

**ENDURING RESOURCES, LLC**

425 Seventeenth Street, Suite 1500

Denver, Colorado 80202

Telephone: 303-573-1222

Facsimile: 303-573-0461

August 3, 2006

State of Utah  
Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Attention: Ms. Diana Whitney

**RE: Exception Well Location  
Southam Canyon 9-25-14-31  
SWSW Section 31-T9S-R25E BHL  
NWNW 6-T10S-R25E Surface  
660' FSL - 659' FWL BHL  
526' FNL - 475' FWL Surface  
Lease Serial No.: ML-45560  
Uintah County, Utah**

Dear Ms. Whitney:

Enduring Resources, LLC ("ERLLC") plans to drill the above-referenced well from a multi-well pad to limit surface impact and drilling on steep slopes.

ERLLC is the only leasehold interest owner within 460 feet of any part of the above-referenced proposed well's proposed well bore, therefore,

*A. ERLLC also grants itself permission for an exception well location.*

In the event there are any other outstanding matters preventing these APD's from being approved, please let me know at your earliest convenience, 303-350-5719 ([ebissett@enduringresources.com](mailto:ebissett@enduringresources.com)).

Very truly yours



**ENDURING RESOURCES, LLC**

Evette Bissett

Regulatory Compliance Assistant

**RECEIVED**

**AUG 07 2006**

**DIV. OF OIL, GAS & MINING**



***Enduring Resources***

475 17<sup>TH</sup> Street Suite 1500 Denver Colorado 80202  
Telephone 303 573-1222 Fax 303 573 0461

August 3, 2006

Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
P. O. Box 145801  
Salt Lake City, Utah 84114-5801

Attn.: Ms. Diana Whitney

RE: Enduring Resources, LLC  
Southam Canyon 9-25-14-31  
SW-SW 31-9S-25E BHL  
NW-NW 6-10S-25E Surface  
State Lease: ML-45560  
Uintah County, Utah

Dear Ms. Whitney:

Enclosed are two original applications to drill concerning the above-referenced proposed well. This information was also submitted to SITLA.

Enduring Resources, LLC is requesting the Utah Division of Oil, Gas and Mining to hold this application and all future information as confidential.

If any questions arise or additional information is required, please contact me at 303-350-5719

Very truly yours,

**ENDURING RESOURCES, LLC**  
Evette Bissett  
Regulatory Compliance Assistant

Enclosures  
cc: SITLA w/ attachments

**RECEIVED**

**AUG 07 2006**

**DIV. OF OIL, GAS & MINING**

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 3

AMENDED REPORT   
(highlight changes)

<b>APPLICATION FOR PERMIT TO DRILL</b>			5. MINERAL LEASE NO: ML-45560	6. SURFACE: State
1A. TYPE OF WORK: DRILL <input checked="" type="checkbox"/> REENTER <input type="checkbox"/> DEEPEN <input type="checkbox"/>			7. IF INDIAN, ALLOTTEE OR TRIBE NAME:	
B. TYPE OF WELL: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> OTHER _____ SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>			8. UNIT or CA AGREEMENT NAME:	
2. NAME OF OPERATOR: Enduring Resources, LLC			9. WELL NAME and NUMBER: Southam Canyon 9-25-14-31	
3. ADDRESS OF OPERATOR: 475 17th St., Ste 1500 CITY Denver STATE CO ZIP 80220		PHONE NUMBER: (303) 350-5719	10. FIELD AND POOL, OR WILDCAT: Undesignated	
4. LOCATION OF WELL (FOOTAGES) <i>657891X 4427372 Y 39.983672 -109.150827</i> AT SURFACE: 526' FNL - 475' FWL NWNW 6-10S-25E AT PROPOSED PRODUCING ZONE: 660' FSL - 659' FWL SWSW 31-9S-25E <i>657941X 4427734 Y 39.986921 -109.150158</i>			11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWNW 6 10S 25E	
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE: 4.1 Southeast of Bonanza, UT			12. COUNTY: Uintah	13. STATE: UTAH
15. DISTANCE TO NEAREST PROPERTY OR LEASE LINE (FEET) 475'	16. NUMBER OF ACRES IN LEASE: 1000+	17. NUMBER OF ACRES ASSIGNED TO THIS WELL: 40 acres		
18. DISTANCE TO NEAREST WELL (DRILLING, COMPLETED, OR APPLIED FOR) ON THIS LEASE (FEET) 1000' +	19. PROPOSED DEPTH: 5,940	20. BOND DESCRIPTION: RLB0008031		
21. ELEVATIONS (SHOW WHETHER DF, RT, GR, ETC.): 5363' RT-KB	22. APPROXIMATE DATE WORK WILL START: 10/1/2006	23. ESTIMATED DURATION: 20 days		

**PROPOSED CASING AND CEMENTING PROGRAM**

SIZE OF HOLE	CASING SIZE, GRADE, AND WEIGHT PER FOOT			SETTING DEPTH	CEMENT TYPE, QUANTITY, YIELD, AND SLURRY WEIGHT			
20"	14"	line pipe		40	3 yards	Ready Mix		
11"	8-5/8"	J-55	24#	2,016	Premium Lead	138 sxs	3.50	11.1
					Premium Tail	138 sxs	1.15	15.8
7-7/8"	4-1/2"	N-80	11.6#	5,940	Class G	34 sxs	3.3	11.0
					50/50 Poz Class G	703 sxs	1.56	14.3

**ATTACHMENTS**

VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER     | <input checked="" type="checkbox"/> COMPLETE DRILLING PLAN                                   |
| <input checked="" type="checkbox"/> EVIDENCE OF DIVISION OF WATER RIGHTS APPROVAL FOR USE OF WATER | <input type="checkbox"/> FORM 5, IF OPERATOR IS PERSON OR COMPANY OTHER THAN THE LEASE OWNER |

NAME (PLEASE PRINT) Evette Bissett TITLE Regulatory Compliance Assistant  
SIGNATURE *Evette Bissett* DATE 8/3/2006

(This space for State use only)

API NUMBER ASSIGNED: 43-047-38451

**Approved by the  
Utah Division of  
Oil, Gas and Mining**

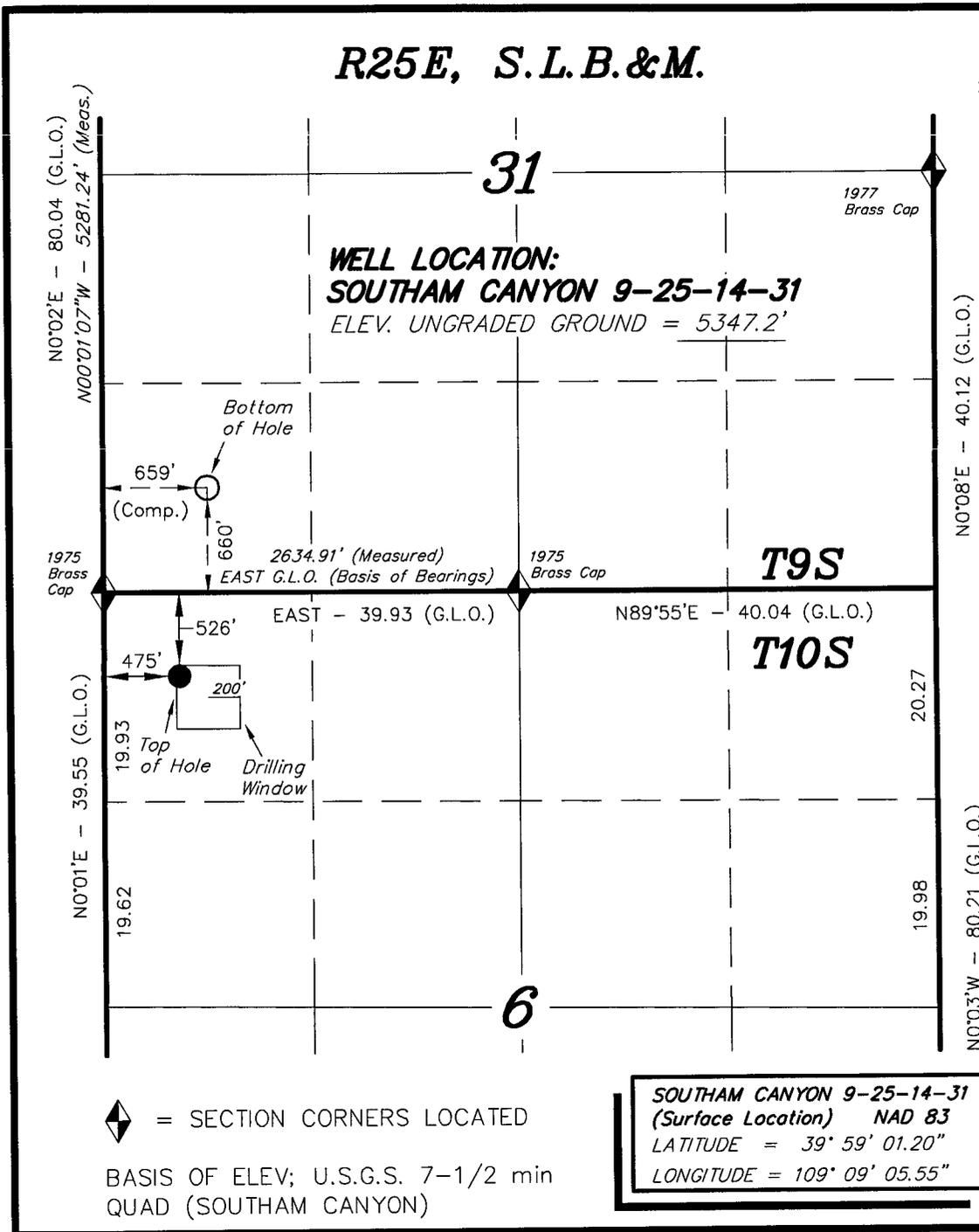
APPROVAL:  
Date: 01-31-2006  
By: *[Signature]*

**RECEIVED  
AUG 07 2006**

DIV. OF OIL, GAS & MINING

# R25E, S.L.B.&M.

## ENDURING RESOURCES

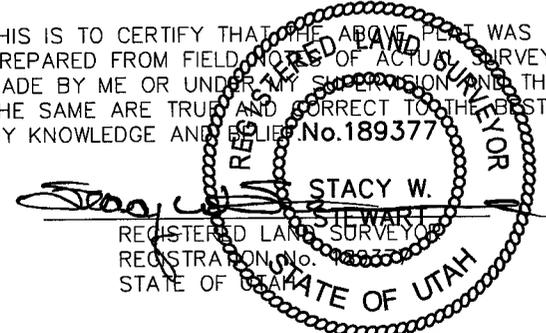


WELL LOCATION, SOUTHAM CANYON  
 9-25-14-31, LOCATED AS SHOWN IN  
 THE NW 1/4 NW 1/4 OF SECTION 6,  
 T10S, R25E, S.L.B.&M. UINTAH COUNTY,  
 UTAH.



- NOTES:**
1. The Bottom of hole bears N08°53'25"E 1201.07' from the Top of Hole.
  2. The Proposed Well head bears N41°57'37"W 707.55' from the Northwest Corner of Section 6.

THIS IS TO CERTIFY THAT THE ABOVE PLAN 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 No.189377



◆ = SECTION CORNERS LOCATED  
 BASIS OF ELEV; U.S.G.S. 7-1/2 min  
 QUAD (SOUTHAM CANYON)

**SOUTHAM CANYON 9-25-14-31**  
 (Surface Location) NAD 83  
 LATITUDE = 39° 59' 01.20"  
 LONGITUDE = 109° 09' 05.55"

<b>TRI STATE LAND SURVEYING &amp; CONSULTING</b> 180 NORTH VERNAL AVE. - VERNAL, UTAH 84078 (435) 781-2501		
DATE DRAWN: 06-30-06	SURVEYED BY: J.H.	SHEET <b>2</b>
REVISED: 07-26-06	DRAWN BY: F.T.M.	
NOTES:	SCALE: 1" = 1000'	OF 10

**Enduring Resources, LLC  
Southam Canyon 9-25-14-31  
SW-SW 31-9S-25E BHL  
NW-NW 6-10S-25E Surface  
Uintah County, Utah  
State Lease: ML-45560**

**ONSHORE ORDER 1 - DRILLING PLAN**

**1. Estimated Tops of Geological Markers:**

Formation	Depth (K.B.)
Uinta	Surface
Green River	528
Wasatch	2488
Mesaverde	3713

**2. Estimated Depths of Anticipated Water, Oil, Gas or Other Minerals:**

Substance	Formation	Depth (K.B.)
	KB-Uinta Elevation: 5363'	
Oil / Gas	Green River	528
Oil /Gas	Wasatch	2488
Oil /Gas	Mesaverde	3713
	Estimated TD	5940
	Estimated MD	6192

A 11" hole will be drilled to approximately 2000 feet. The depth will be determined by the depth that the Birds Nest zone is encountered. The hole will be drilled 400 feet beyond the top of the Birds Nest zone and surface casing will be set.

**3. Pressure Control Equipment: (3000 psi schematic attached)**

- A. Type: Eleven (11) inch double gate hydraulic BOP with eleven (11) inch annular preventer on 3,000 psi casinghead, with 3,000 psi choke manifold equipped per the attached diagram. BOPE as specified in *Onshore Oil & Gas Order Number 2*. A PVT, stroke counter and flow sensor will be installed to check for flow and monitor pit volume.
- B. Pressure Rating: 3,000 psi BOPE
- C. Kelly will be equipped with upper and lower Kelly valves.
- D. Testing Procedure: Annular Preventer

At a minimum, the annular preventer will be pressure tested to 50% of the stack rated working pressure for a period of ten (10) minutes or until provisions of the test are met, whichever is longer.

At a minimum, the above pressure test will be performed:

1. When the annular preventer is initially installed;
2. Whenever any seal subject to test pressure is broken;
3. Following related repairs; and
4. At thirty (30) day intervals.

In addition to the above, the annular preventer will be functionally operated at least weekly.

**Blow-Out Preventer**

At a minimum, the BOP, choke manifold, and related equipment will be pressure tested to the approved working pressure of the BOP stack (if isolated from the surface casing by a test plug) or to 70% of the internal yield strength of the surface casing (if the BOP is not isolated from the casing by a test plug). Pressure will be maintained for a period of at least ten (10) minutes or until the requirements of the test are met, whichever is longer.

At a minimum, the above 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
4. At thirty (30) day intervals.

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

**E. Miscellaneous Information:**

The blowout preventer and related pressure control equipment will be installed, tested and maintained in compliance with the specifications in and requirements of *Onshore Oil & Gas Order Number 2*.

**4. Proposed Casing & Cementing Program:**

**A. Casing Program: All New**

Hole Size	Casing Size	Wt./Ft.	Grade	Joint	Depth Set (MD)
20"	14" O.D.				40' (GL)
11"	8-5/8"	24#	J-55	ST&C	0 – 2,016' (KB) est.
7-7/8"	4-1/2"	11.6#	N-80	LT&C	0 – 6192' (KB)

The surface casing will have guide shoe, 1 joint, insert float collar. Centralize the shoe joint with bowspring centralizers in the middle and top of the joint and the next 16 joints

with bowspring centralizers on every other collar (8 centralizers total). Thread lock guide shoe.

Casing string(s) will be pressure tested to 0.22 psi/foot of casing string length or 1500 psi, whichever is greater (not to exceed 70% of the internal yield strength of the casing), after cementing and prior to drilling out from under the casing shoe.

**B. Casing Design Parameters:**

Depth (MD)	Casing	Collapse(psi)/SF	Burst (psi)/SF	Tension(mlbs)/SF
40' (GL)	14" OD			
2016' (KB)	8-5/8", 24#/ft, J55, STC	1370/1.52(a)	2950/3.28(b)	244/5.81(c)
6192' (KB)	4-1/2", 11.6#/ft, N-80, LTC	6350/1.97(d)	7780/2.63(e)	223/3.61(f)

- (a.) based on full evacuation of pipe with 8.6 ppg fluid on annulus
- (b.) based on 8.6 ppg gradient with no fluid on annulus
- (c.) based on casing string weight in 8.6 ppg mud
- (d.) based on full evacuation of pipe with 10.0 ppg fluid on annulus
- (e.) based on 9.2 ppg gradient, gas to surface, with no fluid on annulus, no gas gradient
- (f.) based on casing string weight in 9.2 ppg mud

**PROPOSED CEMENTING PROGRAM**

**Surface Casing (if well will circulate)-Cemented to surface**

CASING	SLURRY	FT. of FILL	CEMENT TYPE	SXS	EXCESS (%)	WEIGHT (ppg)	YIELD (ft <sup>3</sup> /sx)
8-5/8"	Lead	1516	Premium cement + 16% gel + 0.25 pps celloflake	138	25%	11.1	3.50
8-5/8"	Tail	500	Premium cement + 2% CaCl <sub>2</sub> + 0.25 pps celloflake	138	25%	15.8	1.15

A cement top job is required if cement fallback is greater than 10' below ground level. Top job (weight 15.8 ppg, yield 1.15 ft<sup>3</sup>/sx) cement will be premium cement w/ 3% CaCl<sub>2</sub>+0.25 pps celloflake. Volume as required

**Surface Casing (if well will not circulate) - Cemented to surface**

CASING	SLURRY	FT. of FILL	CEMENT TYPE	SXS	EXCESS (%)	WEIGHT (ppg)	YIELD (ft <sup>3</sup> /sx)
8-5/8"	Lead	500	Premium cement + 2% CaCl <sub>2</sub> + 0.25 pps celloflake	138	25	15.8	1.15
8-5/8"	Top job	As req.	Premium cement + 3% CaCl <sub>2</sub> + 0.25 pps celloflake	As Req.		15.8	1.15

**Production Casing and Liner - Cemented TD to 300' above base of surface casing**

CASING	SLURRY	FT. of FILL	CEMENT TYPE	SXS	EXCESS (%)	WEIGHT (ppg)	YIELD (ft <sup>3</sup> /sx)
4-1/2"	Lead	372	Class "G" + 5% NaCl + 12% Gel + 0.25 pps celloflake + 0.2% antifoam + 0.25% fluid loss + 1% extender	34	25	11.0	3.3
4-1/2"	Tail	4104	50/50 POZ Class G + 2% gel + 1% CaCl <sub>2</sub> + 0.2% dispersant + 0.2% fluid loss + 0.1% antifoam	749	25	14.3	1.56

Cement volumes for the 4-1/2" Production Casing will be calculated to provide a top of cement to 300' above base of surface casing. Cement volumes are approximate and were calculated under the assumption that a gauge hole will be achieved. Actual cement volumes may vary due to variations in the actual hole size and will be determined by running a caliper log on the drilled hole. Actual cement types may vary due to hole conditions and cement contractor used.

All waiting on cement (WOC) times will be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

**5. Drilling Fluids (mud) Program:**

Interval (MD)	Mud Weight	Fluid Loss	Viscosity	Mud Type
0' - 2016' (KB)		No cntrl		Air/mist
2000'-3000' (KB)	8.4-8.6	No cntrl	28-36	Water
3000'-6192' (KB)	8.8-9.8	8 - 10 ml	32-42	Water/Gel

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations.

**6. Evaluation Program:**

Tests: No tests are currently planned.

Coring: No cores are currently planned.

Samples: No sampling is currently planned.

Logging

- Dual Induction – SFL /Gamma Ray/Caliper/SP/TDLT/CNL/ML  
TD to Base Surface Casing
- Cement Bond Log / Gamma Ray:  
TD to Base of Surface Casing or Top of Cement if below Base of Surface Casing

Stimulation: A stimulation or frac treatment will be designed for completion of this well based on openhole log analysis. The drill site, as approved, will be sufficient size to accommodate all completion activities.

7. **Abnormal Conditions:**

No abnormal temperatures or pressures are anticipated. No H<sub>2</sub>S has been encountered or known to exist from previous wells drilled to similar depths in the general area.

Maximum anticipated bottom hole pressure equals approximately 3220 psi (calculated at 0.52psi/foot of hole) and maximum anticipated surface pressure equals approximately 1858 psi (anticipated bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot of hole).

8. **Anticipated Starting Dates:**

- Anticipated Commencement Date- Within one year of APD issue.
- Drilling Days- Approximately 10 days
- Completion Days - Approximately 10 days
- Anticipate location construction within 30 days of permit issue.

9. **Variances:**

None anticipated

10. **Other:**

A Cultural Resource Inventory and Paleontology reconnaissance shall be conducted for the well location, access route and pipeline. The reports shall be submitted to the Division of Oil, Gas and Mining and the School and Institutional Trust lands Administration upon their receipt.

Single Shot directional surveys will be dropped every 2000 feet to monitor hole angle.

**Directions to the Well Pad for:  
Southam Canyon 9-25-14-31**

**Pad Location: NWNW of Sec. 6, T10S, R25E, S.L.B.&M**

Beginning at the city of Bonanza, Utah. Leave the city of Bonanza traveling south on a paved road for a distance of approximately 1.8 miles where is a turn to the right. Turn right and proceed southerly for approximately 2.3 miles to the beginning of the proposed access. Turn right onto proposed access and continue southwesterly for a distance  $\pm$  2,760' ( $\pm$  0.5 miles) to the proposed well pad.

# **Enduring Resources, LLC**

**Southam Canyon 9-25-14-31**  
SW-SW 31-9S-25E BHL  
NW-NW 6-10S-25E Surface  
Uintah County, Utah  
State Lease: ML-45560

## **MULTI-POINT SURFACE USE & OPERATIONS PLAN**

### **1. Existing Roads:**

Beginning at the city of Bonanza, Utah. Leave the city of Bonanza traveling south on a paved road for a distance of approximately 1.8 miles where is a turn to the right. Turn right and proceed southerly for approximately 2.3 miles to the beginning of the proposed access. Turn right onto proposed access and continue southwesterly for a distance  $\pm 2,760'$  ( $\pm 0.5$  miles) to the well pad (**This well pad has already been built and the Southam Canyon 10-25-11-6 has already been drilled from this pad.**)

### **2. Planned Access Roads:**

The proposed access road has already been built.

THERE WILL BE NO NEW CONSTRUCTION.

The proposed access road will be utilized to transport personnel, equipment and supplies to and from the proposed well site during drilling, completion and production operations. The road will be utilized year round.

The access road will be crowned 2% to 3%, ditched and constructed with a running surface of 18 feet and a maximum disturbed width of 30 feet right-of-way. Maximum grade of road is 5% or less. Graveling or capping the roadbed will be performed as necessary to provide a well constructed, safe road. No fence crossings, culverts, turnouts, cattle guards or major cuts and fills are required. Prior to construction or upgrading, the proposed road shall be cleared of any snow and allowed to dry completely.

Surface disturbance and vehicular traffic will be limited to the proposed location and proposed access route. Any additional area needed will be approved in advance. All construction shall be in conformance with the standards outlined in the BLM and Forest Service publication: Surface Operating Standards for Oil and Gas Exploration and Development. 1989.

The road surface and shoulders will be kept in a safe usable condition and will be maintained in accordance with the original construction standards. All drainage ditches will be kept clear and free flowing and will be maintained according to original construction standards. The access road surface will be kept free of trash during operations. All traffic will be confined to the approved disturbed surface. Road drainage crossings shall be designed so they will not cause siltation or accumulation of debris in the drainage crossing nor shall the drainages be blocked by the road bed. Erosion of drainage ditches by runoff water shall be prevented by diverting water off at

frequent intervals by means of cutouts. Upgrading shall not be allowed during muddy conditions. Should mud holes develop, they shall be filled in and detours around them avoided. When snow is removed from the road during the winter months, the snow shall be pushed outside of the borrow ditches and the turnouts kept clear so that snowmelt will be channeled away from the road.

**3. Location of Existing Wells within a One-Mile radius (See "Topo" Map "C" attached):**

The following wells are wells located within a one (1) mile or greater radius of the proposed location.

- a. None: Water Wells:
- b. None: Injection Wells:
- c. None: Producing Wells:  
Southam Canyon 10-25-11-6 is on this pad.
- d. None: Drilling Wells:
- e. None: Shut-in Wells:
- f. None: Temporarily Abandoned Wells:
- g. None: Disposal Wells:
- h. None: Abandoned Wells:
- i. None: Dry Holes:
- j. One: Observation Wells:  
WRNUM: 9649002M00 SWSW 6-10S-25E
- k. One: Pending (staked) Wells:
  - 1. Southam Canyon 9-24-44-36 is also a directional well staked on this same pad.

**4. Location of Existing and/or Proposed Facilities:**

All production facilities will be located on the disturbed portion of the well pad and at a minimum of 25 feet from the toe of the back slope or the top of the fill slope.

A dike will be constructed completely around those production facilities which contain fluids (i.e. production tanks, produced water tanks and/or heater treater). These dikes will be constructed of compacted subsoil, be impervious, hold 100% of the capacity of the largest tank and be independent of the back cut.

All permanent (on site for six months or longer) above the ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earth tone color to match one of the standard environmental colors, as determined by the Rocky Mountain Five State Inter-Agency Committee

All facilities will be painted within 6 months of installation. The color shall be designated by DOG&M and SITLA. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded.

Any necessary pits will be properly fenced to protect livestock and prevent wildlife entry.

Gas Gathering Pipeline for this well will be:

**The pipeline for the Southam Canyon 10-25-11-6 is being built and this well will use the same pipeline. See the attached Pipeline survey for the Southam Canyon 10-25-11-6 for the pipeline route (Page 11 of 11).**

If this well is capable of economic production, it will tie directly into the pipeline that will already be built to this pad.

The meter run will be housed. The gas gathering line will be buried or anchored down from the wellhead to the meter.

Upon plugging and abandonment, the gas gathering line will be removed and the disturbed area will be re-contoured and restored as near as practical to the original condition. If necessary, re-seeding operations will be performed after completion of other reclamation operations.

**5. Location and Type of Water Supply:**

Water will be purchased from American Gilsonite from the following source. Water Right No. 49-222, Application/Claim No. A29909/a4958, Certificate No. 9915 ("AGC Water Right"). The AGC Water Right consists of nineteen underground water wells located in Sec.2, T10S, R24E, SLBM, piped to and stored in a cistern located in Section 25, T9S, R24E.

Water will be hauled to the location over the roads marked on "Topo" Maps "A" and "B."

No water well is to be drilled on this lease.

**6 Source of Construction Materials:**

Surface and subsoil materials in the immediate area will be utilized for location and access road construction.

Any gravel will be obtained from a commercial source; however, gravel sized rock debris associated with location and access road construction may be used as access road surfacing material.

**7. Methods of Handling Waste Materials:**

Drill cuttings will be contained and buried in the reserve pit.

Drilling fluids, including salts and chemicals, will be contained in the reserve pit will be removed and disposed of at an approved waste disposal facility within 120 days after drilling is terminated.

The reserve pit will be constructed on the location and will not be located within natural drainage, where a flood hazard exists or surface runoff will destroy or damage the pit walls. The reserve pit will be constructed so that it will not leak, break or allow discharge of liquids.

The reserve pit will be lined with ¼ felt and a minimum of 16 mm plastic with sufficient bedding used to cover any rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash or scrap that could puncture the will be disposed of in the pit.

A chemical portable toilet will be furnished with the drilling rig. The toilet will be replaced periodically utilizing a licensed contractor to transport by truck the portable chemical toilet so that its contents can be delivered to the Vernal Wastewater Treatment Facility in accordance with state and county regulations.

Garbage, trash and other waste materials will be collected in a portable, self-contained, fully enclosed trash cage during operations. No trash will be burned on location.

All debris and other waste material not contained in the trash cage will be cleaned up and removed from the location immediately after removal of the drilling rig.

Any open pits will be fenced during the operations. The fencing will be maintained until such time as the pits are backfilled.

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 in association with the drilling, completion or testing of this 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, completion or testing of this well.

Produced oil will be stored in an oil tank and then hauled by truck to a crude purchaser facility. Any produced water from the proposed well will be contained in a water tank and will then be hauled by truck to an approved disposal site.

#### **8. Ancillary Facilities:**

During drilling operations, approximately 20 days, the site will be a manned camp. Three or four additional trailers will be on location to serve as the crews' housing and eating facilities. These will be located on the perimeter of the pad site within the topsoil stockpiles. Refer to Sheet 4.

#### **9. Well Site Layout: (Refer to Sheets #2, #3, and #4)**

The attached Location Layout Diagrams described drill pad cross-sections, cuts and fills and locations of the mud tanks, reserve pit, flare pit, pipe racks, trailer parking, spoil dirt stockpile(s) and surface material stockpiles(s).

Please see the attached diagram for rig orientation and access roads.

The top soil will be windrowed rather than piled. It will be reseeded and track walker at the time the location is constructed. Seeding will be with the determined during the onsite. (Refer to "Seed Mixture for Windrowed Top Soil Will included:" following herein.

The top soil removed from the pit area will be store separately and will not be reseeded until the pit is reclaimed.

All pits shall be fence to the following minimum standards:

- a. 39 inch net wire shall be used with at least one strand of barbed wire on top of the net wire. Barbed wire is not necessary if pipe or some type of reinforcement rod is attached to the top of the entire fence.
- b. The net wire shall be no more than 2 inches above the ground. The barbed wire shall be 3 inches over the new wire. Total height of the fence shall be at least 42 inches.
- c. Corner posts shall be cemented and/or braced in such a manner to keep the fence tight at all times.
- d. Standard steel, wood or pipe posts shall be used between the corner braces. Maximum distance between any two fence posts shall be no greater than 16 feet.
- e. All wire shall be stretched by, using a stretching device, before it is attached to corner posts.
- f. The reserve pit fencing will be on three sides during drilling operations and on the fourth side when the rig moves off location. Pits will be fenced and maintained until cleanup.
- g. Location size may change prior to drilling the well due to the current rig availability. If the proposed location is not large enough to accommodate the drilling, the location will be re-surveyed and a Form 9 will be submitted.

#### 10. Plans for Surface Reclamation:

##### **Producing Location:**

- a. Immediately upon well completion **of the last well to be drilled from this pad**, the location and surrounding area will be cleared of all unused tubing, equipment, materials, trash and debris not required for production.
- b. Immediately upon well completion any hydrocarbons in the pit shall be removed in accordance with 40CFR 3162.7.
- c. Before any dirt work associated with location restoration takes place, the reserve pit shall be as dry as possible. All debris in it will be removed. Other waste and spoil materials will be disposed of immediately upon completion of operations.
- d. The reserve pit and that portion of the location not needed for production (**or drilling other directional wells**) facilities/operations will be re-contoured to the approximated natural contours. The reserve pit will be reclaimed within 90 days from the date of well completion, weather permitting.

- e. To prevent surface water(s) from standing (ponding) on the reclaimed reserve pit area, final reclamation of the reserve pit will consist of "mounding" the surface 3 feet above surrounding round surface to allow the reclaimed pit area to drain effectively.
- f. Upon completion of back filling, leveling and re-contouring, the stockpiled topsoil will be spread evenly over the reclaimed area(s).

**Dry Hole/Abandoned Location:**

- i. Abandoned well sites, roads and other disturbed areas will be restored as nearly as practical to their original condition. Where applicable, these conditions include the re-establishment of irrigation systems, the re-establishment of appropriate soil conditions and re-establishment of vegetation as specified.
- ii. All disturbed surfaces will be re-contoured to the approximated natural contours with reclamation of the well pad and access road to be performed as soon as practical after final abandonment. If necessary, re-seeding operations will be performed after completion of other reclamation operations.

**Seed Mixture for Windrowed Top Soil Will Included:**

To be provided by the DOG&M and/or American Gilsonite.

**11. Surface Ownership: Location, Access and Pipeline Route:**

Wellsite: Surface: American Gilsonite (Surface Agreement in Place/Attached)  
 BHL: SITLA

Access: American Gilsonite

Pipeline: American Gilsonite

**12. Other Information**

**On-site Inspection for Location, Access and Pipeline Route:**

Located on same pad as the Southam Canyon 10-25-11-6 and Southam Canyon 9-24-44-36 and an on-site performed before Southam Canyon 10-25-121-6 well was drilled.

**Special Conditions of Approval:**

- Tanks and Production Equipment shall be painted pursuant American Gilsonite and DOG&M.

**Archeology:**

- a. A Cultural Resource Inventory Report was conducted before the Southam Canyon 10-25-11-6 was drilled by Montgomery Archaeological Consultants **(Copy attached)**

**Paleontology:**

- a. A Paleontology Reconnaissance Report was conducted by Intermountain Paleo-Consulting **(copy attached)**.

If, during operations, any archaeological or historical sites, or any objects of antiquity (subject to the Antiquities Act of June 8, 1906) are discovered, all operations which would affect such sites will be suspended and the discovery reported promptly to the surface management agency.

**13, Lessee's or Operator's Representatives:**

**Representatives:**

Alvin R. (Al) Arlian  
 Landman – Regulatory Specialist  
 Enduring Resources, LLC  
 475 17<sup>th</sup> Street, Suite 1500  
 Denver, Colorado 80202  
 Office Tel: 303-350-5114  
 Fax Tel: 303-573-0461  
[aarlian@enduringresources.com](mailto:aarlian@enduringresources.com)

Teme Singleton  
 Drilling Engineer  
 Enduring Resources, LLC  
 475 17<sup>th</sup> Street, Suite 1500  
 Denver, Colorado 80202  
 Office Tel: 303-573-5711  
 Fax Tel: 303-573-0461  
[tsingleton@enduringresources.com](mailto:tsingleton@enduringresources.com)

## RIGHT-OF-WAY and DAMAGE AGREEMENT

THIS AGREEMENT is made and entered into by and between, AMERICAN GILSONITE COMPANY, (hereinafter referred to as "Grantor") and ENDURING RESOURCES, LLC (hereinafter referred to as "Grantee") effective August 1, 2006

WHEREAS, Grantee desires to enter onto and cross Grantor's property located in the NWNW of Section 6-10S-25E (hereinafter referred to as the "Lands") for the purpose of drilling a directional exploratory oil and/or gas well, Southam Canyon 9-25-14-31 "Well", with a bottom hole located in the SWSW of Section 31, Township 9 South, Range 25 East, Uintah County, Utah (hereinafter referred to as the "Drillsite").

NOW THEREFORE, for and in consideration of the mutual promises and covenants herein contained, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

- I. Grantee shall pay Grantor the sum of \$1,000.00 up front payment for damages to surface of the Lands for road access to the Well. Within sixty days of completion of the Well either as a producer or a plugged and abandoned well, Grantee shall survey the new access road Grantor for any additional damage that may have occurred during drilling and completion operations. Compensation will be on a \$3,000.00 per acre cost for any damages exceeding 4.0 acres and such compensation, if due, will be paid within thirty (30) days of the surveyor's report being released. Grantee shall utilize existing access routes to the maximum extent feasible, so as to minimize surface disturbances for access to facilities.
- II. Grantee and their assigns or agents shall have the right to use a reasonable amount of access road across the Lands and shall have the right to move derricks, drilling tools, vehicles, and all other machinery and equipment necessary or incident to the re-drilling, drilling, testing completion, operation of the wells. Such activity shall be restricted to existing public roads or access roads covered by this agreement. Any roads or surface facilities may be relocated at Grantor's expense if needed due to gilsonite mining or processing in the future.
- III. This Agreement and the rights granted herein are effective and shall continue in full force and effect so long as operations are conducted on the Well. Upon execution of this Agreement, all payments due hereunder shall be paid concurrently. Operations are defined under terms of the oil and gas lease with Grantor, and under the Rules and Regulations defined by the State of Utah.
- IV. Cattle guards and gates will be constructed, if requested by Grantor, at all places where the openings go through the existing fences and gates will be kept closed at all times except when opened for passage of traffic. Also, gates shall be installed to limit access to producing wells on roads constructed by Grantee if by mutual agreement between Grantee and Grantor.
- V. If there is any fill used for roads constructed across any drainage, then culverts will be used for the free flow of water through said drainage.

- VI. If the access road departs from existing established roadways and new construction is required, topsoil will be segregated and stockpiled for replacement during reclamation activities.
- VII. It is understood that any road constructed across the said Lands shall not exceed 30 feet in total width, including the total disturbed area between the outside of each berm, without the prior approval of Grantor.
- VIII. Upon completion of any drilled pursuant hereto Well as a dry hole and the subsequent abandonment thereof, and at the request of the Grantor, and drill pads and newly constructed road will be restored and seeded within 180 days to the condition it was in prior to commencement of operations insofar as reasonably possible. Any preexisting roads, and the improvements thereto, which are constructed by Grantee, shall be left in a good and useable condition for the continued use by Grantor. Reclaimed areas will be reseeded with a wildlife mixture approved by the Utah Division of Wildlife.
- IX. In the event that the Well is completed as a producer of oil and/or gas, Grantee shall build and maintain a permanent access road in conformance with the already established county road standards for producing oil and/or gas wells including any variances granted by the county by existing roads to the Drillsite. Disturbed areas not used for production will be re-graded and seeded with an approved wildlife seed mix within 90 days unless prohibited by weather.
- X. Upon completion of the Well(s) as a well capable of oil and/or gas production, this Agreement shall continue in full force and effect and Grantee shall pay in advance to Grantor an annual access rental of \$1,000 per roadway 30-foot width, roadway for each well, on or before June 1<sup>st</sup> of each year thereafter until the subject well is plugged and abandoned and operations cease thereon.
- XI. It is expressly understood that the settlement amounts in paragraph I are only for construction of a road and drilling location and it is not a settlement for any damages to contiguous property, personal property of the Grantor or a release of any personal injuries that may be sustained by reason of the operations carried on by Grantee or its agents.
- XII. This Agreement does not cover pipeline easements and Grantee acknowledges that it must secure a separate agreement prior to laying pipeline related to production of gas or oil on Grantor's lands.
- XIII. This Agreement shall not be assigned, nor the rights of Grantee hereunder transferred in any manner without the prior written consent of Grantor, which consent shall not be unreasonably withheld.
- XIV. Grantee shall comply at its own expense with the Workman's Compensation Law of the State of Utah and shall maintain such insurance throughout the duration of this Agreement, and shall furnish Grantor prior to beginning work on the Lands evidence of such insurance and at each policy period thereafter renewal evidence that such insurance is being maintained. Grantee, with respect to its operation in connection with this Agreement, shall also purchase or provide for (1) comprehensive general public liability insurance with a combined single limit not

less than One Million Dollars (\$1,000,000) for bodily injury and property damage; and (ii) automobile insurance with a combined single limit of not less than One Million Dollars (\$1,000,000) for bodily injury or property damage. At Grantor's request, Grantee shall furnish Grantor with a certificate or certificates of insurance secured and maintained hereunder and Grantor shall be an additional insured thereon.

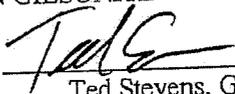
- XV. In the event any person or entity (including Grantor) suffers a loss of any kind or character, or death or injury, (1) as a result of a breach of this Agreement by Grantee, or its agents, contractors, or employees, or (2) as a result of Grantee or its agents, contractors or employees performing on the Drillsite or elsewhere, any action, directly or indirectly, in furtherance of a right hereunder, or (3) from any cause whatsoever while being on the Lands and the Drillsite to conduct any work or service for Grantee shall reimburse, indemnify, defend and hold harmless Grantor for any and all losses, costs, claims, liability, litigation, demands, damages and expenses (including all attorney fees) of every kind or character which Grantor may suffer or be subject to as a result of said loss or injury whether or not such losses, costs, claims, liabilities, litigation, demands, damages, and expenses (including all attorney fees) result from the condition of Grantor's premises or facilities, unless through the sole negligence of Grantor or its agents.
- XVI. Grantee shall provide Grantor with not less than forty-eight (48) hours advance notice, either by phone or in person, of Grantee's intent to enter upon the Land for the purpose of commencing operations thereon. Grantee shall conduct its operations in such a manner as to use no more Land than is reasonably necessary and shall use all reasonable efforts not to interfere with the use of the Land by any grazing permittees. All drilling fluid pits shall be fenced within ten days of end of drilling each Well as a producer or dry hole and then the pits will be reclaimed and reseeded within 180 days of the completion of the well as a producer or a dry hole. Surface structures shall be fenced, if they represent a potential hazard to livestock, by mutual agreement between Grantor and Grantee. The type of fencing to be mutually agreed upon by Grantor and Grantee. Grantee will have ten days to effect repairs or problems with fences when notified by e-mail or in writing by Grantee. Grantor can request an extension of the closure of pits beyond the 180 days from the completion of each Well if closing the pits represents a potential hazard or closing the pits at that time will not comply with the State of Utah's reclamation requirements. An extension will not be unreasonably withheld.
- XVII. Grantee shall have the right at any time, and from time to time, to remove any or all property, fixtures, equipment and materials, placed by Grantee on the Land, including the right to draw and remove casing. Within 90 days after plugging of a Well this agreement will expire and Grantee shall remove all remaining property, fixtures, equipment and materials that were placed by Grantee on the Land. Such removal shall be accomplished at Grantee's sole cost, risk and expense. If such items are not removed within 90 days, Grantor shall have the right to remove those items from the Land and bill the associated cost for such removal to Grantee.

- XVIII. This agreement restricts the Grantee's use of Grantor's lands to the sole purpose of exploration and production of oil and/or gas at this specific site. It does not grant Grantee, its contractors, or its agents the right to use the Grantor's property for any other purpose.
- XIX. All operations of Grantee hereunder which involve drilling for and producing of oil and gas, or both, or the cessation, or abandonment, of its operations shall be conducted in a good and workmanlike manner and in accordance with standard oil field practices and in accordance with all applicable federal, state and local statutes and regulations including specifically, but not by way of limitation, such laws and regulations governing the operation, maintenance and reclamation of well sites, pipelines, tank batteries, and other related facilities as may be utilized by Grantee and its operations hereunder. Grantee shall further adhere to and abide by all federal, state and local environment statutes and regulations addressing air, water, and solid waste pollution and the handling storage, storage use and disposal of hazardous substances as prescribed in the Comprehensive Environmental Response, Compensation and Liability Act of 1986, 42 U.S.C. & 9601, et seq. (CERCLA). Grantee shall provide Grantor with copies of all applications for environmental laws, governmental requests for any information pertaining to environmental issues relating to the Land or products produced therefrom or Grantee's use thereof, copies of any responses from Grantee's to said requests, and any environmental investigations, reports, or studies involving the Land or products produced therefrom or the use thereof by Grantee which from time to time, may be obtained from Grantee.
- XX. Grantee also agrees to abide by the laws of regulations of the State of Utah designed to protect gilsonite deposits, including but not limited to those specific rules set forth in the General Rules and Regulations of the Utah Board of Oil, Gas and Mining, as amended, pertaining to such matters.
- XXI. The provisions hereof shall be considered as covenants running with the Land during the life of the Agreement and all modifications thereof, and any assignment of the Agreement shall be subject to the provisions thereof.
- XXII. This Agreement shall not be terminated in whole or in part, nor Grantee held liable for damages, because of a temporary cessation of production of drilling operations due to breakdown of equipment or due to the repairing of a well or wells or because of failure to comply with any of the express provisions or implied covenants of this Agreement if such failure is the result of the exercise of governmental authority, war, armed hostilities, act of God, strike, civil disturbance, fire, explosion, flood or any other cause, including lack of market, beyond the control of Grantee.
- XXIII. Any controversy or claim, whether based in contract, tort or otherwise arising in any way out of, relating to on in connection with this Agreement (a "Dispute") shall be finally settled by arbitration conducted expeditiously in accordance with the Commercial Arbitration Rules (the "Rules") of the American Arbitration Association (the "AAA"). In the event of a conflict between this Article and the Rules, this Article shall govern. The attorney/client and work product privileges will be honored in the arbitration as though the case were being determined in a Utah state court. The arbitration shall be conducted before one independent and

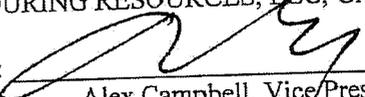
impartial arbitrator selected by the AAA pursuant to the Rules. The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. 1-16, to the exclusion of any provision of Utah law inconsistent therewith and which would produce a different result, and judgment upon the award rendered by the arbitrator may be entered by any court having jurisdiction thereof. The place of arbitration shall be Salt Lake City, Utah, and the cost of the arbitration proceeding shall be borne equally by the parties to this agreement and each party shall bear its own attorney's fees, and other expenses, provided that the arbitrator may award attorney fees, filing fees, and costs to the prevailing party as the arbitrator deems reasonable and fair. The arbitrators shall determine the claims of the parties and render their final award in accordance with the substantive law of the State of Utah exclusive of its conflict of law rules. The limitations of any actions will be determined under Utah law. The arbitrator shall permit and facilitate such discovery as the arbitrator determines is appropriate in the circumstances, taking into account the needs of the parties and the desirability of making discovery expeditious and cost-effective. The arbitrator shall actively manage the proceedings as the arbitrator deems best so as to make the proceedings fair, expeditious, economical, and less burdensome than litigation. The procedures specified in this section shall be the exclusive means of resolution of Disputes between the parties, provided that either party may seek injunctive action before a court of competent jurisdiction to prevent the occurrence of irreparable harm pending resolution of a Dispute pursuant to the provisions of this section.

XXIV. This agreement constitutes the entire Agreement between the parties hereto as to the subject matters herein set forth and supersedes all prior written or oral agreements relative thereto. No change, modification, alteration or amendment to this Agreement shall be binding upon the parties hereto except as specifically expressed in writing and signed by each party agreeing to be bound thereby.

AMERICAN GILSONITE COMPANY, Grantor

By:   
Ted Stevens, General Counsel

ENDURING RESOURCES, LLC, Grantee

By:   
Alex Campbell, Vice President

## Paleontological Reconnaissance Report

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**Enduring Resources Proposed Well Pads, Access Roads and Pipeline Corridors for Archy Bench #11-22-11-2, #11-22-12-2, #11-22-13-2, #11-22-14-2, #11-22-24-2 (Sec. 2, T 11 S, R 22 E); Red Wash #9-24-23-30, #9-24-34-30 (Sec. 30 T 9 S, R 24 E); Red Wash <sup>34</sup> *Bonanza* #9-24-24-23 (Sec. 23, T 9 S, R 24 E); Southam Canyon #9-24-41-34 (Sec. 34, T 9 S, R 24 E); Southam Canyon #9-24-23-36, #9-24-24-36 (Sec. 36, T 9 S, R 24 E); ~~Southam Canyon~~ #~~10-25-11-6~~ (Sec. 6, T 10 S, R 25 E)**

Archy Bench, Bonanza, Red Wash SE,  
and Southam Canyon Topographic  
Quadrangles Uintah County, Utah

July 19, 2005

Prepared by Andrew W. Stanton  
Paleontologist for  
Montgomery Archaeological Consultants  
Box 147, 322 East 100 South  
Moab, Utah 84532

## INTRODUCTION

At the request of Phyllis Sobotik, of Enduring Resources, LLC, and authorized by John Mayers of the BLM Vernal Field Office and James Kirkland of the Office of the State Paleontologist a paleontological reconnaissance survey of Enduring's proposed Well Pads, Access Roads and Pipeline Corridors for Archy Bench #11-22-11-2, #11-22-12-2, #11-22-13-2, #11-22-14-2, #11-22-24-2 (Sec. 2, T 11 S, R 22 E); Red Wash #9-24-23-30, #9-24-34-30 (Sec. 30, T 9 S, R 24 E); Red Wash #9-24-24-23 (Sec. 23, T 9 S, R 24 E); Southam Canyon #9-24-41-34 (Sec. 34, T 9 S, R 24 E); Southam Canyon #9-24-23-36, #9-24-24-36 (Sec. 36, T 9 S, R 24 E); Southam Canyon #10-25-11-6 (Sec. 6, T 10 S, R 25 E) was conducted by Stephen Sandau June 8-11, 2005. The survey was conducted under the Utah BLM Paleontological Resources Use Permit #UT-S-05-33 and the Utah Paleontological Investigations Permit #04-345. This survey to collect any paleontological materials discovered during the construction processes in danger of damage or destruction was done to meet requirements of the National Environmental Policy Act of 1969, and other State and Federal laws and regulations that protect paleontological resources.

## FEDERAL AND STATE REQUIREMENTS

As mandated by the US Department of the Interior Bureau of Land Management, paleontologically sensitive geologic formations in BLM lands that are considered for exchange or may be impacted due to ground disturbance require paleontological evaluation. This requirement complies with:

- 1) The National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321, et. Seq., P.L. 91-190);
- 2) The Federal Land Policy and Management Act (FLPMA) of 1976 (90 Stat. 2743, 43 U.S.C. § 1701-1785, et. Seq., P.L. 94-579).
- 3) The National Historic preservation Act. 16 U.S.C. § 470-1, P.L. 102-575 in conjunction with 42 U.S.C. § 5320; and
- 4) The Utah Geological Survey. S. C. A.: 63-73-1. (1-21) and U.C.A.: 53B-17-603

Under policy dictated by the BLM Manual and Handbook H-8270-1 (July, 1998) formations are ranked according to their paleontological potential:

- *Condition 1* is applied to those areas known to contain fossil localities, and special consideration of the known resources is in need of evaluation.
- *Condition 2* is applied to areas that have exposures of geologic rock units known to have produced fossils elsewhere.
- *Condition 3* is applied to areas unlikely to produce fossils based on surficial geology.

Although these guidelines apply mostly to vertebrate fossils on lands under the direction of the BLM, they are equally designed to help protect rare plant and invertebrate fossils and will be used here with reference to State managed lands. It should be noted that many fossils, though common and unimpressive in and of themselves, can be important paleo-environmental, depositional, and chronostratigraphic indicators.

## LOCATION

This project covers wells on land managed by the State of Utah Trust Lands Administration (SITLA) and on BLM land. The well pads and proposed pipeline corridor for Enduring's Archy Bench #11-22-11-2, #11-22-12-2, #11-22-13-2, #11-22-14-2, #11-22-24-2 (Sec. 2, T 11 S, R 22 E) are four to five miles south by southwest of the White River, and some fifteen miles south west of Bonanza, UT. Red Wash #9-24-23-30, #9-24-34-30 (Sec. 30, T 9 S, R 24 E) lies approximately 3 miles north of the White River and four to five miles west of Bonanza, UT; Red Wash #9-24-24-23 (Sec. 23, T 9 S, R 24 E) is on the southwestern outskirts of Bonanza, UT; Southam Canyon #9-24-41-34 (Sec. 34, T 9 S, R 24 E) is about one and one half miles south by southwest of Bonanza; Southam Canyon #9-24-23-36, #9-24-24-36 (Sec. 36, T 9 S, R 24 E) and Southam Canyon #10-25-11-6 (Sec. 6, T 10 S, R 25 E) are approximately three miles south of Bonanza, UT and one to one and a half miles north of the White River. The project areas can be found on the Archy Bench, Bonanza, Red Wash SE, and Southam Canyon Topographic Quadrangles, Uintah County, Utah

## PREVIOUS WORK

The basins of western North America have long produced some of the richest fossil collections in the world. Early Cenozoic sediments are especially well represented throughout the western interior. Paleontologists started field work in Utah's Uinta Basin as early as 1870 (Betts, 1871; Marsh, 1871, 1875a, 1875b). The Uinta Basin is located in the northeastern corner of Utah and covers approximately 31,000 sq. km (12,000 sq. miles) and ranges in elevation from 1,465 to 2,130 m (4,800 to 7,000 ft) (Marsell, 1964; Hamblin et al., 1987). Middle to late Eocene time marked a period of dramatic change in the climate, flora, (Stucky, 1992), and fauna (Black and Dawson, 1966) of North America.

## GEOLOGICAL AND PALEONTOLOGICAL OVERVIEW

Early in the geologic history of Utah, some 1,000 to 600 Ma, an east-west trending basin developed creating accommodation for 25,000 feet of siliclastics. Uplift of that filled-basin during the early Cenozoic formed the Uinta Mountains (Rasmussen et al., 1999). With the rise of the Uinta Mountains the asymmetrical synclinal Uinta Basin is thought to have formed through the effects of down warping in connection with the uplift. Throughout the Paleozoic and Mesozoic, deposition fluctuated between marine and non-marine environments laying down a thick succession of sediments in the area now occupied by the Uinta Basin. Portions of these beds crop out on the margins of the basin due to tectonic events occurring during the late Mesozoic.

Early Tertiary Uinta Basin sediments were deposited in alternating lacustrine and fluvial environments. Large shallow lakes periodically covered most of the basin and surrounding areas during early to mid Eocene time (Abbott, 1957). These lacustrine sediments show up in the western part of the basin, dipping 2-3 degrees to the northeast and are lost in the subsurface on the east side. The increase of cross-bedded coarse-grained sandstone and conglomerates

preserved in paleo-channels indicates a transition to a fluvial environment toward the end of the epoch.

Four Eocene formations are recognized in the Uinta Basin: the Wasatch, Green River, Uinta, and Duchesne River, respectively (Wood, 1941). The Uinta Formation is subdivided into two lithostratigraphic units namely: the Wagonhound Member (Wood, 1934), formerly known as Uinta A and B (Osborn, 1895, 1929), and the Myton Member previously regarded as the Uinta C.

Within the Uinta Basin in northeast Utah, the Uinta Formation in the western part of the basin is composed primarily of lacustrine sediments inter-fingering with over-bank deposits of silt and mudstone and westward flowing channel sands, fluvial clays, and muds in the east (Bryant et al, 1990; Ryder et al, 1976). Stratigraphic work done by early geologists and paleontologists within the Uinta Formation focused on the definition of rock units and attempted to define a distinction between early and late Uintan faunas (Riggs, 1912; Peterson and Kay, 1931) biostratigraphy (Flynn, 1986; Prothero, 1996). Well known for its fossiliferous nature and distinctive mammalian fauna of mid-Eocene Age, the Uinta Formation is the type formation for the Uintan Land Mammal Age (Wood et al, 1941).

The Duchesne River Formation of the Uinta Basin in northeastern Utah is composed of a succession of fluvial and flood plain deposits composed of mud, silt, and sandstone. The source area for these late Eocene deposits is from the Uinta Mountains indicated by paleocurrent data (Anderson and Picard, 1972). In Peterson's (1931c) paper, the name "Duchesne Formation" was applied to the formation, and it was later changed to the "Duchesne River Formation" by Kay (1934). The formation is divided up into four members: the Brennan Basin, Dry Gulch Creek, Lapoint, and Starr Flat (Anderson and Picard, 1972). Debates concerning the Duchesne River Formation, as to whether its age was late Eocene or early Oligocene, have surfaced throughout the literature of the last century (Wood et al., 1941; Scott 1945). Recent paleo-magnetostratigraphic work (Prothero, 1996) shows that the Duchesne River Formation is late Eocene in time.

## FIELD METHODS

In order to determine if the proposed pipeline corridors, access roads and well pads from this project contained any paleontological resources, a brief reconnaissance survey was performed. An on-site observation of the proposed areas undergoing surficial disturbance is necessary, because judgments made from topographic maps alone are often unreliable. Areas of low relief have potential to be erosional surfaces with the possibility of bearing fossil materials rather than surfaces covered by unconsolidated sediment or soils.

When found within the proposed construction areas, outcrops and erosional surfaces were checked to determine if fossils were present and to assess needs. Careful effort is made during surveys to identify and evaluate significant fossil materials or fossil horizons when they are found. Microvertebrates, although rare, are occasionally found in anthills or upon erosional surfaces, and are of particular importance.

## **PROJECT AREA**

The project site is situated in the Wagonhound Member (Uinta A & B) of the Uinta Formation.

### **Archy Bench #11-22-11-2**

The proposed well pad lies adjacent to an existing access road in the NW/NW quarter-quarter section of Sec. 2, T 11 S, R 22 E (Figure 1). A proposed pipeline follows the path of this road and ties into an existing pipeline in the SW/SW quarter-quarter section of Sec. 2, T 11 S, R 22 E. The proposed pad and pipeline rest on sage brush covered soil and colluvium. The surrounding slopes and ridges to the east consist of interbedded green, purple and tan colored silt and sandstone. Ledges of tan sandstone and silt lie to the west of the proposed well pad. No fossils were found at this site.

### **Archy Bench #11-22-12-2**

The proposed well pad lies adjacent to an existing access road in the SW/NW quarter-quarter section of Sec. 2, T 11 S, R 22 E (Figure 1). The proposed well pad rests on soil and colluvium covered ground. Cliffs of tan sandstone lie to the east of the pad area. No fossils were found in the proposed construction site.

### **Archy Bench #11-22-13-2**

The proposed well pad lies adjacent to an existing access road in the NW/SW quarter-quarter section of Sec. 2, T 11 S, R 22 E (Figure 1). The ground is covered with sandy soil and colluvium, and is vegetated with brush. No fossils were found at this locality.

### **Archy Bench #11-22-14-2**

The proposed well pad lies adjacent to an existing access road in the SW/SW quarter-quarter section of Sec. 2, T 11 S, R 22 E (Figure 1). The area consists of soil covered ground and is vegetated with brush. No fossils were found in the proposed construction site.

### **Archy Bench #11-22-24-2**

The proposed well pad is in the SE/SW quarter-quarter section of Sec. 2, T 11 S, R 22 E (Figure 1). The proposed access and pipeline tie in at the SW/SW quarter-quarter section of Sec. 2, T 11 S, R 22 E. The area consists of soil covered ground, and an outcrop of tan sandstone and siltstone lies off the eastern edge of the pad. No fossils were found within the proposed construction site.

### **Red Wash #9-24-23-30**

The proposed access road and pipeline begin in the NW/SE quarter-quarter section and end in the NE/SW quarter-quarter section of Sec. 30, T 11 S, R 22 E (Figure 2). The area consists of soil covered ground vegetated with grass and low brush. No fossils were found in the proposed construction area.

### **Red Wash #9-24-34-30**

The proposed short access road, pipeline and well pad lie in the SW/SE quarter-quarter section of Sec. 30, T 9 S, R 24 E (Figure 2). The ground is soil covered and vegetated with brush and grass. No fossils were found at this site.

*Bama 20* 34  
**Red Wash #9-24-24-23**

The proposed well pad and short access are located in the SW/SE quarter-quarter section of Sec. 23, T 9 S, R 24 E, and the proposed long pipeline begins in the NW/NE quarter-quarter section of Sec. 27, T 9 S, R 24 E, following the path of an existing road, and then follows the path of the proposed access road (Figure 3). The area consists of rolling hills of soil covered ground vegetated with sage and grass. No fossils were found at this site.

**Southam Canyon #9-24-41-34**

The proposed well pad lies in the NE/NE quarter-quarter section of Sec. 34, T 9 S, R 24 E. The proposed access road begins in the NW/NE quarter-quarter section of Sec. 34, T 9 S, R 24 E, and the proposed long pipeline begins in the NW/NE quarter-quarter section of Sec. 27, T 9 S, R 24 E, follows the path of an existing road, the follows the path of the proposed access road (Figure 3). The ground is covered with soil and is vegetated with sage. Along the proposed access road are some exposures of tan sandstone with brown concretions, along with green silt and mudstone. No fossils were found in the proposed construction area.

**Southam Canyon #9-24-23-36**

The proposed well pad, short access road and pipeline lie in the NE/NW quarter-quarter section of Sec. 36, T 9 S, R 24 E. The proposed access road and pipeline tie into the proposed access and pipeline for Southam Canon #9-24-24-36 (Figure 4). The area consists of soil covered ground with colluvium and some exposures of tan sandstone. No fossils were found in the proposed construction site.

**Southam Canyon #9-24-24-36**

The long proposed access road and pipeline begin in the SE/NE quarter-quarter section of Sec. 36, T 9 S, R 24 E, head southwest and enter the proposed well pad from the northwest in the SE/SW quarter-quarter section of Sec. 36, T 9 S, R 24 E (Figure 4). The area around the proposed access road has outcrops of tan sandstone containing petrified wood. No other fossils were found in the proposed construction area.

**Southam Canyon #10-25-11-6**

The proposed well pad and access road lie in the NW/NW quarter-quarter section of Sec. 6, T 10 S, R 25 E. The 2,900 ft. access enters the well pad from the south (Figure 4). To the northeast of the proposed well pad are outcrops of tan sandstone, and along the western flank of the southern extremity of access road are tan silt and shale in which was found fossils plant material and fish scales.

## SURVEY RESULTS

WELL	GEOLOGY	PALEONTOLOGY
Archy Bench #11-22-11-2 (Sec. 2, T 11 S, R 22 E)	The pad and pipeline rest on sage brush covered soil and colluvium. The surrounding slopes and ridges to the east consist of interbedded green, purple and tan colored silt and sandstone. Ledges of tan sandstone and silt lie to the west of the proposed well pad.	No fossils were found. Condition 3.
Archy Bench #11-22-12-2 (Sec. 2, T 11 S, R 22 E)	The proposed well pad rests on soil and colluvium covered ground. Cliffs of tan sandstone lie to the east of the pad area.	No fossils were found. Condition 3.
Archy Bench #11-22-13-2 (Sec. 2, T 11 S, R 22 E)	The ground is covered with sandy soil and colluvium.	No fossils were found. Condition 3.
Archy Bench #11-22-14-2 (Sec. 2, T 11 S, R 22 E)	The area consists of soil covered ground.	No fossils were found. Condition 3.
Archy Bench #11-22-24-2 (Sec. 2, T 11 S, R 22 E)	The area consists of soil covered ground, and an outcrop of tan sandstone and siltstone lies off the eastern edge of the pad.	No fossils were found. Condition 3.
Red Wash #9- 24-23-30 (Sec. 30, T 9 S, R 24 E)	The area consists of soil covered ground.	No fossils were found. Condition 3.
Red Wash #9- 24-34-30 (Sec. 30, T 9 S, R 24 E)	The ground is soil covered.	No fossils were found. Condition 3.
Red Wash #9-24-24-23 (Sec. 23, T 9 S, R 24 E)	The area consists of rolling hills of soil covered ground.	No fossils were found. Condition 3.
Southam Canyon #9-24- 41-34 (Sec. 34, T 9 S, R 24 E)	The ground is covered with soil. Along the proposed access road are some exposures of tan sandstone with brown concretions, along with green silt and mudstone.	No fossils were found. Condition 3.

Southam Canyon #9-24-23-36 (Sec. 36, T 9 S, R 24 E)	The area consists of soil covered ground with colluvium and some exposures of tan sandstone.	No fossils were found. Condition 3.
Southam Canyon #9-24-24-36 (Sec. 36, T 9 S, R 24 E)	The area around the proposed access road has outcrops of tan sandstone containing petrified wood.	Plant fossils were found. Condition 2.
Southam Canyon #10-25-11-6 (Sec. 6, T 10 S, R 25 E)	To the northeast of the proposed well pad are outcrops of tan sandstone, and along the western flank of the southern extremity of access road are tan silt and shale in which was found fossils plant material and fish scales.	Plant impressions and fish scales were found. Condition 2.

## RECOMMENDATIONS

The reconnaissance survey executed for Enduring's proposed Well Pads, Access Roads and Pipeline Corridors for Archy Bench #11-22-11-2, #11-22-12-2, #11-22-13-2, #11-22-14-2, #11-22-24-2 (Sec. 2, T 11 S, R 22 E); Red Wash #9-24-23-30, #9-24-34-30 (Sec. 30, T 9 S, R 24 E); Red Wash #9-24-24-23 (Sec. 23, T 9 S, R 24 E); Southam Canyon #9-24-41-34 (Sec. 34, T 9 S, R 24 E); Southam Canyon #9-24-23-36, #9-24-24-36 (Sec. 36, T 9 S, R 24 E); Southam Canyon #10-25-11-6 (Sec. 6, T 10 S, R 25 E) was brief.

The localities for Southam Canyon #9-24-24-36 (Sec. 36, T 9 S, R 24 E) and #10-25-11-6 (Sec. 6, T 10 S, R 25 E) both yielded plant fossils, the latter also contained fish scales. No monitoring of these sites is recommended unless more substantial fossil material is found.

The staked areas at the remainder of the sites, namely Archy Bench #11-22-11-2, #11-22-12-2, #11-22-13-2, #11-22-14-2, #11-22-24-2 (Sec. 2, T 11 S, R 22 E); Red Wash #9-24-23-30, #9-24-34-30 (Sec. 30, T 9 S, R 24 E); Red Wash #9-24-24-23 (Sec. 23, T 9 S, R 24 E); Southam Canyon #9-24-41-34 (Sec. 34, T 9 S, R 24 E); Southam Canyon #9-24-23-36 (Sec. 36, T 9 S, R 24 E) showed no signs of fossil materials inside of the proposed construction sites. Therefore, no credible reason to limit construction within the staked areas was found.

However, if vertebrate fossil(s) are found during construction of any of the other locations covered in this report, recommendations are that a paleontologist is immediately notified in order to collect fossil materials in danger of being destroyed. Any vertebrate fossils found should be carefully moved outside of the construction areas to be checked by a permitted paleontologist.

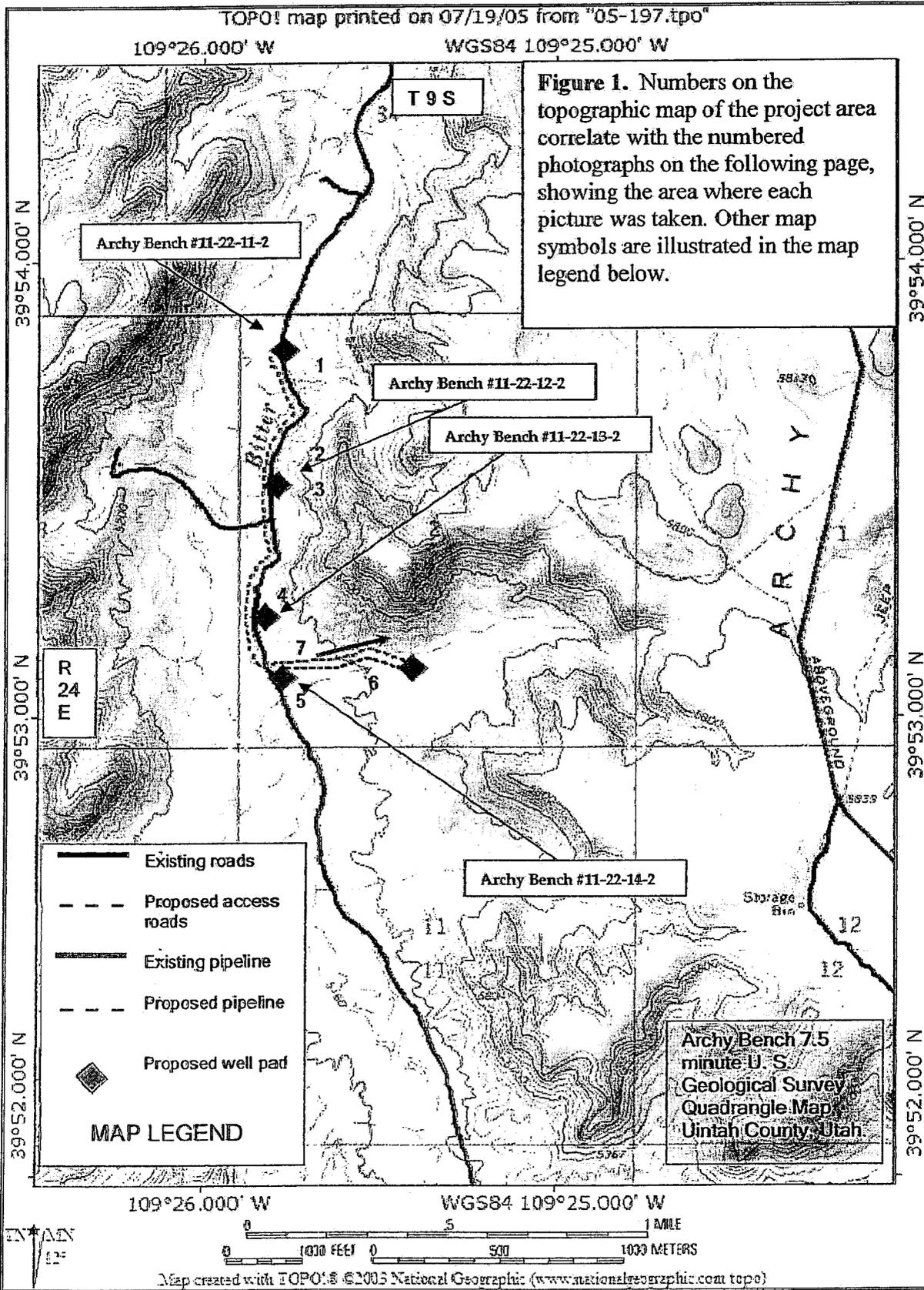
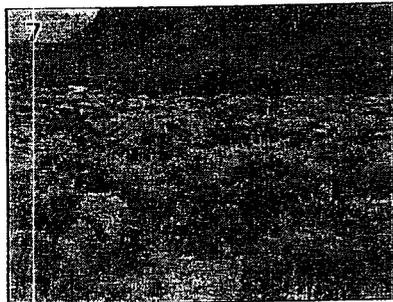
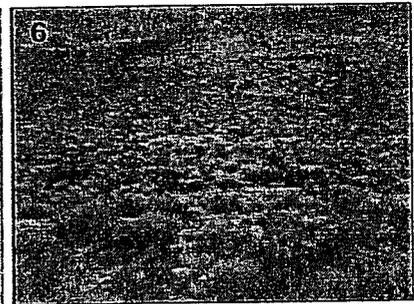
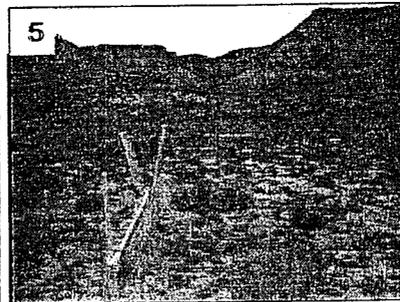
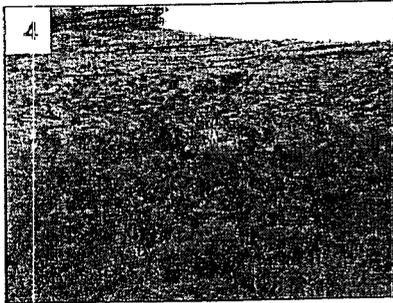
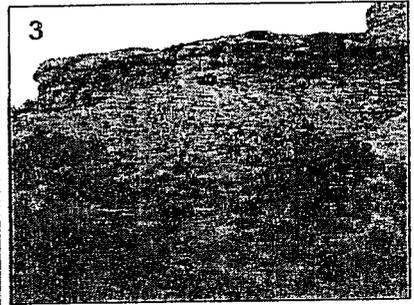
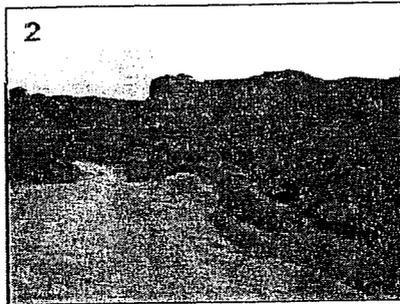
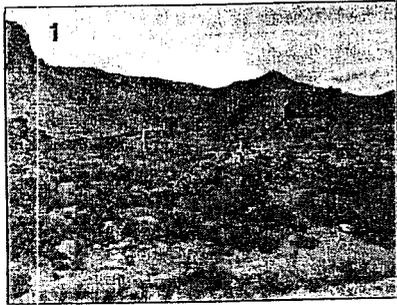


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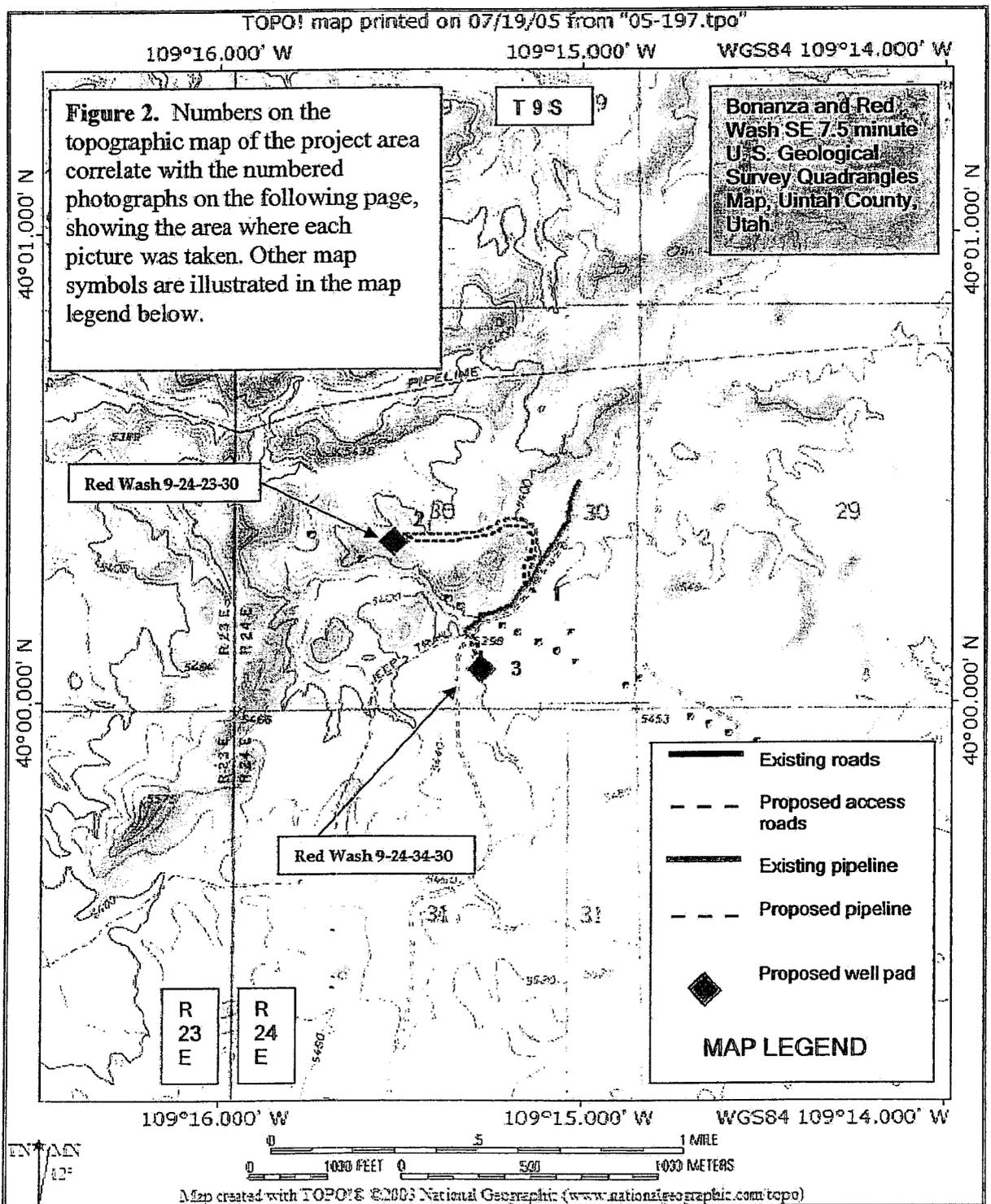
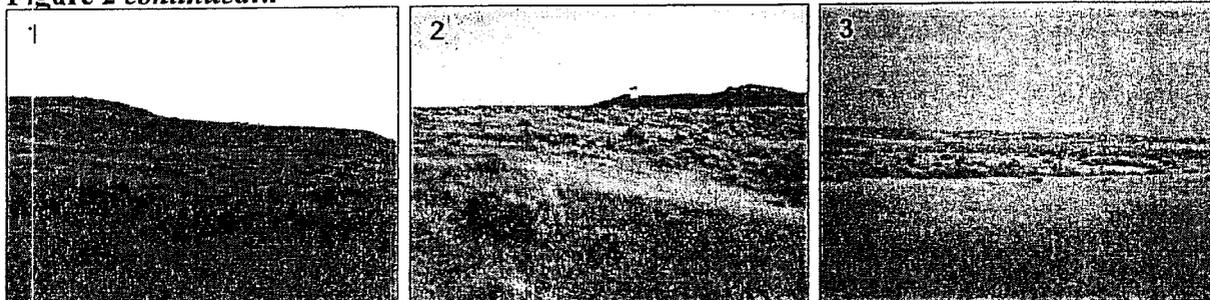


Figure 2 continued...



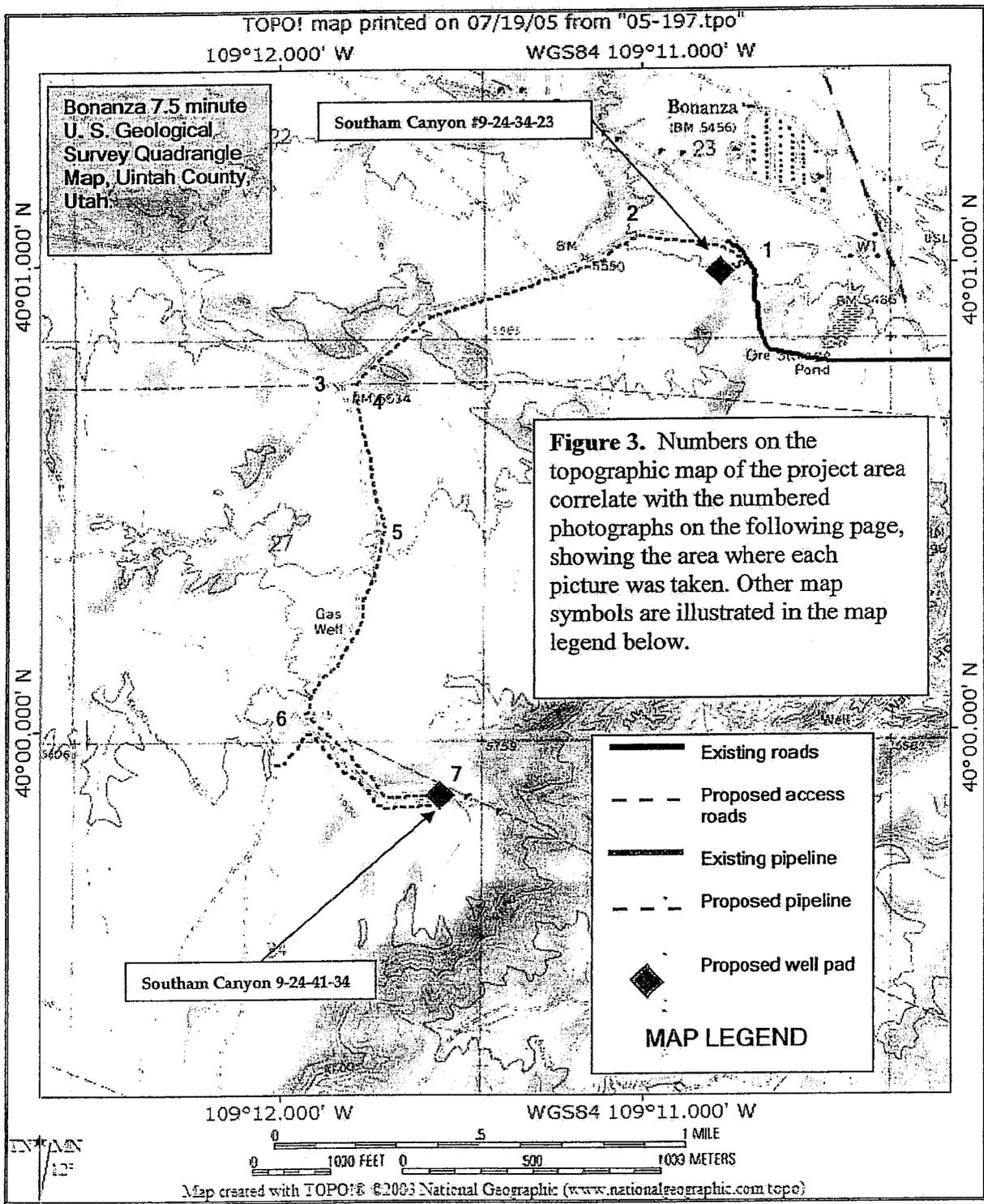
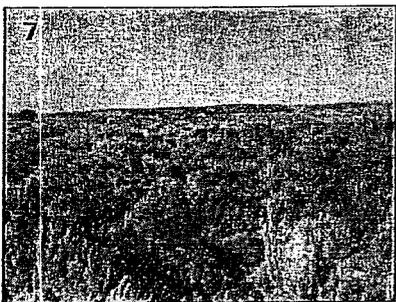
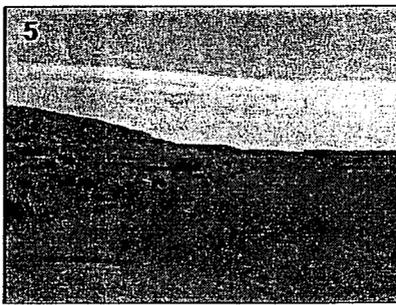
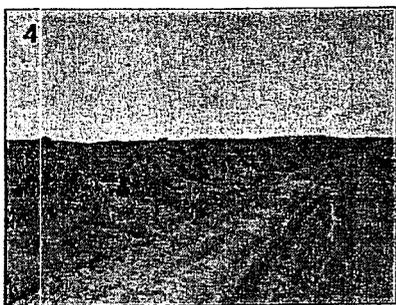
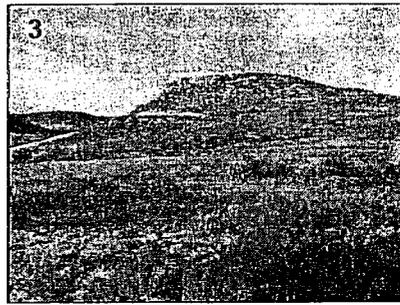


Figure 3 continued...



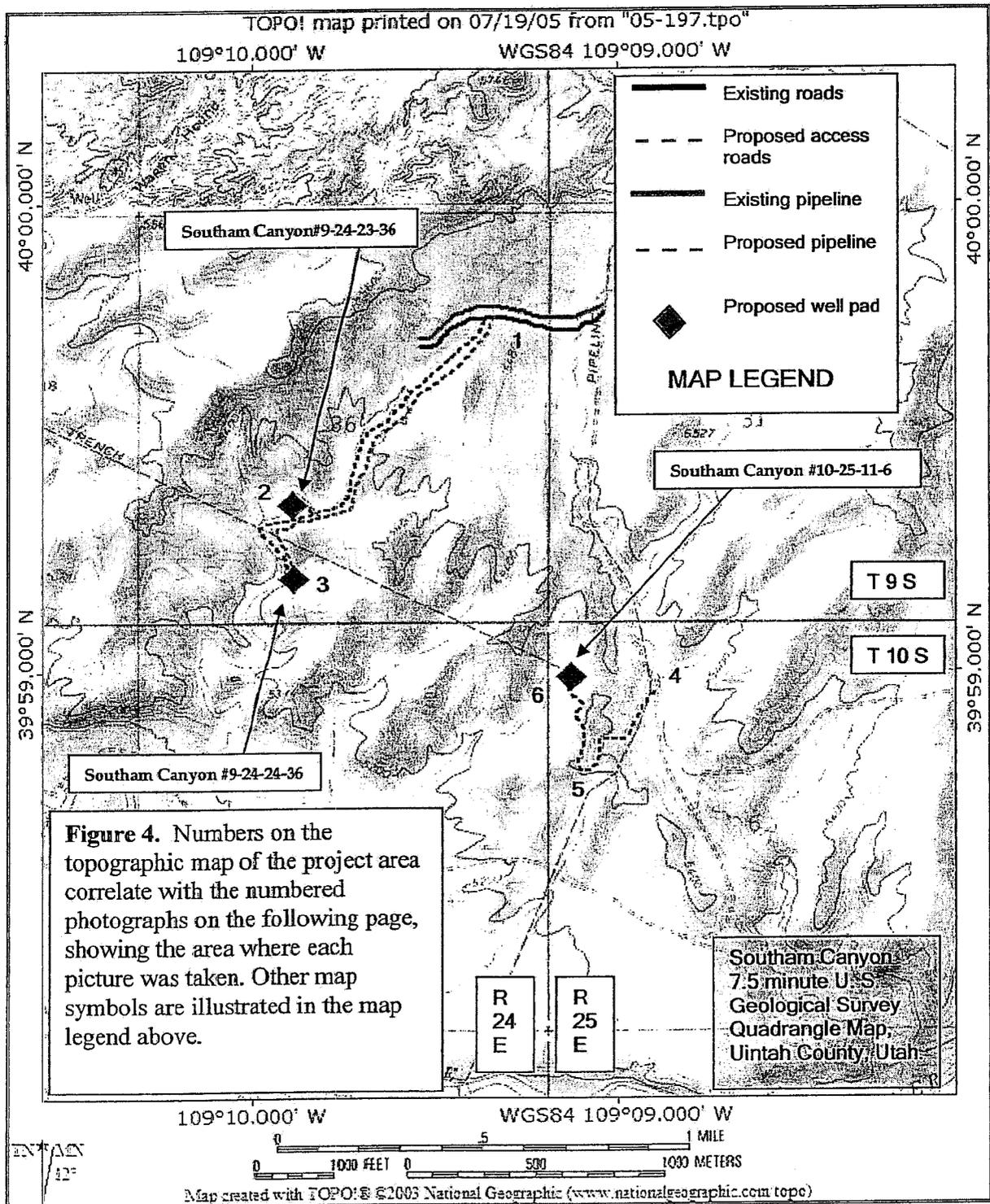
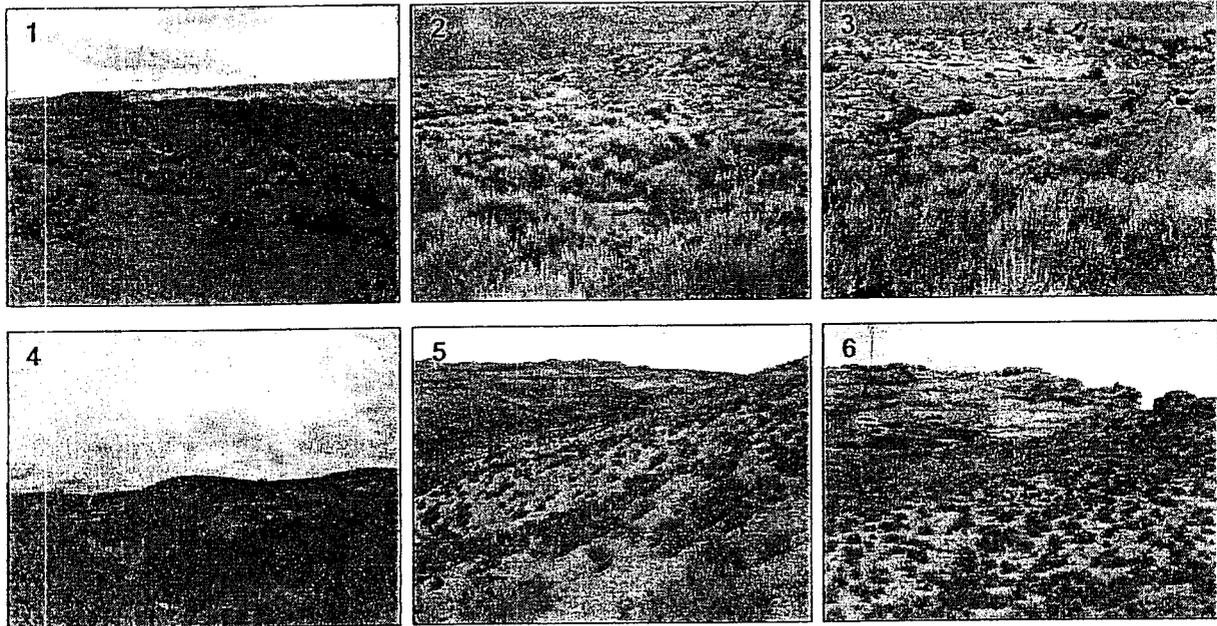


Figure 4 continued...



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**MONTGOMERY  
ARCHAEOLOGICAL  
CONSULTANTS**

Box 147, 322 East 100 South Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

August 5, 2005

Phyllis Sobotik  
Enduring Resources  
410 17<sup>th</sup> Street, Suite 1500  
Denver, CO 80202

Dear Ms. Sobotik:

Enclosed please find a copy of the paleontological reconnaissance report for Enduring Resources proposed well locations Archy Bench #11-22-11-2, 11-22-12-2, 11-22-13-2, 11-22-14-2, 11-22-24-2; Red Wash #9-24-23-30, 9-24-34-30, 9-24-24-23; Southam Canyon #9-24-41-34, 9-24-23-36, 9-24-24-36, and 10-25-11-6. The localities for Southam Canyon #9-24-24-36 and #10-25-11-6 both yielded plant fossils, the latter also contained fish scales. No monitoring of these sites is recommended unless more substantial fossil material is found. The other proposed well locations showed no signs of fossil materials inside the proposed construction sites. Therefore, no credible reason to limit construction within the staked areas was found. However, if vertebrate fossil(s) are found during construction it is recommended that a paleontologist be immediately notified.

We appreciate the opportunity to provide paleontological services for this project. If you have any questions or comments please call me.

Sincerely,

Keith R. Montgomery  
Principal Investigator, MOAC

Montgomery Archaeological Consultants, Inc.

310 East 100 South  
 PO Box 147  
 Moab, UT 84532

# Invoice

DATE	INVOICE #
8/5/2005	05-197

<b>BILL TO</b>
Enduring Resources Frank Hutto 410 17th Street, Suite 1520 Denver, CO 80202

TERMS	DUE DATE	PROJECT
Net 30	9/4/2005	T9-11S R22-24 12 Wells

QUANTITY	DESCRIPTION	RATE	AMOUNT
38	Paleontological Survey	55.00	2,090.00
4	Perdiem	80.00	320.00
523	Mileage	0.50	261.50
9	Paleontological Report	55.00	495.00
5	Secretarial/Drafting	28.00	140.00
<i>Archy Bench 11-22-11-2 = 206.66</i>			
<i>11-22-23-2 = 206.65</i>			
<i>11-22-13-2 = 206.66</i>			
<i>11-22-24-2 = 206.66</i>			
<i>11-22-25-2 = 206.65</i>			
<i>11-22-22-2 = 206.66</i>			
<i>11-22-12-2 = 206.65</i>			
<i>11-22-14-2 = 206.66</i>			
<i>Red Wash 9-24-23-30 = 206.66</i>			
<i>9-24-34-30 = 206.66</i>			
<i>Southam Canyon 9-24-41-34 = 206.66</i>			
Federal Identification Tax Number 47-090-2943			
<i>9-24-23-36 = 206.66</i>		<b>Total</b>	\$3,306.50

Payment is Due and Payable within 30 days. Interest will be calculated at the rate of 1.5% per month on the unpaid balance and a billing charge of \$25.00 per invoice for late payment will be assessed.

*OK  
8/8/05  
B. Bostle*

*9-24-24-36 = 206.65*  
*10-25-11-6 = 206.66*  
*9-24-44-36 = 206.65*

*Bumana 9-24-34-23 = 206.65*



**MONTGOMERY  
ARCHAEOLOGICAL  
CONSULTANTS**

Box 147, 322 East 100 South Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

July 6, 2005

Ms. Phyllis Sobotik  
Enduring Resources, LLC  
475 17<sup>th</sup> Street, Suite 1500  
Denver, Colorado 80202

Dear Ms. Sobotik:

Enclosed please find two copies of the report entitled "Cultural Resource Inventory of Enduring Resources Seven Proposed Well Locations, Access and Pipelines in T9S R24 E, Sections 22,23,27,30,34,36 and T10S R25E, Section 6 in Uintah County, Utah.". The inventory resulted in the documentation of two eligible archaeological sites (42Un4830 and 42Un4831). After consulting with Enduring Resources, it was decided that proposed well Southam Canyon 9-24-24-36 will be abandoned in order to adequately avoid these important sites. Based on this avoidance, a recommendation of "no historic properties affected" pursuant to Section 106, CFR 800 is proposed for this project.

Also enclosed is an invoice for costs associated with this project.

If you have any questions, please call me. We appreciate this opportunity to provide archaeological consulting services.

Sincerely,

Keith R. Montgomery  
Principal Investigator

cc: Mr. H. Blaine Phillips, Archaeologist, BLM, Vernal Field Office  
Kristine Curry, TLA Archaeologist, Salt Lake City, UT

SC 10-25-11-6

CULTURAL RESOURCE INVENTORY OF ENDURING RESOURCES  
SEVEN PROPOSED WELL LOCATIONS, ACCESS  
AND PIPELINES IN T9S R24E, SECTIONS 22, 23, 27, 30, 34, 36  
AND T10S R25E, SECTION 6 IN UINTAH COUNTY, UTAH

Kate Freudenberg  
and  
Todd Seacat

CULTURAL RESOURCE INVENTORY OF ENDURING RESOURCES  
SEVEN PROPOSED WELL LOCATIONS, ACCESS  
AND PIPELINES IN T9S R24E, SECTIONS 22, 23, 27, 30, 34, 36  
AND T10S R25E, SECTION 6 IN UINTAH COUNTY, UTAH

By:

Kate Freudenberg  
and  
Todd Seacat

Prepared For:

Bureau of Land Management  
Vernal Field Office  
and  
State of Utah  
School and Institutional Trust Lands Administration

Prepared Under Contract With:

Enduring Resources  
410 17<sup>th</sup> Street, Ste. 1520  
Denver, Colorado 80202

Prepared By:

Montgomery Archaeological Consultants  
P.O. Box 147  
Moab, Utah 84532

July 7, 2005

MOAC Report No. 05-199

United States Department of Interior (FLPMA)  
Permit No. 05-UT-60122

State of Utah Antiquities Project (Survey)  
Permit No. U-05-MQ-0615b,p,s

## ABSTRACT

A cultural resource inventory was conducted by Montgomery Archaeological Consultants (MOAC) in June, 2005 for Enduring Resources' seven proposed well locations, access, and pipeline corridors. The well locations are designated: Red Wash 9-24-23-30, 9-24-34-30, 9-24-34-23 and Southam Canyon 9-24-23-36, 9-24-24-36, 9-24-41-34, and 10-25-11-6. The project area occurs near Bonanza around Red Wash, Southam Canyon, and Wagon Hound Canyon. The legal description is Township 9 South, Range 24 East, Sections 22, 23, 27, 30, 34, and 36, and Township 10 South, Range 25 East, Section 6. A total of 133.3 acres was inventoried for cultural resources of which 23.5 occurs on public land administered by the Bureau of Land Management, Vernal Field Office, 99.1 occurs on private land, and 10.7 acres occurs on State Institutional and Trust Administration (SITLA) lands.

The inventory resulted in the documentation of two archaeological sites (42Un4830 and 42Un4831). 42Un4830 is a cache of Ute tepee poles and leather strips. These types of structural remains are very rare; hence, this is a particularly significant find for the area. Under Criterion C, the cultural materials embody a distinction type, method, and period of construction. Under Criterion D these organic artifacts could also provide important data concerning land use patterns, technology and chronology. 42Un4831 is a probable Ute rock art panel with a composition of tepee and horse depictions. The panel embodies a distinctive characteristics of a type, period and method of construction. In particular, rock art dating to this culture is somewhat rare in the area. Also, additional research may contribute to the temporality and interpretative aspects of this site (criterion D). Hence, the site is recommended as eligible to the NRHP under criteria C and D.

Archaeological investigations of Enduring Resources seven proposed well locations resulted in the documentation of two archaeological sites (42Un4830 and 42Un4831). Both sites (42Un4830 and 42Un4831) are recommended as eligible for the NRHP under criteria C and D. After consulting with Enduring Resources, it was decided that proposed well Southam Canyon 9-24-24-36 will be abandoned in order to adequately avoid these important sites. Based on this avoidance, a recommendation of "no historic properties affected" pursuant to Section 106, CFR 800 is proposed for this project.

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## INTRODUCTION

A cultural resource inventory was conducted by Montgomery Archaeological Consultants (MOAC) in June, 2005 for Enduring Resources seven proposed well locations with associated access and pipeline corridors. The project area is located near Bonanza, southeast of the town of Vernal, Uintah County, Utah. The well locations are designated: Red Wash 9-24-23-30, 9-24-34-30, 9-24-34-23 and Southam Canyon 9-24-23-36, 9-24-24-36, 9-24-41-34, and 10-25-11-6. The survey was implemented at the request of Ms. Phyllis Sobotik, Enduring Resources, LLC, Denver, Colorado. The land status is public land administered by the Bureau of Land Management (BLM), Vernal Field Office, private land, and State Institutional and Trust Administration (SITLA) lands.

The objective of the inventory was to locate, document, and evaluate any cultural resources within the project area in order to comply with Section 106 of 36 CFR 800, the National Historic Preservation Act of 1966 (as amended). Also, the inventory was implemented to attain compliance with a number of federal and state mandates, including the National Environmental and Policy Act of 1969, the Archaeological and Historic Conservation Act of 1972, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, and the Utah State Antiquities Act of 1973 (amended 1990).

The fieldwork was performed between June 15 and 19, 2005 by Todd Seacat, Kate Freudenberg, and Kylie Lower-Eskelson under the direction of Keith Montgomery (Principal Investigator). The inventory was conducted under the auspices of U.S.D.I. (FLPMA) Permit No. 05-UT-60122, State of Utah Antiquities Permit (Survey) No. U-05-MQ-0615b,s issued to MOAC, Moab, Utah.

A file search was performed by Marty Thomas at the Utah State Historic Preservation Office on June 15, 2005. These consultations indicated that several cultural resource investigations have been completed near the project area, although no sites have been documented. Woodward-Clyde Consultants conducted a survey in 1980 for MAPCO's proposed pipeline. The inventory resulted in locating 119 isolated finds, 13 prehistoric sites, and one previously recorded site, however, none of the sites occur in the present project area (Woodward-Clyde, 1980). In 1981, Nickens and Associates completed the Seep Ridge Sample Survey in which numerous sites were found throughout the area, although none of these are situated in the current project area (Larralde and Chandler 1981). In 1992, Metcalf Archaeological Consultants, Inc. conducted a survey for a Questar Gas Management's pipeline (Pennefather-O'Brien, Lubinski, and Metcalf, 1992). A total of 149 sites were located on this project, all outside of the present inventory area. Questar proposed a new pipeline running 25 ft from the existing Questar pipeline in 1997, which was inventoried by JBR Environmental Consultants Inc. (Mahoney and Billat 1997). The two pipelines are located north of proposed wells Red Wash 9-24-23-30 and 9-24-24-30. Two sites and three isolated finds were located and are not situated in the current project area. TRC Mariah Associates Inc. completed a seismic project through T9S R24E, Section 30, resulting in no cultural resources (Craven and Highland, 2002). In 2004, Sagebrush Consultants (Sage) inspected Southman Canyon wells #4-30 and 14-30 which resulted in the documentation of 42Un4500 located outside of the current inventory area (Polk, 2004). Again in 2004, Sage surveyed the Southman Canyon natural gas trunkline for Rocky Mountain Consulting Inc. (Polk and Garrison, 2004). The Little Emma Mine was documented (42Un4371-eligible) and occurs near proposed Red Wash 9-24-34-30. In August 2004, Sage surveyed well pads #4-20, #4-36, and #6-36 and found no cultural resources (Polk 2004). During the same year Sage inventoried several wells in T9S R24E, Sec. 30 and located site 42Un4526, which is not located within the current project area (Weymouth, 2004)

## DESCRIPTION OF PROJECT AREA

The inventory area is located near Bonanza in Red Wash and Southam Canyon in Uintah County, Utah. Enduring Resources seven proposed well locations Red Wash 9-24-23-30, 9-24-34-30, 9-24-34-23 and Southam Canyon 9-24-23-36, 9-24-24-36, 9-24-41-34, and 10-25-11-6 with associated access/pipeline corridors. The legal description is Township 9 South, Range 24 East, Sections 22, 23, 27, 30, 34, and 36, and Township 10 South, Range 25 East, Section 6 (Figures 1 through 4).

<u>Well Location Designation</u>	<u>Legal Location</u>	<u>Access/Pipeline</u>	<u>Cultural Resources</u>
Red Wash 9-24-23-30	T9S R24E Sec. 30, NE/SW	Access/Pipeline: 2,000 ft.	None
Red Wash 9-24-34-30	T9S R24E Sec. 30, SW/SE	Access/Pipeline: 280 ft.	None
Red Wash 9-24-34-23	T9S R24E Sec. 23 SW/SE	Pipeline: 5,550 ft.	None
Southam Canyon 9-24-41-34	T9S R24E Sec. 34 NE/NE	Access: 1,640 ft. Pipeline: 7,100 ft.	None
Southam Canyon 9-24-23-36	T9S R24E Sec. 36 NE/SW	Access/Pipeline: 3,600 ft.	None
Southam Canyon 9-24-24-36	T9S R24E Sec. 36 SE/SW	Access/Pipeline: 1,050 ft.	42Un4830 42Un4831
Southam Canyon 10-25-11-6	T10S R25E Sec. 6 NW/NW	Access/Pipeline: 2,800 ft.	None

### Environmental Setting

The project area lies within the Uinta Basin physiographic unit, a distinctly bowl-shaped geologic structure (Stokes 1986:231). The entire Uinta Basin ecosystem is within the Green River drainage, considered to be the northernmost extension of the Colorado Plateau. In general the project area falls within the Central Badlands District as defined by Clark (1967), an area of broad erosional benches, with extensive badlands rims along the drainages which continues to dissect the benches. Specifically, the inventory area is situated on a broad flat landform known as Deadman Bench that is dissected by several major intermittent tributary systems of the Green and White Rivers. In particular, the project area is characterized by narrow benches dissected north-south by Coyote Wash. The benches are a result of erosional processes and are covered by sandy-silt sediments. The oldest formation present is the early Tertiary Uinta formation that is characterized by low, eroded hills of variegated red and gray claystone, mudstone and shale. In the project area this formation erodes to badland topography and consists of irregular lensing of channel sandstone bodies and thin-bedded floodplain deposits. The Uinta formation is known for its fossil vertebrate turtles, crocodilians, fish, and mammals. In addition old piedmont-slope deposit most likely of Pleistocene age mantle the upland ridge tops and benches.

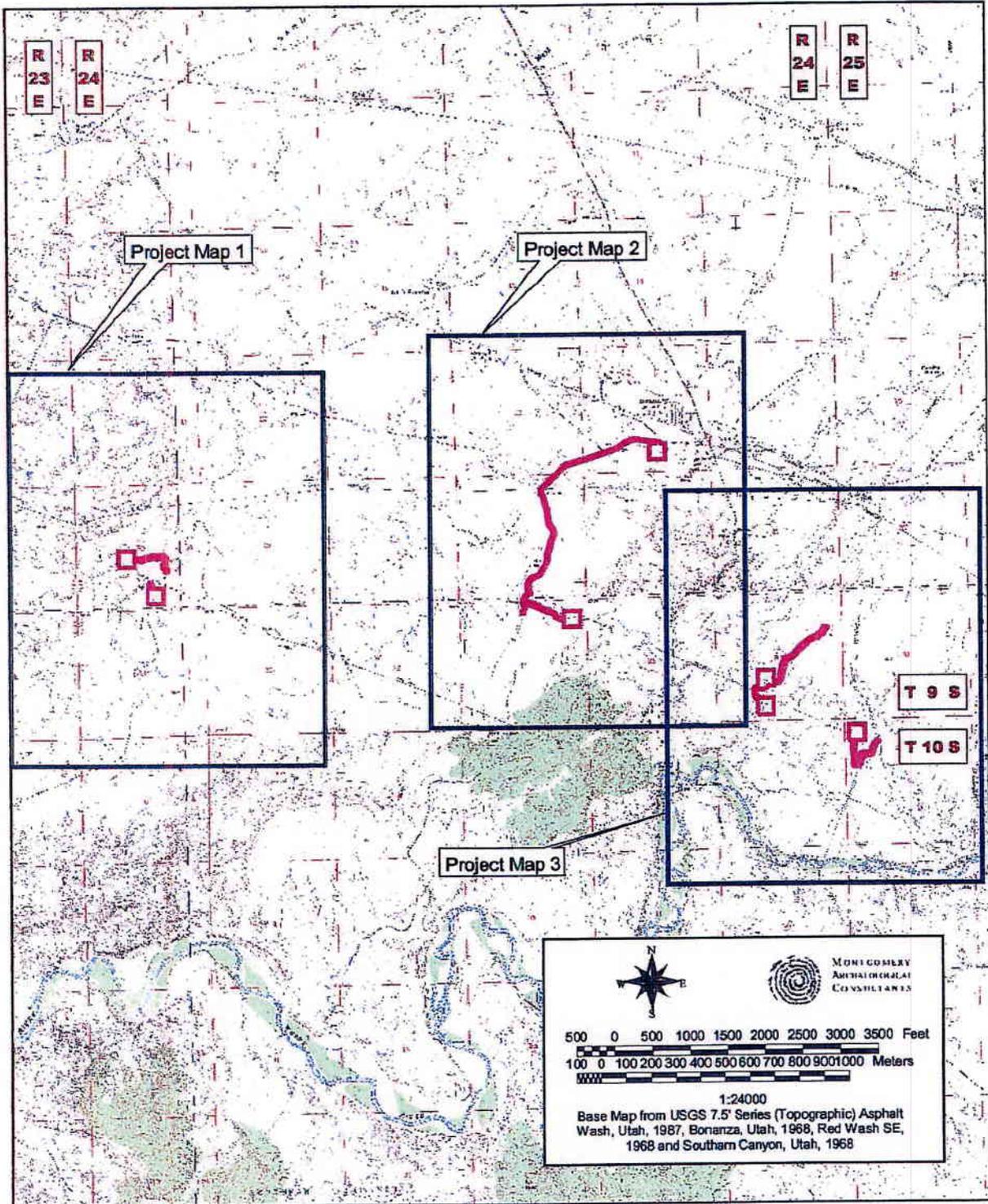


Figure 1. Enduring Resource's seven proposed well locations with access and pipeline corridors.

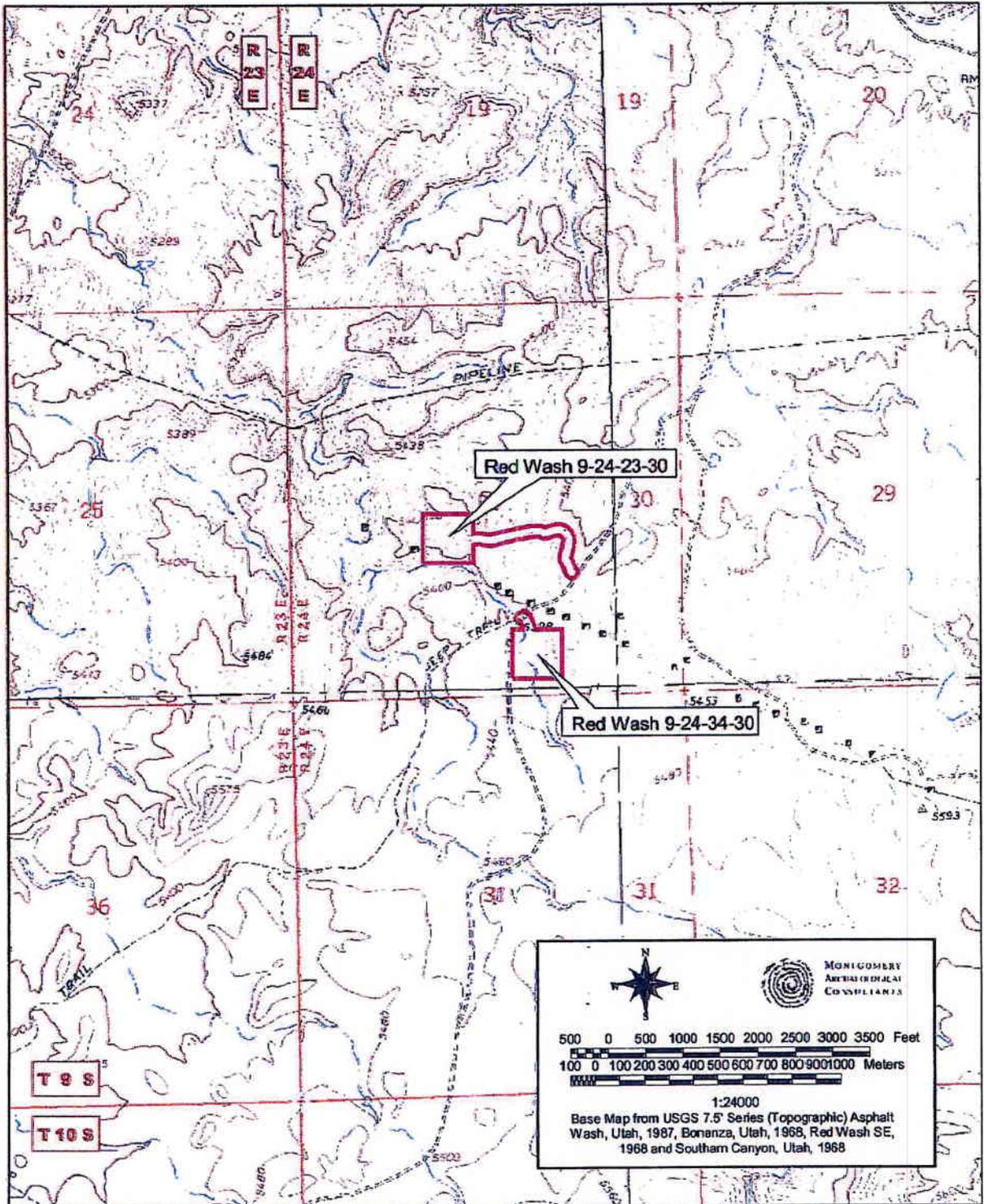


Figure 2. Project map 1, Enduring Resources' proposed Red Wash 9-24-23-30 and Red Wash 9-24-34-30 well locations and access/pipeline corridors.

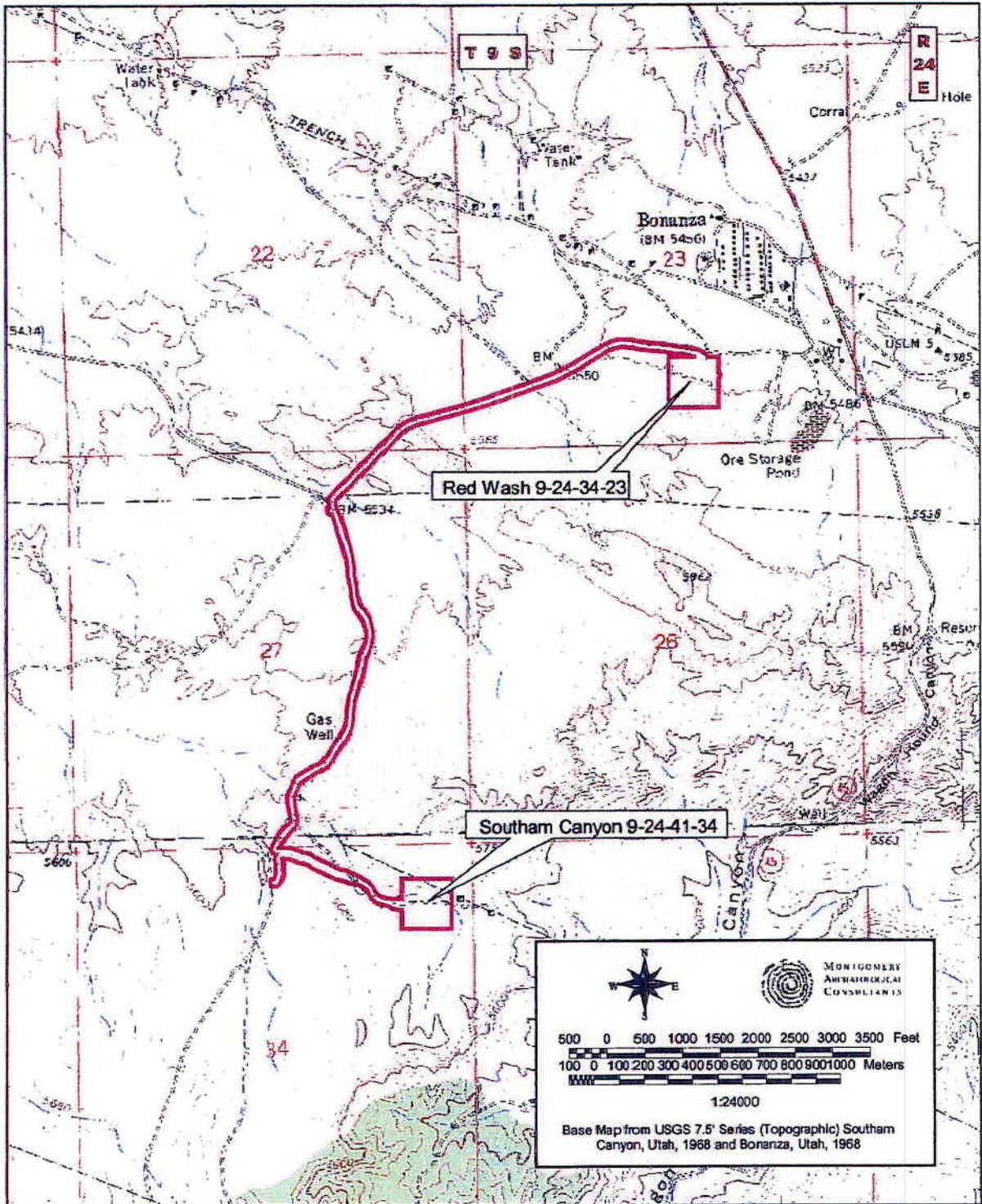


Figure 3. Project Map 2, Enduring Resources proposed Red Wash 9-24-34-23 and Southam Canyon 9-24-41-34 well locations and access/pipeline corridors.

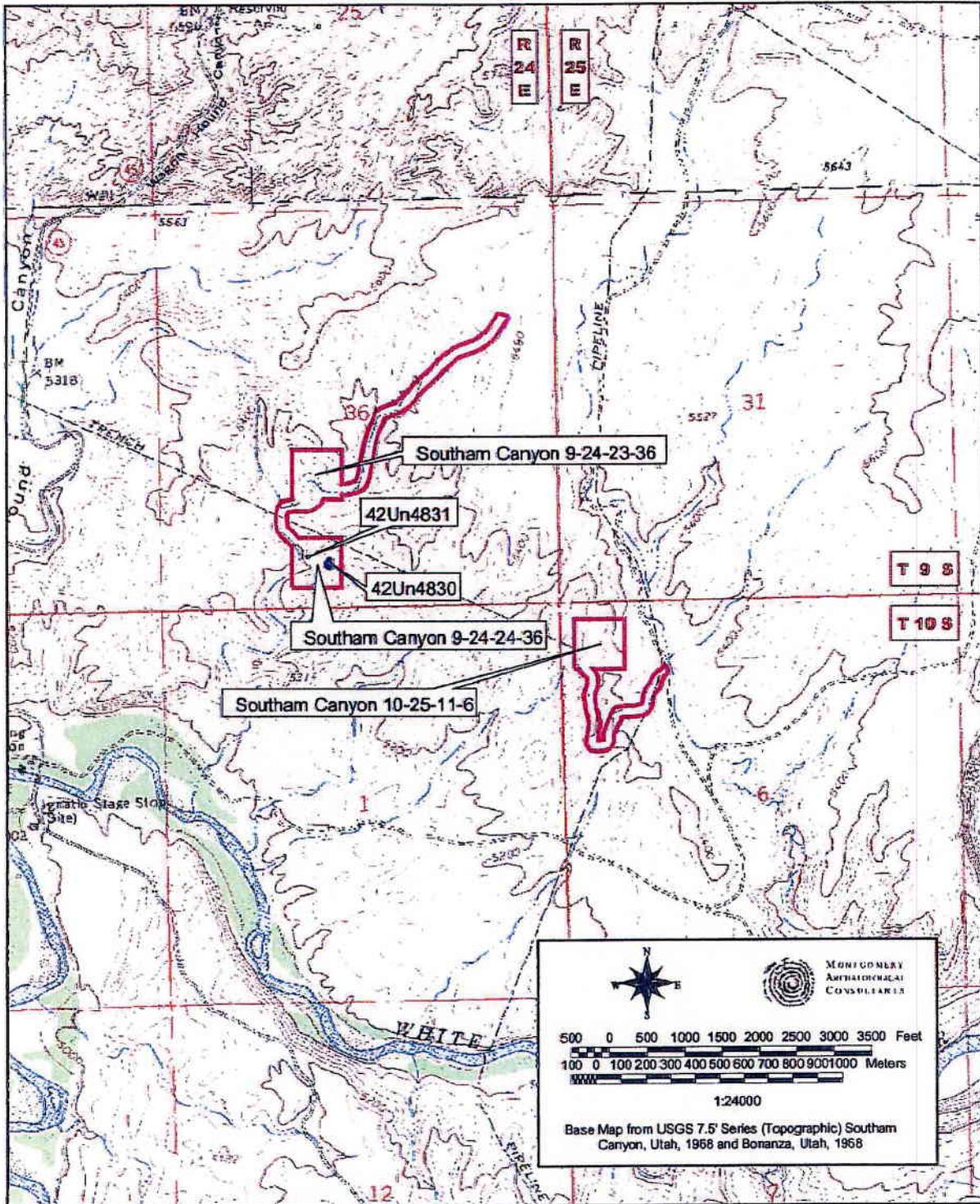


Figure 4. Project Map 3, Enduring Resources' proposed Southam Canyon 9-24-23-36, Southam Canyon 9-24-24-36, and Southam Canyon 10-25-11-6 well locations and access/pipeline corridors.

Named drainages in the area include Red Wash, Southam Canyon, and Wagon Hound Canyon. Elevation ranges between 5200 to 5700 ft a.s.l. Vegetation in the project area includes low sagebrush, greasewood, rabbit brush, saltbush, prickly pear cactus, and bunch grasses with cattails and willow. Modern disturbances include roads, grazing, and oil/gas development.

### Cultural Overview

The cultural-chronological sequence represented in the area includes the Paleoindian, Archaic, Fremont, Protohistoric, and Euro-American stages. The earliest inhabitants of the region are representative of the Paleoindian stage (ca. 12,000-8,000 B.P.), characterized by the adaptation to terminal Pleistocene environments and by the exploitation of big game fauna. The presence of Paleoindian hunters in the Uinta Basin region is implied by the discovery of Clovis and Folsom fluted points (ca. 12,000 B.P. - 10,000 B.P.), as well as the more recent Plano Complex lanceolate points (ca. 10,000 B.P. - 7,000 B.P.). Near the project area, a variety of Plano Complex Paleoindian projectile points have been documented, including Goshen, Alberta, and Midland styles (Hauck 1998). No sites with evidence of Folsom lithic technology have previously been documented near the project area. Spangler (1995:332) reports that there are no sealed cultural deposits in association with extinct fauna or with chronologically distinct Paleoindian artifacts in Utah. Specifically in the Uinta Basin, few Paleoindian sites have been adequately documented, and most evidence of Paleoindian exploitation of the area is restricted to isolated projectile points recovered in nonstratigraphic contexts. Copeland and Fike (1998:21) argue that many areas in Utah are conducive to the herding behavior of megafauna, and that there is a high probability that many of the sites in Utah of unknown age are Paleoindian.

The Archaic stage (ca. 8,000 B.P.-1,500 B.P.) is characterized by the dependence on a foraging subsistence, with peoples seasonally exploiting a wide spectrum of plant and animal species in different ecozones. The shift to an Archaic lifeway was marked by the appearance of new projectile point types, and the development of the atlatl, perhaps in response to a need to pursue smaller and faster game (Holmer 1986). In the Uinta Basin, evidence of Early Archaic presence is relatively sparse compared to the subsequent Middle and Late Archaic periods. Early Archaic (ca. 6000-3000 B.C.) sites in the Basin include sand dune sites and rockshelters primarily clustered in the lower White River drainage (Spangler 1995:373). Early Archaic projectile points recovered from Uinta Basin contexts include Pinto Series, Humboldt, Elko Series, Northern Side-notched, Hawken Side-notched, Sudden Side-notched and Rocker Base Side-notched points. Excavated sites in the area with Early Archaic components include Deluge Shelter in Dinosaur National Monument, and open campsites along the Green River and on the Diamond Mountain Plateau (Spangler 1995:374). The Middle Archaic (ca. 3000-500 B.C.) is characterized by improved climatic conditions and an increase in human population on the northern Colorado Plateau. Several stratified Middle Archaic sites have been excavated and dozens of sites have been documented in the Uinta Basin. Middle Archaic sites in the area reflect cultural influences from the Plains, although a Great Basin and/or northern Colorado Plateau influence is represented in the continuation of the Elko Series projectile points. Subsistence data from Middle Archaic components indicate gathering and processing of plants as well as faunal exploitation (e.g., mule deer, antelope, bighorn sheep, cottontail rabbit, muskrat, prairie dog, beaver and birds). The Late Archaic period (ca. 500 B.C.-A.D. 550) in the Uinta Basin is distinguished by the continuation of Elko Series projectile points with the addition of semi-subterranean residential structures at base camps. By about A.D. 100, maize horticulture and Rose Springs arrow points had been added to the Archaic lifeway. In the Uinta Basin, the earliest evidence of Late Archaic architecture occurs at the Cackleburr Wash Site (42Un1476) where a temporary structure, probably a brush shelter, yielded a date of 316 B.C. (Tucker 1986). The structure was probably associated with seasonal procurement of wild floral resources gathered along Cliff Creek.

The Formative stage (A.D. 500-1300) is recognized in the area as the Uinta Fremont as first defined by Marwitt (1970). This stage is characterized by a reliance upon domesticated corn and squash, increasing sedentism, and in its later periods, substantial habitation structures, pottery, and bow and arrow weapon technology. Based on the evidence from Caldwell Village, Boundary Village, Deluge Shelter, Mantles Cave and others, the temporal range of the Uinta Fremont appears to be from A.D. 650 to 950. This variant is characterized by shallow, saucer-shaped pithouse structures with randomly placed postholes and off-center firepits, some of which were adobe-rimmed. Traits considered unique or predominate to the Uinta Basin include calcite-tempered pottery, two-handled wide-mouth vessels, Utah type metates, the use of gilsonite for pottery repair, settlement on tops of buttes and large-shouldered bifaces (Shields 1970).

Archaeological evidence suggests that Numic peoples appeared in east-central Utah at approximately A.D. 1100 or shortly before the disappearance of Formative-stage peoples (Reed 1994). The archaeological remains of Numic-speaking Utes consist primarily of lithic scatters with low quantities of brown ware ceramics, rock art, and occasional wickiups. The brown ware ceramics appear to be the most reliable indicator of cultural affiliation, as Desert Side-notched and Cottonwood Triangular points were manufactured by other cultural groups beside the Ute (Horn, Reed, and Chandler 1994:130). The Ute appear to have been hunters and gatherers who exploited various fauna and flora resources. According to macrobotanical and faunal data from dated components, deer, elk, pronghorn, bison, and small game were acquired (Reed 1994:191). Plant materials thought to have been exploited for food include goosefoot, grass seeds, pinyon nuts, juniper berries, squawbush berries and leaves, hackberry seeds and possibly saltbush seeds, knotweed, chokecherry, and chickweed (Reed 1994:191).

Archaeological evidence suggests that Numic peoples appeared in east-central Utah at approximately A.D. 1100 or shortly before the disappearance of Formative-stage peoples (Reed 1994). The archaeological remains of Numic-speaking Utes consist primarily of lithic scatters with low quantities of brown ware ceramics, rock art, and occasional wickiups. The brown ware ceramics appear to be the most reliable indicator of cultural affiliation, as Desert Side-notched and Cottonwood Triangular points were manufactured by other cultural groups besides the Ute (Horn, Reed, and Chandler 1994:130). The Ute appear to have been hunter and gatherers exploiting various faunal and floral resources.

Prior to the Ute acquisition of the horse (pre-1700s) conical brush structures were mostly used as year-around shelter. They were made from three or four poles joined in the center (Fowler, 2000:96) with branches from pinyon, juniper, and willow stacked along side the poles. Tepees became more popular especially during the winter months after the acquisition of horses. The introduction of horses changed Ute lifestyles and allowed them to transport tepee poles and bison or elk hides, used for the cover of the tepee, more easily (Pettit 1990). Although tepees were a common form of shelter in the 19<sup>th</sup> century for the Ute, brush shelters use utilized well into the mid 20<sup>th</sup> century (Fowler 2000:96). The tepee was considered as the woman's home in Ute culture (Ibid:18). Typically, Ute women would select four long, strong poles used for the main frame of the tepee (Ibid:21) in contrast to Plains tribes (Cheyenne, Arapaho, Kiowa, and Sioux) which employed three lodgepoles. The four main poles were tied together and raised (Conetah, 1982) to create the foundation for the rest of the lodgepoles. In total, 12 poles were used for the main structure of the tepee and two poles were used on the outside to support the ventilation flaps (Pettit 1990). The tall poles were made from pine, aspen, or cedar. Once the poles were erected the large hide canvas was draped around the poles and then stretched to make a tight fit around the shelter. Decoration of the tepee hide varied, and some painted animals or birds (Conetah, 1982), while others kept them plain or only the chief's was embellished (Pettit 1990).

Rock art corresponding to the Numic peoples on the northern Colorado Plateau has been divided into at least three different styles: Early Historic Ute Style, Late Historic Ute Style, and Ute Representational Style (Buckles 1971; Cole 1989,1990). Early Historic Ute Style is ascribed a temporal range of A.D. 1600 to 1830 for eastern Utah and western Colorado (Buckles 1971; Cole 1989, 1990). This rock art style is dated from the time the Ute began to use the horse, approximately A.D. 1640 (Smith 1974:19-10), until 1830 when contact between Utes and Euro-Americans became routine due to the establishment of trading posts in western Colorado. Petroglyphs of this style are solidly pecked, stipple-pecked, and incised, and are located in a wide variety of settings, from the alpine zone to cliff faces along canyon bottoms. Subject matter of this style includes equestrian and pedestrian anthropomorphs, some with shield motifs.

Late Historic Ute Style rock art (A.D. 1830 to 1880) continues to show affinities to earlier art forms, but there is also influence from Euroamerican art traditions that emphasize controlled composition, realism, and naturalism in life forms (Cole 1990:235). Abstraction and simplicity of form depicted in earlier forms is generally lacking from this later style. Also, rock art panels are frequently crowded, and some elements appear to have been fitted into spaces between other imagery. Subject matter of the Late Ute Style is similar to the earlier, but with some additional subjects. Representations include anthropomorphs, decorated shields, shield-figures, horses and equestrians, tepees, trees, and animal tracks. Sometimes anthropomorph and zoomorph figures convey motion, realistic physical attributes, and detail of clothing, tack, decoration, and life-styles (Ibid:236). Significance was placed on the horse and related materials, such as trailing headdresses, shields, and decorated bridles, but Ute rock art rarely indicates a concern with Euro-American lifestyles or belief systems (Ibid:242).

Ute Representational Style (A.D. 1880 to 1950) is mainly based on examples from Ute Mountain Tribal Park, however some good examples have been reported from the East Tavaputs Plateau region (Spangler 1995:649). This style includes detailed pictographs and petroglyphs executed with metal tools employing techniques such as pecking, abrasion, scratching, and incising. Themes of Ute Representational Style include traditional dress and ceremonies, possibly the Bear Dance; horses as symbols of value, prestige, and beauty; cowboy culture; and personal recognition (Cole 1990:251). This Ute rock art style features humans and equestrians, but horses are also important individual subjects. In contrast to the horses, humans are stiff and stylized in appearance comparable to the earlier Ute rock art styles. Humans, some with detailed facial features, are frequently near life-size and are shown full-face, in profile, and from the rear (Spangler 1995:649). Traditional clothing, such as breast plates and feather headdresses, are depicted. Cowboy attire is shown in great detail and includes articles described above as well as spurs. Hats and boots are depicted as individual items. Euroamerican influence is further indicated by the depiction of cattle, buildings, trains, and flags.

On May 5, 1864 Congress passed a law confirming the 1861 executive order setting up the Uintah Reservation (Burton 1996:24). This treaty provided that the Ute people give up their land in central Utah and move within one year to the Uintah Reservation without compensation for loss of land and independence. The Uinta-ats (later called Tavaputs), PahVant, Tumpanawach, and some Cumumba and Sheberetch of Utah were gathered together at the Uintah agency during the late 1860s and early 1870s to form the Uintah Band (Burton 1996:18-19). In the 1880 treaty council the White River Utes, who had participated in the Meeker Massacre, were forced to sell all their land in Colorado and were moved under armed escort to live on the Uintah Reservation (Callaway, Janetski, and Stewart 1986:339). Shortly thereafter, 361 Uncompahgre Utes were forced to sell their lands, and were relocated to the Ouray Reservation adjacent to the southern boundary of the

Uintah Reservation. This area embraced a tract of land to the east and south of the Uintah Reservation below Ouray lying east of the Green River. A separate Indian Agency was established in 1881 with headquarters at Ouray which was located across the river from where the first military post, Fort Thornburgh was located. The Department of War established Fort Thornburgh along the Green River in 1881 to maintain peace between the settlers of Ashley Valley. The infantry who participated in the relocation of the Colorado Indians ensured that the Uncompahgre and White River Utes remained on the two reservations (Burton 1996:28). In the late 1880s, gilsonite was discovered in the Uintah Basin, and Congress was persuaded to apportion 7,040 acres from the reservation so the mineral could be mined.

The earliest recorded visit by Europeans to Utah was the Dominguez-Escalante expedition, of 1776. From the early 1820s to 1845, the Uinta Basin became an important part of the expanding western fur trade. Homesteading began in 1878 with Thomas Smart, one of the first white settlers to settle east of Ouray. In 1879, about forty cowboys and several large herds of cattle wintered on the White River. The winter of 1879-1880 saw the establishment of a settlement near the White River by several pioneers and their families including Ephraim Ellsworth, the Remingtons, and the Campbells. The person most responsible for organizing a permanent homesteading movement in Ouray Valley was William H. Smart, the brother of Thomas Smart, who became president of the Wasatch LDS Stake in 1901 (Burton 1998). When the Ute reservation was opened to white homesteaders in 1905, Smart organized several exploration trips into the area that later attracted many LDS families.

Initially, livestock was the main industry of white homesteaders in Uintah County. Two factors - free grass and the availability of water - influenced men to move their cattle into the county. Most of the land in the area was part of the public domain and no territory or state could tax it. Cattle were eventually brought up east as far as the Green River and then to the surrounding mountains. Large cattle herds had been coming to Brown's Park from Texas and other eastern areas since the early 1850s. The K Ranch was a large cattle operation owned by P.R. Keiser which brought many cowboys to the area. The ranch was located on the Utah-Colorado line with property in both states. Charley Hill, who came to Ashley Valley as a trapper for the Hudson Bay Company, started a cattle company on Hill Creek and Willow Creek in the Book Cliffs (Burton 1996:109). They later moved out when the government set this section aside for the Ouray Indian Agency. Other prominent men in the cattle industry included A.C. Hatch, Dan Mosby, and James McKee. Cattle rustling became an increasingly large problem as cattle herds grew, and conflict resulted between the small and large cattle companies. In 1912, the Uintah Cattle and Horse Growers Association was organized to protect the livestock industry from thieves and to issue an authorized brand book (Ibid: 110).

The sheep industry later became part of Uintah County's economic backbone, and contributed to the decline of the cattle industry. Sheep were first introduced to the valley during the winter of 1879 when Robert Bodily brought in sixty head (Burton 1996:111). Sheep were able to survive the hard winters much better than cattle. By the mid-1890s, more than 50,000 head of sheep were in the region; and the production of wool became very important. In 1897, C.S. Carter began building shearing corrals. In 1899, 500,000 pounds of wool were shipped from the county and sold for twelve and one-half cents per pound (Ibid:111). In 1906, the Uintah Railway Company built shearing pens on the Green River to encourage the shipping of wool by train; and in 1912, pens were built at Bonanza and Dragon. Beginning in the 1940's Mexican sheep-shearing crews and Greek sheepmen from the Price and Helper areas came into the area. The Taylor Grazing Act was passed in 1934, allotting specific areas or "districts" to stockmen for livestock grazing that

required permits. This act was a forerunner of the Bureau of Land Management, which was established in 1946 and eventually assumed responsibility for the administration of grazing laws on public land (Burton 1996:115).

Uintah County is also known for its natural resources. Coal, copper, iron, asphalt, shale, and especially gilsonite, were important to the mining industry. When gilsonite was discovered in the Uinta Basin in the 1880s, Congress was persuaded to apportion 7,040 acres from the Ute reservation so the mineral could be mined. This area became known as "The Strip" and later developed into the townsite of Moffat (later renamed Gusher). Gilsonite is a light-weight lustrous black hydrocarbon mineral that can easily be crushed into a black-brown powder. It can be found in commercial quantities only in the Uinta Basin. The earliest use of the mineral was in buggy paints and beer-vat linings. Today it is used in over a hundred products ranging from printing inks to explosives and automobile body sealer and radiator paint (Burton 1998:343). Mining camps also sprang up near the Colorado line in Bonanza, Dragon, and Watson starting in about 1903. Many immigrants, including Greeks and Chinese, worked in the mines. Bonanza became one of the largest and most modern functioning mining camps in the area beginning in 1921 and reached its peak in 1937. It was chosen as the Barber gilsonite company headquarters, because it was near the largest deposits of gilsonite in the area. Miners from Dragon, Rainbow, and other neighboring communities were relocated to Bonanza.

#### SURVEY METHODOLOGY

An intensive pedestrian survey was performed for this project which is considered 100% coverage. At the proposed well locations, a 10 acre square parcel was defined, centered on the well pad center stake. The interior of the well location was examined for cultural resources by the archaeologist walking parallel transects spaced no more than 10 meters apart. The access roads were surveyed to a width of 30.5 m (100 ft). Ground visibility was considered good. A total of 133.3 acres was inventoried for cultural resources of which 23.5 occurs on public land administered by the Bureau of Land Management, Vernal Field Office, 99.1 occurs on private land, and 10.7 acres occurs on State Institutional and Trust Administration (SITLA) lands.

Cultural resources were recorded either as archaeological sites or isolated finds of artifacts. An archaeological site was defined as a spatially definable area with features and/or ten or more artifacts. Sites were documented by archaeologists walking transects, spaced no more than 3 meters apart, and marking the locations of cultural materials with pinflags. This procedure allowed clear definition of site boundaries and artifact concentrations. At the completion of the surface inspection, a handheld GEO XT Trimble GPS unit was employed to point-provenience diagnostic artifacts and other relevant features in reference to the site datum. Archaeological sites were plotted on a 7.5' USGS quadrangle and photographed; site data were entered on an Intermountain Antiquities Computer System (IMACS, 1990 version) inventory form. Permanent datums were placed at the sites consisting of a rebar and aluminum cap stamped with the temporary site number.

## INVENTORY RESULTS

The inventory of Enduring Resources seven proposed well locations resulted in the documentation of two prehistoric sites (42Un4830 and 42Un4831).

### Archaeological Sites

Smithsonian Site No.: 42Un4830

Temporary Site No.: 05-199-01

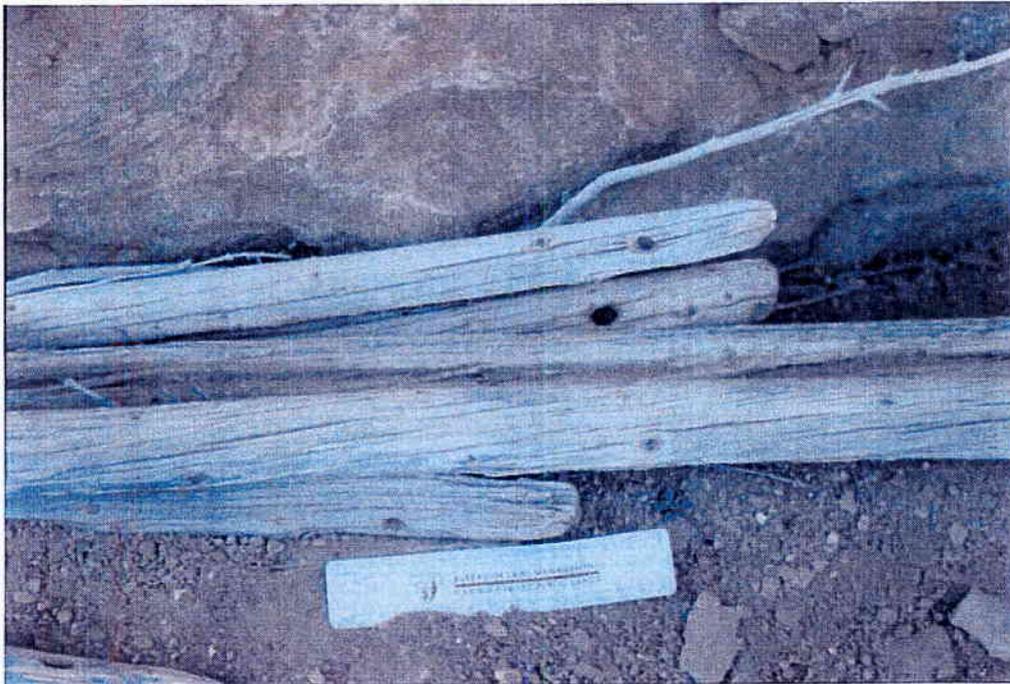
Land Status: Private

NRHP Eligibility: Eligible

Description: This is a cache of tepee poles and leather strips situated under a sandstone ledge and boulder in a side box canyon. For the most part the items occurred on the surface although lower poles were slightly buried and some of the leather was found under rocks. The site consists of a cache of about 13 wooden tepees poles that included three or four complete poles measuring about 5 m long and 5 cm in diameter located under a sandstone ledge. All other poles were broken at varying lengths. Four poles were scattered outside of the ledge cache. The poles are tapered on the ends and display holes (1 to 2 cm) drilled into one end. Five leather strips ranging from 40 to 50 cm long and 20 to 25 cm wide were found with a series of vertical holes punched through the ends. Some pieces appeared to be laced together with thin strips of leather as well. The leather was placed inside a boulder shelter adjacent to the ledge. No other cultural materials were found in the area. However, a petroglyph panel (42Un483) with horses and tepees occurs about 100-150 m to the west at the mouth of the canyon and may be related.



42Un4830. View of the tepee poles located in the alcove. The leather pieces are situated in the background of the shadows.



42Un4830. View of the tepee pole end pieces, with 1-2 cm holes drilled into them. Photo taken to the east in the alcove.

Smithsonian Site No.: 42Un4831  
Temporary Site No.: 05-199-02  
Land Status: Private  
NRHP Eligibility: Eligible

Description: This petroglyph panel (Feature A) is located on a sandstone cliff (Uinta Formation) at the mouth of a box canyon north of the White River. The oldest elements appear to be protohistoric/early contact (Numic) portrayals of two decorated tepees, several horses, and other abstract motifs. The main grouping is clustered in a 1.73 m wide by 1.29 m high area of the cliff face, about 80 cm above the ground surface. The tepees occur on the right side of the 'scene' and differ in size, exhibiting poles extending from the tops, and banded, geometric designs along the bottoms. To the left of the shelters are two overlapping unmounted horse depictions also lightly scratched into the cliff wall. The most complete horse displays a compact arced torso, elongated-curved neck, rectangular head with perked ears. The horses appear to be stationary and are facing the tepees. Between the two subject matters are a series of vertical lines as well as other linear designs. A third quadruped is located about 3 m to the west and is somewhat similar except the head is more elongated. The more recent elements on the cliff face are lightly scratched names. Overall the Numic or Ute petroglyphs are not as well executed or skillfully drawn as other found in the area and may be the work of a single artist. According to Cole (1990:235) the figures on this panel may fall into the Ute Representational Style (A.D. 1880 to 1950) which includes petroglyphs executed with metal tools employing techniques such as pecking, abrasion, scratching, and incising. This Ute rock art style features humans and equestrians, but horses are also important individual subjects. No artifacts or features were found directly with this rock art; however, 42Un4830, a cache of tipi poles and leather occurs about 100-150 meters to the east and may be related.

## NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

The National Register Criteria for Evaluation of Significance and procedures for nominating cultural resources to the National Register of Historic Places (NRHP) are outlined in 36 CFR 60.4 as follows:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, material, workmanship, feeling, and association, and that they:

- a)...are associated with events that have made a significant contribution to the broad patterns of our history; or
- b)...are associated with the lives of persons significant to our past; or
- c)...embody the distinctive characteristics of a type, period, or method of construction; or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d)...have yielded or may be likely to yield information important in prehistory or history.

The inventory resulted in the documentation of two archaeological sites (42Un4830 and 42Un4831). 42Un4830 is a cache of Ute tepee poles and leather strips. These types of structural remains are very rare; hence, this is a particularly significant find for the area. Under Criterion C, the cultural materials embody a distinction type, method, and period of construction. Under Criterion D these organic artifacts could also provide important data concerning land use patterns, technology and chronology. 42Un4831 is a probable Ute rock art panel with a composition of tepee and horse depictions. The panel embodies a distinctive characteristics of a type, period and method of construction. In particular, rock art dating to this culture is somewhat rare in the area. Also, additional research may contribute to the temporality and interpretative aspects of this site (criterion D). Hence, the site is recommended as eligible to the NRHP under criteria C and D.

## MANAGEMENT RECOMMENDATIONS

The inventory of Enduring Resources seven proposed well locations resulted in the documentation of two archaeological sites (42Un4830 and 42Un4831). Both sites (42Un4830 and 42Un4831) are recommended as eligible for the NRHP under criteria C and D. After consulting with Enduring Resources, it was decided that proposed well Southam Canyon 9-24-24-36 will be abandoned in order to adequately avoid these important sites. Based on this avoidance, a recommendation of "no historic properties affected" pursuant to Section 106, CFR 800 is proposed for this project.

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APPENDIX A:

INTERMOUNTAIN ANTIQUITY COMPUTER SYSTEM (IMACS)  
SITE INVENTORY FORMS  
(42Un4830 and 42Un4831)

On File At:

Bureau of Land Management  
Vernal Field Office  
and  
Division of State History  
Salt Lake City, UT

Montgomery Archaeological Consultants, Inc.

# Invoice

310 East 100 South  
 PO Box 147  
 Moab, UT 84532

DATE	INVOICE #
6/30/2005	05-199

<b>BILL TO</b>
Enduring Resources Frank Hutto 410 17th Street, Suite 1520 Denver, CO 80202

TERMS	DUE DATE	PROJECT
Net 30	7/30/2005	7 Wells T9S R24E T10S R25E

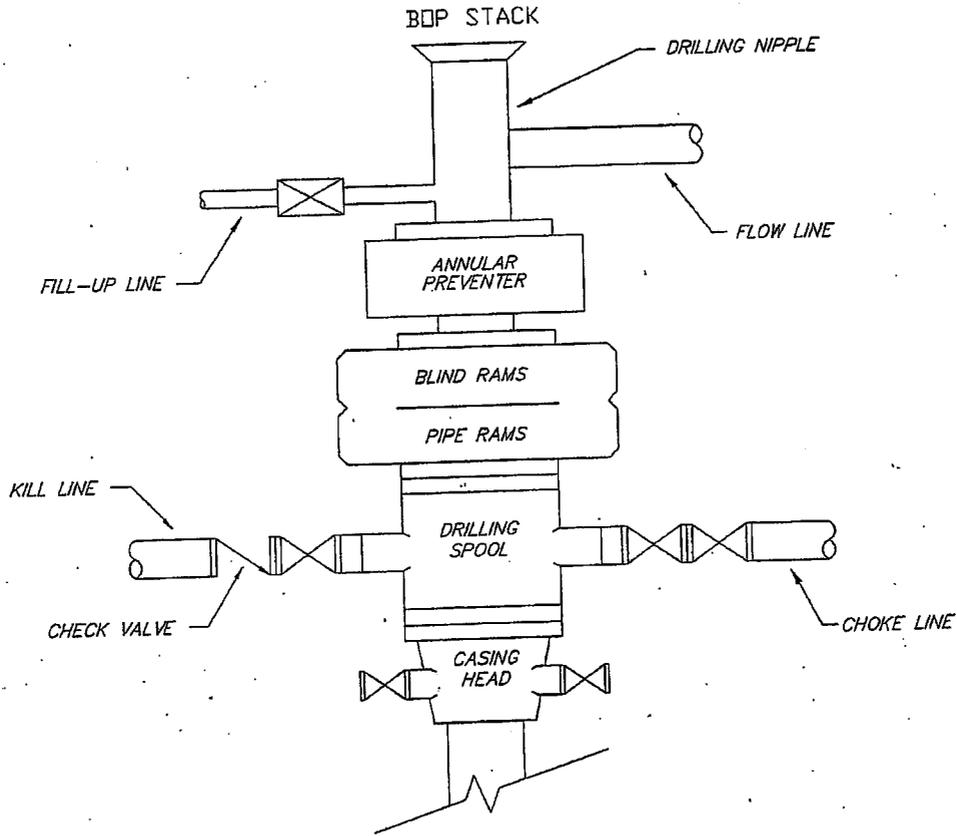
QUANTITY	DESCRIPTION	RATE	AMOUNT
31	Project Archaeologists-Field Work	45.00	1,395.00
28	Archaeological Technicians-Field Work	28.00	784.00
4	Perdiem	80.00	320.00
472	Mileage	0.50	236.00
21	Project Archaeologists-Report Prep	45.00	945.00
7	Secretarial/Drafting	28.00	196.00
<p><i>Red Wash 9-24-23-30 = \$ 484.50</i></p> <p><i>9-24-34-30 = 484.50</i></p> <p><i>Bumanza 9-24-34-23 = 484.50</i></p> <p><i>southham Canyon 9-24-23-36 = 484.50</i></p> <p><i>9-24-24-36 = 484.50</i></p> <p><i>9-24-41-34 = 484.50</i></p> <p><i>10-25-11-6 = 484.50</i></p> <p><i>9-24-44-36 = 484.50</i></p>			
Federal Identification Tax Number 47-090-2943		<b>Total</b>	\$3,876.00

Payment is Due and Payable within 30 days. Interest will be calculated at the rate of 1.5% per month on the unpaid balance and a billing charge of \$25.00 per invoice for late payment will be assessed.

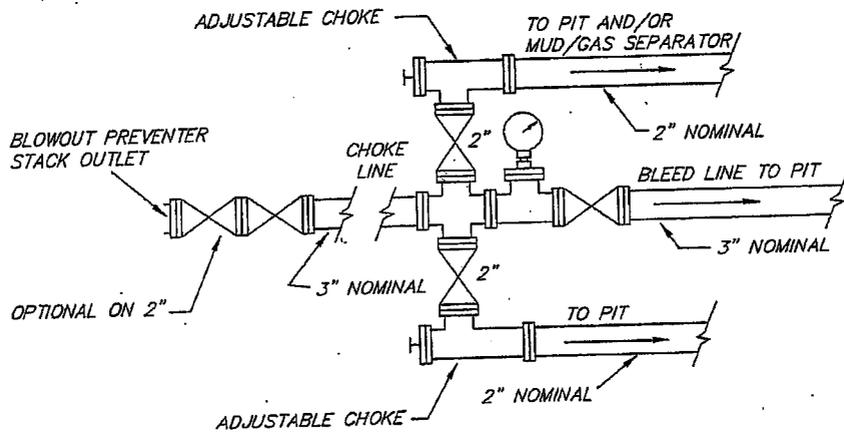
*DK*  
*Boh*

**ENDURING RESOURCES, LLC**

*TYPICAL 3,000 p.s.i.  
BLOWOUT PREVENTER SCHEMATIC*



*TYPICAL 3,000 p.s.i.  
CHOKE MANIFOLD SCHEMATIC*



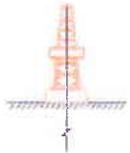


**ENDURING RESOURCES**  
**Southam Canyon 9-25-14-31**  
**NW/NW Sec. 6, T10S, R25E**  
**Uintah County, Utah**



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	8.98	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	8.98	300.00	0.00	0.00	0.00	8.98	0.00	Start Nudge
3	1050.00	15.00	8.98	1041.46	96.42	15.24	2.00	8.98	97.62	End Nudge
4	1550.00	15.00	8.98	1524.42	224.24	35.44	0.00	0.00	227.02	Start Build
5	1935.08	30.40	8.98	1878.60	370.60	58.55	4.00	0.00	375.19	End Build
6	3018.98	30.40	8.98	2813.45	912.42	144.14	0.00	0.00	923.74	Start Drop
7	4032.43	0.00	8.98	3780.00	1171.84	185.12	3.00	180.00	1186.37	End Drop
8	6192.43	0.00	8.98	5940.00	1171.84	185.12	0.00	8.98	1186.37	TD

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Southam Canyon 9-25-14-31	40.00	6.14	7171437.58	2298387.25	39°59'01.305N	109°09'05.571W	N/A



RKB Elevation: 5363.0  
 Ground Elevation: 5347.2

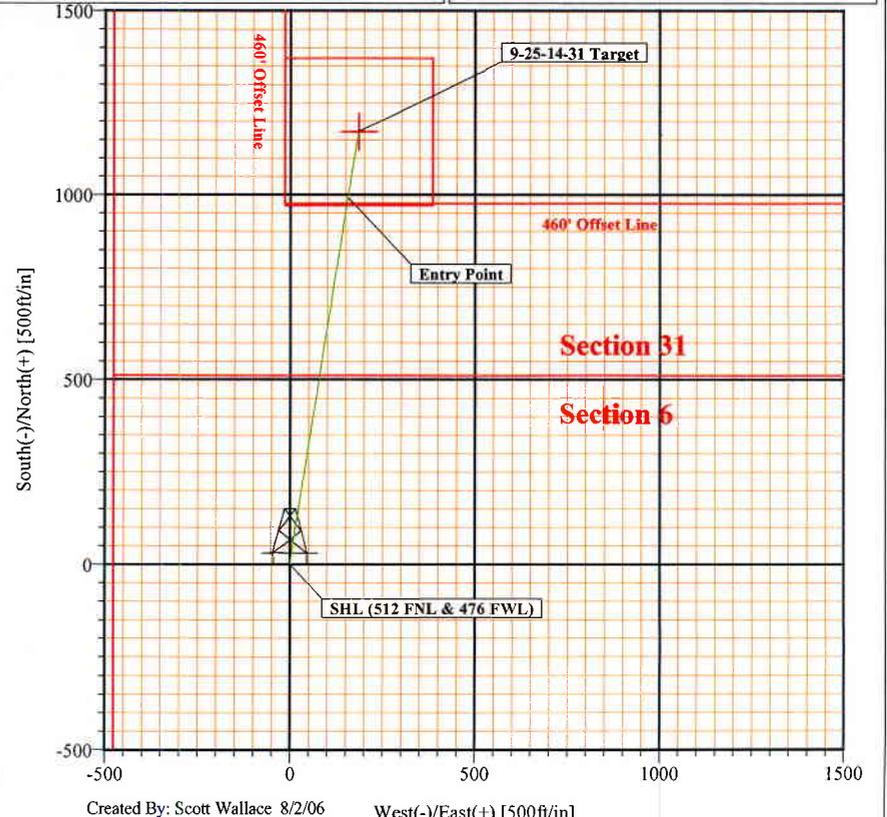
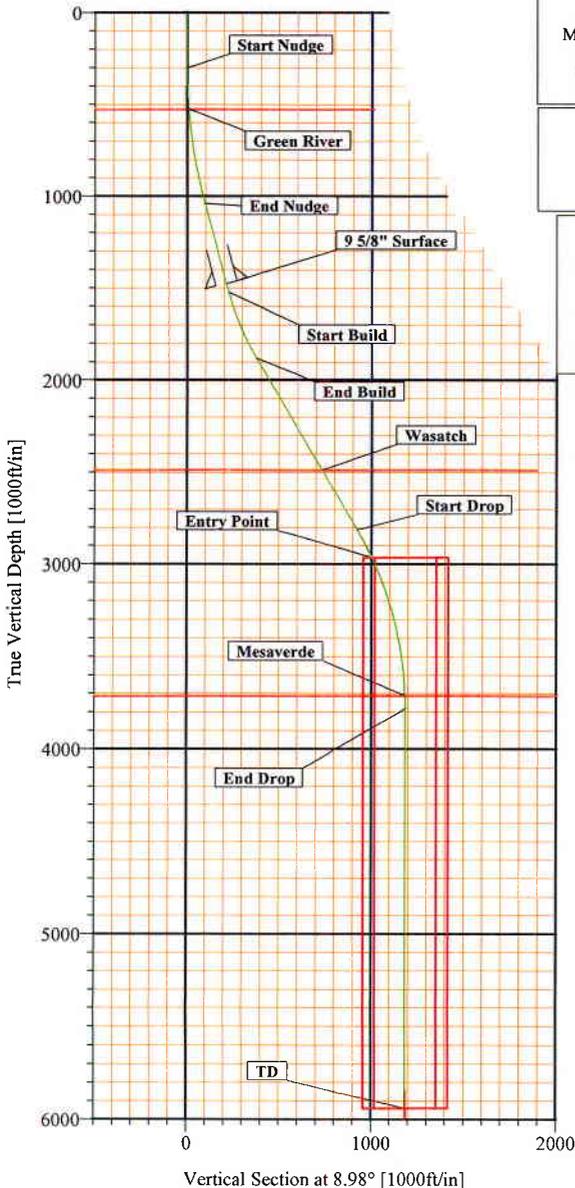
FIELD DETAILS	
Uintah, Utah Utah Central Zone U.S.A.  Geodetic System: US State Plane Coordinate System 1983 Ellipsoid: GRS 1980 Zone: Utah, Central Zone Magnetic Model: igr2005  System Datum: Mean Sea Level Local North: True North	

SITE DETAILS	
NW/NW 6-10S-25E Pad Sec. 6, T10S, R25E, Uintah County, Utah 552 FNL & 470 FWL  Site Centre Latitude: 39°59'00.910N Longitude: 109°09'05.650W  Ground Level: 5347.20 Positional Uncertainty: 0.00 Convergence: 1.50	

TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Shape
9-25-14-31 Target	5940.00	1171.84	185.12	Rectangle (400x400)

CASING DETAILS				
No.	TVD	MD	Name	Size
1	1476.13	1500.00	9 5/8" Surface	9.625

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	528.00	528.24	Green River
2	2488.00	2641.64	Wasatch
3	3713.00	3965.41	Mesaverde



Created By: Scott Wallace 8/2/06

West(-)/East(+) [500ft/in]

# Weatherford International

## Planning Report

<b>Company:</b> Enduring Resources	<b>Date:</b> 8/2/2006	<b>Time:</b> 10:45:15	<b>Page:</b> 1
<b>Field:</b> Uintah, Utah	<b>Co-ordinate(NE) Reference:</b> Well: Southam Canyon 9-25-14-31		
<b>Site:</b> NW/NW 6-10S-25E Pad	<b>Vertical (TVD) Reference:</b> SITE 5363.0		
<b>Well:</b> Southam Canyon 9-25-14-31	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,8.98Azi)		
<b>Wellpath:</b> 1	<b>Plan:</b> Plan #1		

<b>Field:</b> Uintah, Utah Utah Central Zone U.S.A.	<b>Map Zone:</b> Utah, Central Zone
<b>Map System:</b> US State Plane Coordinate System 1983	<b>Coordinate System:</b> Well Centre
<b>Geo Datum:</b> GRS 1980	<b>Geomagnetic Model:</b> igrf2005
<b>Sys Datum:</b> Mean Sea Level	

<b>Site:</b> NW/NW 6-10S-25E Pad Sec. 6, T10S, R25E, Uintah County, Utah 552 FNL & 470 FWL			
<b>Site Position:</b>	<b>Northing:</b> 7171397.43 ft	<b>Latitude:</b> 39 59 0.910 N	
<b>From:</b> Geographic	<b>Easting:</b> 2298382.17 ft	<b>Longitude:</b> 109 9 5.650 W	
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> True	
<b>Ground Level:</b> 5347.20 ft		<b>Grid Convergence:</b> 1.50 deg	

<b>Well:</b> Southam Canyon 9-25-14-31	<b>Slot Name:</b>
<b>Well Position:</b> +N/-S 40.00 ft	<b>Northing:</b> 7171437.58 ft
+E/-W 6.14 ft	<b>Easting:</b> 2298387.25 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 39 59 1.305 N
	<b>Longitude:</b> 109 9 5.571 W

<b>Wellpath:</b> 1	<b>Drilled From:</b> Surface	<b>Tie-on Depth:</b> 0.00 ft	<b>Above System Datum:</b> Mean Sea Level
<b>Current Datum:</b> SITE	<b>Height:</b> 5363.00 ft	<b>Declination:</b> 11.54 deg	
<b>Magnetic Data:</b> 8/2/2006		<b>Mag Dip Angle:</b> 66.05 deg	
<b>Field Strength:</b> 52912 nT		<b>+E/-W:</b> ft	<b>Direction:</b> deg
<b>Vertical Section:</b> Depth From (TVD) ft	+N/-S ft	ft	deg
0.00	0.00	0.00	8.98

<b>Plan:</b> Plan #1	<b>Date Composed:</b> 8/2/2006
<b>Principal:</b> Yes	<b>Version:</b> 1
	<b>Tied-to:</b> From Surface

Plan Section Information										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	8.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	8.98	300.00	0.00	0.00	0.00	0.00	0.00	8.98	
1050.00	15.00	8.98	1041.46	96.42	15.24	2.00	2.00	0.00	8.98	
1550.00	15.00	8.98	1524.42	224.24	35.44	0.00	0.00	0.00	0.00	
1935.08	30.40	8.98	1878.60	370.60	58.55	4.00	4.00	0.00	0.00	
3018.98	30.40	8.98	2813.45	912.42	144.14	0.00	0.00	0.00	0.00	
4032.43	0.00	8.98	3780.00	1171.84	185.12	3.00	-3.00	0.00	180.00	
6192.43	0.00	8.98	5940.00	1171.84	185.12	0.00	0.00	0.00	8.98	9-25-14-31 Target

Section 1 : Start Hold										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
0.00	0.00	8.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	8.98	300.00	0.00	0.00	0.00	0.00	0.00	0.00	8.98

Section 2 : Start Build 2.00										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
400.00	2.00	8.98	399.98	1.72	0.27	1.75	2.00	2.00	0.00	0.00
500.00	4.00	8.98	499.84	6.89	1.09	6.98	2.00	2.00	0.00	0.00
528.24	4.56	8.98	528.00	8.98	1.42	9.09	2.00	2.00	0.00	0.00
600.00	6.00	8.98	599.45	15.50	2.45	15.69	2.00	2.00	0.00	0.00
700.00	8.00	8.98	698.70	27.54	4.35	27.88	2.00	2.00	0.00	0.00
800.00	10.00	8.98	797.47	42.99	6.79	43.52	2.00	2.00	0.00	0.00
900.00	12.00	8.98	895.62	61.84	9.77	62.60	2.00	2.00	0.00	0.00
1000.00	14.00	8.98	993.06	84.05	13.28	85.10	2.00	2.00	0.00	0.00
1050.00	15.00	8.98	1041.46	96.42	15.24	97.62	2.00	2.00	0.00	0.00

# Weatherford International

## Planning Report

<b>Company:</b> Enduring Resources	<b>Date:</b> 8/2/2006	<b>Time:</b> 10:45:15	<b>Page:</b> 2
<b>Field:</b> Uintah, Utah	<b>Co-ordinate(NE) Reference:</b> Well: Southam Canyon 9-25-14-31		
<b>Site:</b> NW/NW 6-10S-25E Pad	<b>Vertical (TVD) Reference:</b> SITE 5363.0		
<b>Well:</b> Southam Canyon 9-25-14-31	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,8.98Azi)		
<b>Wellpath:</b> 1	<b>Plan:</b> Plan #1		

**Section 2 : Start Build 2.00**

MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	TFO

**Section 3 : Start Hold**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
1100.00	15.00	8.98	1089.76	109.20	17.26	110.56	0.00	0.00	0.00	0.00
1200.00	15.00	8.98	1186.35	134.77	21.30	136.44	0.00	0.00	0.00	0.00
1300.00	15.00	8.98	1282.94	160.33	25.34	162.32	0.00	0.00	0.00	0.00
1400.00	15.00	8.98	1379.54	185.90	29.38	188.20	0.00	0.00	0.00	0.00
1500.00	15.00	8.98	1476.13	211.46	33.42	214.08	0.00	0.00	0.00	0.00
1550.00	15.00	8.98	1524.42	224.24	35.44	227.02	0.00	0.00	0.00	0.00

**Section 4 : Start Build 4.00**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
1600.00	17.00	8.98	1572.49	237.85	37.59	240.81	4.00	4.00	0.00	0.00
1700.00	21.00	8.98	1667.02	270.01	42.67	273.36	4.00	4.00	0.00	0.00
1800.00	25.00	8.98	1759.05	308.59	48.77	312.42	4.00	4.00	0.00	0.00
1900.00	29.00	8.98	1848.13	353.43	55.85	357.81	4.00	4.00	0.00	0.00
1935.08	30.40	8.98	1878.60	370.60	58.55	375.19	4.00	4.00	-0.01	-0.08

**Section 5 : Start Hold**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
2000.00	30.40	8.98	1934.60	403.05	63.68	408.05	0.00	0.00	0.00	0.00
2100.00	30.40	8.98	2020.84	453.04	71.58	458.66	0.00	0.00	0.00	0.00
2200.00	30.40	8.98	2107.09	503.02	79.47	509.26	0.00	0.00	0.00	0.00
2300.00	30.40	8.98	2193.34	553.01	87.37	559.87	0.00	0.00	0.00	0.00
2400.00	30.40	8.98	2279.59	603.00	95.27	610.48	0.00	0.00	0.00	0.00
2500.00	30.40	8.98	2365.84	652.99	103.16	661.09	0.00	0.00	0.00	0.00
2600.00	30.40	8.98	2452.09	702.98	111.06	711.70	0.00	0.00	0.00	0.00
2641.64	30.40	8.98	2488.00	723.79	114.35	732.77	0.00	0.00	0.00	0.00
2700.00	30.40	8.98	2538.33	752.97	118.95	762.31	0.00	0.00	0.00	0.00
2800.00	30.40	8.98	2624.58	802.96	126.85	812.91	0.00	0.00	0.00	0.00
2900.00	30.40	8.98	2710.83	852.94	134.75	863.52	0.00	0.00	0.00	0.00
3000.00	30.40	8.98	2797.08	902.93	142.64	914.13	0.00	0.00	0.00	0.00
3018.98	30.40	8.98	2813.45	912.42	144.14	923.74	0.00	0.00	0.00	0.00

**Section 6 : Start Drop -3.00**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
3100.00	27.97	8.98	2884.18	951.45	150.31	963.24	3.00	-3.00	0.00	180.00
3188.20	25.33	8.98	2963.00	990.52	156.48	1002.80	3.00	-3.00	0.00	-180.00
3200.00	24.97	8.98	2973.68	995.47	157.26	1007.82	3.00	-3.00	0.00	180.00
3300.00	21.97	8.98	3065.40	1034.81	163.47	1047.64	3.00	-3.00	0.00	180.00
3400.00	18.97	8.98	3159.07	1069.35	168.93	1082.62	3.00	-3.00	0.00	180.00
3500.00	15.97	8.98	3254.44	1099.01	173.62	1112.64	3.00	-3.00	0.00	180.00
3600.00	12.97	8.98	3351.26	1123.69	177.51	1137.63	3.00	-3.00	0.00	180.00
3700.00	9.97	8.98	3449.25	1143.34	180.62	1157.51	3.00	-3.00	0.00	180.00
3800.00	6.97	8.98	3548.15	1157.89	182.92	1172.25	3.00	-3.00	0.00	180.00
3900.00	3.97	8.98	3647.68	1167.31	184.40	1181.78	3.00	-3.00	0.00	180.00
3965.41	2.01	8.98	3713.00	1170.68	184.94	1185.20	3.00	-3.00	0.00	-180.00
4000.00	0.97	8.98	3747.58	1171.57	185.08	1186.10	3.00	-3.00	0.00	180.00
4032.43	0.00	8.98	3780.00	1171.84	185.12	1186.37	3.00	-3.00	0.00	-180.00

# Weatherford International

## Planning Report

Company: Enduring Resources	Date: 8/2/2006	Time: 10:45:15	Page: 3
Field: Uintah, Utah	Co-ordinate(NE) Reference: Well: Southam Canyon 9-25-14-31		
Site: NW/NW 6-10S-25E Pad	Vertical (TVD) Reference: SITE 5363.0		
Well: Southam Canyon 9-25-14-31	Section (VS) Reference: Well (0.00N,0.00E,8.98Azi)		
Wellpath: 1	Plan: Plan #1		

**Section 7 : Start Hold**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
4100.00	0.00	8.98	3847.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4200.00	0.00	8.98	3947.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4300.00	0.00	8.98	4047.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4400.00	0.00	8.98	4147.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4500.00	0.00	8.98	4247.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4600.00	0.00	8.98	4347.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4700.00	0.00	8.98	4447.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4800.00	0.00	8.98	4547.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
4900.00	0.00	8.98	4647.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5000.00	0.00	8.98	4747.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5100.00	0.00	8.98	4847.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5200.00	0.00	8.98	4947.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5300.00	0.00	8.98	5047.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5400.00	0.00	8.98	5147.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5500.00	0.00	8.98	5247.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5600.00	0.00	8.98	5347.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5700.00	0.00	8.98	5447.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5800.00	0.00	8.98	5547.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
5900.00	0.00	8.98	5647.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
6000.00	0.00	8.98	5747.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
6100.00	0.00	8.98	5847.57	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98
6192.43	0.00	8.98	5940.00	1171.84	185.12	1186.37	0.00	0.00	0.00	8.98

**Survey**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
300.00	0.00	8.98	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Nudge
400.00	2.00	8.98	399.98	1.72	0.27	1.75	2.00	2.00	0.00	MWD
500.00	4.00	8.98	499.84	6.89	1.09	6.98	2.00	2.00	0.00	MWD
528.24	4.56	8.98	528.00	8.98	1.42	9.09	2.00	2.00	0.00	Green River
600.00	6.00	8.98	599.45	15.50	2.45	15.69	2.00	2.00	0.00	MWD
700.00	8.00	8.98	698.70	27.54	4.35	27.88	2.00	2.00	0.00	MWD
800.00	10.00	8.98	797.47	42.99	6.79	43.52	2.00	2.00	0.00	MWD
900.00	12.00	8.98	895.62	61.84	9.77	62.60	2.00	2.00	0.00	MWD
1000.00	14.00	8.98	993.06	84.05	13.28	85.10	2.00	2.00	0.00	MWD
1050.00	15.00	8.98	1041.46	96.42	15.24	97.62	2.00	2.00	0.00	End Nudge
1100.00	15.00	8.98	1089.76	109.20	17.26	110.56	0.00	0.00	0.00	MWD
1200.00	15.00	8.98	1186.35	134.77	21.30	136.44	0.00	0.00	0.00	MWD
1300.00	15.00	8.98	1282.94	160.33	25.34	162.32	0.00	0.00	0.00	MWD
1400.00	15.00	8.98	1379.54	185.90	29.38	188.20	0.00	0.00	0.00	MWD
1500.00	15.00	8.98	1476.13	211.46	33.42	214.08	0.00	0.00	0.00	9 5/8" Surface
1550.00	15.00	8.98	1524.42	224.24	35.44	227.02	0.00	0.00	0.00	Start Build
1600.00	17.00	8.98	1572.49	237.85	37.59	240.81	4.00	4.00	0.00	MWD
1700.00	21.00	8.98	1667.02	270.01	42.67	273.36	4.00	4.00	0.00	MWD
1800.00	25.00	8.98	1759.05	308.59	48.77	312.42	4.00	4.00	0.00	MWD
1900.00	29.00	8.98	1848.13	353.43	55.85	357.81	4.00	4.00	0.00	MWD
1935.08	30.40	8.98	1878.60	370.60	58.55	375.19	4.00	4.00	-0.01	End Build
2000.00	30.40	8.98	1934.60	403.05	63.68	408.05	0.00	0.00	0.00	MWD
2100.00	30.40	8.98	2020.84	453.04	71.58	458.66	0.00	0.00	0.00	MWD
2200.00	30.40	8.98	2107.09	503.02	79.47	509.26	0.00	0.00	0.00	MWD
2300.00	30.40	8.98	2193.34	553.01	87.37	559.87	0.00	0.00	0.00	MWD
2400.00	30.40	8.98	2279.59	603.00	95.27	610.48	0.00	0.00	0.00	MWD
2500.00	30.40	8.98	2365.84	652.99	103.16	661.09	0.00	0.00	0.00	MWD
2600.00	30.40	8.98	2452.09	702.98	111.06	711.70	0.00	0.00	0.00	MWD
2641.64	30.40	8.98	2488.00	723.79	114.35	732.77	0.00	0.00	0.00	Wasatch
2700.00	30.40	8.98	2538.33	752.97	118.95	762.31	0.00	0.00	0.00	MWD
2800.00	30.40	8.98	2624.58	802.96	126.85	812.91	0.00	0.00	0.00	MWD

# Weatherford International

## Planning Report

<b>Company:</b> Enduring Resources	<b>Date:</b> 8/2/2006	<b>Time:</b> 10:45:15	<b>Page:</b> 4
<b>Field:</b> Uintah, Utah	<b>Co-ordinate(NE) Reference:</b> Well: Southam Canyon 9-25-14-31		
<b>Site:</b> NW/NW 6-10S-25E Pad	<b>Vertical (TVD) Reference:</b> SITE 5363.0		
<b>Well:</b> Southam Canyon 9-25-14-31	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,8.98Azi)		
<b>Wellpath:</b> 1	<b>Plan:</b>	Plan #1	

### Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2900.00	30.40	8.98	2710.83	852.94	134.75	863.52	0.00	0.00	0.00	MWD
3000.00	30.40	8.98	2797.08	902.93	142.64	914.13	0.00	0.00	0.00	MWD
3018.98	30.40	8.98	2813.45	912.42	144.14	923.74	0.00	0.00	0.00	Start Drop
3100.00	27.97	8.98	2884.18	951.45	150.31	963.24	3.00	-3.00	0.00	MWD
3188.20	25.33	8.98	2963.00	990.52	156.48	1002.80	3.00	-3.00	0.00	Entry Point
3200.00	24.97	8.98	2973.68	995.47	157.26	1007.82	3.00	-3.00	0.00	MWD
3300.00	21.97	8.98	3065.40	1034.81	163.47	1047.64	3.00	-3.00	0.00	MWD
3400.00	18.97	8.98	3159.07	1069.35	168.93	1082.62	3.00	-3.00	0.00	MWD
3500.00	15.97	8.98	3254.44	1099.01	173.62	1112.64	3.00	-3.00	0.00	MWD
3600.00	12.97	8.98	3351.26	1123.69	177.51	1137.63	3.00	-3.00	0.00	MWD
3700.00	9.97	8.98	3449.25	1143.34	180.62	1157.51	3.00	-3.00	0.00	MWD
3800.00	6.97	8.98	3548.15	1157.89	182.92	1172.25	3.00	-3.00	0.00	MWD
3900.00	3.97	8.98	3647.68	1167.31	184.40	1181.78	3.00	-3.00	0.00	MWD
3965.41	2.01	8.98	3713.00	1170.68	184.94	1185.20	3.00	-3.00	0.00	Mesaverde
4000.00	0.97	8.98	3747.58	1171.57	185.08	1186.10	3.00	-3.00	0.00	MWD
4032.43	0.00	8.98	3780.00	1171.84	185.12	1186.37	3.00	-3.00	0.00	End Drop
4100.00	0.00	8.98	3847.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4200.00	0.00	8.98	3947.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4300.00	0.00	8.98	4047.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4400.00	0.00	8.98	4147.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4500.00	0.00	8.98	4247.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4600.00	0.00	8.98	4347.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4700.00	0.00	8.98	4447.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4800.00	0.00	8.98	4547.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
4900.00	0.00	8.98	4647.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5000.00	0.00	8.98	4747.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5100.00	0.00	8.98	4847.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5200.00	0.00	8.98	4947.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5300.00	0.00	8.98	5047.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5400.00	0.00	8.98	5147.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5500.00	0.00	8.98	5247.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5600.00	0.00	8.98	5347.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5700.00	0.00	8.98	5447.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5800.00	0.00	8.98	5547.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
5900.00	0.00	8.98	5647.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
6000.00	0.00	8.98	5747.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
6100.00	0.00	8.98	5847.57	1171.84	185.12	1186.37	0.00	0.00	0.00	MWD
6192.43	0.00	8.98	5940.00	1171.84	185.12	1186.37	0.00	0.00	0.00	9-25-14-31 Target

### Targets

Name	Description		TVD ft	+N/-S ft	+E/-W ft	Map	Map	← Latitude →			← Longitude →				
	Dip.	Dir.				Northing ft	Easting ft	Deg	Min	Sec	Deg	Min	Sec		
9-25-14-31 Target			5940.00	1171.84	185.12	7172613.88	2298541.55	39	59	12.887	N	109	9	3.193	W
	-Rectangle (400x400)														
	-Plan hit target														

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1500.00	1476.13	9.625	12.250	9 5/8" Surface

# Weatherford International

## Planning Report

<b>Company:</b> Enduring Resources	<b>Date:</b> 8/2/2006	<b>Time:</b> 10:45:15	<b>Page:</b> 5
<b>Field:</b> Uintah, Utah	<b>Co-ordinate(NE) Reference:</b> Well: Southam Canyon 9-25-14-31		
<b>Site:</b> NW/NW 6-10S-25E Pad	<b>Vertical (TVD) Reference:</b> SITE 5363.0		
<b>Well:</b> Southam Canyon 9-25-14-31	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,8.98Azi)		
<b>Wellpath:</b> 1	<b>Plan:</b> Plan #1		

**Formations**

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
528.24	528.00	Green River		0.00	0.00
2641.64	2488.00	Wasatch		0.00	0.00
3965.41	3713.00	Mesaverde		0.00	0.00

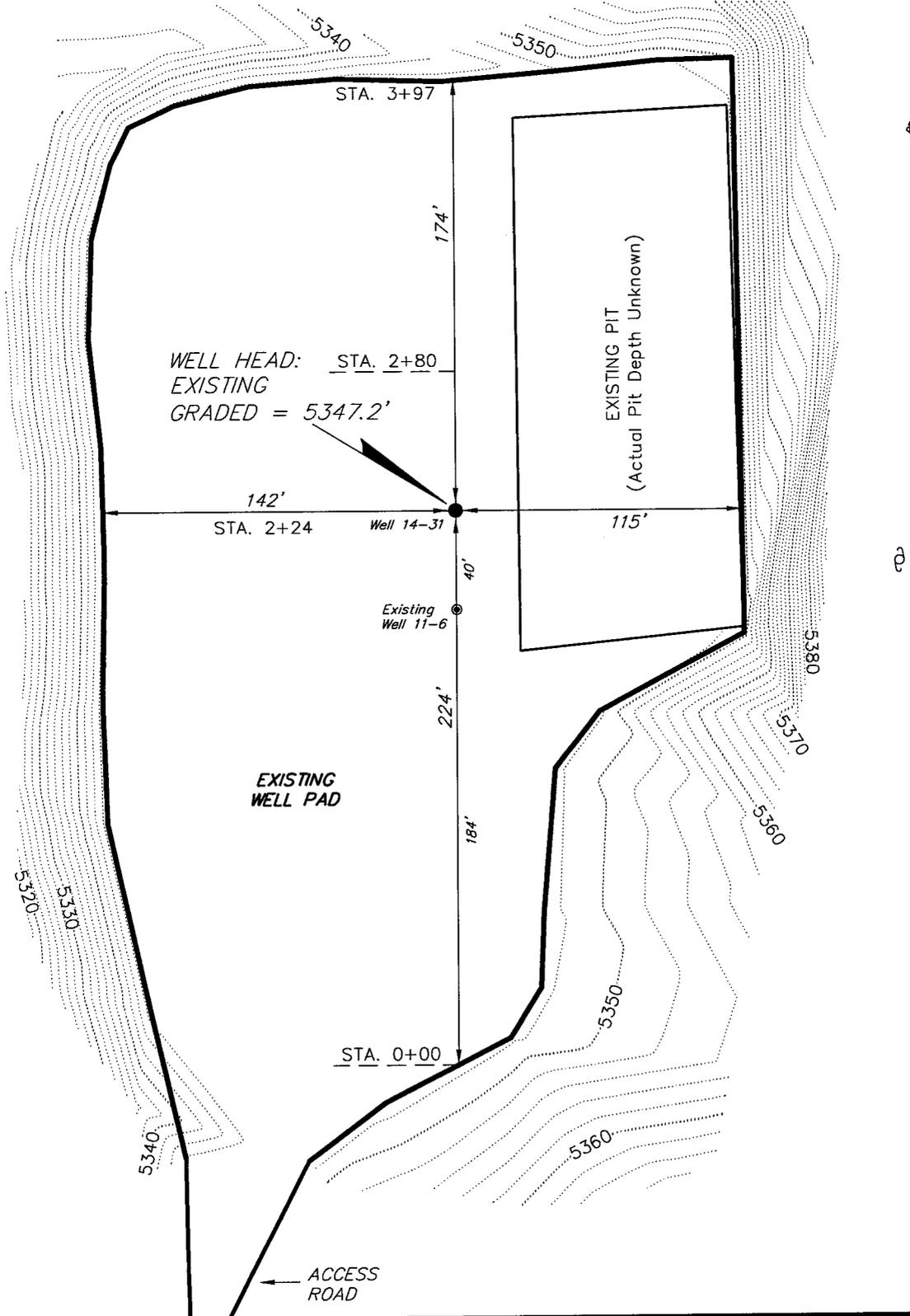
**Annotation**

MD ft	TVD ft	
		SHL (512 FNL & 476 FWL)
300.00	300.00	Start Nudge
1050.00	1041.46	End Nudge
1550.00	1524.42	Start Build
1935.08	1878.60	End Build
3018.98	2813.45	Start Drop
3188.20	2963.00	Entry Point
4032.43	3780.00	End Drop
6192.43	5940.00	TD

# ENDURING RESOURCES

**SOUTHAM CANYON 9-25-14-31**

Pad Location: NWNW Section 6, T10S, R25E, S.L.B.&M.



CO

SURVEYED BY: J.H.	DATE DRAWN: 07-17-06
DRAWN BY: F.T.M.	SCALE: 1" = 60'
NOTES:	DATE REVISED: 07-26-06

**Tri State** (435) 781-2501  
**Land Surveying, Inc.**  
 180 NORTH VERNAL AVE. VERNAL, UTAH 84078

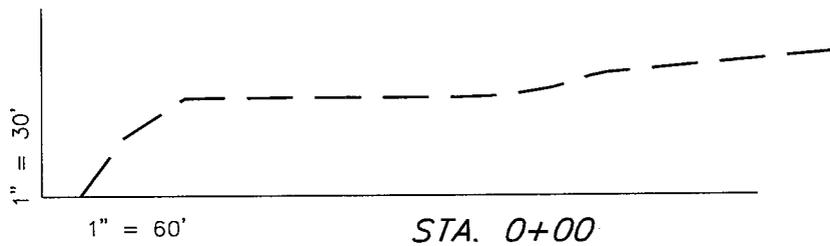
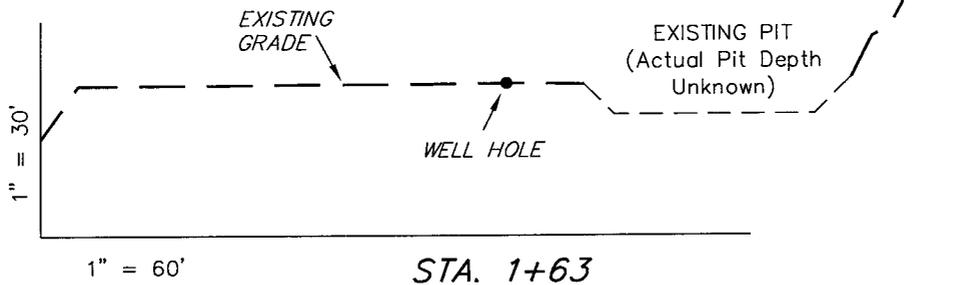
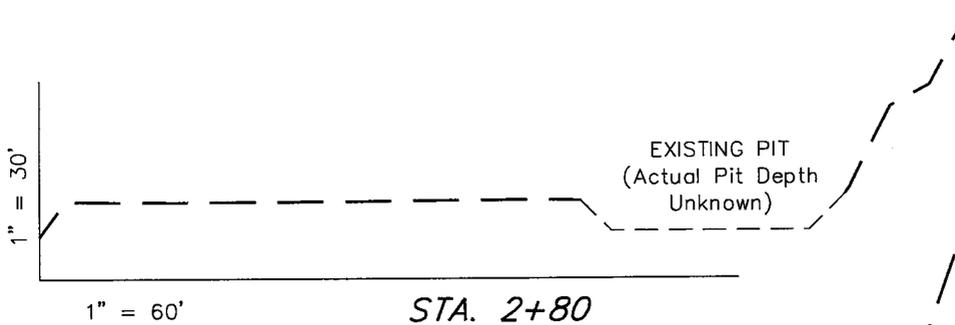
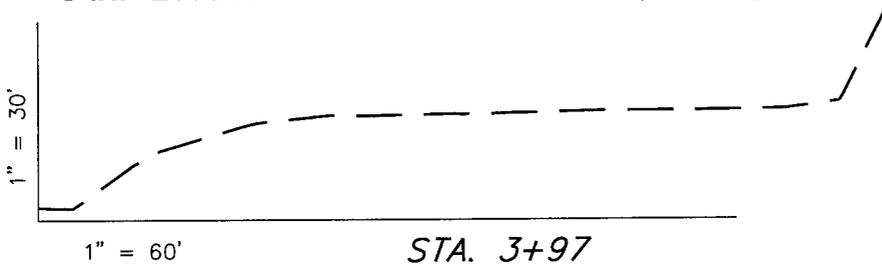
SHEET  
**3**  
 OF 10

# ENDURING RESOURCES

## CROSS SECTIONS

### SOUTHAM CANYON 9-25-14-31

Pad Location: NWNW Section 6, T10S, R25E, S.L.B.&M.



NOTE:  
UNLESS OTHERWISE NOTED  
CUT SLOPES ARE AT 1:1  
FILL SLOPES ARE AT 1.5:1

"NO EARTHWORK ADJUSTMENTS REQUIRED"

SURVEYED BY: J.H.	DATE DRAWN: 07-17-06
DRAWN BY: F.T.M.	SCALE: 1" = 60'
NOTES:	DATE REVISED: 07-26-06

**Tri State**  
Land Surveying, Inc.

180 NORTH VERNAL AVE. VERNAL, UTAH 84078

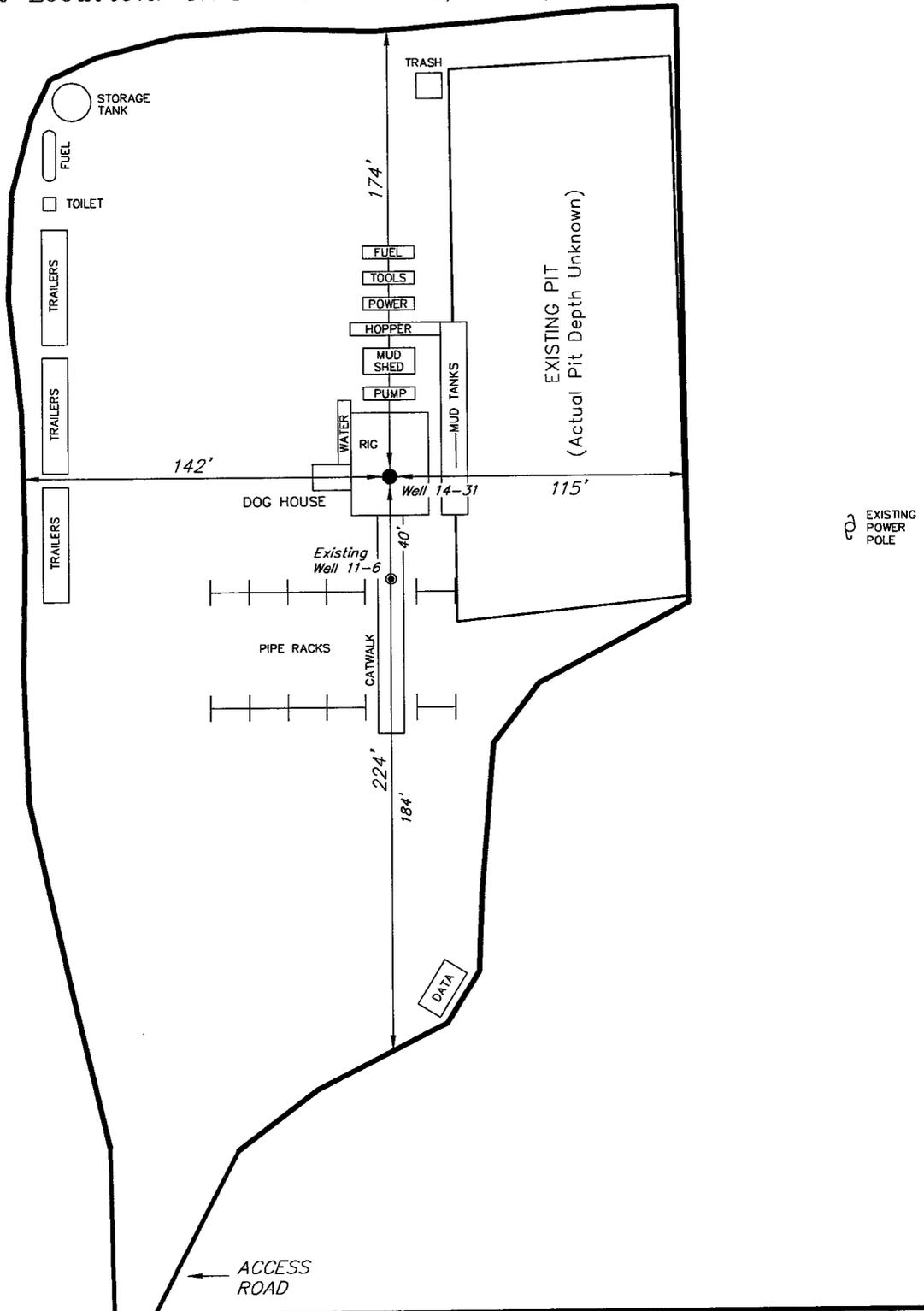
(435) 781-2501

# ENDURING RESOURCES

## TYPICAL RIG LAYOUT

### SOUTHAM CANYON 9-25-14-31

Pad Location: NWNW Section 6, T10S, R25E, S.L.B.&M.



SURVEYED BY: J.H.	DATE DRAWN: 07-17-06
DRAWN BY: F.T.M.	SCALE: 1" = 60'
NOTES:	DATE REVISED: 07-26-06

**Tri State** (435) 781-2501  
 Land Surveying, Inc.  
 180 NORTH VERNAL AVE. VERNAL, UTAH 84078

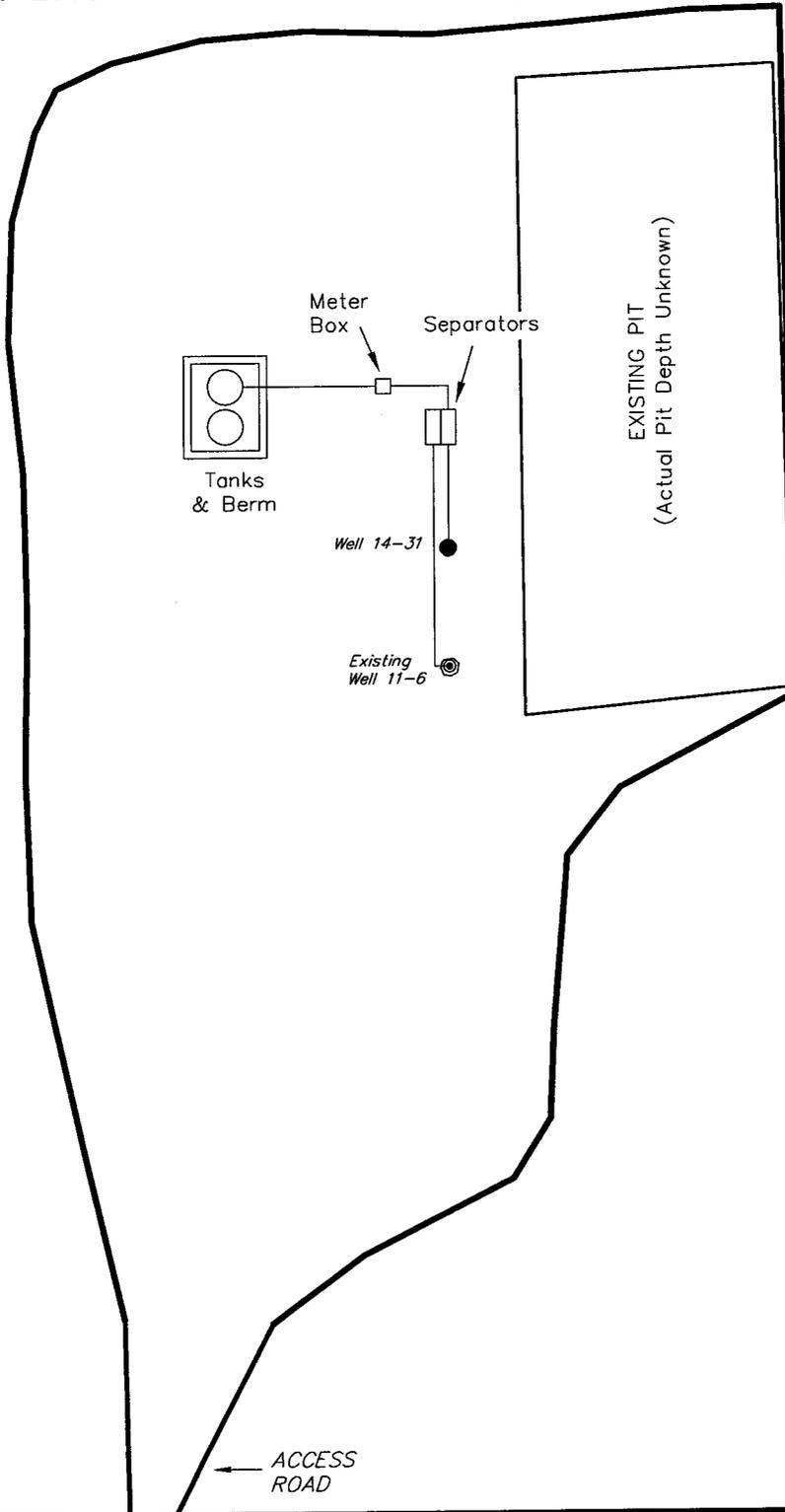
SHEET  
**5**  
 OF 10

# ENDURING RESOURCES

## PRODUCTION SCHEMATIC

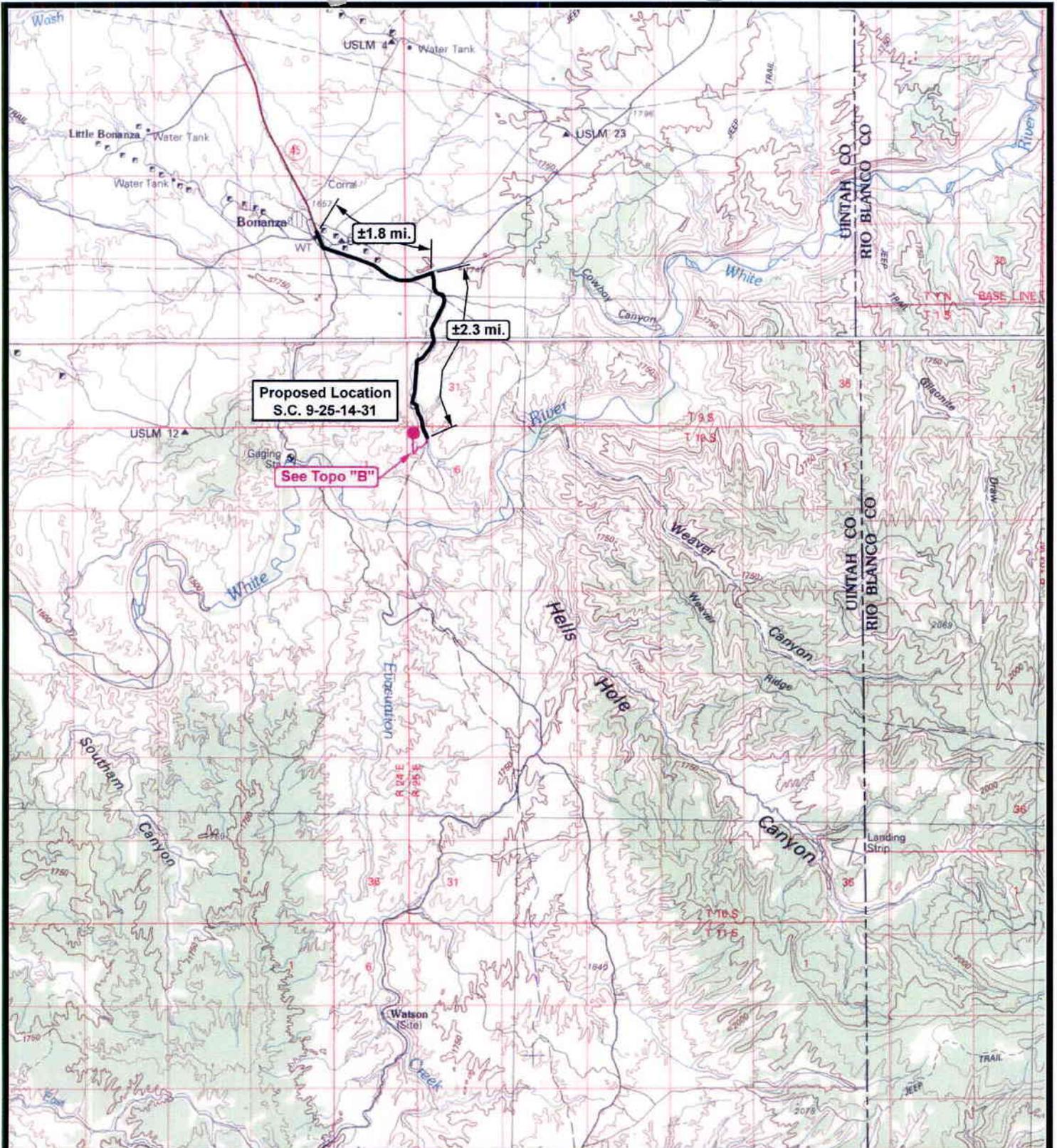
### SOUTHAM CANYON 9-25-14-31

Pad Location: NWNW Section 6, T10S, R25E, S.L.B.&M.



03

SURVEYED BY: J.H.	DATE DRAWN: 07-17-06	<b>Tri State</b> Land Surveying, Inc. 180 NORTH VERNAL AVE. VERNAL, UTAH 84078	(435) 781-2501	SHEET 6 OF 10
DRAWN BY: F.T.M.	SCALE: 1" = 60'			
NOTES:	DATE REVISED: 07-26-06			



**ENDURING RESOURCES**

**Southam Canyon 9-25-14-31**

Pad Location: NWNW Sec. 6, T10S, R25E, S.L.B.&M.



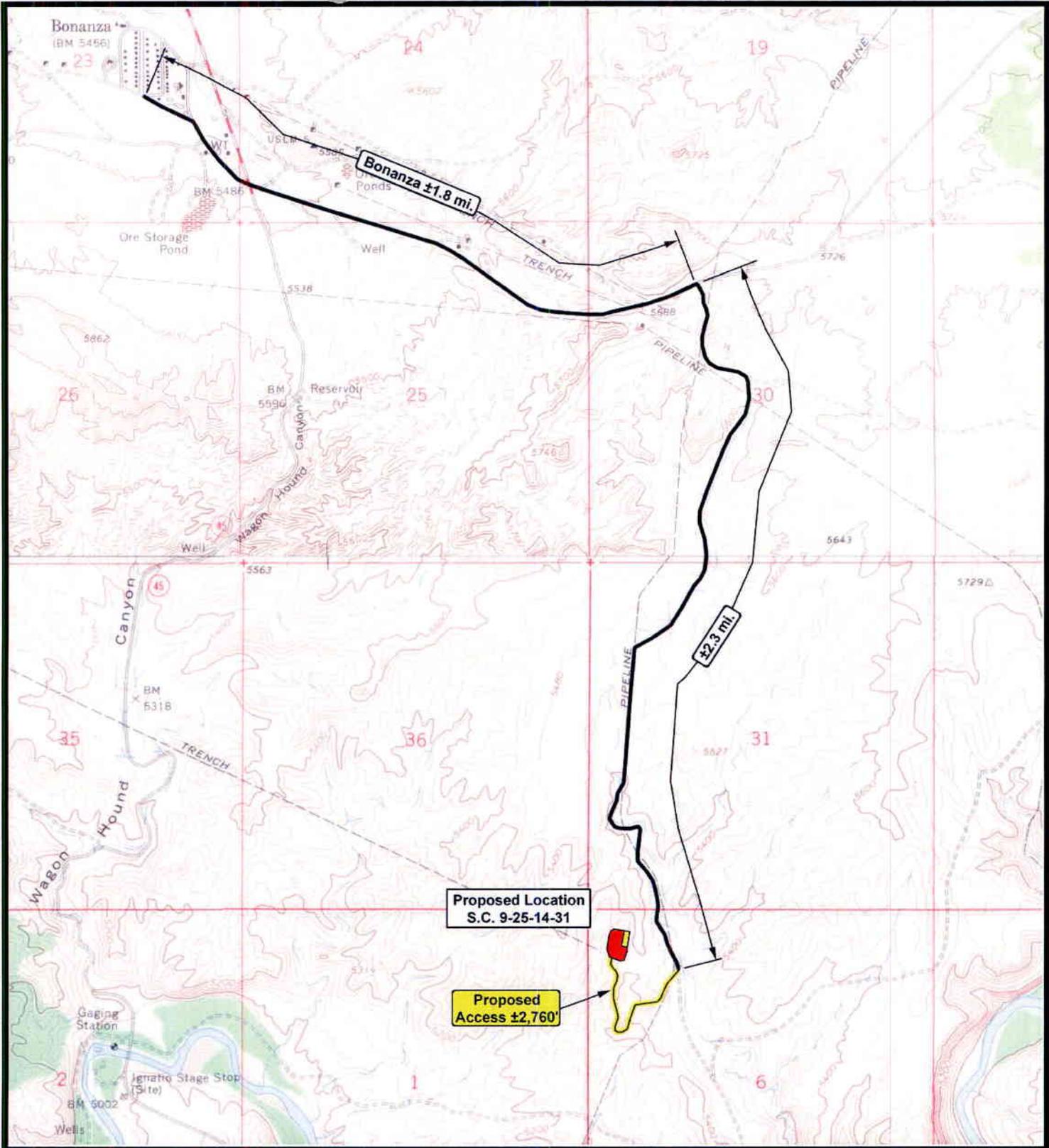
**Tri-State**  
*Land Surveying Inc.*  
 (435) 781-2501  
 180 North Vernal Ave. Vernal, Utah 84078

SCALE: 1 : 100,000  
 DRAWN BY: mw  
 DATE: 07-17-2006

**Legend**

- Existing Road
- Proposed Access

**TOPOGRAPHIC MAP** SHEET  
"A" **7**  
 OF 10



**ENDURING RESOURCES**

**Southam Canyon 9-25-14-31**  
 Pad Location: NWNW Sec. 6, T10S, R25E, S.L.B.&M.



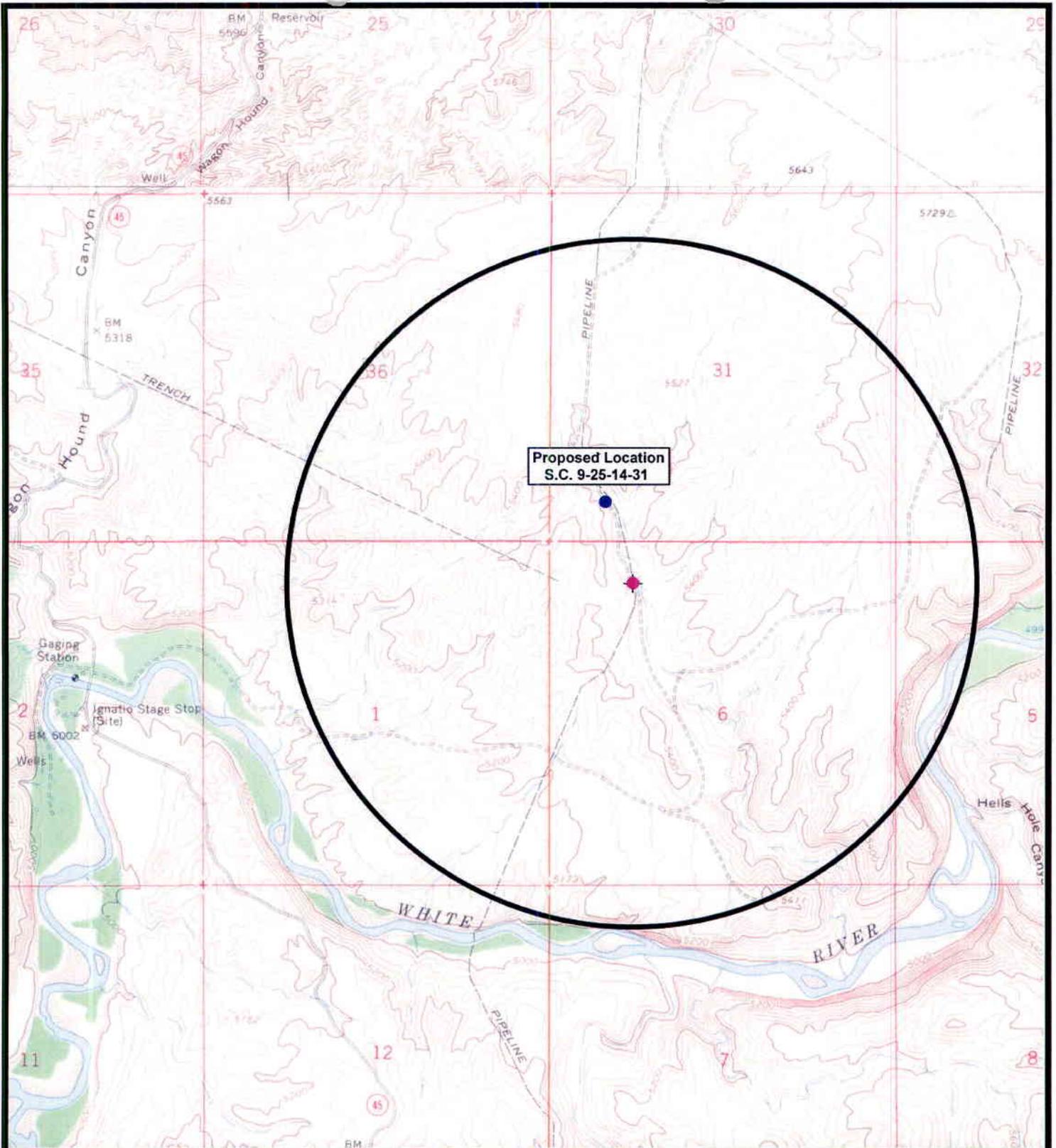
**Tri-State**  
*Land Surveying Inc.*  
 (435) 781-2501  
 180 North Vernal Ave. Vernal, Utah 84078

SCALE: 1" = 2,000'  
 DRAWN BY: mw  
 DATE: 07-17-2006

**Legend**

- Existing Road
- Proposed Access

**TOPOGRAPHIC MAP** SHEET  
**"B"** **8**  
 OF 10



Proposed Location  
S.C. 9-25-14-31



**ENDURING RESOURCES**

**Southam Canyon 9-25-14-31**  
Pad Location: NWNW Sec. 6, T10S, R25E, S.L.B.&M.



**Tri-State**  
*Land Surveying Inc.*  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

SCALE: 1" = 2,000'

DRAWN BY: mw

DATE: 07-17-2006

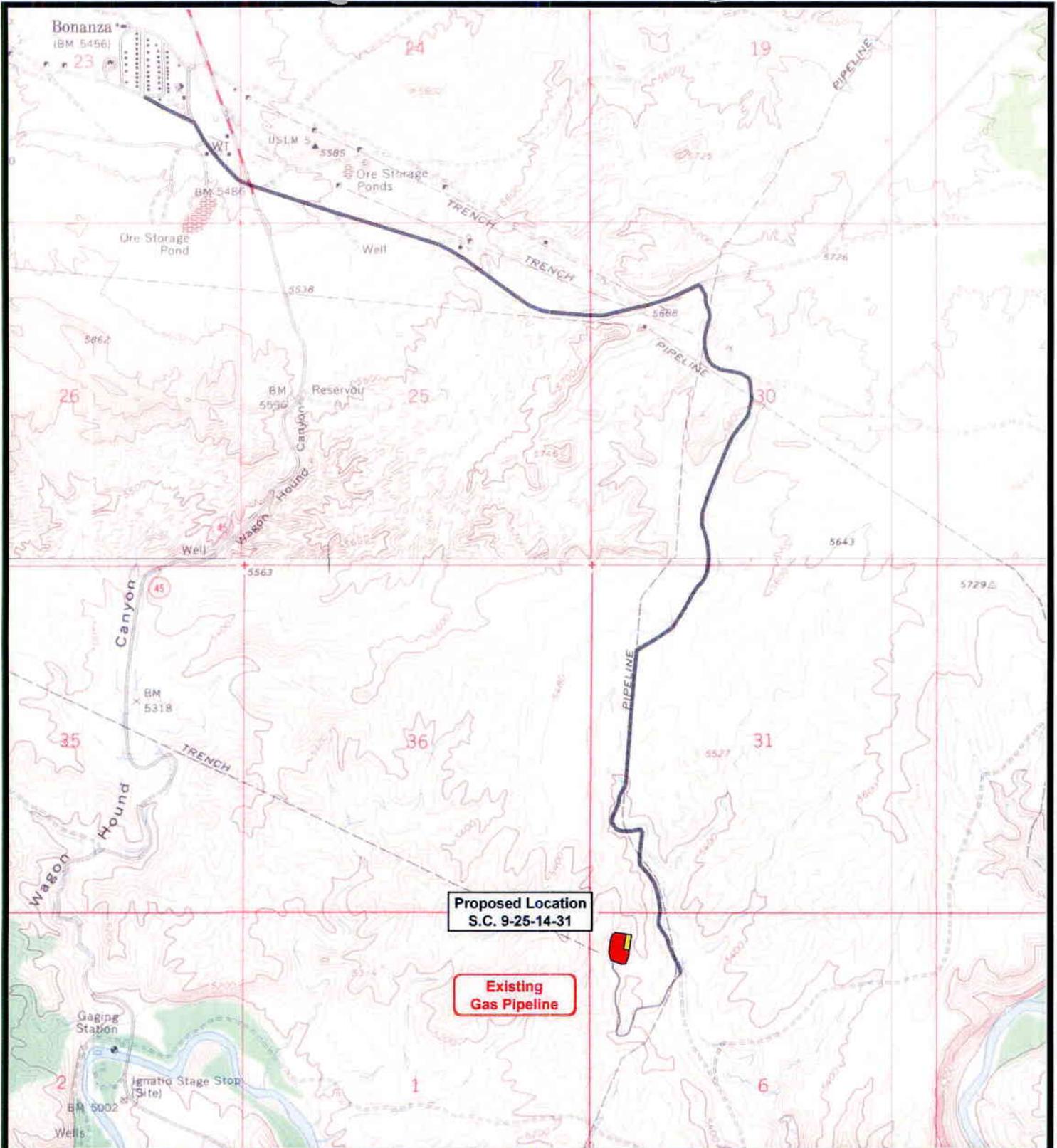
**Legend**

- Surface Hole Location
- One-Mile Radius
- Bottom Hole Location

TOPOGRAPHIC MAP SHEET

**"C"**

**9**  
OF 10



Proposed Location  
S.C. 9-25-14-31

Existing  
Gas Pipeline



**ENDURING RESOURCES**

**Southam Canyon 9-25-14-31**  
Pad Location: NWNW Sec. 6, T10S, R25E, S.L.B.&M.



**Tri-State**  
*Land Surveying Inc.*  
(435) 781-2501

180 North Vernal Ave. Vernal, Utah 84078

SCALE: 1" = 2,000'

DRAWN BY: mw

DATE: 07-17-2006

**Legend**

- Roads
- Proposed Gas Line

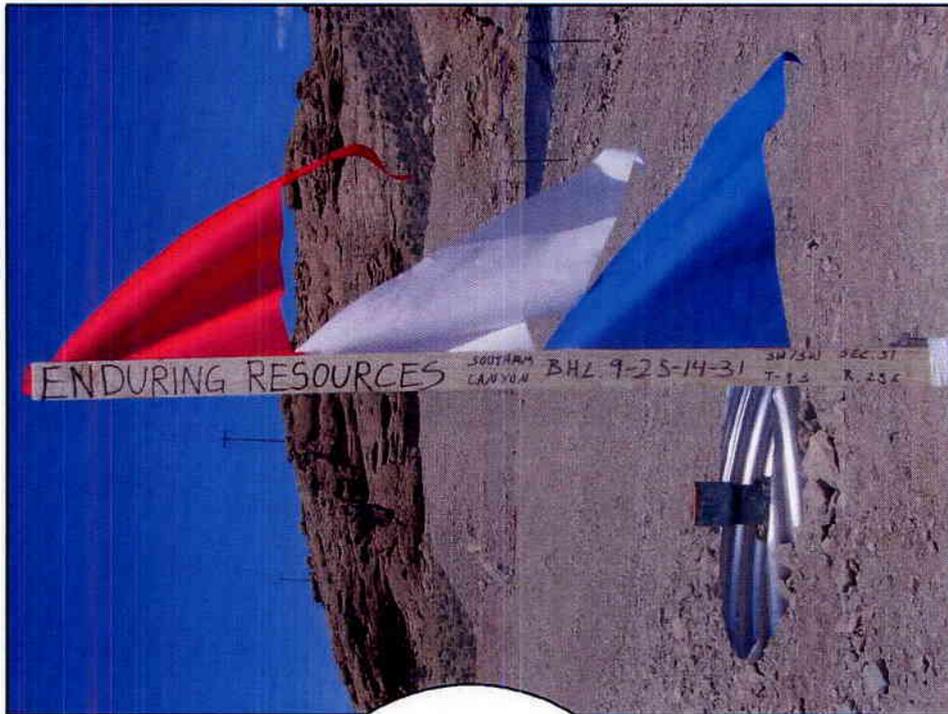
**TOPOGRAPHIC MAP**

**"D"**

**SHEET**

**10**

OF 10



**CENTER STAKE**

  
**ENDURING RESOURCES**  
S.C. 9-25-14-31  
Pad Location:  
NWNW Sec. 6, T10S, R25E, S.L.B.&M.

Date Photographed: 05/25/2006  
Date Drawn: 07/17/2006  
Drawn By: mw

  
**Tri-State  
Land Surveying Inc.**  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

**LOOKING SW  
ACCESS**





NORTH

  
**ENDURING RESOURCES**  
S.C. 9-25-14-31  
Pad Location:  
NWNW Sec. 6, T10S, R25E, S.L.B.&M.

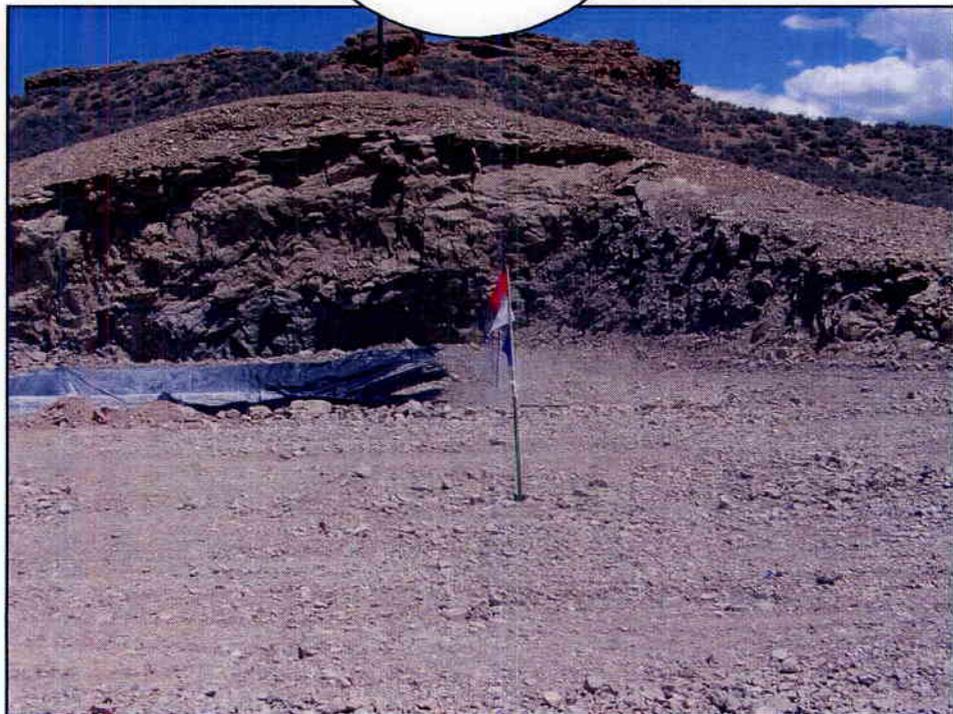
Date Photographed: 05/25/2006

Date Drawn: 07/17/2006

Drawn By: mw

  
**Tri-State  
Land Surveying Inc.**  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

EAST





SOUTH

  
**ENDURING RESOURCES**  
S.C. 9-25-14-31  
Pad Location:  
NWNW Sec. 6, T10S, R25E, S.L.B.&M.

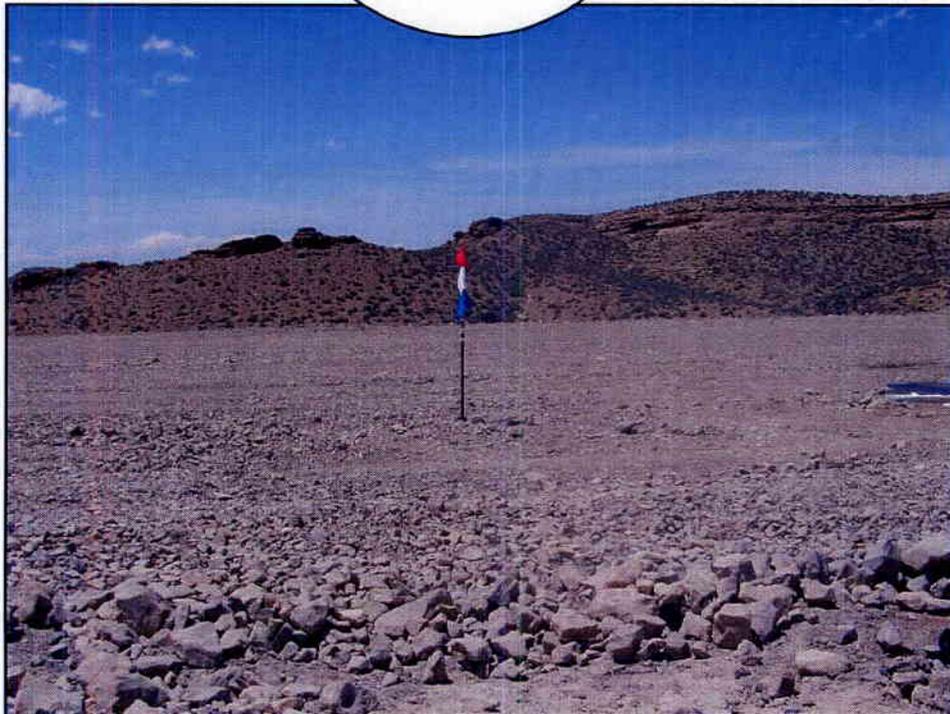
Date Photographed: 05/25/2006

Date Drawn: 07/17/2006

Drawn By: mw

  
**Tri-State**  
*Land Surveying Inc.*  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

WEST



**WORKSHEET  
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 08/07/2006

API NO. ASSIGNED: 43-047-38451

WELL NAME: SOUTHAM CYN 9-25-14-31  
 OPERATOR: ENDURING RESOURCES, LLC ( N2750 )  
 CONTACT: EVETTE BISSETT

PHONE NUMBER: 303-350-5719

PROPOSED LOCATION:

NWNW 06 100S 250E  
 SURFACE: 0526 FNL 0475 FWL  
 BOTTOM: 0660 FSL 0659 FWL  
 COUNTY: UINTAH  
 LATITUDE: 39.98367 LONGITUDE: -109.1508  
 UTM SURF EASTINGS: 657891 NORTHINGS: 4427372  
 FIELD NAME: UNDESIGNATED ( 2 )

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering	DUE	4/31/07
Geology		
Surface		

LEASE TYPE: 3 - State  
 LEASE NUMBER: ML-45560  
 SURFACE OWNER: 3 - State

PROPOSED FORMATION: MVRD  
 COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

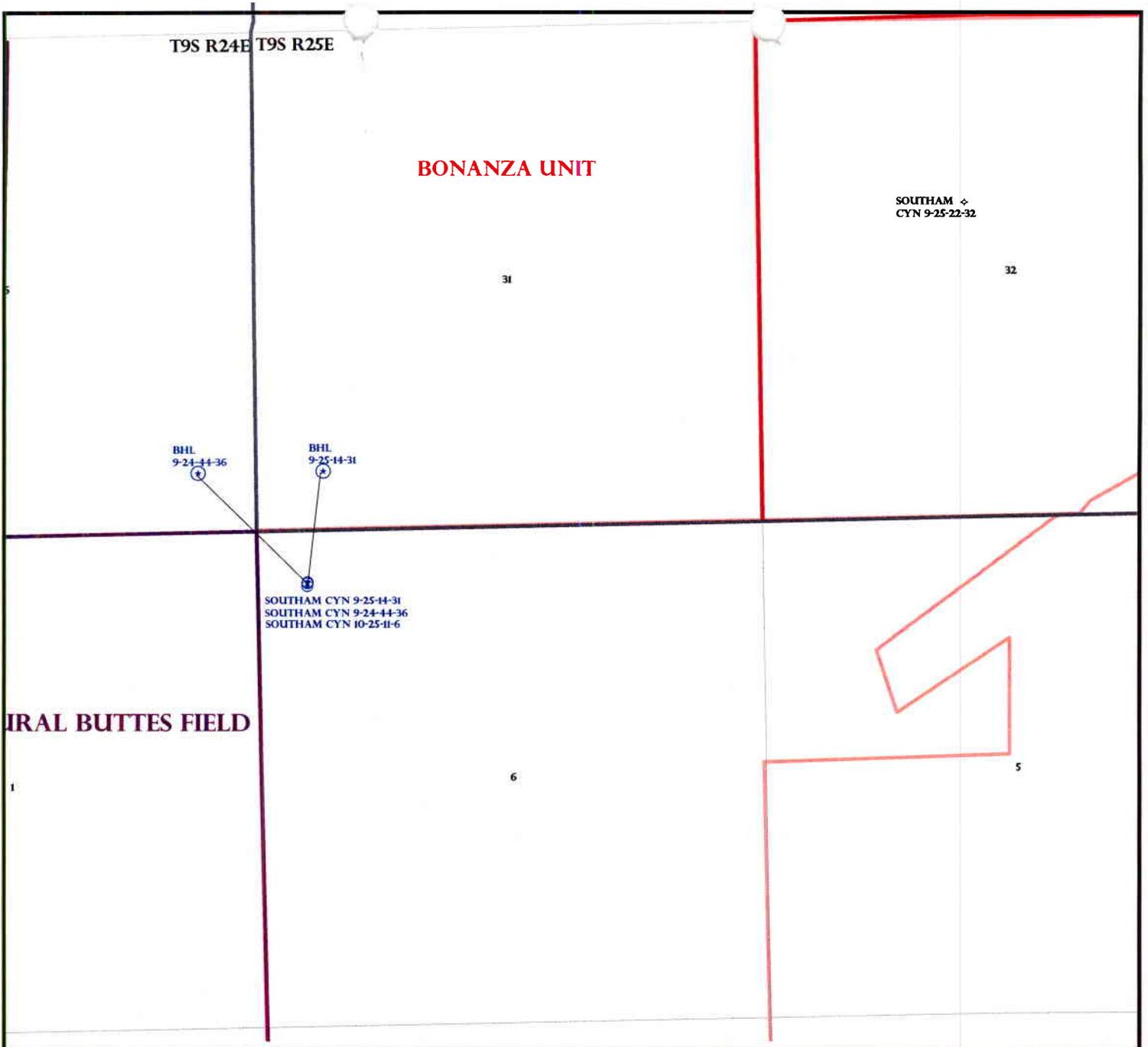
- Plat
- Bond: Fed[] Ind[] Sta[] Fee[]  
(No. RLB0008031 )
- Potash (Y/N)
- Oil Shale 190-5 (B) or 190-3 or 190-13
- Water Permit  
(No. 49-222 )
- RDCC Review (Y/N)  
(Date: \_\_\_\_\_ )
- Fee Surf Agreement (Y/N)
- Intent to Commingle (Y/N)

LOCATION AND SITING:

- R649-2-3.
- Unit: BONANZA
- 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: Needs Permit (01-09-07)

STIPULATIONS: 1- Spacing & S.A.  
2- STATEMENTS OF BASIS  
3- Surface Csg Cont Step



OPERATOR: ENDURING RES LLC (N2750)

SEC: 6 T.10S R. 25E

FIELD: UNDESIGNATED (002)

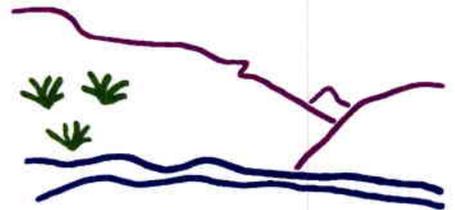
COUNTY: UINTAH

SPACING: R649-3-11 / DIRECTIONAL DRILLING

- Field Status**
- ABANDONED
  - ACTIVE
  - COMBINED
  - INACTIVE
  - PROPOSED
  - STORAGE
  - TERMINATED

- Unit Status**
- EXPLORATORY
  - GAS STORAGE
  - NF PP OIL
  - NF SECONDARY
  - PENDING
  - PI OIL
  - PP GAS
  - PP GEOTHERML
  - PP OIL
  - SECONDARY
  - TERMINATED

- Wells Status**
- ✂ GAS INJECTION
  - ✂ GAS STORAGE
  - ✂ LOCATION ABANDONED
  - ✂ NEW LOCATION
  - ✂ PLUGGED & ABANDONED
  - ✂ PRODUCING GAS
  - ✂ PRODUCING OIL
  - ✂ SHUT-IN GAS
  - ✂ SHUT-IN OIL
  - ✂ TEMP. ABANDONED
  - ✂ TEST WELL
  - ✂ WATER INJECTION
  - ✂ WATER SUPPLY
  - ✂ WATER DISPOSAL
  - ✂ DRILLING



Utah Oil Gas and Mining



PREPARED BY: DIANA WHITNEY  
DATE: 15-AUGUST-2006

# Application for Permit to Drill

## Statement of Basis

1/18/2007

Utah Division of Oil, Gas and Mining

Page 1

APD No	API WellNo	Status	Well Type	Surf Ownr	CBM
62	43-047-38451-00-00		GW	S	No
<b>Operator</b>	ENDURING RESOURCES, LLC	<b>Surface Owner-APD</b>			
<b>Well Name</b>	SOUTHAM CYN 9-25-14-31	<b>Unit</b>	BONANZA		
<b>Field</b>	UNDESIGNATED	<b>Type of Work</b>			
<b>Location</b>	NWNW 6 10S 25E S 0 F L 0 F L GPS Coord (UTM) 657891E 4427372N				

### Geologic Statement of Basis

Enduring proposes to set 2,016' of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 5,400'. A search of Division of Water Rights records shows no water well within a 10,000 foot radius of the center of Section 31. The surface formation at this site is the Uinta-Green River Formation transition. The Uinta Formation is made up of lenticular sandstones interbedded with shales and is expected to have limited value as an aquifer. The Green river Formation should be found near the surface. The Green River Formation may contain useable aquifers but they should be adequately protected by the proposed casing and cementing program.

Brad Hill  
APD Evaluator

1/18/2007  
Date / Time

### Surface Statement of Basis

The Southam Canyon 9-25-14-31 well is proposed from an existing well pad which will not be enlarged. It will be drilled directionally to the north to minerals owned by SITLA. The existing well is the Southam Canyon 10-25-11-6 on property owned by American Gilsonite.

The existing pit is still open and will be re-used. The integrity of the pit liner needs to be determined and replaced or repaired as necessary.

Floyd Bartlett  
Onsite Evaluator

1/9/2007  
Date / Time

### Conditions of Approval / Application for Permit to Drill

Category	Condition
Pits	A synthetic liner with a minimum thickness of 16 mils with a felt subliner shall be properly installed and maintained in the reserve pit. The integrity of the existing liner must be determined and repaired or replaced as necessary.

# ON-SITE PREDRILL EVALUATION

## Utah Division of Oil, Gas and Mining

**Operator** ENDURING RESOURCES, LLC  
**Well Name** SOUTHAM CYN 9-25-14-31  
**API Number** 43-047-38451-0      **APD No** 62      **Field/Unit** UNDESIGNATED  
**Location:** 1/4,1/4 NWNW      **Sec** 6      **Tw** 10S      **Rng** 25E      0 FL 0 FL  
**GPS Coord (UTM)**      **Surface Owner**

### Participants

Floyd Bartlett (DOGM), Doug Hammond (Enduring Resources), Jim Davis (SITLA), Mike Stewart and Larry Rowell (Ponderosa Construction), Ben Williams (UDWR), Chris Stewart (Tri-State Land Surveying)

### Regional/Local Setting & Topography

The Southam Canyon 9-25-14-31 well is proposed from an existing well pad which will not be enlarged. The existing well is Southam Canyon 10-25-11-6 on property owned by American Gilsonite.

### Surface Use Plan

#### **Current Surface Use**

Existing Well Pad

#### **New Road**

<b>Miles</b>	<b>Well Pad</b>		<b>Src Const Material</b>	<b>Surface Formation</b>
	<b>Width</b>	<b>Length</b>		
0				

**Ancillary Facilities** N

### Waste Management Plan Adequate? Y

### Environmental Parameters

**Affected Floodplains and/or Wetland** N

#### **Flora / Fauna**

Existing well pad

#### **Soil Type and Characteristics**

**Erosion Issues** N

**Sedimentation Issues** N

**Site Stability Issues** N

**Drainage Diversion Required** N

**Berm Required?** N

**Erosion Sedimentation Control Required?** N

**Paleo Survey Run?** N      **Paleo Potential Observed?** N      **Cultural Survey Run?** N      **Cultural Resources?**

**Reserve Pit**

**Site-Specific Factors**

**Site Ranking**

- Distance to Groundwater (feet)**
- Distance to Surface Water (feet)**
- Dist. Nearest Municipal Well (ft)**
- Distance to Other Wells (feet)**
- Native Soil Type**
- Fluid Type**
- Drill Cuttings**
- Annual Precipitation (inches)**
- Affected Populations**
- Presence Nearby Utility Conduits**

**Final Score**

**Sensitivity Level**

**Characteristics / Requirements**

The existing pit is still open and will be re-used. The integrity of the pit liner needs to be determined and replaced or repaired if necessary.

**Closed Loop Mud Required? N   Liner Required? Y   Liner Thickness 16   Pit Underlayment Required? Y**

**Other Observations / Comments**

The existing well SC 10-25-11-6 produces only water. It will be temporarily shut-in.

Floyd Bartlett  
**Evaluator**

1/9/2007  
**Date / Time**

007-1 Enduring Southam Canyon 9-25-14-31

Casing Schematic

BHP  
 $0.052(5940)9.8 = 3027 \text{ psi}$   
 anticipate 3220

Gas  
 $.12(5940) = 713$   
 $3027 - 713 = 2314 \text{ psi MASA}$   
 anticipate 1858 psi

BOPE 3M ✓

Burst 2950  
 70% 2065

Max P @ surf shoe  
 $.22(3992) = 878$   
 $2149 \text{ psi}$

test to 2065 psi ✓

shp ⇒ cmts ✓

✓ Adequate 2/20/1/31/07

8-5/8"  
 MW 8.4  
 Frac 19.3

4-1/2"  
 MW 9.8

Surface

12%  
 18%  
 22' TOC w/5% w/o  
 \*surf strip ✓

528' Green River

TOC @  
 766.

1442 TOC w/6% w/o

Surface  
 TOC @  
 2016. MD  
 1948. TVD

2488' Wasatch

3713' Mesaverde

5400' ± BMSW

Production  
 6192. MD  
 5940. TVD

Well name:	<b>2007-1 Enduring Southam Canyon 9-25-14-31</b>	
Operator:	<b>Enduring Resource, LLC</b>	
String type:	Surface	Project ID: 43-047-38451
Location:	Uintah County	

**Design parameters:**

**Collapse**

Mud weight: 8.400 ppg  
Design is based on evacuated pipe.

**Burst**

Max anticipated surface pressure: 1,774 psi  
Internal gradient: 0.120 psi/ft  
Calculated BHP: 2,008 psi  
  
No backup mud specified.

**Minimum design factors:**

**Collapse:**

Design factor: 1.125

**Burst:**

Design factor: 1.00

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on buoyed weight.  
Neutral point: 1,739 ft

**Environment:**

H2S considered? No  
Surface temperature: 75 °F  
Bottom hole temperature: 102 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 500 ft

Cement top: 766 ft

**Directional Info - Build & Hold**

Kick-off point: 300 ft  
Departure at shoe: 416 ft  
Maximum dogleg: 4 °/100ft  
Inclination at shoe: 30.4 °

**Re subsequent strings:**

Next setting depth: 5,940 ft  
Next mud weight: 9.800 ppg  
Next setting BHP: 3,024 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,016 ft  
Injection pressure: 2,016 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	2016	8.625	24.00	J-55	ST&C	1948	2016	7.972	720.9
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	850	1370	1.611	2008	2950	1.47	41	244	5.97 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Minerals

Phone: 801-538-5357  
FAX: 801-359-3940

Date: January 30, 2007  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 1948 ft, a mud weight of 8.4 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

Well name:

**2007-1 Enduring Southam Canyon 9-25-14-31**Operator: **Enduring Resource, LLC**String type: **Production**

Project ID:

43-047-38451

Location: **Uintah County****Design parameters:****Collapse**Mud weight: 9.800 ppg  
Design is based on evacuated pipe.**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**H2S considered? No  
Surface temperature: 75 °F  
Bottom hole temperature: 158 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 1,500 ft

Cement top: 2,112 ft

**Burst**Max anticipated surface  
pressure: 1,717 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 3,024 psi

No backup mud specified.

**Tension:**8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)**Directional Info - Build & Hold**Kick-off point 300 ft  
Departure at shoe: 1186 ft  
Maximum dogleg: 4 °/100ft  
Inclination at shoe: 0 °

Tension is based on buoyed weight.

Neutral point: 5,322 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft <sup>3</sup> )
1	6192	4.5	11.60	N-80	LT&C	5940	6192	3.875	540.4
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	3024	6350	2.100	3024	7780	2.57	59	223	3.79 J

Prepared Helen Sadik-Macdonald  
by: Div of Oil, Gas & MineralsPhone: 801-538-5357  
FAX: 801-359-3940Date: January 30, 2007  
Salt Lake City, Utah**Remarks:**

Collapse is based on a vertical depth of 5940 ft, a mud weight of 9.8 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop &amp; Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

# 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)

August 15, 2006

### Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2006 Plan of Development Bonanza Unit, Uintah 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 2006 within the Bonanza Unit, Uintah County, Utah.

API #	WELL NAME	LOCATION
(Proposed PZ MesaVerde)		
43-047-38451 9-25-14-31 Sec 06 T10S R25E 0526 FNL 0475 FWL		BHL Sec 31
T09S R25E 0660 FSL 0659 FWL		

Please be advised that the subject well will have the surface location located on Fee Land outside the Unit and will TD on State land within the Unit. This office has no objection to permitting the well at this time.

/s/ Michael L. Coulthard

bcc: File – Bonanza Unit  
Division of Oil Gas and Mining  
Central files  
Agr. Sec. Chron  
Fluid Chron

**From:** Ed Bonner  
**To:** Mason, Diana  
**Date:** 10/31/2006 3:32:57 PM  
**Subject:** Well Clearance

The following wells have been given cultural resource clearance by the Trust Lands Cultural Resources Group:

**Bill Barrett Corporation**

Prickly Pear State 1-16-12-15 (API 43 007 31245)  
Prickly Pear State 9-16-12-15 (API 43 007 31240)

**Enduring Resources, LLC**

Long Draw 12-24-32-24 (API 43 047 38484)  
Sand Wash 12-22-13-36 (API 43 047 38288)  
Sand Wash 12-22-14-36 (API 43 047 38287)  
Rock House 10-22-43-36 (API 43 047 38323)  
Southam Canyon 9-25-14-31 (API 43 047 38451)

If you have any questions regarding this matter please give me a call.

**CC:** Davis, Jim; Garrison, LaVonne; Hill, Brad; Hunt, Gil



**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*

January 31, 2007

Enduring Resources, LLC  
475 17th St., Ste. 1500  
Denver, CO 80202

Re: Southam Canyon 9-25-14-31 Well, 526' FNL, 475' FWL, NW NW, Sec. 6,  
T. 10 South, R. 25 East, Bottom Location 660' FSL, 659' FWL, SW SW,  
Sec. 31, T. 9 South, R. 25 East, Uintah 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.

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 43-047-38451.

Sincerely,

Gil Hunt  
Associate Director

pab  
Enclosures

cc: Uintah County Assessor (via e-mail)  
SITLA  
Bureau of Land Management, Vernal District Office

**Operator:** Enduring Resources, LLC  
**Well Name & Number** Southam Canyon 9-25-14-31  
**API Number:** 43-047-38451  
**Lease:** ML-45560

**Location:** NW NW                      **Sec. 6**                      **T. 10 South**                      **R. 25 East**  
**Bottom Location:** SW SW                      **Sec. 31**                      **T. 9 South**                      **R. 25 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

The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- 24 hours prior to cementing or testing casing
- 24 hours prior to testing blowout prevention equipment
- 24 hours prior to spudding the well
- within 24 hours of any emergency changes made to the approved drilling program
- prior to commencing operations to plug and abandon the well

The following are Division of Oil, Gas and Mining contacts and their work telephone numbers (please leave a voice mail message if the person is not available to take the call):

- Dan Jarvis at (801) 538-5338
- Carol Daniels at (801) 538-5284 (spud)

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. 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.

5. Compliance with the State of Utah Antiquities Act forbids disturbance of archeological, historical, or paleontological remains. Should archeological, historical or paleontological remains be encountered during your operations, you are required to immediately suspend all operations and immediately inform the Trust Lands Administration and the Division of State History of the discovery of such remains.

6. Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis. (Copy Attached)

7. 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.
8. Surface casing shall be cemented to surface.

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 9

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		5. LEASE DESIGNATION AND SERIAL NUMBER: ML-45560
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER _____		7. UNIT or CA AGREEMENT NAME: n/a
2. NAME OF OPERATOR: Enduring Resources, LLC		8. WELL NAME and NUMBER: Southam Canyon 9-25-14-31
3. ADDRESS OF OPERATOR: 475 17th Street, Suite 1500 CITY Denver STATE CO ZIP 80202		9. API NUMBER: 4304738451
4. LOCATION OF WELL FOOTAGES AT SURFACE: 526' FNL - 475' FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWNW 6 10S 25E S		10. FIELD AND POOL, OR WILDCAT: undesignated
		COUNTY: Uintah STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: <u>Request for APD Extension</u>
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Enduring Resources, LLC respectfully request an extension to the expiration date of this Application for Permit to Drill ....

FROM: 1-31-2008

TO: 1-31-2009

**Approved by the  
Utah Division of  
Oil, Gas and Mining**

Date: 02-04-08

By: 

**COPY SENT TO OPERATOR**

Date: 2-5-2008

Initials: KS

NAME (PLEASE PRINT) <u>Alvin R. (Al) Arlian</u>	TITLE <u>Landman - Regulatory Specialist</u>
SIGNATURE 	DATE <u>1/28/2008</u>

(This space for State use only)

**RECEIVED**

**JAN 31 2008**

**DIV. OF OIL, GAS & MINING**



**Application for Permit to Drill  
Request for Permit Extension  
Validation**

(this form should accompany the Sundry Notice requesting permit extension)

**API:** 4304738451  
**Well Name:** Southam Canyon 9-25-14-31  
**Location:** 5<sup>1</sup>/<sub>6</sub>' FNL - 475' FWL NWNW Sec. 6, 10S-25E  
**Company Permit Issued to:** ENDURING RESOURCES, LLC  
**Date Original Permit Issued:** 1/31/2007

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.

If located on private land, has the ownership changed, if so, has the surface agreement been updated? Yes  No

Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? Yes  No

Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? Yes  No

Have there been any changes to the access route including ownership, or right-of-way, which could affect the proposed location? Yes  No

Has the approved source of water for drilling changed? Yes  No

Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? Yes  No

Is bonding still in place, which covers this proposed well? Yes  No

  
Signature

1/28/2008  
Date

Title: Landman - Regulatory Specialist

Representing: Enduring Resources, LLC

**RECEIVED**

**JAN 31 2008**

DIV. OF OIL, GAS & MINING

**CONFIDENTIAL**

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER _____		5. LEASE DESIGNATION AND SERIAL NUMBER: ML-45560
2. NAME OF OPERATOR: Enduring Resources, LLC		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a
3. ADDRESS OF OPERATOR: 475 17th Street, Suite 1500 CITY Denver STATE CO ZIP 80202		7. UNIT or CA AGREEMENT NAME: n/a
PHONE NUMBER: (303) 350-5114		8. WELL NAME and NUMBER: Southam Canyon 9-25-14-31
4. LOCATION OF WELL FOOTAGES AT SURFACE: 526' FNL - 475' FWL		9. API NUMBER: 4304738451
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWNW 6 10S 25E S		10. FIELD AND POOL, OR WILDCAT: undesignated
COUNTY: Uintah		STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: <u>Request for APD Extension</u>
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Enduring Resources, LLC respectfully request an extension to the expiration date of this Application for Permit to Drill ....

FROM: 2/4/2009  
TO: 2/4/2010

Approved by the  
Utah Division of  
Oil, Gas and Mining

Date: 02-02-09  
By: [Signature]

NAME (PLEASE PRINT) <u>Alvin R. (Al) Arlian</u>	TITLE <u>Landman - Regulatory Specialist</u>
SIGNATURE <u>[Signature]</u>	DATE <u>1/26/2009</u>

(This space for State use only)

**COPY SENT TO OPERATOR**  
Date: 2.5.2009  
Initials: KS

**RECEIVED**  
**FEB 02 2009**  
**DIV. OF OIL, GAS & MINING**



**Application for Permit to Drill  
Request for Permit Extension  
Validation**

(this form should accompany the Sundry Notice requesting permit extension)

**API:** 4304738451  
**Well Name:** Southam Canyon 9-25-14-31  
**Location:** 546' FNL - 475' FWL NWNW Sec. 6, 10S-25E  
**Company Permit Issued to:** ENDURING RESOURCES, LLC  
**Date Original Permit Issued:** 1/31/2007

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

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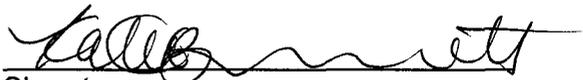
Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? Yes  No

Have there been any changes to the access route including ownership, or right-of-way, which could affect the proposed location? Yes  No

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Is bonding still in place, which covers this proposed well? Yes  No

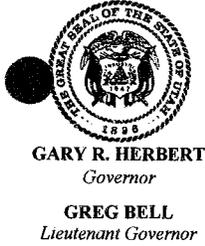
  
Signature

1/26/2009  
Date

Title: Administrative Assistant

Representing: Enduring Resources, LLC

**RECEIVED**  
**FEB 02 2009**  
DIV. OF OIL, GAS & MINING



# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

### Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

February 24, 2010

Al Arlian  
Enduring Resources, LLC  
475 17<sup>TH</sup> Street Ste 1500  
Denver, CO 80202

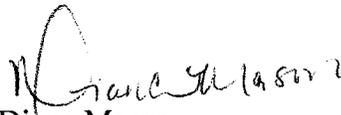
Re: APD Rescinded – Southam Canyon 9-25-14-31, Sec. 6 T.10S, R. 25E  
Uintah County, Utah API No. 43-047-38451

Dear Mr. Arlian:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on January 31, 2007. On February 4, 2008 and February 2, 2009 the Division granted a one-year APD extension. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective February 24, 2010.

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

Sincerely,

  
Diana Mason  
Environmental Scientist

cc: Well File  
SITLA, Ed Bonner

