and little or no pure expandable (smectite) clay is visible. Corresponding EDX results are shown at right. (Scale bar = 3 microns)



EDX spectrum for the spot highlighted at left. A sharp peak for potassium (K) indicates an illite and/or illite/smectite composition. Minor peaks for Fe and Mg may be associated with smectite interlayers or intermixed chlorite. Small peaks for Ca and Na likely correspond to minor smectite interlayers.

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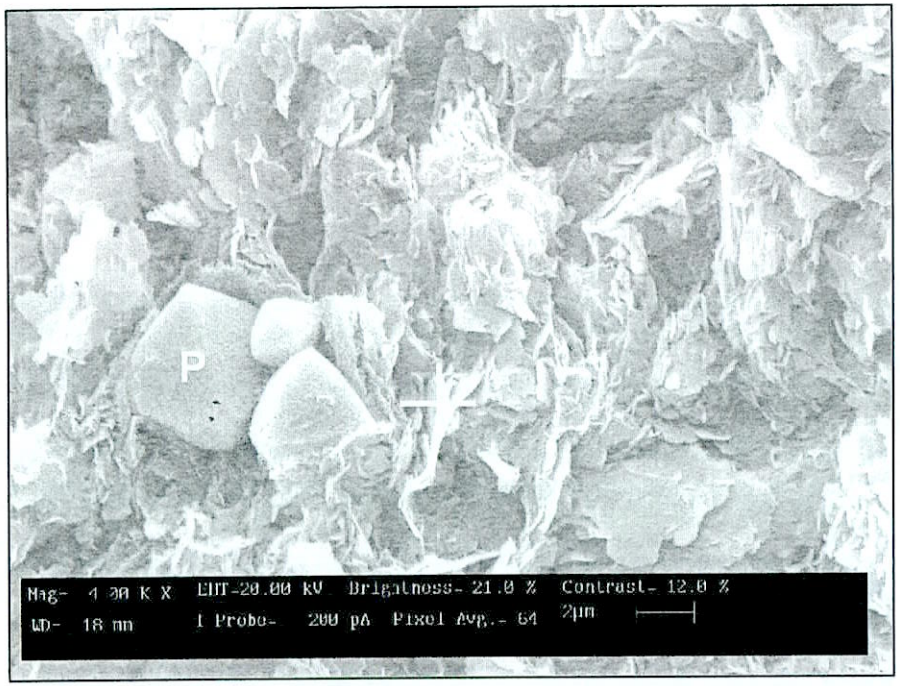
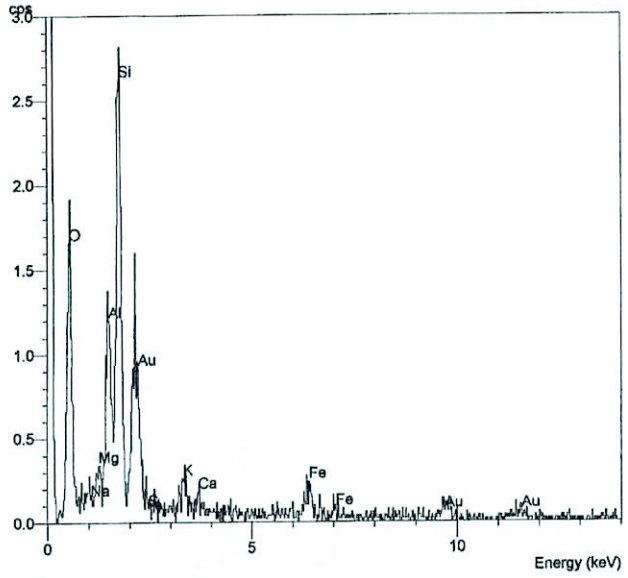
PLATE 3 (SEM)
Sample Depth: 980.1 ft



Highly magnified view of matrix clays. Platy and flaky clays are largely composed of illite, chlorite, and kaolinite according to XRD data and concurrent EDX analysis. Authigenic pyrite microcrystals are also visible in the matrix (**P**). Spot EDX spectrum for the marked area is shown at right. (Scale bar = 2 microns)



EDX spectrum shows typical composition of flaky matrix clays. Notable peaks for potassium (K) and magnesium (Mg) indicate the presence of illite and chlorite. The iron (Fe) could be associated with chlorite and/or adjacent pyrite. Sodium (Na) and calcium (Ca) peaks are minor but likely indicate smectite interlayers in mixed-layer illite/smectite. Overall, this sample contains little or no pure smectite.

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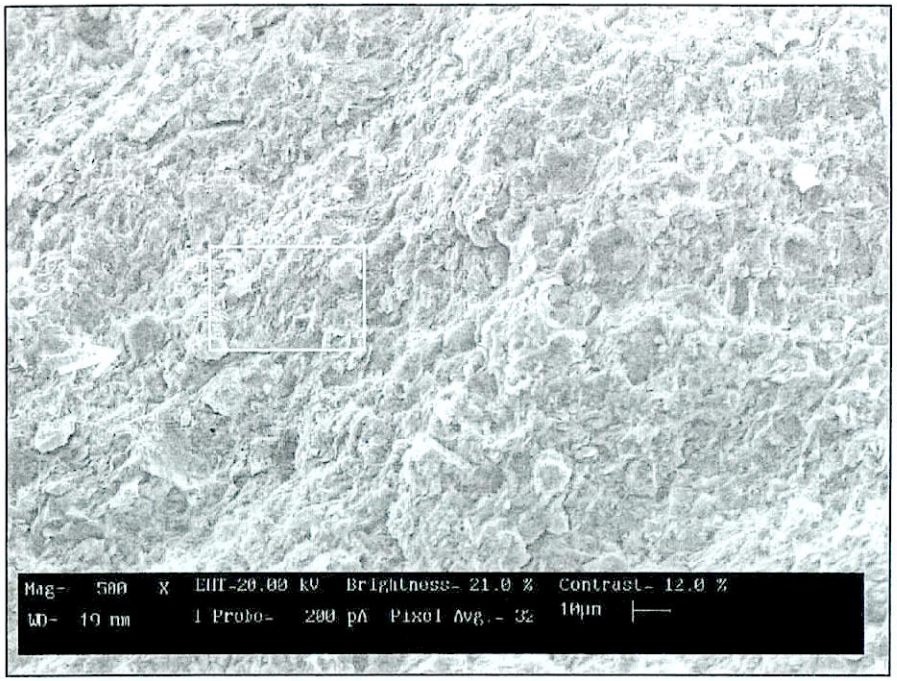
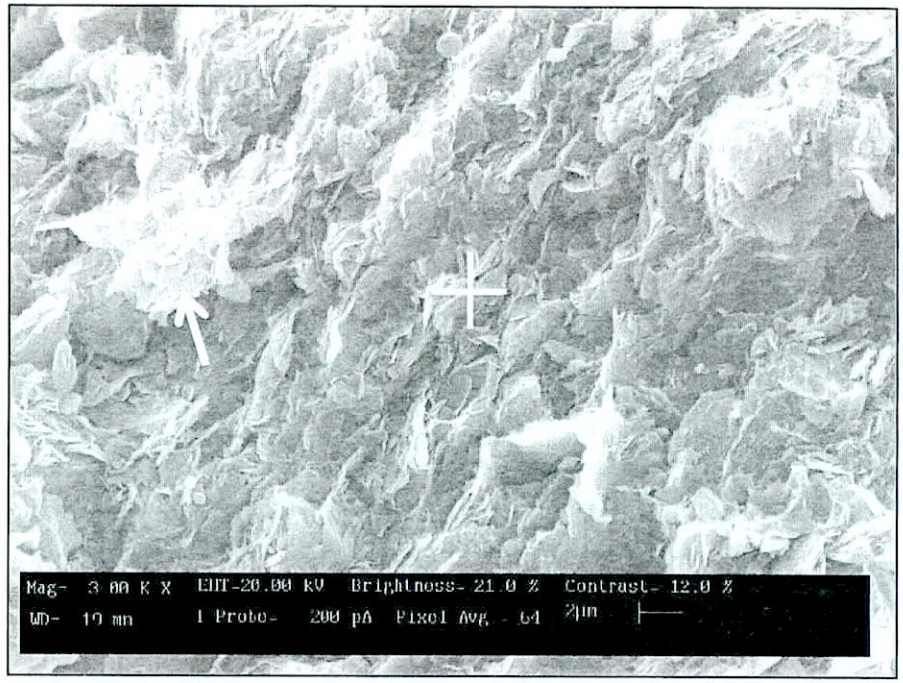
PLATE 4 (SEM)
Sample Depth: 989.7 ft



Low-magnification overview of texture and porosity in tightly crystalline shale. Detrital clay matrix is tightly compacted and only modestly porous. At this magnification, clay morphology is generally nondescript, although XRD data indicate the presence of abundant illite, kaolinite, and chlorite with minor expandable clay. Minor silt is also visible in this view (**arrow**). (Scale bar = 10 microns)



High-magnification view of the boxed area at left. Well-compacted detrital clay comprises a mixture of illite, mixed-layer clays, expandable smectite, kaolinite, and chlorite. Although individual clay species are difficult to differentiate, more crenulated, "corn flake"-type clays are likely smectite-bearing (**arrow**). Clays highlighted with the **arrow** and the "**+**" exhibit modest EDX peaks for K, Mg, and Na—likely indicating an illite/smectite composition. If smectite is present, Ca peaks are very weak. (Scale bar = 2 microns)

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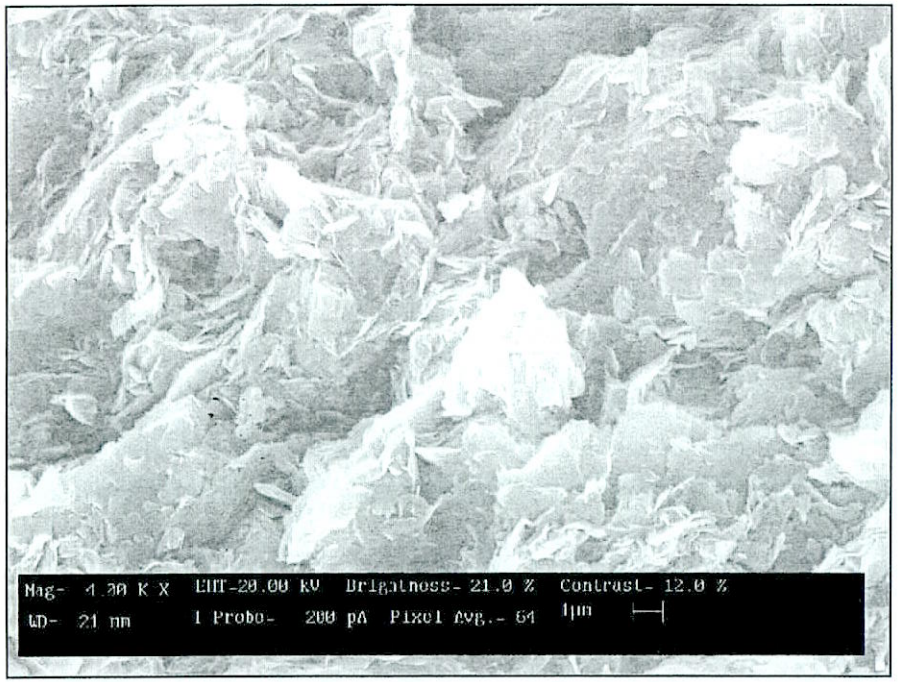
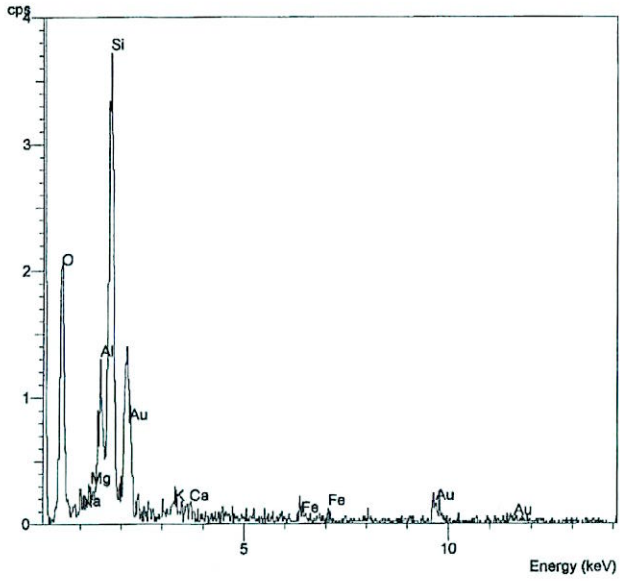
PLATE 5 (SEM)
Sample Depth: 989.7 ft



Textural detail of typical matrix clays. More crenulated clay morphology could be indicative of smectite or smectite-bearing mixed-layer clay. Spot EDX analysis for the highlighted area indicates a comparatively low K content and minor amounts of Na and Mg, strongly suggesting a smectite composition. If this interpretation is correct, smectite clays are more Na-rich in this reservoir. Also visible in this image are numerous micropores in the submicron to 2-micron size range. (Scale bar = 1 micron)



EDX spectrum for the highlighted area at left. Minor K peak and visible Na peak likely indicate a smectite or smectite-rich illite/smectite composition. Note that the Na peak is more prominent than the Ca peak. Minor Mg and Fe peaks may be associated with intermixed chlorite.

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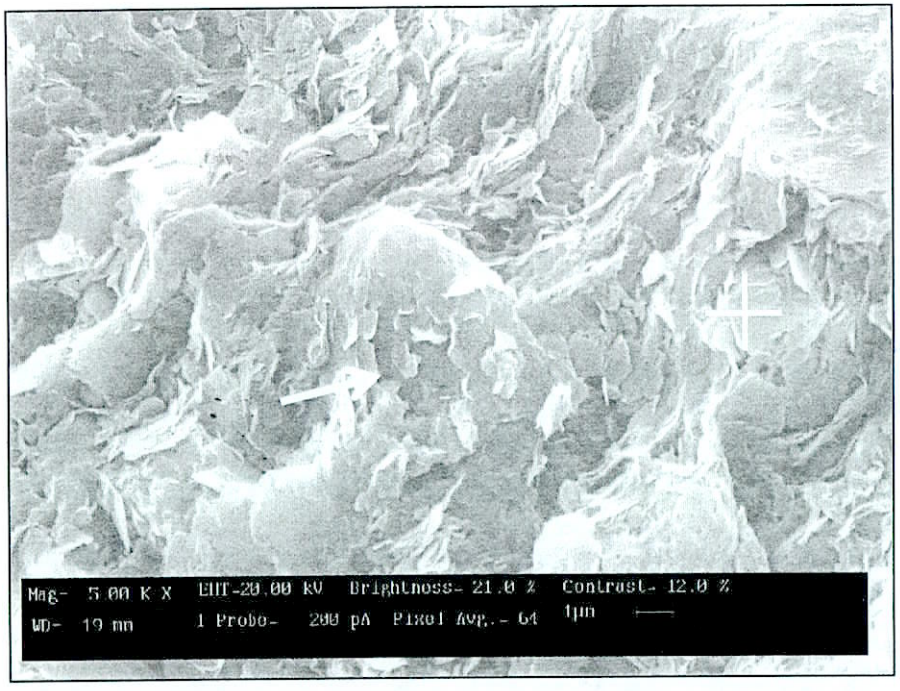
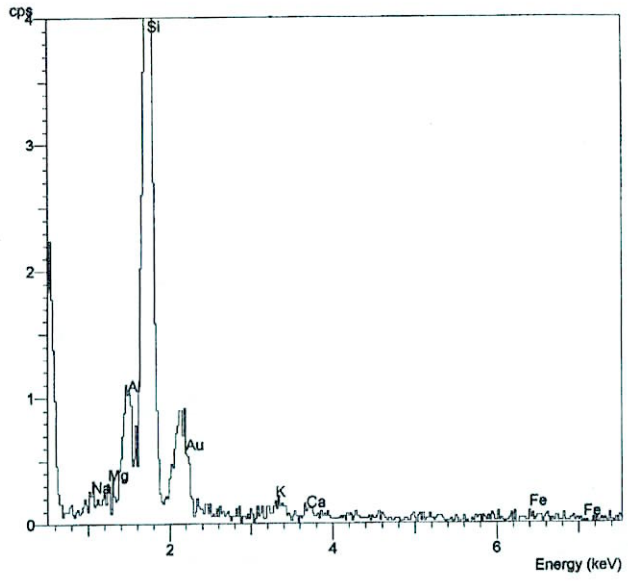
PLATE 6 (SEM)
Sample Depth: 989.7 ft



Another high-magnification view of matrix clays. Crenulated, wavy or ragged clay morphology denotes a likely smectite composition. To verify, concurrent EDX analysis was performed on two areas in this view (**arrow** and **+**). In both cases, elemental peaks include major Si and Al with minor Na, K, Mg and Ca. The presence of Na and the minimal K content strongly suggest a smectite composition. (Scale bar = 1 micron)



EDX spectrum for the spot (**+**) highlighted at left. Crenulated clay flakes are of suspected smectite composition. The elemental peaks above confirm its composition and indicate a higher concentration of Na in the crystalline structure. In nearly all cases where smectite is suspected, Ca elemental peaks are notably smaller than Na peaks.

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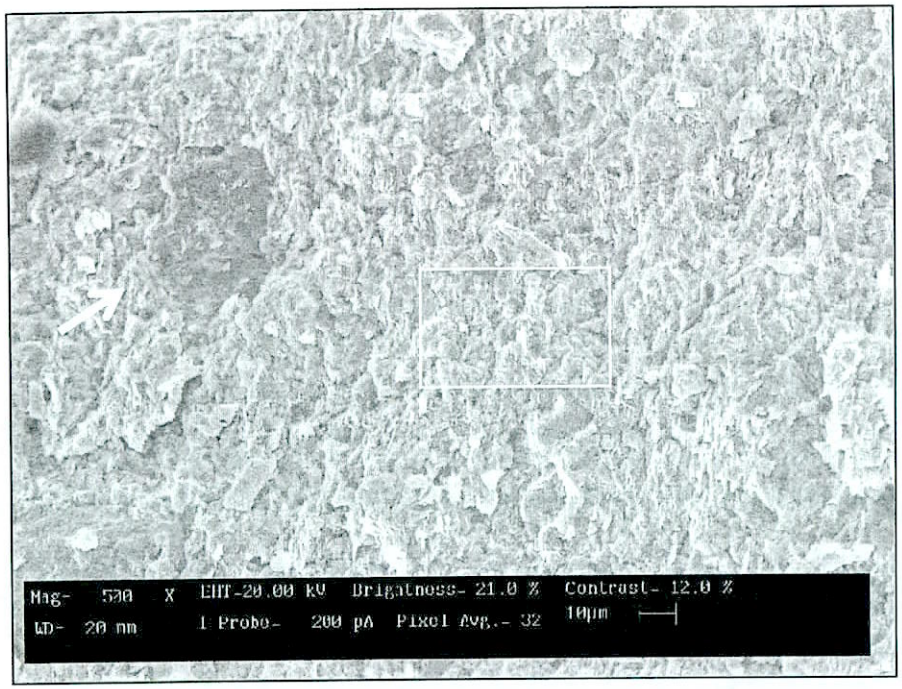
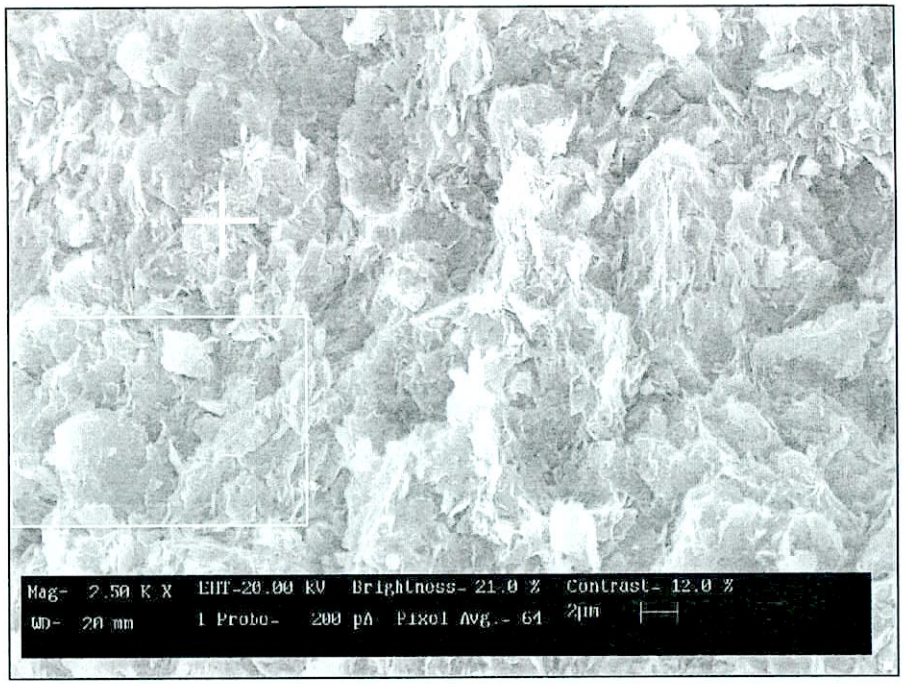
PLATE 7 (SEM)
Sample Depth: 1012.0 ft



Low-magnification overview of microcrystalline, microporous shale texture. Although clays are generally well compacted, there exists no strong preferred orientation of clay flakes and no well-defined lamination. Matrix-supported silt (**arrow**) is common throughout the matrix and is largely composed of quartz. Visible micropores are typically less than 2 microns in size. (Scale bar = 10 microns)



High-magnification detail of boxed area at left. Platy, wavy, and crenulated clay flakes include illite, expandable smectite, chlorite, and kaolinite. According to XRD data, illite is the dominant clay species, comprising nearly half of the clay fraction. More wavy or jagged clay flakes visible here are likely composed of smectite. Spot EDX analysis at "+" shows major peaks from Si and Al, with minor peaks for K, Na, Mg and Fe. The K peak may indicate intermixed illite, but the other minor elements are consistent with a smectite composition. The boxed area is illustrated on Plate 8. (Scale bar = 2 microns)

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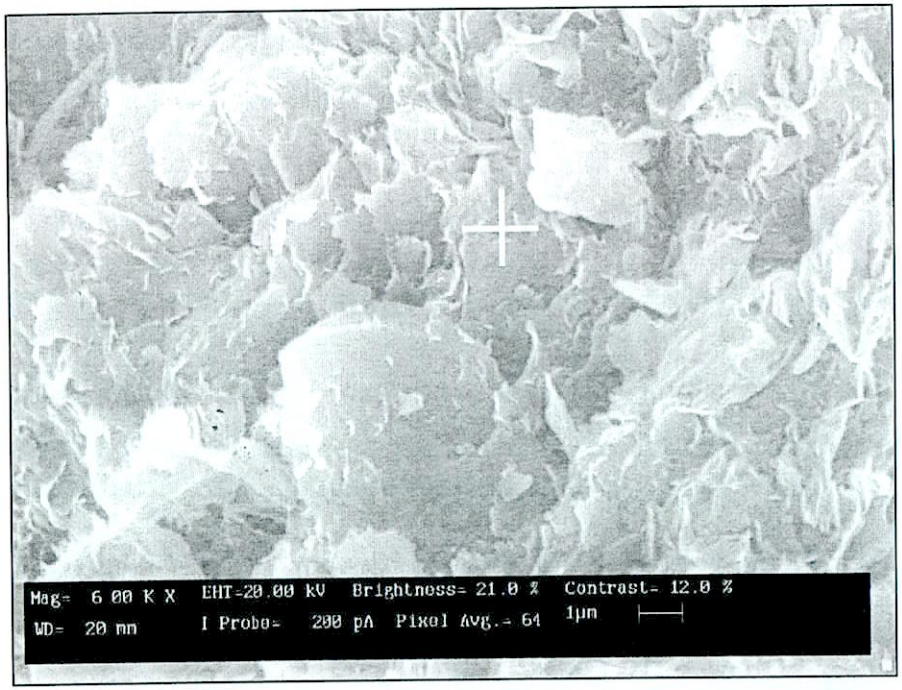
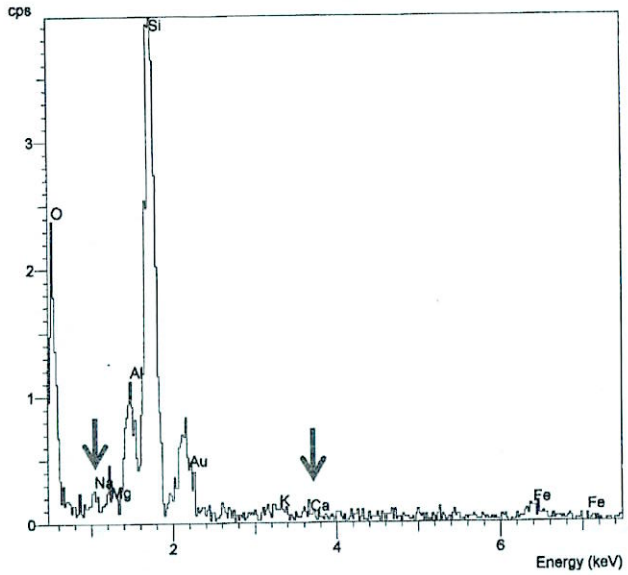
PLATE 8 (SEM)
Sample Depth: 1012.0 ft



Even higher-magnification view highlights clays visible in the previous images. Jagged, "corn-flake" type clay morphology is very typical of expandable smectite. Of the three samples analyzed from this well, this sample exhibits the most conspicuous smectite clay. Concurrent EDX analysis of the area highlighted with a "+" also indicates a likely smectite composition. (Scale bar = 1 micron)



Spot EDX spectrum for the clays highlighted at left. The absence of a prominent K peak and the presence of minor Fe, Na, Mg and Ca peaks strongly suggest a pure smectite composition. Relatively sizes of the minor Na and Ca peaks (**arrows**) also indicate a comparatively Na-rich composition.

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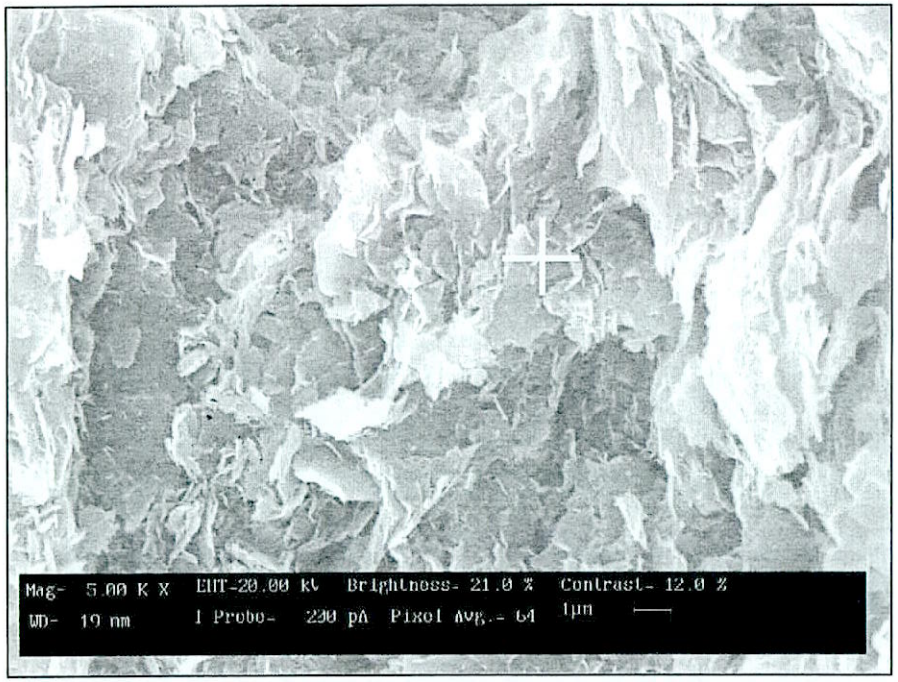
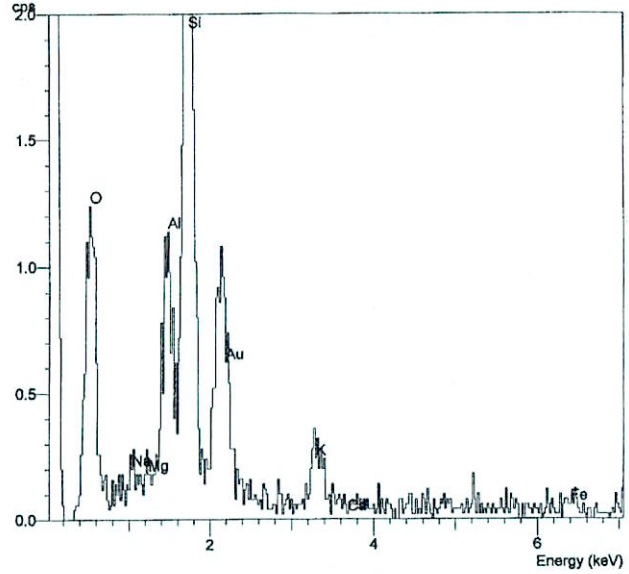
University Research Park
400 Wakara Way • Salt Lake City, Utah 84108
Telephone (801) 584-2400
FAX (801) 584-2406

PLATE 9 (SEM)
Sample Depth: 1012.0 ft



Another detailed view of detrital matrix clays. Note the poorly aligned nature of the microcrystalline clay flakes and the presence of intercrystalline microporosity. Clay composition in the highlighted area is illustrated at right. (Scale bar = 1 micron)



EDX spectrum for the clays illustrated at left. Prominent peaks for Si, Al and K strongly suggest an illite composition, however smaller peaks for Na and Mg indicate the likely presence of smectite. This flaky clay is most likely a mixed-layer illite/smectite. There is no visible Ca peak, however there is a small but sharp Na peak. Smectite interlayers are likely Na-rich.

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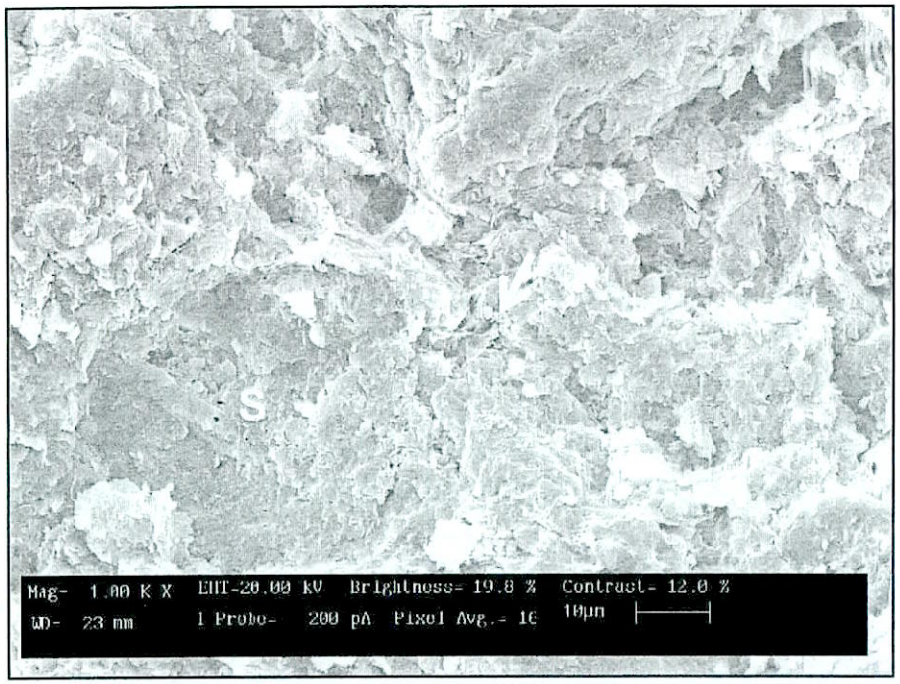
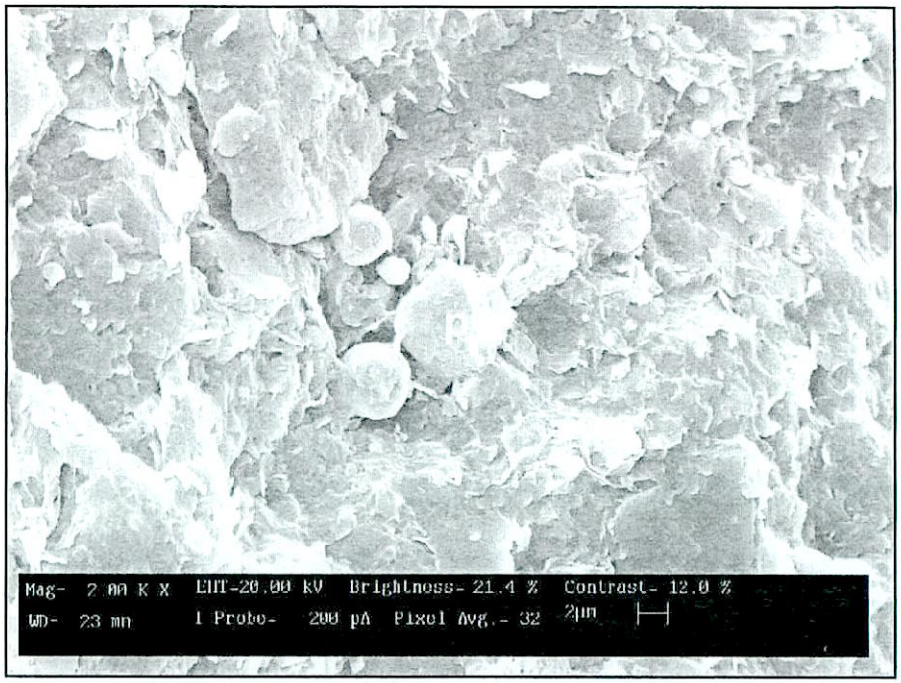
PLATE 10 (SEM)
Sample Depth: 1040.1 ft



Medium magnification view of mudstone texture and porosity. This sample is comparatively silty (**s**) and exhibits little or no sedimentary lamination. Clays composing the matrix display a random orientation but host abundant intercrystalline micropores (**arrow**). XRD results indicate that illite is the dominant clay species at this depth. (Scale bar = 10 microns).



More magnified view of tightly packed matrix clays and minor secondary pyrite (**p**). Well-crystalline flakes comprising the matrix exhibit a slightly crenulated or platy morphology typical of illite. EDX analysis conducted on clays throughout this sample also confirms an illite-rich composition. (Scale bar = 2 microns)

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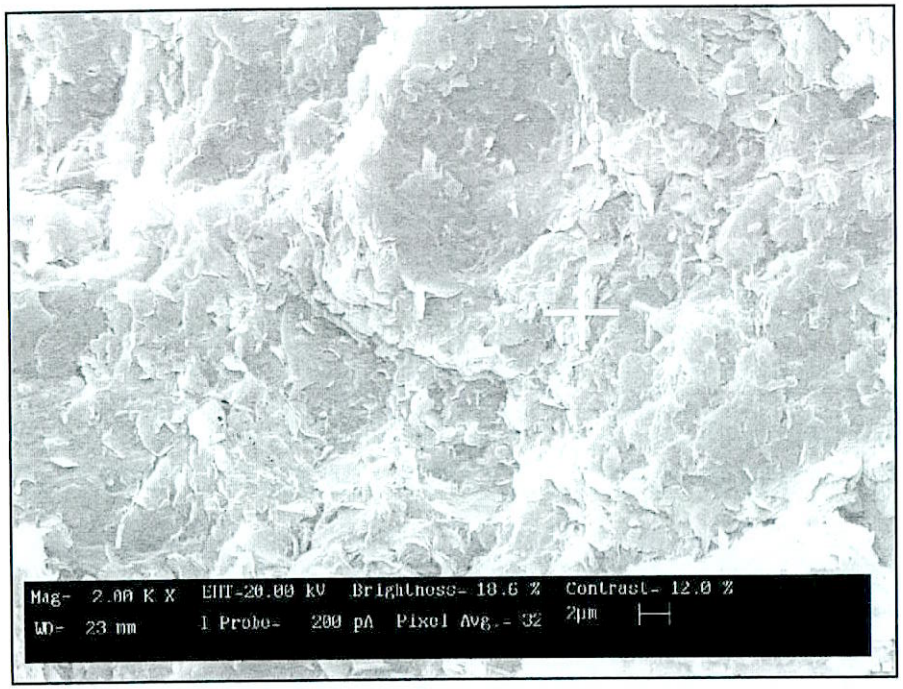
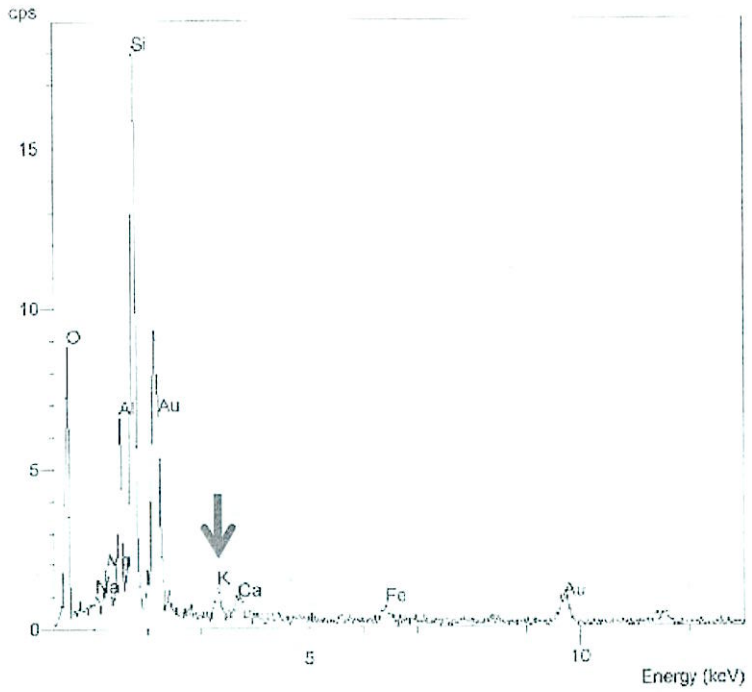
FAX (801) 584-2406

PLATE 11 (SEM)
Sample Depth: 1040.1 ft



Another view of matrix clays illustrates well-crystalline clay flakes with random orientation. Clay flakes commonly deform or bend around detrital silt grains, as in the upper portion of view. Clay morphology and corresponding EDX analysis (spectrum at right) indicate an illite or mixed-later I/S composition. (Scale bar = 2 microns)



Spot EDX spectrum for the clays highlighted at left. A prominent peak for potassium (K, **arrow**) indicates illite, whereas minor Na and Fe may denote smectite interlayers (although these peaks are small). Ca and Mg peaks are likely associated with neighboring dolomite.

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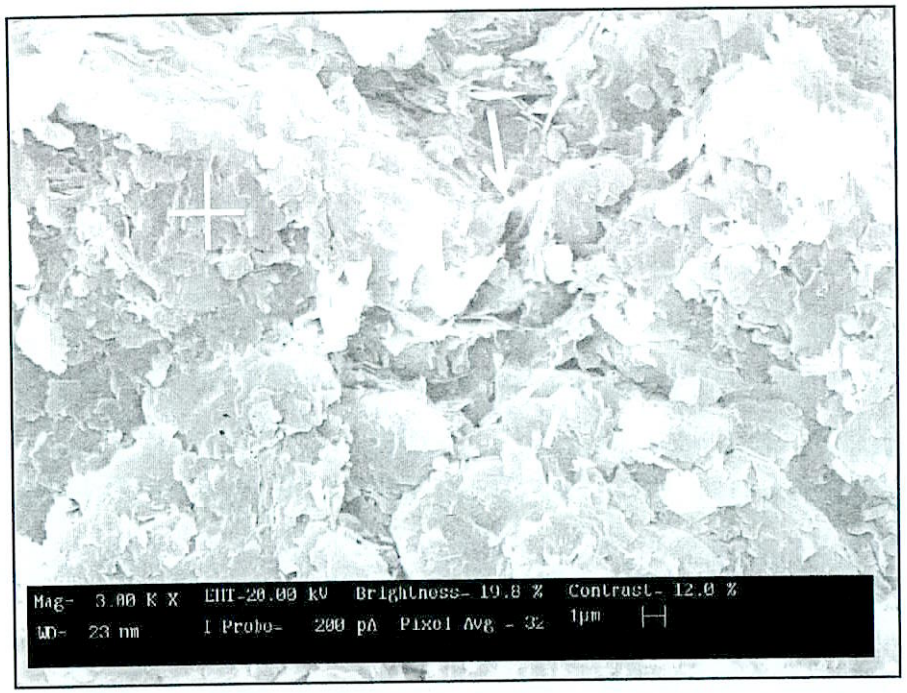
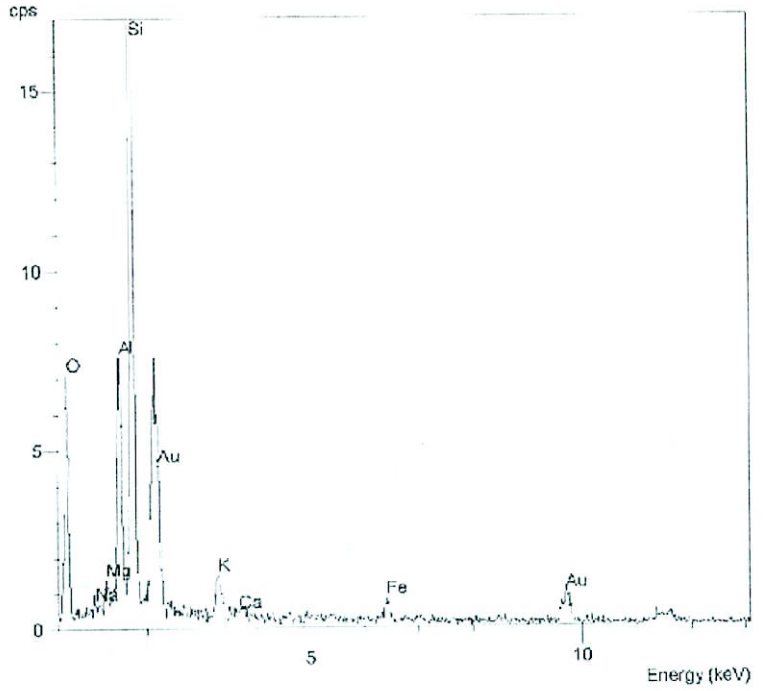
PLATE 12 (SEM)
Sample Depth: 1040.1 ft



High-magnification detail of typical matrix clays. Clay morphology is not always diagnostic of composition, especially in the case of detrital clays. Here, flaky, irregular clays with no preferred orientation could be illite, I/S, chlorite or kaolinite. Concurrent EDX results at right strongly suggest an illite composition. **Arrows** highlight intercrystalline micropores, the dominant pore types in this reservoir. (Scale bar = 1 micron)



EDX spectrum for the clays illustrated at left. A sharp, prominent potassium peak almost certainly indicates an illite composition.

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400 Wakara Way • Salt Lake City, Utah 84108
Telephone (801) 584-2400
FAX (801) 584-2406

Form 3160-3
(November 1983)

SUBMIT IN TRIPLICATE•
(Other instructions on reverse side)

Form approved
Budget Bureau No. 1004-0136
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: **MTBIL020543**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WORK: **DRILL** ☒ **DEEPEN** ☐ **PLUG BACK** ☐

7. UNIT AGREEMENT NAME: **8A**

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER ☐ SINGLE ZONE ☐ MULTIPLE ZONE ☐

8. FARM OR LEASE NAME: **Federal**

2. Name of Operator: **WBI Production, Inc.**

9. WELL NO.: **2115** API #:

3. Address and Telephone No.: **P.O. Box 131, Glendive, Montana 59330-0131 (406) 359-7200**

10. FIELD AND POOL, OR WILDCAT: **Cedar Creek**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)
At Surface: **NW, NE, Sec. 20, T5N, R61E, 1313' FNL, 1398' FEL**
At proposed prod. zone:

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: **Sec. 20. T5N, R61E**

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE: **13 miles southeast**

12. COUNTY OR PARISH: **Fallon**

13. STATE: **MT**

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. Unit line, if any): **1313' FNL 1398' FEL**

16. NO. OF ACRES IN LEASE: ~~240.00~~ 960

17. NO. OF ACRES ASSIGNED TO THIS WELL: **160**

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: **See attached map**

19. PROPOSED DEPTH: **1900'**

20. ROTARY OR CABLE TOOLS: **Rotary**

21. ELEVATIONS (Show whether DF, RT, GR, etc.): **2922 '**

22. APPROX. DATE WORK WILL START: **April 2000**

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
9.875	7	17	150	65
6.25	4.5	10.5	1900	185

Plan to drill a 9-7/8" surface hole and set and cement to surface 150' of 7", 17 lb/ft surface casing. Install and test BOP equipment. Then drill a 6-1/4" hole to TD and set and cement to surface 4-1/2" 10.5 lb/ft production casing. The well with then be completed in the Eagle formation and fracture stimulated. A wellhead assembly will then be installed and 1-1/4" tubing will be run to below the perforations. The well will be connected and metered and placed on production. Unlined pits will be used with fresh water mud. Upon completion of the drilling activity the drilling mud will be hauled to a company owned pit or left to dry in the pits.

NOTE: Bond coverage for this application for WBI Production, Inc. will be covered by BLM Bond #MT~~0988.~~ 0996
Well to be drilled in accordance with the Master APD dated February 1998

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depth. Give blowout preventer program, if any.

24.

SIGNED D. Brutlag **Don Brutlag** TITLE **Gas Production & Storage Superintendent** DATE **September 24, 1999**

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY David J. Breisch TITLE AFM - Minerals DATE OCT 15 1999
Conditions of Approval, if any:

*** See Instruction on Reverse Side**

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency or the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

Board O+G

JOB SUMMARY

SAP #/TICKET # 1334052	TICKET DATE 07-22-01		
REGION North American Land	NWA / COUNTRY Western	BDA / STATE MONTANA	COUNTY FALLON
MBU ID / EMPL # 121821	H.E.S EMPLOYEE NAME DARRYL DUTKE	PSL DEPARTMENT ZONAL ISOLATION	
LOCATION Williston N.D.	COMPANY FIDELITY E. & P.	CUSTOMER REP / PHONE JEFF MERKEL	
TICKET AMOUNT $2,890.89	WELL TYPE 2	API/UWI # MTBIL020543	
WELL LOCATION NORTH LITTLE BEAVER FIELD	DEPARTMENT ZONAL ISOLATION	SAP BOMB NUMBER 10	Description CEMENT SURFACE CASING
LEASE NAME CEDAR CREEK FED.	Well No. 2115	Sec / Twp / Rng 20-5N-61E	

H.E.S. EMP NAME / EMP # / (EXPOSURE HOURS)	HRS	HRS	HRS	HRS
DARRYL DUTKE 121821	5.0			
DOUG KESSEL 122102	5.0			
JUSTIN MATTERN 228892	5.0			

H.E.S. UNIT #'S / (R / T MILES)	R / T MILES	R / T MILES	R / T MILES	R / T MILES
422101	20			
10251389	20			
51802-7500	100			

Form. Name _____ Type: _____
Form. Thickness _____ From _____ To _____
Packer Type _____ Set At _____
Bottom Hole Temp. _____ Pressure _____
Retainer Depth _____ Total Depth _____

	Called Out	On Location	Job Started	Job Completed
Date	07-21-01	07-21-01	07-22-01	07-22-01
Time	2000	2200	0250	0311

Tools and Accessories

Type and Size		Qty	Make
Float Collar			
Float Shoe	7 IN. REG	1	HALLIBURTON
Centralizers	7X9.875	3	HALLIBURTON
Top Plug	7 IN. PLASTIC	1	HALLIBURTON
Packer			
DV Tool			
Clamp1			
Halco Wel		1	HALLIBURTON
Other	7 IN. CMT. HD.	1	A2360

Well Data

	New/Used	Weight	Size Grade	From	To	Max. Allow
Casing	NEW	17#	7 IN. J55	SURFACE	165	
Liner						
Liner						
Tubing						
Drill Pipe						
Open Hole			9 7/8	SURFACE	166	Shots/Ft.
Perforations						
Perforations						
Perforations						

Materials

Mud Type _____ Density _____ Lb/Gal
Disp. Fluid _____ Density _____ Lb/Gal
Prop. Type _____ Size _____ Lb _____
Prop. Type _____ Size _____ Lb _____
Acid Type _____ Gal. _____ % _____
Acid Type _____ Gal. _____ % _____
Surfactant _____ Gal. _____ In _____
NE Agent _____ Gal. _____ In _____
Fluid Loss _____ Gal/Lb _____ In _____
Gelling Agent _____ Gal/Lb _____ In _____
Fric. Red. _____ Gal/Lb _____ In _____
Breaker _____ Gal/Lb _____ In _____
Blocking Agent _____ Gal/Lb _____
Perfpac Balls _____ Qty. _____
Other _____
Other _____
Other _____
Other _____
Other 5 BBLS FRESH WATER

Hours On Location

Date	Hours
07-21-01	2.0
07-22-01	3.0
Total	5.0

Operating Hours

Date	Hours
07-22-01	0.5
Total	0.5

Description of Job

CEMENT SURFACE CASING

Hydraulic Horsepower
Ordered _____ Avail. _____ Used _____
Average Rates in BPM
Treating _____ Disp. _____ Overall _____
Cement Left in Pipe
Feet 30 Reason Shoe Joint

Cement Data

Stage	Sacks	Cement	Bulk/Sks	Additives	W/Rq.	Yield	Lbs/Gal
1	75	PREMIUM G	BULK	3% CALCIUM CHLORIDE .125#/SK POLY-E-FLAKE	4.97	1.16	15.8

Summary

Circulating		Displacement	FRESH WATER	Preflush: Gal - BBl	5 BBLS	Type:	FRESH WATER
Breakdown		Maximum		Load & Bkdn: Gal - BBl		Pad:Bbl -Gal	
Lost Returns-\	NO	Lost Returns-NO		Excess /Return Gal BBl		Calc.Disp Bbl	5.6 BBLS
Cmt Rtrn#Bbl	5 BBLS	Actual TOC	SURFACE	Calc. TOC:	SURFACE	Actual Disp.	5.6 BBLS
Average		Frac. Gradient		Treatment: Gal - BBl		Disp:Bbl-Gal	
Shut In: Instant		5 Min.	15 Min.	Cement Slurry Gal - BBl	15.5 BBLS		
				Total Volume Gal - BBl	26.1 BBLS		

Frac Ring #1 | Frac Ring # 2 | Frac Ring # 3 | Frac Ring # 4

THE INFORMATION STATED HEREIN IS CORRECT
CUSTOMER REPRESENTATIVE _____ SIGNATURE

025-21860

JUL 2001
Received
Board of Oil & Gas Cons.
State of MT / Billings

Halliburton

Job Log

TICKET # 1334052	TICKET DATE 07-22-01		
REGION North American Land	NWA / COUNTRY Western	BDA / STATE MONTANA	COUNTY FALLON
MBU ID / EMPL # 121821	H.E.S EMPLOYEE NAME DARRYL DUTKE	PSL DEPARTMENT ZONAL ISOLATION	
LOCATION Williston N.D.	COMPANY FIDELITY E. & P.	CUSTOMER REP / PHONE JEFF MERKEL	
TICKET AMOUNT $2,890.89	WELL TYPE 2	API/UWI # MTBIL020543	
WELL LOCATION NORTH LITTLE BEAVER FIELD	DEPARTMENT ZONAL ISOLATION	JOB PURPOSE CODE CEMENT SURFACE CASING	
LEASE CEDAR CREEK FED.	Well No. 2115	SEC / TWP / RNG 20-5N-61E	

Chart No.	Time	Rate (BPM)	Volume (BBL)	Volume (GAL)	Pmps T	Pmps C	Press.(PSI) (TBG)	Press.(PSI) (CSG)	Job Description / Remarks
07-21-01	2200								ON LOCATION-RIG UP EQUIPMENT
07-22-01	0230								SAFETY MEETING FOR ALL PERSONNEL ON
									LOCATION
	0251	0.2	0.5				1000		PRESSURE TEST LINES TO 1000 PSI
	0255	2.0	5.0					40	PUMP 5 BBLS FRESH WATER SPACER
	0258	2.0	15.5					0-160	MIX AND PUMP 15.5 BBLS CEMENT (75 SKS)
									AT 15.8 PPG
	0307								SHUT DOWN-RELEASE TOP PLUG
	0308	2.0	5.6					0-40	DISPLACE CEMENT AND TOP PLUG WITH 5.6 BBLS
									FRESH WATER
	0311							40	PLUG IN PLACE-SHUT IN CASING
	0311								JOB COMPLETE
									5 BBLS CEMENT TO THE PIT
									MIXING WATER TESTED OK
									PH-----7.5
									TEMP.-----70 DEGREES
									CHLORIDES-----20
									THANKS JEFF---------DARRYL, DOUG, JUSTIN

JOB SUMMARY

SAP #/TICKET # 1334053	TICKET DATE 07-24-01		
REGION North American Land	NWA / COUNTRY Western	BDA / STATE MONTANA	COUNTY FALLON
MBU ID / EMPL # 121821	H.E.S EMPLOYEE NAME DARRYL DUTKE	PSL DEPARTMENT ZONAL ISOLATION	
LOCATION Williston N.D.	COMPANY FIDELITY E. & P.	CUSTOMER REP / PHONE JEFF MERKEL	
TICKET AMOUNT $5,715.02	WELL TYPE 2	API/UWI # MTBIL020543	
WELL LOCATION NORTH LITTLE BEAVER FIELD	DEPARTMENT ZONAL ISOLATION	SAP BOMB NUMBER 35	Description CEMENT PRODUCTION CASING
LEASE NAME CEDAR CREEK FED.	Well No. 2115	Sec / Twp / Rng 20-5N-61E	

H.E.S. EMP NAME / EMP # / (EXPOSURE HOURS)	HRS	HRS	HRS	HRS
DARRYL DUTKE 121821	6.0			
DOUG KESSEL 122102	6.0			
BRUCE GORDON 122268	6.0			
JON JONES 213675	6.0			

H.E.S. UNIT #'S / (R / T MILES)	R / T MILES	R / T MILES	R / T MILES	R / T MILES
422101	20			
54168-5793	20			
51802-7500	100			
421908	20			

Form. Name _____ Type: _____
Form. Thickness _____ From _____ To _____
Packer Type _____ Set At _____
Bottom Hole Temp. _____ Pressure _____
Retainer Depth _____ Total Depth _____

	Called Out	On Location	Job Started	Job Completed
Date	07-23-01	07-24-01	07-24-01	07-24-01
Time	2100	0200	0721	0812

Tools and Accessories

Type and Size		Qty	Make
Float Collar	4.5 IN. L.D.	1	HALLIBURTON
Float Shoe	4.5 IN. SSII	1	HALLIBURTON
Centralizers	4.5X6.25	10	HALLIBURTON
Top Plug	4.5 IN. L.D.	1	HALLIBURTON
Packer			
DV Tool			
Clamp1	4.5 IN.	1	HALLIBURTON
Halco Wel	1#	1	HALLIBURTON
Other	4.5 IN. CMT. HD.	1	A2971

Well Data

	New/Used	Weight	Size Grade	From	To	Max. Allow
Casing	NEW	10.5#	4.5 IN.	SURFACE	1,792	
Liner						
Liner						
Tubing						
Drill Pipe						
Open Hole			6.25 IN.	B.O.S.	1,800	Shots/Ft.
Perforations						
Perforations						
Perforations						

Materials

Mud Type _____ Density _____ Lb/Gal
Disp. Fluid _____ Density _____ Lb/Gal
Prop. Type _____ Size _____ Lb _____
Prop. Type _____ Size _____ Lb _____
Acid Type _____ Gal. _____ % _____
Acid Type _____ Gal. _____ % _____
Surfactant _____ Gal. _____ In _____
NE Agent _____ Gal. _____ In _____
Fluid Loss _____ Gal/Lb _____ In _____
Gelling Agent _____ Gal/Lb _____ In _____
Fric. Red. _____ Gal/Lb _____ In _____
Breaker _____ Gal/Lb _____ In _____
Blocking Agent _____ Gal/Lb _____
Perfpac Balls _____ Qty. _____
Other _____
Other _____
Other _____
Other 10 BBLS MUD FLUSH
Other 10 BBLS FRESH WATER

Hours On Location

Date	Hours
07-24-01	6.0
Total	6.0

Operating Hours

Date	Hours
07-24-01	1.0
Total	1.0

Description of Job

CEMENT PRODUCTION CASING

Hydraulic Horsepower
Ordered _____ Avail. _____ Used _____
Average Rates in BPM
Treating _____ Disp. _____ Overall _____
Cement Left in Pipe
Feet 28.90 Reason Shoe Joint

Cement Data

Stage	Sacks	Cement	Bulk/Sks	Additives	W/Rq.	Yield	Lbs/Gal
1	45	PREMIUM LITE	BULK	6% GEL 3% CALCIUM CHLORIDE .125#/SK POLY-E-FLAKE	11.20	2.04	12.5
2	190	PREMIUM G	BULK	3% CALCIUM CHLORIDE .125#/SK POLY-E-FLAKE	4.97	1.16	15.8

Summary

Circulating _____ Displacement FRESH WATER Preflush: Gal - BBl 10 BBLS Type: MUD FLUSH
Breakdown _____ Maximum _____ Load & Bkdn: Gal - BBl _____ Pad:Bbl -Gal _____
Lost Returns-YNO Lost Returns-NO _____ Excess /Return Gal BBl _____ Calc.Disp Bbl 28 BBLS
Cmt Rtrn#Bbl 2 BBLS Actual TOC SURFACE Calc. TOC: SURFACE Actual Disp. 28 BBLS
Average _____ Frac. Gradient _____ Treatment: Gal - BBl _____ Disp:Bbl-Gal _____
Shut In: Instant _____ 5 Min. _____ 15 Min. _____ Cement Slurry Gal - BBl 55.6 BBLS
Total Volume Gal - BBl 1036 BBLS

Frac Ring #1	Frac Ring # 2	Frac Ring # 3	Frac Ring # 4

THE INFORMATION STATED HEREIN IS CORRECT
CUSTOMER REPRESENTATIVE _____ SIGNATURE

025-21860

Halliburton

Job Log

TICKET # 1334053	TICKET DATE 07-24-01		
REGION North American Land	NWA / COUNTRY Western	BDA / STATE MONTANA	COUNTY FALLON
MBU ID / EMPL # 121821	H.E.S EMPLOYEE NAME DARRYL DUTKE	PSL DEPARTMENT ZONAL ISOLATION	
LOCATION Williston N.D.	COMPANY FIDELITY E. & P.	CUSTOMER REP / PHONE JEFF MERKEL	
TICKET AMOUNT $5,715.02	WELL TYPE 2	API/UWI # MTBIL020543	
WELL LOCATION NORTH LITTLE BEAVER FIELD	DEPARTMENT ZONAL ISOLATION	JOB PURPOSE CODE CEMENT PRODUCTION CASING	
LEASE CEDAR CREEK FED.	Well No. 2115	SEC / TWP / RNG 20-5N-61E	

Chart No.	Time	Rate (BPM)	Volume (BBL)	Volume (GAL)	Pmps T	Pmps C	Press.(PSI) (TBG)	Press.(PSI) (CSG)	Job Description / Remarks
07-24-01	0200								ON LOCATION-RIG UP EQUIPMENT
	0700								SAFETY MEETING FOR ALL PERSONNEL ON
									LOCATION
	0722	0.2	0.5				2000		PRESSURE TEST LINES TO 2000 PSI
	0723	2.5	10.0					0-125	PUMP 10 BBLS MUD FLUSH
	0727	2.5	10.0					125-150	PUMP 10 BBLS FRESH WATER SPACER
	0732	3.0	16.3					175-50	MIX AND PUMP 16.3 BBLS LEAD CEMENT (45 SKS)
									AT 12.5 PPG
	0737	3.2	39.3					75-50	MIX AND PUMP 39.3 BBLS TAIL CEMENT (190 SKS)
									AT 15.8 PPG
	0752								SHUT DOWN-WASH PUMPS AND LINES
	0754								RELEASE TOP PLUG
	0755	2.5-1.5	28.0					0-900	DISPLACE CEMENT AND TOP PLUG WITH 28 BBLS
									FRESH WATER
	0757								DISPLACEMENT CAUGHT CEMENT
	0811							1410	PLUG LANDED-BLED OFF PRESSURE-FLOATS
									HELD
	0812								JOB COMPLETE
									2 BBLS CEMENT TO THE PIT
									MIXING WATER TESTED OK
									PH-----7.5
									TEMP.-----70 DEGREES
									CHLORIDES-----20
									THANKS JEFF-----DARRYL, DOUG, JON, BRUCE

DATE 9/25/01 SALES/STN NO 20647/3321

SERVICE ORDER NUMBER 49754

PAGE 1 OF 1

SERVICES ORDERED:

Customer Instruments Service
01

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER Kevin 20646
CREW Morris 21168
CREW
CREW
SALESMAN Martin O'Neil
PRICE SCHEDULE Land

The undersigned, hereinafter referred to as "Customer", agrees to pay to Computalog Wireline Services ("Computalog") for the service(s) specified below (including leased equipment) and any additional service(s) requested, in the currency of the United States of America, at the offices of Computalog at 500 Winscott Rd., Ft. Worth, Texas 76126, in accordance with the applicable provisions of Computalog's current price schedule. In consideration of the prices set out in Computalog's current price schedule, Customer elects to be bound by the terms and conditions set out on the reverse side hereof, including the assumption by Customer of the liabilities and responsibilities contained in the indemnity, hold harmless and exculpatory clauses, rather than enter into a separate contract and furnish Computalog with insurance coverage against the liabilities herein assumed by customer. If this document is executed by an agent on behalf of customer, said agent represents that he has full authority from his principal, the Customer, to execute the same. In the absence of such authority, the party executing this document agrees that he shall be obligated hereunder as Customer. All amounts are subject to final Accounts Receivable Computer System verification.

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E&P CUSTOMER # 20277

BILL TO (IF OTHER THAN ABOVE) _____

ADDRESS _____

CITY Glendive STATE Montana ZIP CODE 59330

P.O. # 1210 AFE # _____ CONTRACT # _____

WELL INFORMATION

WELL NAME WBI 2115 Sec 20-5N-61E ✓ FIELD Cedar Creek

COUNTY/PARISH Fallon STATE Montana ✓ RIG NAME Capitol Gold PRICE ZONE Land

LOG MEASURED FROM Kelly Bushing 6.0' FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4941 STATION NAME/NO. Billings MT 13321 ACTUAL ROUND TRIP DISTANCE FROM STATION 35 MILES DISTANCE CHARGED MILES FROM

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE
	TIME SET BY CLIENT	9/25				
	LEFT SHOP		7:30			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	ARRIVE LOCATION		8:30	1		
	BEGIN RIG-UP		8:30			
	FINISH RIG-UP		9:00	1/2		
1	BEGIN OPERATION		9:00			Run
	FINISH OPERATION		9:45	3/4		Tubing
2	BEGIN OPERATION		9:45			Safety
	FINISH OPERATION		10:00	1/4		Meeting
3	BEGIN OPERATION		10:00			Pressure
	FINISH OPERATION		10:15	3/4		Test Packoff
4	BEGIN OPERATION		10:15			Test
	FINISH OPERATION		3:30	4 3/4		
5	BEGIN OPERATION					
	FINISH OPERATION					
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN		3:30			
	FINISH RIG-DOWN		4:30	1		
	LEAVE LOCATION		4:30			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	RETURN TO SHOP		5:30	1		

CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
1000.10	Service Charge	1		
1003.04	HSE	1		
1013.07	Standard Equipment Wireline	1		
1010.11	2" Hydro Valve	1		
1010.12	Riser In	1		
1010.14	Velocity Check Valve	1		
1099.11	Customer Instruments Service Add'l	1		
1099.12	Operators	4		
19999				
1003.02	Mileage	35		

TYPE OF WELL ☒ NEW ☐ WORKOVER ☐ PRODUCTION

SUB TO

STATE TAX COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW	10hrs	TOTAL STANDBY HRS.	
TOTAL FIELD HRS./EQUIP.	10hrs	TOTAL LOST TIME	
TOTAL OPR. HRS.	9hrs ✓	TOTAL TRAVEL TIME	2hrs

WITNESSED BY (PRINT) Dennis Zurcher

DISTRICT MANAGER (INITIALS) _____ ACCT. (INITIALS) _____

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO. TRIPS
Dry	NA			1 ✓

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

GUN SIZE AND TYPE NO. OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT.	SHOTS FIRED

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer

025-21860

REV. 11/95

CUSTOMER INVOICE

DATE 9/23/01 SALES / STN NO. 206477 3321

SERVICE ORDER NUMBER 49752

PAGE 1 OF 1

SERVICES ORDERED:

Service Charge

01

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER Howie Kevin 206 46

CREW Gummer Morris 211 62

CREW

CREW

SALESMAN Martin O'neil

PRICE SCHEDULE Land

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E&P CUSTOMER # 20277

BILL TO (IF OTHER THAN ABOVE) _____

ADDRESS _____

CITY Glendive STATE Montana ZIP CODE 59330

P.O. # 1010 AFE # _____ CONTRACT # _____

WELL INFORMATION

WELL NAME WBI 2115 Sec 20 -5N 61E

FIELD Cedar Creek

COUNTY/PARISH Fallon

STATE Montana

RIG NAME Liquid Gold

PRICE ZONE Land

LOG MEASURED FROM Kelly Bushing, 60' FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4841

STATION NAME/NO. Billings MT/ 3321

ACTUAL ROUND TRIP DISTANCE FROM STATION 35 MILES

DISTANCE CHARGED MILES FROM

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE
	TIME SET BY CLIENT	9/23				
	LEFT SHOP		7:00			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	ARRIVE LOCATION		7:30	1/2		
	BEGIN RIG-UP		7:30			
	FINISH RIG-UP		8:00	1/2		
1	BEGIN OPERATION		8:00			Waited on
	FINISH OPERATION		10:30	2 1/2		Decker
2	BEGIN OPERATION		10:30			Decker
	FINISH OPERATION		1:30	3		Leak
3	BEGIN OPERATION					
	FINISH OPERATION					
4	BEGIN OPERATION					
	FINISH OPERATION					
5	BEGIN OPERATION					
	FINISH OPERATION					
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN		1:30			
	FINISH RIG-DOWN		2:00	1/2		
	LEAVE LOCATION		2:00			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	RETURN TO SHOP		2:30	1/2		

CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
1003.10	Service Charge	1		
1003.10	Stand by	5 1/2		
1003.02	Mileage	35		

TYPE OF WELL ☑ NEW ☐ WORKOVER ☐ PRODUCTION

SUB T

STATE TAX

COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

OCT 2001

TOTAL FIELD HRS./CREW	7 1/2 hrs	TOTAL STANDBY HRS.	5 1/2 hrs
TOTAL FIELD HRS./EQUIP.	7 1/2 hrs	TOTAL LOST TIME	
TOTAL OPR. HRS.	2 hrs ✓	TOTAL TRAVEL TIME	1 hr

WITNESSED BY (PRINT) Dennis Zander

DISTRICT MANAGER (INITIALS) _____ ACCT. (INITIALS) _____

FLUID LEVEL	DEVIATION	SURF PRESS.	INT.	NO. TRIPS

GUN SIZE AND TYPE | NO. OF GUNS | TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT.	SHOTS FIRED

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer 025-21860

REV. 11/95

CUSTOMER INVOICE

DATE 9/21/01 SALES / STN NO. 20647/3321
SERVICE ORDER NUMBER 49749
PAGE 1 OF 1
SERVICES ORDERED:
Customer Instruments Service
01

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER Howe Kevin 20646
CREW Gromer Morris 21168
CREW
CREW
SALESMAN Martin O'Neil
PRICE SCHEDULE Land

The undersigned, hereinafter referred to as "Customer", agrees to pay to Computalog Wireline Services ("Computalog") for the service(s) specified below (including leased equipment and any additional service(s) requested, in the currency of the United States of America, at the offices of Computalog at 500 Winscott Rd., Ft. Worth, Texas 76126, in accordance with the applicable provisions of Computalog's current price schedule. In consideration of the prices set out in Computalog's current price schedule, Customer elects to be bound by the terms and conditions set out on the reverse side hereof, including the assumption by Customer of the liabilities and responsibilities contained in the Indemnity, hold harmless and exculpatory clauses, rather than enter into a separate contract and furnish Computalog with insurance coverage against the liabilities herein assumed by customer. If this document is executed by an agent on behalf of customer, said agent represents that he has full authority from his principal, the Customer, to execute the same. In the absence of such authority, the party executing this document agrees that he shall be obligated hereunder as Customer. All amounts are subject to final Accounts Receivable Computer System verification.

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E&P
BILL TO (IF OTHER THAN ABOVE) _____ CUSTOMER # 20277
ADDRESS _____
CITY Glendive
P.O. # 1002 AFE # _____ STATE Montana ZIP CODE 59330
CONTRACT # _____

WELL INFORMATION
WELL NAME WBI 2115 Sec. 20-5N-61E
COUNTY/PARISH Fallon STATE Montana
RIG NAME Liquid Gold FIELD Cook Creek
PRICE ZONE Land
LOG MEASURED FROM Kelly Bushing 6.0 FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4841 STATION NAME/NO. Billings MT/3321 ACTUAL ROUND TRIP DISTANCE FROM STATION 35 MILES DISTANCE CHARGED MILES FROM

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE
	TIME SET BY CLIENT	9/21				
	LEFT SHOP		9:00			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	ARRIVE LOCATION		9:00	1		
	BEGIN RIG-UP		9:00			
	FINISH RIG-UP		10:00	1		
1	BEGIN OPERATION		10:00	½		Run Tubing
	FINISH OPERATION		10:30			
2	BEGIN OPERATION		10:30	¼		Safety Meeting
	FINISH OPERATION		10:45			
3	BEGIN OPERATION		10:45	½		Test
	FINISH OPERATION		11:15			
4	BEGIN OPERATION		11:15	6½		Perforate
	FINISH OPERATION		6:45			
5	BEGIN OPERATION		5:45	4		Test
	FINISH OPERATION		9:45			
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN		9:15			
	FINISH RIG-DOWN		10:15	1		
	LEAVE LOCATION		10:15			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	RETURN TO SHOP		11:00	¾		

CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
100010	Service Charge			
1003.04	HSE	1		
1013.02	Standard Equipment w/Grease	1		
1010.11	2" Hawco Valve	1		
1010.12	Pump-In	1		
1010.14	Velocity Check Valve	1		
1048.11	Customer Instruments Service Depth	1		
1009.12	Operator	4		
19499				
1003.02	Mileage	35		

TYPE OF WELL ☑ NEW ☐ WORKOVER ☐ PRODUCTION
SUB TOTAL
STATE TAX COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW 15½ TOTAL STANDBY HRS.
TOTAL FIELD HRS./EQUIP. 15½ TOTAL LOST TIME
TOTAL OPR. HRS. 13½ hrs ✓ TOTAL TRAVEL TIME 1¾ hrs

WITNESSED BY (PRINT) Dennis Zuroker
DISTRICT MANAGER (INITIALS) ACCT. (INITIALS)

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO. TRIPS
Dry	NA	1500	80	2

GUN SIZE AND TYPE NO. OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT.	SHOTS FIRED

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer

REV. 11/98

025-21820

CUSTOMER INVOICE

20647

DATE 9-19-01 SALES / STN NO. 3321
SERVICE ORDER NUMBER 49747
PAGE 1 OF 1
SERVICES ORDERED:
Customer Instrument Service
01

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER Howe Kevin 20646
CREW Gessner Morris 21168
CREW
CREW
SALESMAN 20647
PRICE SCHEDULE Local

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E&P CUSTOMER # 20277
BILL TO (IF OTHER THAN ABOVE) _____
ADDRESS _____
CITY Glendive STATE Montana ZIP CODE 59330
P.O. # 1000 AFE # _____ CONTRACT # _____

WELL INFORMATION
WELL NAME 4181 2115 Sec 20-22N-61E ✓ FIELD Cedar Creek
COUNTY/PARISH Fallon STATE Montana ✓ RIG NAME Liquid Gold PRICE ZONE Local
LOG MEASURED FROM Kelly Bushing 6.0' FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4841 STATION NAME/NO. Billings MT / 3321 ACTUAL ROUND TRIP DISTANCE FROM STATION 35 MILES DISTANCE CHARGED MILES FROM

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE	CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
	TIME SET BY CLIENT	9/19					1000.10	Service Charge ✓	1620'		
	LEFT SHOP		6:00				1003.04	HSE	1		
	ARV. DOCK EQUIP.						1013.02	Standard Equipment w/Grease	1		
	ARV. DOCK CREW						1010.11	2" Hanger Valve	1		
	ARRIVE LOCATION		7:00	1			1010.12	Pump-In	1		
	BEGIN RIG-UP		7:00				1010.14	Velocity Check Valve	1		
	FINISH RIG-UP		8:00	1			1006.11	Gauge Run Depth	Min		
1	BEGIN OPERATION		8:00			Fluid	1058.17	Operation	1		
	FINISH OPERATION		9:00	1		Check	1058.11	Customer Instrument Service Depth	1		
2	BEGIN OPERATION		9:00			Run Tubing	1058.12	Operation	8		
	FINISH OPERATION		10:30	1½							
3	BEGIN OPERATION		10:30			Safety	19999				
	FINISH OPERATION		11:00	½		Meeting					
4	BEGIN OPERATION		11:00			Test	1003.07	Mileage	35		
	FINISH OPERATION		7:00	8							
5	BEGIN OPERATION										
	FINISH OPERATION										
6	BEGIN OPERATION										
	FINISH OPERATION										
7	BEGIN OPERATION										
	FINISH OPERATION										
8	BEGIN OPERATION										
	FINISH OPERATION										
9	BEGIN OPERATION										
	FINISH OPERATION										
	BEGIN RIG-DOWN		7:00								
	FINISH RIG-DOWN		8:00	1							
	LEAVE LOCATION		8:00								
	ARV. DOCK EQUIP.										
	ARV. DOCK CREW										
	RETURN TO SHOP		9:00	1							

TYPE OF WELL ☑ NEW ☐ WORKOVER ☐ PRODUCTION

SUB T

STATE TAX COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW	15hrs	TOTAL STANDBY HRS.	
TOTAL FIELD HRS./EQUIP	15hrs	TOTAL LOST TIME	
TOTAL OPR. HRS.	13hrs ✓	TOTAL TRAVEL TIME	2hrs

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

WITNESSED BY (PRINT) Dennis Zander
DISTRICT MANAGER (INITIALS) MDS ACCT. (INITIALS)

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO. TRIPS
1620'	n/a	1500	80	2 ✓

GUN SIZE AND TYPE NO. OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT.	SHOTS FIRED

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer

REV. 11/85

025-21860

CUSTOMER INVOICE

20642/3321

DATE 9-21-01 | SALES / STN NO
SERVICE ORDER NUMBER 49471
PAGE 1 OF 1
SERVICES ORDERED 01
Retrievable Packer

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-248-7275

ENGINEER Melvin Fugle
CREW 2H 67
CREW
CREW
SALESMAN Martin O'Neil
PRICE SCHEDULE LAND

The undersigned, hereinafter referred to as "Customer", agrees to pay to Computalog Wireline Services ("Computalog") for the service(s) specified below (including leased equipment) any additional service(s) requested, in the currency of the United States of America, at the offices of Computalog at 500 Winscott Rd., Ft. Worth, Texas 76126, in accordance with the applica provisions of Computalog's current price schedule. In consideration of the prices set out in Computalog's current price schedule, Customer elects to be bound by the terms and conditions out on the reverse side hereof, including the assumption by Customer of the liabilities and responsibilities contained in the indemnity, hold harmless and exculpatory clauses, rather than er into a separate contract and furnish Computalog with insurance coverage against the liabilities herein assumed by customer. If this document is executed by an agent on behalf of custom said agent represents that he has full authority from his principal, the Customer, to execute the same. In the absence of such authority, the party executing this document agrees that he s be obligated hereunder as Customer. All amounts are subject to final Accounts Receivable Computer System verification.

CUSTOMER AUTHORIZATION

COMPANY Fidelity E+P
BILL TO (IF OTHER THAN ABOVE) CUSTOMER # 20277
ADDRESS
CITY
P.O. # AFE # STATE ZIP CODE
CONTRACT #

WELL INFORMATION
WELL NAME 2115 / Sec 20-T5N-R61E
COUNTY/PARISH Fallon
STATE Montana
RIG NAME SANJEL
FIELD Cedar Creek
PRICE ZONE LAND
LOG MEASURED FROM FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4811
STATION NAME/NO. 3321 / Cut Bank
ACTUAL ROUND TRIP DISTANCE FROM STATION 604 MILES
DISTANCE CHARGED MILES FROM 46

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME / GROUP	SERVICE
	TIME SET BY CLIENT	9-21				
	LEFT SHOP					
	ARV. DOCK EQUIP					
	ARV. DOCK CREW					
	ARRIVE LOCATION					
	BEGIN RIG-UP					
	FINISH RIG-UP					
1	BEGIN OPERATION		10:00	3		
	FINISH OPERATION		13:00			
2	BEGIN OPERATION					
	FINISH OPERATION					
3	BEGIN OPERATION					
	FINISH OPERATION					
4	BEGIN OPERATION					
	FINISH OPERATION					
5	BEGIN OPERATION					
	FINISH OPERATION					
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN					
	FINISH RIG-DOWN					
	LEAVE LOCATION					
	ARV. DOCK EQUIP					
	ARV. DOCK CREW					
	RETURN TO SHOP					

CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
1114.12	Retrievable Packer	1330'		
	Packer Hr			
1003.20	Toolman	1		
1114.12	Redress kit	1		
1003.02	Mileage	46		
	Sub total			
1999.9	Discount			
1003.04	EDC			
	Field Total			

COPY

TYPE OF WELL ☐ NEW ☑ WORKOVER ☐ PRODUCTION

SUB TO

STATE TAX | COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

OCT 2001
Received
Oil & Gas Cons.
MT / Billings

TOTAL FIELD HRS./CREW	3	TOTAL STANDBY HRS.	—
TOTAL FIELD HRS./EQUIP	3	TOTAL LOST TIME	—
TOTAL OPR. HRS	3	TOTAL TRAVEL TIME	—

WITNESSED BY (PRINT) Steve Stanhope
DISTRICT MANAGER (INITIALS) RB
ACCT (INITIALS)

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO TRIPS
				1

GUN SIZE AND TYPE | NO. OF GUNS | TOTAL SHOTS FIRED

GUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT	SHOTS FIRED

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer Melvin B Fugle

025-21860

REV 11-95

CUSTOMER INVOICE

DATE 9-25-01 SALES/STN NO. 20647/3321

SERVICE ORDER NUMBER 49461

PAGE 1 OF 1

SERVICES ORDERED 01

Retrievable Packer

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER Melvin Fugis

CREW 21167

CREW

CREW

SALESMAN Martin O'Neil

PRICE SCHEDULE LAND

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E & P CUSTOMER # 20277

BILL TO (IF OTHER THAN ABOVE) _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

P.O. # _____ AFE # _____ CONTRACT # _____

WELL INFORMATION

WELL NAME 2115 / Sec 20 T5N R61E FIELD Cedar Creek

COUNTY/PARISH Fallon STATE Montana RIG NAME SAN JEL PRICE ZONE LAND

LOG MEASURED FROM _____ FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4811 STATION NAME/NO. 3321 / Cut Bank ACTUAL ROUND TRIP DISTANCE FROM STATION 604 MILES DISTANCE CHARGED MILES FROM 46

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE	CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	AMOUNT
	TIME SET BY CLIENT	9/25	7:00				1114.12	Retrievable Packer	1	2350	
	LEFT SHOP		6:00					Packer # 06			
	ARV. DOCK EQUIP.										
	ARV. DOCK CREW						1003.20	Toolman	1		
	ARRIVE LOCATION		7:00	1							
	BEGIN RIG-UP						1114.12	Redress Kit	1		
	FINISH RIG-UP										
1	BEGIN OPERATION		7:00				1003.02	Mileage	46		
	FINISH OPERATION		9:00	2							
2	BEGIN OPERATION							Subtotal			
	FINISH OPERATION										
3	BEGIN OPERATION						1999.9	Discount			
	FINISH OPERATION										
4	BEGIN OPERATION						1003.04	EPC			
	FINISH OPERATION										
5	BEGIN OPERATION							Subtotal			
	FINISH OPERATION										
6	BEGIN OPERATION										
	FINISH OPERATION										
7	BEGIN OPERATION										
	FINISH OPERATION										
8	BEGIN OPERATION										
	FINISH OPERATION										
9	BEGIN OPERATION										
	FINISH OPERATION										
	BEGIN RIG-DOWN										
	FINISH RIG-DOWN										
	LEAVE LOCATION										
	ARV. DOCK EQUIP.										
	ARV. DOCK CREW										
	RETURN TO SHOP										

TYPE OF WELL ☐ NEW ☒ WORKOVER ☐ PRODUCTION

SUB TOTAL

STATE TAX COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW	3	TOTAL STANDBY HRS.	—
TOTAL FIELD HRS./EQUIP.	3	TOTAL LOST TIME	—
TOTAL OPR. HRS.	2	TOTAL TRAVEL TIME	1

WITNESSED BY (PRINT) JD Benson

DISTRICT MANAGER (INITIALS) RB ACCT. (INITIALS)

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO. TRIPS
				1

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

GUN SIZE AND TYPE NO. OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT	SHOTS FIRED

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer Melvin B. Fugis 025-21860

REV 95

CUSTOMER INVOICE

DATE 9-27-01 SALES / BTN NO. 20647/3321

SERVICE ORDER NUMBER 49472

PAGE 1 OF 1

SERVICES ORDERED 01

Retrievable Packer

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER Melvin Fagle
CREW 2116
CREW
CREW
SALESMAN Martin Gheil
PRICE SCHEDULE LAND

The undersigned, hereinafter referred to as "Customer", agrees to pay to Computalog Wireline Services ("Computalog") for the service(s) specified below (including leased equipment a any additional service(s) requested, in the currency of the United States of America, at the offices of Computalog at 500 Winscott Rd., Ft. Worth, Texas 76126, in accordance with the applicat provisions of Computalog's current price schedule. In consideration of the prices set out in Computalog's current price schedule. Customer elects to be bound by the terms and conditions s out on the reverse side hereof, including the assumption by Customer of the liabilities and responsibilities contained in the indemnity, hold harmless and exculpatory clauses, rather than ent into a separate contract and furnish Computalog with insurance coverage against the liabilities herein assumed by customer. If this document is executed by an agent on behalf of custome said agent represents that he has full authority from his principal, the Customer, to execute the same. In the absence of such authority, the party executing this document agrees that he sha be obligated hereunder as Customer. All amounts are subject to final Accounts Receivable Computer System verification.

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E&P

BILL TO (IF OTHER THAN ABOVE) _____ CUSTOMER # 20222

ADDRESS _____

CITY _____

P.O. # _____ AFE # _____ STATE _____ ZIP CODE _____

CONTRACT # _____

WELL INFORMATION

WELL NAME 2115 1 sec20 T 5N R 61E FIELD Cedar Creek

COUNTY/PARISH Fallon STATE Montana RIG NAME SANJEL PRICE ZONE LAND

LOG MEASURED FROM _____ FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4911 STATION NAME/NO. 3321 / Cut Bank ACTUAL ROUND TRIP DISTANCE FROM STATION 604 MILES DISTANCE CHARGED MILES FROM 46

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE
	TIME SET BY CLIENT	9-27				
	LEFT SHOP					
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	ARRIVE LOCATION					
	BEGIN RIG-UP					
	FINISH RIG-UP					
1	BEGIN OPERATION		13:00	3		
	FINISH OPERATION		16:00			
2	BEGIN OPERATION					
	FINISH OPERATION					
3	BEGIN OPERATION					
	FINISH OPERATION					
4	BEGIN OPERATION					
	FINISH OPERATION					
5	BEGIN OPERATION					
	FINISH OPERATION					
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN					
	FINISH RIG-DOWN					
	LEAVE LOCATION		16:00			
	ARV. DOCK EQUIP					
	ARV. DOCK CREW					
	RETURN TO SHOP		17:00	1		

CODE	DESCRIPTION	QTY.	BOOK UNIT PRICE	FIELD AMOUNT
1114.12	Retrievable Packer	1120'		
	Packer # 6			
1003.20	Todman	1		
1114.12	Redress Kit	1		
1003.02	Mileage	46		
	Subtotal			
1999.9	Discount			
1003.04	EPC.			
	Field Total			

TYPE OF WELL ☐ NEW ☒ WORKOVER ☐ PRODUCTION

SUB

STATE TAX COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW	4	TOTAL STANDBY HRS.	—
TOTAL FIELD HRS./EQUIP	4	TOTAL LOST TIME	—
TOTAL OPR. HRS.	3	TOTAL TRAVEL TIME	1

WITNESSED BY (PRINT) Steve Stanhope
DISTRICT MANAGER (INITIALS) [redacted] ACCT. (INITIALS)

FIELD PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
	RECEIVED AT WELL			

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO TRIPS
				1

GUN SIZE AND TYPE NO OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER PERFORATED	SHOTS PER FT	SHOTS FIRED

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer Melvin B Fagle

REV. 11-95

025-21860

CUSTOMER INVOICE

20647

DATE	9-23-01
SALES / STN NO.	3321
SERVICE ORDER NUMBER	51990
PAGE	1 OF 1
SERVICES ORDERED:	~~Reperfs~~
	01 Retrievable Packer
	Pressure Control

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER	DeVries
CREW	Peterson
CREW	Ross
CREW	
SALESMAN	20647
PRICE SCHEDULE	

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E&P CUSTOMER # 20277

BILL TO (IF OTHER THAN ABOVE) _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

P.O. # _____ AFE # _____ CONTRACT # _____

WELL INFORMATION

WELL NAME	FIELD
WBI 2115 / 20-5N-61E	Cedar Creek

COUNTY/PARISH	STATE	RIG NAME	PRICE ZONE
Fallon	MT	Mast	Land

LOG MEASURED FROM KB, 6.0 FEET ABOVE PERMANENT DATUM

UNIT NUMBER	STATION NAME/NO.	ACTUAL ROUND TRIP DISTANCE FROM STATION / MILES	DISTANCE CHARGED MILES FROM
4698	3321 - Billings MT		

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE
	TIME SET BY CLIENT	9-23				
	LEFT SHOP		0630			
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	ARRIVE LOCATION		0700	0.5		
	BEGIN RIG-UP		0900	2		
	FINISH RIG-UP		0930	0.5		
1	BEGIN OPERATION		0930	0.5		Retrievable
	FINISH OPERATION		1000			Packer
2	BEGIN OPERATION					
	FINISH OPERATION					
3	BEGIN OPERATION					
	FINISH OPERATION					
4	BEGIN OPERATION					
	FINISH OPERATION					
5	BEGIN OPERATION					
	FINISH OPERATION					
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN		1000	—		
	FINISH RIG-DOWN		1030	0.5		
	LEAVE LOCATION		1030	—		
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	RETURN TO SHOP		1100	0.5		

CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
1000.10	Service Charge	1		
1006.10	Mast	1		
1012.01	Pressure Control	1		
1111.11	Packer - Depth	1230		
1111.12	Packer - Operation	1		
	Book Price			
1999.9	Discount			
1111.02	Slow Burn Charge	1		
1003.02	Mileage	1		
	Est. Field Total			

TYPE OF WELL ☒ NEW ☐ WORKOVER ☐ PRODUCTION

SUBTOTAL

STATE TAX COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

SEP 2001 Received Board of Oil & Gas Cons. State of MT / Billings

TOTAL FIELD HRS./CREW	4.5	TOTAL STANDBY HRS.	2
TOTAL FIELD HRS /EQUIP.	4.5	TOTAL LOST TIME	0
TOTAL OPR. HRS.	1.5	TOTAL TRAVEL TIME	1

WITNESSED BY (PRINT) Steve Stanhope

DISTRICT MANAGER (INITIALS) ACCT. (INITIALS)

FLUID LEVEL	DEVIATION	SURFPRESS	BHT	NO. TRIPS
NA	N/A	N/A	NA	1

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

GUN SIZE AND TYPE NO. OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT	SHOTS FIRED

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer

REV. 11/95

CUSTOMER INVOICE

025-21860

20647

DATE	9-21-01
SALES / STN NO.	3321
SERVICE ORDER NUMBER	51982
PAGE	1 OF 1
SERVICES ORDERED:	Perf
	01 Repeats (x05)
	Pressure Control

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER	DeVries
CREW	Petersen
CREW	Ross
CREW	
SALESMAN	20647
PRICE SCHEDULE	

The undersigned, hereinafter referred to as "Customer", agrees to pay to Computalog Wireline Services ("Computalog") for the service(s) specified below (including leased equipment) and any additional service(s) requested, in the currency of the United States of America, at the offices of Computalog at 500 Winscott Rd., Ft. Worth, Texas 76126, in accordance with the applicable provisions of Computalog's current price schedule. In consideration of the prices set out in Computalog's current price schedule, Customer elects to be bound by the terms and conditions set out on the reverse side hereof, including the assumption by Customer of the liabilities and responsibilities contained in the Indemnity, hold harmless and exculpatory clauses, rather than enter into a separate contract and furnish Computalog with insurance coverage against the liabilities herein assumed by customer. If this document is executed by an agent on behalf of customer, said agent represents that he has full authority from his principal, the Customer, to execute the same. In the absence of such authority, the party executing this document agrees that he shall be obligated hereunder as Customer. All amounts are subject to final Accounts Receivable Computer System verification.

CUSTOMER AUTHORIZATION _____

COMPANY Edelity CoP CUSTOMER # 20277

BILL TO (IF OTHER THAN ABOVE) _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

P.O. # _____ AFE # _____ CONTRACT # _____

WELL INFORMATION

WELL NAME: WBI 2115 / 20-5N-61E			FIELD: Cedar Creek
COUNTY/PARISH: Fallon	STATE: MT	RIG NAME: Mast	PRICE ZONE: Land

LOG MEASURED FROM KB, 6.0 FEET ABOVE PERMANENT DATUM

UNIT NUMBER	STATION NAME/NO.	ACTUAL ROUND TRIP DISTANCE FROM STATION	MILES	DISTANCE CHARGED MILES FROM
4698	3321 - Billings MT			

RUN NO		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE
	TIME SET BY CLIENT	9-21				
	LEFT SHOP		0700			
	ARV. DOCK EQUIP					
	ARV. DOCK CREW					
	ARRIVE LOCATION					
	BEGIN RIG-UP		0830	0.5		
	FINISH RIG-UP		0800	0.5		
1	BEGIN OPERATION		0815	0.25		Perf
	FINISH OPERATION		0930			
2	BEGIN OPERATION		0830	0.5		Repeats
	FINISH OPERATION		0900			
3	BEGIN OPERATION					
	FINISH OPERATION					
4	BEGIN OPERATION					
	FINISH OPERATION					
5	BEGIN OPERATION					
	FINISH OPERATION					
6	BEGIN OPERATION					
	FINISH OPERATION					
7	BEGIN OPERATION					
	FINISH OPERATION					
8	BEGIN OPERATION					
	FINISH OPERATION					
9	BEGIN OPERATION					
	FINISH OPERATION					
	BEGIN RIG-DOWN		0900	—		
	FINISH RIG-DOWN		0930	0.5		
	LEAVE LOCATION		0930	—		
	ARV. DOCK EQUIP.					
	ARV. DOCK CREW					
	RETURN TO SHOP					

CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
1000.10	Service Charge	1		
1006.10	Mast	1		
1012.01	Pressure Control	1		
1231.00	Perf - Depth	1180		
1231.01	Perf - shots 3 1/8" 12 gram	40		
1111.11	Repeats - Depth	1330		
1111.12	Repeats - Operation	1		
	Book Price			
1999.9	Discount			
1003.02	Mileage	1		
	Est. Field Total			

TYPE OF WELL ☒ NEW ☐ WORKOVER ☐ PRODUCTION

SUB TOTAL

STATE TAX

COUNTY / PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

SEP 2001 Received Board of Oil & Gas Cons. State of MT / Billings

TOTAL FIELD HRS./CREW	2.5	TOTAL STANDBY HRS.	0.25
TOTAL FIELD HRS./EQUIP.	2.5	TOTAL LOST TIME	0
TOTAL OPR. HRS.	1.75	TOTAL TRAVEL TIME	0.5

WITNESSED BY (PRINT) Steve Stanhope

DISTRICT MANAGER (INITIALS) ACCT. (INITIALS)

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WELL			

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO. TRIPS
NA	NA	NA	NA	2

GUN SIZE AND TYPE 3 1/8 HSC | NO. OF GUNS 1 | TOTAL SHOTS FIRED 40

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT	SHOTS FIRED
	10	1170 - 1180	4	40
	Repeats	1330		

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative: Steve Stanhope

Signature of Computalog Engineer: K. DeVries

REV. 11/95

CUSTOMER INVOICE

025-21860

DATE 9-11-01 SALES/SVC NO. 20647 3321
SERVICE ORDER NUMBER 49713
PAGE 1 OF 1
SERVICES ORDERED: Swab
01 Perf

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 600 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

ENGINEER DeVries
CREW Petersen
CREW Broadway
CREW
SALESMAN 20647
PRICE SCHEDULE

CUSTOMER AUTHORIZATION _____

COMPANY Fidelity E+P CUSTOMER # 20277
BILL TO (IF OTHER THAN ABOVE) _____
ADDRESS _____
CITY _____ STATE _____ ZIP CODE _____
P.O. # _____ AFE # _____ CONTRACT # _____

WELL INFORMATION
WELL NAME: WBI 2115/20-5W-61E ✓
FIELD: Cedar Creek
COUNTY/PARISH: Fallon
STATE: MT ✓
RIG NAME: Mast
PRICE ZONE: Land
LOG MEASURED FROM KB 6.0 FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4698
STATION NAME/NO. 3321-Billings MT
ACTUAL ROUND TRIP DISTANCE FROM STATION MILES
DISTANCE CHARGED MILES FROM

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME (GROUP)	SERVICE	CODE	DESCRIPTION	QTY	BOOK	FIELD AMOUNT
	TIME SET BY CLIENT	9-11					1000.10	Service Charge	1		
	LEFT SHOP						1006.10	Mast	1		
	ARV. DOCK EQUIP.						1200.11	Swab			
	ARV. DOCK CREW						1231.00	Perf - Depth	1360		
	ARRIVE LOCATION		1300				1231.05	Perf - shots 3 1/8 126grm	40		
	BEGIN RIG UP		1300	—							
	FINISH RIG-UP		1315	0.25							
1	BEGIN OPERATION		1315	0.75		Swab					
	FINISH OPERATION		1400					Book Price			
2	BEGIN OPERATION		1400	0.25		Perf					
	FINISH OPERATION		1415				1999.9	Discount			
3	BEGIN OPERATION										
	FINISH OPERATION						1003.02	Mileage	1		
4	BEGIN OPERATION										
	FINISH OPERATION							Est. Field Total			
5	BEGIN OPERATION										
	FINISH OPERATION										
6	BEGIN OPERATION										
	FINISH OPERATION										
7	BEGIN OPERATION										
	FINISH OPERATION										
8	BEGIN OPERATION										
	FINISH OPERATION										
9	BEGIN OPERATION										
	FINISH OPERATION										
	BEGIN RIG-DOWN		1415	—							
	FINISH RIG-DOWN		1430	0.25							
	LEAVE LOCATION		1420	—							
	ARV. DOCK EQUIP.										
	ARV. DOCK CREW										
	RETURN TO SHOP										

TYPE OF WELL ☒ NEW ☐ WORKOVER ☐ PRODUCTION SUB
STATE TAX COUNTY/PARISH TAX

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW	1.5	TOTAL STANDBY HRS.	0
TOTAL FIELD HRS./EQUIP.	1.5	TOTAL LOST TIME	0
TOTAL OPR. HRS.	1.5 ✓	TOTAL TRAVEL TIME	0

WITNESSED BY (PRINT) Steve Stanhope
DISTRICT MANAGER (INITIALS) ACCT. (INITIALS)

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS	RECEIVED AT WLL			

FLUID LEVEL	DEVIATION	SURF. PRESS	BHT	NO. TRIPS
FL	NA	0	NA	6 ✓

GUN SIZE AND TYPE 3 1/8 HSC NO. OF GUNS 1 TOTAL SHOTS FIRED 40

RUN NO.	LENGTH	INTER. PERFORATED	SHOTS PER FT.	SHOTS FIRED
	10	1350-1360	4	40

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer

REV. 11/95

025-21860

COMPUTALOG

Wellbore knowledge and solutions

COMPUTALOG WIRELINE SERVICES
HOME OFFICE: 500 WINSCOTT RD.
FT. WORTH, TEXAS 76126
PHONE 817-249-7200 FAX 817-249-7275

DATE 8-1-01 SALES / STN NO. 20647 / 3321
SERVICE ORDER NUMBER 46852
PAGE 1 OF 1
SERVICES ORDERED:
PNA
03

ENGINEER Howe
CREW Gummer
CREW Buffler
CREW
SALESMAN 20647
PRICE SCHEDULE Land

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CUSTOMER AUTHORIZATION _____

CUSTOMER # 20277

COMPANY Fidelity E&P
BILL TO (IF OTHER THAN ABOVE) _____
ADDRESS _____ STATE Montana ZIP CODE 59330
CITY Glendive CONTRACT # _____
P.O. # 1010 AFE # _____

WELL INFORMATION
WELL NAME WBI 2115 Sec 20-5N-61E
FIELD Cedar Creek
COUNTY/PARISH Fallon
STATE Montana
RIG NAME Mast unit
PRICE ZONE Land
LOG MEASURED FROM Kelly Bushing 6.0' FEET ABOVE PERMANENT DATUM

UNIT NUMBER 4841 STATION NAME/NO. Billings MT / 3321 ACTUAL ROUND TRIP DISTANCE FROM STATION 35 MILES DISTANCE CHARGED MILES FROM

RUN NO.		DATE	TIME	TIME ELAPSED	LOST TIME /GROUP	SERVICE	CODE	DESCRIPTION	QTY	BOOK UNIT PRICE	FIELD AMOUNT
	TIME SET BY CLIENT	8/1					1000.10	Service Charge	1736'	min	
	LEFT SHOP		1:00				1006.11	Mast Unit	1		
	ARV. DOCK EQUIP.						1003.04	EPC	1		
	ARV. DOCK CREW						1021.21	PNA Bulk Inelastic Depth	min		
	ARRIVE LOCATION		1:15	1/4			1021.22	Operation	1036'		
	BEGIN RIG-UP		1:15				1021.23	Flat Charge	1		
	FINISH RIG-UP		1:45	1/2			1000.20	Lease Fee	1		
1	BEGIN OPERATION		1:45			PNA	1302.11	PNA Porosity Computations Setup	1		
	FINISH OPERATION		4:15	2 1/2			1302.12	Operation	1		
2	BEGIN OPERATION										
	FINISH OPERATION						19999				
3	BEGIN OPERATION										
	FINISH OPERATION						1001.02	Mileage	35		
4	BEGIN OPERATION										
	FINISH OPERATION										
5	BEGIN OPERATION										
	FINISH OPERATION										
6	BEGIN OPERATION										
	FINISH OPERATION										
7	BEGIN OPERATION										
	FINISH OPERATION										
8	BEGIN OPERATION										
	FINISH OPERATION										
9	BEGIN OPERATION										
	FINISH OPERATION										
	BEGIN RIG-DOWN		4:15								
	FINISH RIG-DOWN		4:30	1/4							
	LEAVE LOCATION		4:30								
	ARV. DOCK EQUIP										
	ARV. DOCK CREW										
	RETURN TO SHOP		4:45	1/4							

TYPE OF WELL ☑ NEW ☐ WORKOVER ☐ PRODUCTION

SUB TOTAL

STATE TAX COUNTY / PARISH TAX TO

TOTAL ESTIMATED CHARGE
ADDITIONAL CHARGES MAY APPLY

TOTAL FIELD HRS./CREW	3 1/4 hrs	TOTAL STANDBY HRS.	
TOTAL FIELD HRS./EQUIP.	3 1/4 hrs	TOTAL LOST TIME	
TOTAL OPR. HRS.	3 1/4 hrs	TOTAL TRAVEL TIME	1/2 hr

PRINTS	RECIPIENTS INITIALS	FILM	TAPES	PRINTS
FIELD PRINTS 10	RECEIVED AT WELL 10			

	TOTAL TIME	OPER. TIME	ALLOW. TIME	CHG. TIME
EQUIP.				
CREW				

WITNESSED BY (PRINT) Tim Ree
DISTRICT MANAGER (INITIALS) ACCT. (INITIALS)

FLUID LEVEL	DEVIATION	SURF PRESS	BHT	NO. TRIPS
Full	N/A	0	100 Est	1

GUN SIZE AND TYPE NO. OF GUNS TOTAL SHOTS FIRED

RUN NO.	LENGTH	INTERV. PERFORATED	SHOTS PER FT.	SHOTS FIRED

THE SERVICE(S) AND/OR EQUIPMENT COVERED BY THIS SERVICE ORDER HAVE BEEN PERFORMED OR RECEIVED

Signature of Customer or Authorized Representative

Signature of Computalog Engineer

REV. 11/00

025-21860

CUSTOMER INVOICE