



## WESTERN LAND SERVICES

January 16, 2009

Utah Division of Oil, Gas & Mining  
Diana Mason  
1594 West North Temple, Suite 1210  
Salt Lake City, Utah 84114-5801

RE: North American Exploration LLC-- CRU 25-43-2217

Dear Diana:

North American Exploration LLC proposes to drill the CRU 25-43-2217 well situated in T22S – R17E; Section 25: NESE, where the Department of Interior – Bureau of Land Management is the surface and mineral owner.

Enclosed you will find the APD, SUP, Drilling Plan, Certification, Construction Drawings, Exception Location Letter, and all other necessary documents for the approval of this well.

If you have any questions regarding the submittal, please contact me at [Terri.Hartle@Westernls.com](mailto:Terri.Hartle@Westernls.com) or (435) 896-5501.

Sincerely,

Terri Hartle  
Office Administrator – Western Land Services

RECEIVED

JAN 20 2009

**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: UTU-78223	6. SURFACE: Federal
1A. TYPE OF WORK: DRILL <input checked="" type="checkbox"/> REENTER <input type="checkbox"/> DEEPEN <input type="checkbox"/>			7. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A	
B. TYPE OF WELL: OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> OTHER _____ SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>			8. UNIT or CA AGREEMENT NAME: Cactus Rose Unit	
2. NAME OF OPERATOR: North American Exploration, LLC, Attn: Walt Lowry			9. WELL NAME and NUMBER: CRU 25-43-2217	
3. ADDRESS OF OPERATOR: 110 16th St. Suite 1220 CITY Denver STATE CO ZIP 80202		PHONE NUMBER: (303) 327-7144	10. FIELD AND POOL, OR WILDCAT: Wildcat	
4. LOCATION OF WELL (FOOTAGES) AT SURFACE: 2,010' FSL & 512' FEL AT PROPOSED PRODUCING ZONE: Same as Surface			11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NESE 25 22S 17E	
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE: Approximately 22 miles southeast of Green River, Utah			12. COUNTY: Grand	13. STATE: UTAH
15. DISTANCE TO NEAREST PROPERTY OR LEASE LINE (FEET) 512' FEL		16. NUMBER OF ACRES IN LEASE: 2,560 Acres	17. NUMBER OF ACRES ASSIGNED TO THIS WELL: 40 Acres	
18. DISTANCE TO NEAREST WELL (DRILLING, COMPLETED, OR APPLIED FOR) ON THIS LEASE (FEET) 6,000'		19. PROPOSED DEPTH: 10,250	20. BOND DESCRIPTION: UTB000296	
21. ELEVATIONS (SHOW WHETHER DF, RT, GR, ETC.): 4,488' GR		22. APPROXIMATE DATE WORK WILL START: 3/1/2009	23. ESTIMATED DURATION: Approximately 60 days	

24. **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"	20" J55 .500"	120				
17-1/2"	13-3/8" N80 68#	2,500	HowcoLT+.25 PolyFlk	1670 SXS	2.08 yld	12.8#
12-1/4"	9-5/8" HCP110 53.5#	6,500	HowcoLT+.25 CeloFlk	1355 SXS	2.08 yld	12.8#
8-1/2"	7" HCP110 35#	8,500	Contingent drill Liner	TBD		
7-7/8"	5-1/2" HCP110 23#	10,200	HowcoLT+.25 CeloFlk	1500 SXS	1.25 yld	16.8#

25. **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 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) Terri L. Hartle TITLE Authorized Agent For: North American Exploration

SIGNATURE *Terri L. Hartle* DATE 1-14-09

(This space for State use only)

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

**RECEIVED  
JAN 20 2009**

API NUMBER ASSIGNED: 43-019-31619

APPROVAL: Date: 01-22-09

(11/2001)

**Federal Approval of this  
Action is Necessary**

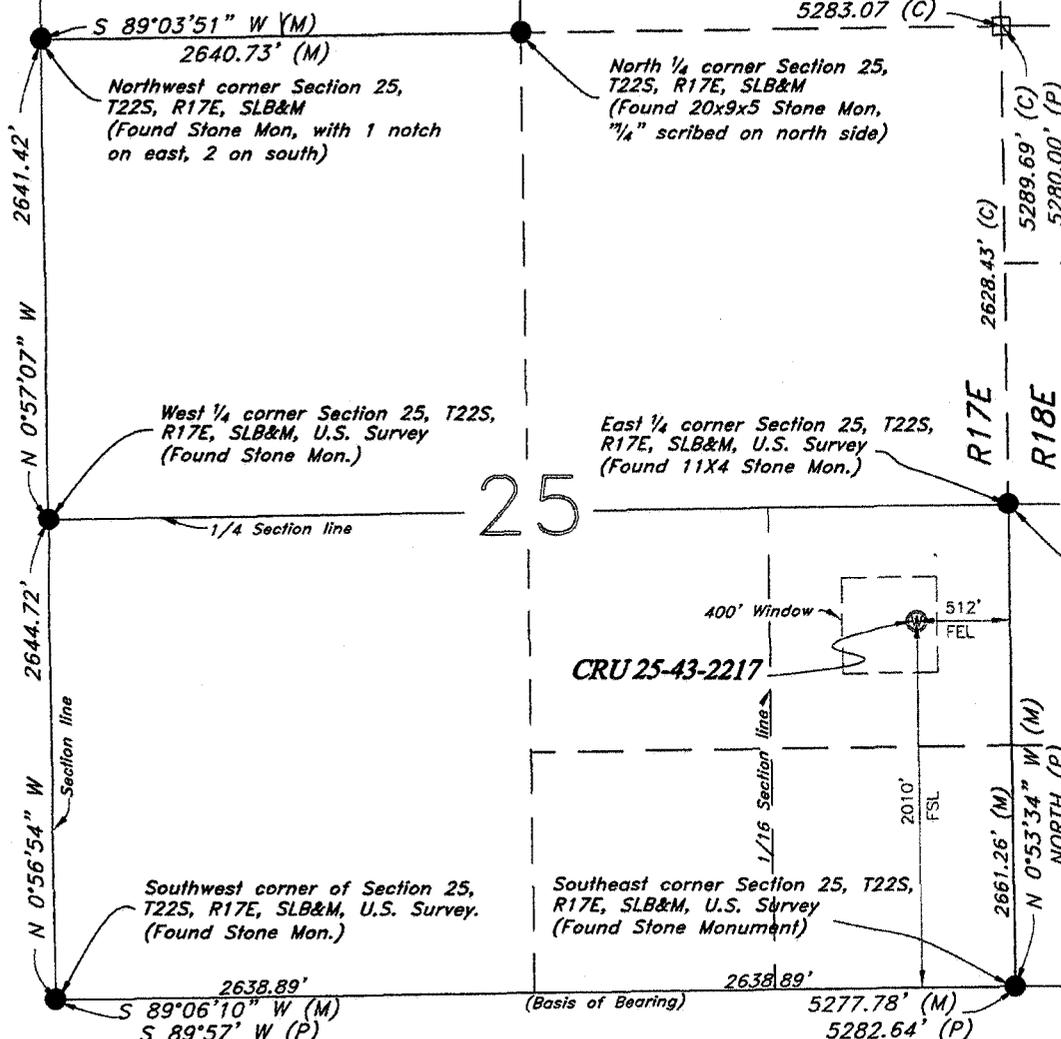
(See Instructions on Reverse Side)

By: *[Signature]* DIV. OF OIL, GAS & MINING

**WELL PLAT FOR "CRU 25-43-2217"**  
**SECTION 25, T22S-R17E, SLB&M, GRAND COUNTY, UTAH**

**CERTIFICATION**

I, Jerron R. Atkin II, do hereby certify that I am a Registered Land Surveyor, and that I hold Certificate No. 5992544, as prescribed by the Laws of the State of Utah, and I have made a survey based on information collected on the ground and of record. I have relied upon a GLO plat and notes of Township 22 South, Range 17 East, conducted by H.D. Heist and approved on March 18, 1907 as file No. 1184. I further certify that the above plat correctly shows the true dimensions of the property surveyed.



**BASIS OF BEARING**

Basis of bearing is S 89°06'10" W between the Southwest and Southeast corners of Section 25, T22S, R17E, S.L.B.&M., U.S. Survey.

**BASIS OF ELEVATION**

Elevation based on a GPS observation of a rebar control point set by Western Land Services for this survey which is located in the Northwest Quarter of Section 32, T21S, R18E, S.L.B.&M., U.S. Survey. Elevation=4509 feet.

**NARRATIVE**

The purpose of this survey is to plat the location of the proposed well "CRU 25-43-2217" which is located in the Northeast 1/4 of the Southeast Quarter of Section 25, T22S, R17E, S.L.B.&M., U.S. Survey.

**PROPOSED WELL SITE**

LATITUDE: 38.86715°N  
 LONGITUDE: 109.98740°W  
 ELEVATION: 4488' (Graded)

**DISTANCES ARE GROUND**

NAD 83, NAVD 88  
 SF: 1.000169

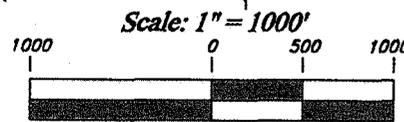
**UTAH STATE PLANE**  
 CENTRAL ZONE

*For Reference Only*

Latitude: 38.86718°N  
 Longitude: 109.98671°W  
 NAD 27

**LEGEND:**

- ⊙ - PROPOSED WELL LOCATION
- - FOUND STONE MONUMENT
- - CALCULATED CORNER
- M - MEASURED WITH GPS
- P - 1907 GLO PLAT
- C - CALCULATED



*Graphic Scale*

NORTH AMERICAN EXPLORATION  
 PROJECT: CRU 25-43-2217

**WESTERN LAND SERVICES**

Richfield, UT 84701 (435) 896-5501

File: CRU WELL PLATS.DWG

Date: 10-28-08

## Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I, or someone under my direct supervision, have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 16 day of Jan., 2009.

Signature 

Name (print or type) Glen Nebeker

Position Title NEPA Specialist/Project Manager

Address Western Land Services

195 N. 100 E., Richfield, UT 84701

Telephone 435-896-5501

Field representative (if not above signatory)

\_\_\_\_\_

Address (if different from above)

Telephone (if different from above)

E-mail (optional) Glen.Nebeker@westernls.com

***Agents not directly employed by the operator must submit a letter from the operator authorizing that agent to act or file this application on their behalf.***

BLM- Utah State Office  
Attn: Mickey Coulthard  
440 West 200 South, Suite 500  
Salt Lake City, Utah 84101  
PH: (801) 539-4112

August 25<sup>th</sup>, 2008

Dear Mickey,

Please allow Western Land Services (WLS), who resides at 195 North 100 East, Suite #201, Richfield, Utah 84701 and their assigns to act as NAE, LLC's agent in the permitting of NAE LLC's oil, gas and other wells in the State of Utah. They may act in full capacity as our agent to file and request official documents, perform field work, and any other task necessary to file and acquire APDs. Please acknowledge and approve of this agent designation at your earliest convenience.

Thank you and if you should any problems, please do not hesitate to contact me at 303-327-7144.

Thank You,



Erik Larsen  
North American Exploration LLC

Bureau of Land Management  
Moab Field Office  
Moab, Utah  
Application for Permit to Drill

**TIGHT HOLE STATUS**

Company: North American Exploration, LLC      Well No. CRU 25-43-2217

Location: Sec 25 T22S R17E

Lease No. UTU-78223

On-Site Inspection Date: 07/30/08

All operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR § 3100 & 43 CFR § 3160), Onshore Oil and Gas Orders, the approved plan of operations and the conditions of approval. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

**THIRTEEN POINT SURFACE USE PLAN**

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

1. Existing Roads:
  - a. Proposed route to location (submit a map depicting access and well location, 1:100,000 scale). See attached Overview and APD maps.
  - b. Location of proposed well in relation to town or other reference point:  
The well location is approximately 22 miles southeast of Green River, Utah.
  - c. Plans for improvement and/or maintenance of existing roads: Existing county roads will be upgraded and maintained as necessary. When necessary, roads will be re-graded to establish a running surface of 12 feet. Where soil conditions dictate the use of stabilizing material, 6 inches of 4 inch minus granular borrow will be used.
  - d. Other: NA
2. Planned Access Roads (1:24,000 scale: 12 inch surveyor stakes):
  - a. Location (centerline): Refer to construction diagrams, Sheets PP1 through PP2.
  - b. Length of new access to be constructed: 0.85 miles
  - c. Length of existing roads to be upgraded: 0 miles
  - d. Maximum total disturbed width: approximately 43.06 feet (Sheet PP2)
  - e. Maximum travel surface width: 14 foot travel lanes, 24 foot turnouts
  - f. Maximum grades: 7.95%
  - g. Turnouts: 3

- h. Surface materials: 4 inch minus granular barrow
- i. Drainage (crowning, ditching, culverts, etc): none
- j. Cattleguards: none
- k. Length of new and/or existing roads which lie outside the lease or unit boundary for which a BLM right-of-way is required: 0 mile
- l. Other:

Surface disturbance and vehicular travel will be limited to the approved location and access road. Any additional area needed must be approved by BLM in advance.

If a right-of-way is necessary, no surface disturbing activities shall take place on the subject right-of-way until the associated APD is approved. The holder will adhere to conditions of approval in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.

If a right-of-way is secured, boundary adjustments in the lease or unit shall automatically amend this right-of-way to include that portion of the facility no longer contained within the lease or unit. In the event of an automatic amendment to this right-of-way grant, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate shall be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.

If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental fees, or other financial obligations determined by the BLM.

If the well is productive, the access road will be brought to Resource (Class III) Road Standards within 60 days of dismantling the rig. If upgraded, the access road must be maintained at these standards until the well is properly abandoned. If this time frame cannot be met, the Field Office Manager will be notified so that temporary drainage control can be installed along the access road.

- 3. Location of Existing Wells: On a map (1:24,000 scale), show the location of all water, injection, disposal, producing and drilling wells within a one mile radius of the proposed well, and describe the status of each.

No existing wells of any type exist within a one mile radius of this proposed well.

- 4. Location of Production Facilities:

- a. On-site facilities: If the well is a producer on-site facilities will be applied for and installed. There is no proposed pipeline at this time. If a pipeline is needed, it will be applied for by Sundry Notice and additional NEPA will be completed as needed. All or part of this equipment could be on a location:

There will be five (5) 400 BBL oil tanks and two (2) 400 BBL salt water tanks.  
One (1) high pressure 36" x 10' 3 phase separator  
One (1) low pressure 30" x 10' 3 phase separator  
One (1) 6' x 20' heater treater  
One (1) 3 phase high pressure gas production unit  
One (1) gas dehydrator  
One (1) gas compressor  
Two (2) transfer pumps for handling produced fluids  
One (1) large beam pumping unit and engine

- b. Off-site facilities: None
- c. Other: All permanent (in place for six months or longer) structures constructed or installed (including oil well pump jacks) will be painted a flat, non-reflective color to match the standard environmental colors, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) may be excluded. Colors will be as follows:  
Colors will match the surrounding soils and vegetation.

All site security guidelines identified in 43 CFR § 3162.7-5 and Onshore Oil and Gas Order No. 3 shall be followed.

If a gas meter run is constructed, it will be located on lease within 500 feet of the wellhead. The gas flowline will be buried from the wellhead to the meter and will be buried downstream of the meter until it leaves the pad. Meter runs will be housed and/or fenced. The gas meter shall be calibrated prior to first sales and shall be calibrated quarterly thereafter. All gas production and measurement shall comply with the provisions of 43 CFR § 3162.7, Onshore Oil and Gas Order No. 5, and American Gas Association (AGA) Report No. 3.

If a tank battery is constructed on this lease, it will be surrounded by a berm of sufficient capacity to contain 1½ times the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery. All oil production and measurement shall conform to the provisions of 43 CFR § 3162.7 and Onshore Oil and Gas Order No. 4. If water is produced from the well; steel coated water tanks will be used.

- 5. Location and Type of Water Supply:  
All water needed for drilling purposes will be obtained from (describe location and/or show on a map): Municipal water from Thompson Springs, Utah.
- 6. Source of Construction Material:  
Pad construction material will be obtained from (if the source is Federally owned, show location on a map).

Materials needed will be obtained from a private source.

The use of materials under BLM jurisdiction will conform to 43 CFR § 3610.2-3.

- 7. Methods of Handling Waste Disposal:

Describe the methods and locations proposed for safe containment and disposal of waste material, e.g. cuttings, produced water, garbage, sewage, chemicals, etc.

The reserve pit will be lined with (native material, bentonite, synthetic material): The pit will be lined with 20 mil, or greater (depending on the pit substrate), thick polyethylene nylon reinforced liner material. The liner will overlay a felt liner pad only if sharp rock edges result from excavation.

The reserve pit will be built with a divider in the middle to keep the fresh water cuttings separate from the oil base mud (OBM) cuttings. The lower portion of the hole (below the intermediate casing) will be drilled with an OBM using a "closed loop" system whereby all liquid mud will be contained in steel tanks. A flat tank will be used to collect the dry cuttings from the shale shakers and the centrifuge. These cuttings will be transferred from the flat tank to the isolated side of the reserve pit for storage.

Treatment of oil and water based cuttings shall commence as soon as possible after the drilling rig is moved off the location. At the conclusion of the drilling of the well these OBM dry cuttings will be further solidified with fly ash using a track hoe to thoroughly mix all cuttings. The solidified cuttings will be buried in the pit during remediation of the location. All liquid OBM remaining at the conclusion of the well will be stored in steel tanks and transferred to the next drilling location. If pit closure cannot be initiated immediately after the drilling has been completed, the oil-based cuttings shall be netted and fenced to prevent birds and other animals from exposure to the fluids. Any free oil on the pits resulting from operations or bleeding from the oil-based cuttings shall be removed immediately and recycled or disposed at an approved waste oil treatment facility.

Drilling fluids utilized in the oil-based mud system will be mixed in a closed circulating system and transferred into steel tanks on location designed specifically for the containment of the oil-based fluids. These fluids will be recycled during the drilling operation by centrifuging the return to separate the drilled cuttings from the oil-based fluids. Separated cuttings will be deposited into the reserve pit for treatment, as noted above, and the fluids will be recycled back into the closed mud system (steel tanks) for continued use during drilling. A temporary containment berm will be constructed around these storage tanks capable of holding 5 times the volume of the capacity of the largest tank within the berm. The berm will be lined with a synthetic impermeable material to contain any potential spills.

Upon completion of drilling operations any remaining oil-based fluids will be removed from the well location and disposed of in accordance with the appropriate State and Federal regulations.

The reserve pit will be located: See construction diagrams, Sheet PAD. The pit walls will be sloped at no greater than 2 to 1.

The reserve pit shall be located in cut material, with at least 50% of the pit volume being below original ground level. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain until the pit is dry. As soon as the reserve pit has dried, all areas not needed for production will be rehabilitated.

The reserve pit will be used for the disposal of waste mud and drill cuttings. All borehole fluids will be contained in the reserve pit. All appropriate measures will be taken to prevent leakage into the substratum or onto the surface. All appropriate measures will be taken to prevent overflow, and a minimum of 2 feet of freeboard will be maintained in the reserve pit. It will be constructed on the well pad. See construction diagrams, Sheet PAD.

Wastewater will not be discharged on the surface at this site and the drilling of the well will not require a wastewater management plan.

All rubbish and debris will be kept in containers on the well site, and will be hauled to an approved disposal site upon completion of drilling and completion operations and as needed during such operations. There will be no chemical disposal of any type. Self-contained, portable toilets will be used for human waste, and the waste will be disposed at an approved landfill. Sanitation will comply with local and state regulations for the disposal of human waste.

8. Ancillary Facilities: Trailers, garbage containers and portable toilets.
9. Well Site Layout: Depict the pit, rig, cut and fill, topsoil, etc. on a plat with a scale of at least 1"=50'. See construction diagrams, Sheet PAD.

All wells, whether drilling, producing, suspended, or abandoned, will be identified in accordance with 43 CFR § 3162.6.

Access to the well pad will be from: See construction diagrams, Sheet PAD.

The blooie line will be located: At least 100 feet from the well head.

To minimize the amount of fugitive dust and spray escaping from the blooie pit, the following blooie line deflection method will be employed: water injection

10. Plans for Restoration of the Surface:  
The top 2 to 3 inches of topsoil material will be removed from the location and stockpiled separately on: adjacent to the pad

Topsoil along the access road will be reserved in place adjacent to the road.

Immediately upon completion of drilling, all equipment that is not necessary for production shall be removed.

The reserve pit and that portion of the location not needed for production will be reclaimed.

Before any dirt work to restore the location takes place, the reserve pit must be completely dry.

All road surfacing will be removed prior to the rehabilitation of roads.

Reclaimed roads will have the berms and cuts reduced and will be closed to vehicle use.

All disturbed areas will be recontoured to replicate the natural slope.

The stockpiled topsoil will be evenly distributed over the disturbed area.  
The abandonment marker will be one of the following, as specified by BLM:

- 1) At least four feet above ground level,
- 2) At restored ground level, or
- 3) Below ground level.

In any case the marker shall be inscribed with the following: operator name, lease number, well name and surveyed description (township, range, section and either quarter-quarter or footages).

Reclamation of the surface will commence as soon after construction, drilling and well completion are concluded, as is practicable. In the event of a dry hole, the drill site and roadways will be restored to their original condition within 180 days after plugging date of the well, depending on weather and other extenuating circumstances.

All junk, debris, or other foreign material must be removed before initiating any dirt work to restore the location. The fence around the reserve pit will be maintained in good repair during the drilling operations and will be completed by constructing the fourth side while the pit is drying. It will remain in place until the pit is completely dry and the site restoration begins. All fences will be four-strand barbed wire.

The reserve pit and that portion of the location and access road not needed for production or production facilities will be reclaimed. All stockpiled topsoil, in proportion to the area being reclaimed, will be used in reclaiming areas without an on-going operation.

Site reclamation will include:

- Removing the road base material from the access road and any other surface that may be covered by such material;
- Recontouring the location to approximate natural contours, to the extent practicable; evenly redistributing stockpiled topsoil over the recontoured areas;
- Scarifying recontoured areas, including the access road, by use of a disk or harrow prior to seeding; and
- Drilling or broadcasting seeds.

The seed mix and rate used will be that recommended by the Authorized Officer. Seed will be drilled where-ever possible. If the seed is broadcast, then a harrow or some other implement will be dragged over the seeded area to assure seed coverage. The seed will be certified, pure live seed, and the seed tags will be available if requested by the Authorized Officer. Certified weed free seed will be used to rehabilitate reclaimed land.

All hillsides and other places where the contractor has moved earthen materials to facilitate operations will be restored to as near original condition as practical. The surface of the re-contoured land will be left in a slightly roughened condition to collect precipitation and to promote seed germination. The site will be fenced with four-strand barbed wire until vegetation is reestablished.

Road base material, used in the construction of the access road and pad, will be removed from the site and disposed in a proper manner. If the reserve pit has adequate capacity, then some or all of the gravel will be buried in the reserve pit, provided that the gravel is not contaminated by oil or other waste materials. The access road will be recontoured using of an excavator or similar equipment, rather than simply ripping the surface.

If culverts were used during road construction, they will be removed from the site and disposed in an approved landfill. The concrete cellar will be removed from the site and similarly disposed in a landfill, or with the approval of the Authorized Officer may be broken down into small pieces and buried during the Recontouring on the site.

During the life of the project and until the site is released from liability for reclamation, the

project will be inspected at least several times a year for noxious weeds. If invasive noxious weeds are found, the weeds will be treated to eliminate further reproduction (spread), and treatment shall continue until the weeds have been eradicated. If noxious weeds are found, the BLM will be notified of their occurrence.

11. Surface and Mineral Ownership:

The surface of the proposed well site is federally owned and is administered by the Bureau of Land Management, United States Department of Interior.

12. Other Information:

- a. Archeological Concerns: A cultural survey was completed by Western Land Services and no sites were identified.

The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the BLM Field Office. Within five (5) working days, the BLM will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places;
- The mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and
- A time frame for the BLM to complete an expedited review under 36 CFR § 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the BLM are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the BLM will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The BLM will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the BLM that the required mitigation has been completed, the operator will then be allowed to resume construction.

b. Other:

Heavy equipment, used to construct and rehabilitate the well pad and access road, will be cleaned and/or sprayed to remove any noxious or invasive weeds and seeds, prior to being moved to the project site. Any other equipment and vehicles, that have been used in other locations, where noxious weeds or seeds could have attached to the equipment, will also be sprayed and/or cleaned.

Any accumulation of hydrocarbons in the reserve pit will be removed and recovered for sale unless it is determined by the Authorized Officer to be waste oil. All waste oil will be disposed of properly at approved facilities.

For reclamation, the pit liner, which is exposed above the cuttings, will be cut and removed from the site and disposed in an authorized landfill. The reserve pit will

be backfilled to slightly above grade to allow for settling of the unconsolidated fill material.

All equipment and vehicles will be confined to the access roads and well pad.

Any facilities in an existing right of way that are damaged as a result of the oil and gas operations will be repaired or replaced.

Fire suppression equipment will be available to suppress any wildfires caused by construction or related activities. In the event of a wildfire, the Moab Fire Center will be notified (435)259-1850.



**North American Exploration, LLC  
CRU (Cactus Rose Unit) 25-43-2217  
NESE Sec. 25-T22S-R17E  
2010' FSL & 512' FEL  
Latitude: 38.86718 Longitude: -109.98671  
Ground Level Elevation: 4488'  
Surface Formation: Morrison (Brushy Canyon  
Grand County, Utah  
Lease # UTU 78223**

## **ONSHORE ORDER 1 - DRILLING PLAN**

### **General Project Description**

The CRU (Cactus Rose Unit) 25-43-2217 well is proposed as a Cane Creek test to a depth of 10,250' MD/TVD. Attached is a Proposed Wellbore Construction Diagram providing a visual depiction of NAE's plan to construct this wellbore. There is high potential of encountering abnormal formation pressure after the Paradox Salt top is encountered, with mud weights in excess of 16.0 ppg required to control the formation pressure. NAE proposes drilling the surface hole with air and air/mist, and setting 2500' of 13-3/8" surface casing to 2500' RKB in a 17-1/2" hole. The surface casing will effectively case off all formations from the Chinle Formation to the surface. The surface casing will be cemented to surface.

NAE plans to continue drilling the 12-1/4" intermediate section of hole with air and air/mist to a depth of 6500' RKB. The 12-1/4" hole will be drilled, and the intermediate casing will be set, at a depth sufficient to provide a formation integrity test at the shoe of at least 15.5 ppg EMW. After drilling through the top of the Paradox Salt at ~6,171' abnormal formation pressure can be present, with mud weights exceeding 16.0 ppg necessary to control formation pressure. NAE intends on setting the intermediate casing just into the top of pressure to facilitate drilling the production hole to TD without requiring a 7" contingent drilling liner. A triple combo open hole logging suite will be run at 6500'. Then 9-5/8" intermediate casing will be run and cemented in place with a proposed cement top 400' inside the surface casing shoe at 2500'.

The wellbore will then be displaced with an 80/20 invert oil base mud system. Drip pans and all other contingencies and equipment will be in place to handle the oil base mud prior to commencing drilling of the 8-1/2" production hole. An 8-1/2" production hole is being drilled to accommodate the running of a 7" contingent drilling liner if required by higher than expected formation pressures in the Paradox Salt section. NAE's primary target for the well is the Cane Creek zone, a clastic section bounded by salt sections. NAE has conservatively designed it's wellbore using higher formation pressures than anticipated. This "over-design" also accounts for the plastic nature of the Paradox Salt sections, and the realization that several Paradox Salt wells have experienced collapsed casing due to under-design or poor cement practices. Once TD of 10,250' MD/TVD is reached, a quad-combo logging suite will be run in the open hole. A production string of 5-1/2" casing will then be run from surface to TD and cemented with a cement top projected at 6100' (400' inside the 9-5/8" intermediate casing shoe).

NAE predicts this well will make significant quantities of oil and natural gas out of the Cane Creek clastic member of the Paradox Salt.

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

Formation	Depth (K.B.)
Morrison (Brushy Canyon)	Surface
Carmel	1300'
Navajo Sandstone	1410'
Kayenta	1990'
Wingate	2046'
Chinle	2320'
Moenkopi	2725'
Top Paradox Salt	6171'
Cane Creek	10,011'
Base of Cane Creek	10,103'
Proposed TD	10,250'

2. **Estimated Depths of Anticipated Water, Oil, Gas or Other Minerals:  
(per Proposed Wellbore Construction Diagram attached)**

Formation	Depth (K.B.)	Substance
Navajo	1410'	Oil
Kayenta	1990'	Oil
Wingate	2046'	Oil
Top of Paradox Salt	6171'	Oil/Gas
Cane Creek	10,011'	Oil/Gas
Estimated TD		10,250'
Estimated Bottomhole Temperature		175°F

3. **Pressure Control Equipment: (10000 psi schematic attached)**

- a 13-3/8" SOW X 13-5/8" 10M casing head will be installed and welded on to the 13-3/8" surface casing
- 13-5/8" 5000 psi annular preventer
- 13-5/8" 10000 psi triple ram blowout preventer
- 2 sets pipe rams
  
- 1 set blind rams
- Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter)
- 3 inch choke line
- 2 kill line valves (2 inch minimum) and check valve
- Remote kill line (2 inch minimum) shall run to the outer edge of the substructure and be unobstructed
- Manual and hydraulic choke line valve (3 inch minimum)
- 3 chokes, 1 being remotely controlled
- Pressure gauge on choke manifold
- Upper kelly cock valve with handle available
- Safety valves and subs to fit all drill string connections in use
- Inside BOP or float sub available

- Wearing ring in casing head
- All BOPE connections subjected to well pressure shall be flanged, welded, or clamped
- Fill-up line installed above the uppermost preventer.

**Testing Procedure:****Blow-Out Preventer (Pipe Rams and Blind Rams)**

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.

**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 (See Wellbore Construction Diagram):**

**A. Casing Program: All New**

Hole Size	Casing Size (O.D.)	Wt./Ft.	Grade	Joint	Depth Set (MD)
20"	20"	0.500" w.t.	J55	Welded	120' (BGL)
17-1/2"	13.375"	68.0#	N80	LT&C	0-2500' (KB)
12-1/4"	9.625"	53.5#	HCP110	LT&C	0 – 6500' (KB)
8-1/2"	7.00" *	35.0#	HCP110	LT&C	6000'-8500' (KB)
7-7/8"	5.50"	23.0#	HCP110	LT&C	0– 10200' (KB)

\* The 7" drilling liner will be run in an 8-1/2" hole only if formation pressures are of a magnitude to warrant running same.

The surface casing will have guide shoe, 1 joint, and float collar. Centralize the shoe joint with bowspring centralizers in the middle and top of the joint and then place bowspring centralizers on every other collar to surface (~30 centralizers total). Thread lock guide shoe and bottom of float collar.

The intermediate casing string will have a float shoe, 1 joint, float collar, and will be centralized with 1 bow spring centralizer in the middle of the shoe joint, 1 centralizer in the middle of the next joint up, and then 1 centralizer on every other casing collar up to the base of surface casing.

The 7" contingent drilling liner will be run only if formation pressures dictate. If the 7" liner is run, it will likely be run from ~500' inside the 9-5/8" intermediate casing to a depth of approximately 8500'. The 7" contingent drilling liner will have a float shoe, a float collar with 1 shoe joint in between, and be centralized with 1 solid blade stabilizer in the middle of the shoe joint, 1 solid blade stabilizer on the joint above the float collar, and a solid blade stabilizer on every other joint to the top of the liner.

The 5.5" production string will be run from surface to TD. If a 7" contingent drilling liner is run, the production casing will need to be replaced with a 4.5" string instead of a 5.5" string, however, in either case, the centralization will be roughly the same. The production string will utilize a float shoe, 2 shoe joints, a float collar, and will be centralized with 2 solid blade stabilizers in the middle of each of the 2 shoe joints and the middle of the joint above the float collar. From there, solid blade centralizers will be run on every other casing collar up through the base of the intermediate casing string at 6500'.

All 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:** (see attached casing design)

Depth (MD)	Casing	Collapse (psi)/SF	Burst (psi)/SF	Tension (Mlbs)/SF
120' (GL)	20" OD	NA	NA	NA
2500' (KB)	13-3/8" 68# N80 LTC	2760/1.93 (a)	5020/1.84 (b)	963M/5.60 (c)
6500' (KB)	9-5/8" 53.5# HCP110 LTC	8850/1.25 (d)	10900/1.27 (e)	1422M/4.09 (f)
6000'-8500'	7" contingent drilling liner	TBD	TBD	TBD
10200' (KB)	5-1/2" 23.0# HCP110 LTC	14540/1.52 (g)	13580/1.59 (h)	643M/2.74 (i)

- (a.) based on full evacuation of pipe with 9.0 ppg fluid on annulus  
(b.) based on 10.0 ppg BHP with no fluid on annulus minus 0.1 psi/ft gas gradient  
(c.) based on casing string weight in air  
(d.) based on full evacuation of pipe with 20.9 ppg fluid on annulus  
(e.) based on 18.0 ppg BHP, gas to surface, with no fluid on annulus, 0.1 psi/ft gas gradient  
(f.) based on casing string weight in air  
(g.) based on full evacuation of pipe with 18.0 ppg fluid on annulus  
(h.) based on 18.0 ppg BHP with no fluid on annulus minus 0.1 psi/ft gas gradient  
(i.) based on casing string weight in air

**C. Proposed Cementing Program****Surface Casing** - Cemented to surface

CASING	SLURRY	FT. of FILL	CEMENT TYPE	SXS	EXCESS (%)	WEIGHT (ppg)	YIELD (ft <sup>3</sup> /sx)
13-3/8"	Lead/Tail	2500	Howco Rockies LT cement + 0.25 pps Poly-E-Flake	1670	100%	12.8	2.08

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.

**Intermediate Casing** - Cemented 6500' to 500' inside surface casing shoe at 2500'

CASING	SLURRY	FT. of FILL	CEMENT TYPE	SXS	EXCESS (%)	WEIGHT (ppg)	YIELD (ft <sup>3</sup> /sx)
9-5/8"	Lead/Tail	4500'	Howco Rockies LT + 0.25 pps celloflake	1355	100	12.8	2.08

Cement volumes for the 9-5/8" Intermediate Casing will be calculated to provide a top of cement to 500' inside surface casing shoe at 2500'. Cement volumes are approximate and are calculated under the assumption that 100% excess will be used over gauge hole. 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 and adding 50% excess. Actual cement types may vary due to hole conditions and cement contractor used.

**Contingent Drilling Liner** – If the 7” contingent drilling liner needs to be run, cement design will be performed at that time using then available temperatures, pressures, hole conditions, and depths.

**Production Casing** - Cemented 10200’ to 400’ inside intermediate casing shoe at 6500’

CASING	SLURRY	FT. of FILL	CEMENT TYPE	SXS	EXCESS (%)	WEIGHT (ppg)	YIELD (ft <sup>3</sup> /sx)
5-1/2”	Lead/Tail	4100’	Howco Rockies LT + 0.25 pps celloflake	1500	100%	16.8	1.25

Cement volumes for the 5-1/2” Production Casing will be calculated to provide a top of cement to 400’ inside the intermediate casing shoe at 6500’. Cement volumes are approximate and are calculated under the assumption that 100% excess will be used over gauge hole. 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 and adding 50% excess. 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 Program:**

Interval (MD)	Mud Weight	Fluid Loss	Viscosity	Mud Type
0’ – 120’ (KB)	<8.4	No cntrl	28	Water
120’-2500’ (KB)	8.4-8.6	No cntrl	28-36	Air/Air Mist
2500’-6500’ (KB)	8.4-9.0	8- 0 ml	32-42	Air/Air Mist
6500’-10200’ (KB)	9.0-18.0	5-10 ml	35-45	Oil Base Mud

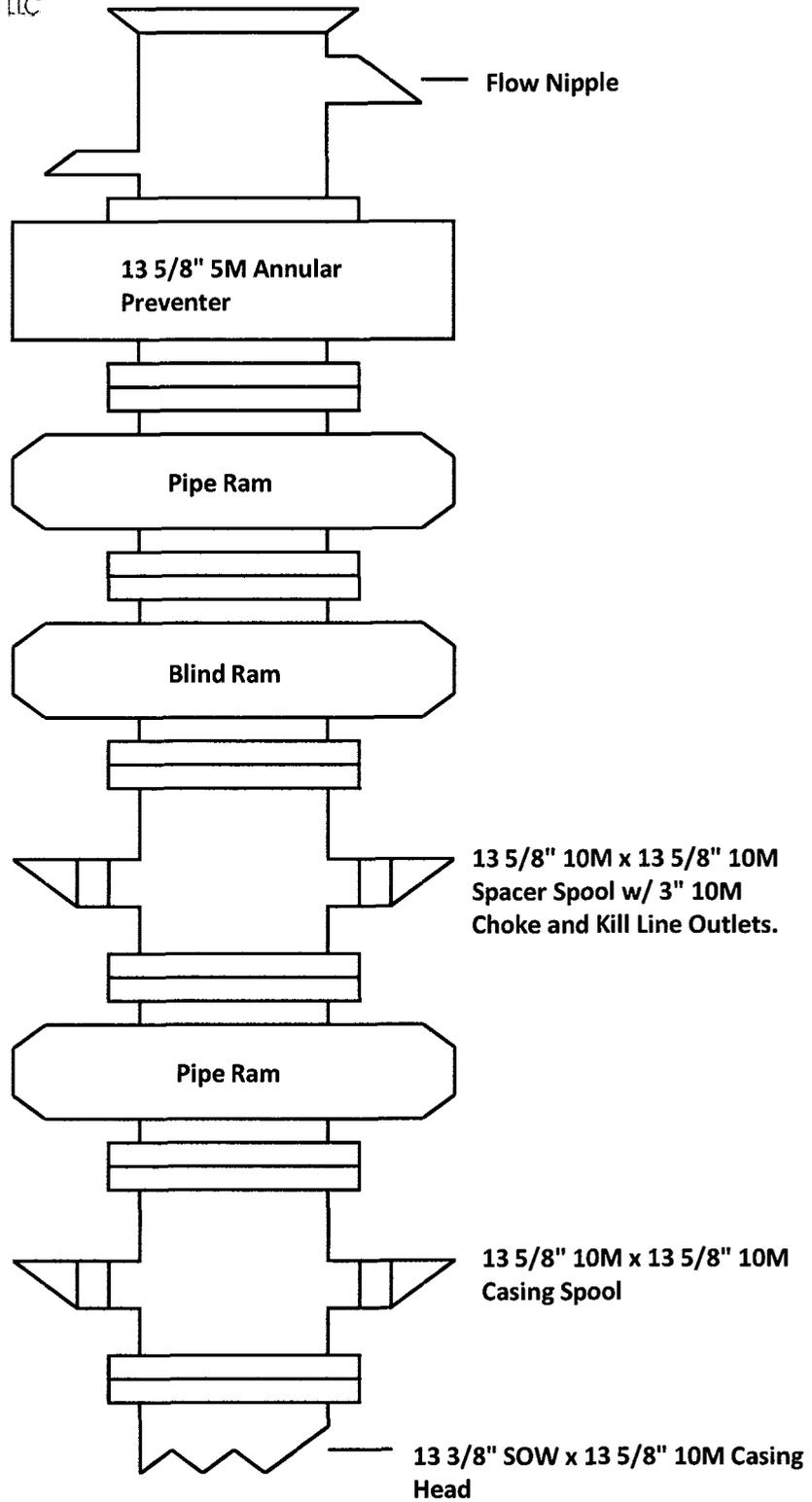
Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations. When oil base mud is utilized to drill the production section of hole, adequate spill containment measures and equipment will be in plac45



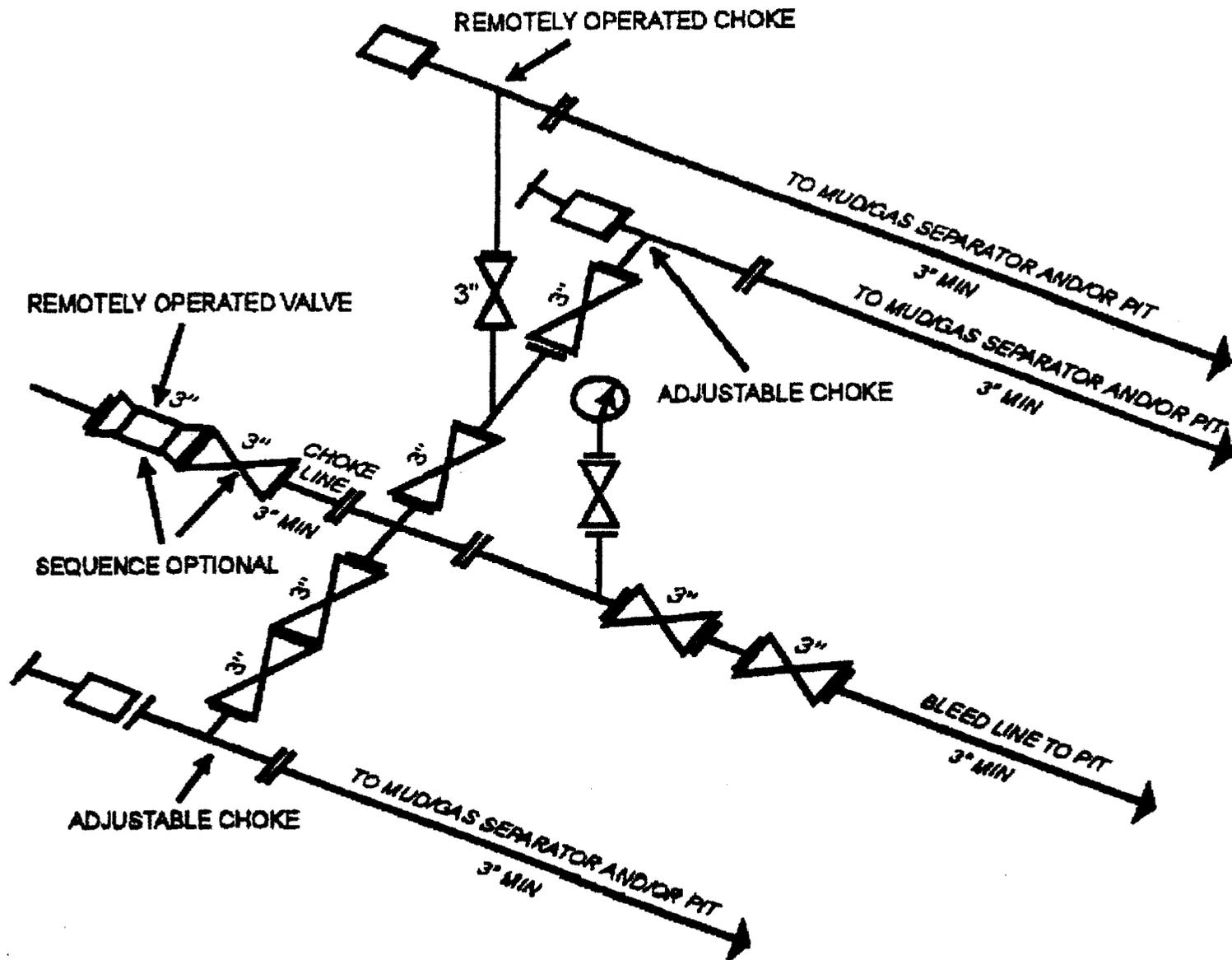
**10. Other:**

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 Bureau of Land Management upon their receipt.

Single Shot directional surveys will be dropped on every bit trip or will be run on slick line not less than every 1000' of hole drilled, and a survey will be dropped at TD.



13 5/8" 10M BOP Configuration



**10M AND 15M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY**

[53 FR 49661, Dec. 9, 1988 and 54 FR 39528, Sept. 27, 1989]

**CRU 25-43-2217  
Proposed Wellbore Construction Diagram**

Well: CRU 25-43-2217  
Well Type: Vertical Exploratory Intra-Salt Test  
Surface Location: 2010' FSL, 512' FEL Section 25-T22S-R17E  
Lat/Long: 38.86718°N, -109.98671°W (NAD 27)  
Proposed TD: 10,250' MD/TVD  
Author-Version-Date: W. Lowry - v2 - 23 December 2008



AFE Number:  
Field: Wildcat  
API Well Number: 049-035-00000  
Elevation: 4488' Graded  
Objectives: Drill, Evaluate, Run Prod Csg thru  
Cane Creek Section of Paradox Salt

Geology Logs	BOP Testing Requirements	Casing and Cement	Depth (ft)	Hole Size	Bit Run	Mud Weight	Directional and Mud Data
Surface sediments are Cretaceous Mancos			13 5/8" 10M Wellhead				
Dakota @ 900'			120' Cond.		20" Conductor		
Carmel @ 1,300'		Cmt to surface is BLM Requirement		17-1/2" Hole		< 8.4 ppg	Hole cleaning, <b>lost circulation</b> , gravel beds, seepage, tight hole, stuck pipe. Water, Gel Polymer, Polyseal for lost returns <b>Drill w/ Air &amp; Air Mist</b>
Navajo @ 1,410'							
Chinle @ 2,320'		13 3/8" 68# N80 LTC (0' - 2,500')	2,500' MD/TVD				
Moenkopi @ 2,775'	Test 13 3/8" casing to 1500 psi / 30 min Test Rams/choke to: 250 psi / 10 min 5000 psi / 10 min Test Annular to: 250 psi / 10 min 2500 psi / 10 min			12-1/4" Hole		< 8.0 ppg EMW	(Drill 10" new hole and run FIT to 15.0 ppg EMW) Drill with air/mist/aerated mud Hole cleaning, drilling breaks, loss of returns, tight hole, bridging, possible stuck pipe Use 9.5" 5/6 lobe configuration mud motor with 0.22 revs/gal throughout the 12.25" hole section. <b>Increased formation pressure expected after Top of Salt</b>
Top Paradox Salt @ 6,171'		Log Run 1: Triple-Combo, GR to Surface					
Top of Pressure @ 6,500'		Intermediate: 9-5/8" 53.5# HCP110 LTC (0- 6,500')	6,500' MD/TVD				Drill thru 1st Salt. Expect 9.5 - 12.0 ppg EMW in 1st Clastic Break.
Paradox Salt w/ Clastic Breaks	Test 9-5/8" casing to 1900 psi / 30 min Test Rams/choke to: 250 psi / 10 min 10000 psi / 10 min Test Annular to: 250 psi / 10 min 2500 psi / 10 min			8-1/2" Hole		9.0- 10.0 ppg	(Drill 10" new hole and run FIT to 18.0 ppg EMW) Drill with 80/20 Oil-based mud Hole cleaning, drilling breaks, loss of returns, tight hole, bridging, possible stuck pipe Target Flow Rate is 450 GPM <b>Lost Circulation likely from intermediate shoe to TD.</b>
Paradox Salt w/ Clastic Breaks		Log Run 2: Quad-Combo					
		Contingency Drilling Liner: 7" 35.0# HCP110 LTC (6,000' - 8,500')	8,500' MD/TVD			9.5- 10.5 ppg	<b>Pressured Clastic Breaks and CaCl2 flows likely // Top of Salt to TD.</b>
Paradox Salt w/ Clastic Breaks				Reduce to 7-7/8" hole if 7" contingent liner NOT run			(Drill 10" new hole and run FIT to 20.0 ppg EMW) <b>18.0 ppg max expected MW</b> Drill with 80/20 Oil-based mud Hole cleaning, drilling breaks, loss of returns, tight hole, bridging, possible stuck pipe Target Flow Rate is 250 GPM <b>Pressured Clastic Breaks and CaCl2 flows likely // Top of Salt to TD.</b>
Cane Creek @ 10,011'				PU 3.5" DP & drill 5-7/8" hole if 7" contingent liner IS run			<b>Increased formation pressure // gas &amp; CaCl2 flows highly likely</b>
Base of Cane Creek @ 10,103'		Log Run 3: Quad-Combo					
TD 10,250' MD/TVD		Production Casing: 5-1/2" 23# HCP110 LTC (0"-10,250' MD/TVD)	10,250' MD/TVD	Run 4-1/2" Prod Casing if 7" drlg liner is run			<b>MWs of 16.0 to 18.0 ppg EMW MAY BE REQUIRED</b>

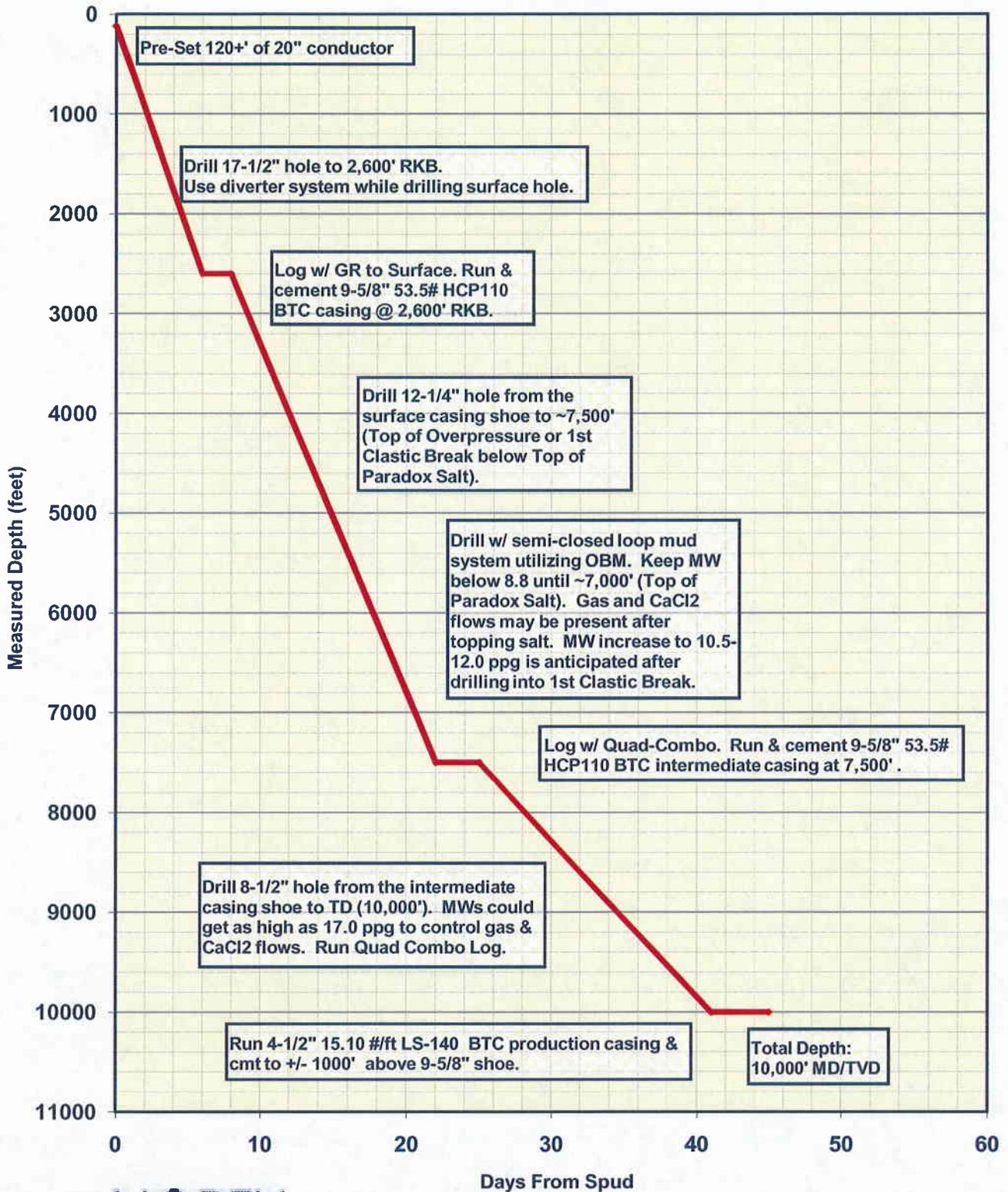
APPROVALS

Prepared By:  23 December 2008

Approved By: \_\_\_\_\_

**DRAFT**

North American Exploration, LLC  
 CRU 25-43-2217  
 Proposed Days vs. Depth



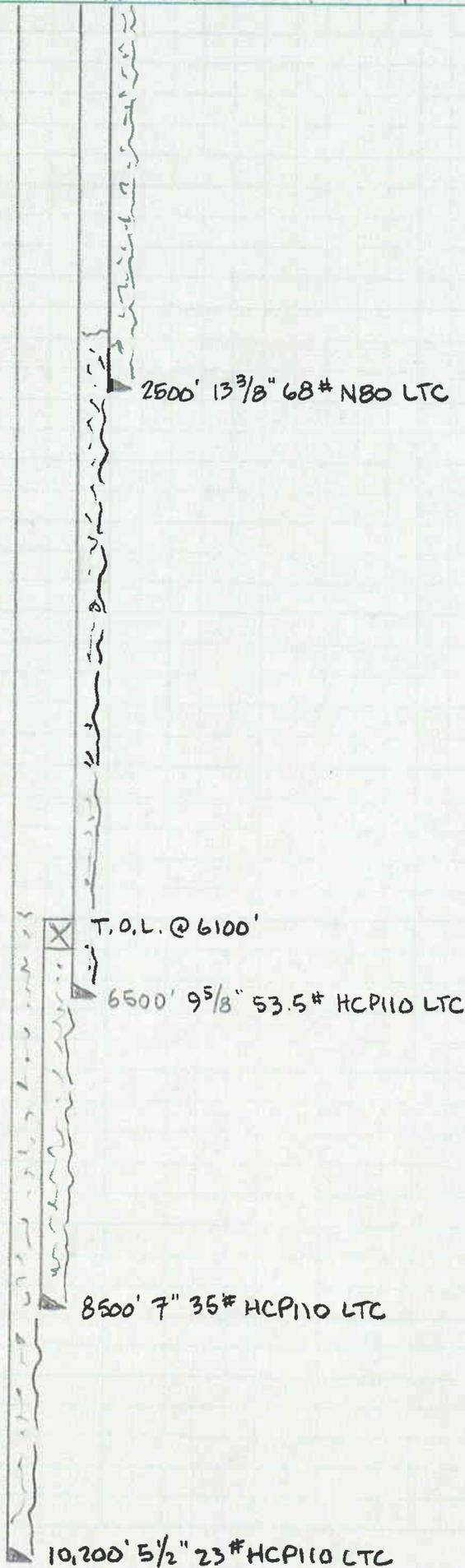
①

CRU 25-43-2217

Casing Design

W. Lowry 01/07/09

AMPAD

SURFACE CASING:

Collapse ~ 2260 psi 13<sup>3</sup>/<sub>8</sub>" 68# N80 LTC  
 Burst ~ 5020 psi  
 Tension ~ 963 K#

Collapse

$$(.052)(2500')(9.0) = 1170 \text{ psi load}$$

$$2260 / 1170 = 1.93 \text{ SF}$$

Burst

max surf pressure expected from  
 6500' =

$$(.052)(10.0)(6500) = 3380 \text{ psi BHP}$$

$$(.10)(6500)' = 650 \text{ psi gas gradient}$$

$$2730 \text{ psi MASP}$$

$$5020 / 2730 = 1.84 \text{ SF}$$

Tension

$$(68 \text{ #/ft})(2500') = 170,000 \text{ #}$$

$$963,000 / 170,000 = 5.60 \text{ SF}$$

Intermediate Casing

Collapse ~ 8850 psi 9<sup>5</sup>/<sub>8</sub>" 53.5# HCP110 LTC  
 Burst ~ 10900 psi  
 Tension ~ 1,422 K#

Collapse

$$(.052)(6500)(X) = 7080 \text{ psi}$$

$$\text{SF} = 8850 / Y = \underline{1.25}$$

$$Y = 7080 \text{ psi}$$

$$X = 20.9 \text{ ppq EMW}$$

Burst

$$\text{MASP} = (.052)(10,200)(18.0) = 9547$$

$$\text{gas gradient} = (.10)(10200) = \frac{(1020)}{8527}$$

$$10900 / 8527 = \underline{1.27 \text{ SF}}$$

$$\text{Tension} : 1,422,000 / 347,750 = 4.09 \text{ SF}$$

(2)

CRU 25-43-22

Casing Design

W. Larry 01/09/09

Contingent Drilling Liner

To be determined. If liner is run, design will be performed at that time

Production Casing - 5 1/2" 23# HCP110 LTR

Collapse

$$(.052)(10200)(18.0) = 9547 \text{ psi}$$

$$14540 / 9547 = \underline{1.52 \text{ SF}}$$

Collapse ~ 14540 psi  
Burst ~ 13580 psi  
Tension ~ 643,000 #

Burst

$$\text{MASP} = (.052)(10200)(18.0) = 9547$$

$$900 \text{ gradient} = (.10)(10200) = \underline{1020}$$

8527 psi

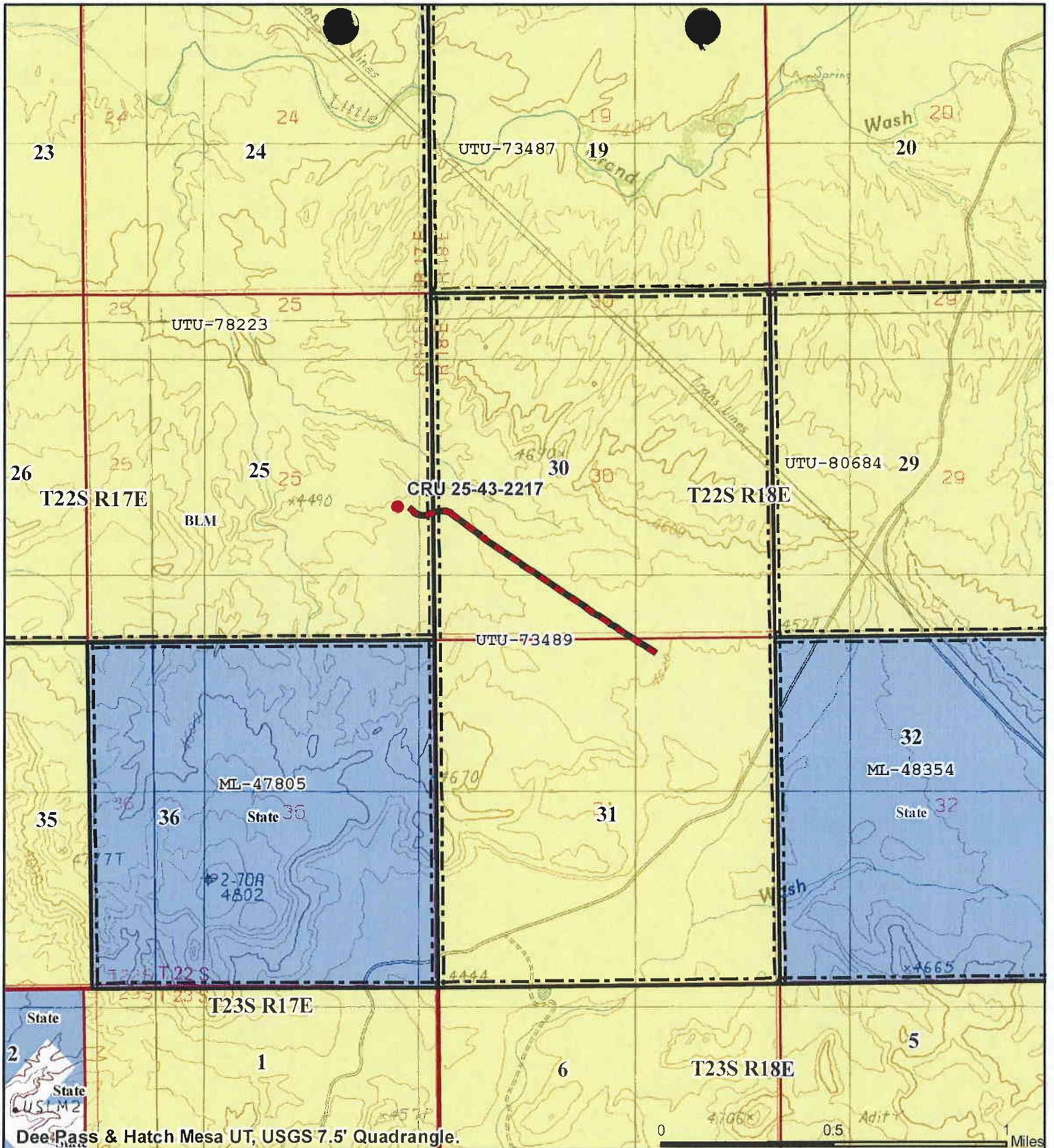
$$13580 / 8527 = \underline{1.59 \text{ SF}}$$

Tension

$$(10200)(23) = 234,600 \text{ pounds}$$

$$643,000 / 234,600 = \underline{2.74 \text{ SF}}$$

CAMPAD



- Wells
- Interstate
- US HWY
- SR
- Other Roads
- Access Road
- Leased
- BLM
- STATE



<b>North American Exploration</b>	
CRU 25-43-2217	
 <b>WESTERN LAND SERVICES</b> Richfield, UT 84701 (435) 896-5501	
Prepared by: DTJ	Date: Sept 9, 2008

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# NORTH AMERICAN EXPLORATION CACTUS ROSE UNIT

CRU 25-43-2217



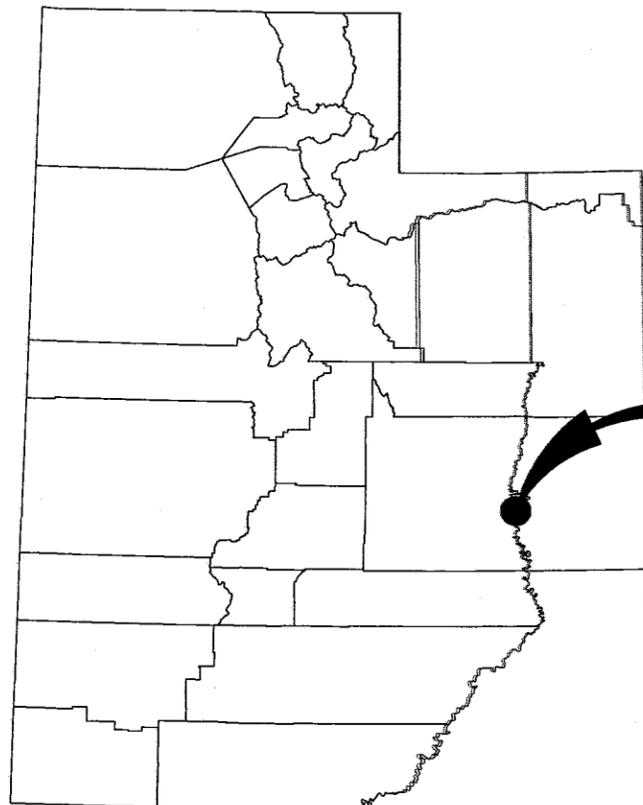
CRU 25-43-2217

## GENERAL NOTES

LENGTH (MILES) OF NEW ACCESS ROAD TO BE CONSTRUCTED: 0.85 MILES  
 LENGTH (MILES) OF EXISTING ROADS TO BE UPGRADED: 0 MILES  
 MAXIMUM TOTAL DISTURBED WIDTH: 43.06 FEET @ STA: 45+46  
 MAXIMUM TRAVEL SURFACE WIDTH: 14 FEET  
 MAXIMUM GRADES: 7.95%  
 NUMBER OF TURNOUTS: 3  
 NUMBER OF CATTLE GUARDS: 0  
 NUMBER OF CULVERTS: 0  
 ACRES DISTURBED FOR NEW ROAD CONSTRUCTION: 3.4 ACRES  
 ACRES DISTURBED FOR EXISTING ROAD CONSTRUCTION: 0 ACRES  
 ACRES DISTURBED FOR PAD CONSTRUCTION: 2.75 ACRES  
 ACRES DISTURBED FOR PAD CONSTRUCTION (INCLUDING STOCKPILES): 3.0 ACRES

## LEGEND

- ROAD CENTERLINE
- CONTOURS PROPOSED MAJOR
- CONTOURS PROPOSED MINOR
- CONTOURS EXISTING MAJOR
- CONTOURS EXISTING MINOR
- SURFACE SLOPE
- SURFACE SLOPE HORIZ: VERT
- SWALE AND DIRECTION
- SILT FENCE
- 0000.00 TP = TOP OF PAD ELEVATION



**PROJECT  
LOCATION**

## DRAWINGS INDEX

COVER	COVER SHEET
PAD 1	PAD SITE AND RIG LAYOUT
RD 1	PLAN AND PROFILE OF MAIN ACCESS ROAD STA: 24+00 - 36+00
RD 2	PLAN AND PROFILE OF MAIN ACCESS ROAD STA: 36+00 - 48+00
RD 3	PLAN AND PROFILE OF MAIN ACCESS ROAD STA: 48+00 - 60+00
RD 4	PLAN AND PROFILE OF SPUR ROAD STA: 0+00 - 6+02.49
D 1	DETAILS
D 2	DETAILS
D 3	DETAILS

CLIENT: NORTH AMERICAN EXPLORATION  
 PROJECT: CRU 25-43-2217



**WESTERN LAND SERVICES**

Richfield, UT 84701 (435)896-5501

DRAWN BY: C. HILL	DATE: 01/15/09	SHEET NO: <b>COVER</b>
CHECKED BY: J. ATKIN		

**NORTH AMERICAN EXPLORATION**  
SECTION 25, T22S, R17E, SLB&M

**ESTIMATED EARTHWORK VOLUMES**  
\*VOLUMES ARE UNADJUSTED\*

**PAD**

PAD ELEV:	4488.10
TOTAL CUT:	3983.60 CU.YDS
TOTAL FILL:	3883.44 CU.YDS
NET VOLUME:	100.16 CU.YDS (CUT)

**PIT**

VOLUME: 1220 CU.YDS

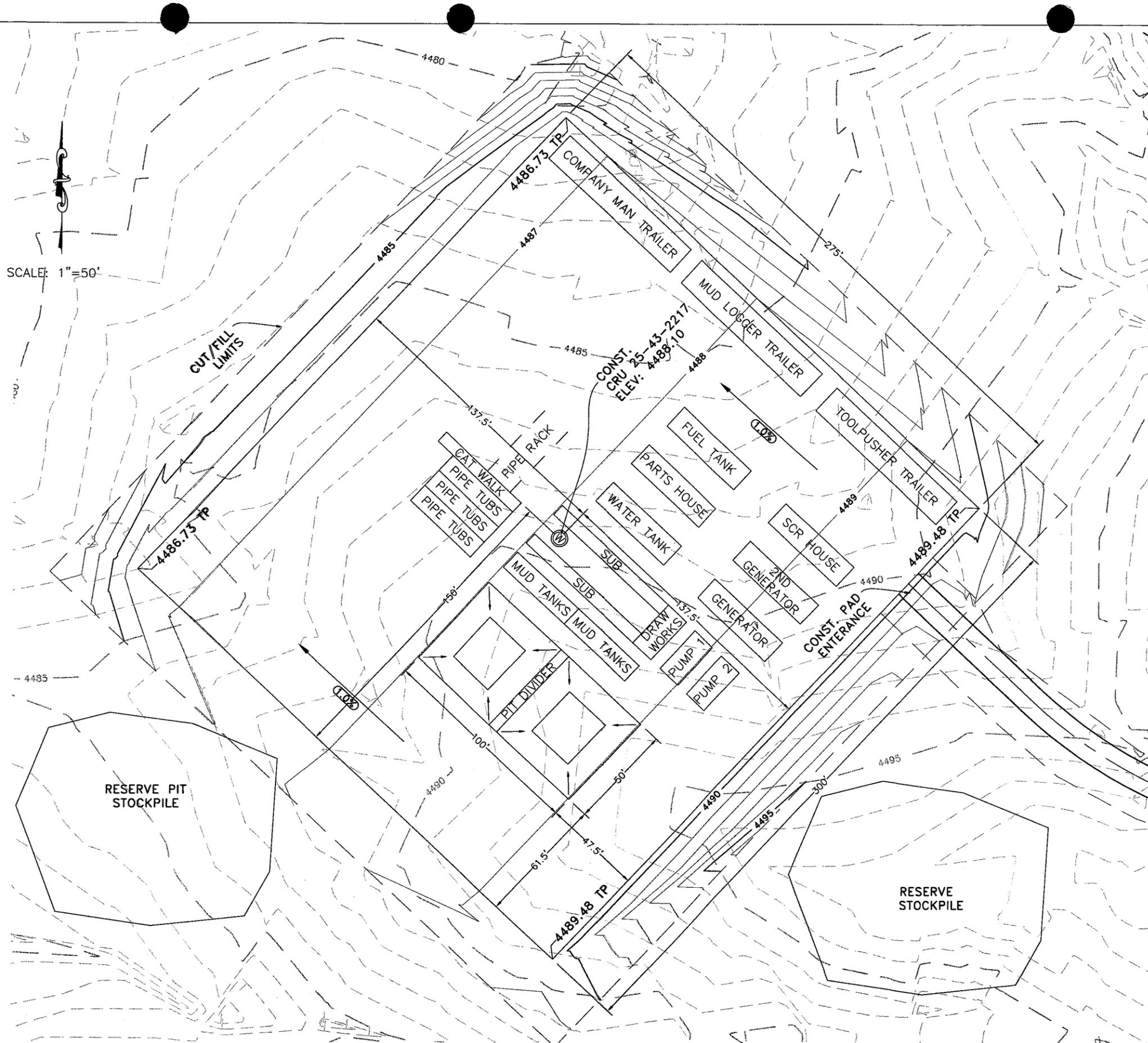
**CONTRACTOR NOTES:**

1. RECLAIM ALL DRAINAGE'S AFTER PROJECT COMPLETION

**LEGEND**

	ROAD CENTERLINE
	CONTOURS PROPOSED MAJOR
	CONTOURS PROPOSED MINOR
	CONTOURS EXISTING MAJOR
	CONTOURS EXISTING MINOR
	SURFACE SLOPE
	SURFACE SLOPE HORIZ: VERT
	SWALE $\square$ AND DIRECTION
	SILT FENCE
	0000.00 TP = TOP OF PAD ELEVATION

SCALE: 1"=50'

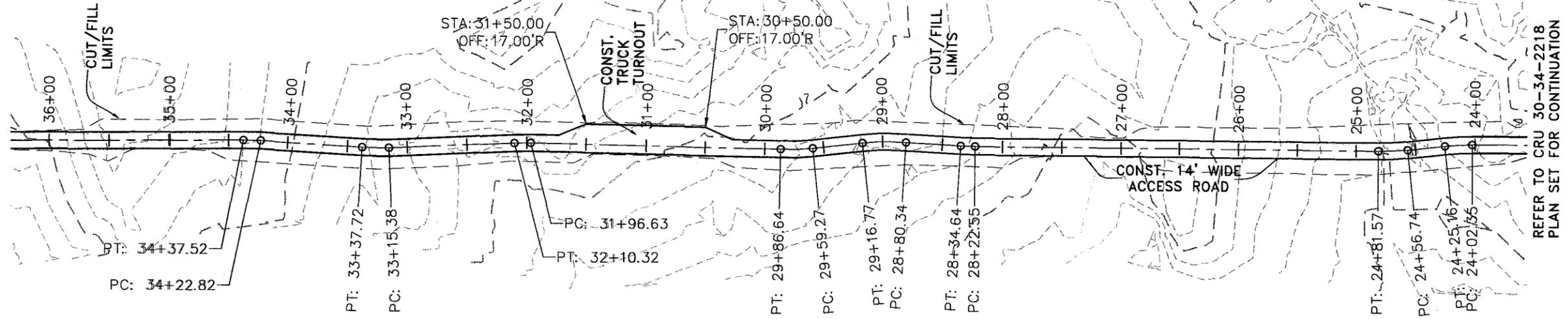


CLIENT: NORTH AMERICAN EXPLORATION  
PROJECT: CRU 25-43-2217

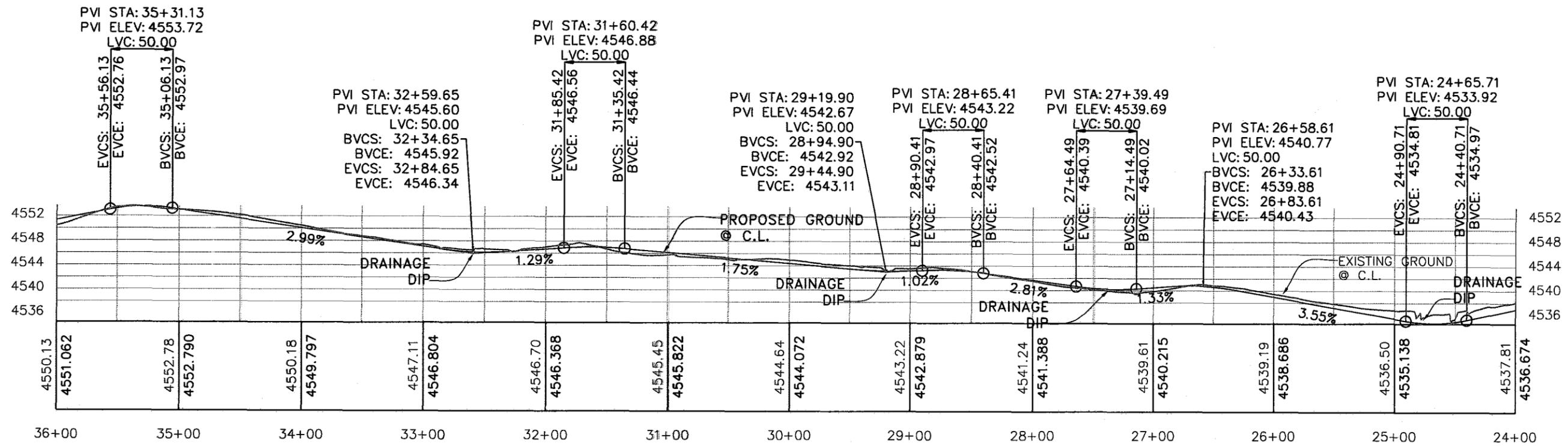


DRAWN BY: C.HILL DATE: 01/15/09 SHEET NO: PAD  
CHECKED BY: J. ATKIN

HORZ. SCALE: 1"=100'  
 VERT. SCALE: 1"=20'



REFER TO CRU 30-34-2218  
 PLAN SET FOR CONTINUATION



REFER TO CRU 30-34-2218  
 PLAN SET FOR CONTINUATION

PROFILE VIEW: CRU ROAD (22) SCALE: 10  
 STATION RANGE: 12+00.00 DATUM: 4534.29

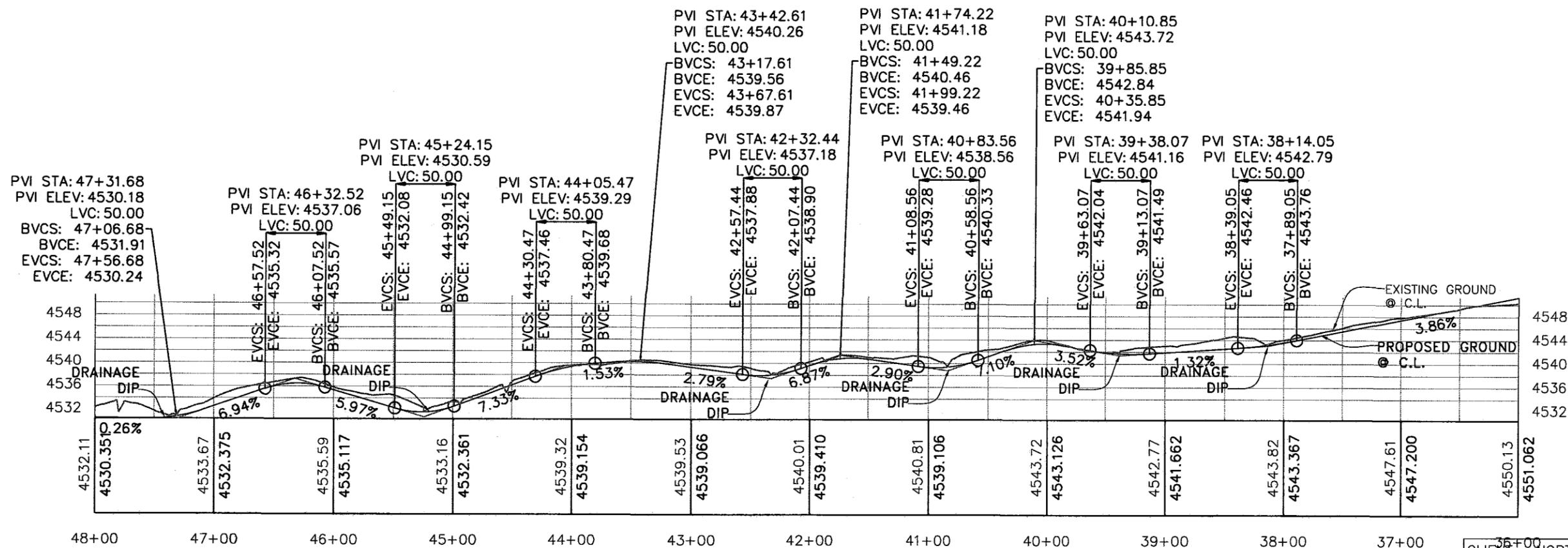
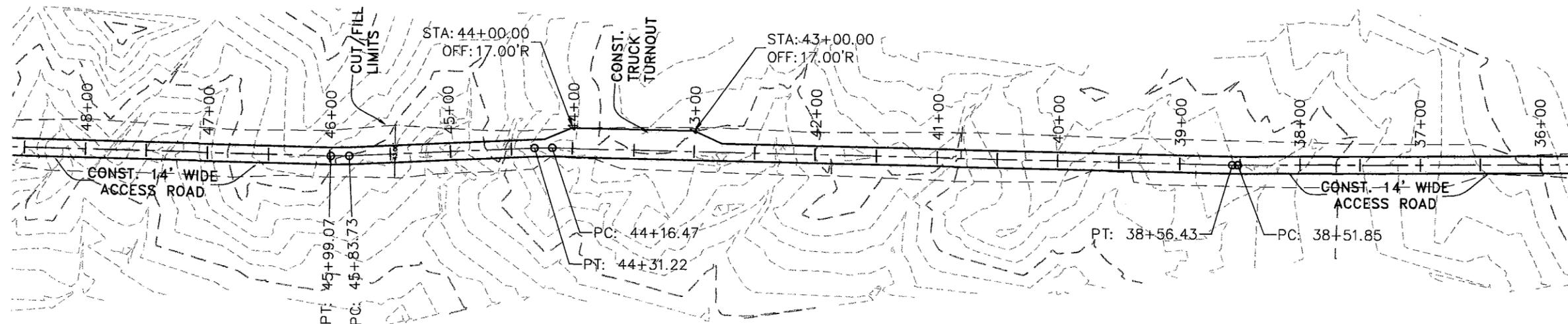
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 PROJECT: CRU 25-43-2217

**WESTERN LAND SERVICES**  
 Richfield, UT 84701 (435)896-5501

DRAWN BY: C.HILL	DATE: 01/15/09	SHEET NO:
CHECKED BY: J. ATKIN		PP1



HORZ. SCALE: 1"=100'  
VERT. SCALE: 1"=20'



PROFILE VIEW: CRU ROAD (23) SCALE: 10  
STATION RANGE: 12+00.00 DATUM: 4530.25

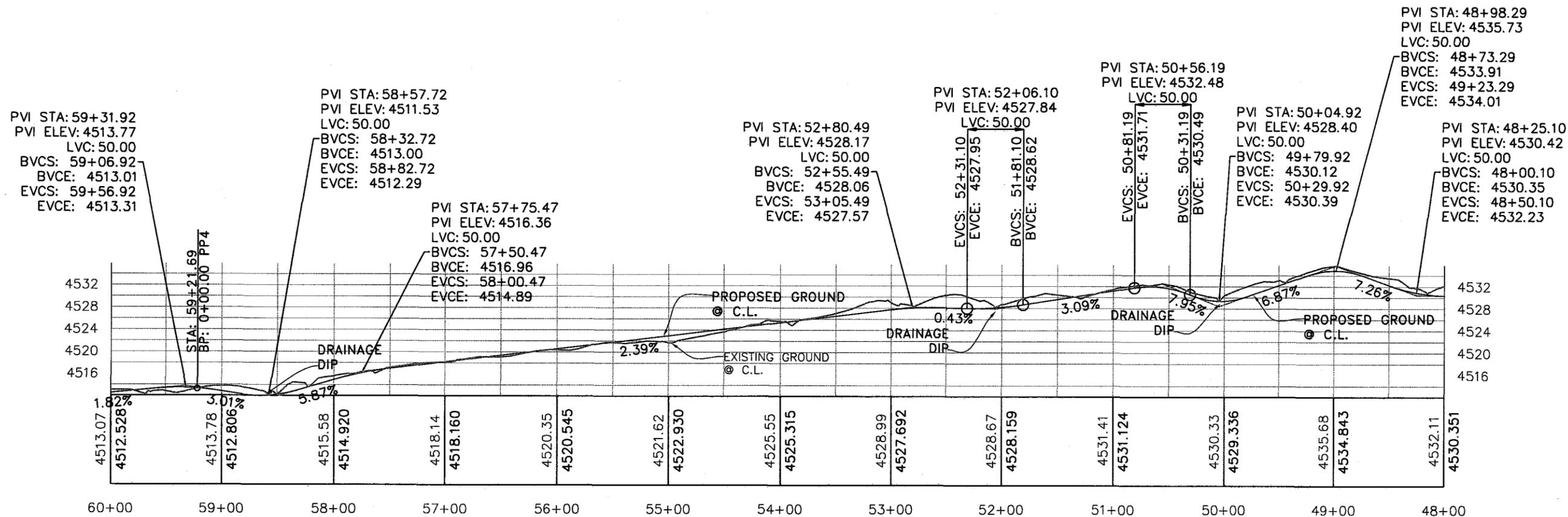
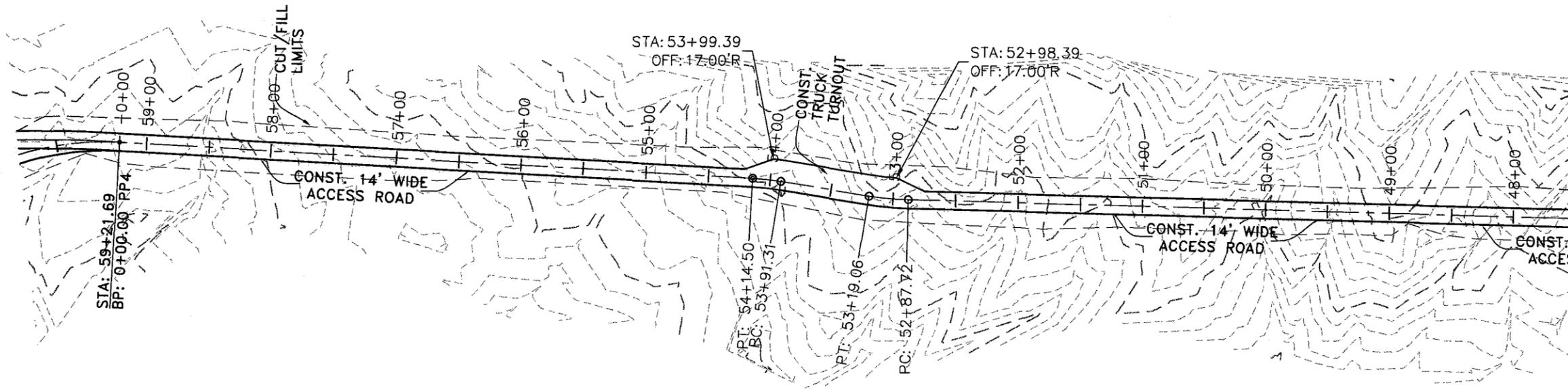
CLIENT: NORTH AMERICAN EXPLORATION  
PROJECT: CRU 25-43-2217



Richfield, UT 84701 (435)896-5501

DRAWN BY: C. HILL DATE: 01/15/09 SHEET NO: PP2  
CHECKED BY: J. ATKIN

HORZ. SCALE: 1"=100'  
 VERT. SCALE: 1"=20'



PROFILE VIEW: CRU ROAD (24) SCALE: 10  
 STATION RANGE: 12+00.00 DATUM: 4512.03

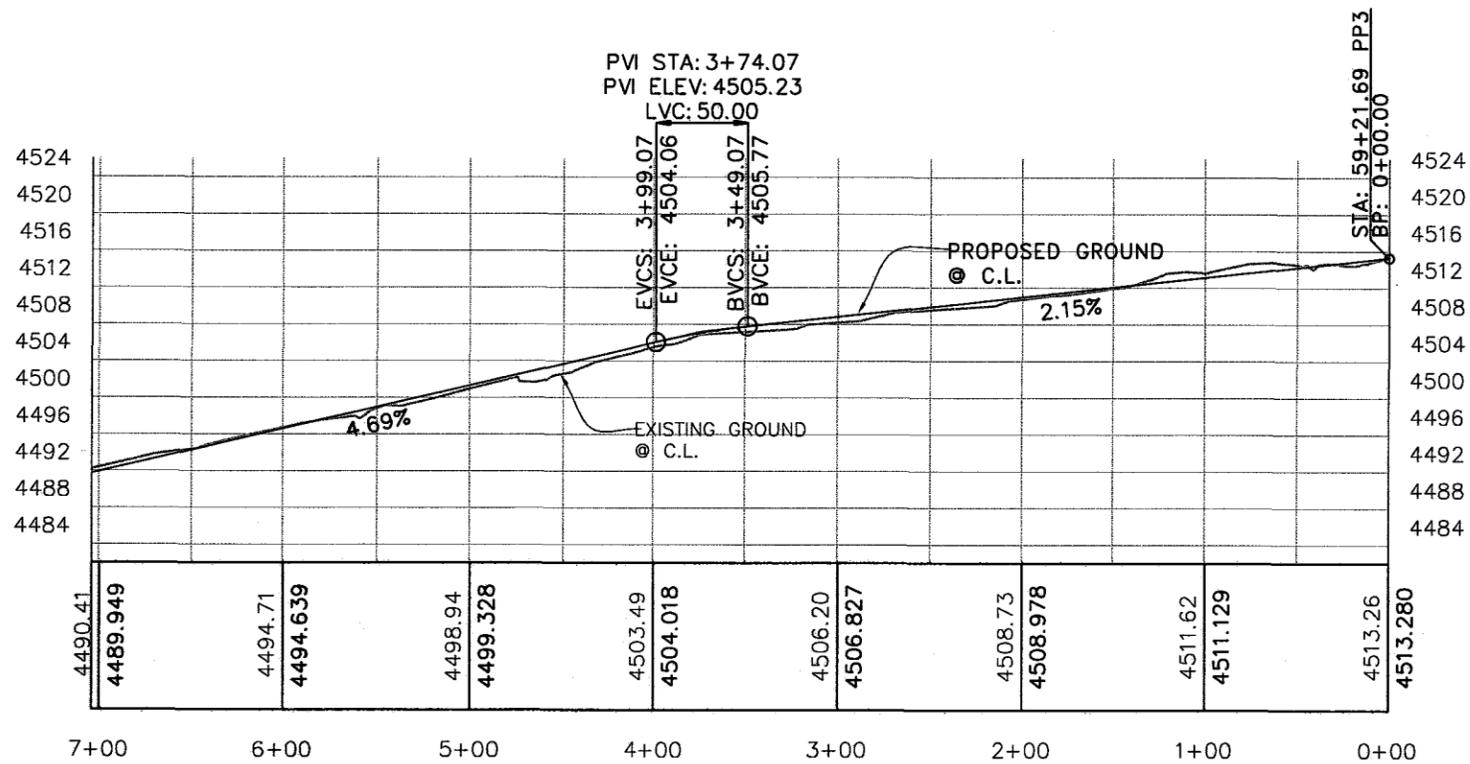
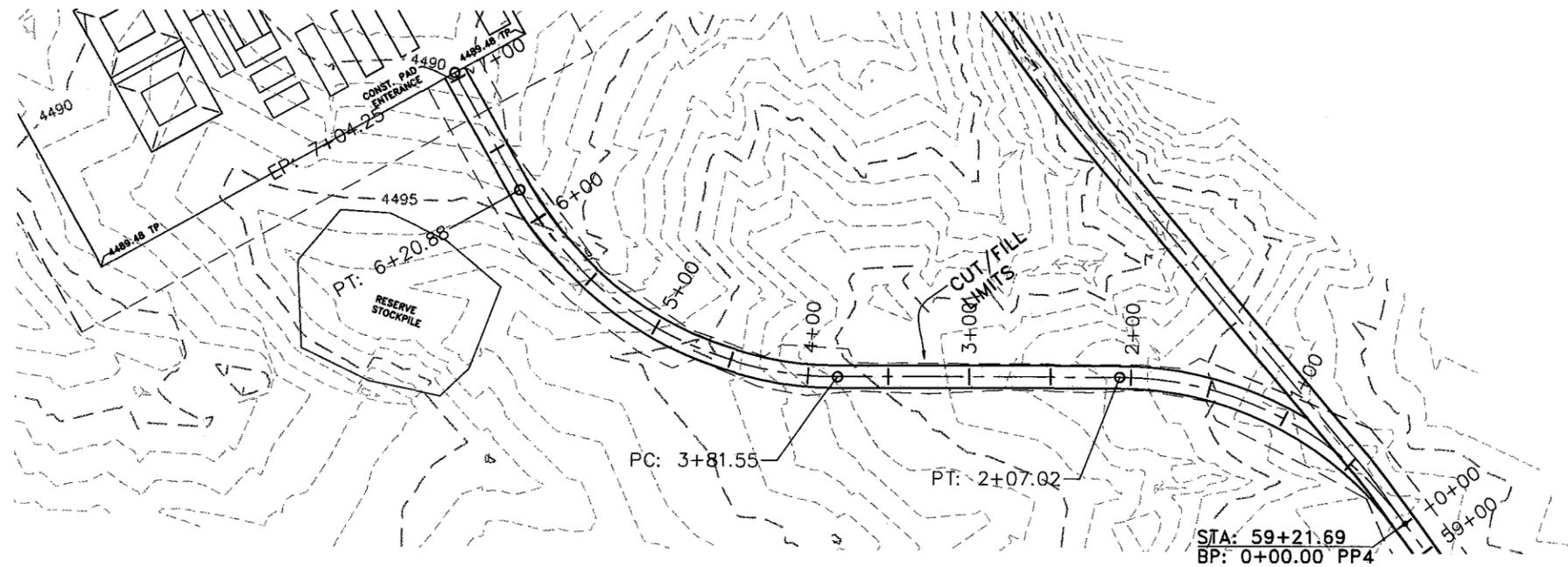
CLIENT: NORTH AMERICAN EXPLORATION  
 PROJECT: CRU 25-43-2217



Richfield, UT 84701 (435)896-5501

DRAWN BY: C. HILL DATE: 01/15/09 SHEET NO: PP3  
 CHECKED BY: J. ATKIN

HORZ. SCALE: 1"=100'  
 VERT. SCALE: 1"=20'



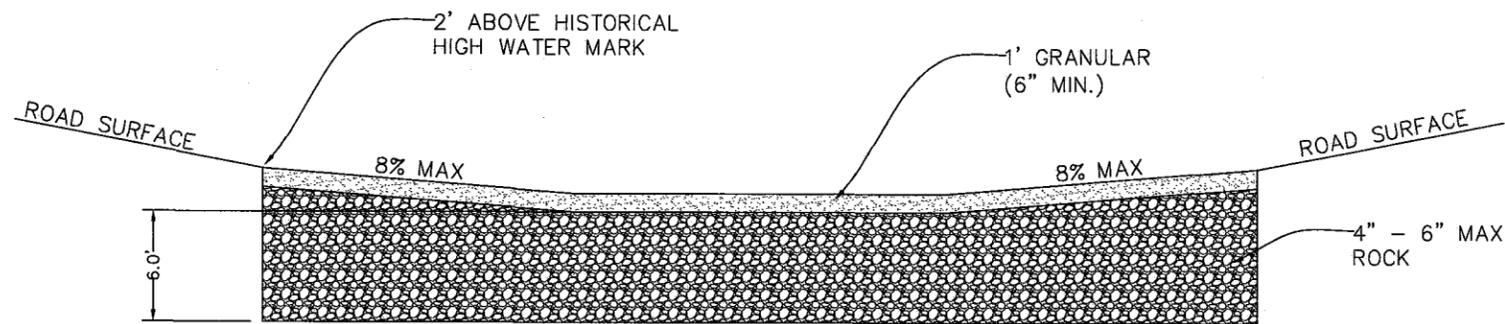
PROFILE VIEW: 25-43-2217 SCALE: 10  
 STATION RANGE: 7+04.25 DATUM: 4480.00

CLIENT: NORTH AMERICAN EXPLORATION  
 PROJECT: CRU 25-43-2217



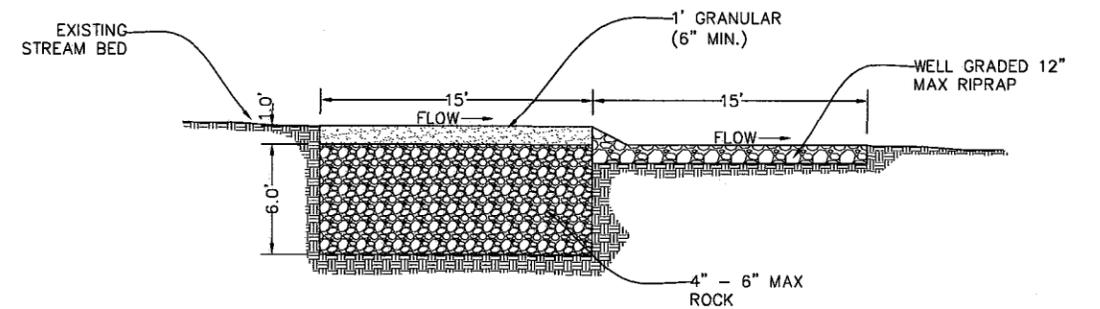
Richfield, UT 84701 (435)896-5501

DRAWN BY: C. HILL	DATE: 01/15/09	SHEET NO.:
CHECKED BY: J. ATKIN		PP4



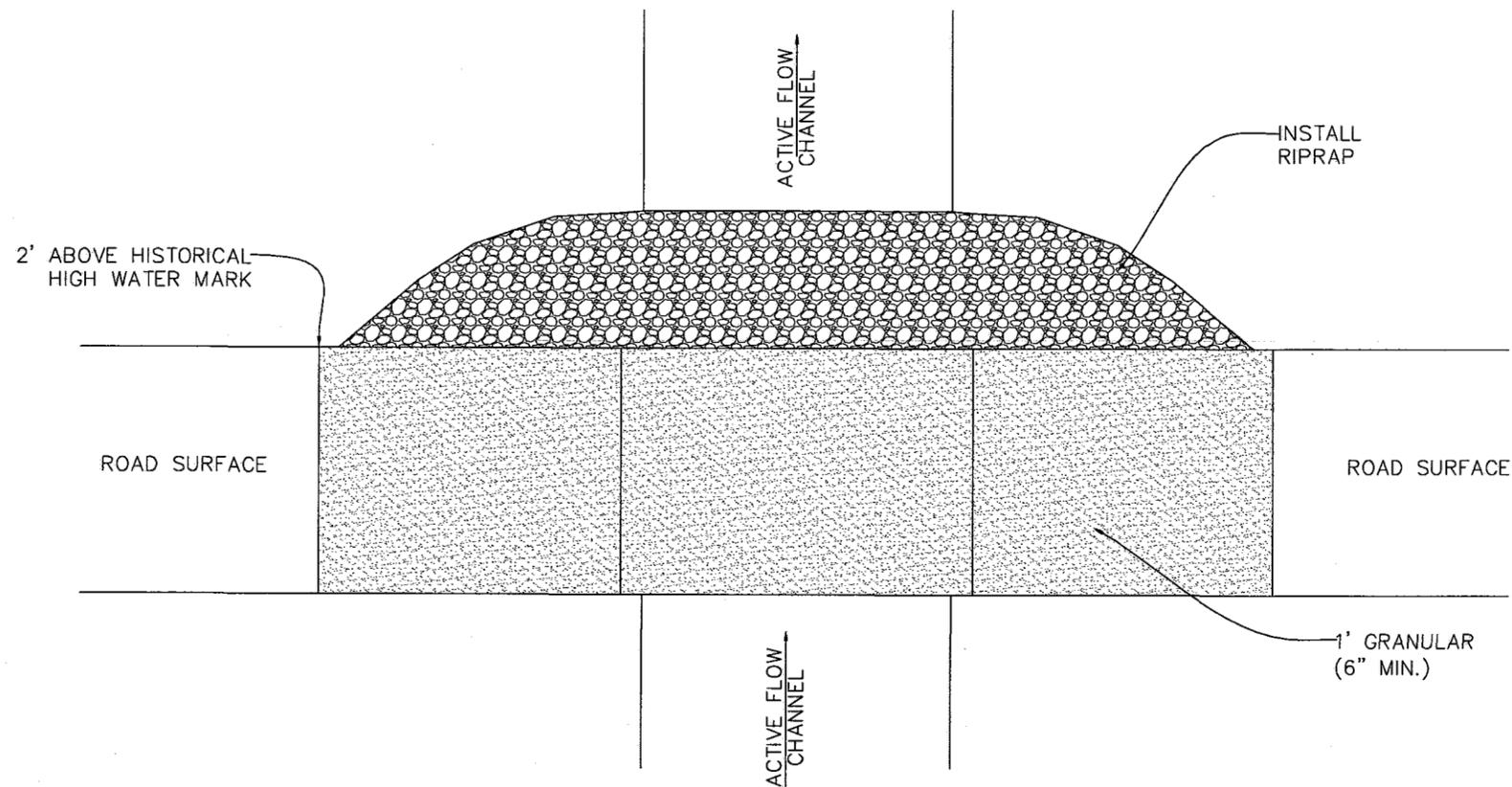
LARGE ROCK LOW WATER CROSSING

ROAD PROFILE  
SCALE: 1"=10'



LARGE ROCK LOW WATER CROSSING

CROSS SECTION  
SCALE: 1"=10'



LARGE ROCK LOW WATER CROSSING

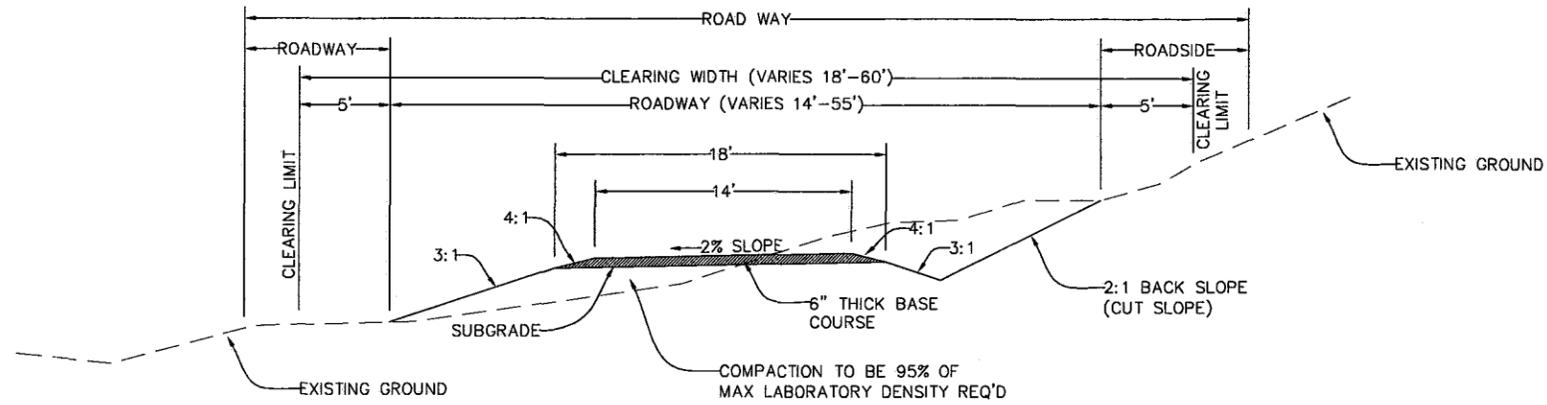
PLAN VIEW  
SCALE: 1"=10'

CLIENT: NORTH AMERICAN EXPLORATION  
PROJECT: CRU 25-43-2217

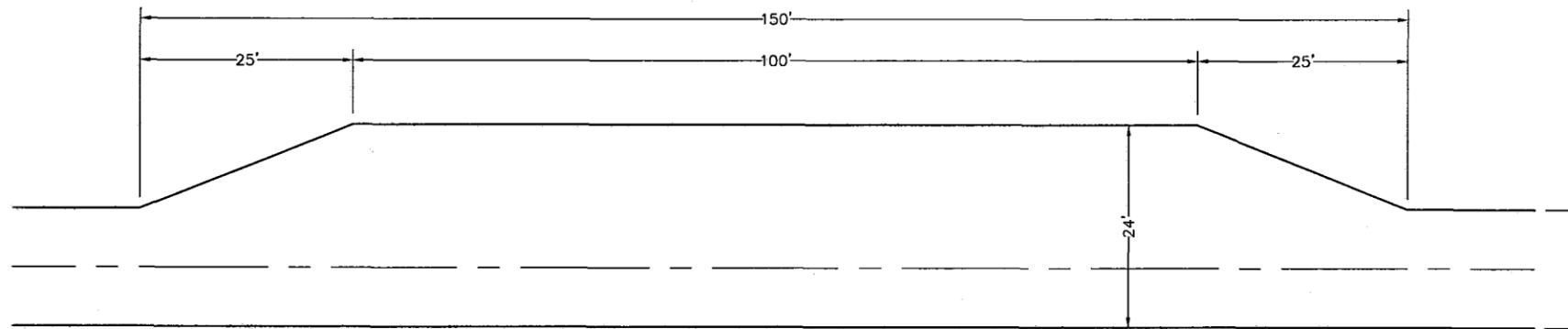


Richfield, UT 84701 (435)896-5501

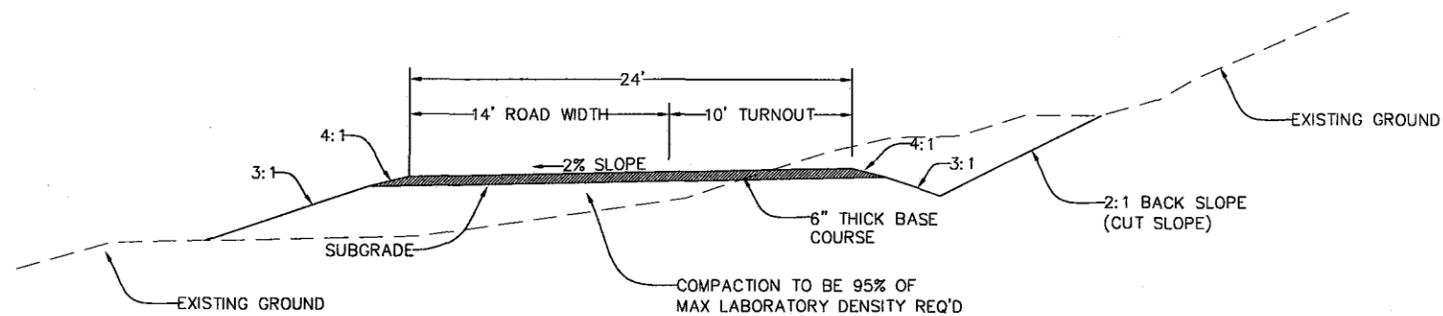
DRAWN BY: C. HILL	DATE: 01/15/09	SHEET NO: D1
CHECKED BY: J. ATKIN		



**TYPICAL CROSS SECTION**  
SCALE: 1"=10'



**TRUCK TURNOUT**  
PLAN VIEW  
SCALE: 1"=5'



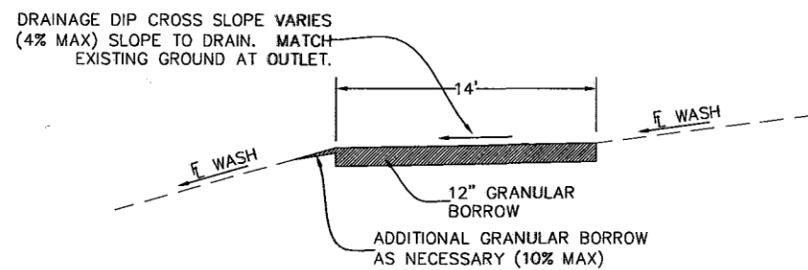
**TRUCK TURNOUT**  
SECTION VIEW  
SCALE: 1"=10'

CLIENT: NORTH AMERICAN EXPLORATION  
PROJECT: CRU 25-43-2217

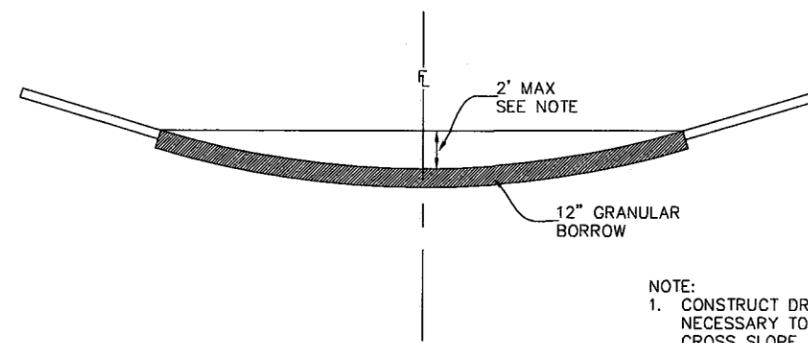


Richfield, UT 84701 (435)896-5501

DRAWN BY: C. HILL	DATE: 01/15/09	SHEET NO: D2
CHECKED BY: J. ATKIN		



LOW WATER DRAINAGE DIP  
SECTION VIEW  
SCALE: 1"=10'



LOW WATER DRAINAGE DIP  
LONGITUDINAL VIEW  
SCALE: 1"=10'

NOTE:  
1. CONSTRUCT DRAINAGE DITCH AS NECESSARY TO PROVIDE MIN. 2% CROSS SLOPE THROUGH DRAINAGE DIP

CLIENT: NORTH AMERICAN EXPLORATION  
PROJECT: CRU 25-43-2217

**WESTERN LAND SERVICES**  
Richfield, UT 84701 (435)896-5501

DRAWN BY: C.HILL	DATE: 01/15/09	SHEET NO: D3
CHECKED BY: J. ATKIN		

**WORKSHEET  
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 01/20/2009

API NO. ASSIGNED: 43-019-31619
--------------------------------

WELL NAME: CRU 25-43-2217  
 OPERATOR: NAE, LLC ( N3440 )  
 CONTACT: TERRI HARTLE

PHONE NUMBER: 303-327-7144

PROPOSED LOCATION:  
 NESE 25 220S 170E  
 SURFACE: 2010 FSL 0512 FEL  
 BOTTOM: 2010 FSL 0512 FEL  
 COUNTY: GRAND  
 LATITUDE: 38.86709 LONGITUDE: -109.9866  
 UTM SURF EASTINGS: 587917 NORTHINGS: 4302308  
 FIELD NAME: WILDCAT ( 1 )

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

LEASE TYPE: 1 - Federal  
 LEASE NUMBER: UTU-78223  
 SURFACE OWNER: 1 - Federal

PROPOSED FORMATION: CNCR  
 COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

Plat  
 Bond: Fed[1] Ind[] Sta[] Fee[]  
 (No. UTB000296 )  
 Potash (Y/N)  
 Oil Shale 190-5 (B) or 190-3 or 190-13  
 Water Permit  
 (No. MUNICIPAL )  
 RDCC Review (Y/N)  
 (Date: \_\_\_\_\_ )  
 Fee Surf Agreement (Y/N)  
 Intent to Commingle (Y/N)

LOCATION AND SITING:

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

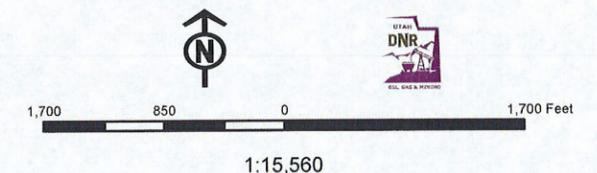
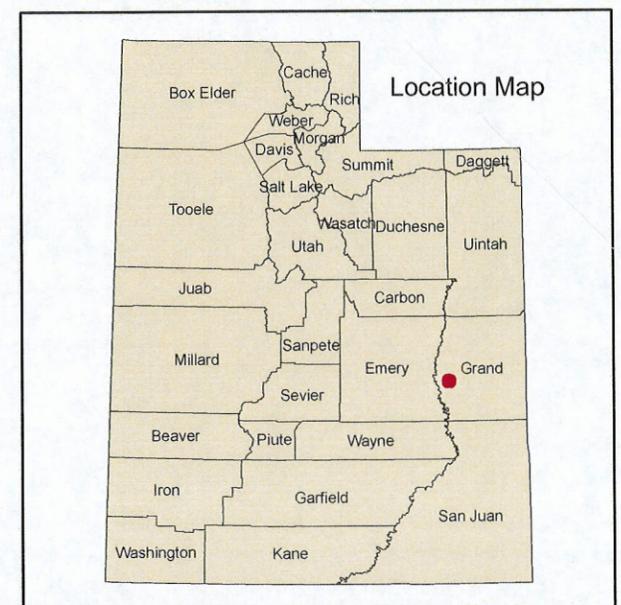
COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

STIPULATIONS: 1 Federal Approval  
2 Spacing Slip  
 \_\_\_\_\_  
 \_\_\_\_\_

**API Number: 4301931619**  
**Well Name: CRU 25-43-2217**  
 Township 22.0 S Range 17.0 E Section 25  
**Meridian: SLBM**  
 Operator: NAE, LLC

Map Prepared:  
 Map Produced by Diana Mason

- | Units         | Wells Query Events   |
|---------------|----------------------|
| <b>STATUS</b> | ✕ <all other values> |
| ACTIVE        | ◆ <Null>             |
| EXPLORATORY   | ◆ APD                |
| GAS STORAGE   | ⊙ DRL                |
| NF PP OIL     | ⊙ GI                 |
| NF SECONDARY  | ⊙ GS                 |
| PI OIL        | ✕ LA                 |
| PP GAS        | ⊕ NEW                |
| PP GEOTHERML  | ⊙ OPS                |
| PP OIL        | ⊙ PA                 |
| SECONDARY     | ⊙ PGW                |
| TERMINATED    | ● POW                |
|               | ⊙ RET                |
| <b>Fields</b> | ⊙ SGW                |
| <b>STATUS</b> | ⊙ SOW                |
| ACTIVE        | ⊙ TA                 |
| COMBINED      | ○ TW                 |
| Sections      | ⊙ WD                 |
| Township      | ⊙ WI                 |
|               | ● WS                 |





JON M. HUNTSMAN, JR.  
Governor

GARY R. HERBERT  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

January 22, 2009

North American Exploration, LLC  
Att: Walt Lowry  
110 16th St., Ste. 1220  
Denver, CO 80202

Re: CRU 25-43-2217 Well, 2010' FSL, 512' FEL, NE SE, Sec. 25, T. 22 South, R. 17 East,  
Grand 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 43-019-31619.

Sincerely,

Gil Hunt  
Associate Director

pab  
Enclosures

cc: Grand County Assessor  
Bureau of Land Management, Moab Office



Operator: North American Exploration, LLC  
Well Name & Number CRU 25-43-2217  
API Number: 43-019-31619  
Lease: UTU-78223

Location: NE SE                      Sec. 25                      T. 22 South                      R. 17 East

### Conditions of Approval

1. General

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

2. Notification Requirements

Notify the division within 24 hours of spudding the well.

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

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

- Contact Dustin Doucet at (801) 538-5281    (801) 733-0983 home

3. Reporting Requirements

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

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

5. 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.

RECEIVED  
MOAB FIELD OFFICE

Form 3160-3  
(February 2005)

2009 JAN 27 AM 8:49

FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 2007

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

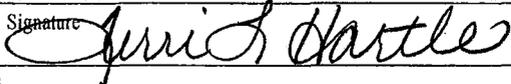
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. <b>UTU-78223</b>	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A	
2. Name of Operator <b>North American Exploration, LLC, Attn: Walt Lowry</b>		7. If Unit or CA Agreement, Name and No. <b>Cactus Rose Unit</b>	
3a. Address <b>110 16th Street, Suite 1220 Denver, CO 80202</b>		8. Lease Name and Well No. <b>CRU 25-43-2217</b>	
3b. Phone No. (include area code) <b>(303) 327-7144</b>		9. API Well No. <b>43 019 31619</b>	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface <b>2,010' FSL &amp; 512' FEL</b> At proposed prod. zone <b>Same as Surface</b>		10. Field and Pool, or Exploratory <b>Exploratory</b>	
14. Distance in miles and direction from nearest town or post office* <b>Approximately 22 miles southeast of Green River, Utah</b>		11. Sec., T. R. M. or Blk. and Survey or Area <b>Sec 25 T22S R17E</b>	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig, unit line, if any) <b>512' FEL</b>		12. County or Parish <b>Grand</b>	
16. No. of acres in lease <b>2,560 Acres</b>		13. State <b>UT</b>	
17. Spacing Unit dedicated to this well <b>40 Acres</b>		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>6,000'</b>	
19. Proposed Depth <b>10,250'</b>		20. BLM/BIA Bond No. on file <b>UTB000296</b>	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>4,488' GR</b>		22. Approximate date work will start* <b>03/01/2009</b>	
		23. Estimated duration <b>Approximately 60 days</b>	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- |  |   |
|--|---|
| 1. Well plat certified by a registered surveyor.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification   |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM.             |

25. Signature 	Name (Printed/Typed) <b>Terri L. Hartle</b>	Date <b>1-14-09</b>
Title <b>Office Administrator/Authorized Agent</b>		

Approved by (Signature) <b>/s/ A. Lynn Jackson</b>	Name (Printed/Typed) <b>/s/ A. Lynn Jackson</b>	Date <b>5/7/09</b>
Title <b>Assistant Field Manager, Division of Resources</b>		Office <b>Division of Resources Moab Field Office</b>

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
Conditions of approval, if any, are attached.

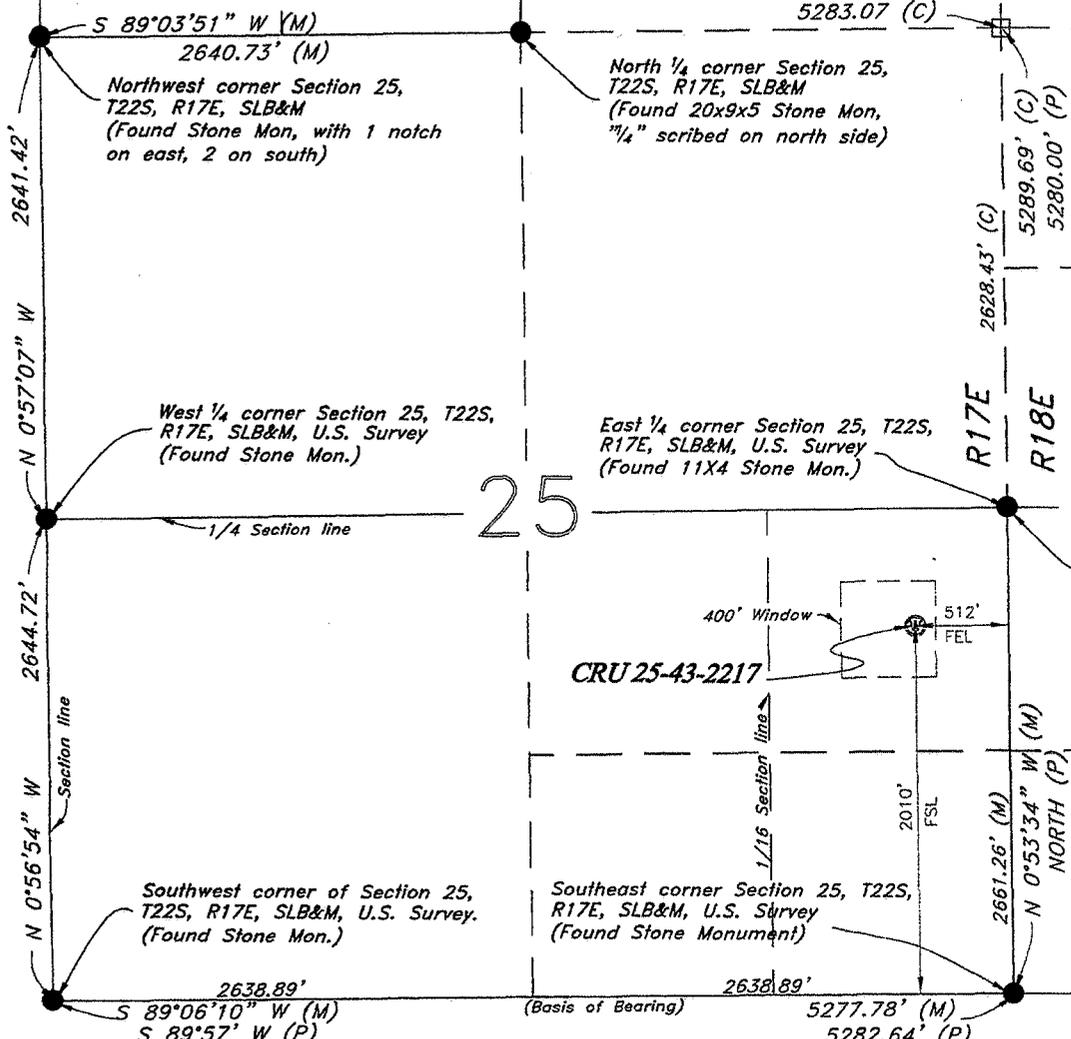
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*(Instructions on page 2)

CONDITIONS OF APPROVAL ATTACHED

RECEIVED  
MAY 18 2009  
DIV. OF OIL, GAS & MINING

**WELL PLAT FOR "CRU 25-43-2217"**  
**SECTION 25, T22S-R17E, SLB&M, GRAND COUNTY, UTAH**



**CERTIFICATION**

I, Jerron R. Atkin II, do hereby certify that I am a Registered Land Surveyor, and that I hold Certificate No. 5992544, as prescribed by the Laws of the State of Utah, and I have made a survey based on information collected on the ground and of record. I have relied upon a GLO plat and notes of Township 22 South, Range 17 East, conducted by H.D. Heist and approved on March 18, 1907 as file No. 1184. I further certify that the above plat correctly shows the true dimensions of the property surveyed.



**BASIS OF BEARING**

Basis of bearing is S 89°06'10" W between the Southwest and Southeast corners of Section 25, T22S, R17E, S.L.B.&M., U.S. Survey.

**BASIS OF ELEVATION**

Elevation based on a GPS observation of a rebar control point set by Western Land Services for this survey which is located in the Northwest Quarter of Section 32, T21S, R18E, S.L.B.&M., U.S. Survey. Elevation=4509 feet.

**NARRATIVE**

The purpose of this survey is to plat the location of the proposed well "CRU 25-43-2217" which is located in the Northeast 1/4 of the Southeast Quarter of Section 25, T22S, R17E, S.L.B.&M., U.S. Survey.

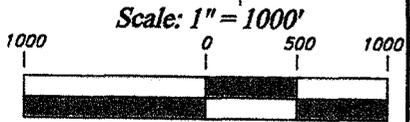
NORTH AMERICAN EXPLORATION  
 PROJECT: CRU 25-43-2217

**PROPOSED WELL SITE**  
 LATITUDE: 38.86715°N  
 LONGITUDE: 109.98740°W  
 ELEVATION: 4488' (Graded)  
**DISTANCES ARE GROUND**  
 NAD 83, NAVD 88  
 SF:1.000169  
**UTAH STATE PLANE**  
 CENTRAL ZONE

For Reference Only  
 Latitude: 38.86718°N  
 Longitude: 109.98671°W  
 NAD 27

**LEGEND:**

- ⊗ - PROPOSED WELL LOCATION
- - FOUND STONE MONUMENT
- - CALCULATED CORNER
- M - MEASURED WITH GPS
- P - 1907 GLO PLAT
- C - CALCULATED



Graphic Scale



File: CRU WELL PLATS.DWG Date: 10-28-08

**NAE, LLC**  
**CRU 25-43-2217**  
Lease UTU78223  
Cactus Rose Unit, UTU81653X  
NE/SE Section 25, T22S, R17E  
Grand County, Utah

**A COMPLETE COPY OF THIS APPROVED PERMIT and Conditions of Approval shall be maintained on location during all construction and drilling operations, and shall be available to contractors to ensure compliance.**

CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that NAE, LLC is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by BLM bond no. **UTB000296** (Principal – NAE, LLC) via surety consent as provided for in 43 CFR 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR 3106.7-2 continuing responsibility are met.

This permit will be valid for a period of two years from the date of approval. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. Failure to comply with the provisions of this permit, including applicable regulations, stipulations, and/or approval conditions, will be considered a violation subject to the enforcement provisions of 43 CFR Subpart 3163.

## A. DRILLING PROGRAM

1. A 5M BOP system is adequate for drilling operations from the surface casing point down to the intermediate casing point at approximately 6500'. If a 10M BOP is utilized to drill this interval, it is acceptable to equip, configure and test the system to 5M standards. A rotating head shall be utilized during air/mist drilling operations.
2. A 10M pressure control system is adequate for anticipated drilling conditions below the intermediate casing point. All components of the system shall be rated to a working pressure of 10M, including the annular preventer. A mud/gas separator shall be installed. This is a requirement of 10M BOPE systems that was not addressed in the application. Please refer to Onshore Oil & Gas Order No. 2 for further detail. Installation, testing and operation of the BOP system shall be in conformance with Onshore Oil and Gas Order No. 2.
3. Air/mist drilling operations shall comply with the provisions of Onshore Oil and Gas Order No. 2, part III.E, *Special Drilling Operations*.
4. A pressure integrity test (formation integrity test) of the intermediate casing shoe/formation shall be conducted prior to drilling more than 20 feet below the shoe. This is to test the casing shoe to the equivalent mud weight that it is expected to be exposed to. This is not intended to be a leak-off test.
5. Concurrent approval from the State of Utah, Division of Oil, Gas & Mining (DOGGM) is required before conducting any surface disturbing activities.
6. Drilling reports, which describe the activities of each day, shall be submitted to the BLM Moab Field Office on a weekly, or more frequent, basis. In addition to a daily summary of activities, drilling reports shall include the drilling fluid weight, details of casing and cement, water flows, lost circulation zones and any other information that would contribute to our understanding of drilling conditions.

## B. Surface COAs

### 1. General

- a. If COAs are more stringent than the applicant-committed practices the COAs shall prevail.
- b. All contractors, subcontractors or any other individual(s) doing work on this project shall read, understand the Conditions of Approval. They shall have a copy of the Conditions of Approval, project map and design plans with them at all times.
- c. Please contact Dave Skinner, Natural Resource Specialist, at (435) 259-2145, Bureau of Land Management, Moab, if there are any questions concerning these surface use COAs.

### 2. Construction and Operations

- a. All equipment and vehicles would be confined to the access roads and well pad.
- b. If the CRU 24-14-2217 goes into production and a pipeline is required, it will be buried in the road where the road narrows along the ridge. This will reduce the amount of cuts and fills required for construction, thus minimizing the amount of surface disturbance.
- c. Segments of access road in north  $\frac{1}{2}$  of section 25-2217 follow a narrow ridge line. The road in these areas shall be constructed so they are safe to travel on but be kept as narrow as possible to minimize surface disturbance.
- d. Sewage will be contained in portable, self-contained, chemical toilets during construction and drilling operations. Trash would be contained in a portable, self-contained trash cage and hauled to a sanitary landfill.
- e. If the well becomes a producing well, a tank surrounded by an earthen berm will be used to contain produced water. This is in order to eliminate the need for a pit during production. The berm shall have a capacity of  $1 \frac{1}{2}$  times of the tank (or largest tank if more than one tank is used).
- f. The operator shall maintain the existing roads in a safe, usable condition, as directed by the Moab Field Office and Grand County Road Department. The maintenance program shall include, but is not limited to, blading, ditching, installing culverts, and if needed, surfacing the road with rock materials.
- g. The operator shall conduct all activities associated with the Grand County roads within the existing surface disturbances of the maintained roads.
- h. The operator shall repair all damages to the county roads resulting from traffic associated with constructing, drilling, and producing the well.
- i. The operator will paint all permanent (in place for 6 months or

more) above ground structures a color that will match the surrounding environment. The color that has been chosen for this location is Slate Gray (Munsell Soil Color 5Y 6/1). Facilities that must conform to a color standard required Occupational Safety and Health Act (OSHA) will be exempt from this condition.

- j. All junk, debris, or other foreign material must be removed before initiating any dirt work to restore the location.
- k. The fence around the reserve pit will be maintained in good repair during the drilling operations and would be completed by constructing the fourth side while the pit is drying. It would remain in place until the pit is completely dry and the site restoration begins.
- l. Fire suppression equipment would be available to suppress any wildfires caused by construction or related activities. In the event of a wildfire, the Moab Fire Center would be notified (435-259-1850).
- m. Impacts from new well pad and road construction would be minimized by appropriate drainage control (i.e. water bars, low water crossings in ephemeral drainages, etc). If the wells go into production, mitigation of impacts to soils would include 1) upgrading roads to BLM Gold Book standards and/or Grand County Road Standards if/when the wells go to production and 2) reclamation of any unused areas (i.e. well pad, unneeded road access). If the well is not produced, then reclamation would mitigate and reduce impacts to soils.
- n. The southern corner of the CRU 25-43 well pad will be rounded to minimize the amount of cut during pad construction.
- o. The eastern corner of the CRU 24-14 43well pad will be rounded to minimize the amount of cut during pad construction.
- p. Any facilities in an existing right of way that are damaged as a result of the oil and gas operations would be repaired or replaced.

### 3. Reclamation

- a. The operator shall salvage the 4 to 6 inches of topsoil from the entire disturbed area of the location prior to construction of the pad. This includes removal of topsoil from the areas where spoil piles will be stored. Topsoil will be planted in cover crop if not respread within six months.
- b. Drill pads and new roads to non-producing wells will be reclaimed. Reclamation should include removal of roads not part of the BLM transportation plan or part of roads designated as a Grand County road.
- c. The pit will not be left open for more than 90 days from the date of completion of drilling activities. If necessary, the pit will be drained by a vac-truck and then be closed prior to the 90 day deadline. If hydrocarbons or other hazardous materials were in the pit, they will be disposed of in accordance with applicable regulations.

- d. The reserve pit and that portion of the location and access road not needed for production or production facilities would be reclaimed. All stockpiled topsoil, in proportion to the area being reclaimed, will be used in reclaiming areas without an on-going operation.
- e. Any additional road base material that may have been added to the access road or pad will be removed. Exceptions may be made to this if the road is part of the BLM transportation plan or is a designated Grand County road.
- f. Re-contouring the location to approximate natural contours and conditions, to the extent practicable; evenly redistributing stockpiled topsoil over the re-contoured areas, the cut and fill slopes, and all other disturbed areas.
- g. Scarifying of all disturbed areas (including the access road) and re-contoured areas prior to seeding, by use of a disk or harrow, to provide for a slightly roughened surface condition capable of collecting precipitation and holding surface water to promote seed germination.
- h. Cut and fill slopes would be stabilized, stockpiles, and other disturbances would be seeded for re-growth of vegetation to stabilize slopes and to reduce erosion.
- i. The operator will drill seed on the contour to a depth of 0.5 inch, followed by cultipaction to compact the seedbed, preventing soil and seed losses. To maintain quality and purity, the current year's tested, certified seed with a minimum germination rate of 80% and a minimum purity of 90% will be used. The seed shall be certified, pure-live and weed-free seed, and seed tags must be available if requested by the Authorized Officer. The following seed mix shall be used:

5-8" Precipitation Zone

Species – <i>Cultivar</i>	% in Mix	Lbs PLS*
Indian Ricegrass - <i>Achnatherum hymenoides</i>	35	3.5
Fourwing saltbush – <i>Atriplex canescens</i>	20	2.0
Western Wheatgrass - <i>Pascopyrum smithii</i>	25	2.5
Shadscale - <i>Atriplex confertifolia</i>	20	2.0
Totals	100%	10.00 lbs/acre

\*PLS = pure live seed

\*Double this rate if broadcast seeding

- j. Slopes too steep for machinery may be hand broadcast and raked with twice the specified amount of seed.
- k. All of the seeding would be done in the first Fall after drilling (October/November) to prevent premature sprouting and subsequent winter killing of the forb species, due to late summer/early fall precipitation combined with warm soil temperatures.
- l. All of the seed would be mixed together, and would either be broadcast seeded or drill seeded. After broadcast seeding the area would be drug with a small harrow or hand raked to cover the seed.
- m. If the reserve pit has adequate capacity, any gravel that may have been used may be buried in the reserve pit, provided that the gravel is not contaminated by oil or other waste materials.
- n. The access road would be re-contoured using an excavator or similar equipment, rather than simply ripping the surface. Culverts would be removed from the site. If they are salvageable they would be used in other construction projects. If not, they would be disposed in a landfill. The cellar (six foot diameter concrete structure or culvert) from the base of the drill rig would be removed from the site and disposed in a landfill.
- o. Any soils contaminated from oil spills will be disposed of at an approved facility.
- p. Any accumulation of hydrocarbons in the reserve pit will be removed and recovered for sale unless it is determined by the Authorized Officer to be waste oil. All waste oil would be disposed of properly at approved facilities.
- q. For reclamation, the polyurethane liner in the reserve pit, which is exposed above the cuttings, would be cut, removed from the site, and disposed in an approved landfill. The reserve pit would be backfilled to slightly above grade to allow for settling of the unconsolidated fill material.

#### 4. Wildlife/T&E and Sensitive Species

- a. In order to protect raptor nests (active or inactive), no permanent facilities (roads, well pad construction, drilling or well completion operations, construction of production facilities or other permanent structures) are authorized within the designated buffer radius during the timing restrictions (see below) if facility placement or construction interferes with nesting activity.

These restrictions are intended to reduce potential impacts to these species. Prior to any construction or drilling activities (including completion activities and construction of production facilities or other permanent structures), current-year raptor nest surveys are required to determine the status of existing nests or the establishment of new nests. The surveys must be done during the

nesting season by a qualified biologist. Consult with the BLM Wildlife Biologist for acceptable nesting season periods for raptor nest surveys. The limitation does not apply to maintenance and operation of producing wells.

<b>Species*</b>	<b>Timing Restrictions</b>	<b>Nest Buffer Radius (miles)</b>
Burrowing owls	March 1 through August 31	0.25
Golden eagles	January 1 through August 31	0.50
Ferruginous hawks	March 1 through August 1	0.50
Northern Harriers	April 1 through August 15	0.50
Red-tailed Hawk	March 15 through August 15	0.50
Prairie Falcon	April 1 through August 31	0.50

\*These species are the most likely ones to be encountered in the immediate area of the project area; future nest monitoring might reveal other nesting species which may have timing and buffer restrictions that vary from the ones specified above.

- b. Prior to any construction or drilling activities (including completion activities and construction of production facilities or other permanent structures) current-year prairie dog and kit fox surveys are required. Surveys must be done during the breeding season by a qualified biologist. To reduce potential impacts to prairie dogs and kit fox during their breeding/birthing period no road or well pad construction or drilling may occur from April 1 through June 15 for prairie dogs and March 1 through July 31 for kit fox. If surveys indicate that prairie dogs and/or kit fox are not utilizing the area in a given year, the operator may request an exception to this condition. The limitation does not apply to maintenance and operation of producing wells.
- c. In order to protect fawning antelope, no road or well pad construction; drilling; well completion; or construction of production facilities will be authorized between May 1 and June 15.
- d. Exceptions to wildlife timing restrictions may be granted on a case-by-case basis. Exception request shall be submitted in writing to the BLM Moab Field Office. An exception request shall describe in detail why an exception is warranted, and shall be accompanied by the supporting wildlife survey report.

- e. At the end of drilling operations and prior to reclamation of the reserve pit, the pit will be covered with netting of one inch mesh or less to prevent access by birds while the pit is drying.
5. Soil and Water
- a. No produced water or other fluids will be disposed on the well pad or roads.
  - b. No surface disturbing activities would be allowed during the period from December 1 to May 31. This restriction includes heavy equipment traffic on existing roads associated with drilling operations. Exceptions will be granted to this limitation and will be specified in writing by the Moab Field Office.
  - c. If conditions are wet enough that vehicles are rutting roads four inches deep or more all work shall stop until conditions dry out.
6. Air
- a. Dust control will be provided during construction and drilling operations by spraying fresh water on new road construction, roads being maintained, and the well pad.
  - b. Low speed limits, sufficient to minimize fugitive dust, will be enforced by the operator to limit dust in project and adjacent areas.
7. Noxious Weeds
- a. Prior to mobilization to the sites, all equipment used to construct the well pad and access road and equipment used in drilling would be power washed to remove any invasive, non-native weed seeds that may be attached to the equipment to reduce the potential of introducing and spreading new weed species.
  - b. During the life of the project, until the site is released from liability for reclamation, the operator will be responsible for weed control on the disturbed areas within the limits of the well pad and road construction.
  - c. The project would be inspected in the spring, summer and fall for noxious weeds. If any weeds are discovered an Integrated Pest Management Plan will be created and BLM approval will be obtained (pesticide use permit) prior to beginning any treatment program. The operator will be responsible for consultation with the authorized officer and/or local authorities for acceptable weed control methods.
  - d. The operator will monitor for noxious weeds that might move onto the location. If any are discovered an Integrated Pest Management Plan will be created and need BLM approval prior to beginning any treatment program.

8. Paleontological Resources

The operator shall immediately notify the BLM authorized officer of any paleontological resources discovered as a result of operations under this authorization, protect the discovery from damage or looting, and suspend all activities in the vicinity of such discovery until notified to proceed by the authorized officer. The operator is not required to suspend operations if activities can avoid further impacts to a discovered locality or be continued elsewhere.

The authorized officer will evaluate, or will have evaluated, such discoveries as soon as possible but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the authorized officer after consulting with the operator. Approval for the project to proceed will be granted when recovery of the fossil material and field data is completed.

The operator is responsible for the cost of any investigation necessary for the evaluation and mitigation of paleontological resources. The operator is not responsible for the cost of recovery outside of the approved area of disturbance, even if the paleontological locality continues outside that area.

9. Cultural

- a. The operator intends to use an existing Class D county road to access the CRU 24-14-2217 well location. A segment of the existing road bisects an archeological site (42GR4112 in T22S/R17E/S25). The operator has agreed to avoid this site. Prior to using or improving the access road, the operator, the Grand County Road Department and the BLM shall develop an agreement to close the Class D road that bisects the site and reroute this segment of so that the archeological site is avoided.
- b. If any cultural values (sites, artifacts, human remains) are observed during operation of this lease/permit/right-of-way, they will be left intact and the Moab Field Manager notified. The authorized officer (AO) will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized BLM officer (AO). Within five working days the AO will

inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction measures.

*Revised May 7, 2009*

### C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, attached.

Building Location- Contact the Moab Field Office, Natural Resource Protection Specialist at least 48-hours prior to commencing construction of location.

Spud- The spud date will be reported to BLM 24-hours prior to spud. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab Field Office within 24-hours after spud, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab Field Office on a weekly basis.

Oil and Gas Operations Reports (OGORs)- Production from this well shall be reported to Minerals Management Service (MMS) on a monthly basis.

Sundry Notices- There will be no deviation from the proposed drilling and/or workover program without prior approval. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed with the Moab Field Office for approval of all changes of plans and subsequent operations in accordance with 43 CFR 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Moab Field Office is to be notified.

First Production- Should the well be successfully completed for production, the Moab Field Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Moab Field Office. The Moab Field Office shall be notified prior to the first sale.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab Field Office not later than thirty-days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Moab Field Office.

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever first occurs, without the prior, written approval of the Moab Field Office. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor (BLM) shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water- If water is a byproduct of the well's hydrocarbon production, an application for approval of a permanent produced water disposal method and location will be submitted to the Moab Field Office for approval pursuant to Onshore Oil and Gas Order No.7. Produced water may be temporarily disposed of in the reserve pit for a period of up to 90 days after completion.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Moab Field Office for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the Moab Field Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Moab Field Office within thirty-days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Moab Field Office or the appropriate surface managing agency.

#### TABLE 1

#### NOTIFICATIONS

Notify Jack Johnson (435-259-2129) or Dave Skinner (435-259-2145) of the BLM Moab Field Office for the following, as appropriate:

2 days prior to commencement of dirt work, construction and reclamation (Skinner);

1 day prior to spud (Johnson);

50 feet prior to reaching the surface casing setting depth (Johnson);

3 hours prior to testing BOPs (Johnson).

If the people referenced above cannot be reached, notify the Moab Field Office at 435-259-2100. If unsuccessful, contact the person listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at 435-259-2100. If approval is needed after work hours, you may contact the following:

Eric Jones, Petroleum Engineer

Office: 435-259-2117

Home: 435-259-2214



# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

### Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

March 8, 2010

John L. Moore  
North American Exploration, LLC  
110 16th Street, Suite 1220  
Denver, CO 80202

Re: APD Rescinded – CRU 25-43-2217, Sec. 25, T. 22S, R. 17E  
Grand County, Utah API No. 43-019-301619

Mr. Moore:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on January 22, 2009. On March 5, 2010, you requested that the division rescind the state approved APD. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective March 5, 2010.

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

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

Sincerely,

Diana Mason  
Environmental Scientist

cc: Well File  
Bureau of Land Management, Moab

