

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

**APPLICATION FOR PERMIT TO DRILL OR DEEPEN**

1a. TYPE OF WORK  
**DRILL**  **DEEPEN**

b. TYPE OF WELL  
 OIL WELL  GAS WELL  OTHER  SINGLE ZONE  MULTIPLE ZONE

2. NAME OF OPERATOR  
 Wolverine Gas & Oil Company of Utah, LLC

3. ADDRESS AND TELEPHONE NO.  
 55 Campau NW, Grand Rapids, Michigan, 49503-2616, 616-458-1150

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
 At surface: 1,910' FSL, 2,600' FWL, NE/4 SW/4, Section 17  
 At proposed prod. zone: 2,000' FNL, 600' FWL, SW/4 NW/4, Section 21.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
 2.49 miles northeast of Salina, Utah

15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)  
 1,280'

16. NO. OF ACRES IN LEASE  
 640 acres

17. NO. OF ACRES ASSIGNED TO THIS WELL  
 40 acres

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.  
 None

19. PROPOSED DEPTH  
 11,670' MD (9,400' TVD)

20. ROTARY OR CABLE TOOLS  
 Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
 5,321' GR

22. APPROX. DATE WORK WILL START\*  
 September 1, 2005

5. LEASE DESIGNATION AND SERIAL NO.  
 UTU-80587

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
 N/A

7. UNIT AGREEMENT NAME  
 Wolverine Federal Unit

8. FARM OR LEASE NAME, WELL NO.  
 Wolverine Federal Twist Canyon 21-1

9. API WELL NO.  
 43-041-30042

10. FIELD AND POOL, OR WILDCAT  
 Wildcat

11. SEC., T., R., M., OR BLK.  
 A

12. COUNTY OR PARISH  
 T21S. R1E. SLB&M

13. STATE  
 Sevier Utah

23. PROPOSED CASING AND CEMENTING PROGRAM

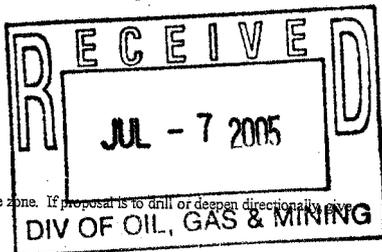
SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
30"	20" X-42 PE welded	0.25 wall	120'	1,100 sks Lead, 600 sks, tail, —see attached Drilling Plan
17-1/2"	13-3/8" J-55 BT&C	68#	3,500'	350 sks 50:50 POZ—see attached Drilling Plan
12-1/4"	9-5/8" HCP-110 LT&C	47#	9,300'	450 sks POZ Premium—see attached Drilling Plan
8-1/2"	7" HCP-110 LT&C	23#	11,670'	see attached Drilling Plan

**Bond Information:** BLM WY3329 Surf 428737X 38.979895  
 4314659Y -111.822713

**Other Information:** BHL 429828X 38.969174  
 4313460Y -111.810003

Drilling Prognosis and Surface Use Plan are attached.  
 Wolverine requests that this complete application for permit to drill be held confidential.  
 A state request for exception to spacing (R649-3-11) is hereby requested based on topography since the well is located within 460' of the drilling unit boundary. Wolverine is the only owner and operator within 460' of the proposed well and all points along the intended well bore path.

**Federal Approval of this Action is Necessary**



IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data 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 depths. Give blowout preventer program, if any.

24. Edward A. Higuera TITLE Manager—Development DATE July 5, 2005

(This space for Federal or State office use)  
 PERMIT NO. 43-041-30042 APPROVAL DATE \_\_\_\_\_

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
 CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY Bradley G. Hill TITLE BRADLEY G. HILL ENVIRONMENTAL SCIENTIST III DATE 07-12-05

\*See Instructions 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 of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**CONFIDENTIAL**

# Section 17, T.21 S., R.1 E., S.L.B. & M.

## PROJECT Wolverine Gas & Oil Company of Utah, L.L.C.

WELL LOCATION, LOCATED AS SHOWN IN THE N.E. 1/4 OF THE S.W. 1/4 OF SECTION 17, T.21 S., R.1 E., S.L.B. & M. SEVER COUNTY, UTAH

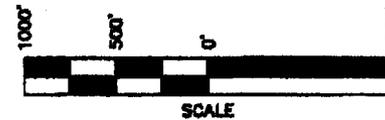
### LEGEND

- ✕ = SECTION CORNERS LOCATED
- ⊕ = QUARTER SECTION CORNERS LOCATED
- = PROPOSED WELL HEAD

NOTE: THE PURPOSE OF THIS SURVEY WAS TO PLAT THE WOLVERINE FEDERAL TWIST CANYON #21-1 LOCATION, LOCATED IN THE N.E. 1/4 OF THE S.W. 1/4 OF SECTION 17, T.21 S., R.1 E., S.L.B. & M., SEVER COUNTY.

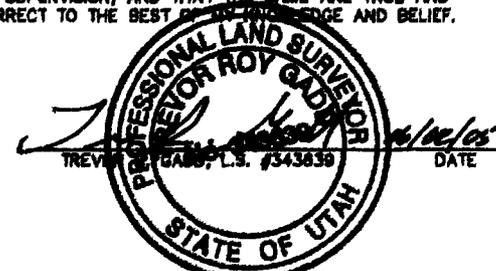
### BASIS OF ELEVATION

ELEVATION BASED ON SALINA H.A.R.N. STATION LOCATED IN THE NW 1/4 OF SECTION 19, T.21 S., R.1 E., S.L.B. & M.

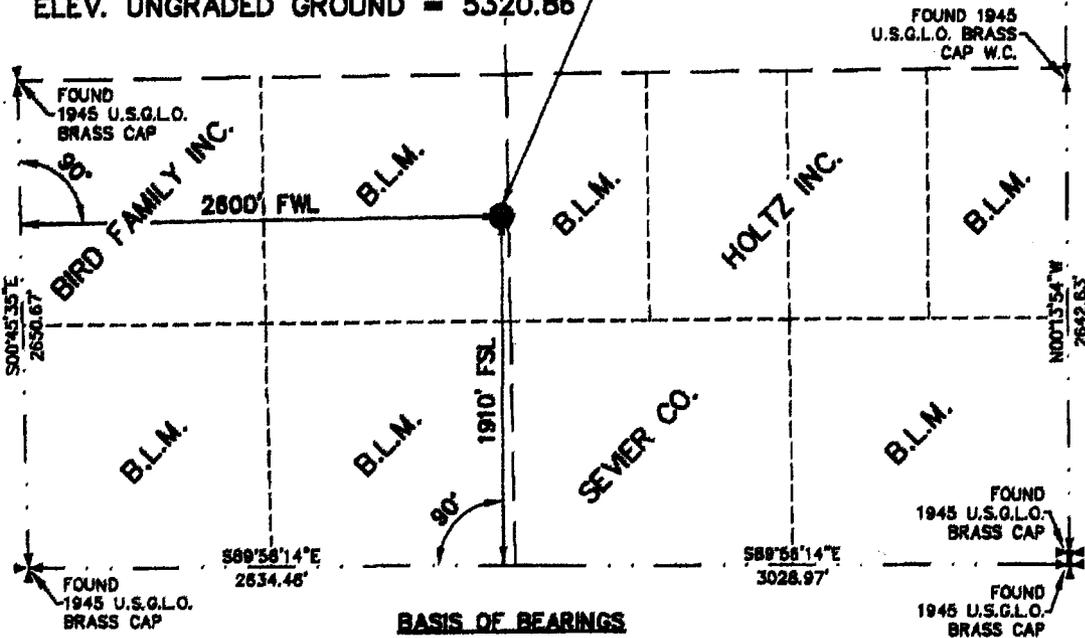


### CERTIFICATE

THIS IS TO CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION, AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



WOLVERINE FEDERAL TWIST CANYON #21-1  
ELEV. UNGRADED GROUND = 5320.86



### BASIS OF BEARINGS

BASIS OF BEARING USED WAS N00°13'54"W BETWEEN THE SOUTHWEST CORNER AND THE W.C. FOR THE WEST QUARTER CORNER OF SECTION 16, T.21 S., R.1 E., S.L.B. & M.  
 LATITUDE = 38°38'47.9810" (38.97999472)  
 LONGITUDE = -111°49'24.4624" (-111.82346178)



**Jones & DeMille Engineering**  
 1536 South 100 West - Richfield, Utah 84701  
 Phone (435) 898-8288  
 Fax (435) 898-8288  
 www.jonesandmille.com

Well Location Plat for

Wolverine Gas & Oil Company of Utah, L.L.C.

REVISION	DRAWN	CHECKED	DATE	PROJECT NO.	SHEET NO.
06/02/05	T.W.G.	T.R.G.		0503-007	1
		SCALE			
		WELLLOC211	1"=1000'		

CONFIDENTIAL

COPY

COPY



**WOLVERINE GAS AND OIL COMPANY**  
of Utah, LLC

*Energy Exploration in Partnership with the Environment*

July 5, 2005

Fluid Minerals Group  
Bureau of Land Management  
Richfield Field Office  
150 East 900 North  
Richfield, Utah 84701

RE: Application for Permit to Drill – Wolverine Gas & Oil Company of Utah, LLC  
**Wolverine Federal Twist Canyon #21-1**

*Surface Location:* 1,910' FSL, 2,600' FWL, NE/4 SW/4, Section 17

*Target Location:* 2,000' FNL, 600' FWL, SW/4 NW/4, Section 21,  
T21S, R1E, SLB&M, Sevier County, Utah

Dear Fluid Minerals Group:

Wolverine Gas & Oil Company of Utah, LLC (Wolverine) respectfully submits the enclosed original and two copies of the *Application for Permit to Drill (APD)* for the above referenced directional well. Included with the APD is the following supplemental information:

- Exhibit "A" – Survey plat and layout of the proposed well site;
- Exhibit "B" – Road design and cross-sections;
- Exhibit "C" – Proposed location maps with access corridor;
- Exhibit "D" – Drilling prognosis with BOP diagram and directional survey calculations;
- Exhibit "E" – Surface use plan;

Please accept this letter as Wolverine's written request for confidential treatment of all information contained in and pertaining to this application

Thank you very much for your timely consideration of this application. Please feel free to contact myself or Don Hamilton of Buys & Associates, Inc. at 435-719-2018 if you have any questions or need additional information.

Sincerely,

Edward A. Higuera, Manager – Development

cc: Diana Whitney, Division of Oil, Gas and Mining  
Don Hamilton, Buys & Associates, Inc.  
Dawn Martin, Buys & Associates, Inc.

RECEIVED  
JUL 0 / 2005  
DIV. OF OIL, GAS & MINING

CONFIDENTIAL

**COPY**

**WOLVERINE GAS AND OIL COMPANY OF UTAH, LLC**

**DRILLING PROGNOSIS**

**Wolverine Federal Twist Canyon # 21-1  
NE SW SEC 17-T21S-R01E  
Sevier Co., Utah**

**BRIEF DRILLING PLAN**

Due to surface topography constraints, directionally drill a 11,670' MD (9400' TVD) test of the Navajo formation on a day work contract basis from a drill pad located in the NE SW of Sec 17 T21S – R01E, Sevier Co, UT. Please refer to the directional drilling plan attached for detailed hole angle, trajectory and target information. Deviation is the primary drilling concern in this area. No abnormal pressure is anticipated. The projected surface and bottomhole locations are as follows:

Surface Location: 1910' fsl & 2600' fwl of Sec 17 T21S – R01E  
BHL @ top of NVJO1 (7350' TVD) 2000' fnl & 600' fwl of Sec 21 T21S – R01E

20" conductor casing will be cemented to surface at approximately 120 ft BGL. A 17-1/2" hole will be drilled vertically to 1000' and then deviated to 46 deg by 2500' MD (2360' TVD). A tangent section will be continued to 3500' MD (3000' TVD) at 46 deg at which time 13-3/8" surface csg will be set & cemented to surface. A 12-1/4" tangent section will be drilled below 13-3/8" csg to 9300' MD (7100' TVD). The 12-1/4" hole may be logged and 9-5/8" csg will be set at 9300' MD and cemented to 8300' MD. The hole size will be reduced to 8-1/2" and the angle will be dropped to approximately 10 degrees from vertical. The remainder of the well will then be drilled at approximately 10 degrees to total depth of 11670' (9400' TVD). The 8-1/2" hole will be logged and 7" casing will be set at TD for a Navajo completion attempt. Cement will be raised to approximately 8300' MD behind the 7" csg and 1000' into the 9-5/8" csg.

Wolverine Federal Twist Canyon #21-1 (NVJO v3 2005.06.07  
Section 17 T21S-R1E  
Sevier Co., UT

**CONFIDENTIAL**

## EMERGENCY NUMBERS – dial 911 or

Sevier Valley Medical Center	(435)-896-8271
Medical Helicopter	(800)-453-0120
Sheriff Department	(435)-896-2600
Fire Department-Richfield, UT	(435)-896-5479
Emergency Medical Technician Service-Salina, UT	(435)-529-7300
Bureau of Land Management (Richfield):	(435)-896-1500
Bureau of Land Management (Salt Lake City)	(801) 539-4045
Utah Division of Oil, Gas and Mining (Salt Lake City):	(801)-538-5340

### United States Bureau of Land Management

Contact Al McKee (801) 539-4045 24 hrs prior to spudding

### Utah Division of Oil, Gas and Mining

Contact Carol Daniels (801) 538-5284, 24 hrs prior to spudding

### GENERAL INFORMATION

**OBJECTIVE:** Navajo @ 9600' MD or 7350' (TVD)      **ELEVATION:** 5321' GL (est)  
5350' KB

**PROJECTED TOTAL DEPTH:** 11,670' MD; 9400' TVD

**SURFACE LOCATION:** 1910' FSL & 2600' FWL; Sec 17-21S-01W

**COUNTY:** Sevier      **STATE:** Utah

**DIRECTIONS TO LOCATION:** (to be determined)

### PROPOSED CASING PROGRAM:

Hole Size	Casing Size	Wt./Ft.	Grade	Joint	Measured Depth
30"	20"	.25 wall	X42	PE welded	120'
17-1/2"	13-3/8"	68#	J-55	BTC	0'-3500'
12-1/4"	9-5/8"	47#	HCP-110	LTC	0'- 9300'
8-1/2"	7"	23#	HCP-110	LTC	0' -11,670'

Hole Size	Casing Size	Drift ID, in.	OD of Couplings	Annular Volume in OH, cf/ft	Annular Volume in Csg, cf/ft	Capacity of casing, cf/ft
30"	20"	Conductor		Pre-set		
17-1/2"	13-3/8"	12.259	14.375	.6946	1.0982	.8406
12-1/4"	9-5/8"	8.525	10.625	0.3127	0.4659	0.4340
8-1/2"	7"	6.25	7.656	.1268	.1438	.2210

Wolverine Federal Twist Canyon #21-1 (NVJO v3 2005.06.07  
Section 17 T21S-R1E  
Sevier Co., UT

## GEOLOGIC FORMATIONS:

Formation	Interval (TVD)	Interval (MD)	Lithology	Prod	Abnormal or H2S
Arapien	Surf - 7020'	Surf - 9200'	sh, siltstone, salt, evaporites		
TwinCreek	7020' - 7350'	9200' - 9600'	Carbonates		
Navajo	7350' - 9215'	9600' - 11,500'	Sandstone w/ minor shale	X	
Chinle	9215'	11,500			
<b>Total Depth</b>	<b>9400'</b>	<b>11,670'</b>			

## CONSTRUCTION OF SURFACE LOCATION

400' x 400' Pad  
 150' x 250' x 10' Reserve Pit with a 12 mil synthetic liner  
 96" diameter tin horn cellar, 10' deep.  
 Flare pit a minimum of 100' from wellhead.

## SURFACE HOLE: 0' to 3500'

Directionally drill a 17-1/2" hole with a tricone bit, mud motor, MWD & BHA equipment to approximately 3500' using a salt saturated mud system (make hole to fit 13-3/8" casing). Loss circulation could be a problem in this interval and, if such occurs, begin pumping LCM pills and if necessary into the entire system as needed. Maintain hole angle and direction in keeping with the attached directional plan.

## PRESSURE CONTROL & SAFETY EQUIPMENT FOR SURFACE HOLE

### Bottom to Top (see attached 2M Diverter diagram)

- 20" 2M x 20" SOW flange
- 20" 2M x 20" 2M mud cross w/ (2) 7-1/16" 2M side outlets
  - one outlet 7-1/16" HCR valve w/ 6" blooie line to mud separator & flare pit
  - one outlet (blank)
- 20" 2M Annular Preventer
- 20" 2M flanged btm drilling nipple w/ fillup line
- Upper kelly cock valves with handles available
- Safety valves and subs to fit all drill string connections in use
- Inside BOP or float sub available

### **Testing Procedure:**

#### Annular Preventer & HCR Valve

The annular preventer will be functionally operated once per week. All BOP drills will be recorded in the IADC driller's log.

#### Accumulator:

The accumulator will have sufficient capacity to open the hydraulically controlled gate valve (if so equipped), close the annular preventer, and retain a minimum of 200 psig above pre-charge on the closing manifold without the use of the closing unit pumps. The reservoir capacity will be double the accumulator capacity, and the fluid level will be maintained at the manufacturer's recommendations. The accumulator shall have two (2) independent power sources to close the preventers. Nitrogen bottles may be one of the independent power sources and, if so, shall maintain a charge equal to the manufacturer's specifications.

### MUD PROGRAM FOR SURFACE HOLE

DEPTH	MUD WEIGHT	TYPE	VISC	FLUID LOSS
0 - 3500'	9.6 - 10.2	Salt mud	40-55	N/C

Note: Sweep hole every 100 - 200 feet or as needed for hole cleaning. Maintain maximum flowrates for hole cleaning. Use salt gel and FlowZan polymer to maintain properties.

### CASING PROGRAM FOR SURFACE HOLE

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
0 - 3500'	13-3/8"	3500'	68#	J-55	BT&C	

Casing Running Sequence:

guide shoe, 1 jt of 13-3/8" 68# J55 BT&C, Float collar, remainder of 13-3/8" 68# J55 BT&C to surface. Use centralizers as reqd thru build section and (2) cement baskets inside conductor csg. RU cement co., hold safety meeting, test lines, cement 13-3/8" casing using the cementing guide below. Displace with fresh water or mud.

### CEMENTING PROGRAM FOR SURFACE HOLE

<b>Lead:</b> 1100 sx hi-fill	Mixed at:	11.0 ppg
	Yield:	3.86 ft <sup>3</sup> /sx
<b>Tail:</b> 600 sx Premium Plus	Mixed at:	15.6 ppg
	Yield:	1.19 ft <sup>3</sup> /sx

**MUST CIRCULATE CEMENT TO SURFACE** If the cement does **not** circulate to surface contact the UDOGM office for further instructions and remedial actions. Be prepared to top out with premium cement.

**WOC A TOTAL OF 24 HOURS:**

Wait 4 hours with the hydrostatic pressure of the displacement fluid in place, then cut off conductor and weld on a 13-5/8" 5M x 13-3/8" SOW casing head w/ MBS spool configured to hang both 9-5/8" and 7" csg strings without nipling down BOPE. NU a 13-5/8" 5M double ram BOP w/ 5M annular and 5M choke manifold rigged to mud/gas separator, mud tanks and flare pit.

Wolverine Federal Twist Canyon #21-1 (NVJO v3 2005.06.07  
Section 17 T21S-R1E  
Sevier Co., UT

CONFIDENTIAL

**PROTECTIVE CASING HOLE: 3500' to 9,300'**

Trip in the hole with a 12-1/4" bit, mud motor, MWD & BHA. Drill float, shoe and 20' of new hole. Perform a formation integrity test to 10.5 ppg mud weight equivalent. Directionally drill a 12-1/4" hole to approximately 9300' MD (7020' TVD) using same salt mud system as above. Loss circulation, moving salt, gypsum and anhydrite stringers may be a problem in this interval. Maintain hole angle and azimuth in keeping with the attached directional plan. Protective casing should be set into the top of the Twin Creek interval.

**PRESSURE CONTROL AND SAFETY EQUIPMENT FOR  
PROTECTIVE CASING STRING**

**Bottom to Top (see attached 5M BOP diagram)**

- 13-5/8" 5M x 13-3/8" SOW casing head w/ (2) 2-1/16" SSO's (for 9-5/8")
- 13-5/8" 5M x 13-5/8" 5M multi-bowl casing spool (for 7")
- 13-5/8" 5M x 13-5/8" spacer spool
- 13-5/8" 5M x 13-5/8" 5M mud cross with (2) side outlets:
  - one outlet 2-1/16" kill line
  - one outlet 2-1/16" choke line
- 13-5/8" 5M double ram BOP w/ 5" pipe rams top & CSO rams btm
- 13-5/8" 5M Annular Preventer
- 13-5/8" 5M rotating head
  - Connect BOP to choke manifold with pressure guage
  - Upper kelly cock valves with handles available
  - Safety valves and subs to fit all drill string connections in use
  - Inside BOP or float sub available

**Testing Procedure:**

**Annular Preventer**

The annular preventer will be pressure tested to 1500 psi for a period of ten minutes or until provisions of the test are met, whichever is longer. At a minimum, the pressure test will be performed:

- 1) When the annular is initially installed
- 2) Whenever any seal subject to test pressure is broken
- 3) Following related repairs and at 30 day intervals

The annular preventer will be functionally operated once per week.

**Blowout Preventer**

The BOP, choke manifold and related equipment will be pressure tested to 4500 psi, or 70% of the internal yield of the casing. Pressure will be maintained for a period of at least ten minutes or until the requirements of the test are met, whichever is longer. At a minimum the pressure test will be performed:

- 1) When the BOP is initially installed
- 2) Whenever any seal subject to test pressure is broken
- 3) Following related repairs and at 30 day intervals

The pipe and blind rams will be activated each trip, but not more than once each day. All BOP drills will be recorded in the IADC driller's log.

Accumulator:

The accumulator will have sufficient capacity to open the hydraulically controlled gate valve (if so equipped), close all rams plus the annular preventer, and retain a minimum of 200 psig above pre-charge on the closing manifold without the use of the closing unit pumps. The reservoir capacity will be double the accumulator capacity, and the fluid level will be maintained at the manufacturer's recommendations. The accumulator shall have two (2) independent power sources to close the preventers. Nitrogen bottles may be one of the independent power sources and, if so, shall maintain a charge equal to the manufacturer's specifications.

The accumulator pre-charge pressure test will be conducted prior to connecting the closing unit to the BOP stack and at least once every six months thereafter. The accumulator pressure will be corrected if the measured pre-charge pressure is found to be above or below the maximum or minimum limits specified in Onshore Oil & Gas Order Number 2 (only nitrogen gas may be used to pre-charge).

Choke Manifold Equipment, Valves and Remote Controls

All choke lines will be straight lines unless turns use tee blocks or are targeted with running tees, and will be anchored to prevent whip and vibration

A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve will be maintained in the open position and will be closed only when the power source for the accumulator is inoperative.

Remote controls shall be readily accessible to the driller. Remote controls will be capable of both opening and closing all preventers. Master controls will be at the accumulator and will be capable of opening and closing all preventers and the choke line valve (if so equipped).

The choke manifold and BOP extension rods with hand wheels will be located outside the rig sub structure. The hydraulic BOP closing unit will be located at least twenty-five feet from the well head but readily accessible to the driller.

A flare line will be installed after the choke manifold, extending 100 feet from the center of the drill hole to a separate flare pit.

**MUD PROGRAM FOR PROTECTIVE CASING HOLE**

DEPTH	MUD WEIGHT	TYPE	VISC	FLUID LOSS
3500' - 9300'	10.0 - 10.6	Salt Mud	36 - 50	N/C

COPY

Maintain a salt mud system as salt and gypsum sections are drilled. If loss circulation becomes a problem use LCM sweeps to control seepage & clean hole.

**EVALUATION PROGRAM FOR PROTECTIVE CASING HOLE**

Mudlogger: From 120' to total depth of protective casing hole

At TD, circulate and condition hole clean for logs. TOH for logs. Run Induction tool as run #1 to determine hole conditions for logging. Adjust tool configurations depending on hole conditions.

Electric Logs:

Tool	TD to SurfaceCsg
DLL/MSFL/SP/GR for brine system	Yes
SDL/DSN/GR	Yes
EMI	Yes

DST: none planned

Cores: none planned

**CASING PROGRAM FOR PROTECTIVE CASING HOLE**

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
0' - TD'	9-5/8"	9300'	47#	HCP-110	LT&C	

Rig up casing tools and run 9-5/8" protective casing as follows:

Float shoe, 2 joint of 9-5/8" 47.0# HCP-110 LT&C casing, float collar, 6 centralizers, middle shoe joint and one every other joint for 12 jts, run balance of 9-5/8" 47# HCP-110

**CEMENT PROGRAM FOR PROTECTIVE CASING**

350 sx 50:50 POZ

Weight: 13.0 ppg  
Yield: 1.71 ft<sup>3</sup>/sx

1000' of cement behind 9-5/8" csg - Calculate cement volume based on gauge hole plus 30% excess. Displace with mud. Land 9-5/8" csg with casing mandrel. Lay down landing joint. Clean pits and prepare for next hole section.

CONFIDENTIAL

PRODUCTION HOLE: 9300' to 11670'

COPY

Trip in the hole with an 8-1/2" insert bit, mud motor & MWD. Drill float, shoe and 20' of new hole.

PRESSURE CONTROL AND SAFETY EQUIPMENT FOR PRODUCTION CASING STRING

Same as Protective String above due to utilization of Multi-Bowl Casing Head Assembly – Land 9-5/8" through BOPE with casing mandrel, release, test & proceed to drilling production hole section – Nipple down & nipple up NOT required – all BOPE remains intact – normal periodic pressure testing remains on schedule

MUD PROGRAM FOR PRODUCTION HOLE

DEPTH	MUD WEIGHT	TYPE	VISC	pH	FLUID LOSS
9300' - 11670'	8.3 - 9.0	LC Polymer	34-50	9.0-10.0	10cc or Less

EVALUATION PROGRAM FOR PRODUCTION HOLE

At TD, circulate and condition hole clean for logs. Short trip to the intermediate casing monitoring well closely. TOH for logs. Run Induction tool as run #1 to determine hole conditions for logging. Adjust tool configurations depending on hole condition.

Mudlogger: From 2000' to total depth.

Electric Logs:

Tool	PCP to TD
SDL/DSN/GR (DSN PCP to surface casing)	Yes
HRI/GR/SP (DLL/MSFL/SP/GR available if brine system)	Yes
EMI	Yes
NMR	Yes

DST: none planned

Cores: none planned

CASING PROGRAM FOR PRODUCTION HOLE

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
0' - TD'	7"	11670'	23#	HCP-110	LT&C	

Rig up casing tools and run 7" production casing as follows:

Float shoe, 1 joint of 7" 23# HCP-110 LT&C casing, Float collar, run balance of 7" 23 HCP-110

CONFIDENTIAL

COPY

CEMENT PROGRAM FOR PRODUCTION CASING

450 sx (50:50) POZ Premium  
2 % Bentonite  
Friction reducer, salt & flocele

Weight: 14.35 ppg  
Yield: 1.27 ft<sup>3</sup>/sx

TOC at  $\pm$  8300 ft in 9-5/8" csg; Calculate cement volume based on log caliper +/- 25%.  
Displace cement w/water. Hang 85-90% casing weight in slips, ND, cut off, install B-section and night cap. Clean pits and release rig.

SCHEDULE

Location preparation is presently scheduled to begin on or about September 1, 2005  
Drilling operations are anticipated to begin on or about September 15, 2005

end

CONFIDENTIAL

## SURFACE USE PLAN

### CONDITIONS OF APPROVAL

#### *Attachment for Permit to Drill*

**Name of Operator:** Wolverine Gas & Oil Company of Utah, LLC  
**Address:** 55 Campau NW  
Grand Rapids, Michigan, 49503-2616  
**Well Location:** **Wolverine Federal Twist Canyon #21-1**  
**Wolverine Federal Twist Canyon #21-1**  
*Surface Location:* 1,910' FSL, 2,600' FWL, NE/4 SW/4, Section 17  
*Target Location:* 2,000' FNL, 600' FWL, SW/4 NW/4, Section 21,  
T21S, R1E, SLB&M, Sevier County, Utah

Federal surface use is necessary prior to initiating construction.

The dirt contractor will be provided with an approved copy of the surface use plan of operations before initiating construction.

A Federal onsite inspection was conducted on 5-17-05 with the following individuals present:

Charlie Irons – Western Land  
Darin Robinson P.E. – Jones and DeMill  
Michael Jackson – BLM Geologist  
Gary Hall – BLM Asst. Field Manager  
Don Hamilton - Buys & Associates, Inc.

1. Existing Roads:

- a. The proposed well site is located approximately 2.49 miles northeast of Salina, UT.
- b. Directions to the proposed well site have been included on the location map at the end of Exhibit C.
- c. The use of roads under State and County Road Department maintenance are necessary to access the Wolverine Federal Unit. However, an encroachment permit is not anticipated since no upgrades to the State or County Road system are proposed at this time.
- d. All existing roads will be maintained and kept in good repair during all phases of operation.
- e. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.
- f. Improvements are planned for the Federal portion of the access road from the existing county maintained surface to the proposed wellsite. These improvements have been detailed within the road design plans that are being submitted for approval to the BLM. No disturbance to Federal surface will occur until approval to upgrade the road is in place.
- g. An off-lease Federal Right-of-Way is not anticipated for the access road corridor since both are located within the existing Wolverine Unit boundary.

2. Planned Access Roads:

- a. From the existing county maintained gravel surfaced Stone Quarry Road an access is proposed trending east approximately 3,080' (0.58 miles) to the proposed well site. The access consists of entirely two-track upgrade and crosses no significant drainages. A road design plan has been included within this package for the upgraded road length.
- b. The proposed access road will consist of a 20' travel surface. The ROW for the proposed road will accommodate cuts and fills where needed, as such, the total ROW width will vary as outlined within the road design plans.
- c. Private or state surface use approval is not anticipated for the road construction.
- d. A maximum grade of 7% will be maintained throughout the project with no cuts and fills required to access the well.
- e. Turnouts are not anticipated since the access road is only 0.58 miles long and adequate site distance exists in all directions.
- f. Several 18" culverts will be needed where practical. Energy dissipating structures will be utilized to minimize erosion as a result of the culverts. Adequate drainage structures will be incorporated into the remainder of the road.
- g. No surfacing material will come from SITLA or Federal lands.
- h. No gates or cattle guards are anticipated at this time.
- i. Surface disturbance and vehicular travel will be limited to the approved location access road.
- j. All access roads and surface disturbing activities will conform to the standards outlined in the Bureau of Land Management and Forest Service publication: Surface Operating Standards for Oil and Gas Exploration and Development, (1989).
- k. The operator will be responsible for all maintenance of the access road including drainage structures.

3. Location of Existing Wells:

- a. Following is a list of existing wells within a one mile radius of the proposed well:
  - i. Water wells           None
  - ii. Injection wells       None
  - iii. Disposal wells       None
  - iv. Drilling wells        None
  - v. Temp. shut-in wells   None
  - vi. Producing wells       None
  - vii. Abandon wells       None

4. Location of Production Facilities:

- b. All permanent structures will be painted a flat, non-reflective Juniper Green to match the standard environmental colors. All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) may be excluded.
- c. A gas meter run will be constructed and located on lease within 500 feet of the wellhead. Meter runs will be housed and/or fenced. All gas production and measurement shall comply with the provisions of 43 CFR 3162.7-3, Onshore Oil and Gas Order No. 5, and American Gas Association (AGA) Report No. 3.
- d. A tank battery will be constructed on this location; it will be surrounded by a dike of sufficient capacity to contain the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery. All liquid hydrocarbons production and measurement shall conform to the provisions of 43 CFR 3162.7-3 and Onshore Oil and Gas Order No. 4.
- e. Any necessary pits will be properly fenced to prevent any wildlife and livestock entry.
- f. All access roads will be maintained as necessary to prevent erosion and accommodate year-round traffic. The road will be maintained in a safe useable condition.
- g. The site will require periodic maintenance to ensure that drainages are kept open and free of debris, ice, and snow, and that surfaces are properly treated to reduce erosion, fugitive dust, and impacts to adjacent areas.
- h. A pipeline is not being applied for with this application but may be necessary in the future when it will be applied for.

5. Location and Type of Water Supply:

- a. The water supply for construction, drilling and operations will be provided by a local municipal water company through a direct purchase agreement between the water company and Wolverine.
- b. No water well is proposed with this application.
- c. Should additional water sources be pursued they will be properly permitted through the State of Utah – Division of Water Rights.

6. Source of Construction Material:

- a. The use of materials on the project will conform to 43 CFR 3610.2-3.
- b. No construction materials will be removed from Federal or SITLA lands.
- c. If any gravel is used, it will be obtained from a state approved gravel pit.

7. Methods of Handling Waste Disposal:

- a. All wastes associated with this application will be contained and disposed of utilizing approved facilities.
- b. Drill cuttings will be contained and buried on site.
- c. The reserve pit will be located inboard of the location and near the east edge of the pad.
- d. The reserve pit will be constructed so as not to leak, break, or allow any discharge.
- e. The reserve pit will be lined with 12 mil minimum thickness plastic nylon reinforced liner material. The liner will overlay a felt liner pad only if rock is encountered during excavation. The pit liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash, scrap pipe, etc., that could puncture the liner will be disposed of in the pit. Pit walls will be sloped no greater than 2:1. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling and completion operation.
- f. The reserve pit has been located in cut material. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain until the pit is dry. After the reserve pit has dried, all areas not needed for production will be rehabilitated.
- g. No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completion of the well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of the well.
- h. Trash will be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at the completion of drilling operations. The contents of the trash container will be hauled off periodically to the approved Sevier County Landfill near Richfield, Utah.
- i. Produced fluids from the well other than water will be produced into a test tank until such time as construction of production facilities is completed. Any spills of oil, gas, salt water or other produced fluids will be cleaned up and removed.
- j. After initial clean-up, a 400 bbl tank will be installed to contain produced waste water. This water will be transported from the tank to an approved disposal well for disposal.
- k. Any salts and/or chemicals, which are an integral part of the drilling system, will be disposed of in the same manner as the drilling fluid.
- l. Sanitary facilities will be on site at all times during operations. Sewage will be placed in a portable chemical toilet and the toilet replaced periodically utilizing a licensed contractor to transport by truck the portable chemical toilet so that its contents can be delivered to the Richfield Wastewater Treatment Facility in accordance with state and county regulations.

8. Ancillary Facilities:

- a. Garbage Containers and Portable Toilets are the only ancillary facilities proposed in this application.

9. Well Site Layout: (See Exhibit B)

- a. The well will be properly identified in accordance with state regulations.
- b. Access to the well pad will be from the north.
- c. The pad and road designs are consistent with BLM specifications.
- d. A pre-construction meeting with responsible company representative, contractors, and the BLM will be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road will be construction-staked prior to this meeting.
- e. The pad has been staked at its maximum size; however it will be constructed smaller if possible, depending upon rig availability. Should the layout change, this application will be amended and approved utilizing a sundry notice.
- f. All surface disturbing activities will be supervised by a qualified, responsible company representative who is aware of the terms and conditions of the APD and specifications in the approved plans.
- g. All cut and fill slopes will be such that stability can be maintained for the life of the activity.
- h. Diversion ditches will be constructed as shown around the well site to prevent surface waters from entering the well site area.
- i. The site surface will be graded to drain away from the pit to avoid pit spillage during large storm events.
- j. The stockpiled topsoil (first 6 inches or maximum available) will be stored in a windrow on the uphill side of the location to prevent any possible contamination. All topsoil will be stockpiled for reclamation in such a way as to prevent soil loss and contamination.
- k. Pits will remain fenced until site cleanup.
- l. The blooie line will be located at least 100 feet from the well head.
- m. Water injection may be implemented if necessary to minimize the amount of fugitive dust.

10. Plans for Restoration of the Surface:

- a. Site reclamation for a producing well will be accomplished for portions of the site not required for the continued operation of the well.

- b. The Operator will control noxious weeds along access road use authorizations, well sites, or other applicable facilities by spraying or mechanical removal. A list of noxious weeds may be obtained from the BLM or the appropriate County Extension Office. On BLM administered land, it is required that a Pesticide Use Proposal be submitted and approved prior to the application of herbicides, pesticides or possibly hazardous chemicals.
- c. Upon well completion, any hydrocarbons in the pit shall be removed in accordance with state regulations. Once the reserve pit is dry, the plastic nylon reinforced liner shall be torn and perforated before backfilling of the reserve pit. The reserve pit and that portion of the location not needed for production facilities/operations will be recontoured to the approximate natural contours.
- d. The cut and fill slopes and all other disturbed areas not needed for the production operation will be top soiled and re-vegetated. The stockpiled topsoil will be evenly distributed over the disturbed area.
- e. Prior to reseeding the site, all disturbed areas, including the access road, will be scarified and left with a rough surface. The site will then be seeded and/or planted as prescribed by the BLM.

11. Surface and Mineral Ownership:

- a. Surface Ownership -- United States of America under the management of the BLM -- Richfield Field Office, 150 East 900 North, Richfield, Utah 84701; 435-896-1500.
- b. Mineral Ownership -- United States of America under the management of the BLM -- Richfield Field Office, 150 East 900 North, Richfield, Utah 84701; 435-896-1500.

12. Other Information:

- a. Mountain States Archaeology, LLC has completed a Class III archeological survey. A copy of the report will be submitted under separate cover to the appropriate agencies by Mountain States Archaeology, LLC.
- b. Additional information:
  - a. No drainage crossings that require additional State or Federal approval are being crossed.
  - b. No raptor nests are known to exist within one mile of the proposed wellsite.
  - c. A paleontological clearance is not required since suitable formations do not exist within the project area.
  - d. A BLM sensitive plant species survey has been completed Buys & Associates, Inc. A copy of the report has been submitted under separate cover to the appropriate agencies by Buys & Associates, Inc.

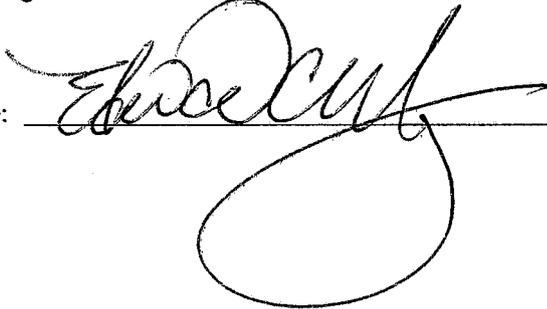
13. Operator's Representative and Certification

<u>Title</u>	<u>Name</u>	<u>Office Phone</u>
Company Representative (Richfield)	Charlie Irons	1-435-896-1943
Company Representative (Grand Rapids)	Ed Higuera	1-616-458-1150
Agent for Wolverine	Don Hamilton	1-435-719-2018

Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exists; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Wolverine Gas & Oil Company of Utah, LLC and its contractors and subcontractors in conformity with this APD package and the terms and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application, with bond coverage being provided under Wolverine's pending existing BLM bond. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Signature: \_\_\_\_\_

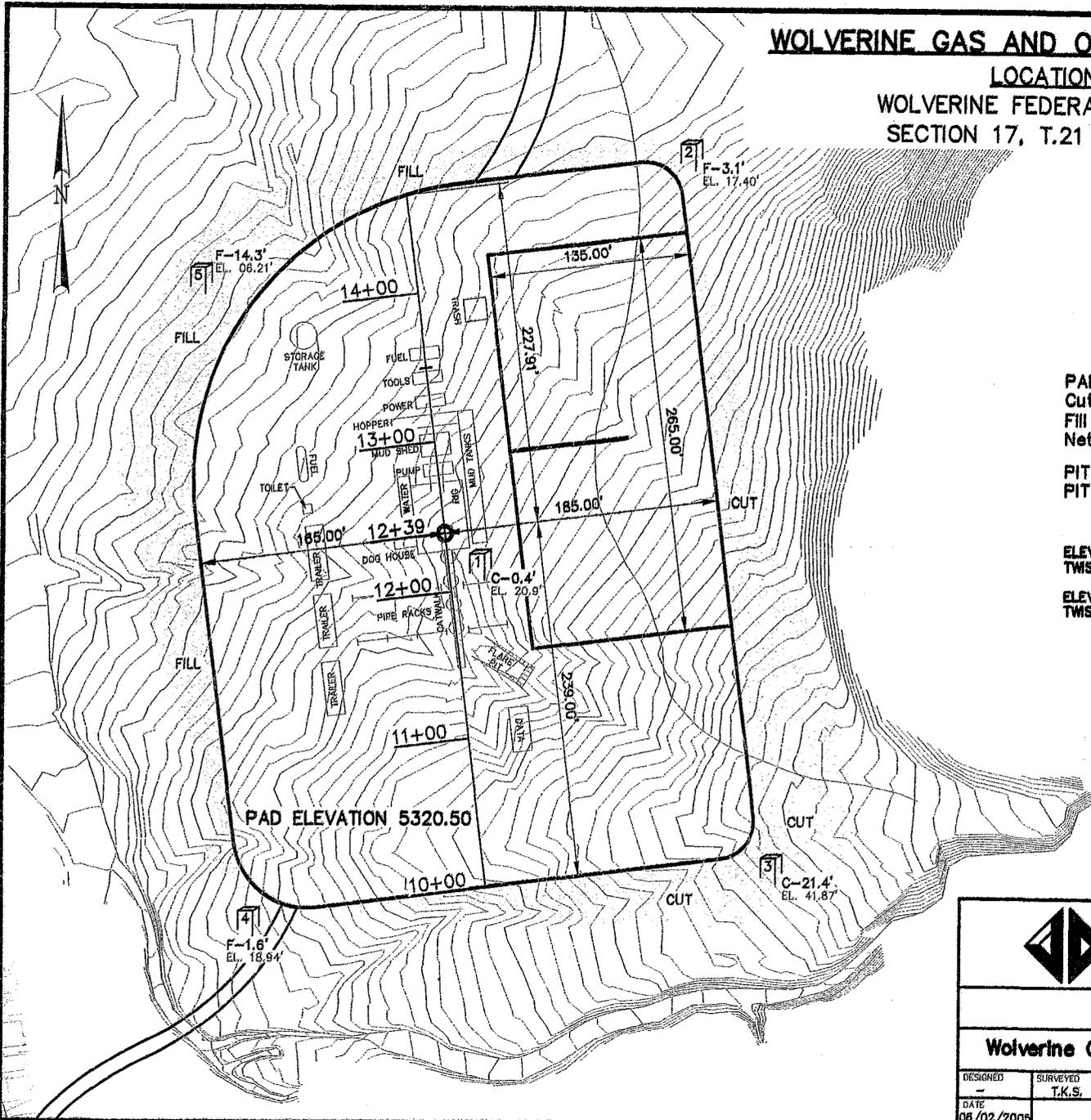


Date: \_\_\_\_\_

7/05/05

**WOLVERINE GAS AND OIL COMPANY OF UTAH, LLC.**

**LOCATION LAYOUT FOR  
WOLVERINE FEDERAL TWIST CANYON #21-1  
SECTION 17, T.21 S., R.1 E., S.L.B.& M.**



**PAD EARTHWORK VOLUMES**  
 Cut = 32771 yards  
 Fill = 26616 yards (25%)  
 Net = 6155 yards CUT

**PIT CAPACITY = 51695 Bbls**  
**PIT VOLUMES = 10750 c.y.**

**ELEV. UNGRADED GROUND AT FEDERAL  
TWIST CANYON #21-1 = 5320.86**

**ELEV. GRADED GROUND AT FEDERAL  
TWIST CANYON #21-1 = 5320.80**

**PAD ELEVATION 5320.50**



**Jones & DeMille Engineering**

1535 South 100 West - Richfield, Utah 84701  
 Phone (435) 896-8266  
 Fax (435) 896-8268  
 www.jonesanddemille.com

**Well Location Layout for**

**Wolverine Gas and Oil Company of Utah, LLC.**

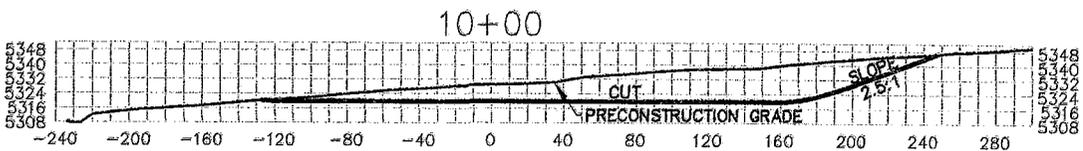
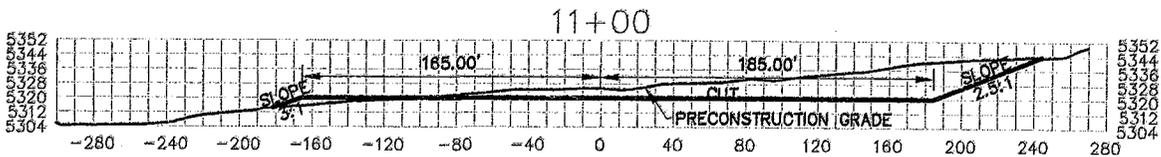
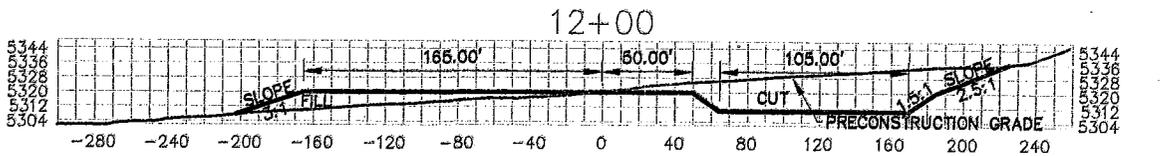
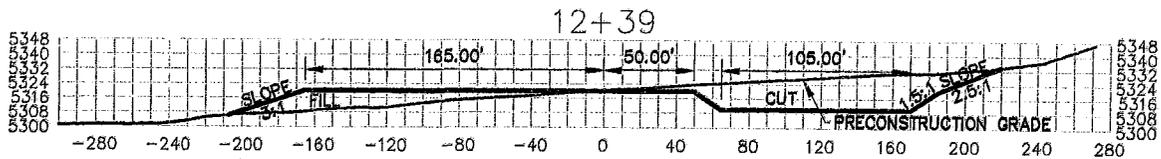
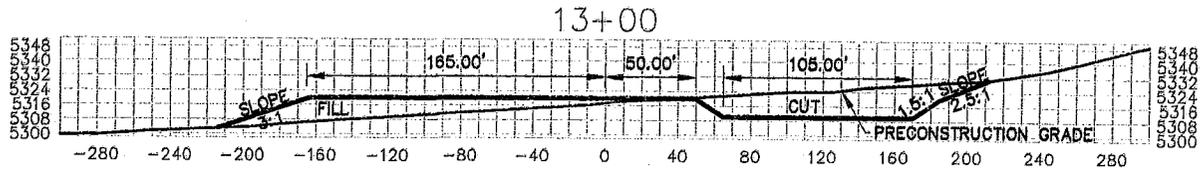
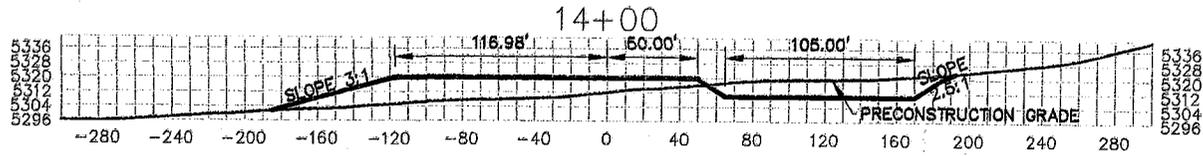
DESIGNED	SURVEYED	CHECKED	DRAWN	PROJECT NO.	SHEET NO.
	T.K.S.	T.R.G.	T.R.G.	0503-097	1
DATE		DWG. NAME	SCALE		
06/02/2008		Design...	1" = 100'		

**COPY**

CONFIDENTIAL

# WOLVERINE GAS AND OIL COMPANY OF UTAH, LLC.

## LOCATION LAYOUT FOR WOLVERINE FEDERAL TWIST CANYON #21-1 SECTION 17, T.21 S., R.1 E., S.L.B.& M.



**Jones & DeMille Engineering**

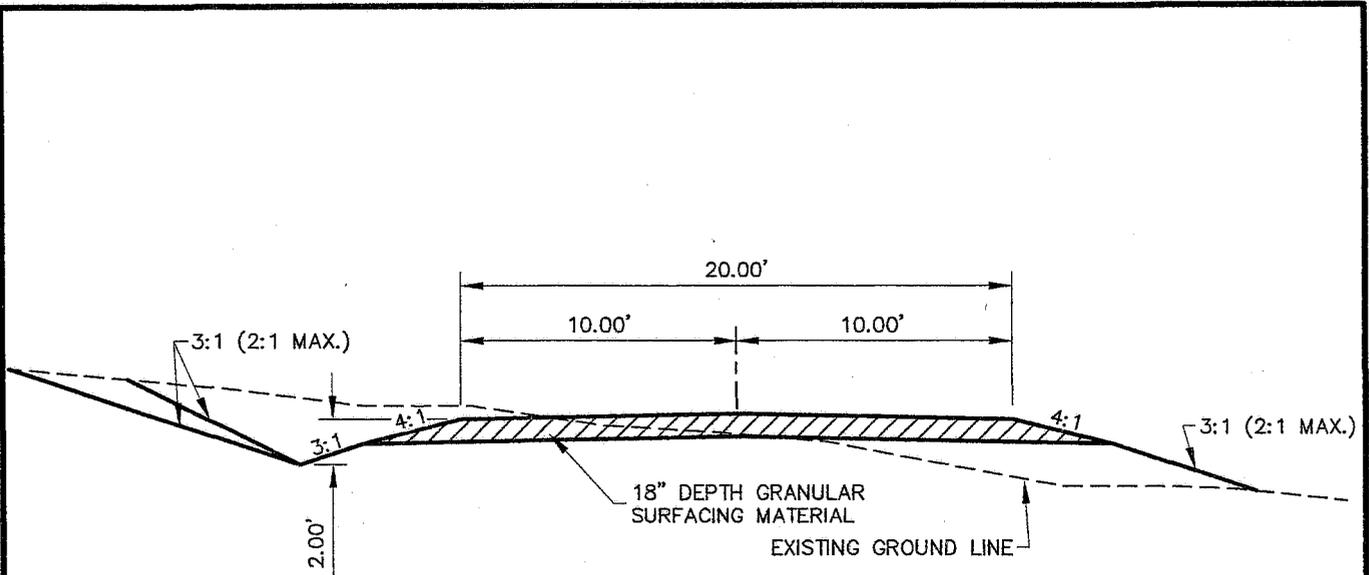
1535 South 100 West - Richfield, Utah 84701  
Phone (435) 896-8266  
Fax (435) 896-8268  
www.jonesanddemille.com

**Typical Cross Sections for**

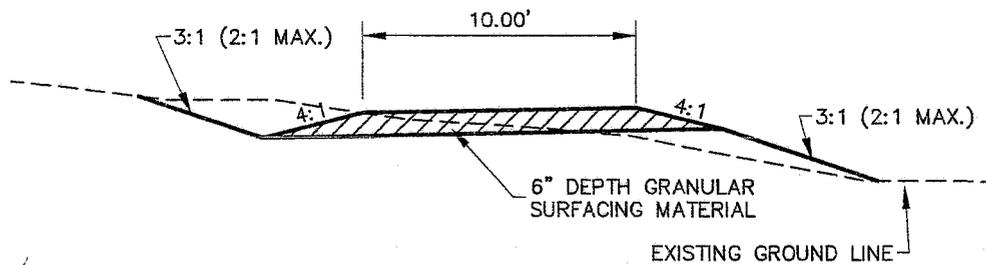
**Wolverine Gas and Oil Company of Utah, LLC.**

DESIGNED	SURVEYED	CHECKED	DRAWN	PROJECT NO.	SHEET NO.
-	T.K.S.	T.R.G.	T.R.G.	0503-097	2
DATE	DWG. NAME	SCALE			
06/02/05	Design...	1" = 100'			

COPY



**TYPICAL SECTION – PAD ACCESS ROAD**



**TYPICAL SECTION – PAD BYPASS ROAD**

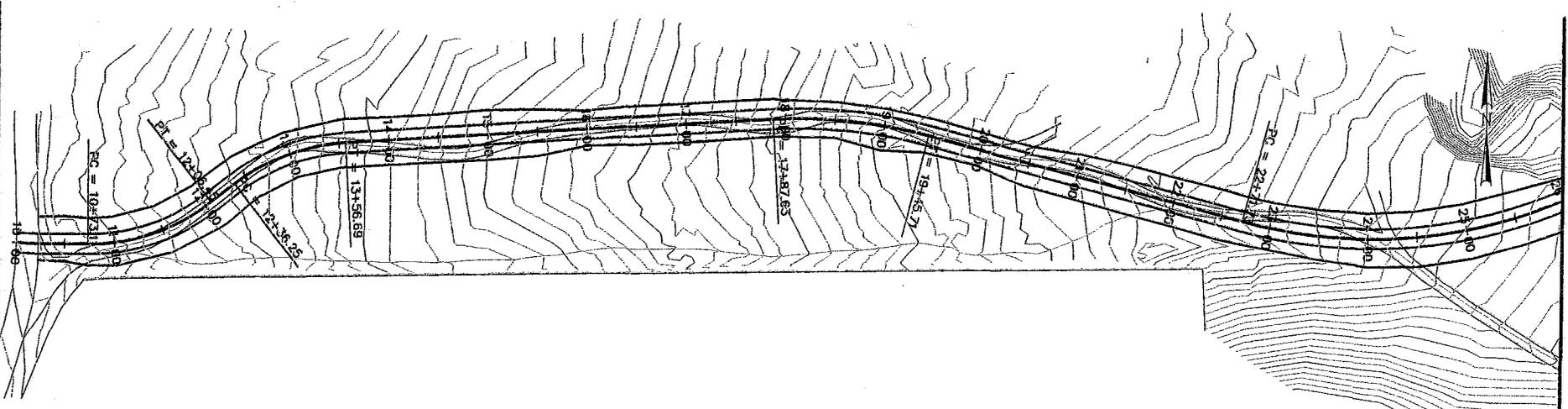


**Jones & DeMille Engineering**  
 1535 South 100 West – Richfield, Utah 84701  
 (435) 896-8266 Phone  
 (435) 896-8268 Fax  
 www.jonesanddemille.com

<b>Typical Sections</b>		
<b>Twist Cyn. – Well 16</b>		
<b>Wolverine Oil &amp; Gas Co.</b>		
SCALE: NONE	ENG.: T.M.J.	PROJ.#: 0503-097
DATE: 05/23/2005	DWG.BY: B.L.L.	DWG.NAME: Design...

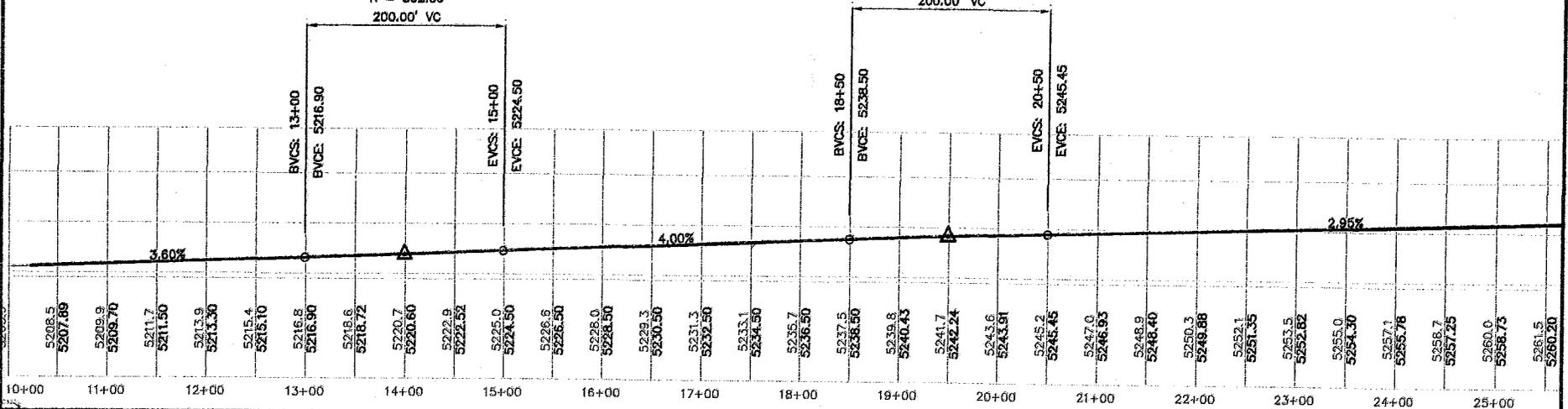
CONFIDENTIAL





PVI STA = 144+00  
 PVI ELEV = 5220.50  
 A.D. = 0.40  
 K = 502.06  
 200.00' VC

PVI STA = 19+50  
 PVI ELEV = 5242.50  
 A.D. = -1.05  
 K = 190.48  
 200.00' VC



**Jones & DeMille Engineering**  
 1535 South 100 West - Richfield, Utah 84701  
 Phone (435) 898-8288  
 Fax (435) 898-8288  
 www.jonesanddemille.com

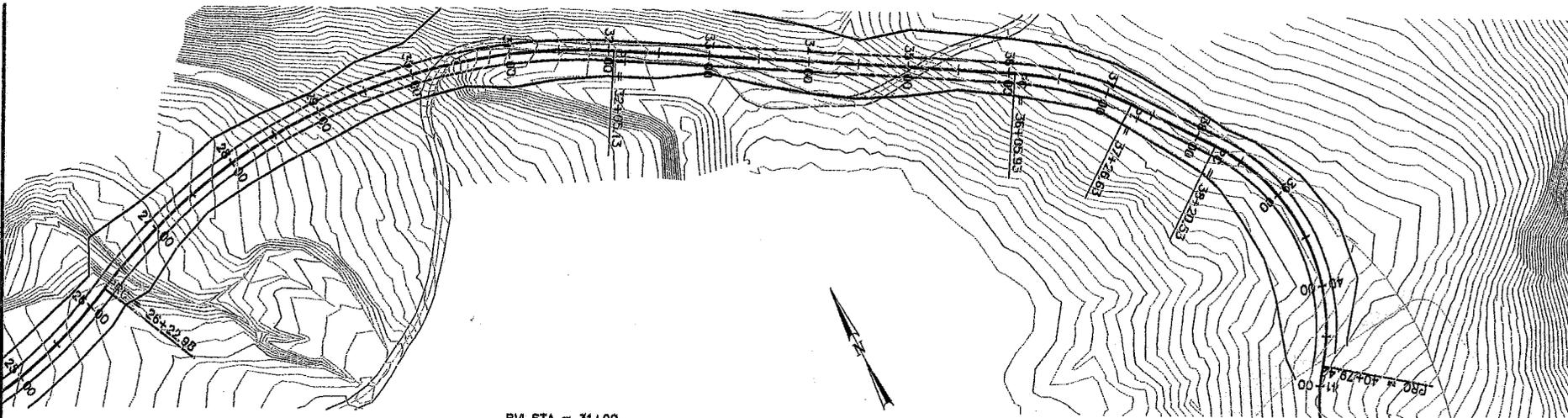
**Wolverine Gas & Oil Company of Utah LLC**  
**Preliminary Pad Design - Access Road**

ENGINEER T.M.J.	DRAWN J.L.A.	SHEET NO. <b>2</b>
CHECKED D.R.	PROJ# 0903-097 DWG. NAME: Well#2-1	
SCALE 1"=100'	DATE 06/06/05	

CONFIDENTIAL

COPY

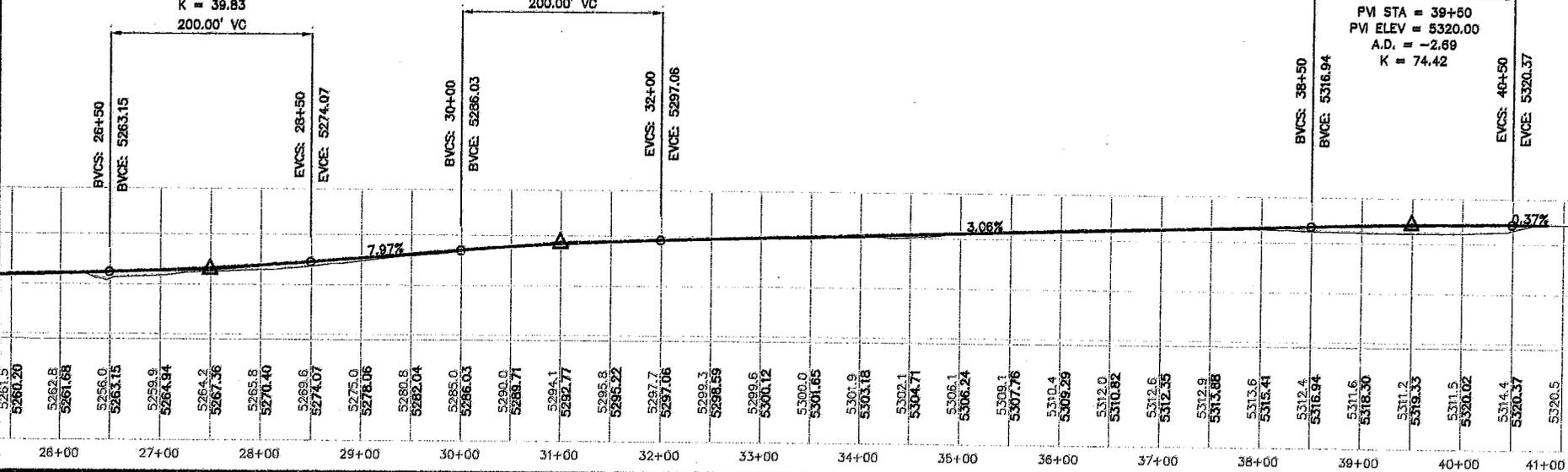
CONFIDENTIAL



PVI STA = 27+50  
 PVI ELEV = 5286.10  
 A.D. = 5.02  
 K = 39.83  
 200.00' VC

PVI STA = 31+00  
 PVI ELEV = 5294.00  
 A.D. = -4.91  
 K = 40.71  
 200.00' VC

200.00' VC  
 PVI STA = 39+50  
 PVI ELEV = 5320.00  
 A.D. = -2.69  
 K = 74.42

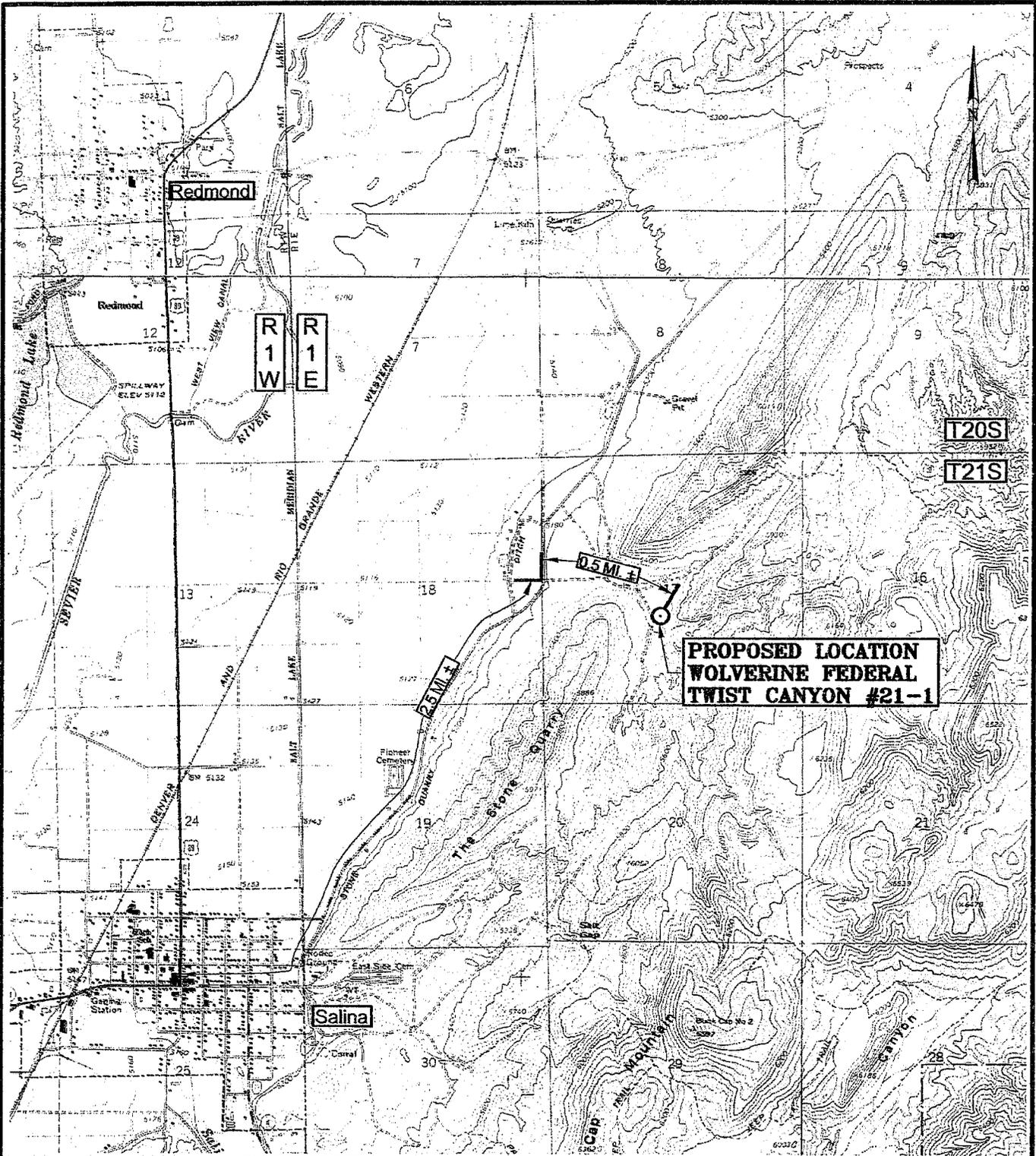


**Jones & DeMille Engineering**  
 1535 South 100 West - Richfield, Utah 84701  
 Phone (435) 896-8286  
 Fax (435) 896-8268  
 www.jonesanddemille.com

**Wolverine Gas & Oil Company of Utah LLC**  
**Preliminary Pad Design - Access Road**

ENGINEER T.M.J.	DRAWN J.L.A.	SHEET NO.
CHECKED D.R.	PROJ: 0803-087 DWG: NM.D...Well12-1	<b>3</b>
SCALE 1"=100'	DATE 06/06/05	

COPY



**LEGEND**

○ PROPOSED LOCATION

**Wolverine Federal Twist Canyon #21-1**  
 Section 17, T.21 S., R.1 E., S.L.B. & M.  
 1910' FSL 2600' FWL



**Jones & DeMille Engineering**

1535 South 100 West - Richfield, Utah 84701  
 (435) 896-8266 Phone  
 (435) 896-8268 Fax  
 www.jonesanddemille.com

**Wolverine Gas & Oil Corp.**

**Wolverine Federal Twist Canyon**  
**#21-1 Location Map**

SCALE: 1" = 3000'	ENG.: D.H.R.	PROJ.# 0503-097
DATE: 06/02/05	DWG.BY: T.R.G.	DWG.NAME: proloc_21-1

# COPY

## PRESSURE CONTROL SYSTEM SCHEMATIC

Prepared by:  
EXACT Engineering, Inc  
Tulsa, OK (918) 599-9400

Operator:

Wolverine Gas & Oil Co. of Utah, LLC

Well name and number

Twist Canyon # 21-1

**5M BOP Stack** — to be utilized while drilling holes for protective and production casings thru lower Arapien, Twin Creek & Navajo intervals

Max. anticipated surface pressure 3000 psi

Annular B.O.P. 13-5/8" - 5M WP

B.O.P. 5" pipe Rams 13-5/8" - 5M W.P.  
(Pipe/Blind)

B.O.P.  
 Manual  
 Hydraulic  
 Sour Trim

B.O.P. blind Rams 13-5/8" - 5M W.P.  
(Pipe/Blind)

Check Valve 2-1/16" 5M WP

Valve 2-1/16" 5M WP

Valve 2-1/16" 5M WP

Valve 3-1/16" 5M WP

Valve 3-1/16" 5M WP

Kill Line Manifold

Manifold Line

Line 3-1/16" 5M WP

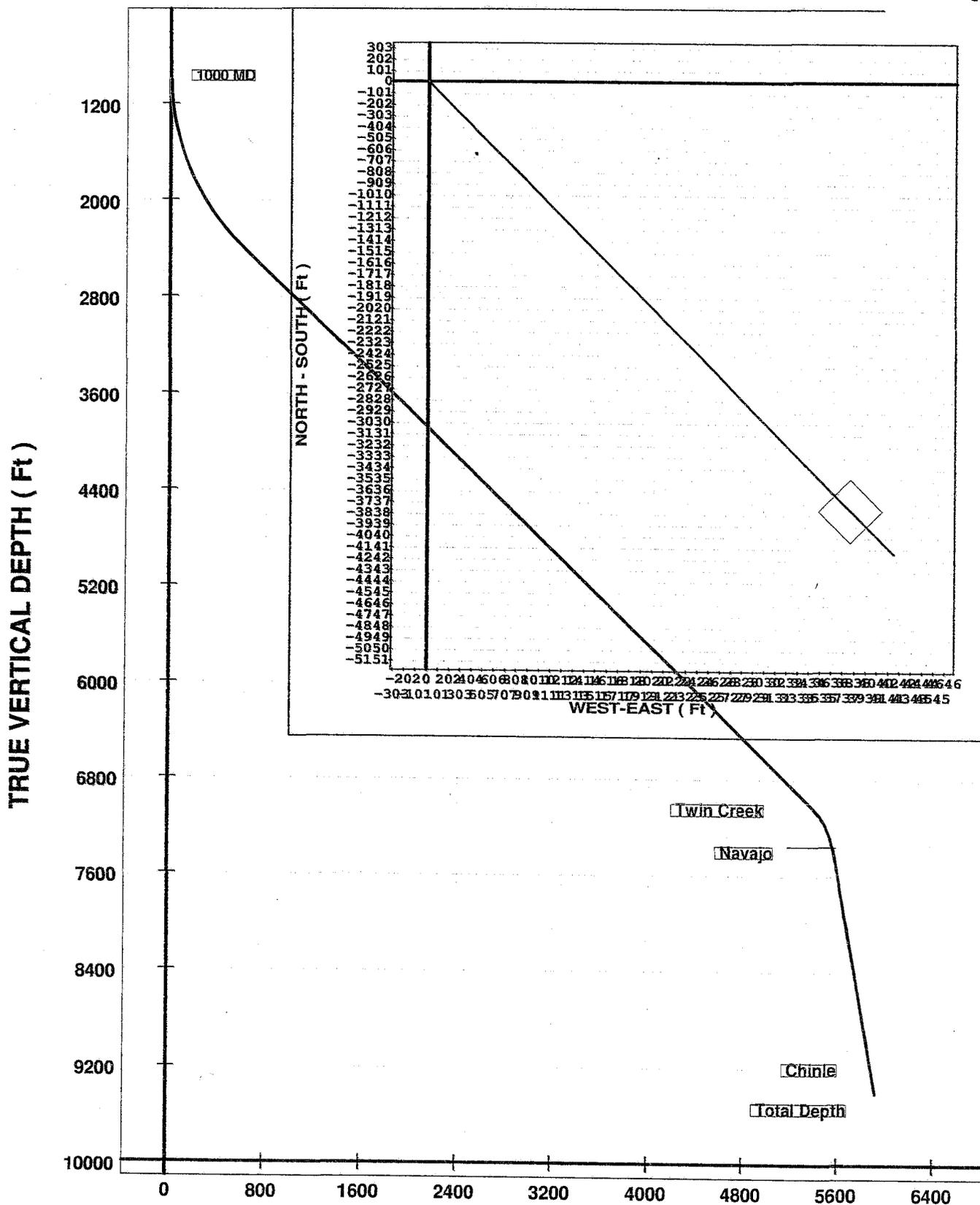
Ground level

Spool 13-5/8" 5M x 13-5/8" 5M x 2-1/16" x 3-1/16" 5M outlets

Wellhead 13-5/8" 5M x 13-5/8" 5M multibowl  
w/ 13-5/8" 5M x 13-3/8" 5M SOW csg head

CONFIDENTIAL

Company: Wolverine Oil & Gas Co of Utah, LLC  
Lease/Well: Twist Canyon 21-1 NVJO  
Location: SHL Sec 17 21S 1E  
State/Country: Sevier Co. Ut.



VERTICAL SECTION ( Ft ) @ 135.00°

CONFIDENTIAL



**Job Number:** \_\_\_\_\_ **State/Country:** Sevier Co. Ut.  
**Company:** Wolverine Oil & Gas Co of Utah, LLC **Declination:** \_\_\_\_\_  
**Lease/Well:** Twist Canyon 21-1 NVJO **Grid:** \_\_\_\_\_  
**Location:** SHL Sec 17 21S 1E **File name:** C:\WINSERVE\SURVEYS\21-1NV2.SVY  
**Rig Name:** \_\_\_\_\_ **Date/Time:** 05-Jun-05 / 20:24  
**RKB:** \_\_\_\_\_ **Curve Name:** \_\_\_\_\_  
**G.L. or M.S.L.:** \_\_\_\_\_

**EXACT Engineering Inc (918) 599-9400**

**WINSERVE SURVEY CALCULATIONS**  
*Minimum Curvature Method*  
*Vertical Section Plane 135.00*  
*Vertical Section Referenced to Wellhead*  
*Rectangular Coordinates Referenced to Wellhead*

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>Course Length FT</i>	<i>True Vertical Depth</i>	<i>Vertical Section FT</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>BUILD RATE Deg/100</i>	<i>WALK RATE Deg/100</i>	<i>Dogleg Severity Deg/100</i>
1000.00	.00	135.00		1000.00	.00	.00	.00	.00	.00	.00
1095.00	2.85	135.00	95.00	1094.96	2.36	-1.67	1.67	3.00	.00	3.00
1190.00	5.70	135.00	95.00	1189.69	9.44	-6.68	6.68	3.00	.00	3.00
1285.00	8.55	135.00	95.00	1283.94	21.23	-15.01	15.01	3.00	.00	3.00
1380.00	11.40	135.00	95.00	1377.50	37.68	-26.64	26.64	3.00	.00	3.00
1475.00	14.25	135.00	95.00	1470.12	58.76	-41.55	41.55	3.00	.00	3.00
1570.00	17.10	135.00	95.00	1561.58	84.43	-59.70	59.70	3.00	.00	3.00
1665.00	19.95	135.00	95.00	1651.64	114.61	-81.04	81.04	3.00	.00	3.00
1760.00	22.80	135.00	95.00	1740.10	149.23	-105.52	105.52	3.00	.00	3.00
1855.00	25.65	135.00	95.00	1826.73	188.21	-133.08	133.08	3.00	.00	3.00
1950.00	28.50	135.00	95.00	1911.31	231.44	-163.65	163.65	3.00	.00	3.00
2045.00	31.35	135.00	95.00	1993.63	278.83	-197.16	197.16	3.00	.00	3.00
2140.00	34.20	135.00	95.00	2073.50	330.25	-233.52	233.52	3.00	.00	3.00
2235.00	37.05	135.00	95.00	2150.71	385.58	-272.65	272.65	3.00	.00	3.00
2330.00	39.90	135.00	95.00	2225.08	444.68	-314.44	314.44	3.00	.00	3.00
2425.00	42.75	135.00	95.00	2296.41	507.41	-358.79	358.79	3.00	.00	3.00
2520.00	45.60	135.00	95.00	2364.54	573.60	-405.60	405.60	3.00	.00	3.00
2529.28	45.88	135.00	9.28	2371.02	580.25	-410.30	410.30	3.00	.00	3.00
2779.28	45.88	135.00	250.00	2545.07	759.71	-537.20	537.20	.00	.00	.00
3029.28	45.88	135.00	250.00	2719.11	939.18	-664.10	664.10	.00	.00	.00
3279.28	45.88	135.00	250.00	2893.16	1118.65	-791.00	791.00	.00	.00	.00
3529.28	45.88	135.00	250.00	3067.20	1298.11	-917.90	917.90	.00	.00	.00
3779.28	45.88	135.00	250.00	3241.25	1477.58	-1044.81	1044.81	.00	.00	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	Course Length FT	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	BUILD RATE Deg/100	WALK RATE Deg/100	Dogleg Severity Deg/100
4029.28	45.88	135.00	250.00	3415.29	1657.04	-1171.71	1171.71	.00	.00	.00
4279.28	45.88	135.00	250.00	3589.34	1836.51	-1298.61	1298.61	.00	.00	.00
4529.28	45.88	135.00	250.00	3763.39	2015.98	-1425.51	1425.51	.00	.00	.00
4779.28	45.88	135.00	250.00	3937.43	2195.44	-1552.41	1552.41	.00	.00	.00
5029.28	45.88	135.00	250.00	4111.48	2374.91	-1679.31	1679.31	.00	.00	.00
5279.28	45.88	135.00	250.00	4285.52	2554.37	-1806.22	1806.22	.00	.00	.00
5529.28	45.88	135.00	250.00	4459.57	2733.84	-1933.12	1933.12	.00	.00	.00
5779.28	45.88	135.00	250.00	4633.61	2913.31	-2060.02	2060.02	.00	.00	.00
6029.28	45.88	135.00	250.00	4807.66	3092.77	-2186.92	2186.92	.00	.00	.00
6279.28	45.88	135.00	250.00	4981.71	3272.24	-2313.82	2313.82	.00	.00	.00
6529.28	45.88	135.00	250.00	5155.75	3451.71	-2440.72	2440.72	.00	.00	.00
6779.28	45.88	135.00	250.00	5329.80	3631.17	-2567.63	2567.63	.00	.00	.00
7029.28	45.88	135.00	250.00	5503.84	3810.64	-2694.53	2694.53	.00	.00	.00
7279.28	45.88	135.00	250.00	5677.89	3990.10	-2821.43	2821.43	.00	.00	.00
7529.28	45.88	135.00	250.00	5851.93	4169.57	-2948.33	2948.33	.00	.00	.00
7779.28	45.88	135.00	250.00	6025.98	4349.04	-3075.23	3075.23	.00	.00	.00
8029.28	45.88	135.00	250.00	6200.03	4528.50	-3202.13	3202.13	.00	.00	.00
8279.28	45.88	135.00	250.00	6374.07	4707.97	-3329.04	3329.04	.00	.00	.00
8529.28	45.88	135.00	250.00	6548.12	4887.43	-3455.94	3455.94	.00	.00	.00
8779.28	45.88	135.00	250.00	6722.16	5066.90	-3582.84	3582.84	.00	.00	.00
9029.28	45.88	135.00	250.00	6896.21	5246.37	-3709.74	3709.74	.00	.00	.00
<b>Twin Creek</b>										
9207.09	45.88	135.00	177.81	7020.00	5374.01	-3800.00	3800.00	.00	.00	.00
9302.09	36.90	135.00	95.00	7091.20	5436.76	-3844.37	3844.37	-9.45	.00	9.45
9397.09	27.93	135.00	95.00	7171.32	5487.63	-3880.34	3880.34	-9.45	.00	9.45
9492.09	18.95	135.00	95.00	7258.39	5525.38	-3907.03	3907.03	-9.45	.00	9.45
9586.73	10.01	135.00	94.64	7349.93	5549.01	-3923.75	3923.75	-9.45	.00	9.45
<b>Navajo</b>										
9586.81	10.01	135.00	.07	7350.00	5549.03	-3923.75	3923.75	-.01	.00	.01
9681.81	10.01	135.00	95.00	7443.56	5565.53	-3935.43	3935.43	.00	.00	.00
9776.81	10.01	135.00	95.00	7537.11	5582.04	-3947.10	3947.10	.00	.00	.00
9871.81	10.01	135.00	95.00	7630.67	5598.55	-3958.77	3958.77	.00	.00	.00
9966.81	10.01	135.00	95.00	7724.22	5615.05	-3970.44	3970.44	.00	.00	.00
10061.81	10.01	135.00	95.00	7817.78	5631.56	-3982.11	3982.11	.00	.00	.00
10156.81	10.00	135.00	95.00	7911.33	5648.06	-3993.78	3993.78	.00	.00	.00
10251.81	10.00	135.00	95.00	8004.89	5664.57	-4005.45	4005.45	.00	.00	.00
10346.81	10.00	135.00	95.00	8098.44	5681.07	-4017.12	4017.12	.00	.00	.00
10441.81	10.00	135.00	95.00	8192.00	5697.57	-4028.79	4028.79	.00	.00	.00
10536.81	10.00	135.00	95.00	8285.55	5714.08	-4040.46	4040.46	.00	.00	.00
10631.81	10.00	135.00	95.00	8379.11	5730.58	-4052.13	4052.13	.00	.00	.00
10726.81	10.00	135.00	95.00	8472.67	5747.08	-4063.80	4063.80	.00	.00	.00
10821.81	10.00	135.00	95.00	8566.22	5763.58	-4075.47	4075.47	.00	.00	.00
10916.81	10.00	135.00	95.00	8659.78	5780.08	-4087.13	4087.13	.00	.00	.00
11011.81	10.00	135.00	95.00	8753.33	5796.58	-4098.80	4098.80	.00	.00	.00

CONFIDENTIAL

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	Course Length FT	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	BUILD RATE Deg/100	WALK RATE Deg/100	Dogleg Severity Deg/100
11106.81	10.00	135.00	95.00	8846.89	5813.08	-4110.47	4110.47	.00	.00	.00
11201.81	10.00	135.00	95.00	8940.45	5829.58	-4122.13	4122.13	.00	.00	.00
11296.81	10.00	135.00	95.00	9034.00	5846.07	-4133.80	4133.80	.00	.00	.00
11391.81	10.00	135.00	95.00	9127.56	5862.57	-4145.46	4145.46	.00	.00	.00
11480.35	10.00	135.00	88.55	9214.76	5877.95	-4156.34	4156.34	.00	.00	.00

<b>Chinle</b>										
11480.50	10.00	135.00	.15	9214.90	5877.97	-4156.35	4156.35	.00	.00	.00

11480.72	10.00	135.00	.22	9215.12	5878.01	-4156.38	4156.38	.00	.00	.00
----------	-------	--------	-----	---------	---------	----------	---------	-----	-----	-----

<b>Total Depth</b>										
11668.46	10.00	135.00	187.74	9400.01	5910.61	-4179.43	4179.43	.00	.00	.00

**WORKSHEET  
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 07/07/2005

API NO. ASSIGNED: 43-041-30042

WELL NAME: WOLVERINE FED TWIST CYN 21-1  
 OPERATOR: WOLVERINE GAS & OIL CO ( N1655 )  
 CONTACT: ED HIGUERA

PHONE NUMBER: 616-458-1150

PROPOSED LOCATION:

NESW 17 210S 010E  
 SURFACE: 1910 FSL 2600 FWL  
 SWNW BOTTOM: 2000 FNL 0600 FWL Sec 21  
 SEVIER  
 WILDCAT ( 1 )

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: 1 - Federal  
 LEASE NUMBER: UTU-80587  
 SURFACE OWNER: 1 - Federal  
 PROPOSED FORMATION: NAVA  
 COALBED METHANE WELL? NO

LATITUDE: 38.97990  
 LONGITUDE: -111.8227

RECEIVED AND/OR REVIEWED:

- Plat
- Bond: Fed[1] Ind[] Sta[] Fee[]  
(No. WY3329 )
- Potash (Y/N)
- Oil Shale 190-5 (B) or 190-3 or 190-13
- Water Permit  
(No. MUNICIPAL )
- RDCC Review (Y/N)  
(Date: \_\_\_\_\_ )
- Fee Surf Agreement (Y/N)

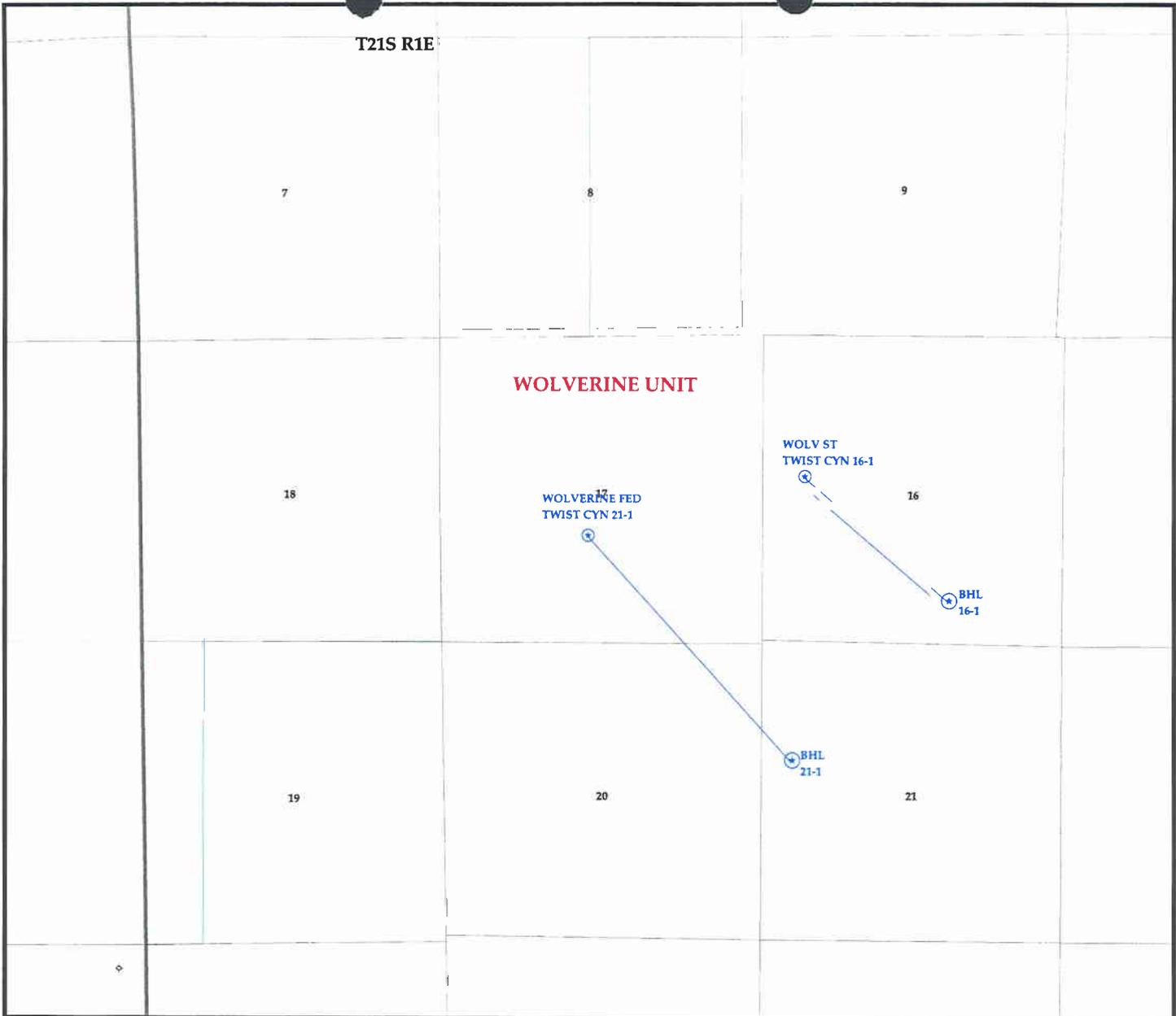
LOCATION AND SITING:

- R649-2-3.
- Unit WOLVERINE
- R649-3-2. General  
Siting: 460 From Qtr/Qtr & 920' Between Wells
- R649-3-3. Exception
- Drilling Unit  
Board Cause No: \_\_\_\_\_  
Eff Date: \_\_\_\_\_  
Siting: \_\_\_\_\_
- R649-3-11. Directional Drill

COMMENTS: \_\_\_\_\_

STIPULATIONS: \_\_\_\_\_

*1- Federal Approval  
2- Spacing Strip*



OPERATOR: WOLVERINE G&O (N1655)  
 SEC: 17 T. 21S R. 1E  
 FIELD: WILDCAT (001)  
 COUNTY: SEVIER  
 SPACING: R649-3-11 / DIRECTIONAL DRILLING



Wells	Units.shp	Fields.shp
♣ GAS INJECTION	□ EXPLORATORY	□ ABANDONED
⊕ GAS STORAGE	□ GAS STORAGE	□ ACTIVE
× LOCATION ABANDONED	□ NF PP OIL	□ COMBINED
⊙ NEW LOCATION	□ NF SECONDARY	□ INACTIVE
◇ PLUGGED & ABANDONED	□ PENDING	□ PROPOSED
⊛ PRODUCING GAS	□ PI OIL	□ STORAGE
⊛ PRODUCING OIL	□ PP GAS	□ TERMINATED
⊛ SHUT-IN GAS	□ PP GEOTHERML	
⊛ SHUT-IN OIL	□ PP OIL	
× TEMP. ABANDONED	□ SECONDARY	
⊙ TEST WELL	□ TERMINATED	
△ WATER INJECTION		
⊕ WATER SUPPLY		
♣ WATER DISPOSAL		



PREPARED BY: DIANA WHITNEY  
 DATE: 11-JULY-2005

# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, Utah 84145-0155

IN REPLY REFER TO:

3160

(UT-922)

July 12, 2005

Memorandum

To: Field Office Manger, Richfield Field Office  
From: Michael Coulthard, Petroleum Engineer  
Subject: 2005 Plan of Development Wolverine Unit  
Sevier County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following well is planned for calendar year 2005 within the Wolverine Unit, Sevier County, Utah.

API#	WELL NAME	LOCATION
------	-----------	----------

(Proposed PZ Navajo)

43-041-30042	Wolverine Fed Twist Cyn	21-1 Sec 17 T21S R01E 1910 FSL 2600 FWL
	BHL	Sec 21 T21S R01E 2000 FNL 0600 FWL

Please be advised that this location will qualify for the second obligation well for the Wolverine Unit Agreement. This office has no objection to permitting the well at this time.

/s/ Michael L. Coulthard

bcc: File - Wolverine Unit  
Division of Oil Gas and Mining  
Central Files  
Agr. Sec. Chron  
Fluid Chron

MCoulthard:mc:7-12-05



**State of Utah**

**Department of  
Natural Resources**

MICHAEL R. STYLER  
*Executive Director*

**Division of  
Oil, Gas & Mining**

JOHN R. BAZA  
*Division Director*

JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

July 12, 2005

Wolverine Gas & Oil Company of Utah, LLC  
55 Campau NW  
Grand Rapids, MI 49503-2616

Re: Wolverine Federal Twist Canyon 21-1 Well, Surface Location 1910' FSL,  
2600' FWL, NE SW, Sec. 17, T. 21 South, R. 1 East,  
Bottom Location 2000' FNL, 600' FWL, SW NW, Sec. 21,  
T. 21 South, R. 1 East, Sevier County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-041-30042.

Sincerely,

Gil Hunt  
Acting Associate Director

pab  
Enclosures

cc: Sevier County Assessor  
Bureau of Land Management, Moab District Office  
Bureau of Land Management, Utah State Office

Operator: Wolverine Gas & Oil Company of Utah, LLC  
Well Name & Number Wolverine Federal Twist Canyon 21-1  
API Number: 43-041-30042  
Lease: UTU-80587

Surface Location: NE SW      Sec. 17      T. 21 South      R. 1 East  
Bottom Location: SW NW      Sec. 21      T. 21 South      R. 1 East

### Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

Notify the Division within 24 hours of spudding the well.

- Contact Carol Daniels at (801) 538-5284.

Notify the Division prior to commencing operations to plug and abandon the well.

- Contact Dan Jarvis at (801) 538-5338

3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

5. In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

Page 2  
API #43-041-30042  
July 12, 2005

6. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.



**State of Utah**

**Department of  
Natural Resources**

MICHAEL R. STYLER  
*Executive Director*

**Division of  
Oil, Gas & Mining**

JOHN R. BAZA  
*Division Director*

JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

August 21, 2006

Ed Higuera  
Wolverine G&O Co. of Utah LLC  
55 Campau NW  
Grand Rapids, MI 49503-2616

Re: APD Rescinded –Wolverine Fed Twist Canyon 21-1 Sec. 17 T. 21S R. 1E  
Sevier County, Utah API No. 43-041-30042

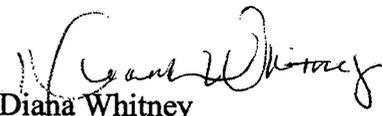
Dear Mr. Higuera:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on July 12, 2005. On August 21, 2006, you requested that the division rescind the state approved APD. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective August 21, 2006.

A new APD must be filed with this office for approval prior to the commencement of any future work on the subject location.

If any previously unreported operations have been performed on this well location, it is imperative that you notify the Division immediately.

Sincerely,

  
Diana Whitney  
Engineering Technician

cc: Well File  
Bureau of Land Management, Moab

43-041-30042



# United States Department of the Interior



## BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, UT 84145-0155

<http://www.blm.gov/ut/st/en.html>

IN REPLY REFER TO:

3160

UTU80800X

(UT922100)

**JUN 26 2012**

Wolv St Twist Cyn 21-1  
21 9 IE 17

RECEIVED

JUN 28 2012

DIV OF OIL, GAS & MINING

Mr. Richard Moritz  
One Riverfront Plaza  
55 Campau, N.W.  
Grand Rapids, MI 49503-2616

Re: Automatic Contraction  
Wolverine Unit  
Sanpete & Sevier Counties, Utah

Dear Mr. Moritz:

Your letter of June 20, 2012, describes the lands automatically eliminated effective March 16, 2012, from the Wolverine Unit Area, Sanpete & Sevier Counties, Utah, pursuant to Section 2(e) of the unit agreement and requests our concurrence. The lands you have described contain 68,062.645 acres, more or less, and contain all legal subdivisions, no parts of which are in the 7th Revision of the Navajo Participating Area "A" and the Initial Navajo 1 Formation - Carbon Sequestration a/k/a Providence Participating Area. As a result of the automatic elimination, the unit is reduced to 2,080.92 acres.

The following Federal Leases are entirely eliminated from the unit area.

- |           |           |           |           |
|-----------|-----------|-----------|-----------|
| UTU 73155 | UTU 74851 | UTU 78183 | UTU 82687 |
| UTU 73157 | UTU 74852 | UTU 80587 | UTU 82690 |
| UTU 73158 | UTU 74853 | UTU 80906 | UTU 80951 |
| UTU 73160 | UTU 74854 | UTU 80908 |           |
| UTU 73529 | UTU 76453 | UTU 80909 |           |
| UTU 73530 | UTU 76454 | UTU 80910 |           |
| UTU 74370 | UTU 76455 | UTU 80911 |           |
| UTU 74850 | UTU 76456 | UTU 80955 |           |

The following Federal Leases are partially eliminated from the unit area.

- |           |           |           |
|-----------|-----------|-----------|
| UTU 73156 | UTU 73528 | UTU 80907 |
|-----------|-----------|-----------|