NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 0 2 2017

RECEIVED

Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM131581

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.
WHITE ROCK FEDERAL ~~COM~~ 2H 314853

2. Name of Operator
MACK ENERGY CORPORATION 13837

9. API Well No.
30-005-64301

3a. Address
11344 Lovington HWY Artesia NM 88211

3b. Phone No. *(include area code)*
(575)748-1288

10. Field and Pool, or Exploratory
ROUND TANK / SAN ANDRES 52190

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NENW / 140 FNL / 1675 FWL / LAT 32.9938011 / LONG -104.0365362
At proposed prod. zone NENW / 270 FNL / 1675 FWL / LAT 33.007918 / LONG -104.0365746

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 28 / T15S / R29E / NMP

14. Distance in miles and direction from nearest town or post office*
30 miles

12. County or Parish
CHAVES

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
140 feet

16. No. of acres in lease
320

17. Spacing Unit dedicated to this well
320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
1120 feet

19. Proposed Depth
3250 feet / 10500 feet

20. BLM/BIA Bond No. on file
FED: NMB000286

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3806 feet

22. Approximate date work will start*
10/01/2017

23. Estimated duration
20 days

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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature	Name *(Printed Typed)*	Date
(Electronic Submission)	Jerry Sherrell / Ph: (575)748-1288	08/14/2017

Title
Production Clerk

Approved by *(Signature)*	Name *(Printed Typed)*	Date
(Electronic Submission)	Ruben J Sanchez / Ph: (575)627-0250	09/28/2017

Title	Office
Assistant Field Manager, Lands & Minerals	ROSWELL

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.

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

RP 10-3-2017

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mack Energy Corporation
LEASE NO.:	NMNM-131581
WELL NAME & NO.:	White Rock Federal 2H
SURFACE HOLE FOOTAGE:	0140' FNL & 1675' FWL
BOTTOM HOLE FOOTAGE	0270' FNL & 1675' FWL Sec. 21, T. 15 S., R 29 E.
LOCATION:	Section 28, T. 15 S., R 29 E., NMPM
COUNTY:	County, New Mexico

No COM is needed for this well as the kick off point is on lease NMNM131581, operator shall submit sundry to remove COM from the name.

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☐ **Chaves and Roosevelt Counties**
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 6270272.
After office hours call (575) 627-0205.

1. **A Hydrogen Sulfide (H2S) Drilling Plan shall be activated prior to drilling out the surface shoe. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst
Possibility of lost circulation in the Queen and San Andres formations.

1. The **9-5/8** inch surface casing shall be set at approximately **200** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

2. The minimum required fill of cement behind the **7 X 5-1/2** inch production casing is:

    ☐ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be psi.

    a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. The appropriate BLM office shall be notified a minimum of hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    a. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

    b. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

    c. The results of the test shall be reported to the appropriate BLM office.

    d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JAM 092117

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MACK ENERGY CORPORATION
LEASE NO.:	NMNM-131581
WELL NAME & NO.:	WHITE ROCK FEDERAL COM #2H
SURFACE HOLE FOOTAGE:	[140] ' F [N] L [1675] ' F [W] L
LOCATION:	Section 28, T 15. S., R 29 E., NMPM
COUNTY:	Chaves County, New Mexico

1. GENERAL PROVISIONS

Approval of the APD does not warrant that any party holds equitable or legal title. Any request for a variance shall be submitted to the Authorized Officer on Sundry Notice (Form 3160-5).

For BLM's surface operating standards and guidelines, refer to: The Gold Book , Fourth Edition - Revised 2007. To obtain a copy free of charge contact the Roswell Field Office (575) 627-0272 or visit BLM on the web at:
http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/gold_book.html
All construction, operations, and reclamation shall follow the Onshore Oil and Gas Operations as described in the 43 CFR part 3160.

The Operator shall submit a Sundry Notice (Form 3160-5) to the Bureau of Land Management, Roswell Field Office (address above) for approval prior to beginning any new surface-disturbing activities or operations that are not specifically addressed and approved by this APD.

A site facility diagram and a site security plan shall be filed no later than 60 calendar days following first production (Onshore Order 3, Section III, I. and 43 CFR 3162.7-5).

2. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD (Filing of a Sundry Notice is required for this 60 day extension).

3. JUISTICTIONAL WATERS of the U.S.

The operator shall obtain appropriate permits from the U.S. Army Corps of Engineers prior to discharge or dredge and fill material into waters of the United States in accordance with Section 404 of the Clean Water Act. Contact The U.S. Army Corps of Engineers regulatory New Mexico Branch Office, 4101 Jefferson Plaza NE, Albuquerque, NM 87109-3435 at (505) 342-3678 or Email: CESPA-RD-NM@usace.army.mil if you have questions.

4. ARCHAEOLOGICAL, PALEONTOLOGICAL & HISTORICAL SITES

Any cultural and/or paleontological resource discovered inadvertently by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

5. HUMAN REMAINS AND OBJECTS OF CULTURAL PATRIMONY

The operator shall comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, funerary objects, sacred objects, and objects of cultural patrimony that are discovered inadvertently during project implementation. In the event that any of the cultural items listed above are

discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes.

6. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations (access road and/or well pad). Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

7. CAVE AND KARST

Any Cave or Karst feature discovered by the operator or by any person working on the operator's behalf shall immediately report the feature to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. During drilling, previously unknown cave and karst features could be encountered. If a void is encountered while drilling and a loss of circulation occurs, lost drilling fluids can directly contaminate groundwater recharge areas, aquifers, and groundwater quality. Drilling operations can also lead to sudden collapse of underground voids.

To mitigate or lessen the probability of impacts associated with the drilling and production of oil and gas wells in karst areas, the guidelines listed in Appendix 3, Practices for Oil and Gas Drilling and Production in Cave and Karst Areas, as approved in the Roswell Resource Management Plan Amendment of 1997, page AP3-4 through AP 3-7 shall be followed.

A more complete discussion of the impacts of oil and gas drilling can be found in the *Dark Canyon Environmental Impact*

Statement of 1993, published by the U.S. Department of the Interior, Bureau of Land Management.

8. CONSTRUCTION

NOTIFICATION: The BLM shall administer compliance and monitor construction of the access road and well pad. Notify Natural Resource Specialist, Ricky Flores at (575) 627-0339 or the Roswell Field Office at (575) 627-0272 **at least three (3) working days prior to commencing construction of the access road and/or well pad.**

A complete copy of the *approved* APD and the attached Conditions of Approval (COAs) **shall be kept on the well's location** for reference upon inspections.

Construction over and/or immediately adjacent to existing pipelines shall be coordinated, and in accordance with, the relevant pipeline companies' policy.

Any trench left open for (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, an agency approved monitor shall walk the entire length of the open trench and remove all trapped fauna. The bottom surface of the trench will be disturbed a minimum of 2 inches in order to arouse any buried fauna. All fauna will be released a minimum of 100 yards from the trench.

For trenches left open for (8) hours or more, earthen escape ramps (built at nor more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench. Structures will also be authorized within the trench. Metal structures will not be authorized. Structures used as escape ramps will be placed at no more than a 30 degree slope and spaced no more than 500 feet apart.

9. TOPSOIL:

When saturated soil conditions exist on access roads or location, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils, roads and locations.

Topsoil shall be stripped following removal of vegetation during construction of well pads, pipelines, roads, or other surface facilities. This shall include all growth medium - at a minimum,

the upper 2-6 inches of soil - but shall also include stripping of any additional topsoil present at a site, such as indicated by color or texture. Stripping depth may be specified during the onsite inspection. Stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to interim seedbed preparation. No topsoil shall be stripped when soils are moisture-saturated or frozen below the stripping depth.

The topsoil will not be used to construct the containment structures or earthen dikes that are on the outside boundaries of the constructed well pad, tanks, and storage facilities.

Each construction area is site specific as to topsoil depth. It is the operator's responsibility to ensure that topsoil, caliche, or spoils are not mixed together.

(**Pads**): topsoil will be stripped and stored in separate piles from the spoils pile. They can be stored on opposite or adjacent sides. If topsoil and spoils must be stored on the same pad side together they shall be no closer than toe to toe, not overlapping. Each pile shall be kept within 30 feet of the pad's side. 100% of the topsoil will be used for both interim and final reclamation. 100% of topsoil will be respread over the disturbed areas during reclamation.

(**Roads**): topsoil shall be stripped in such a way to follow the road's edge outside of the surfacing or drivable area. During final reclamation, after removal of surface material and re-contouring, 100% of topsoil will be respread over the disturbed areas during reclamation. Vegetation in the topsoil will help hold re-seeding, moisture content, and reduce erosion.

10. WELL PAD SURFACING:

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need. Surfacing of the well pad is not required. If the operator elects to surface the well pad, the surfacing material will be required to be removed at the time of reclamation.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattle guard(s) on the access road

shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guard(s) that are in place and are utilized during lease operations. Gates or cattle guards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the authorized officer. A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

The operator shall notify the private surface landowner or the grazing allotment operator prior to crossing any fence(s). Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

11. PRODUCTION:

Storage

Fiberglass storage tanks are ***not*** permitted for the storage of production.

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim reclamation and re-vegetation of the well location.

Containment Structures

All production facilities shall have a lined containment structure large enough to contain **110% of the largest Tank (PLUS) 24 hours of production** (43 CFR 3162.5-1) ***Environmental Obligations***, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **OIL GREEN** (Standard Environmental Color Chart June 2008).

Completion Report

In accordance with 43 CFR 3160, Form 3160-4 (Well Completion or Re-completion Report and Log) must be submitted to the Bureau of Land Management, Roswell Field Office within 30 days after completion of the well or producer. Copies of all open hole and cased hole logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, formation test reports, stimulation reports, directional survey (if applicable), and all other surveys or data obtained and compiled during the drilling, completion, and/or work over operations, shall be included with Form 3160-4.

12. INTERIM RECLAMATION:

Reclamation earthwork for interim and/or final reclamation shall be completed within 6 months of well completion or well plugging (weather permitting), and shall consist of: 1) backfilling pits, 2) re-contouring and stabilizing the well site, access road, cut/fill slopes, drainage channels, utility and pipeline corridors, and all other disturbed areas, to approximately the original contour, shape, function, and configuration that existed before construction (any compacted backfilling activities shall ensure proper spoils placement , settling, and stabilization, 3) surface ripping, prior to topsoil placement, to a depth of 18-24 inches deep on 18-24 inch centers to reduce compaction, 4) final grading and replacement of all topsoil so that no topsoil's remains in the stockpile, 5) seeding in accordance with reclamation portions of the APD and these COA's.

Any subsequent re-disturbance of interim reclamation shall be reclaimed within six (6) months by the same means described above.

Prior to conducting interim reclamation, the operator is required to:

- Submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

- Contact BLM at least three (3) working days prior to conducting any interim reclamation activities, and prior to seeding.

During reclamation, the removal of caliche is important to increasing the success of re-vegetating the site. Removed caliche may be used in road repairs, fire walls or for building

other roads and locations. In addition, in order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing re-vegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be re-vegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

Use a certified noxious weed-free seed mixture. Use seed tested for viability and purity in accordance with State law(s) within nine months prior to purchase. Use a commercial seed mixture certified or registered and tagged in accordance with State law(s). Make the seed mixture labels available for BLM inspection.

13. SEED MIX:

SEE ATTACHED SEED MIX.

WELL NAME	ECOSITE (ACCESS ROAD)	ECOSITE (PAD)
WHITE ROCK FEDERAL COM #2H	SHALLOW SD-3	SHALLOW SD-3

14. FINAL ABANDONMENT:

A. Upon abandonment of the well a Notice of Intent for Plug and Abandonment describing plugging procedures. Followed within 30 days you shall file with this office, a Subsequent Report of Abandonment (Form 3160-5). To be included with this report is where the plugs were placed; volumes of cement used and well bore schematic as plugged.

B. On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements and a copy of the release is to be submitted upon abandonment.

C. The Operator shall promptly plug and abandoned each newly completed, re-completed or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval from this office. When justified by the Operator, BLM may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment form the site of a well which is to be permanently abandoned, the

surface of the lands disturbed shall be reclaimed in accordance with an approved Notice of Intent for final reclamation.

D. Final reclamation shall include: the removal of all solid waste, trash, surfacing materials, storage facilities and all other related equipment, flow lines, and meter housing, power poles, guy wires, and all other related power materials. All disturbed areas, i.e. cuts and fills, shall be re-contoured to their original surroundings. 100% of topsoil shall be used to resurface all disturbed areas including access roads. A label of the seed mix used shall be submitted with the Final Abandonment Notice (FAN) for review once reclamation is complete.

15. PIPELINE PROTECTION REQUIREMENT:

Precautionary measures shall be taken by the operator during construction of the access road to protect existing pipelines that the access road will cross over. An earthen berm; 2 feet high by 3 feet wide and 14 feet across the access road travelway (2' X 3' X 14'), shall be constructed over existing pipelines. The operator shall be held responsible for any damage to existing pipelines. If the pipeline is ruptured and/or damaged the operator shall immediately cease construction operations and repair the pipeline. The operator shall be held liable for any unsafe construction operations that threaten human life and/or cause the destruction of equipment.

16. WILDLIFE PROTECTION MEASURES - Best Management Practices (BMPs)

Wildlife Mortality - General
The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

1. **Closed top tanks are required for any containment system.** All tanks are required to have a closed top tank.

2. **Chemical and Fuel Secondary Containment Systems**
Chemical and Fuel Secondary Containment and Exclosure Screening - The operator will prevent all hazardous, poisonous, flammable,

and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. Closed-top tanks are required for any secondary containment systems.

3. **Open-Vent Exhaust Stacks**

Open-Vent Exhaust Stack Exclosures - The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

EXHIBIT NO.

Date of Issue:

Bureau of Land Management, Roswell Field Office
2909 W Second Street Roswell, NM 88201

12/12/2014

Cultural and Archaeological Resources

BLM Report No.
14-015A, 14-035A, and 14-041A

NOTICE OF STIPULATIONS

Historic properties in the vicinity of this project are protected by federal law. In order to ensure that they are not damaged or destroyed by construction activities, the project proponent and construction supervisors shall ensure that the following stipulations are implemented.

Project Name:	**MACK ENERGY MASTER DEVELOPMENT PLAN**
	1). A 3-day preconstruction call-in notification. Contact BLM Inspection and Enforcement at
	2. Professional archaeological monitoring. Contact your project archaeologist, or BLM's Cultural Resources Section at (575) 627-0221 for assistance.
A.	These stipulations must be given to your monitor at least **5 days** prior to the start of construction.
B.	No construction, including vegetation removal or other site prep may begin prior to the arrival of the monitor.
	3. Cultural site barrier fencing. (Your monitor will assist you).
A.	**A temporary site protection barrier**(s) shall be erected prior to all ground-disturbing activities. The minimum barrier(s) shall consist of upright wooden survey lath spaced no more than ten (10) feet apart and marked with blue ribbon flagging or blue paint. There shall be no construction activities or vehicular traffic past the barrier(s) at any time.
B.	**A permanent, 4-strand barbed wire fence** strung on standard "T-posts" shall be erected prior to all ground-disturbing activities. No construction activities or vehicle traffic are allowed past the fence.
	4. The archaeological monitor shall:
A.	Ensure that all site protection barriers are located as indicated on the attached map(s).
B.	Observe all ground-disturbing activities within 100 feet of cultural site no. LA as shown on the attached map.
C.	Ensure that all reroutes are adhered to avoid cultural site no.(s) LA
D.	Ensure the proposed is/are located as shown on the attached map(s).
E.	Submit a brief monitoring report within 30 days of completion of monitoring.
	5. Other:
A.	Table 1B, Alternative C, identifies well and ROW locations that still require completion of

Other:	cultural resource inventories, or avoidance measures, before any ground disturbing activities can occur.

Site Protection and Employee Education: It is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment; and that it is illegal to collect, damage, or disturb cultural resources on Public Lands.

For assistance, contact BLM Cultural Resources: Laura Hronec (575) 627-0221

Table 1B. Alternative C. Locations Pending Cultural Resource Inventories or Avoidance Measures

NM 132065 Regina Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
Regina Federal #1	Sec. 8, T. 15 S., R. 29 E.	180 ft FSL & 180 ft FWL	Completion of archaeological inventory.
NM 131583 Yellowknife Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
Yellowknife Federal #1	Sec. 28, T. 15 S., R. 29 E.	330 ft FNL & 990 ft FWL	Requires 100ft buffer from edge of disturbance to LA 179778 site boundary.
NM 131578 Halifax Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
Halifax Federal #3 (Access Route)	Sec. 23, T. 15 S., R. 28 E.	2,310 ft FNL & 990 ft FEL	Completion of archaeological inventory for route that extends beyond block surveyed area (Section 24).
NM 130324 Toronto Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
Toronto Federal #1	Sec. 25, T. 15 S., R. 28 E.	330 ft FSL & 1,550 ft FWL	Completion of archaeological inventory.
Toronto Federal #2	Sec. 25, T. 15 S., R. 28 E.	2,310 ft FSL & 2,310 ft FWL	Completion of archaeological inventory.
Toronto Federal #3	Sec. 25, T. 15 S., R. 28 E.	2,110 ft FNL & 1,650 ftFWL	Completion of archaeological inventory.
NM 004433 Calgary Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
Calgary Federal #9 (Access Route)	Sec. 24, T. 15 S., R. 28 E	330 ft FSL & 1,650 ft FWL	Completion of archaeological inventory for route that extends beyond block survey (Section

			25).
Calgary Federal #12	Sec. 25, T. 15 S., R. 28 E	2610 ft FNL & 2310 ft FEL	Completion of archaeological inventory.
NM 131581 White Rock Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
White Rock Federal 1 (Access Route)	Sec. 21, T. 15 S., R. 29 E.	1,624 ft FSL & 314 ft FWL	Requires 100ft buffer from edge of disturbance to LA 135999 site boundary.
NM 121940 Churchill Federal			
Well Name	**Location**	**Surface Footage**	**Reason for Pending Status**
Churchill Federal #4 (Access Route)	Sec. 13, T. 15 S., R. 28 E.	330 ft FSL & 990 ft FWL	Completion of archaeological inventory for route that extends beyond block survey (Section 14).
Churchill Federal #8 (Access Route)	Sec. 13, T. 15 S., R. 28 E.	1,650 ft FSL & 990 ft FWL	
Churchill Federal #12 (Access Route)	Sec. 13, T. 15 S., R. 28 E.	2.310 ft FNL & 990 ft FWL	

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

09/28/2017

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 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.

NAME: Jerry Sherrell **Signed on:** 08/14/2017

Title: Production Clerk

Street Address: 11344 Lovington HWY

City: Artesia **State:** NM **Zip:** 88211

Phone: (575)748-1288

Email address: jerrys@mec.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

APD ID: 10400015523 **Submission Date:** 08/14/2017

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400015523 **Tie to previous NOS?** 10400014942 **Submission Date:** 08/14/2017

BLM Office: ROSWELL **User:** Jerry Sherrell **Title:** Production Clerk

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM131581 **Lease Acres:** 320

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** MACK ENERGY CORPORATION

Operator letter of designation:

Operator Info

Operator Organization Name: MACK ENERGY CORPORATION

Operator Address: 11344 Lovington HWY **Zip:** 88211

Operator PO Box:

Operator City: Artesia **State:** NM

Operator Phone: (575)748-1288

Operator Internet Address: jerrys@mec.com

Section 2 - Well Information

Well in Master Development Plan? NO **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** ROUND TANK **Pool Name:** SAN ANDRES

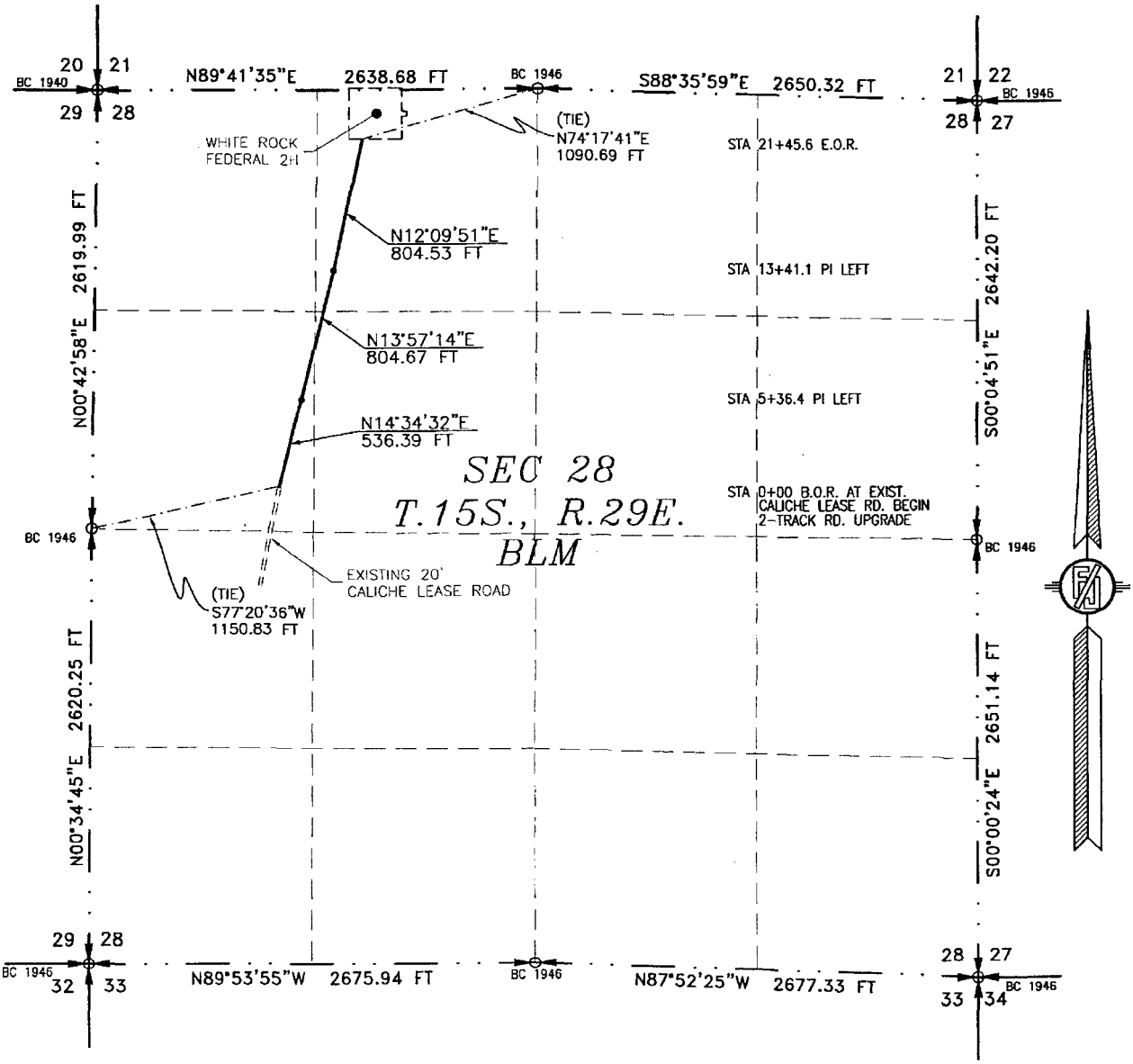
Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25 DAY OF MAY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

SHEET: 1-4

SURVEY NO. 5273

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S77°20'36"W, A DISTANCE OF 1150.83 FEET;
THENCE N14°34'32"E A DISTANCE OF 536.39 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N13°57'14"E A DISTANCE OF 804.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N12°09'51"E A DISTANCE OF 804.53 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N74°17'41"E, A DISTANCE OF 1090.69 FEET;

SAID STRIP OF LAND BEING 2145.59 FEET OR 130.03 RODS IN LENGTH, CONTAINING 0.986 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4	874.56 L.F.	53.00 RODS	0.402 ACRES
SE/4 NW/4	210.85 L.F.	12.78 RODS	0.097 ACRES
NE/4 NW/4	1060.18 L.F.	64.25 RODS	0.487 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25 DAY OF MAY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

301 SOUTH CANAL
(575) 234-3341

SURVEY NO. 5273

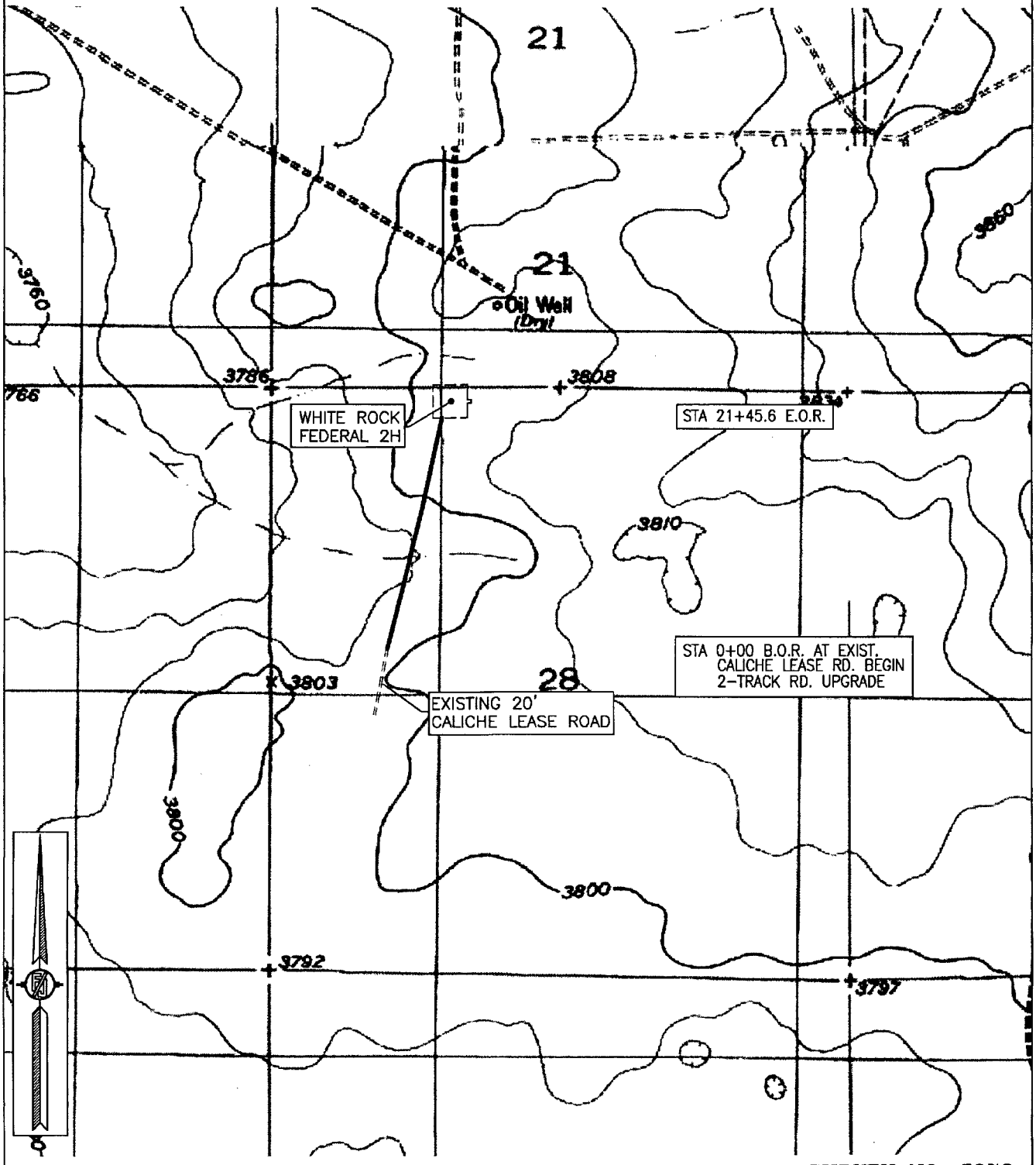
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 3-4

SURVEY NO. 5273

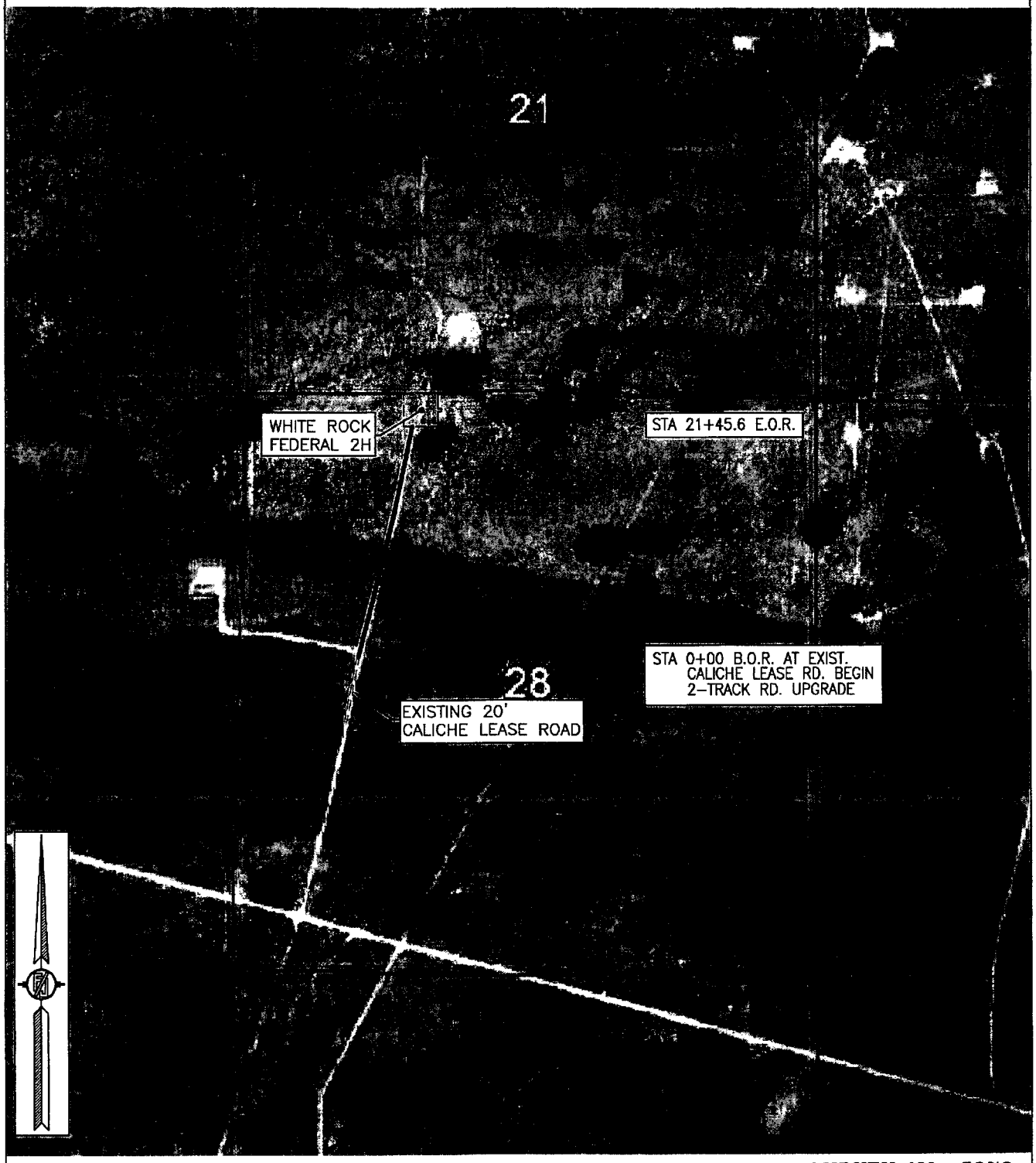
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 4-4

SURVEY NO. 5273

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-005- 64301	52770	Round Tank; San Andres

4 Property Code	5 Property Name	6 Well Number
314853	WHITE ROCK FEDERAL	2H

7 OGRID No.	8 Operator Name	9 Elevation
13837	MACK ENERGY CORPORATION	3806.6

10 Surface Location

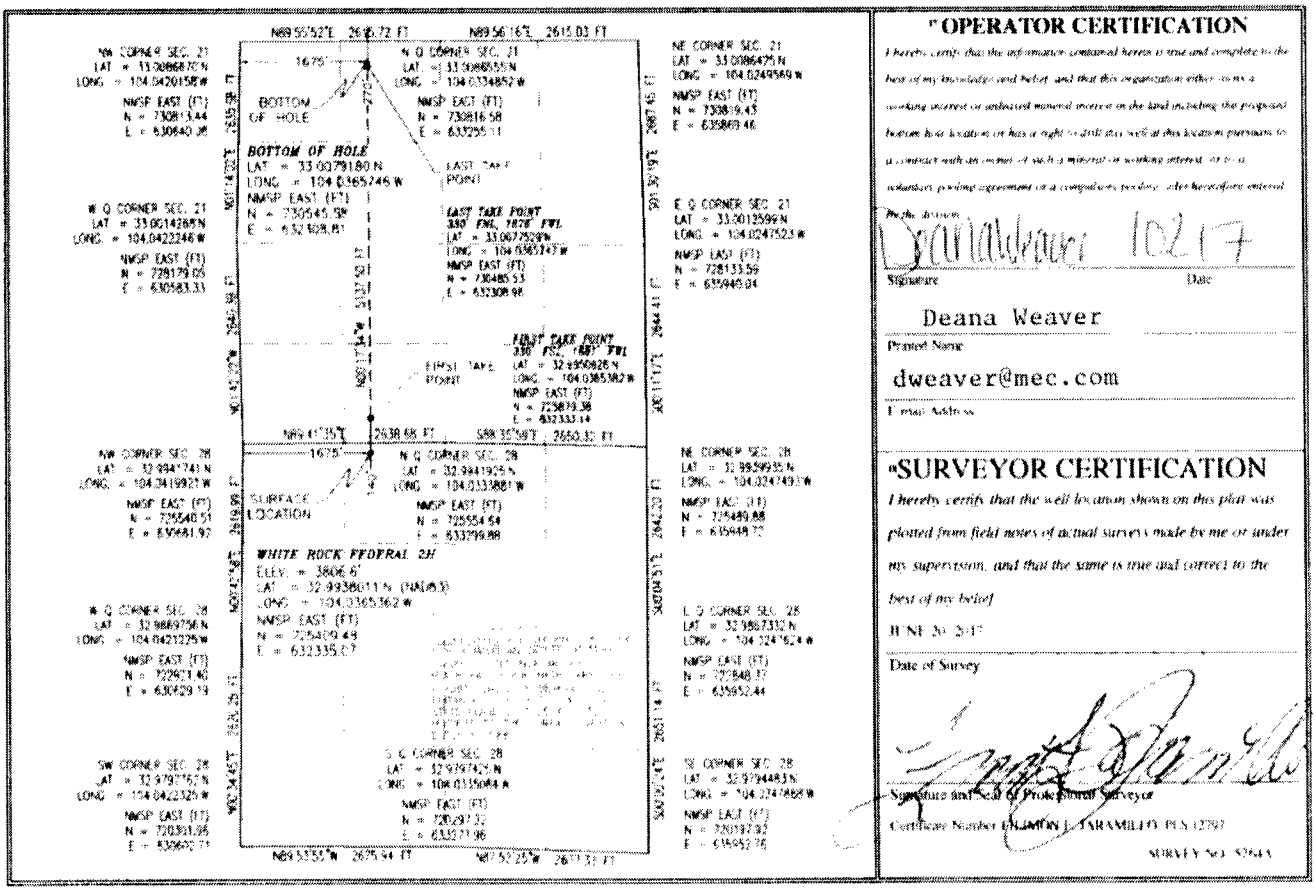
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	28	15 S	29 E		140	NORTH	1675	WEST	CHAVES

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	21	15 S	29 E		270	NORTH	1675	WEST	CHAVES

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



16 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Deana Weaver 10/2/17
Signature Date

Deana Weaver
Printed Name

dweaver@mec.com
E-mail Address

17 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 20, 2017
Date of Survey

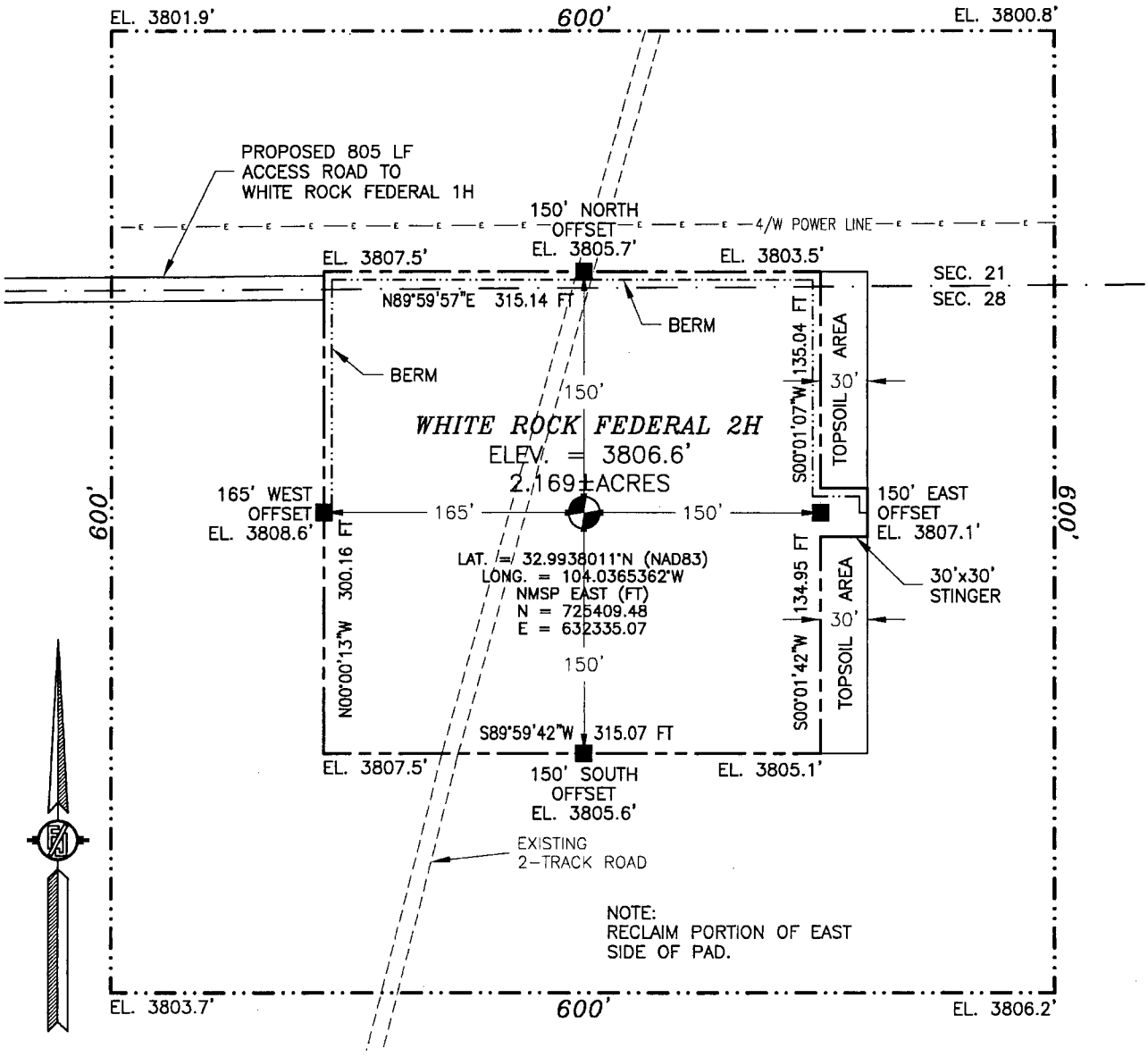
Signature and Seal of Professional Surveyor

Certificate Number HERSCHEL L. JARAMILLO, PLS 12797

SURVEY NO. 5964A

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 82 AND CR 217 (HAGERMAN CUTOFF) GO NORTH ON CR 217 APPROX. 10.5 MILES, TURN WEST ON 20' CALICHE LEASE ROAD (COUNTY LINE ROAD) AND GO APPROX. 3.4 MILES, TURN NORTH ON 20' CALICHE LEASE ROAD AND GO APPROX. 0.46 OF A MILE. CONTINUE NORTH ON 2-TRACK ROAD FOR APPROX. 0.5 OF A MILE TO SOUTH EDGE OF PAD FOR THIS LOCATION.

MACK ENERGY CORPORATION

WHITE ROCK FEDERAL 2H

LOCATED 140 FT. FROM THE NORTH LINE AND 1675 FT. FROM THE WEST LINE OF SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. CHAVES COUNTY, STATE OF NEW MEXICO

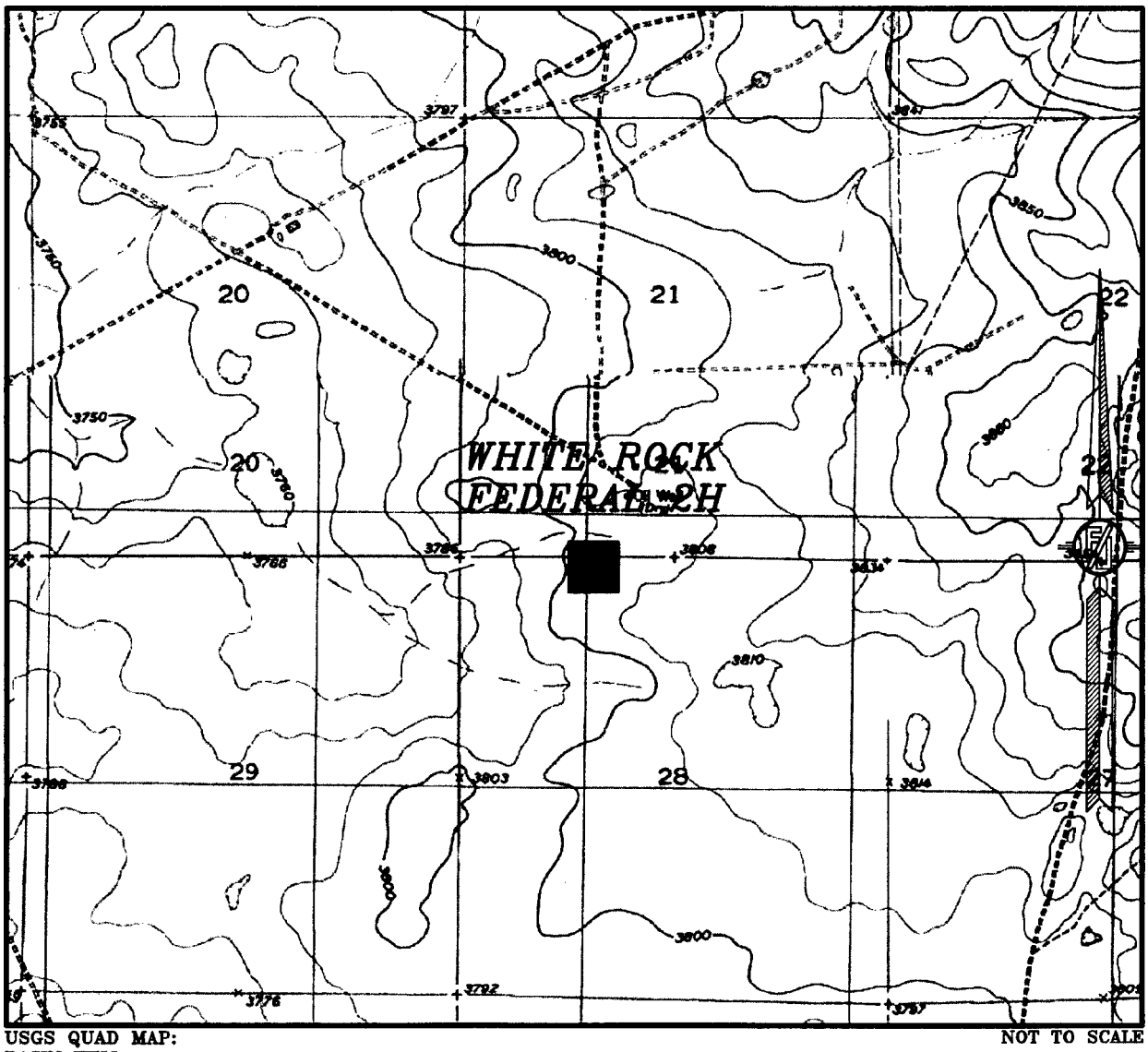
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
BASIN WELL

NOT TO SCALE

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
LOCATED 140 FT. FROM THE NORTH LINE
AND 1675 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

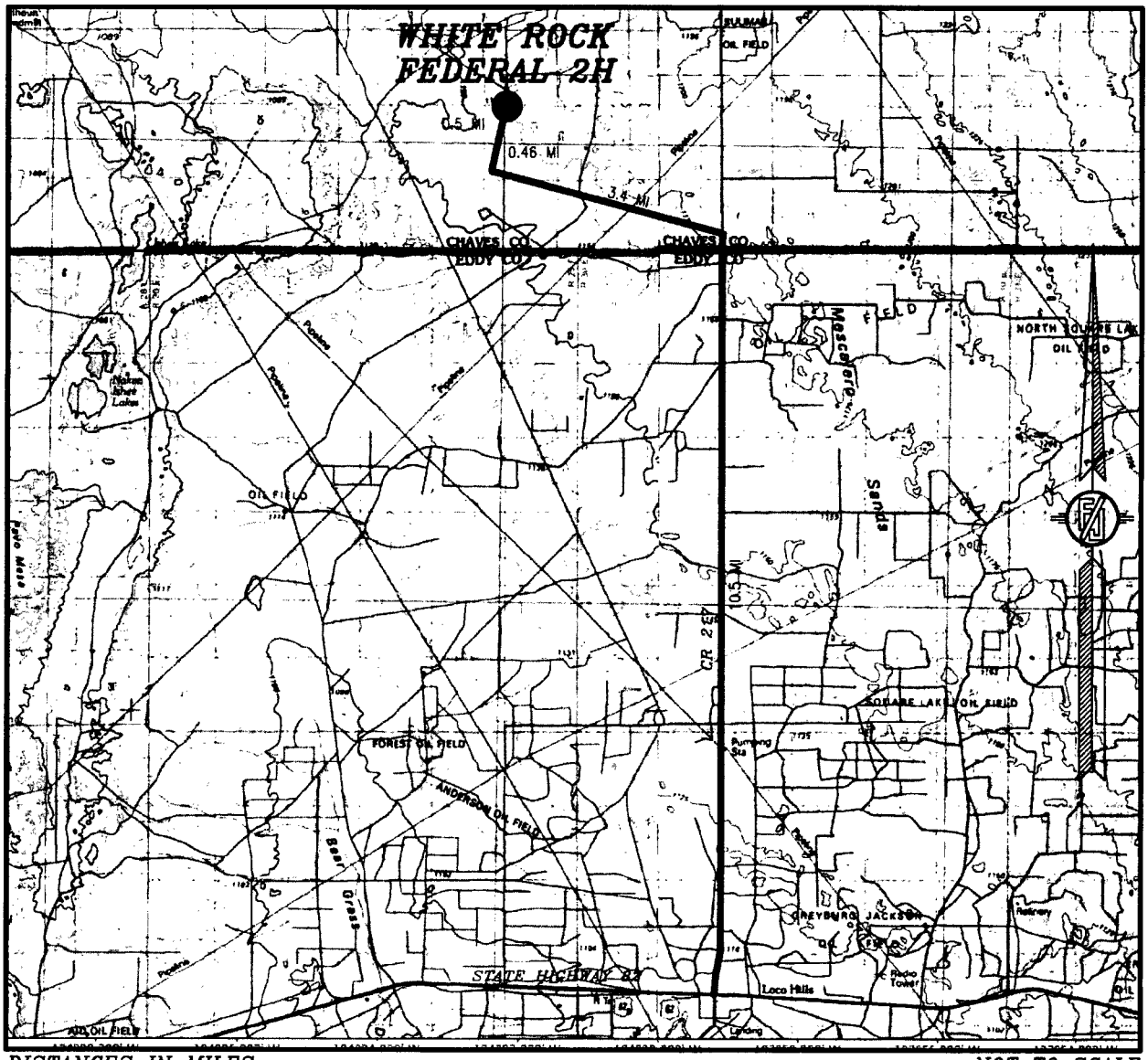
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF STATE HIGHWAY 82 AND CR 217 (HAGERMAN CUTOFF) GO NORTH ON CR 217 APPROX. 10.5 MILES, TURN WEST ON 20' CALICHE LEASE ROAD (COUNTY LINE ROAD) AND GO APPROX. 3.4 MILES, TURN NORTH ON 20' CALICHE LEASE ROAD AND GO APPROX. 0.46 OF A MILE. CONTINUE NORTH ON 2-TRACK ROAD FOR APPROX. 0.5 OF A MILE TO SOUTH EDGE OF PAD FOR THIS LOCATION.

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
LOCATED 140 FT. FROM THE NORTH LINE AND 1675 FT. FROM THE WEST LINE OF SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

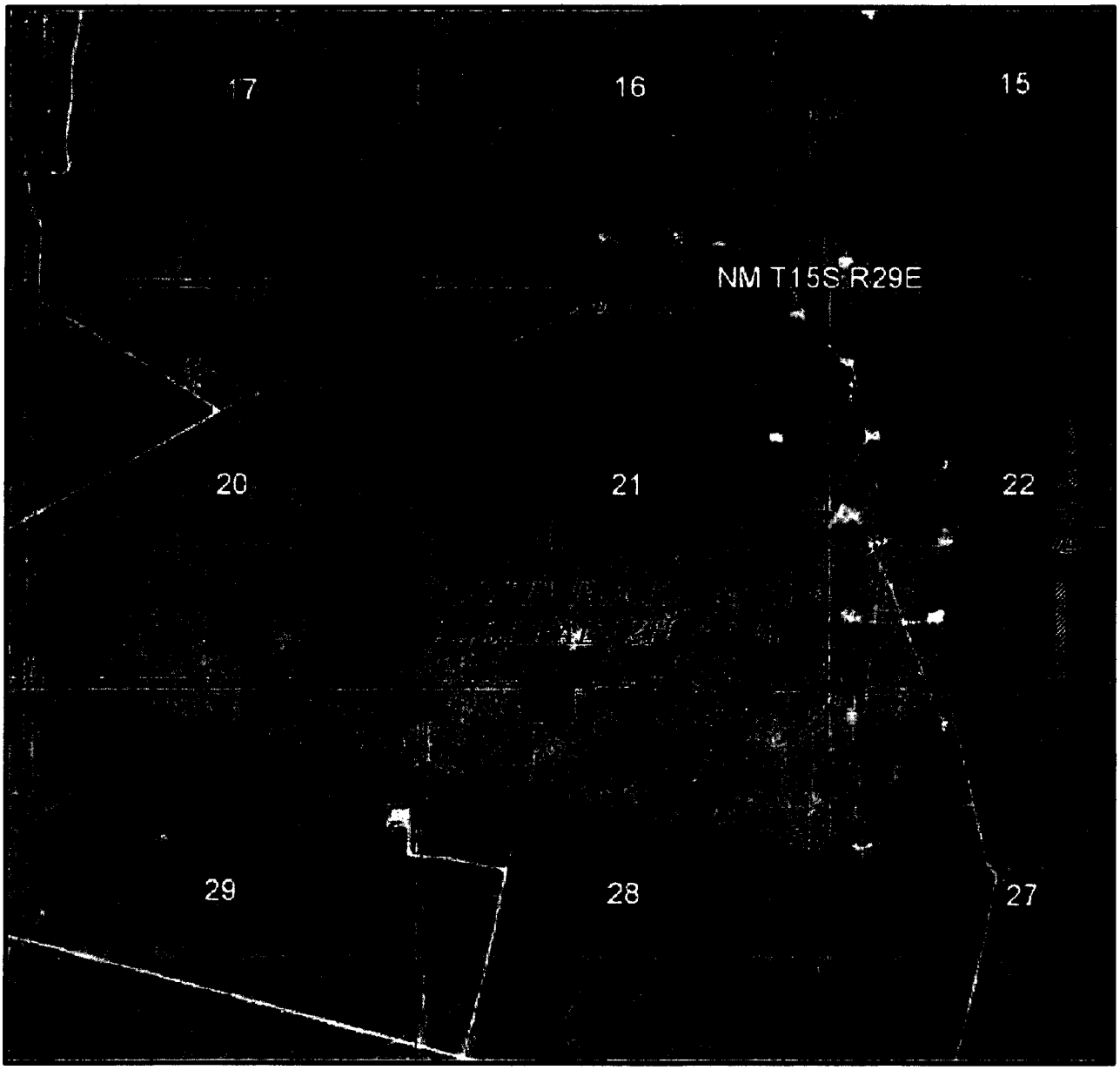
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2017

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
LOCATED 140 FT. FROM THE NORTH LINE
AND 1675 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

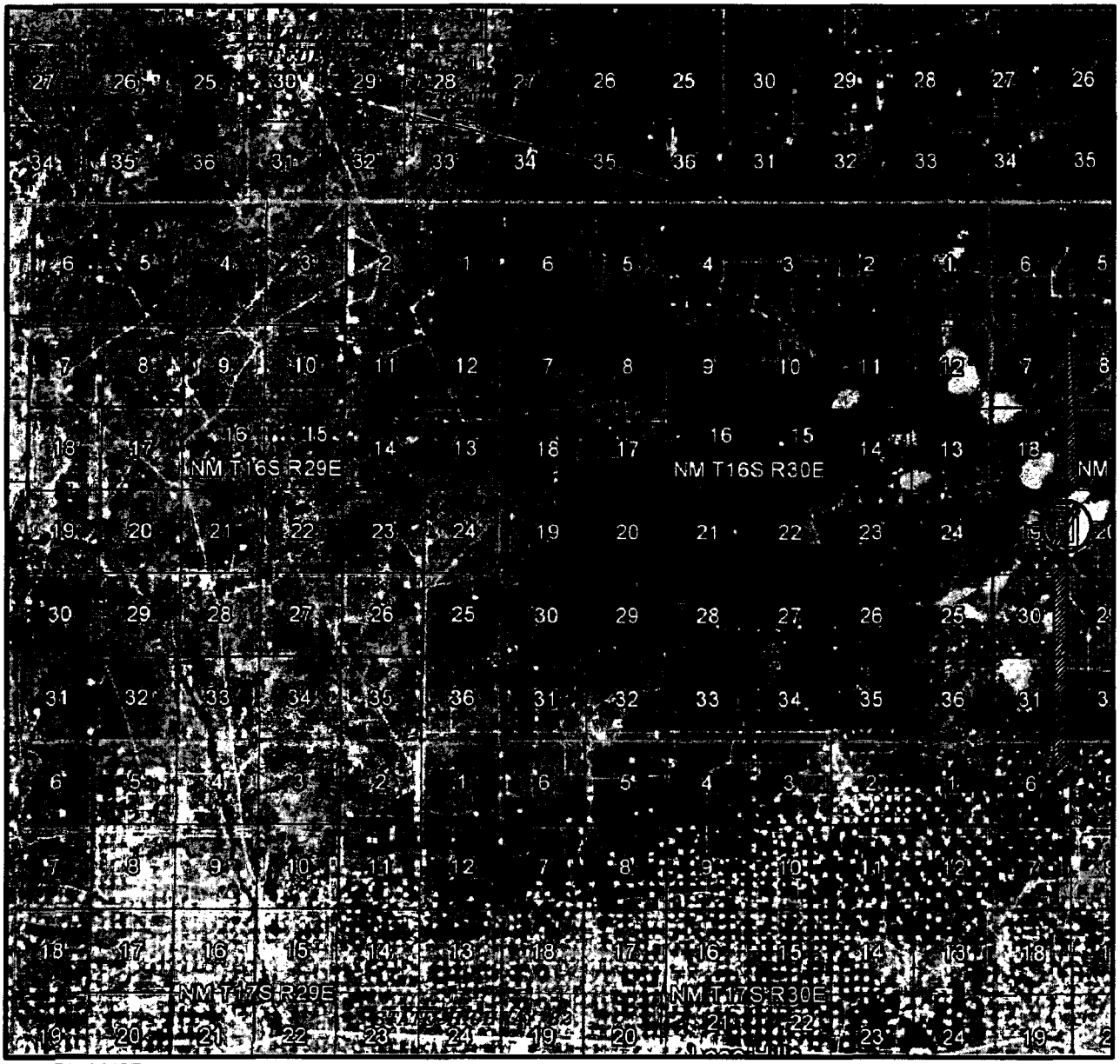
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2017

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
LOCATED 140 FT. FROM THE NORTH LINE
AND 1675 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

APD ID: 10400015523 **Submission Date:** 08/14/2017

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
15705	QUATERNARY	3806.5	0	0	ALLUVIUM	NONE	No
15678	TOP OF SALT	3410.5	396	396	SALT	NONE	No
15677	BASE OF SALT	2977.5	829	829	SALT	NONE	No
19507	YATES	2823.5	983	983	ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15672	SEVEN RIVERS	2590.5	1216	1216	ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15654	QUEEN	2118	1688.5	1688.5	ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15664	GRAYBURG	1707.5	2099	2099	DOLOMITE,ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15655	SAN ANDRES	1410.5	2396	2396	DOLOMITE,ANHYDRITE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 10500

Equipment: Roting Head, Mud-Gas Separator

Requesting Variance? NO

Variance request:

Testing Procedure: The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

Choke Diagram Attachment:

White_rock_fed_2_choke_manifold_diagram_07-10-2017.pdf

BOP Diagram Attachment:

White_Rock_fed_2_bop_diagram_07-10-2017.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	9.625	NEW	API	N	0	200	0	200	486	286	200	J-55	36	STC	20.232	6.892	BUOY	64.144	BUOY	7.04
2	PRODUCTION	8.5	7.0	NEW	API	N	0	2600	0	2600	486	-2114	2600	HCP-110	29	LTC	6.352	3.791	BUOY	5.021	BUOY	3.74
3	PRODUCTION	8.5	5.5	NEW	API	N	2600	10500	2600	10500	-2114	-10014	7900	HCP-110	17	BUTT	6.352	3.791	BUOY	5.021	BUOY	3.74

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

w_rock_2_csg_07-10-2017.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Casing Attachments

Casing ID: 2 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

w_rock_2_csg_07-10-2017.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

w_rock_2_csg_07-10-2017.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead	200	0	200	100	1.61	14.4	273		RFC + 12% PF53+2%PF1+5ppsPF42+ .125ppsPF29	RFC + 12% PF53+2%PF1+5ppsPF42+ .125ppsPF29
SURFACE	Tail		0	200	200	1.34	14.8	273	100	Class C+1%PF1	20bbls Gelled Water. 50 sacks of 11# Scavenger cement.
PRODUCTION	Lead	7900	2600	2600	1825	1.48	13	3209	35	PVL+1.3 (BWOW) PF44+5%PF174+.5%	PVL+1.3 (BWOW) PF44+5%PF174+.5%PF606+.1%PF153+.4ppsPF44

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
										PF606+.1%PF153+.4ppsPF44	
PRODUCTION	Lead	2700	0	2700	300	1.84	13.2	3209	35	Class "C" 4% PF20+4 pps PF45+125pps PF29	Class "C" 4% PF20+4 pps PF45+125pps PF29

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: BOPE Brine Water

Describe the mud monitoring system utilized: Parson PVT with PIT Volume Recorder

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
3285	3296	LSND/GEL	8.3	10	74.8		11		160000	10	Gel Strength : 0-1 Viscosity: 34-38

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

None

List of open and cased hole logs run in the well:

CALIPER,CDL,CNL,DLL,FDC,GR

Coring operation description for the well:

Will evaluate after logging and determine if sidewall cores are necessary.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 1600 **Anticipated Surface Pressure:** 869.6

Anticipated Bottom Hole Temperature(F): 95

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

White_Rock_Federal___2H_Plan__1_07-27-2017.pdf

White_Rock_Federal___2H_Plot_Plan__1_07-27-2017.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

white_rock_2_drll_plan_08-14-2017.pdf

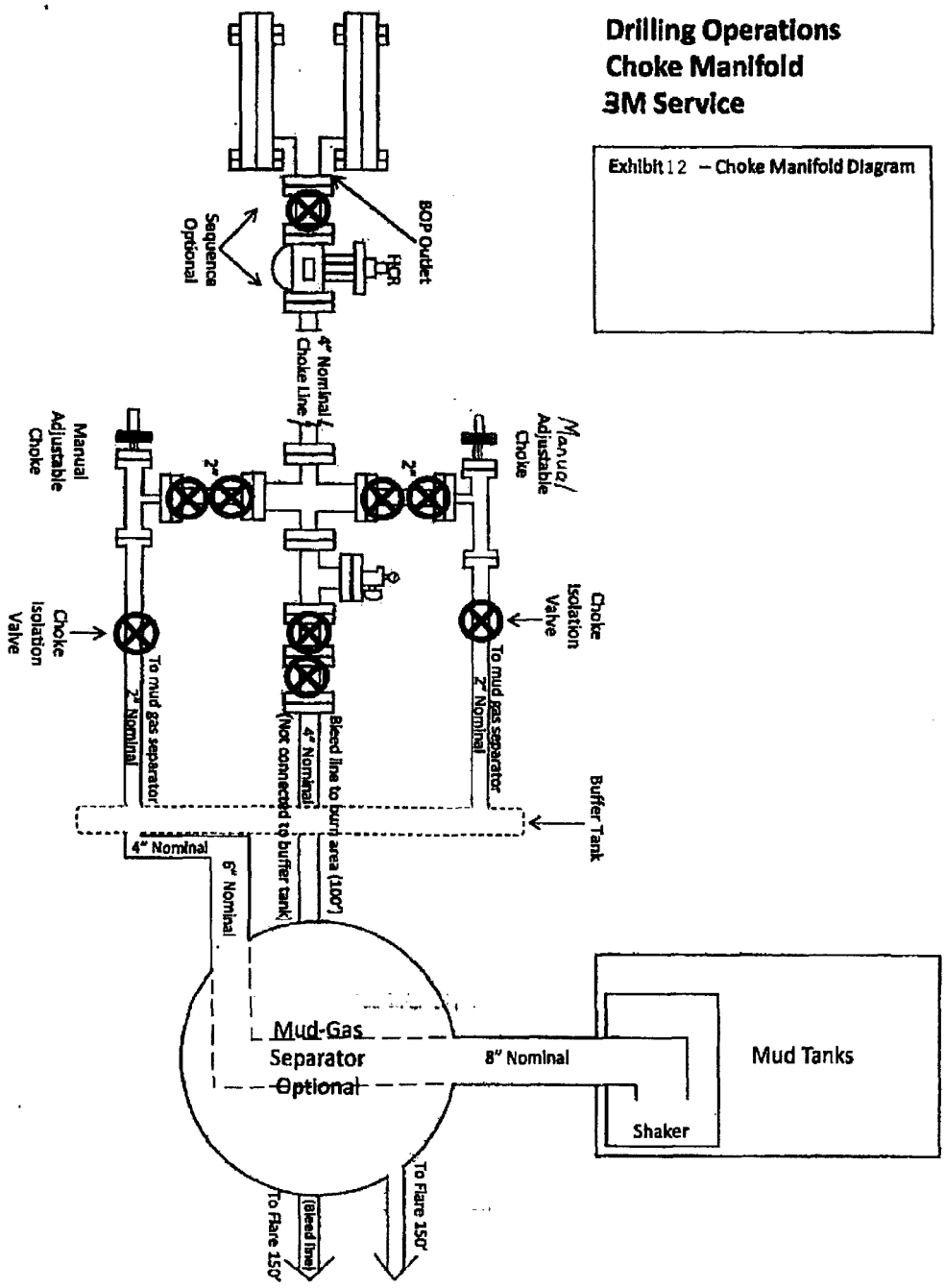
white_rock_2_h2s_plan_08-14-2017.pdf

Other Variance attachment:

Mack Energy Corporation

MANIFOLD SCHEMATIC

Exhibit #12



Mack Energy Corporation

Minimum Blowout Preventer Requirements

5000 psi Working Pressure

13 5/8 inch- 5 MWP

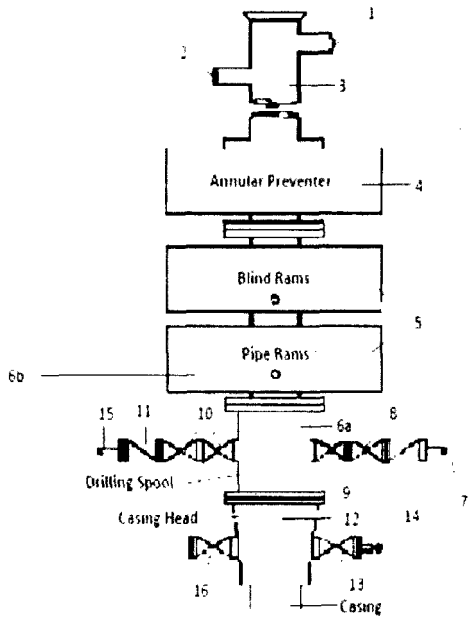
11 Inch - 5 MWP

Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min choke line outlets in ram. (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"

OPTIONAL

16	Flanged Valve	1 13/16	



CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.

MEC TO FURNISH:

1. Bradenhead or casing head and side valves.
2. Wear bushing If required
10.

ME:

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 9 5/8 in surface x intermediate

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi. joint strength: 99.84 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft		Make up Torque ft-lbs			Total ft = 200
O.D.	Weight	Grade	Threads	opt.	min.	mx.
9.625 inches	36 #/ft	J-55	ST&C	3,940	2,960	4,930
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
2,020 psi	3,520 psi	394 ,000 #		564 ,000 #		8.765

2nd segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

4th segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

5th segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

6th segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

Select 1st segment bottom	200	S.F.	Actual		Desire
		collapse	20.23237	>=	1.125
200 ft to 0 ft		burst-b	6.981911	>=	1.25
9.625 0 J-55 ST&C		burst-t	7.04		
Top of segment 1 (ft)	0	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	#DIV/0!	>=	1.125
		burst-b	0	>=	1.25
0 ft to 0 ft		burst-t	0		
0 0 0 0		jnt strngth	64.14364	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 10500 ft **TVD:** 3250 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 10.3 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 10.3 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 10.3 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1740.7 psi Burst: 1740.7 psi, joint strength: 1740.7 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment	10500 ft to 2600 ft		Make up Torque ft-lbs			Total ft = 7900
O.D.	Weight	Grade Threads	opt.	min.	mx.	
5.5 inches	17 #/ft	HCP-110 Buttress	4,620	3,470	5,780	
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
8,580 psi	10,640 psi-Ircr	568 ,000 #	546 ,000 #		4.767	

2nd segment	2600 ft to 0 ft		Make up Torque ft-lbs			Total ft = 2600
O.D.	Weight	Grade Threads	opt.	min.	mx.	
7 inches	29 #/ft	HCP-110 LT&C	7970	5980	9960	
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
9,200 psi	11,220 psi	797 ,000 #	929 ,000 #		6.059	

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.	
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

4th segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.	
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

5th segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.	
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

6th segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.	
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

Select 1st segment bottom	10500	S.F.	Actual		Desire
		collapse	4.929052	>=	1.125
10500 ft to 2600 ft		burst-b	3.751498	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.595275		
Top of segment 1 (ft)	2600	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	6.351515	>=	1.125
		burst-b	3.791258	>=	1.25
2600 ft to 0 ft		burst-t	3.74		
7 29 HCP-110 LT&C		jnt strngth	5.020521	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 9 5/8 in surface x intermediate

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi. joint strength: 99.84 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft		Make up Torque ft-lbs		Total ft = 200
O.D.	Weight	Grade Threads	opt. min.	mx.	
9.625 inches	36 #/ft	J-55 ST&C	3,940 2,960	4,930	
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
2,020 psi	3,520 psi	394 ,000 #	564 ,000 #	8.765	

2nd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

4th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

5th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

6th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

Select 1st segment bottom	200	S.F.	Actual		Desire
		collapse	20.23237	>=	1.125
200 ft to 0 ft		burst-b	6.981911	>=	1.25
9.625 0 J-55 ST&C		burst-t	7.04		
Top of segment 1 (ft)	0	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	#DIV/0!	>=	1.125
		burst-b	0	>=	1.25
0 ft to 0 ft		burst-t	0		
0 0 0 0		jnt strngth	64.14364	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 10500 ft **TVD:** 3250 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 10.3 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 10.3 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 10.3 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1740.7 psi Burst: 1740.7 psi. joint strength: 1740.7 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment	10500 ft to 2600 ft		Make up Torque ft-lbs		Total ft = 7900
O.D.	Weight	Grade Threads	opt.	min.	mx.
5.5 inches	17 #/ft	HCP-110 Buttress	4,620	3,470	5,780
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift
8,580 psi	10,640 psi-lrcr	568 ,000 #	546 ,000 #		4.767

2nd segment	2600 ft to 0 ft		Make up Torque ft-lbs		Total ft = 2600
O.D.	Weight	Grade Threads	opt.	min.	mx.
7 inches	29 #/ft	HCP-110 LT&C	7970	5980	9960
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift
9,200 psi	11,220 psi	797 ,000 #	929 ,000 #		6.059

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift
psi	psi	,000 #	,000 #		

4th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift
psi	psi	,000 #	,000 #		

5th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift
psi	psi	,000 #	,000 #		

6th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt.	min.	mx.
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift
psi	psi	,000 #	,000 #		

Select 1st segment bottom	10500	S.F.	Actual		Desire
		collapse	4.929052	>=	1.125
10500 ft to 2600 ft		burst-b	3.751498	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.595275		
Top of segment 1 (ft)	2600	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	6.351515	>=	1.125
		burst-b	3.791258	>=	1.25
2600 ft to 0 ft		burst-t	3.74		
7 29 HCP-110 LT&C		jnt strngth	5.020521	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 9 5/8 in surface x intermediate

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi. joint strength: 99.84 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft			Make up Torque ft-lbs			Total ft = 200
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
9.625 inches	**36** #/ft	**J-55**	**ST&C**	**3,940**	**2,960**	**4,930**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
2,020 psi	**3,520** psi	**394** ,000 #		**564** ,000 #		**8.765**	

2nd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

3rd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

4th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

5th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

6th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

Select 1st segment bottom 200

200 ft to 0 ft			
9.625	0 J-55	ST&C	

S.F.	Actual		Desire
collapse	20.23237	>=	1.125
burst-b	6.981911	>=	1.25
burst-t	7.04		

Top of segment 1 (ft) 0

Select 2nd segment from bottom

0 ft to 0 ft			
0	0	0	0

S.F.	Actual		Desire
collapse	#DIV/0!	>=	1.125
burst-b	0	>=	1.25
burst-t	0		
jnt strngth	64.14364	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 10500 ft **TVD:** 3250 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 10.3 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 10.3 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 10.3 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1740.7 psi Burst: 1740.7 psi, joint strength: 1740.7 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment	10500 ft to 2600 ft			Make up Torque ft-lbs		Total ft = 7900
O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	17 #/ft	HCP-110	Buttress	4,620	3,470	5,780
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
8,580 psi	10,640 psi-lrcr	568 ,000 #		546 ,000 #		4.767

2nd segment	2600 ft to 0 ft			Make up Torque ft-lbs		Total ft = 2600
O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	29 #/ft	HCP-110	LT&C	7970	5980	9960
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
9,200 psi	11,220 psi	797 ,000 #		929 ,000 #		6.059

3rd segment	0 ft to 0 ft			Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

4th segment	0 ft to 0 ft			Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

5th segment	0 ft to 0 ft			Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

6th segment	0 ft to 0 ft			Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
psi	psi	,000 #		,000 #		

Select 1st segment bottom	10500	S.F.	Actual		Desire
		collapse	4.929052	>=	1.125
10500 ft to 2600 ft		burst-b	3.751498	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.595275		
Top of segment 1 (ft)	2600	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	6.351515	>=	1.125
		burst-b	3.791258	>=	1.25
2600 ft to 0 ft		burst-t	3.74		
7 29 HCP-110 LT&C		jnt strngth	5.020521	>=	1.8

Mack Energy

Chaves County
Sec 28-T15S-R29E
White Rock Federal #2H

Wellbore #1

Plan: Plan #1

Standard Planning Report

26 July, 2017

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project	Chaves County		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 28-T15S-R29E				
Site Position:		**Northing:**	725,403.5700 usft	**Latitude:**	32.9937935
From:	Map	**Easting:**	631,215.1200 usft	**Longitude:**	-104.0401890
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.16 °

Well	White Rock Federal #2H					
Well Position	**+N/-S**	5.91 ft	**Northing:**	725,409.4800 usft	**Latitude:**	32.9938011
	+E/-W	1,119.95 ft	**Easting:**	632,335.0700 usft	**Longitude:**	-104.0365362
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,806.60 ft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	7/26/2017	7.47	60.73	48,356

Design	Plan #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	3,320.00	0.00	0.00	359.71	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,747.04	0.00	0.00	2,747.04	0.00	0.00	0.00	0.00	0.00	0.00	
3,647.04	90.00	359.71	3,320.00	572.95	-2.93	10.00	10.00	-0.03	359.71	
8,210.26	90.00	359.71	3,320.00	5,136.11	-26.26	0.00	0.00	0.00	0.00	PBHL Whte Rock Fec

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,747.04	0.00	0.00	2,747.04	0.00	0.00	0.00	0.00	0.00	0.00
KOP BLD 10°/100'									
2,750.00	0.30	359.71	2,750.00	0.01	0.00	0.01	10.00	10.00	0.00
2,800.00	5.30	359.71	2,799.92	2.45	-0.01	2.45	10.00	10.00	0.00
2,850.00	10.30	359.71	2,849.45	9.23	-0.05	9.23	10.00	10.00	0.00
2,900.00	15.30	359.71	2,898.19	20.30	-0.10	20.30	10.00	10.00	0.00
2,950.00	20.30	359.71	2,945.78	35.57	-0.18	35.57	10.00	10.00	0.00
3,000.00	25.30	359.71	2,991.86	54.94	-0.28	54.94	10.00	10.00	0.00
3,050.00	30.30	359.71	3,036.08	78.25	-0.40	78.25	10.00	10.00	0.00
3,100.00	35.30	359.71	3,078.10	105.32	-0.54	105.32	10.00	10.00	0.00
3,150.00	40.30	359.71	3,117.59	135.95	-0.70	135.95	10.00	10.00	0.00
3,200.00	45.30	359.71	3,154.27	169.91	-0.87	169.91	10.00	10.00	0.00
3,250.00	50.30	359.71	3,187.85	206.94	-1.06	206.94	10.00	10.00	0.00
3,300.00	55.30	359.71	3,218.07	246.75	-1.26	246.75	10.00	10.00	0.00
3,350.00	60.30	359.71	3,244.71	289.04	-1.48	289.05	10.00	10.00	0.00
3,400.00	65.30	359.71	3,267.56	333.50	-1.71	333.50	10.00	10.00	0.00
3,450.00	70.30	359.71	3,286.45	379.77	-1.94	379.78	10.00	10.00	0.00
3,500.00	75.30	359.71	3,301.23	427.52	-2.19	427.53	10.00	10.00	0.00
3,550.00	80.30	359.71	3,311.80	476.37	-2.44	476.38	10.00	10.00	0.00
3,600.00	85.30	359.71	3,318.07	525.96	-2.69	525.97	10.00	10.00	0.00
3,647.04	90.00	359.71	3,320.00	572.95	-2.93	572.96	10.00	10.00	0.00
EOB HLD 90° Inc.									
3,700.00	90.00	359.71	3,320.00	625.91	-3.20	625.92	0.00	0.00	0.00
3,800.00	90.00	359.71	3,320.00	725.91	-3.71	725.92	0.00	0.00	0.00
3,900.00	90.00	359.71	3,320.00	825.91	-4.22	825.92	0.00	0.00	0.00
4,000.00	90.00	359.71	3,320.00	925.91	-4.73	925.92	0.00	0.00	0.00

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,100.00	90.00	359.71	3,320.00	1,025.90	-5.25	1,025.92	0.00	0.00	0.00
4,200.00	90.00	359.71	3,320.00	1,125.90	-5.76	1,125.92	0.00	0.00	0.00
4,300.00	90.00	359.71	3,320.00	1,225.90	-6.27	1,225.92	0.00	0.00	0.00
4,400.00	90.00	359.71	3,320.00	1,325.90	-6.78	1,325.92	0.00	0.00	0.00
4,500.00	90.00	359.71	3,320.00	1,425.90	-7.29	1,425.92	0.00	0.00	0.00
4,600.00	90.00	359.71	3,320.00	1,525.90	-7.80	1,525.92	0.00	0.00	0.00
4,700.00	90.00	359.71	3,320.00	1,625.90	-8.31	1,625.92	0.00	0.00	0.00
4,800.00	90.00	359.71	3,320.00	1,725.89	-8.82	1,725.92	0.00	0.00	0.00
4,900.00	90.00	359.71	3,320.00	1,825.89	-9.34	1,825.92	0.00	0.00	0.00
5,000.00	90.00	359.71	3,320.00	1,925.89	-9.85	1,925.92	0.00	0.00	0.00
5,100.00	90.00	359.71	3,320.00	2,025.89	-10.36	2,025.92	0.00	0.00	0.00
5,200.00	90.00	359.71	3,320.00	2,125.89	-10.87	2,125.92	0.00	0.00	0.00
5,300.00	90.00	359.71	3,320.00	2,225.89	-11.38	2,225.92	0.00	0.00	0.00
5,400.00	90.00	359.71	3,320.00	2,325.89	-11.89	2,325.92	0.00	0.00	0.00
5,500.00	90.00	359.71	3,320.00	2,425.89	-12.40	2,425.92	0.00	0.00	0.00
5,600.00	90.00	359.71	3,320.00	2,525.88	-12.91	2,525.92	0.00	0.00	0.00
5,700.00	90.00	359.71	3,320.00	2,625.88	-13.43	2,625.92	0.00	0.00	0.00
5,800.00	90.00	359.71	3,320.00	2,725.88	-13.94	2,725.92	0.00	0.00	0.00
5,900.00	90.00	359.71	3,320.00	2,825.88	-14.45	2,825.92	0.00	0.00	0.00
6,000.00	90.00	359.71	3,320.00	2,925.88	-14.96	2,925.92	0.00	0.00	0.00
6,100.00	90.00	359.71	3,320.00	3,025.88	-15.47	3,025.92	0.00	0.00	0.00
6,200.00	90.00	359.71	3,320.00	3,125.88	-15.98	3,125.92	0.00	0.00	0.00
6,300.00	90.00	359.71	3,320.00	3,225.88	-16.49	3,225.92	0.00	0.00	0.00
6,400.00	90.00	359.71	3,320.00	3,325.87	-17.00	3,325.92	0.00	0.00	0.00
6,500.00	90.00	359.71	3,320.00	3,425.87	-17.52	3,425.92	0.00	0.00	0.00
6,600.00	90.00	359.71	3,320.00	3,525.87	-18.03	3,525.92	0.00	0.00	0.00
6,700.00	90.00	359.71	3,320.00	3,625.87	-18.54	3,625.92	0.00	0.00	0.00
6,800.00	90.00	359.71	3,320.00	3,725.87	-19.05	3,725.92	0.00	0.00	0.00
6,900.00	90.00	359.71	3,320.00	3,825.87	-19.56	3,825.92	0.00	0.00	0.00
7,000.00	90.00	359.71	3,320.00	3,925.87	-20.07	3,925.92	0.00	0.00	0.00
7,100.00	90.00	359.71	3,320.00	4,025.86	-20.58	4,025.92	0.00	0.00	0.00
7,200.00	90.00	359.71	3,320.00	4,125.86	-21.09	4,125.92	0.00	0.00	0.00
7,300.00	90.00	359.71	3,320.00	4,225.86	-21.61	4,225.92	0.00	0.00	0.00
7,400.00	90.00	359.71	3,320.00	4,325.86	-22.12	4,325.92	0.00	0.00	0.00
7,500.00	90.00	359.71	3,320.00	4,425.86	-22.63	4,425.92	0.00	0.00	0.00
7,600.00	90.00	359.71	3,320.00	4,525.86	-23.14	4,525.92	0.00	0.00	0.00
7,700.00	90.00	359.71	3,320.00	4,625.86	-23.65	4,625.92	0.00	0.00	0.00
7,800.00	90.00	359.71	3,320.00	4,725.86	-24.16	4,725.92	0.00	0.00	0.00
7,900.00	90.00	359.71	3,320.00	4,825.85	-24.67	4,825.92	0.00	0.00	0.00
8,000.00	90.00	359.71	3,320.00	4,925.85	-25.19	4,925.92	0.00	0.00	0.00
8,100.00	90.00	359.71	3,320.00	5,025.85	-25.70	5,025.92	0.00	0.00	0.00
8,200.00	90.00	359.71	3,320.00	5,125.85	-26.21	5,125.92	0.00	0.00	0.00
8,210.26	90.00	359.71	3,320.00	5,136.11	-26.26	5,136.18	0.00	0.00	0.00

TD at 8210.26 - PBHL Whte Rock Federal #2H

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Whte Rock Federa - plan hits target center - Point	0.00	0.00	3,320.00	5,136.11	-26.26	730,545.5800	632,308.8100	33.0079180	-104.0365746

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,747.04	2,747.04	0.00	0.00	KOP BLD 10°/100'
3,647.04	3,320.00	572.95	-2.93	EOB HLD 90° Inc.
8,210.26	3,320.00	5,136.11	-26.26	TD at 8210.26

Mack Energy
Project: Chaves County
Site: Sec 28-T15S-R29E
Well: White Rock Federal #2H
Wellbore: Wellbore #1
Plan: Plan #1 (White Rock Federal #2H/Wellbore #1)

WELL DETAILS: White Rock Federal #2H

Ground Elevation:: 3806.60
RKB Elevation: KB=17.4 @ 3824.00ft
Rig Name:

Northing	Easting	Latitude	Longitude
725409.4800	632335.0700	32.993801	104.0365362

PROJECT DETAILS: Chaves County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

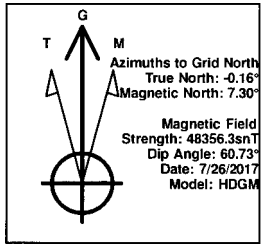
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W
PBHL White Rock Fede	3320.00	5136.11	-26.26

- plan hits target center

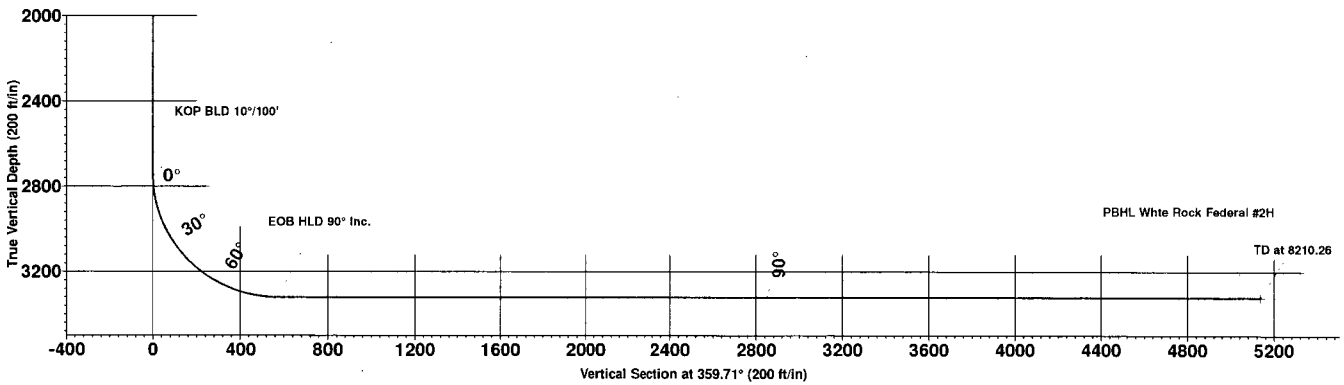
Section Details

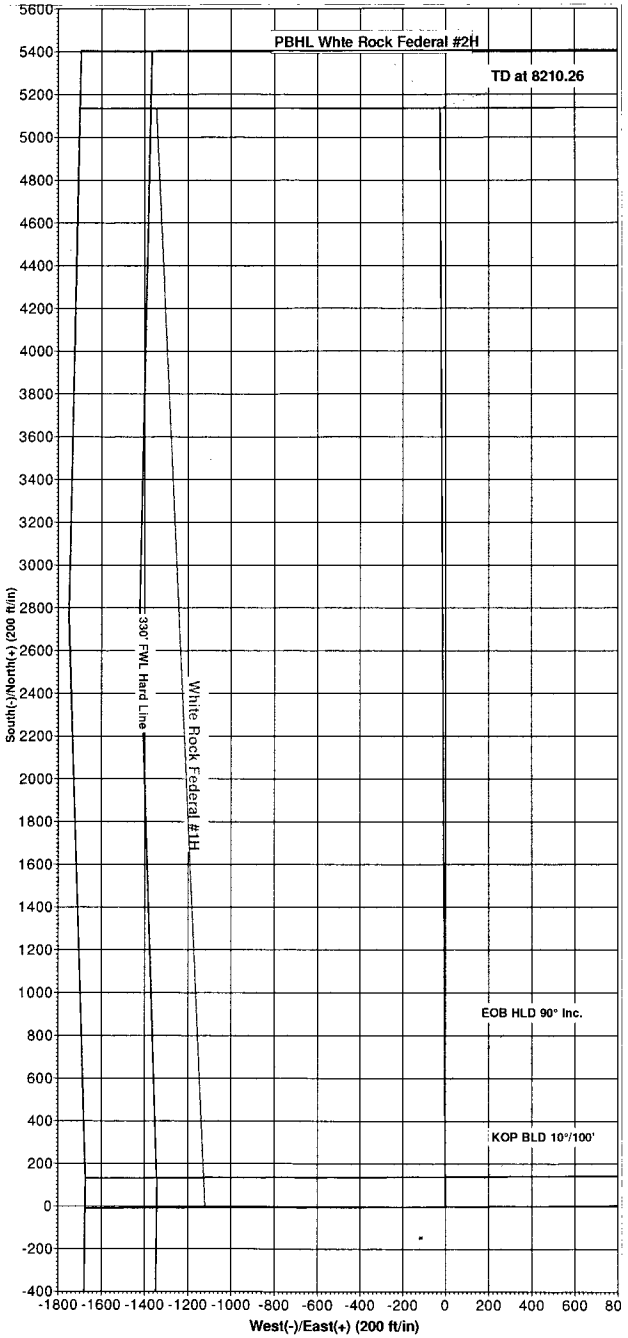
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2747.04	0.00	0.00	2747.04	0.00	0.00	0.00	0.00	0.00	KOP BLD 10°/100'
3647.04	90.00	359.71	3320.00	572.95	-2.93	10.00	359.71	572.96	EOB HLD 90° Inc.
8210.26	90.00	359.71	3320.00	5136.11	-26.26	0.00	0.00	5136.18	TD at 8210.26



Azimuths to Grid North
True North: -0.16°
Magnetic North: 7.30°

Magnetic Field
Strength: 48356.3snT
Dip Angle: 60.73°
Date: 7/26/2017
Model: HDGM





Attached to Form 3160-3
Mack Energy Corporation
White Rock Federal #2H NMNM-131581
SHL: 140 FNL & 1675 FWL, NE NW, Sec. 28 T15S R29E
BHL: 270 FNL & 1675 FWL, NE NW, Sec. 21 T15S R29E
Chaves County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Top of Salt	364'
Base of Salt	797'
Yates	951'
Seven Rivers	1184'
Queen	1673'
Grayburg	2067'
San Andres	2364'

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas:

Water Sand	150'	Fresh Water
Yates	951'	Oil/Gas
Seven Rivers	1184'	Oil/Gas
Queen	1673'	Oil/Gas
Grayburg	2067'	Oil/Gas
San Andres	2364'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 9 5/8" casing to 200' and circulating cement back to surface will protect the surface fresh water sand. Salt section and shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them by cementing 5 ½" production casing, sufficient cement will be pumped to circulate back to surface.

4. Casing Program:

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, collapse/burst/tension
14 3/4"	0-200'	9 5/8"	36#, J-55, ST&C, New, 20.23237/6.981911/7.04
8 3/4"	0-2600'	7"	29#,HPC-110,LT&C,New,6.351515/3.791258/3.74
8 ¾"	2600-10500'	5 ½"	17#, HCP-110 Buttress, New, 4.929052/3.751498/3.59

5. Cement Program:

9 5/8" Surface Casing: Lead 100sx, RFC+12%PF53+2%PF1+5ppsPF42+.125ppsPF29, yld 1.61, wt 14.4 ppg, 7.3557gals/sx, excess 100%. Tail: 200sx, Class C+1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, excess 100%
7" & 5 ½" Production Casing: Lead 300sx Class C 4% PF 20+4 pps PF45 +1.25pps PF-29, yld 1.84, wt 13.2 ppg, 9.914gals/sx, excess 35%, Tail 1825sx, PVL + 1.3% (BWOW) PF44

+ 5% PF174 + 5% PF606 + .1% PF153 +.4% PF44, yield 1.48, wt 13.0, 7.57gals/sx, 35% excess.

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #10 will consist of a double ram-type (3000 psi WP) minimum preventer. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on bottom. The 11" BOP will be nippled up on the 8 5/8" surface casing and tested by a 3rd party to 2000 psi used continuously until TD is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of intermediate casing. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) with a minimum 3000 psi WP rating

7. Types and Characteristics of the Proposed Mud System:

The well will be drilled to TD with a combination of fresh and cut brine mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-500'	Fresh Water	8.5	28	N.C.
500'-TD'	Cut Brine	9.1	29	N.C.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

8. Auxiliary Well Control and Monitoring Equipment:

A. Kelly cock will be kept in the drill string at all times.
B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9. Logging, Testing and Coring Program:

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log from T.D. to 8 5/8 casing shoe.
B. Drill Stem test is not anticipated.
C. No conventional coring is anticipated.
D. Further testing procedures will be determined at TD.

10. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1,600 psig. Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present

while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is October 1, 2017. Once commenced, the drilling operation should be finished in approximately 5 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

Attachment to Exhibit #10
NOTES REGARDING THE BLOWOUT PREVENTERS
White Rock Federal #2H
Chaves County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

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Minimum Blowout Preventer Requirements

3000 psi Working Pressure

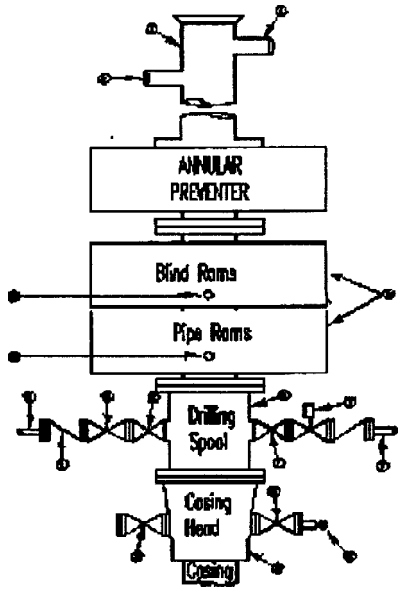
13 3/8 inch- 3 MWP

11 Inch - 3 MWP

EXHIBIT #10

Stack Requirements

NO.	Items	Min. I.D.	Min Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min kill line and 3" min. choke line outlets in ram (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"



OPTIONAL

16	Flanged Valve	1 13/16	

CONTRACTOR'S OPTION TO

CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times
9. Type RX ring gaskets in place of Type R

10.

ME

MEC TO FURNISH:

1. Bradenhead or casing head and side valves.
2. Wear bushing, If required.

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

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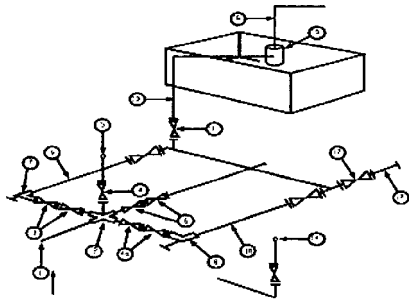
Exhibit #1

MIMIMUM CHOKE MANIFOLD

3,000, 5,000, and 10,000 PSI Working Pressure

3M will be used

3 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

*** Location of separator optional**

Below Substructure

Mimimum requirements

No.		3,000 MWP			5,000 MWP			10,000 MWP		
		I.D.	Nominal	Rating	I.D.	Nominal	Rating	I.D.	Nominal	Rating
1	Line from drilling Spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
2	Cross 3" x 3" x 3" x 2"									10,000
3	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
4	Valve Gate Plug	1 13/16		3,000	1 13/16		5,000	1 13/16		10,000
4a	Valves (1)	2 1/16		3,000	2 1/16		5,000	2 1/16		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		2"	10,000
11	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure quage			3,000			5,000			10,000
15	Gas Separator		2' x5'			2' x5'			2' x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000

(1) Only one required in Class 3M

(2) Gate valves only shall be used for Class 10 M

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge
6. Line from drilling spool to choke manifold should bee as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees

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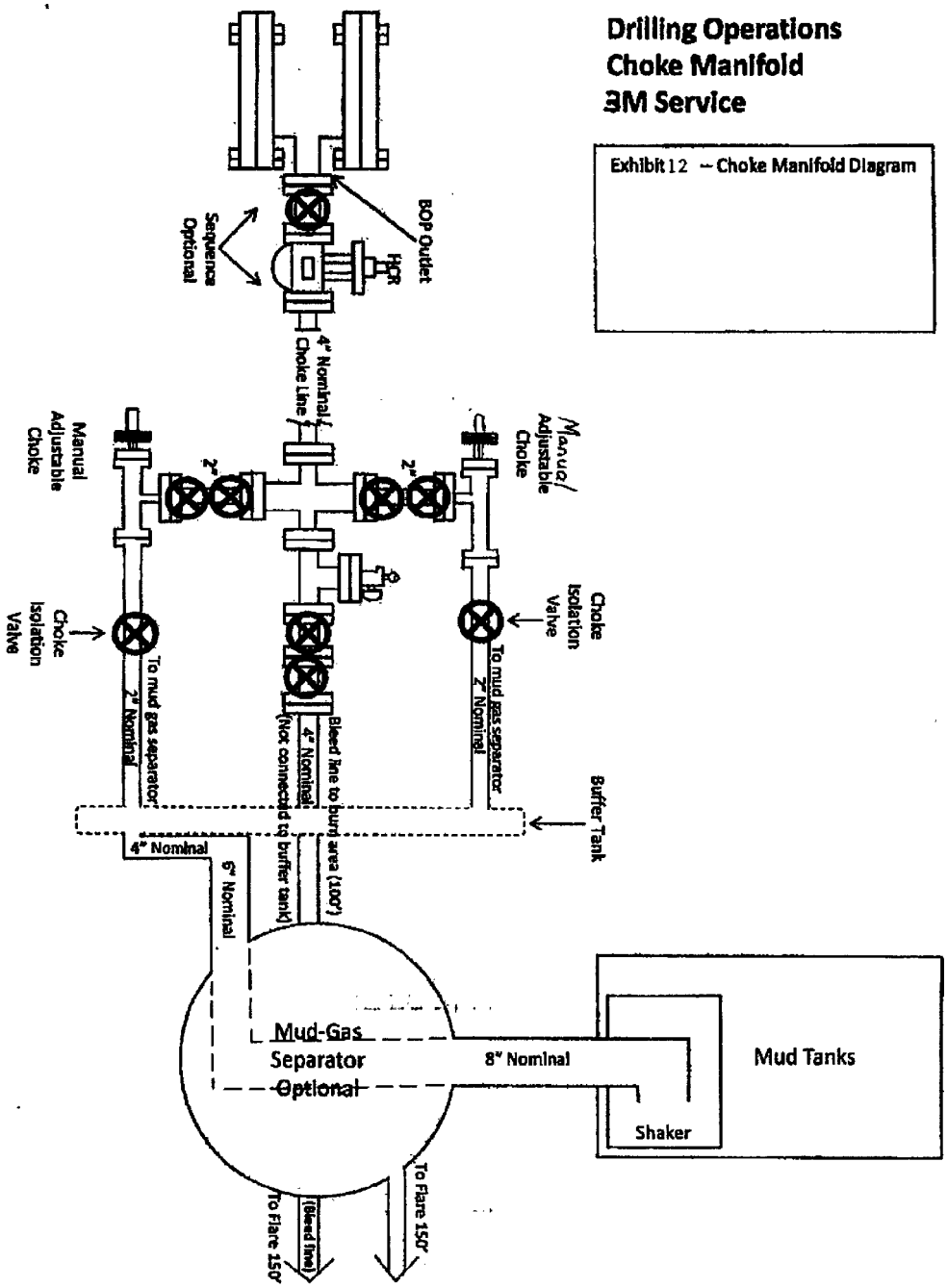
MANIFOLD SCHEMATIC

Exhibit #12



Attached to Form 3160-3
Mack Energy Corporation
White Rock Federal #2H NMNM-131581
SHL: 140 FNL & 1675 FWL, NENW, Sec. 28 T15S R29E
BHL: 270 FNL & 1675 FWL, NENW, Sec. 21 T15S R29E
Chaves County, NM

Mack Energy Corporation
Onshore Order #6
Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. **Well Control Equipment:**

   A. Flare line.
   B. Choke manifold.
   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. **Protective equipment for essential personnel:**

   A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. **H2S detection and monitoring equipment:**

   A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram (Exhibit #8).
   B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. **Mud program:**

   A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
   B. All elastomers used for packing and seals shall be H2S trim.

7. **Communication:**

   A. Radio communications in company vehicles including cellular telephone and 2-way radio.
   B. Land line (telephone) communication at Office.

8. **Well testing:**

   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.

EXHIBIT #7

WARNING

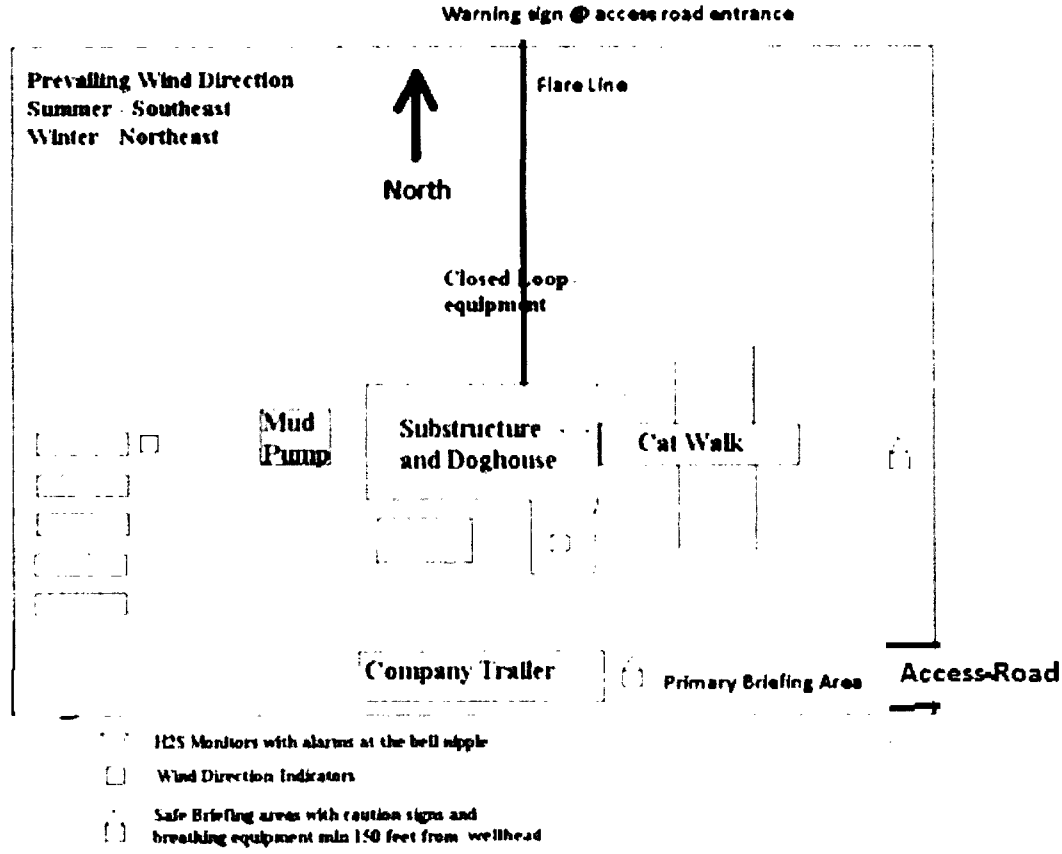
YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING IN DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH MACK ENERGY FOREMAN AT OFFICE

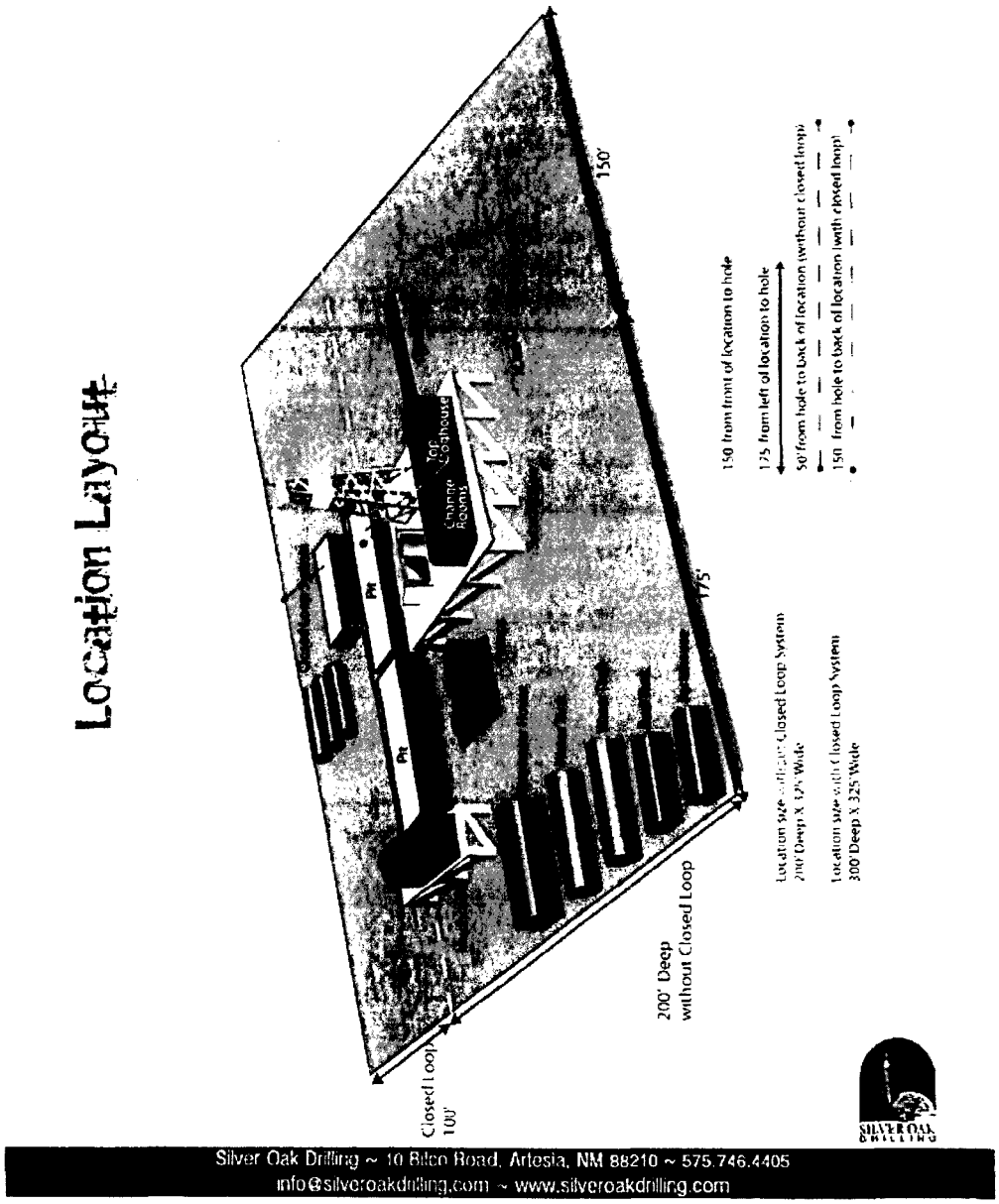
MACK ENERGY CORPORATION

1-575-748-1288



B. There will be no drill stem testing.

DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



Mack Energy Corporation Call List, Chaves County

Artesia (575)	Cellular	Office
Jim Krogman	432-934-1596	748-1288
Emilio Martinez	432-934-7586	748-1288

Agency Call List (575)

Roswell

State Police	622-7200
City Police	624-6770
Sheriff's Office	624-7590
Ambulance	624-7590
Fire Department	624-7590
LEPC (Local Emergency Planning Committee	624-6770
NMOCD	748-1283
Bureau of Land Management	627-0272

Emergency Services

Boots & Coots IWC	1-800-256-9688 or (281)931-8884
Cudd pressure Control	(915)699-0139 or (915)563-3356
Halliburton	746-2757
Par Five	748-9539
Flight For Life-Lubbock, TX	(806)743-9911
Aerocare-Lubbock, TX	(806)747-8923
Med Flight Air Amb-Albuquerque, NM	(505)842-4433
Lifeguard Air Med Svc. Albuquerque, NM	(505)272-3115

APD ID: 10400015523 **Submission Date:** 08/14/2017

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

ACCESS_ROAD_TO_THE_WHITE_ROCK_FEDERAL_2H__2__06-29-2017.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

ACCESS_ROAD_2H_TO_THE_1H_06-29-2017.pdf
ACCESS_ROAD_TO_THE_WHITE_ROCK_FEDERAL_2H__2__06-29-2017.pdf

New road type: LOCAL,TWO-TRACK

Length: 2145 Feet **Width (ft.):** 14

Max slope (%): 2 **Max grade (%):** 1

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage and to be consistent with local drainage patterns.

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Surfacing material will consist of native caliche. Caliche will be obtained from the nearest approved caliche pit.

Access onsite topsoil source depth: 2

Offsite topsoil source description:

Onsite topsoil removal process: Blade topsoil into windrow along up-slope edge of road

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage and to be consistent with local drainage patterns.

Road Drainage Control Structures (DCS) description: The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage and to be consistent with local drainage patterns.

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Whiterock_Federal_2_existing_well_07-31-2017.pdf

White_Rock_Federal__2H_BHL_existing_wells_07-31-2017.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Estimated Production Facilities description:

Production Facilities description: Tank Battery will be located at the White Rock Federal Com #1 NW/4 NW/4 Sec. 28 T15S R29E, Chaves County. White Rock Federal #2 - Flowline (a) 4" SDR 11 Poly surface line from White Rock Federal #2 to the White Rock Federal CTB location. (b) White Rock Federal #2 NENW Sec. 28 T15S R29E and White Rock Federal CTB location NWNW Sec. 28 T15S R29E. (c) Total distance is 834.26' in length all on Federal Land. Width needed will be 30'. No grading needed. (d) The duration needed is 30 years. (e) Pipeline will be used constantly. (f) 3 days to lay line.
Production Facilities map:

WHITE_ROCK_FEDERAL_CTB_07-27-2017.pdf
FLOWLINE_WHITE_ROCK_FEDERAL_2H_TO_WHITE_ROCK_FEDERAL_CTB_08-11-2017.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: CAMP USE, DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING
Water source type: GW WELL
Describe type:
Source longitude:
Source latitude:
Source datum:
Water source permit type: OTHER
Source land ownership: OTHER
Describe land ownership:
Water source transport method: TRUCKING
Source transportation land ownership: OTHER
Describe transportation land ownership:
Water source volume (barrels): 0
Source volume (acre-feet): 0
Source volume (gal): 0

Water source and transportation map:

White_Rock_Water_Source_08-02-2017.pdf
White_Rock_Water_Source_2_08-02-2017.pdf
White_Rock_Water_Source_3_08-02-2017.pdf

Water source comments: Please see attachments. City/Municipal Water: Town of Hagerman S10 T14S R26E Mor-West S20 T17S R30E Brine Water: Salty Dog S5 T19S R36E Wasserhund S36 T16S R34E
New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**
Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: All caliche required for construction of drill pad and proposed new access road (approximately 2500 cubic yards) will be obtained from approved caliche pit @ Sec. 34 T15S 29E and/or Sec. 19 T15S R29E.
Construction Materials source location attachment:

w_rock_caliche__07-27-2017.pdf

Section 7 - Methods for Handling Waste

Waste type: SEWAGE

Waste content description: Sewage and Gray Water will be placed in container and hauled to an approved facility. Container and disposal handled by Black Hawk.
Amount of waste:

Waste disposal frequency : Weekly

Safe containment description: Sewage and Gray Water will be placed in container and hauled to an approved facility. Container and disposal handled by Black Hawk.
Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
Disposal type description:

Disposal location description: Black Hawk will dispose at an approved location. Black Hawk Keith Willis 15756376378

Waste type: GARBAGE

Waste content description: Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved local landfill. No toxic waste or hazardous chemicals will be produced by this operation.
Amount of waste:

Waste disposal frequency : Weekly

Safe containment description: Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved local landfill. No toxic waste or hazardous chemicals will be produced by this operation.
Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
Disposal type description:

Disposal location description: Black Hawk will dispose at an approved location. Black Hawk Keith Willis 15756316378

Waste type: PRODUCED WATER

Waste content description: Water produced from the well during completion may be disposed into a steel tank. after the well is permanently placed on production, produced water will be collected in tanks (fiberglass) and trucked to the Round Tank SWD #1 L-0729, 30-005-64095, located Sec. 19 T15S R29E 1980 FSL 1980 FWL; produced oil will be collected in steel tanks until sold.
Amount of waste: 2080 barrels

Waste disposal frequency : Weekly

Safe containment description: Water produced from the well during completion may be disposed into a steel tank. after the well is permanently placed on production, produced water will be collected in tanks (fiberglass) and trucked to the Round Tank SWD #1 L-0729, 30-005-64095, located Sec. 19 T15S R29E 1980 FSL 1980 FWL; produced oil will be collected in steel tanks until sold.
Safe containmant attachment:

Waste disposal type: OFF-LEASE INJECTION **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: Round Tank SWD #1 L-0729, 30-005-64095, located Sec. 19 T15S R29E 1980 FSL 1980 FWL

Waste type: DRILLING

Waste content description: Drill cuttings and fluids will be disposed into the steel tanks and hauled to R-360 disposal facility permit number NM-01-0006. Located on Hwy 62 at MM 66.
Amount of waste: 380 barrels

Waste disposal frequency : Weekly

Safe containment description: Drill cuttings and fluids will be disposed into the steel tanks and hauled to R-360 disposal facility permit number NM-01-0006. Located on Hwy 62 at MM 66.
Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
Disposal type description:

Disposal location description: R-360 disposal facility permit number NM-01-0006. Located on Hwy 62 at MM 66.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

White_Rock_2H_Site_Map_06-29-2017.pdf

ELECTRIC_LINE_TO_WHITE_ROCK_FEDERAL_2H_08-11-2017.pdf

Comments: White Rock Federal #2 – Electric Line (a) Electric Line from White Rock Federal #2 to an existing Power Line. (b) White Rock Federal #2 NENW Sec. 28 T15S R29E. (c) Total distance is 35.03' in length all on Federal Land. Width needed will be 30'. No grading needed. (d) The duration needed is 30 years. (e) Electric Line will be used constantly. (f) 3 days to lay line

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

white_rock_2_reclaimed_07-28-2017.pdf

Drainage/Erosion control construction: Edges of location will be bermed to prevent run off or erosion.

Drainage/Erosion control reclamation: The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

Wellpad long term disturbance (acres): 1.82 **Wellpad short term disturbance (acres):** 2.169

Access road long term disturbance (acres): 0.68 **Access road short term disturbance (acres):** 0.986

Pipeline long term disturbance (acres): 0.00062442606 **Pipeline short term disturbance (acres):** 0.00090541784

Other long term disturbance (acres): 0.68 **Other short term disturbance (acres):** 0.986

Total long term disturbance: 3.1806245 **Total short term disturbance:** 4.1419053

Reconstruction method: 1) Caliche will be removed, ground ripped and stockpiled topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding of water. 2) Area will be reseeded as per BLM specifications. Seeding will be done when moisture is available and weather permitting. Pure live seed will be used to prevent noxious weeds. Annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

Topsoil redistribution: 1) Caliche will be removed, ground ripped and stockpiled topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding of water. 2) Area will be reseeded as per BLM specifications. Seeding will be done when moisture is available and weather permitting. Pure live seed will be used to prevent noxious weeds. Annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

Soil treatment: 1) Caliche will be removed, ground ripped and stockpiled topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding of water. 2) Area will be reseeded as per BLM specifications. Seeding will be done when moisture is available and weather permitting. Pure live seed will be used to prevent noxious weeds. Annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

Existing Vegetation at the well pad: The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Will seed be harvested for use in site reclamation? YES

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type: **Seed source:**

Seed name:

Source name: **Source address:**

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre: **Proposed seeding season:**

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Jerry **Last Name:** Sherrell

Phone: (575)748-1288 **Email:** jerrys@mec.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: The holder shall seed all disturbed areas with the seed mixture listed by BLM. The seed mixture she be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State Law(s) and the nine (9) months prior to purchase. Commercial see will be either certified or registered seed. The seed container will be tagged in accordance with State Law(s) and available for inspection by the authorized officer.

Weed treatment plan attachment:

Monitoring plan description: After all disturbed area have been satisfactorily prepared, these areas need to be revegetated with seed mixture provided by BLM. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may be repeated until revegetation is successful, as determined by the BLM.

Monitoring plan attachment:

Success standards: The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Pit closure description: No pit

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

SUPO Additional Information:

Use a previously conducted onsite? YES

Previous Onsite information: Onsite was preformed 6/20/2017

Other SUPO Attachment

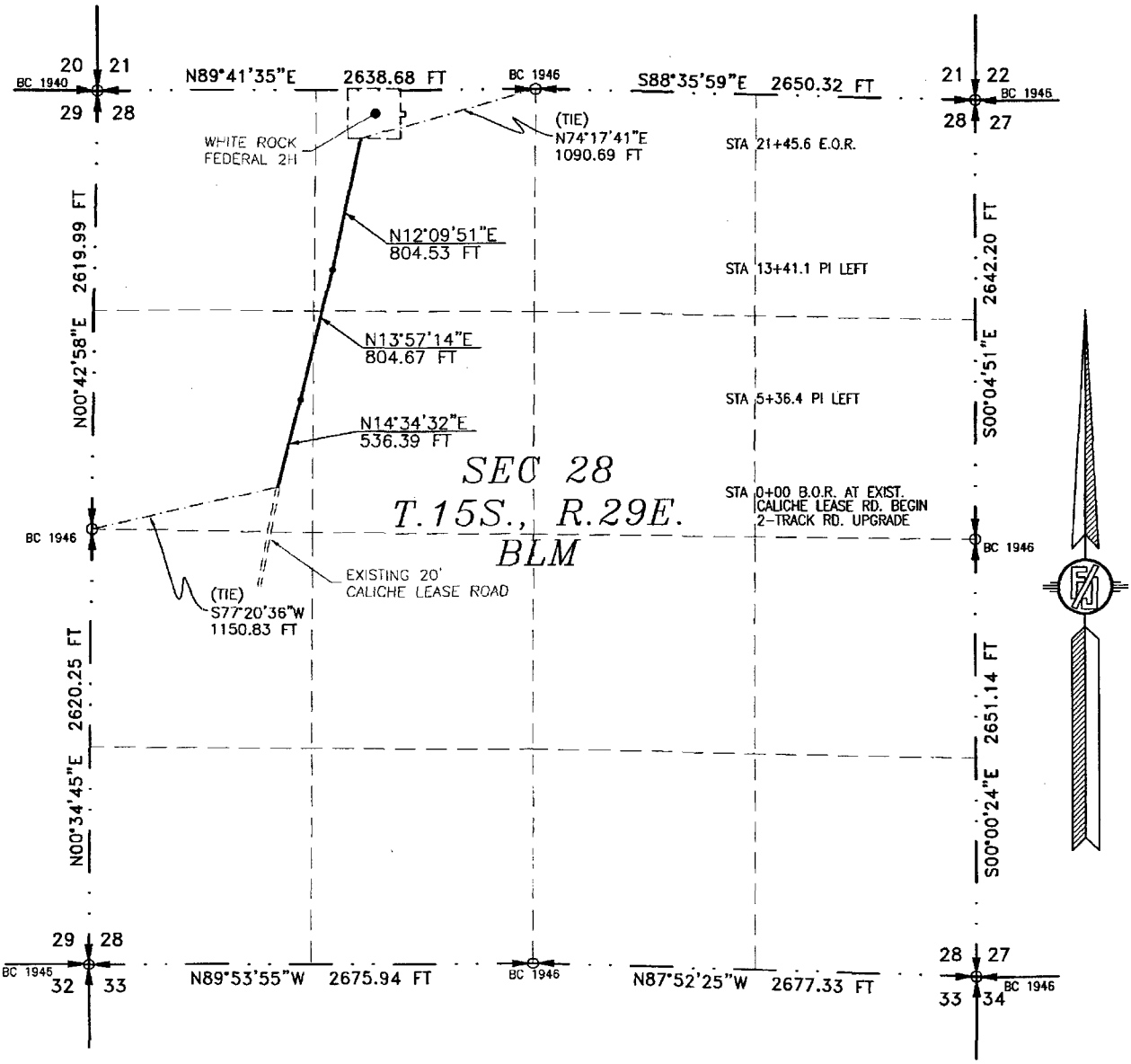
white_rock_2_surface_plan_08-14-2017.pdf

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SEE NEXT SHEET (2-4) FOR DESCRIPTION

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Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25 DAY OF MAY, 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO, PLS. 12797

SHEET: 1-4

SURVEY NO. 5273

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S77°20'36"W, A DISTANCE OF 1150.83 FEET;
THENCE N14°34'32"E A DISTANCE OF 536.39 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N13°57'14"E A DISTANCE OF 804.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N12°09'51"E A DISTANCE OF 804.53 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N74°17'41"E, A DISTANCE OF 1090.69 FEET;

SAID STRIP OF LAND BEING 2145.59 FEET OR 130.03 RODS IN LENGTH, CONTAINING 0.986 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4	874.56 L.F.	53.00 RODS	0.402 ACRES
SE/4 NW/4	210.85 L.F.	12.78 RODS	0.097 ACRES
NE/4 NW/4	1060.18 L.F.	64.25 RODS	0.487 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

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IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25 DAY OF MAY 2017

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301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

301 SOUTH CANAL
(575) 234-3341

SHEET: 2–4

SURVEY NO. 5273

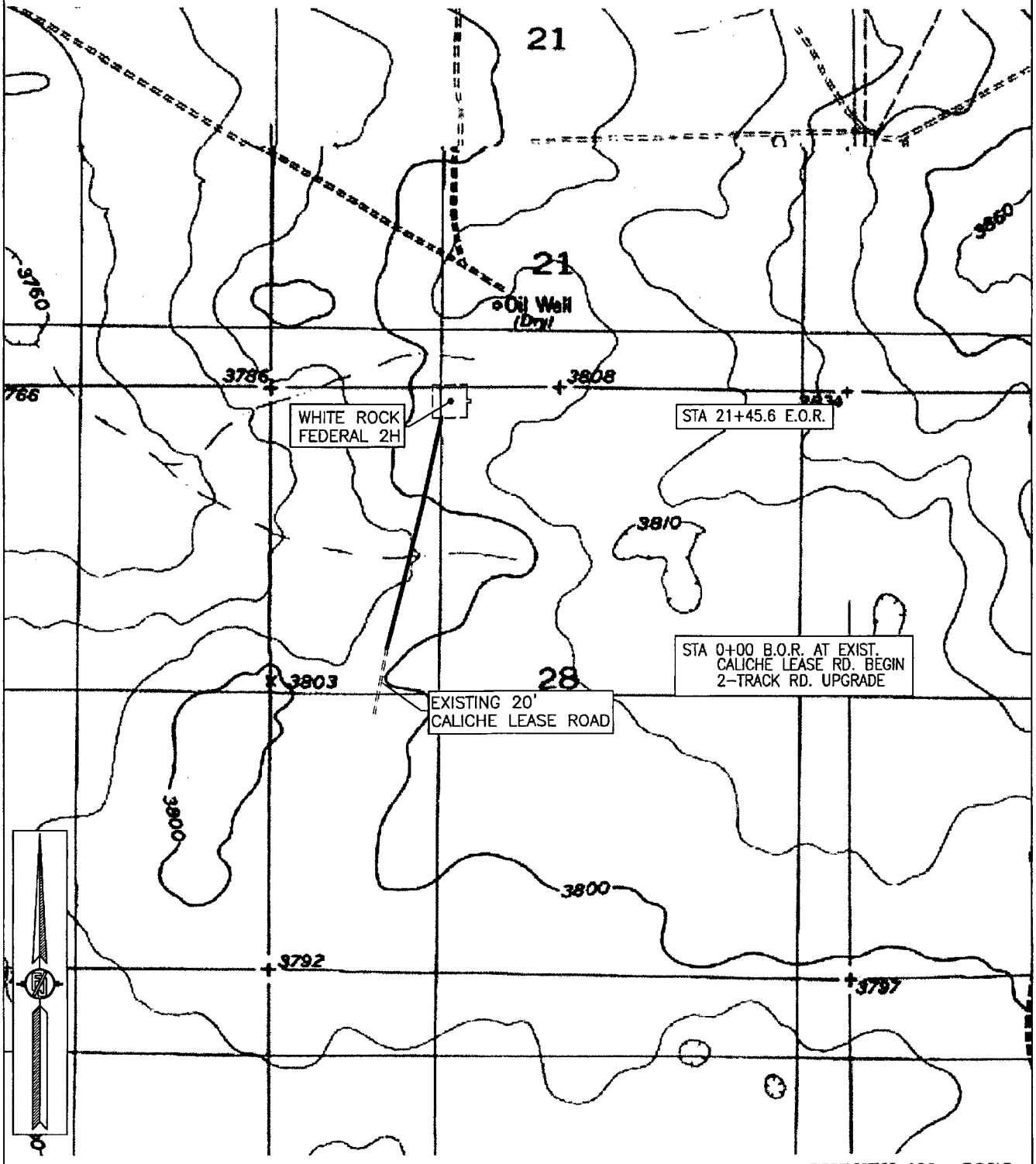
MADRON SURVEYING INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 3-4

SURVEY NO. 5273

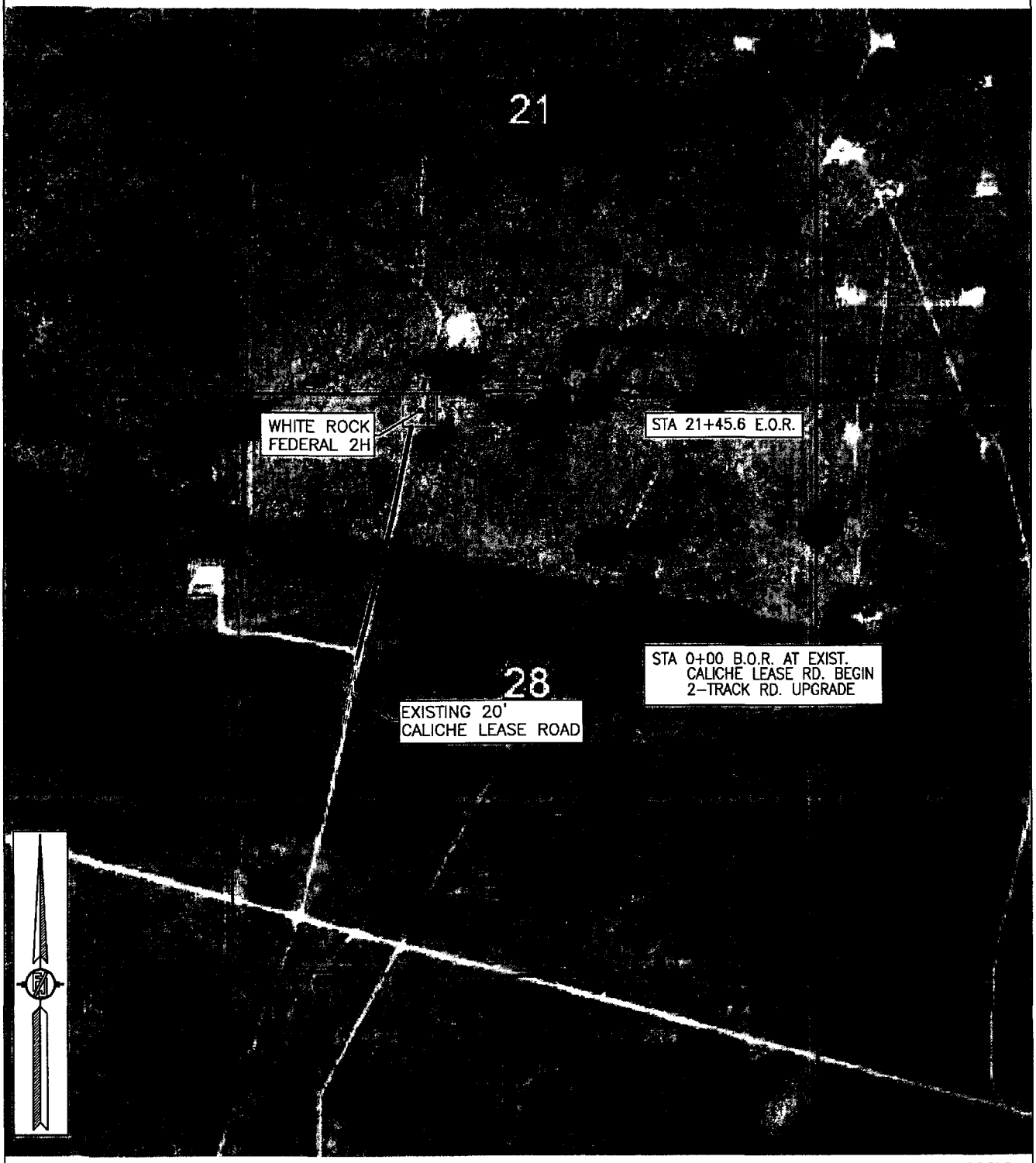
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 4-4 *SURVEY NO. 5273*

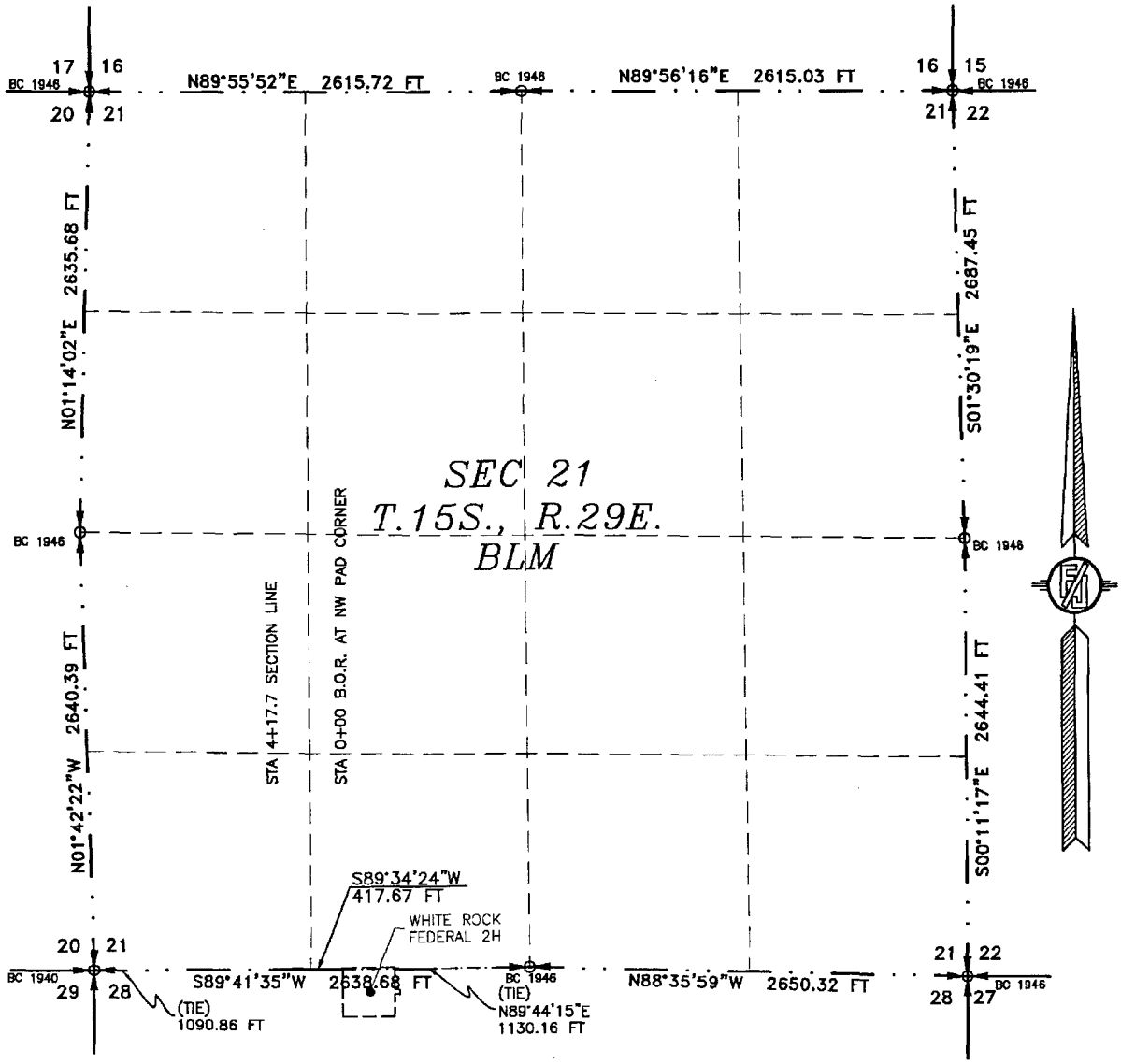
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL 1H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SEE NEXT SHEET (2-6) FOR DESCRIPTION

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Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

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301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS 12797
301 SOUTH CANAL
(575) 234-3341

SHEET: 1-6

SURVEY NO. 5272

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL 1H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SE/4 SW/4 OF SAID SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N89°44'15"E, A DISTANCE OF 1130.16 FEET;
THENCE S89°34'24"W A DISTANCE OF 417.67 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S89°41'35"W, A DISTANCE OF 1090.86 FEET;

SAID STRIP OF LAND BEING 417.67 FEET OR 25.32 RODS IN LENGTH, CONTAINING 0.192 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SE/4 SW/4	189.18 L.F.	11.47 RODS	0.087 ACRES
SW/4 SW/4	228.49 L.F.	13.85 RODS	0.105 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

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SURVEYOR CERTIFICATE

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FILIMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 2-6

SURVEY NO. 5272

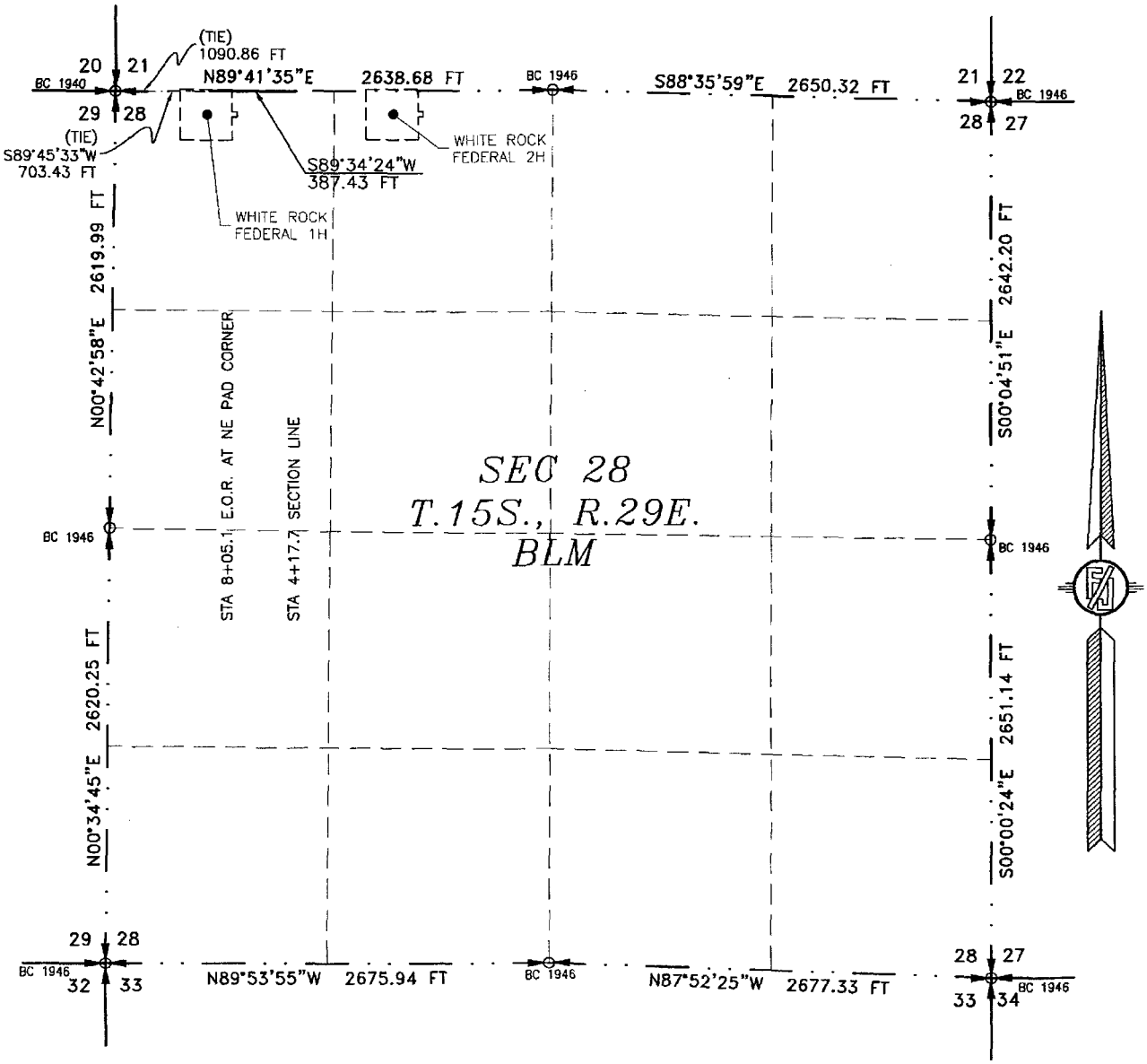
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL 1H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SEE NEXT SHEET (4–6) FOR DESCRIPTION

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Scale: 1" = 1000'

GENERAL NOTES

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SHEET: 3–6

SURVEY NO. 5272

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL 1H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S89°41'35"W, A DISTANCE OF 1090.86 FEET;
THENCE S89°34'24"W A DISTANCE OF 387.43 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S89°45'33"W, A DISTANCE OF 703.43 FEET;

SAID STRIP OF LAND BEING 387.43 FEET OR 23.48 RODS IN LENGTH, CONTAINING 0.178 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4	387.43 L.F.	23.48 RODS	0.178 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

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301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

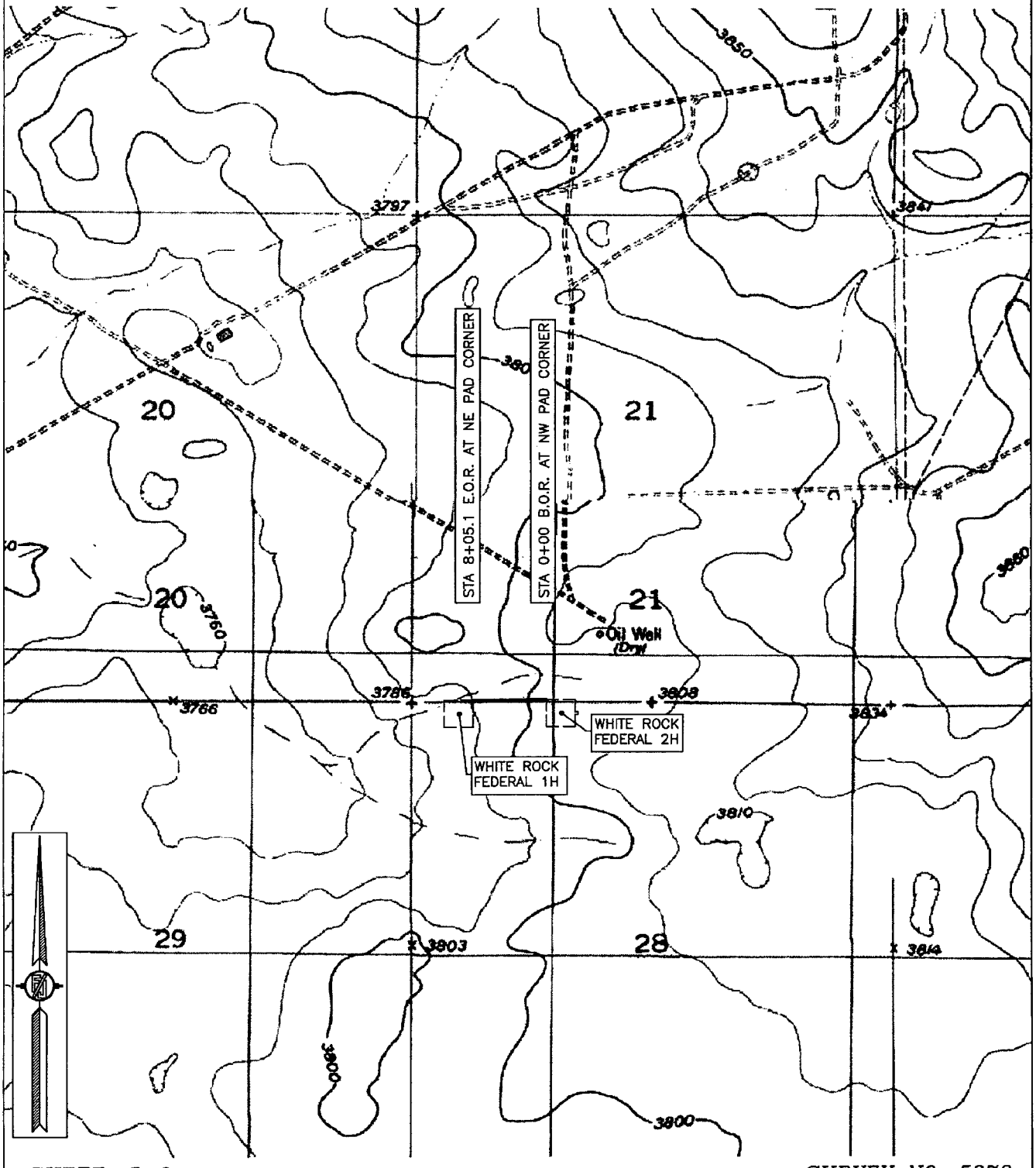
FILIMON F. JARAMILLO, P.L.S. 12797

ACCESS ROAD PLAT

ACCESS ROAD FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL 1H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 21, 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 5-6

SURVEY NO. 5272

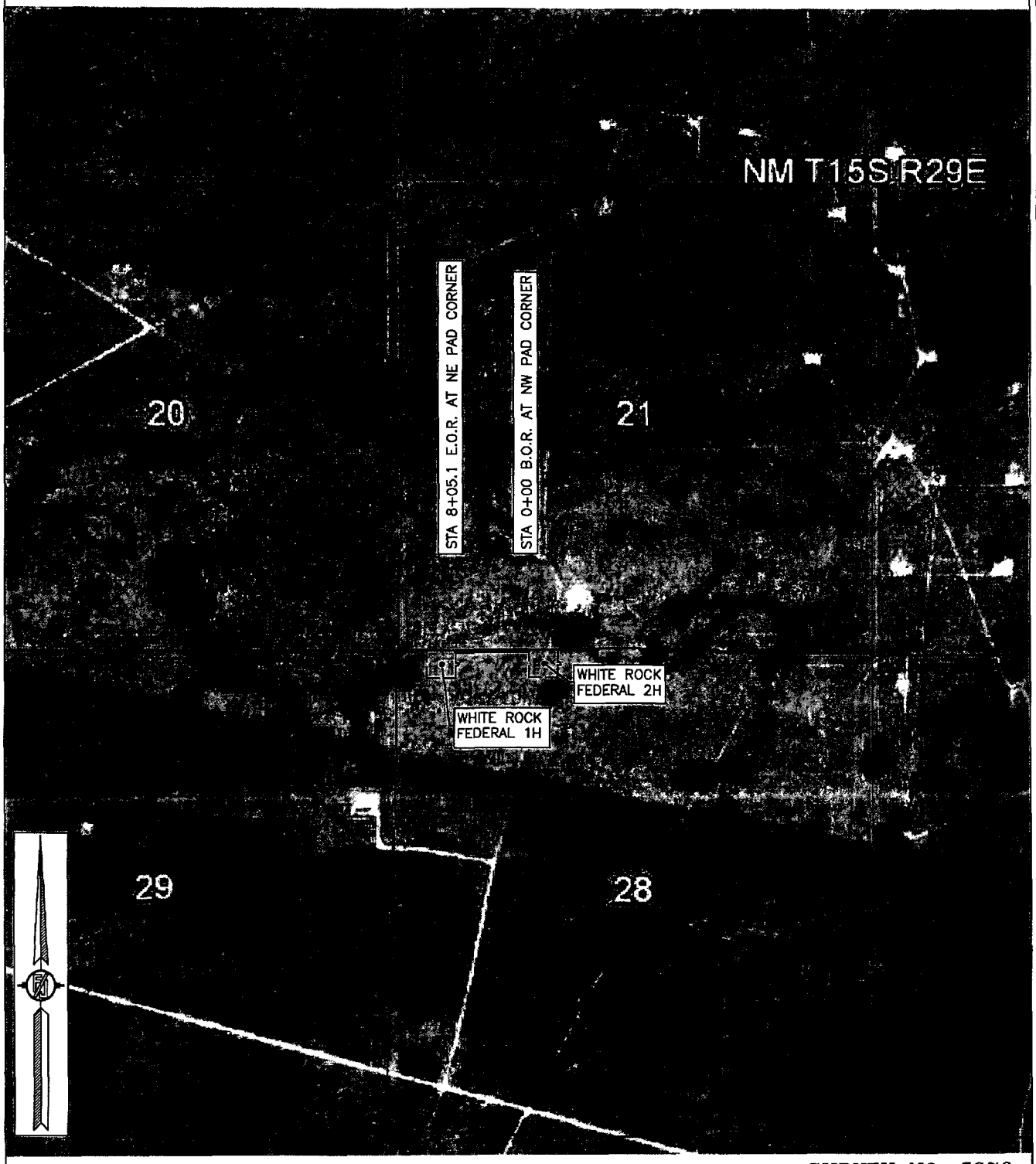
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL 1H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 21, 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 6-6 *SURVEY NO. 5272*

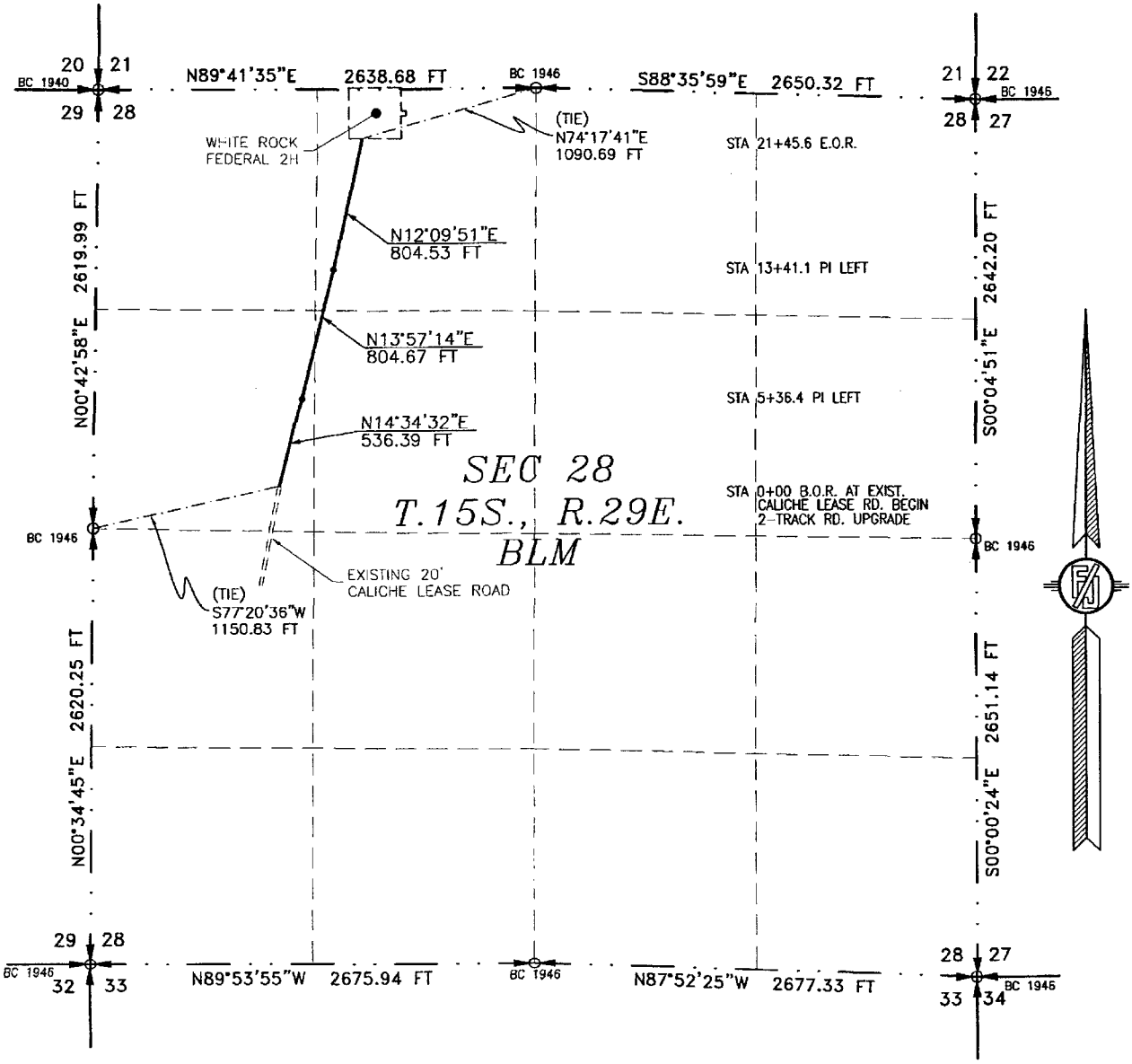
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SEE NEXT SHEET (2-4) FOR DESCRIPTION

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Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

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CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S77°20'36"W, A DISTANCE OF 1150.83 FEET;
THENCE N14°34'32"E A DISTANCE OF 536.39 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N13°57'14"E A DISTANCE OF 804.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N12°09'51"E A DISTANCE OF 804.53 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N74°17'41"E, A DISTANCE OF 1090.69 FEET;

SAID STRIP OF LAND BEING 2145.59 FEET OR 130.03 RODS IN LENGTH, CONTAINING 0.986 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4	874.56 L.F.	53.00 RODS	0.402 ACRES
SE/4 NW/4	210.85 L.F.	12.78 RODS	0.097 ACRES
NE/4 NW/4	1060.18 L.F.	64.25 RODS	0.487 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25 DAY OF MAY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

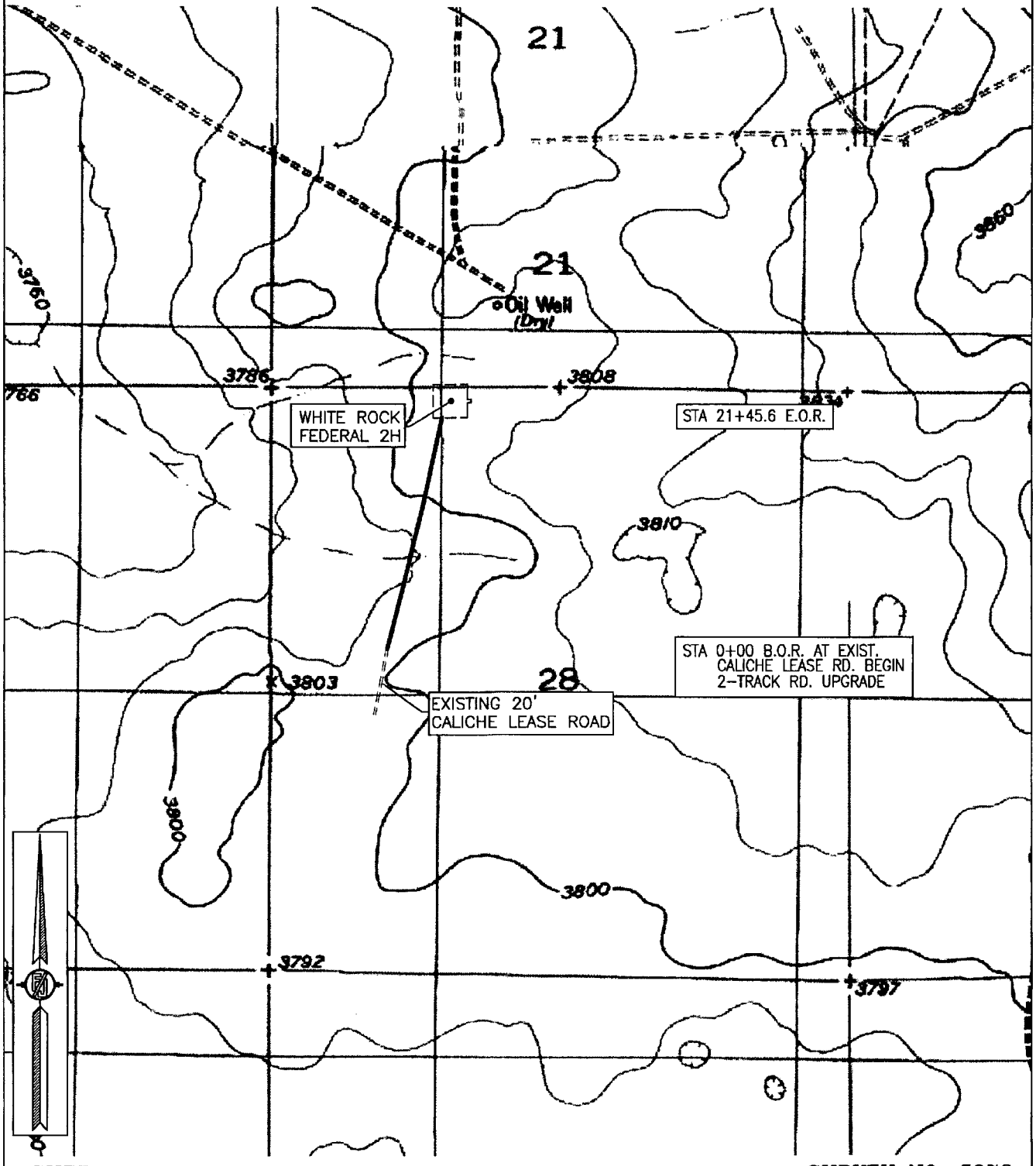
301 SOUTH CANAL
(575) 234-3341

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 3-4

SURVEY NO. 5273

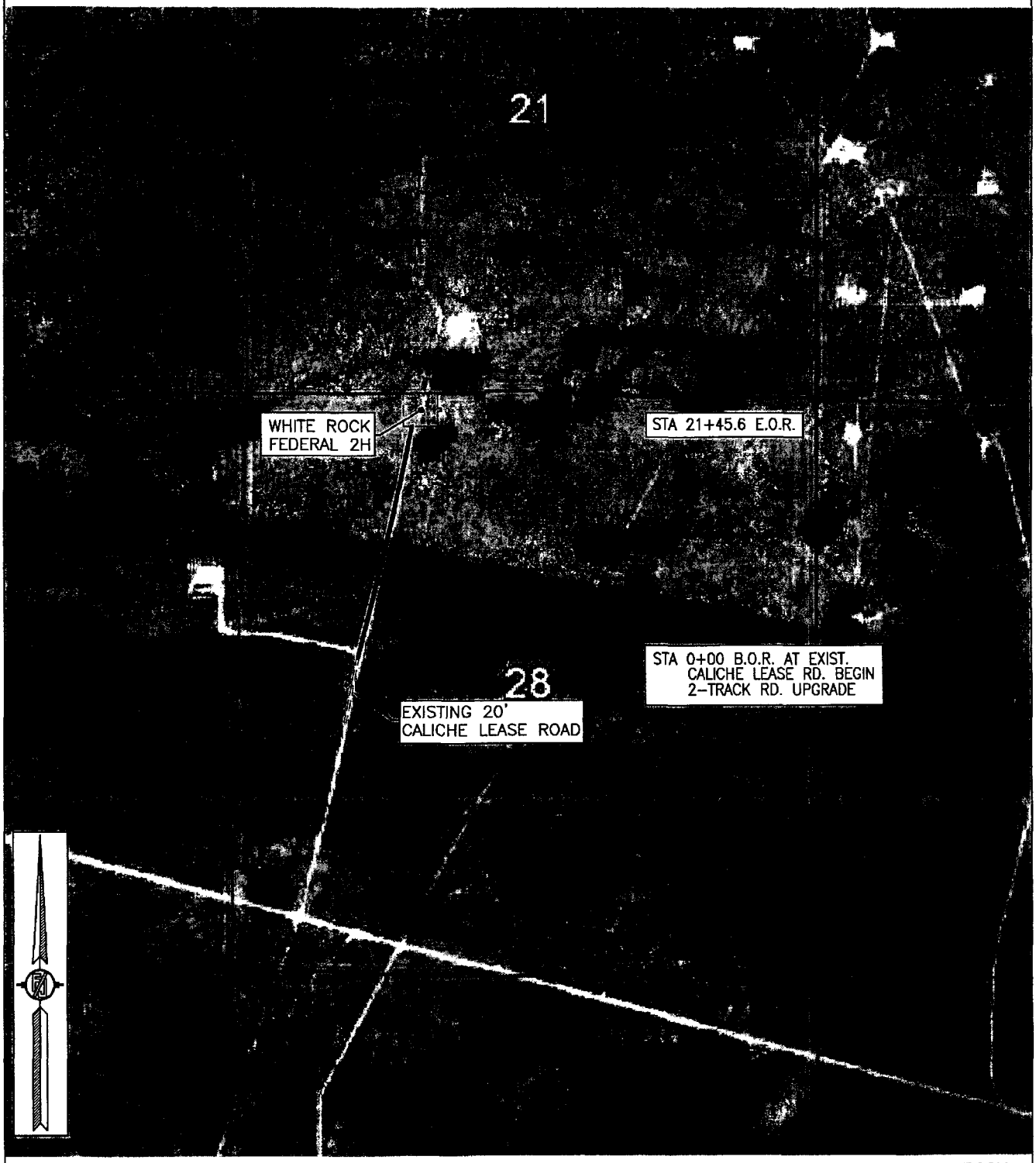
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

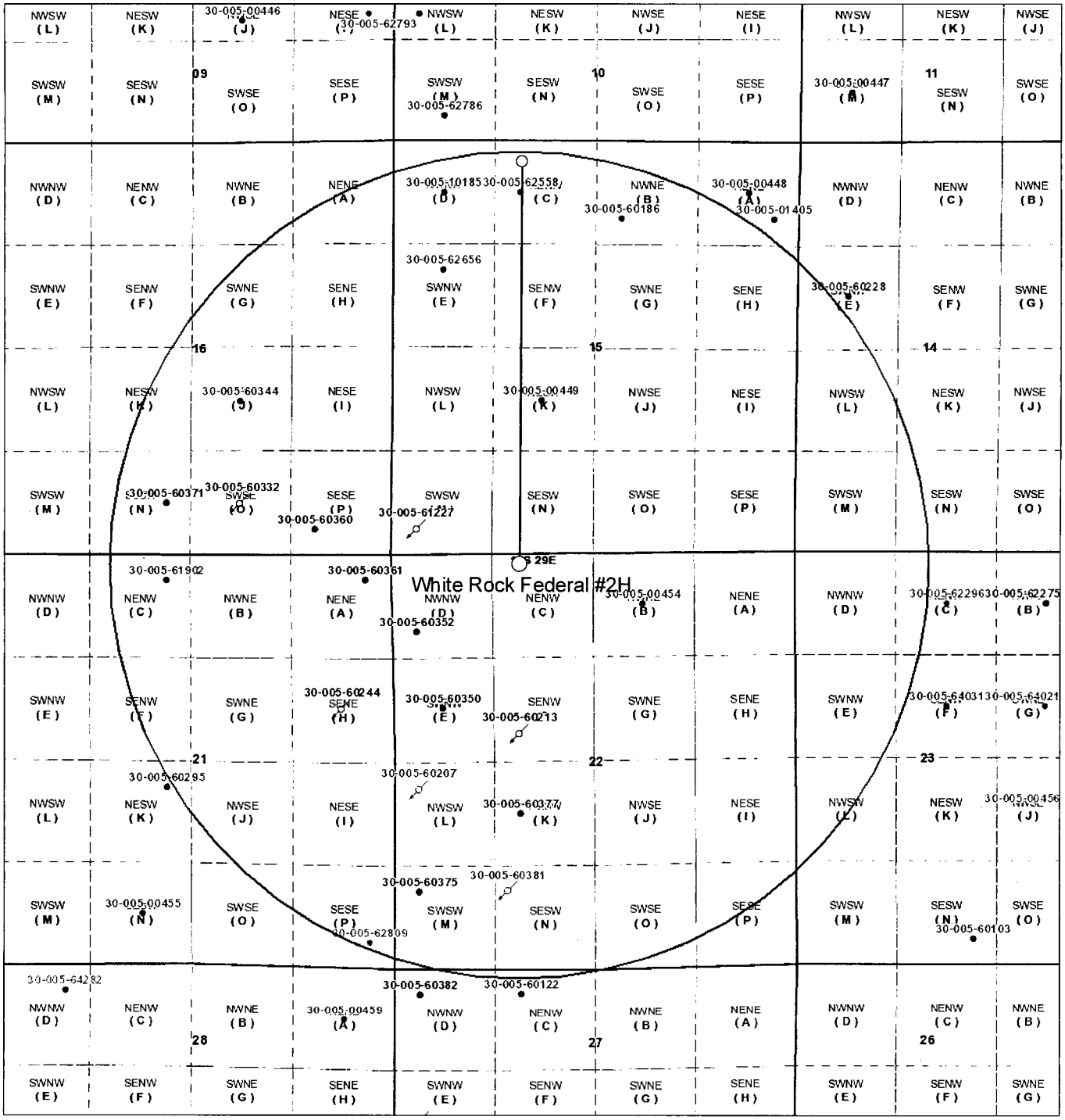
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 4-4 *SURVEY NO. 5273*

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

White Rock #2H



July 31, 2017

1:18,056

0 0.175 0.35 0.7 mi

0 0.175 0.35 0.7 km

Points

- Override 1
- Override 2

Lines

- Override 1

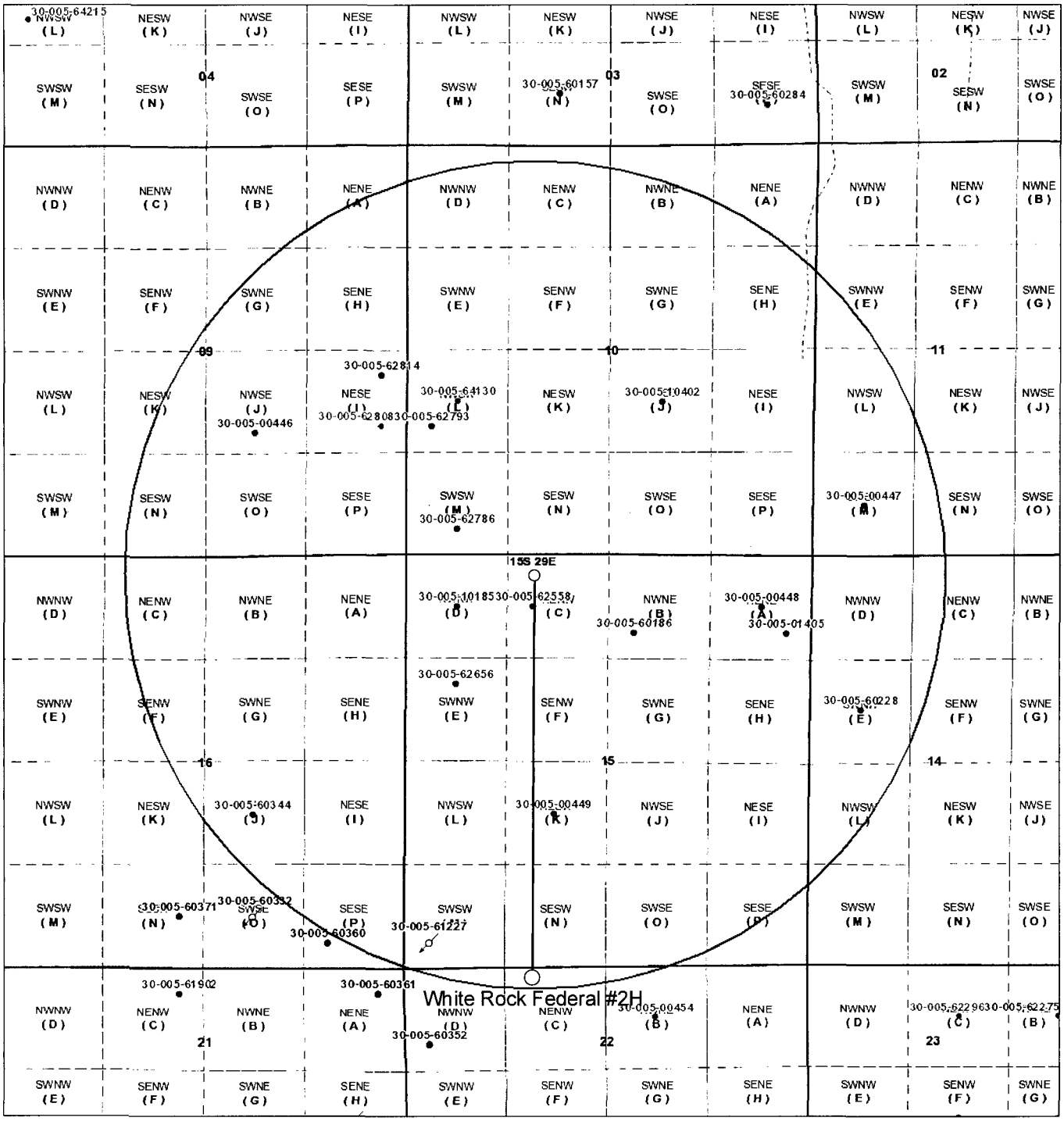
Areas

- Override 1

Well Locations - Large Scale

- <all other values>
- Miscellaneous
- CO2 Active
- CO2 Cancelled
- CO2 New
- CO2, Plugged
- CO2, Temporarily Abandoned
- Gas Active
- Gas, Cancelled, Never Drilled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Oil, Temporarily Abondoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water InjectionTemporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged
- Water, Temporarily Abandoned
- OCD District Offices
- PLSSTownship
- PLSSSecondDivision_WMAS84_UnitLtr
- PLSSFirstDivision

White Rock #2H BHL



July 31, 2017

1:18,056

0 0.175 0.35 0.7 mi

0 0.175 0.35 0.7 km

Points

- Override 1
- Override 2

Lines

- Override 1

Areas

- Override 1

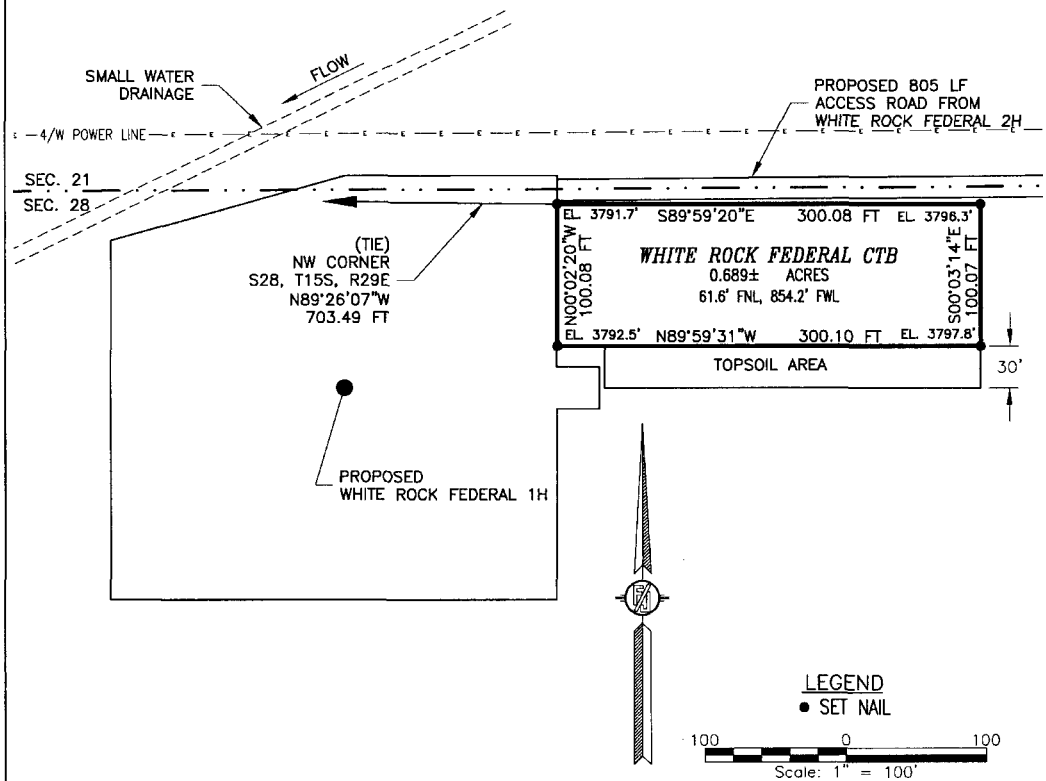
Well Locations - Large Scale

- <all other values>
- Miscellaneous
- CO2 Active
- CO2 Cancelled
- CO2 New
- CO2, Plugged
- CO2, Temporarily Abandoned
- Gas Active
- Gas, Cancelled, Never Drilled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Oil, Temporarily Abondoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water InjectionTemporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged
- Water, Temporarily Abandoned
- OCD District Offices
- PLSSTownship
- PLSSSecondDivision_WMAS84_UnitLtr
- PLSSFirstDivision

WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION
IN THE NW/4 NW/4 OF
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 20, 2017



DESCRIPTION

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN THE NW/4 NW/4 OF SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST N.M.P.M., CHAVES COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHWEST CORNER OF THE PARCEL, WHENCE THE NORTHWEST CORNER OF SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N89°26'07"W, A DISTANCE OF 703.49 FEET;
THENCE S89°59'20"E A DISTANCE OF 300.08 FEET TO THE NORTHEAST CORNER OF THE PARCEL;
THENCE S00°03'14"E A DISTANCE OF 100.07 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;
THENCE N89°59'31"W A DISTANCE OF 300.10 FEET TO THE SOUTHWEST CORNER OF THE PARCEL;
THENCE N00°02'20"W A DISTANCE OF 100.08 FEET TO THE NORTHWEST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING;
CONTAINING 0.689 ACRES MORE OR LESS.

GENERAL NOTES

1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL TANK BATTERY

2.) BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)

DRIVING DIRECTIONS: FROM THE INTERSECTION OF STATE HIGHWAY 82 AND CR 217 (HAGERMAN CUTOFF) GO NORTH ON CR 217 APPROX. 10.5 MILES, TURN WEST ON 20' CALICHE LEASE ROAD (COUNTY LINE ROAD) AND GO APPROX. 3.4 MILES, TURN NORTH ON 20' CALICHE LEASE ROAD AND GO APPROX. 0.46 OF A MILE. CONTINUE NORTH ON 2-TRACK ROAD FOR APPROX. 0.5 OF A MILE TO SOUTH EDGE OF WHITE ROCK FEDERAL 2H, THEN FROM THE NORTHWEST CORNER GO WEST APPROX. 805' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 29 DAY OF JUNE 2017

FILIMON F. JARAMILLO PLS: 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1-3

SURVEY NO. 5313

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

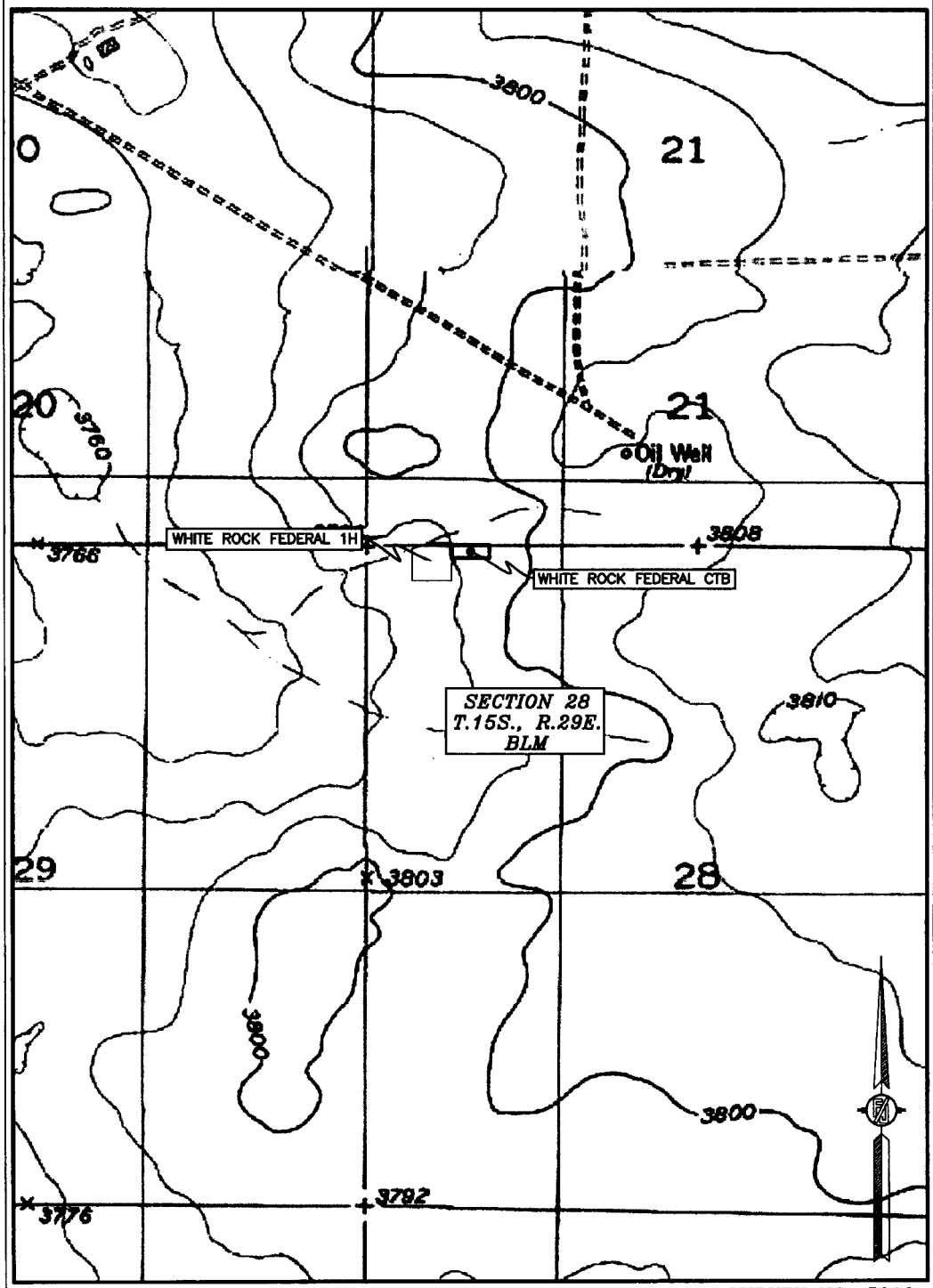
WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION

IN THE NW/4 NW/4 OF
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 20, 2017

QUAD MAP



SHEET: 2-3 SURVEY NO. 5313

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

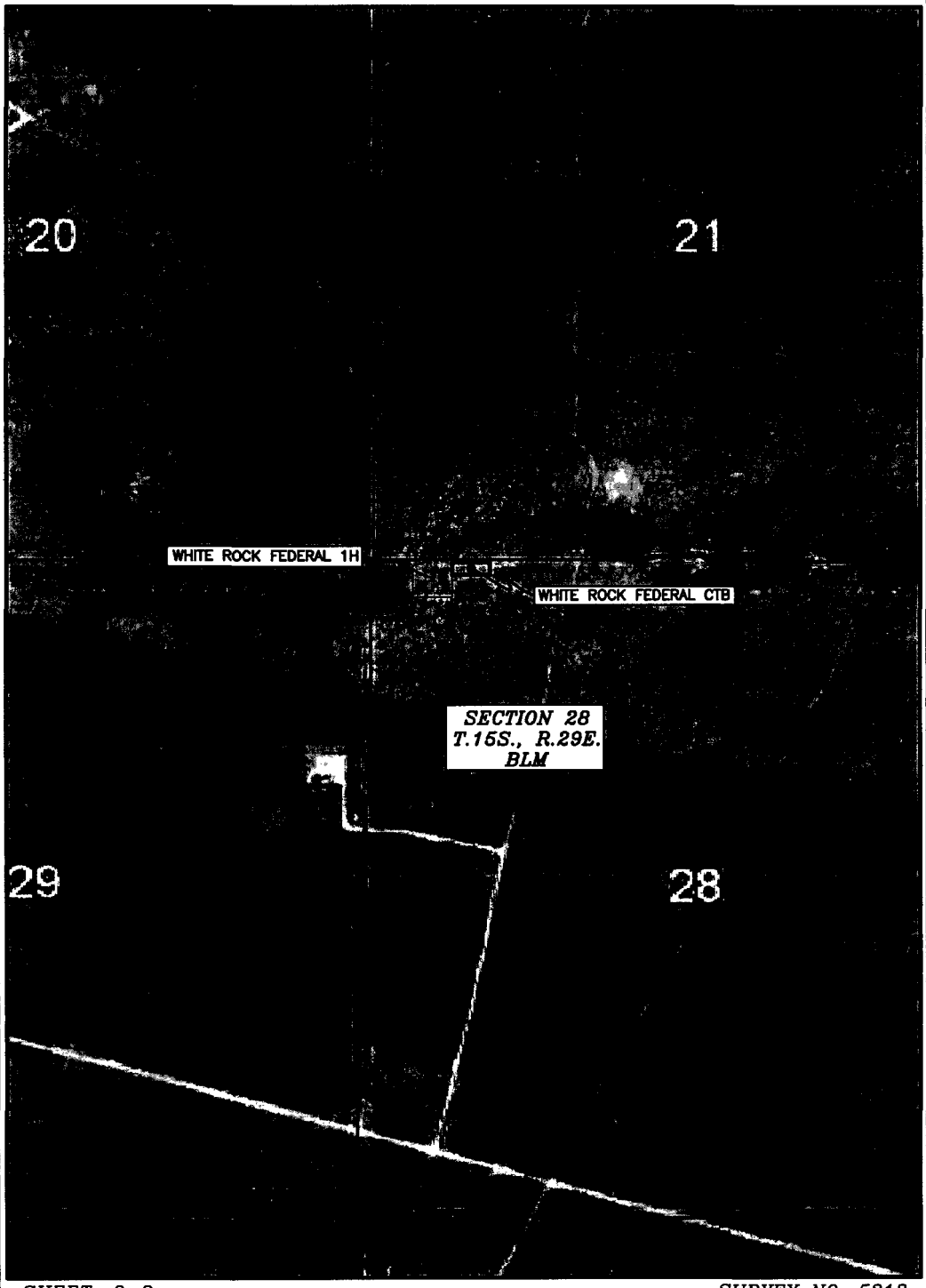
WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION

IN THE NW/4 NW/4 OF
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 20, 2017

AERIAL PHOTO



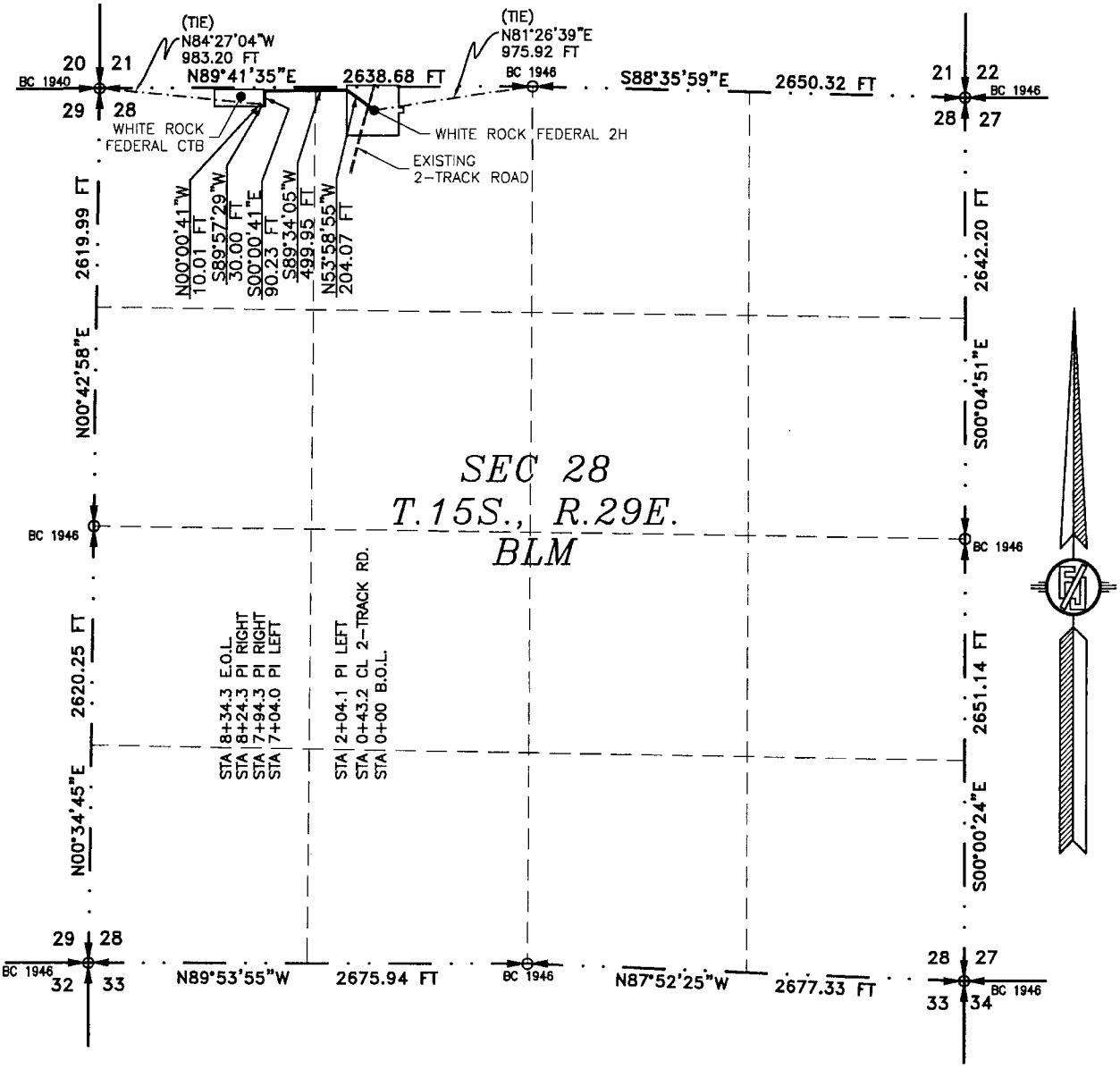
SHEET: 3-3 SURVEY NO. 5313

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT

FLOWLINE FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000

Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 9 DAY OF AUGUST 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO, PLS. 12797

SHEET: 1-4

SURVEY NO. 5427

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

FLOWLINE PLAT

FLOWLINE FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N81°26'39"E, A DISTANCE OF 975.92 FEET;
THENCE N53°58'55"W A DISTANCE OF 204.07 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°34'05"W A DISTANCE OF 499.95 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°00'41"E A DISTANCE OF 90.23 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°57'29"W A DISTANCE OF 30.00 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°00'41"W A DISTANCE OF 10.01 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N84°27'04"W, A DISTANCE OF 983.20 FEET;

SAID STRIP OF LAND BEING 834.26 FEET OR 50.56 RODS IN LENGTH, CONTAINING 0.575 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	393.43 L.F.	23.84 RODS	0.271 ACRES
NW/4 NW/4	440.83 L.F.	26.72 RODS	0.304 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 9 DAY OF AUGUST 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

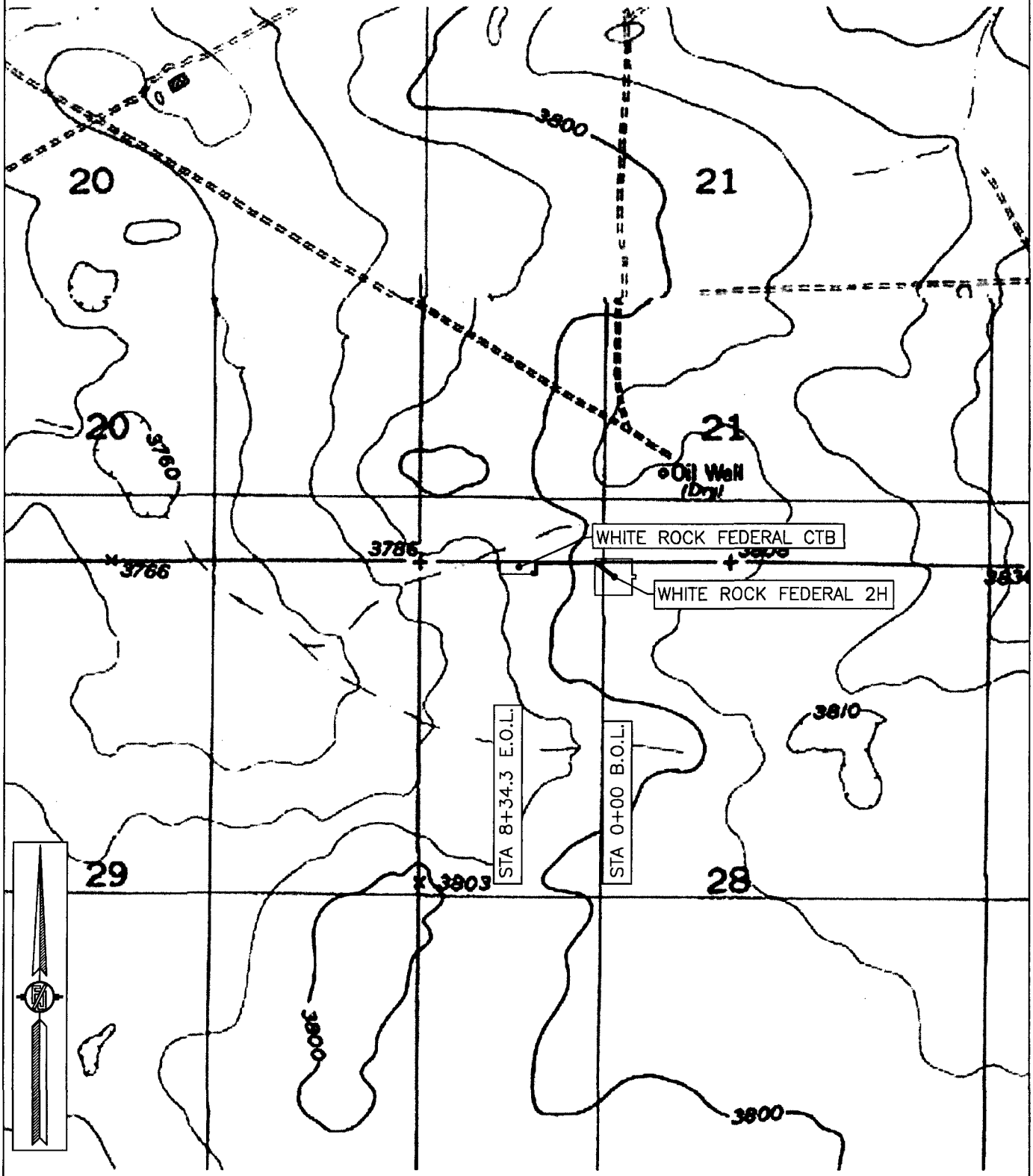
FILIMON F. JARAMILLO PLS. 12797

FLOWLINE PLAT

FLOWLINE FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017



SHEET: 3-4 *SURVEY NO. 5427*

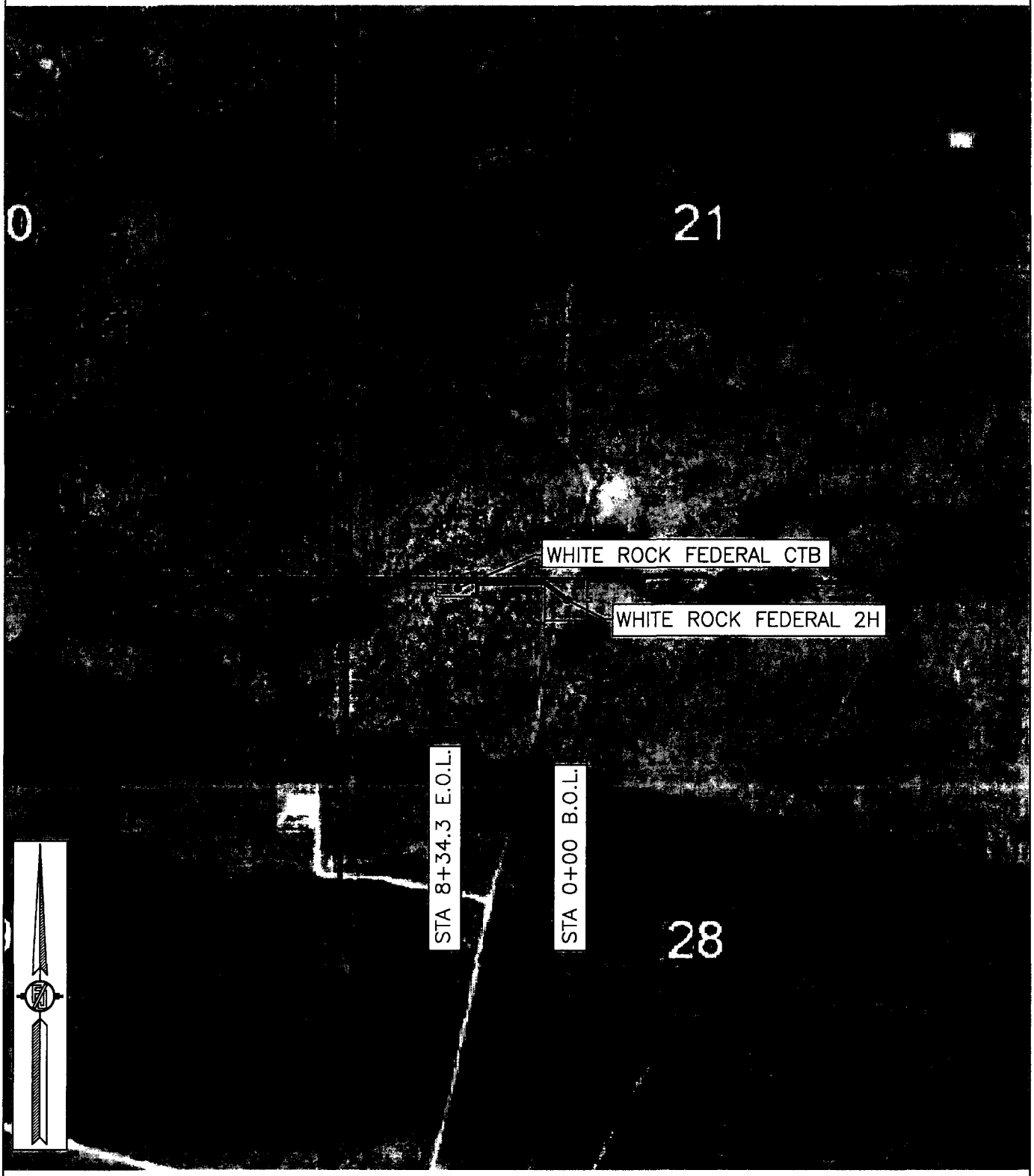
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

FLOWLINE PLAT

FLOWLINE FROM THE WHITE ROCK FEDERAL 2H TO THE WHITE ROCK FEDERAL CTB

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017



SHEET: 4-4

SURVEY NO. 5427

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

32°49'05.3"N 103°59'03.7"W

Mor-West Corp. — Loco Hills FW

Goat Ropers Rd

Hagerman Cutoff Rd

Goat Ropers Rd

Lovington Hwy

Loco Hills Post Office

Loco Hills

Hagerman Cutoff Rd

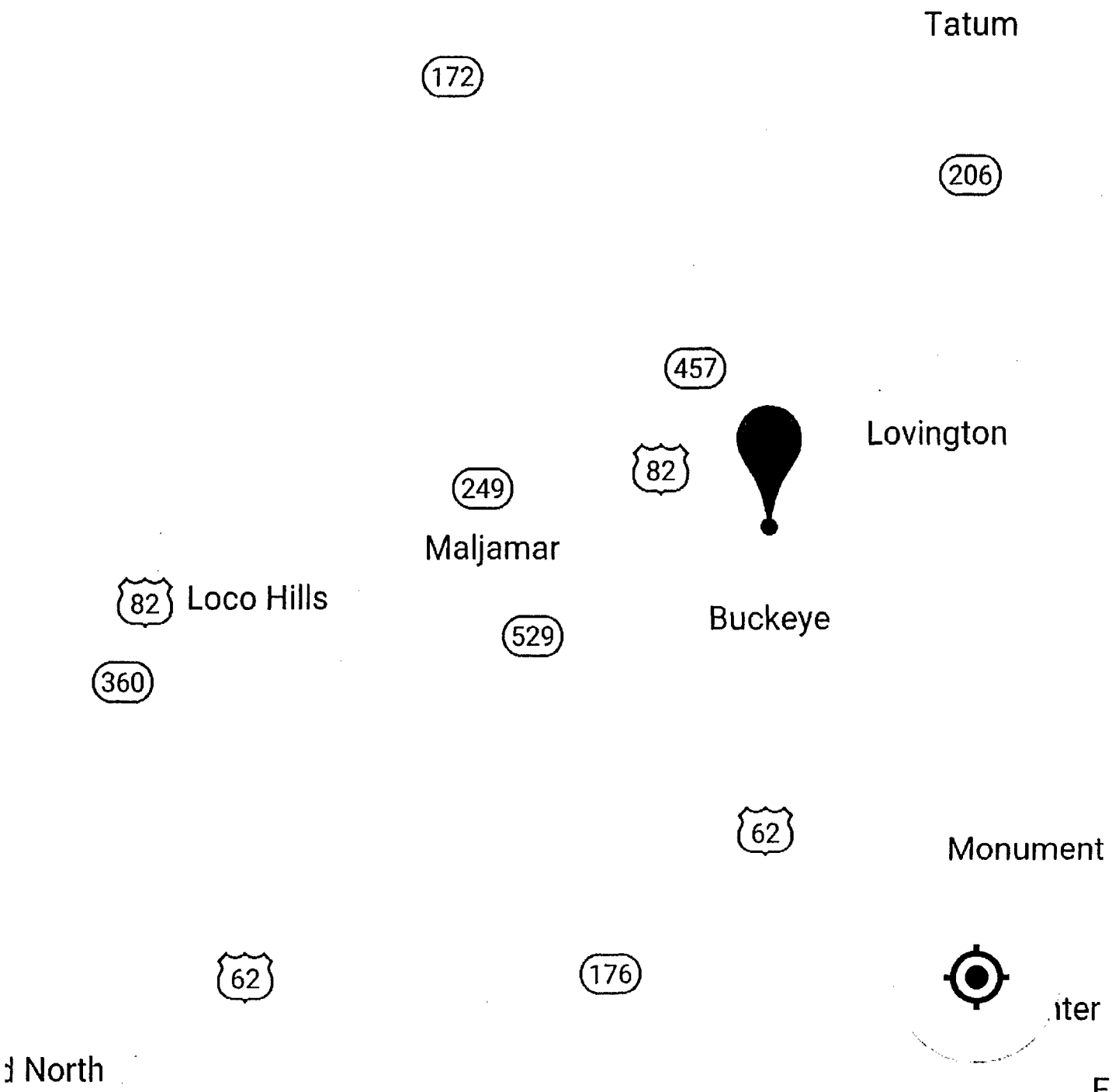
Google

Rd

32°49'05.3"N 103°59'03.7"W

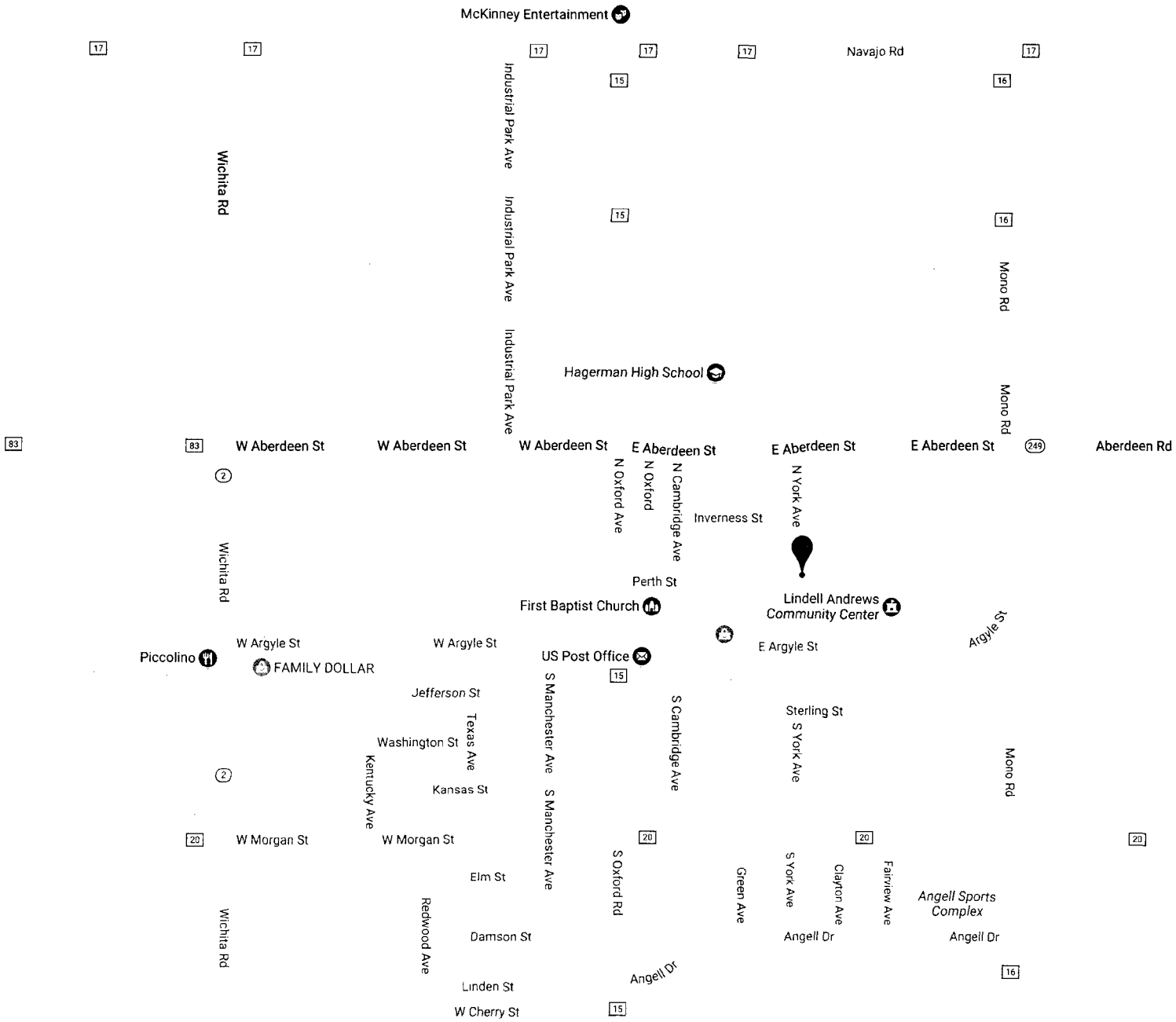
32°52'23.1"N 103°30'18.3"W

Gandy Corp - Wasserhund BW



32°52'23.1"N 103°30'18.3"W

33°06'55.3"N 104°19'24.4"W

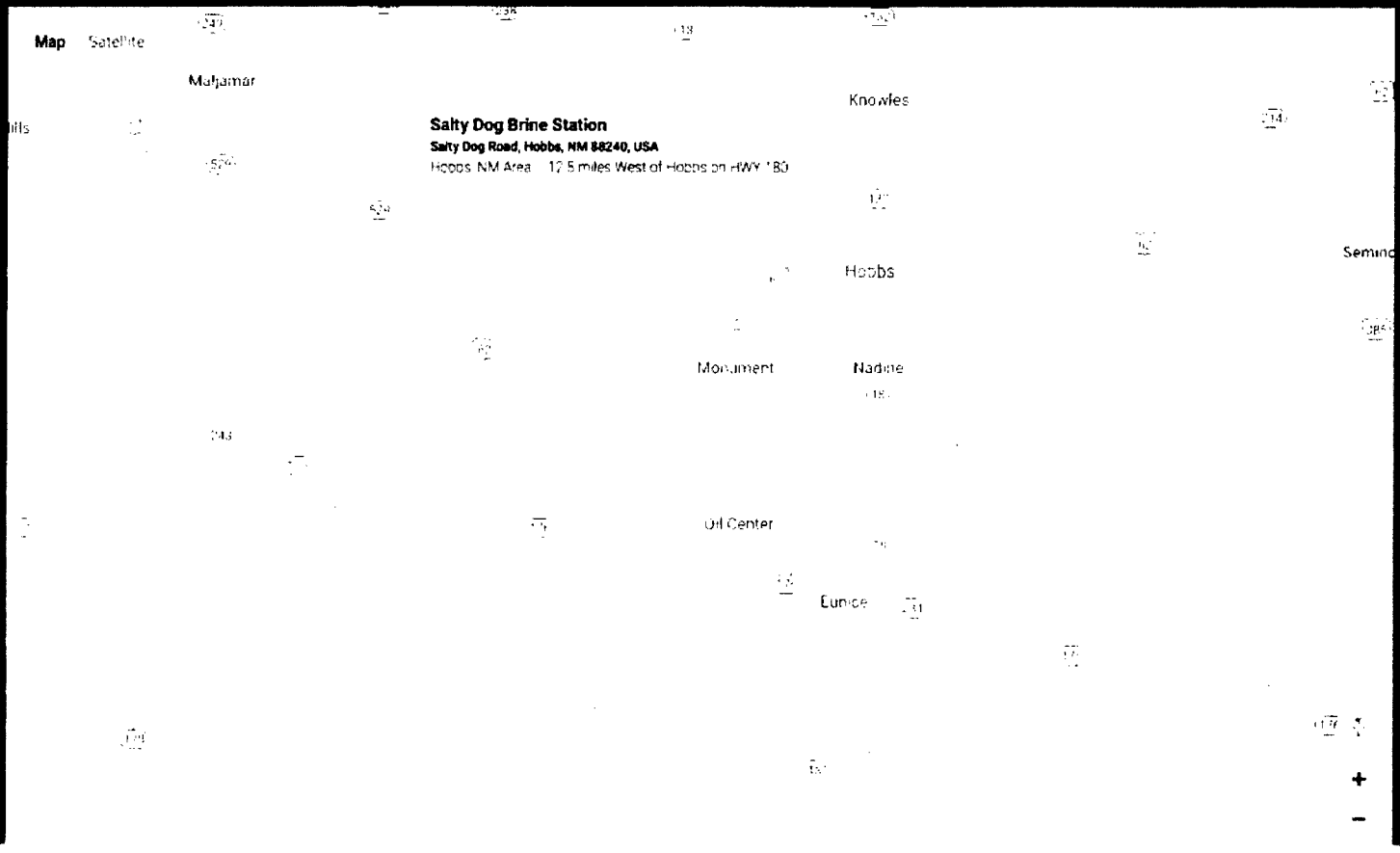


STANDARD

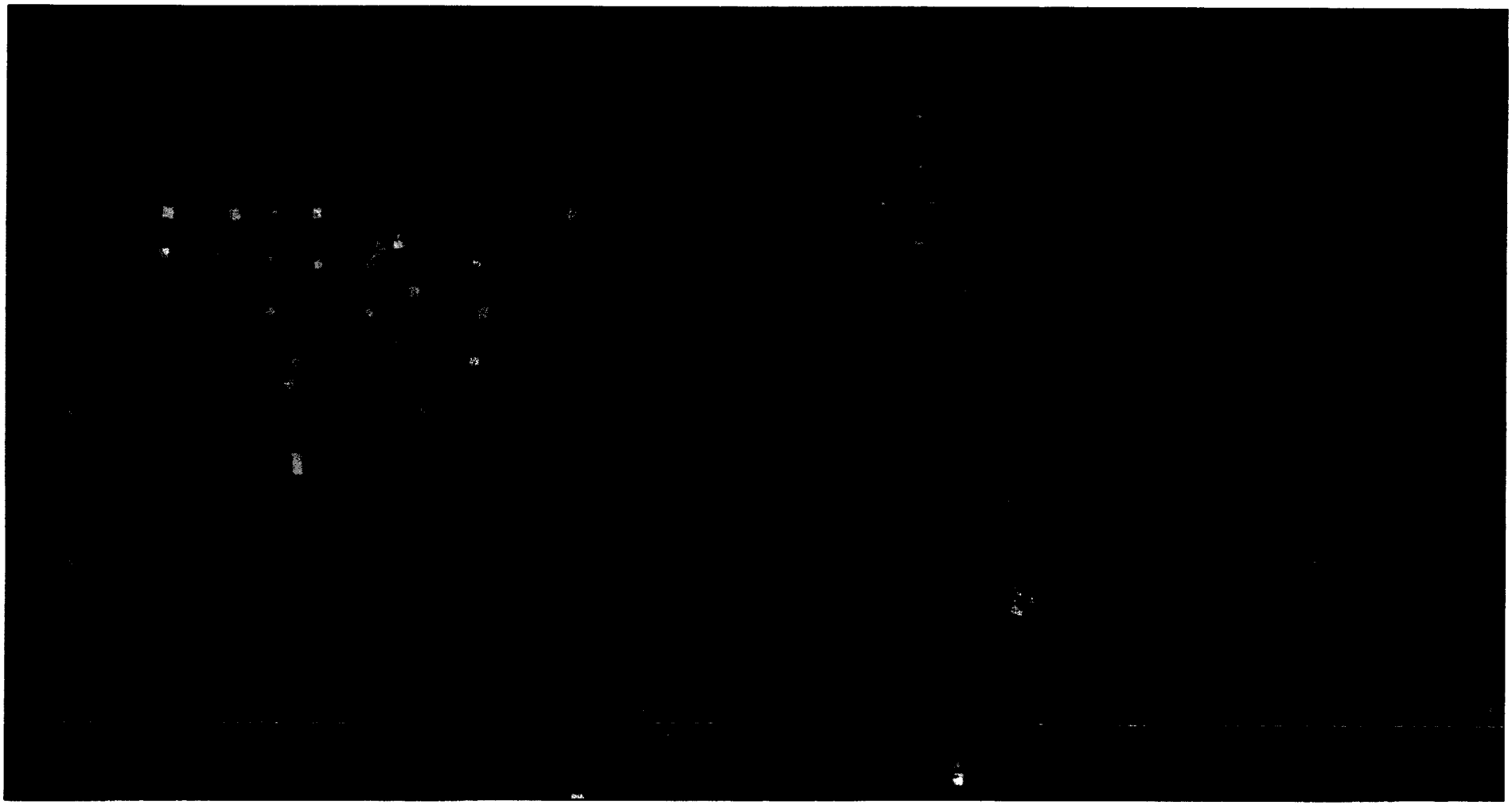
Home Mission Frac Tank Hot Oil Truck Pump Truck Vacuum Truck Well Service Disposals Fresh Water

Disposal Sites & Brine Stations & Freshwater Well Servicing Rigs HS&E Standard Energy Locations Associations

News and Events Testimonials Employment Opportunities Equipment For Sale Store



ArcGIS Web Map



July 27, 2017

Areas

- Override 1
- ★ OCD District Offices
- PLSSTownship
- PLSSFirstDivision

1:36,112

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

OCD

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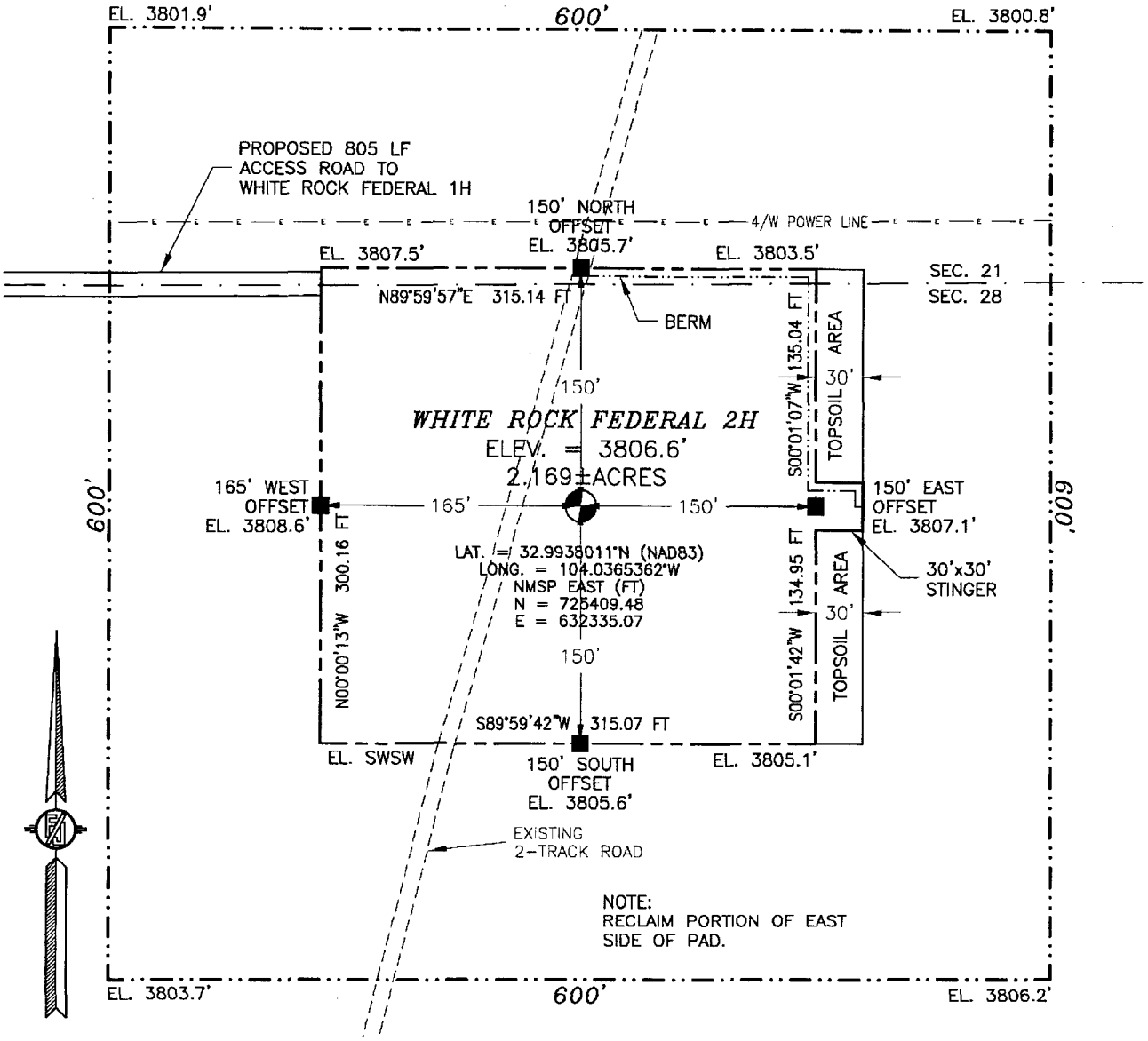
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,

Web AppBuilder for ArcGIS

NM OSE | U.S. BLM | US Census Bureau, NMDOT | BLM | OCD | Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community | Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community |

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 82 AND CR 217 (HAGERMAN CUTOFF) GO NORTH ON CR 217 APPROX. 10.5 MILES, TURN WEST ON 20' CALICHE LEASE ROAD (COUNTY LINE ROAD) AND GO APPROX. 3.4 MILES, TURN NORTH ON 20' CALICHE LEASE ROAD AND GO APPROX. 0.46 OF A MILE. CONTINUE NORTH ON 2-TRACK ROAD FOR APPROX. 0.5 OF A MILE TO SOUTH EDGE OF PAD FOR THIS LOCATION.

MACK ENERGY CORPORATION

WHITE ROCK FEDERAL 2H

LOCATED 140 FT. FROM THE NORTH LINE AND 1675 FT. FROM THE WEST LINE OF SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. CHAVES COUNTY, STATE OF NEW MEXICO

MAY 17, 2017

SURVEY NO. 5264

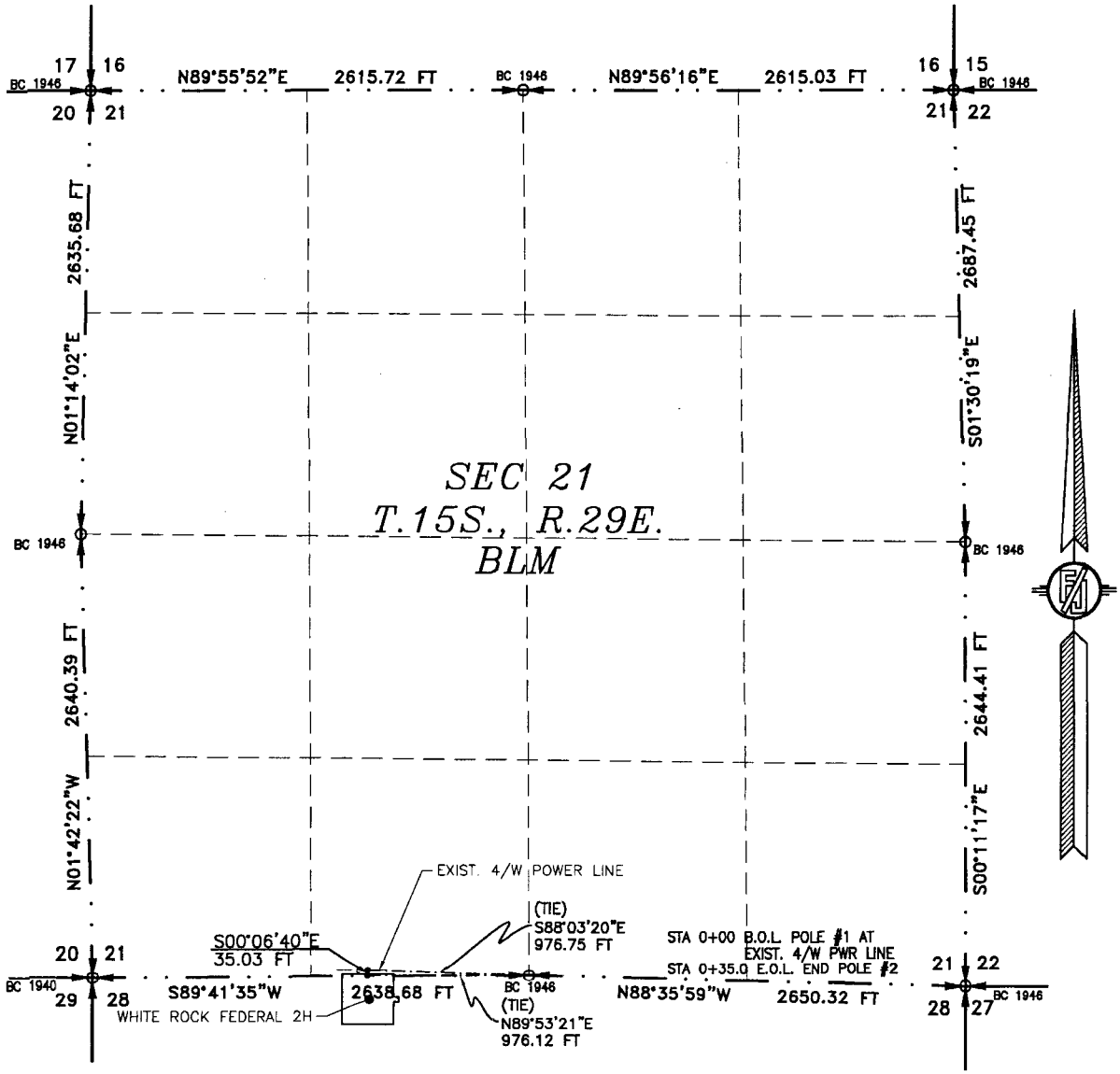
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ELECTRIC LINE PLAT

ELECTRIC LINE TO CONNECT THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017



SEE NEXT SHEET (2–4) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 7 DAY OF AUGUST 2017

FILIMON F. JARAMILLO PLS. 12797
301 SOUTH CANAL
(575) 234-3341

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1–4

SURVEY NO. 5397

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ELECTRIC LINE PLAT

ELECTRIC LINE TO CONNECT THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SE/4 SW/4 OF SAID SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S88°03'20"E, A DISTANCE OF 976.75 FEET;
THENCE S00°06'40"E A DISTANCE OF 35.03 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N89°53'21"E, A DISTANCE OF 976.12 FEET;

SAID STRIP OF LAND BEING 35.03 FEET OR 2.12 RODS IN LENGTH, CONTAINING 0.024 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SE/4 SW/4	35.03 L.F.	2.12 RODS	0.024 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 9 DAY OF AUGUST 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

301 SOUTH CANAL
(575) 234-3341

SURVEY NO. 5397

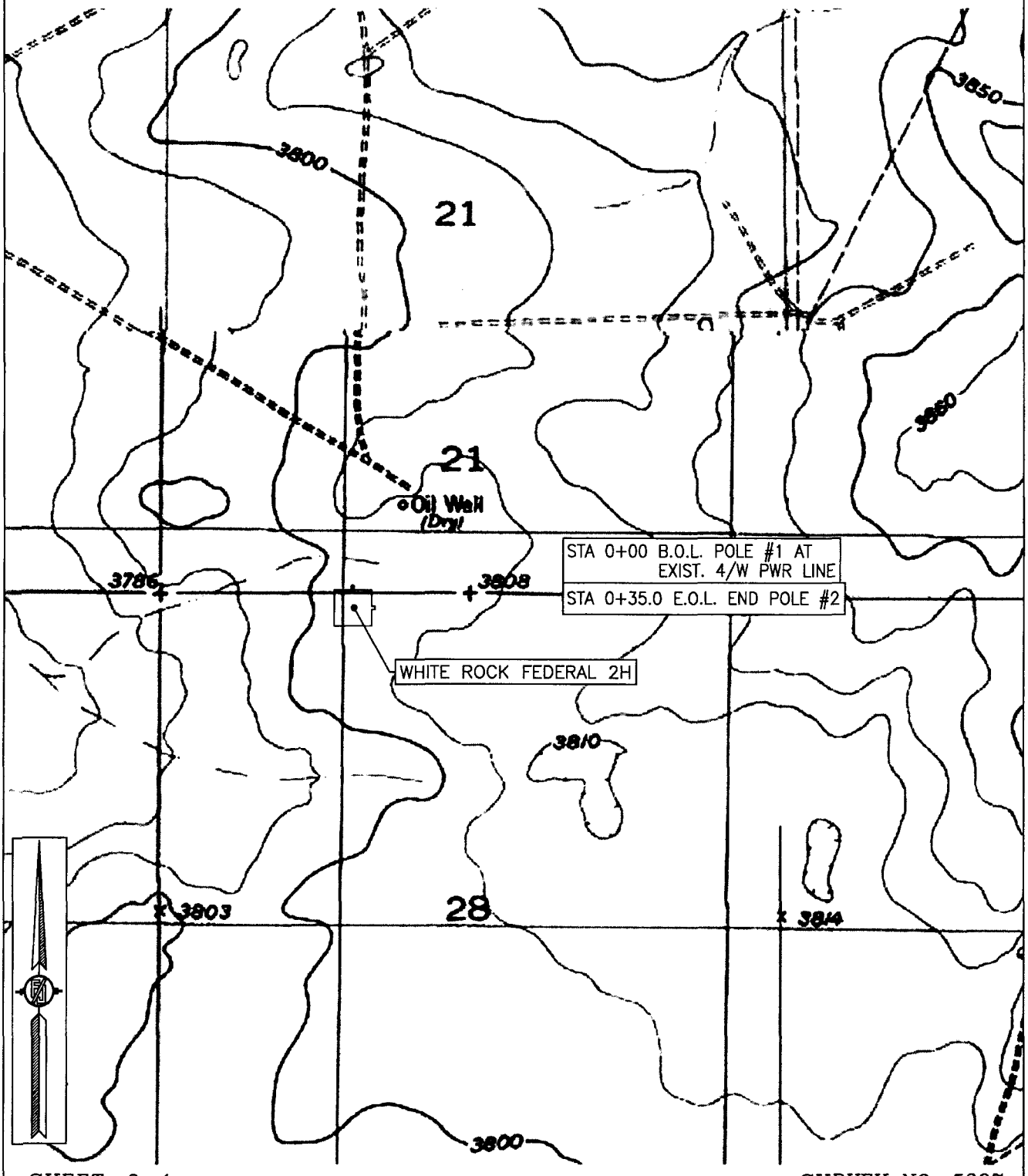
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ELECTRIC LINE PLAT

ELECTRIC LINE TO CONNECT THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017



SHEET: 3-4

SURVEY NO. 5397

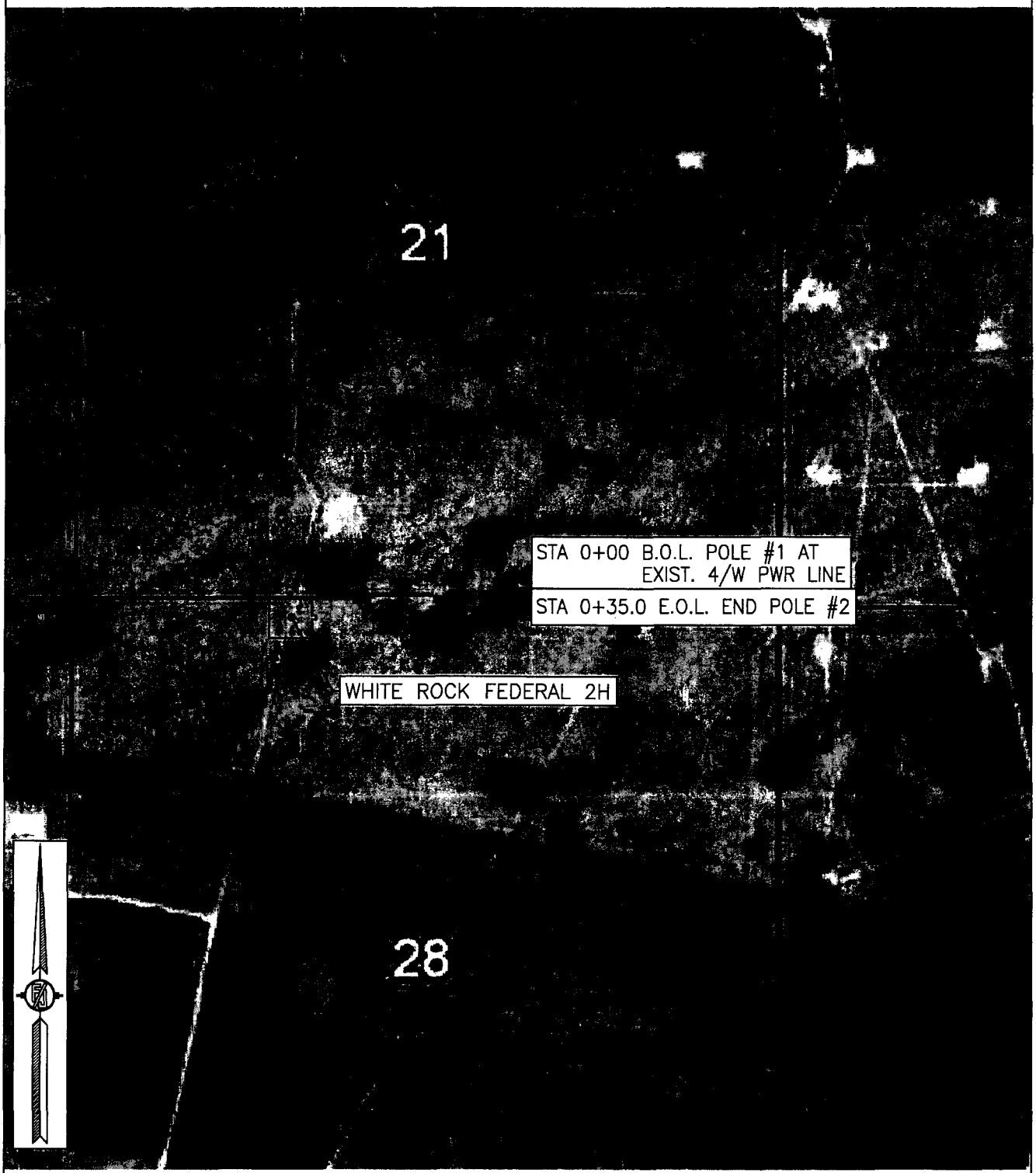
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ELECTRIC LINE PLAT

ELECTRIC LINE TO CONNECT THE WHITE ROCK FEDERAL 2H

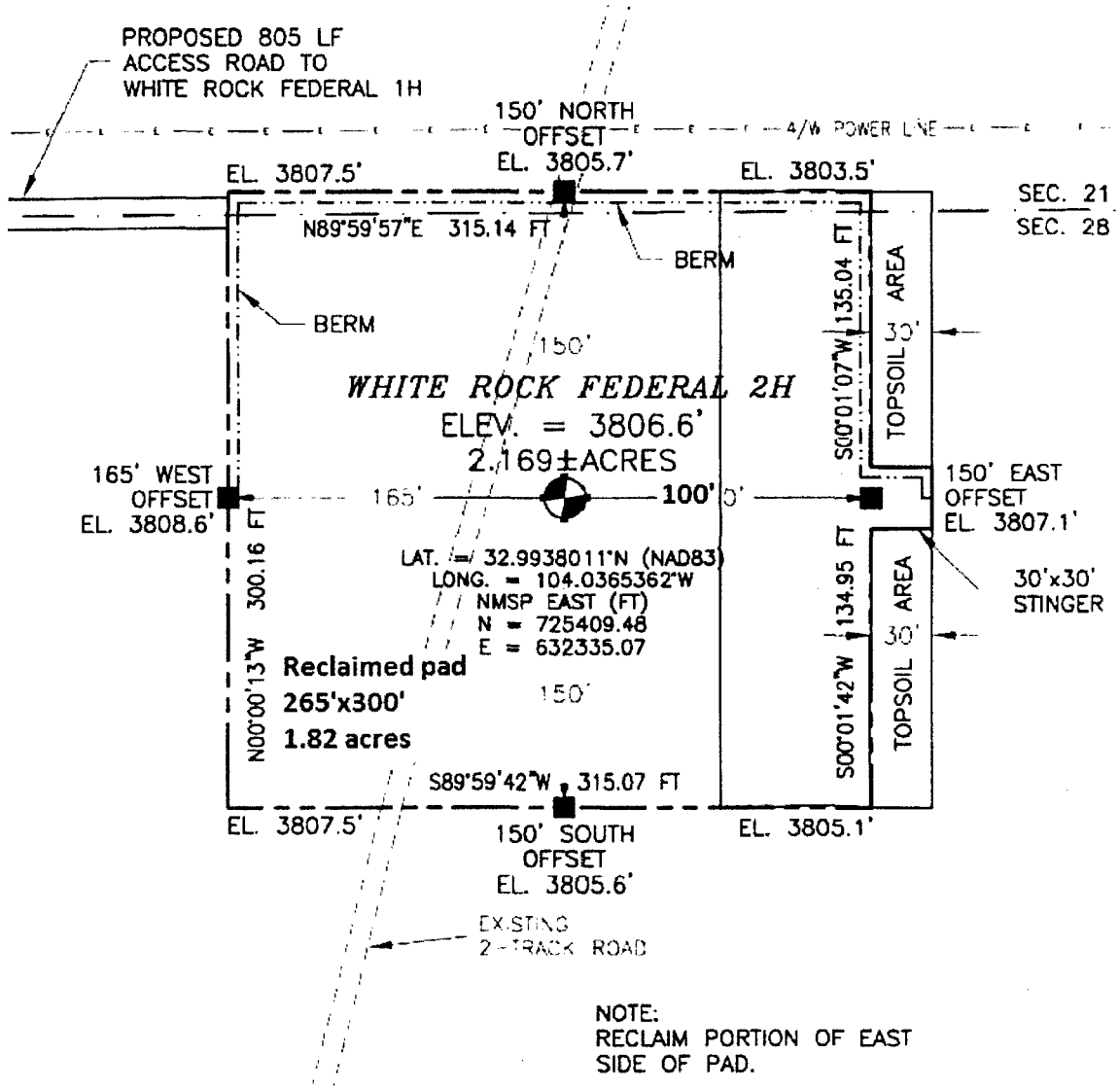
MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 21, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AUGUST 3, 2017



SHEET: 4-4 *SURVEY NO. 5397*

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*



NOTE:
RECLAIM PORTION OF EAST SIDE OF PAD.

SURFACE USE AND OPERATING PLAN

1. Existing Access Roads

A. All roads to the location are shown in Exhibit #6. The existing lease roads are illustrated and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling well, will be done where necessary.

B. Directions to Location: From the intersection of State Highway 82 and CR 217 go North on CR 217 approx. 10.5 miles turn West on 20' caliche lease road (county line road) and go approx. 3.4 miles, turn North on 20' caliche lease road and go approx. 0.46 of a mile, continue North on 2-Track road for approx.. 0.5 of a mile to South edge of pad for this location.

C. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

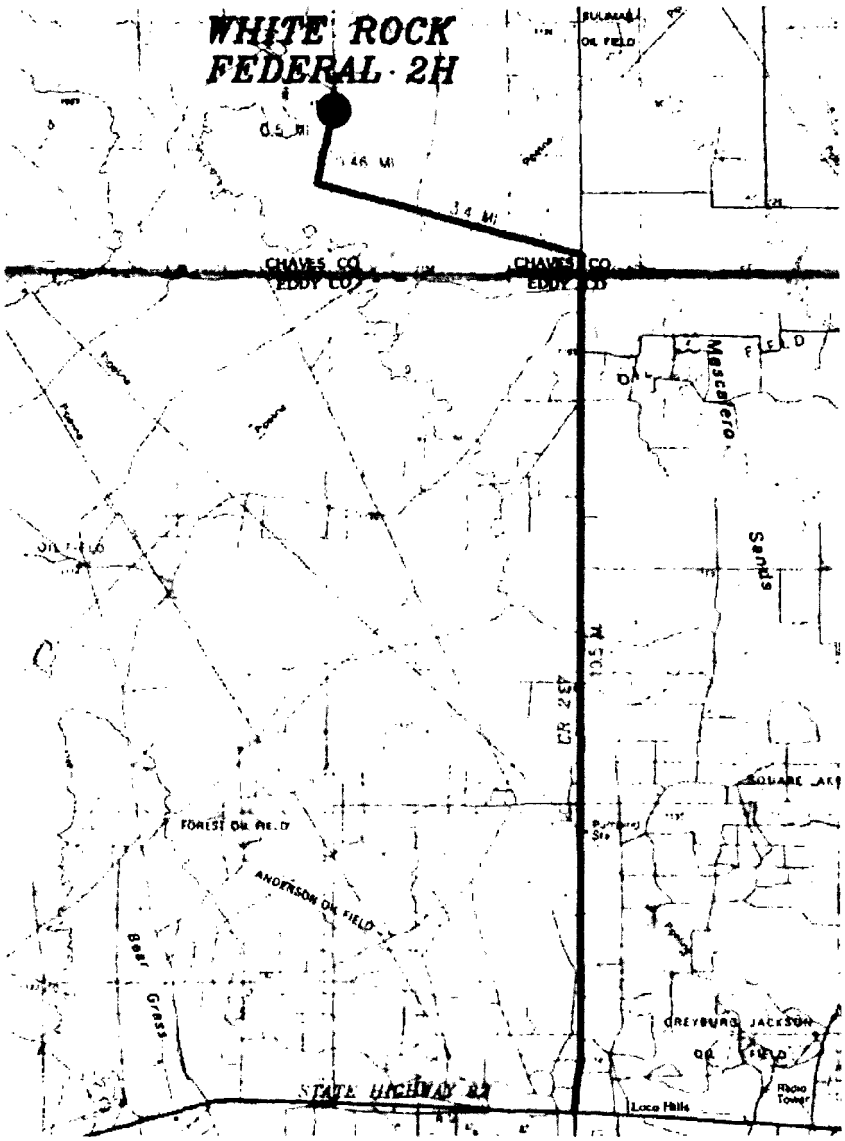


Exhibit #6

1. **Proposed Access Road:**

Vicinity Map shows this location with existing road and 805' of new road. Proposed upgrade of existing road will be done along staked centerline survey. Necessary maintenance will be done to insure traffic stays within proposed ROW. The road has been constructed as follows:

A. The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

B. The average grade will be less than 1%.

C. No turnouts are planned.

D. No culverts, cattleguard, gates, low water crossings or fence cuts are necessary.

E. Surfacing material will consist of native caliche. Caliche will be obtained from the nearest BLM approved caliche pit.

F. The access road as shown in Exhibit #6 is existing.

2. **Location of Existing Wells:**

Exhibit #16 shows all existing wells within a one-mile radius of this well.

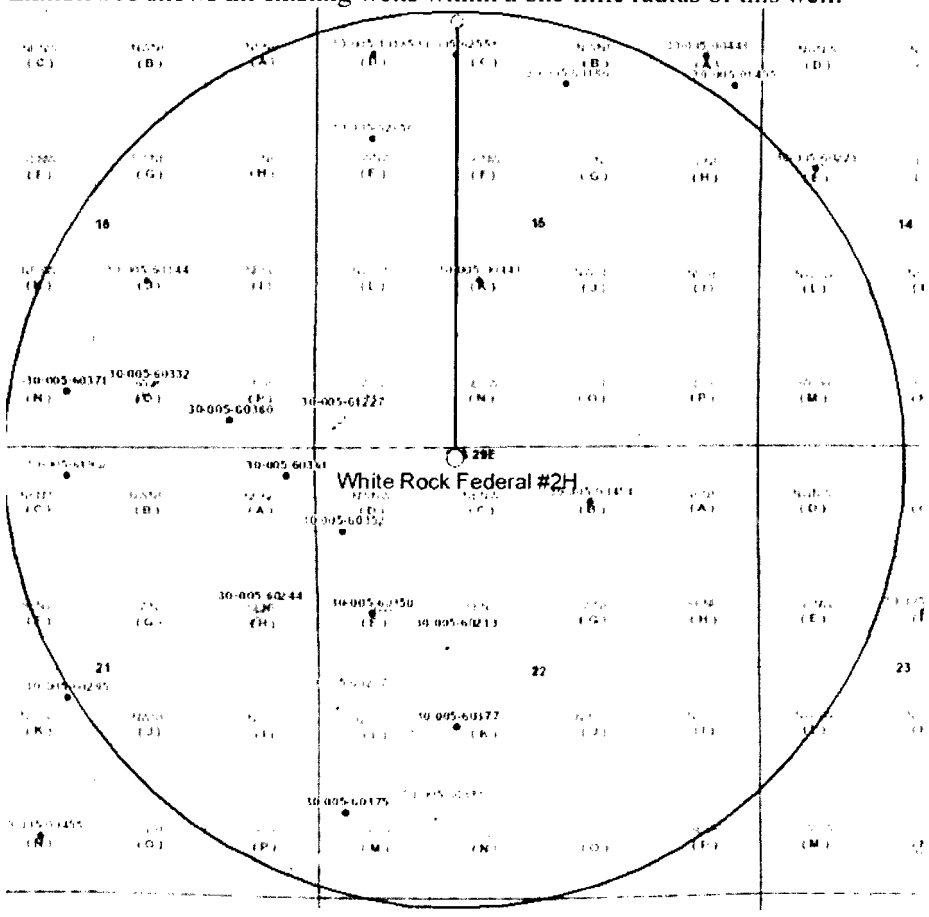


Exhibit #16

3. Location of Existing and/or Proposed Facilities:

A. Mack Energy Corporation will construct facility at this location.

B. If the well is productive, contemplated facilities will be as follows:

1) San Andres Completion: Will be sent to the White Rock Federal TB located at the #1 well. The Facility is shown in Exhibit #13.

2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

3) Any additional caliche will be obtained from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.

4) It will be necessary to run electric power if this well is productive. Power will be run by CVE and they will send in a separate plan for power.

C. Proposed flow lines will stay on location. TB will be built on location. Flowline will be a 3" poly surface line, 834' in length with a 40 psi working pressure.

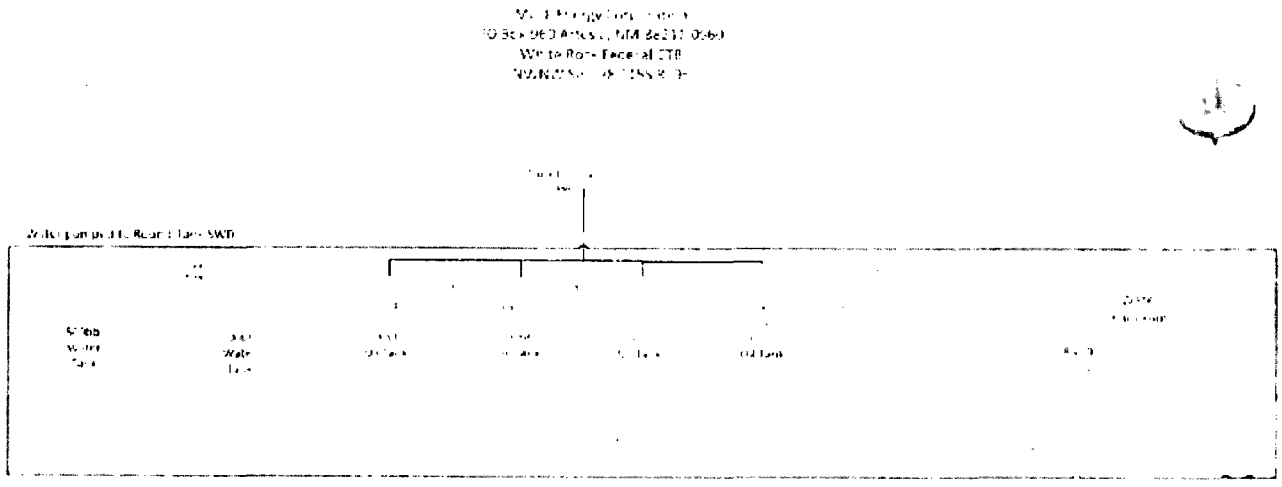


Exhibit #13

4. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Exhibit #6. If a commercial fresh water source is nearby, fasline may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location.

5. Source of Construction Materials:

All caliche required for construction of the drill pad and proposed new access road (approximately 2500 cubic yards) will be obtained from Private pit managed by the landowner.

6. Methods of Handling Waste:

A. Drill cuttings and fluids will be disposed into the steel tanks and hauled to R-360 disposal facility, permit number NM-01-0006. Located on Hwy 62 at MM 66.

B. Water produced from the well during completion may be disposed into a steel tank. After the well is permanently placed on production, produced water will be collected in tanks (fiberglass) and trucked to our Round Tank SWD #1; produced oil will be collected in steel tanks until sold.

C. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved local landfill. No toxic waste or hazardous chemicals will be produced by this operation.

D. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

E. Sewage and Gray Water will be placed in container and hauled to a approved facility. Container and disposal handled by Black Hawk.

F. Drilling fluids will be contained in steel tanks using a closed loop system Exhibit #12. No pits will be used during drilling operations

7. Ancillary Facilities:

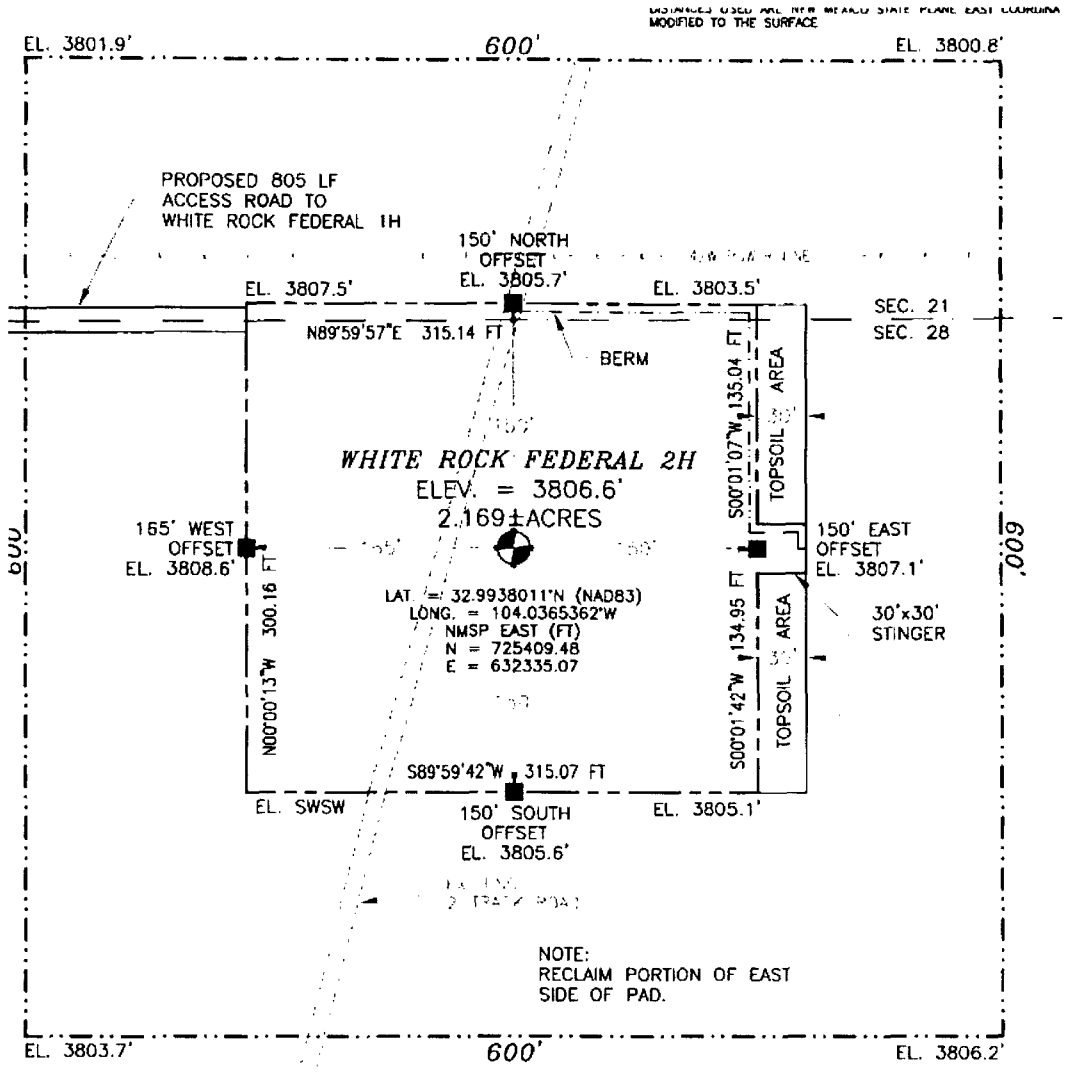
No airstrip, campsite or other facilities will be built as a result of the operation on this well.

8. Well Site Layout:

A. The well site and elevation plat for the proposed well is shown in Exhibit #14. It was staked by Maddron Surveying, Carlsbad, NM.

B. The drill pad layout, with elevations staked by Maddron Surveying, is shown in Exhibit #14. Dimensions of the pad are shown. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

C. Diagram below shows the proposed orientation of the location. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.



Exhibit# 14

9. Plans for Restoration of the Surface:

A. Upon completion of the proposed operations, if the well is completed, any additional caliche required for facilities will be obtained from a BLM approved caliche pit.

B. Plans for interim and or final remediation:

1) Caliche will be removed, ground ripped and stockpiled topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding of water.

2) Area will be reseeded as per BLM specifications. Seeding will be done when moisture is available and weather permitting. Pure live seed will be used to prevent noxious weeds. Annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

C. Exhibit #15 below shows the proposed downsized well site after Interim Reclamation. Dimensions are estimates on present conditions and are subject to change.

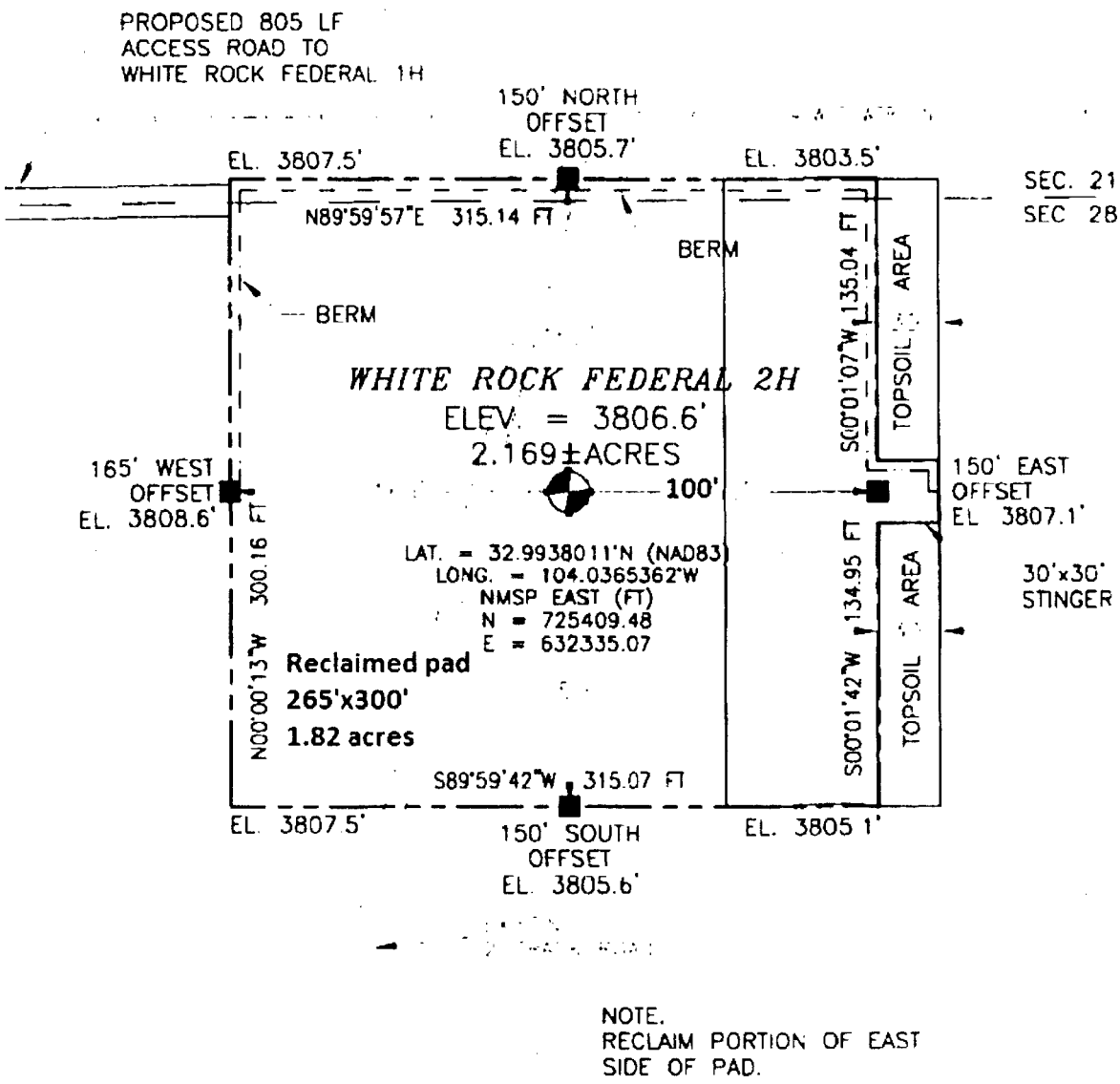


Exhibit #15

10. Surface Ownership:

The well site and lease is located entirely on Federal surface. We have notified the surface lessee of the impending operations. Bogel Limited Company, PO Box 460 Dexter, NM 88230 (575) 365-2996

11. Other Information:

A. The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.

B. There is no permanent or live water in the immediate area.

C. A Cultural Resources Examination has been requested and will be forwarded to your office in the near future

12. Lessee's and Operator's Representative:

The Mack Energy Corporation representative responsible for assuring compliance with the surface use plan is as follows:

Jerry W. Sherrell
Mack Energy Corporation
P.O. Box 960
Artesia, NM 88211-0960
Phone (575) 748-1288 (office)
jerrys@mec.com

APD CERTIFICATION

I hereby certify that I, or person under my direct supervision, have inspected the proposed drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I 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 the work associated with the operations proposed herein will be performed in conformity with this APD package and 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.

Date: _____ **Signed:** _____

Jerry W. Sherrell

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

09/28/2017

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000286

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017

DESCRIPTION

A STRIP OF LAND 20 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 10 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S77°20'36"W, A DISTANCE OF 1150.83 FEET;
THENCE N14°34'32"E A DISTANCE OF 536.39 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N13°57'14"E A DISTANCE OF 804.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N12°09'51"E A DISTANCE OF 804.53 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N74°17'41"E, A DISTANCE OF 1090.69 FEET;

SAID STRIP OF LAND BEING 2145.59 FEET OR 130.03 RODS IN LENGTH, CONTAINING 0.986 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4	874.56 L.F.	53.00 RODS	0.402 ACRES
SE/4 NW/4	210.85 L.F.	12.78 RODS	0.097 ACRES
NE/4 NW/4	1060.18 L.F.	64.25 RODS	0.487 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25 DAY OF MAY 2017

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FILIMON F. JARAMILLO PLS. 12797

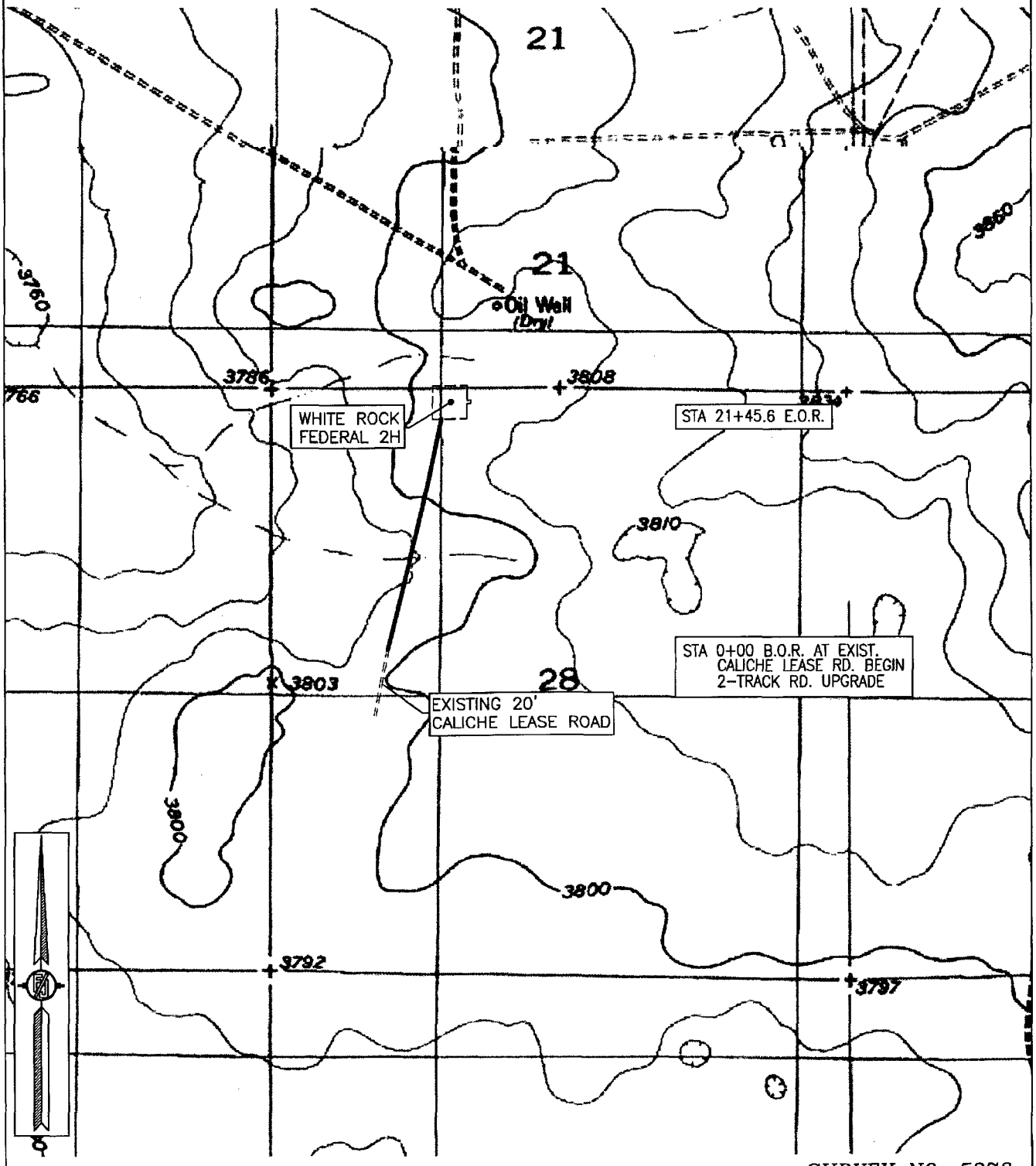
301 SOUTH CANAL
(575) 234-3341

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



SHEET: 3-4

SURVEY NO. 5273

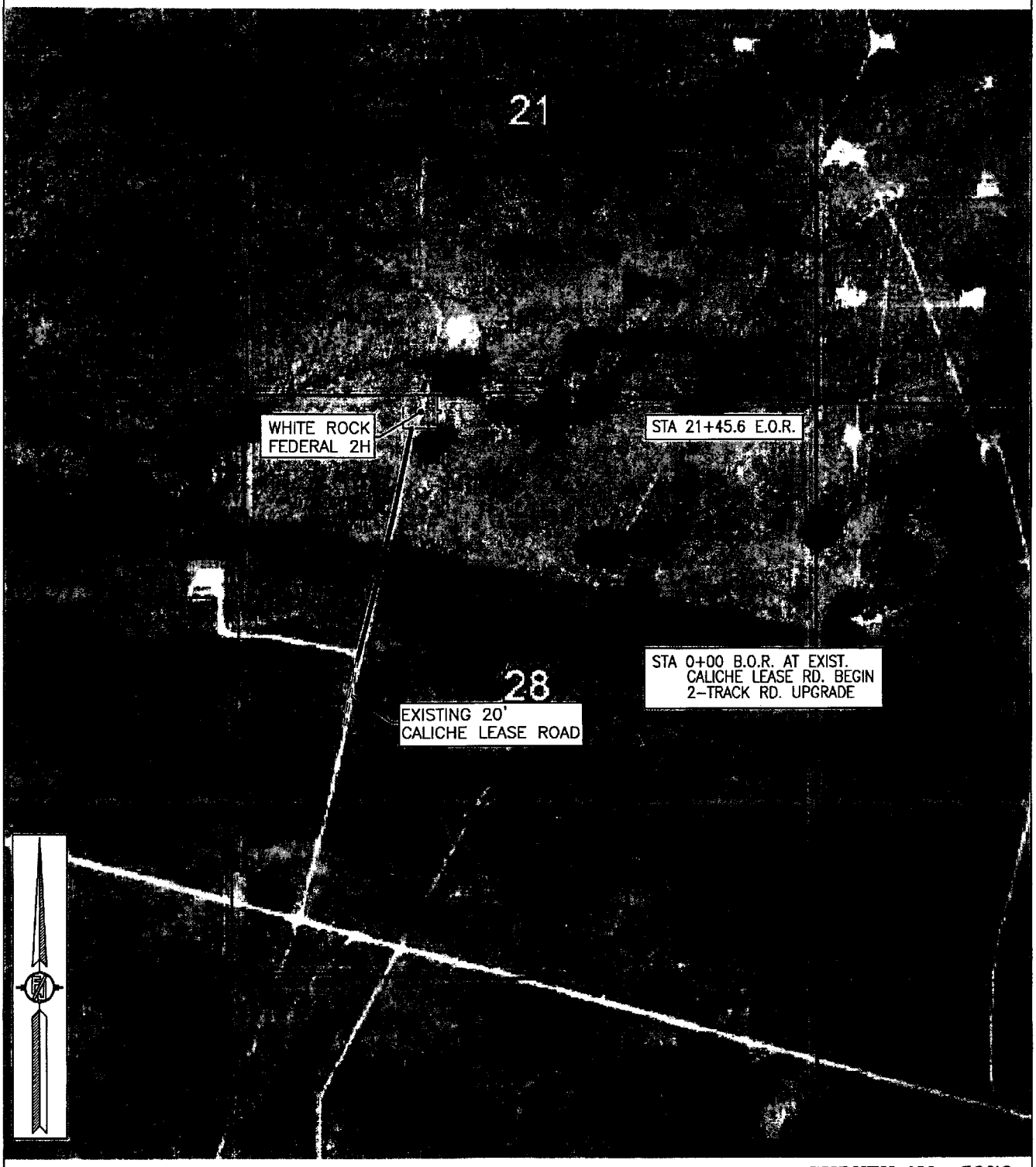
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT

ACCESS ROAD TO THE WHITE ROCK FEDERAL 2H

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MAY 17, 2017



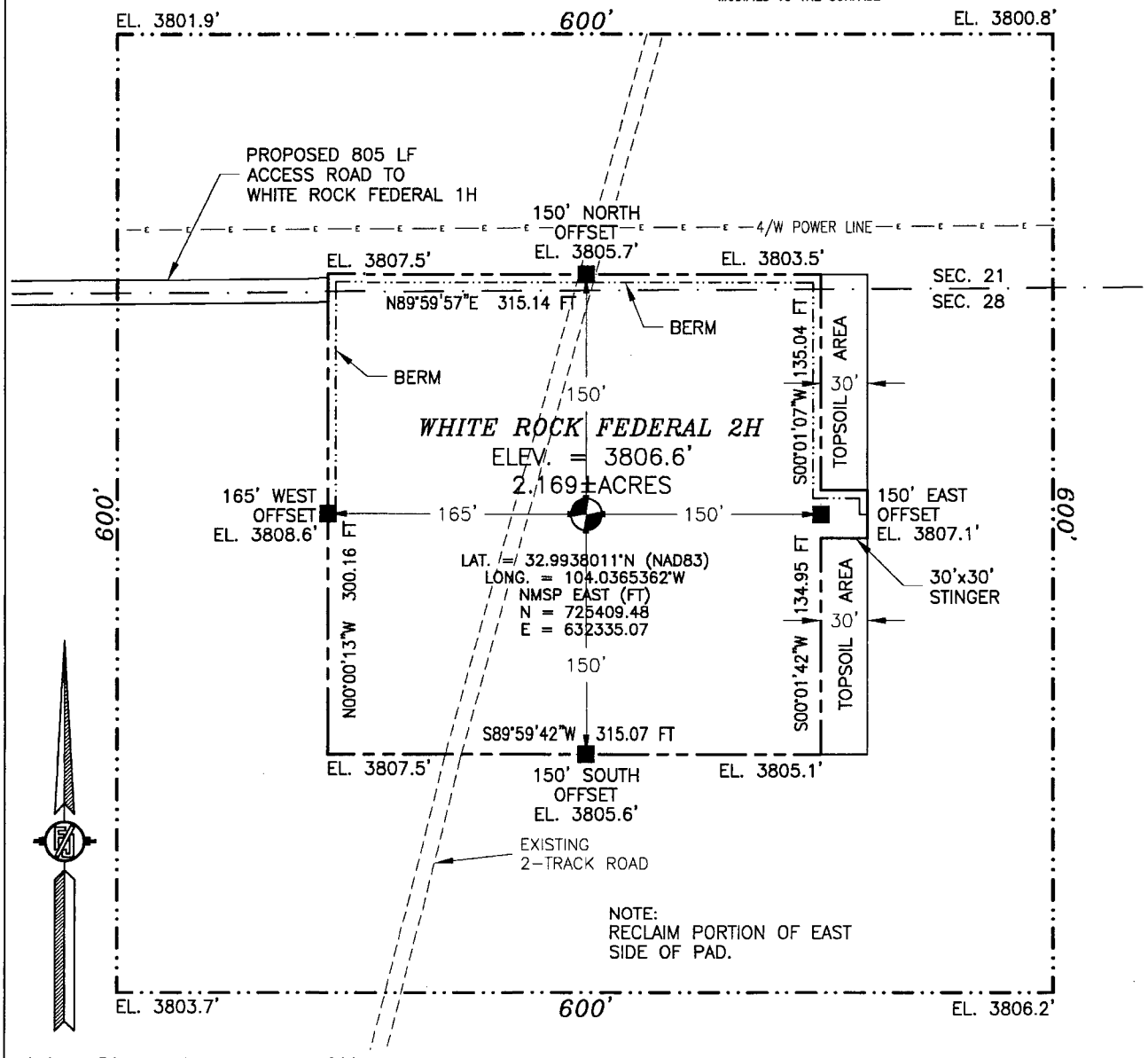
SHEET: 4-4

SURVEY NO. 5273

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 82 AND CR 217 (HAGERMAN CUTOFF) GO NORTH ON CR 217 APPROX. 10.5 MILES, TURN WEST ON 20' CALICHE LEASE ROAD (COUNTY LINE ROAD) AND GO APPROX. 3.4 MILES, TURN NORTH ON 20' CALICHE LEASE ROAD AND GO APPROX. 0.46 OF A MILE. CONTINUE NORTH ON 2-TRACK ROAD FOR APPROX. 0.5 OF A MILE TO SOUTH EDGE OF PAD FOR THIS LOCATION.

MACK ENERGY CORPORATION

WHITE ROCK FEDERAL 2H

LOCATED 140 FT. FROM THE NORTH LINE AND 1675 FT. FROM THE WEST LINE OF SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. CHAVES COUNTY, STATE OF NEW MEXICO

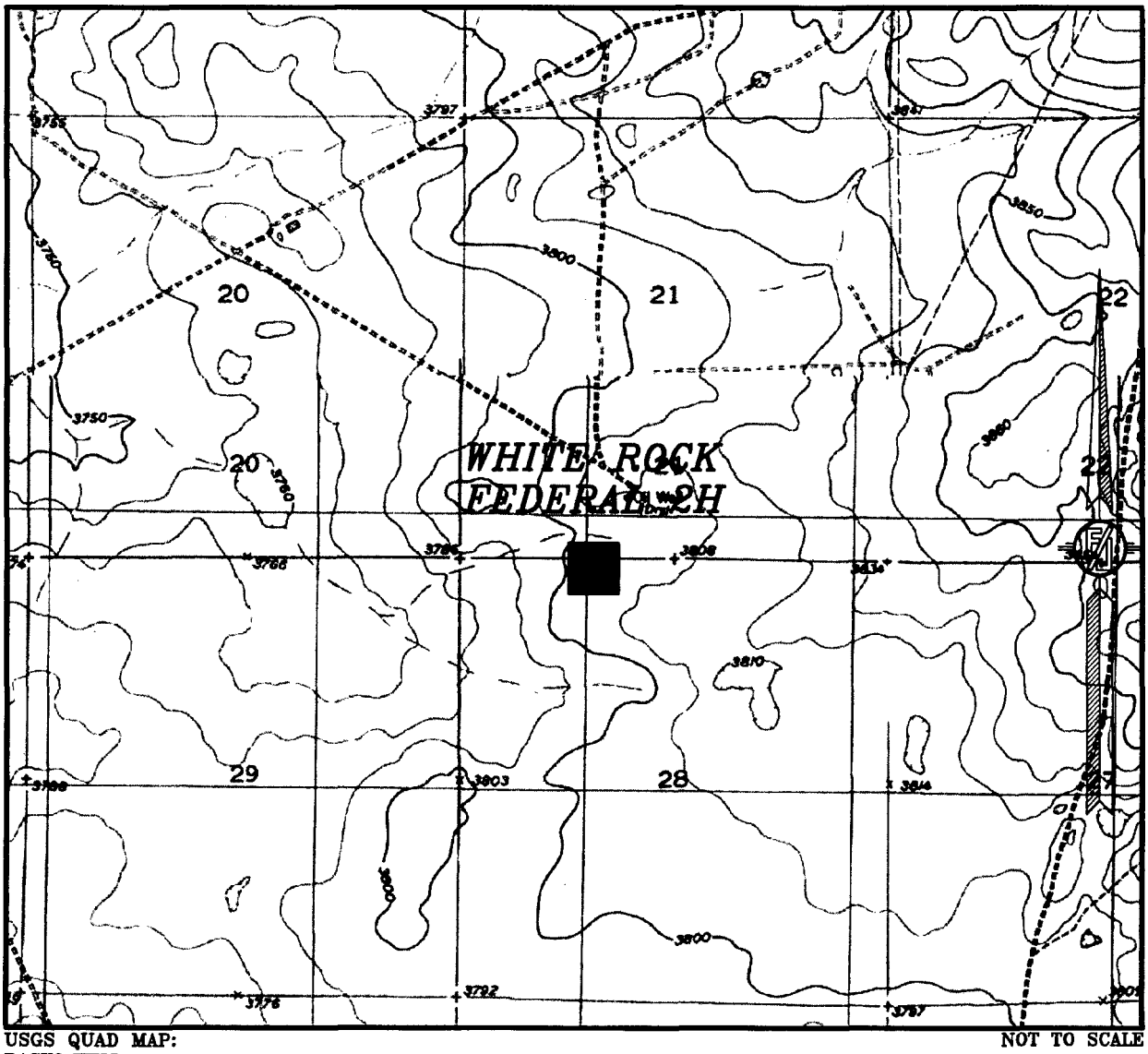
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
BASIN WELL

NOT TO SCALE

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
LOCATED 140 FT. FROM THE NORTH LINE
AND 1675 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

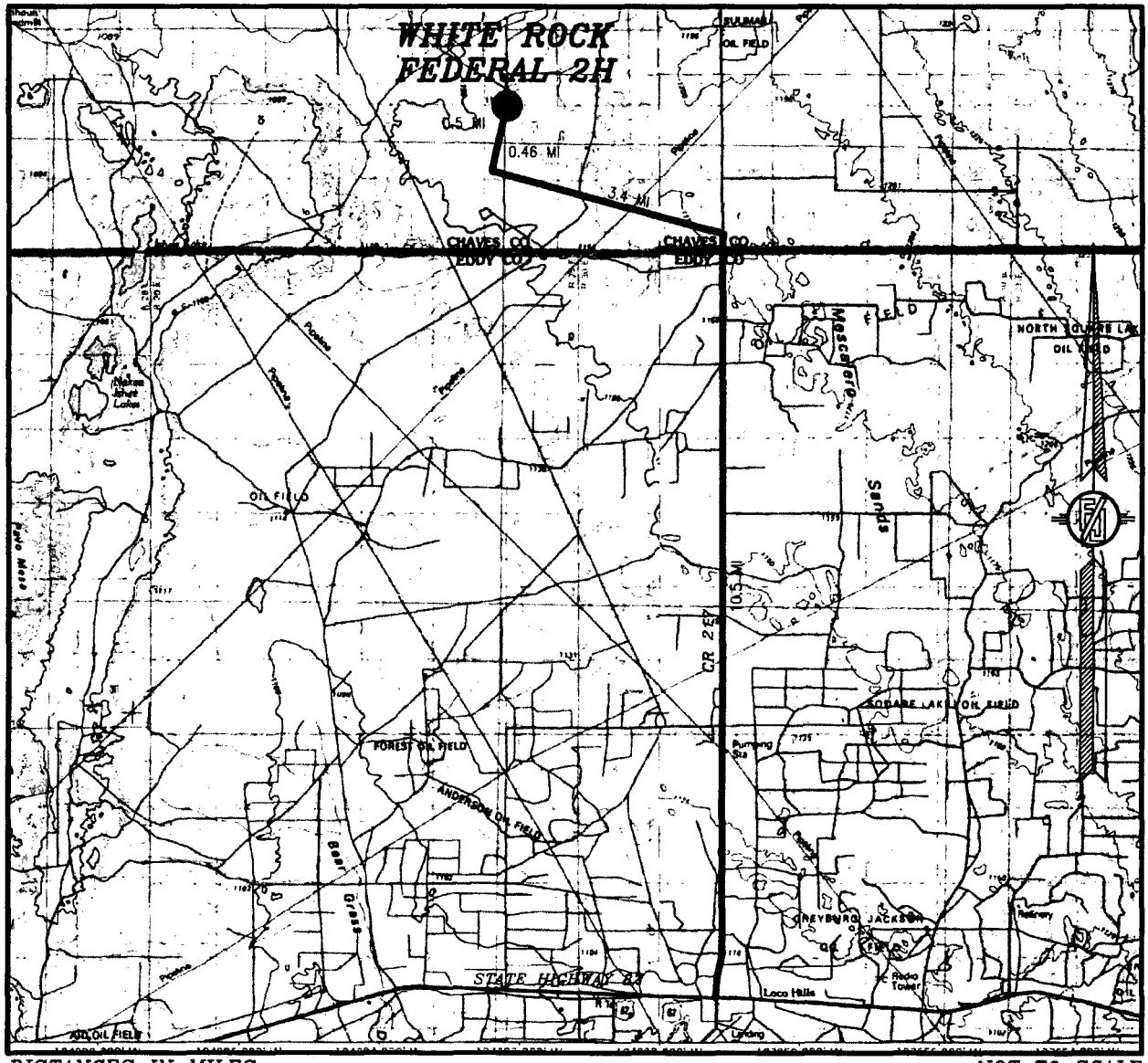
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF STATE HIGHWAY 82 AND CR 217 (HAGERMAN CUTOFF) GO NORTH ON CR 217 APPROX. 10.5 MILES, TURN WEST ON 20' CALICHE LEASE ROAD (COUNTY LINE ROAD) AND GO APPROX. 3.4 MILES, TURN NORTH ON 20' CALICHE LEASE ROAD AND GO APPROX. 0.46 OF A MILE. CONTINUE NORTH ON 2-TRACK ROAD FOR APPROX. 0.5 OF A MILE TO SOUTH EDGE OF PAD FOR THIS LOCATION.

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
LOCATED 140 FT. FROM THE NORTH LINE
AND 1675 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

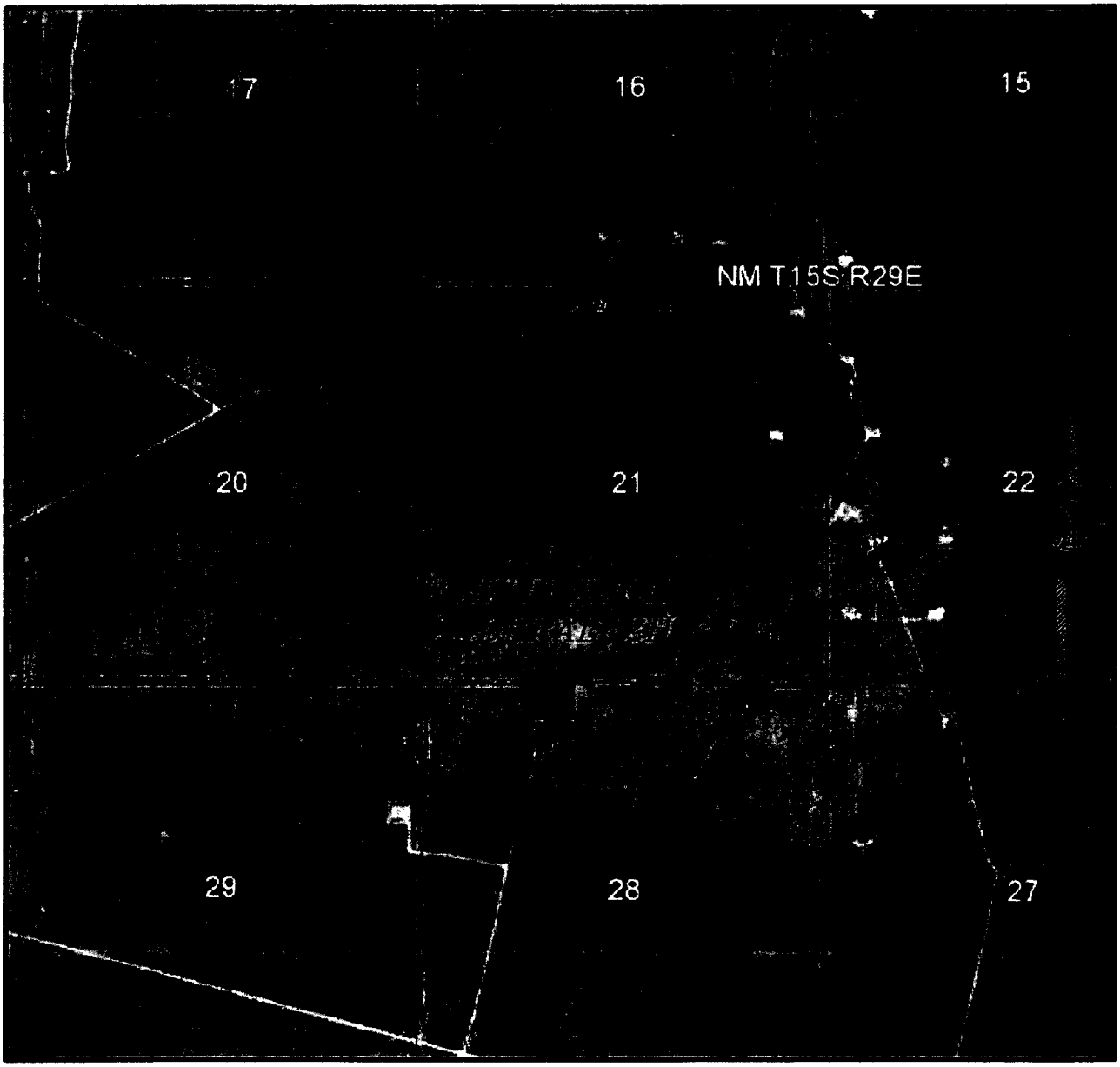
JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 28, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2017

MACK ENERGY CORPORATION
WHITE ROCK FEDERAL 2H
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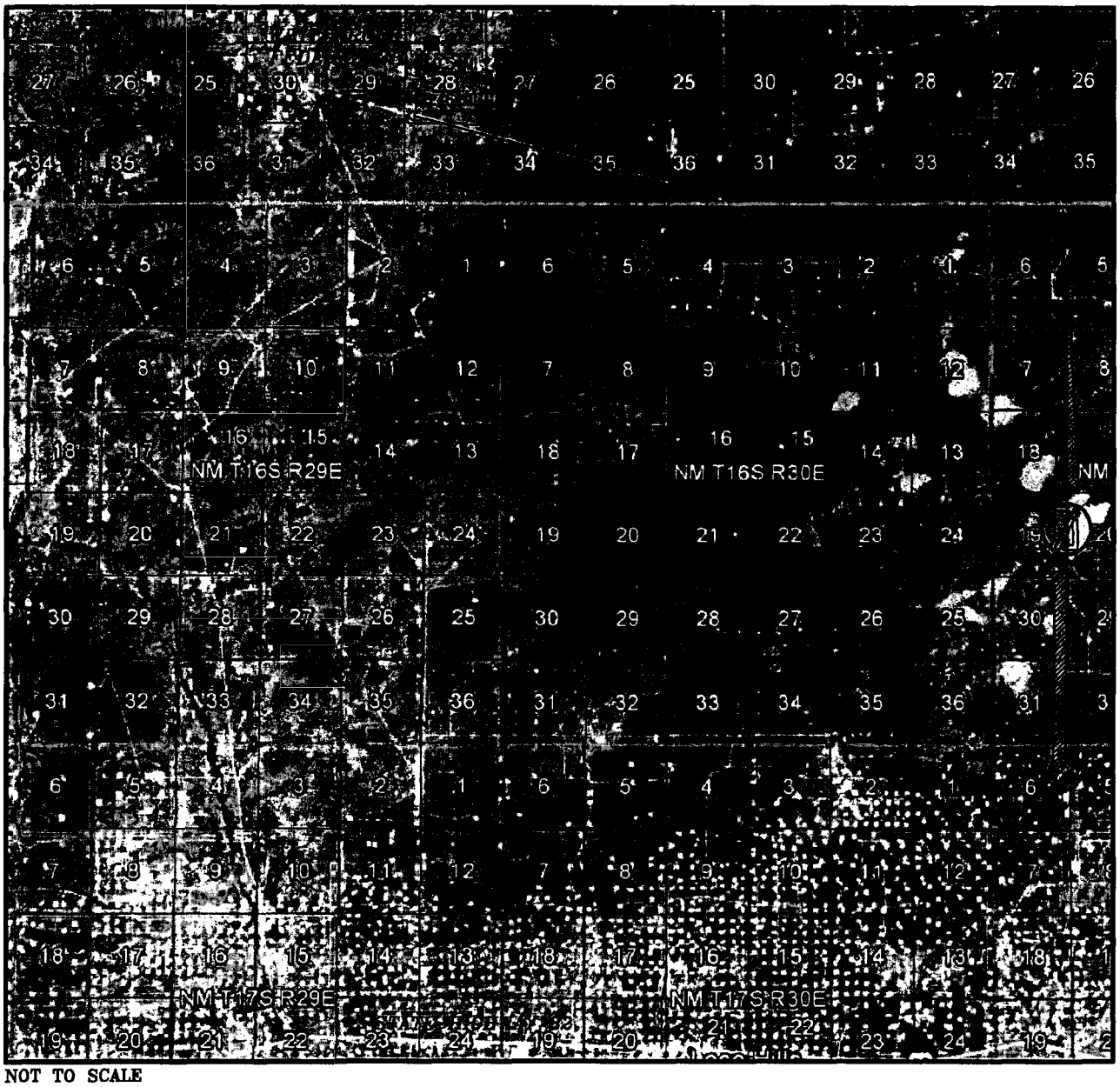
ACCESS AERIAL ROUTE MAP



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MACK ENERGY CORPORATION
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LOCATED 140 FT. FROM THE NORTH LINE
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CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 20, 2017

SURVEY NO. 5264A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

APD ID: 10400015523 **Submission Date:** 08/14/2017

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
15705	QUATERNARY	3806.5	0	0	ALLUVIUM	NONE	No
15678	TOP OF SALT	3410.5	396	396	SALT	NONE	No
15677	BASE OF SALT	2977.5	829	829	SALT	NONE	No
19507	YATES	2823.5	983	983	ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15672	SEVEN RIVERS	2590.5	1216	1216	ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15654	QUEEN	2118	1688.5	1688.5	ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15664	GRAYBURG	1707.5	2099	2099	DOLOMITE,ANHYDRITE,SILTSTONE	NATURAL GAS,OIL	No
15655	SAN ANDRES	1410.5	2396	2396	DOLOMITE,ANHYDRITE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 10500

Equipment: Roting Head, Mud-Gas Separator

Requesting Variance? NO

Variance request:

Testing Procedure: The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

Choke Diagram Attachment:

White_rock_fed_2_choke_manifold_diagram_07-10-2017.pdf

BOP Diagram Attachment:

White_Rock_fed_2_bop_diagram_07-10-2017.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	9.625	NEW	API	N	0	200	0	200	486	286	200	J-55	36	STC	20.232	6.892	BUOY	64.144	BUOY	7.04
2	PRODUCTION	8.5	7.0	NEW	API	N	0	2600	0	2600	486	-2114	2600	HCP-110	29	LTC	6.352	3.791	BUOY	5.021	BUOY	3.74
3	PRODUCTION	8.5	5.5	NEW	API	N	2600	10500	2600	10500	-2114	-10014	7900	HCP-110	17	BUTT	6.352	3.791	BUOY	5.021	BUOY	3.74

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

w_rock_2_csg_07-10-2017.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Casing Attachments

Casing ID: 2 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

w_rock_2_csg_07-10-2017.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

w_rock_2_csg_07-10-2017.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead	200	0	200	100	1.61	14.4	273		RFC + 12% PF53+2%PF1+5ppsPF42+ .125ppsPF29	RFC + 12% PF53+2%PF1+5ppsPF42+ .125ppsPF29
SURFACE	Tail		0	200	200	1.34	14.8	273	100	Class C+1%PF1	20bbls Gelled Water. 50 sacks of 11# Scavenger cement.
PRODUCTION	Lead	7900	2600	2600	1825	1.48	13	3209	35	PVL+1.3 (BWOW) PF44+5%PF174+.5%	PVL+1.3 (BWOW) PF44+5%PF174+.5%PF606+.1%PF153+.4ppsPF44

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
										PF606+.1%PF153+.4ppsPF44	
PRODUCTION	Lead	2700	0	2700	300	1.84	13.2	3209	35	Class "C" 4% PF20+4 pps PF45+125pps PF29	Class "C" 4% PF20+4 pps PF45+125pps PF29

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: BOPE Brine Water

Describe the mud monitoring system utilized: Parson PVT with PIT Volume Recorder

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
3285	3296	LSND/GEL	8.3	10	74.8		11		160000	10	Gel Strength : 0-1 Viscosity: 34-38

Operator Name: MACK ENERGY CORPORATION

Well Name: WHITE ROCK FEDERAL COM **Well Number:** 2H

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

None

List of open and cased hole logs run in the well:

CALIPER,CDL,CNL,DLL,FDC,GR

Coring operation description for the well:

Will evaluate after logging and determine if sidewall cores are necessary.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 1600 **Anticipated Surface Pressure:** 869.6

Anticipated Bottom Hole Temperature(F): 95

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

White_Rock_Federal___2H_Plan__1_07-27-2017.pdf

White_Rock_Federal___2H_Plot_Plan__1_07-27-2017.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

white_rock_2_drll_plan_08-14-2017.pdf

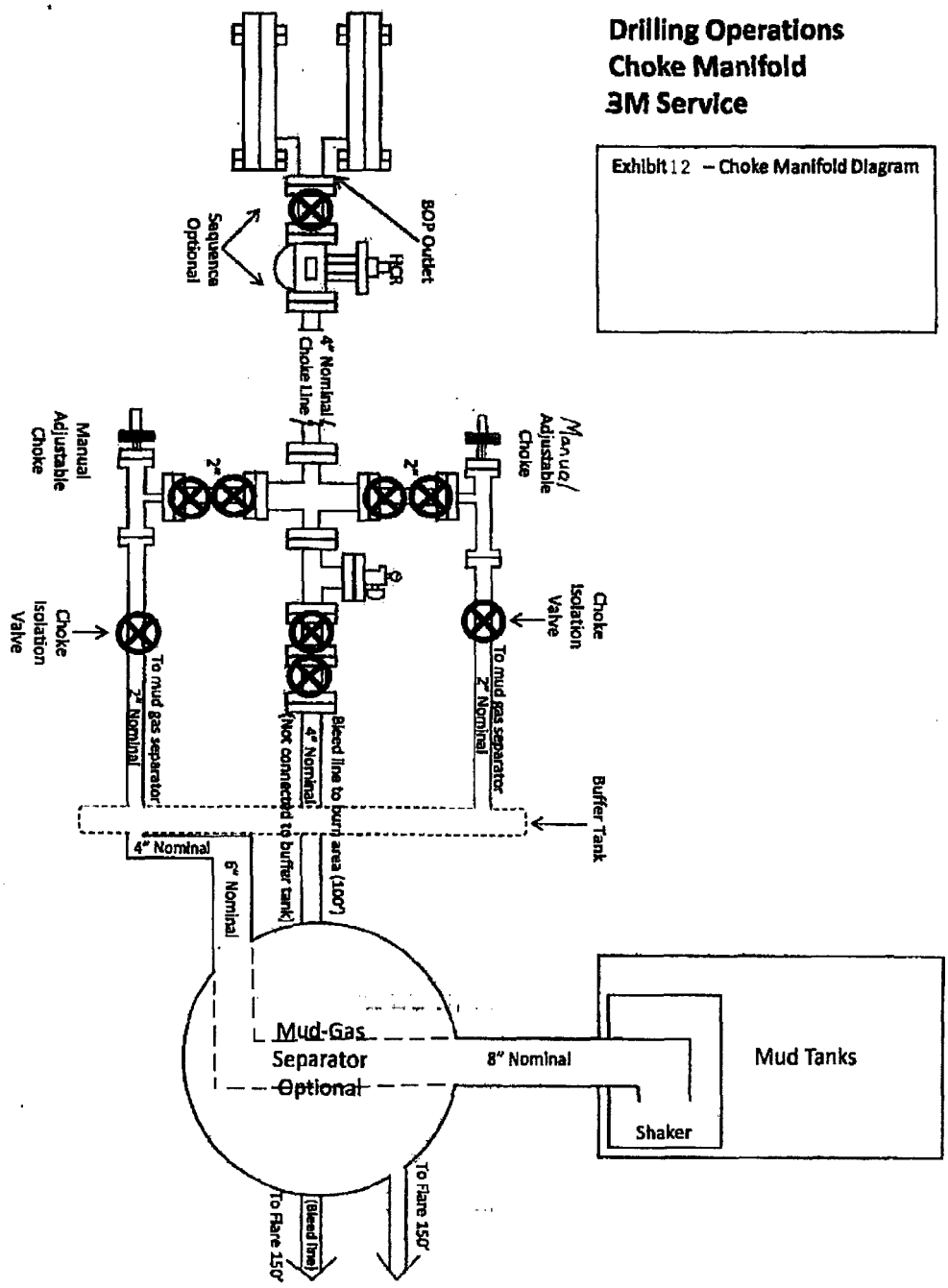
white_rock_2_h2s_plan_08-14-2017.pdf

Other Variance attachment:

Mack Energy Corporation

MANIFOLD SCHEMATIC

Exhibit #12



Mack Energy Corporation

Minimum Blowout Preventer Requirements

5000 psi Working Pressure

13 5/8 inch- 5 MWP

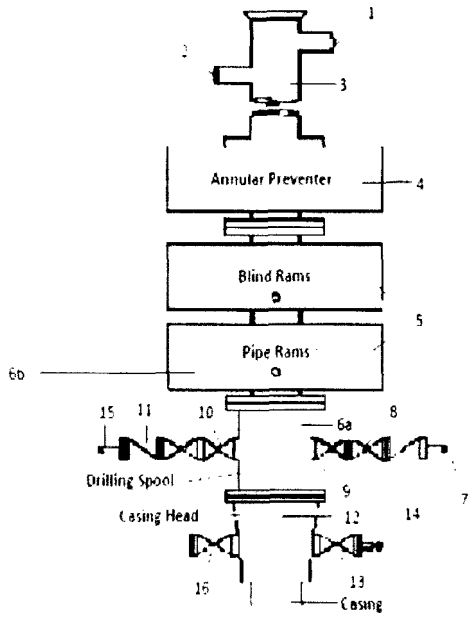
11 Inch - 5 MWP

Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"

OPTIONAL

16	Flanged Valve	1 13/16	



CONTRACTOR'S OPTION TO

CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.
10.

MEC TO FURNISH:

1. Bradenhead or casing head and side valves
2. Wear bushing If required

ME

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 9 5/8 in surface x intermediate

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi. joint strength: 99.84 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft			Make up Torque ft-lbs			Total ft = 200
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
9.625 inches	**36** #/ft	**J-55**	**ST&C**	**3,940**	**2,960**	**4,930**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
2,020 psi	**3,520** psi	**394** ,000 #		**564** ,000 #		**8.765**	

2nd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

3rd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

4th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

5th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

6th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

Select 1st segment bottom	200	**S.F.**	Actual		Desire
		collapse	20.23237	>=	1.125
200 ft to 0 ft		burst-b	6.981911	>=	1.25
9.625 0 J-55 ST&C		burst-t	7.04		
Top of segment 1 (ft)	0	**S.F.**	Actual		Desire
Select 2nd segment from bottom		collapse	#DIV/0!	>=	1.125
		burst-b	0	>=	1.25
0 ft to 0 ft		burst-t	0		
0 0 0 0		jnt strngth	64.14364	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 10500 ft **TVD:** 3250 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 10.3 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 10.3 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 10.3 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1740.7 psi Burst: 1740.7 psi, joint strength: 1740.7 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment	10500 ft to 2600 ft			Make up Torque ft-lbs			Total ft = 7900
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
5.5 inches	17 #/ft	HCP-110	Buttress	4,620	3,470	5,780	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
8,580 psi	10,640 psi-Ircr	568 ,000 #		546 ,000 #		4.767	

2nd segment	2600 ft to 0 ft			Make up Torque ft-lbs			Total ft = 2600
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
7 inches	29 #/ft	HCP-110	LT&C	7970	5980	9960	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
9,200 psi	11,220 psi	797 ,000 #		929 ,000 #		6.059	

3rd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

4th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

5th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

6th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

Select 1st segment bottom	10500	**S.F.**	Actual		Desire
		collapse	4.929052	>=	1.125
10500 ft to 2600 ft		burst-b	3.751498	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.595275		
Top of segment 1 (ft)	2600	**S.F.**	Actual		Desire
Select 2nd segment from bottom		collapse	6.351515	>=	1.125
		burst-b	3.791258	>=	1.25
2600 ft to 0 ft		burst-t	3.74		
7 29 HCP-110 LT&C		jnt strngth	5.020521	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 9 5/8 in surface x intermediate

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi. joint strength: 99.84 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft		Make up Torque ft-lbs		Total ft = 200
O.D.	Weight	Grade Threads	opt. min.	mx.	
9.625 inches	36 #/ft	J-55 ST&C	3,940 2,960	4,930	
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
2,020 psi	3,520 psi	394 ,000 #	564 ,000 #	8.765	

2nd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

4th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

5th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

6th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

Select 1st segment bottom 200

200 ft to 0 ft
9.625 0 J-55 ST&C

S.F.	Actual		Desire
collapse	20.23237	>=	1.125
burst-b	6.981911	>=	1.25
burst-t	7.04		

Top of segment 1 (ft) 0

Select 2nd segment from bottom

0 ft to 0 ft
0 0 0 0

S.F.	Actual		Desire
collapse	#DIV/0!	>=	1.125
burst-b	0	>=	1.25
burst-t	0		
jnt strngth	64.14364	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 10500 ft **TVD:** 3250 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse:	10.3 #/gal	Safety Factor Collapse:	1.125
Mud weight, burst:	10.3 #/gal	Safety Factor Burst:	1.25
Mud weight for joint strength:	10.3 #/gal	Safety Factor Joint Strength	1.8

BHP @ TD for: collapse: 1740.7 psi Burst: 1740.7 psi, joint strength: 1740.7 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment	10500 ft to 2600 ft			Make up Torque ft-lbs			Total ft = 7900
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
5.5 inches	17 #/ft	HCP-110	Buttress	4,620	3,470	5,780	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
8,580 psi	10,640 psi-Ircr	568 ,000 #		546 ,000 #		4.767	

2nd segment	2600 ft to 0 ft			Make up Torque ft-lbs			Total ft = 2600
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
7 inches	29 #/ft	HCP-110	LT&C	7970	5980	9960	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
9,200 psi	11,220 psi	797 ,000 #		929 ,000 #		6.059	

3rd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

4th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

5th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

6th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

Select 1st segment bottom	10500	S.F.	Actual		Desire
		collapse	4.929052	>=	1.125
10500 ft to 2600 ft		burst-b	3.751498	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.595275		
Top of segment 1 (ft)	2600	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	6.351515	>=	1.125
		burst-b	3.791258	>=	1.25
2600 ft to 0 ft		burst-t	3.74		
7 29 HCP-110 LT&C		jnt strngth	5.020521	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 9.5/8 in surface x intermediate

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi. joint strength: 99.84 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft		Make up Torque ft-lbs		Total ft = 200
O.D.	Weight	Grade Threads	opt. min.	mx.	
9.625 inches	**36** #/ft	**J-55** **ST&C**	**3,940** **2,960**	**4,930**	
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
2,020 psi	**3,520** psi	**394** ,000 #	**564** ,000 #	**8.765**	

2nd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

4th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

5th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt. min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

6th segment	0 ft to 0 ft		Make up Torque ft-lbs		Total ft = 0
O.D.	Weight	Grade Threads	opt min.	mx.	
inches	#/ft				
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift	
psi	psi	,000 #	,000 #		

Select 1st segment bottom 200

200 ft to 0 ft
9.625 0 J-55 ST&C

S.F.	Actual		Desire
collapse	20.23237	>=	1.125
burst-b	6.981911	>=	1.25
burst-t	7.04		

Top of segment 1 (ft) 0

Select 2nd segment from bottom

0 ft to 0 ft
0 0 0 0

S.F.	Actual		Desire
collapse	#DIV/0!	>=	1.125
burst-b	0	>=	1.25
burst-t	0		
jnt strngth	64.14364	>=	1.8

Casing Design **Well:** White Rock Federal Com #2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 10500 ft **TVD:** 3250 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 10.3 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 10.3 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 10.3 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1740.7 psi Burst: 1740.7 psi. joint strength: 1740.7 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment	10500 ft to 2600 ft			Make up Torque ft-lbs			Total ft = 7900
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
5.5 inches	**17** #/ft	**HCP-110**	**Buttress**	**4,620**	**3,470**	**5,780**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
8,580 psi	**10,640** psi-lrcr	**568** ,000 #		**546** ,000 #		**4.767**	

2nd segment	2600 ft to 0 ft			Make up Torque ft-lbs			Total ft = 2600
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
7 inches	**29** #/ft	**HCP-110**	**LT&C**	**7970**	**5980**	**9960**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
9,200 psi	**11,220** psi	**797** ,000 #		**929** ,000 #		**6.059**	

3rd segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

4th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

5th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

6th segment	0 ft to 0 ft			Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min	mx.	
inches	#/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
psi	psi	,000 #		,000 #			

Select 1st segment bottom	10500	S.F.	Actual		Desire
		collapse	4.929052	>=	1.125
10500 ft to 2600 ft		burst-b	3.751498	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.595275		
Top of segment 1 (ft)	2600	S.F.	Actual		Desire
Select 2nd segment from bottom		collapse	6.351515	>=	1.125
		burst-b	3.791258	>=	1.25
2600 ft to 0 ft		burst-t	3.74		
7 29 HCP-110 LT&C		jnt strngth	5.020521	>=	1.8

Mack Energy

Chaves County
Sec 28-T15S-R29E
White Rock Federal #2H

Wellbore #1

Plan: Plan #1

Standard Planning Report

26 July, 2017

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project	Chaves County		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 28-T15S-R29E				
Site Position:		**Northing:**	725,403.5700 usft	**Latitude:**	32.9937935
From:	Map	**Easting:**	631,215.1200 usft	**Longitude:**	-104.0401890
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.16 °

Well	White Rock Federal #2H					
Well Position	**+N/-S**	5.91 ft	**Northing:**	725,409.4800 usft	**Latitude:**	32.9938011
	+E/-W	1,119.95 ft	**Easting:**	632,335.0700 usft	**Longitude:**	-104.0365362
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,806.60 ft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	7/26/2017	7.47	60.73	48,356

Design	Plan #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	3,320.00	0.00	0.00	359.71	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,747.04	0.00	0.00	2,747.04	0.00	0.00	0.00	0.00	0.00	0.00	
3,647.04	90.00	359.71	3,320.00	572.95	-2.93	10.00	10.00	-0.03	359.71	
8,210.26	90.00	359.71	3,320.00	5,136.11	-26.26	0.00	0.00	0.00	0.00	PBHL Whte Rock Fec

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,747.04	0.00	0.00	2,747.04	0.00	0.00	0.00	0.00	0.00	0.00
KOP BLD 10°/100'									
2,750.00	0.30	359.71	2,750.00	0.01	0.00	0.01	10.00	10.00	0.00
2,800.00	5.30	359.71	2,799.92	2.45	-0.01	2.45	10.00	10.00	0.00
2,850.00	10.30	359.71	2,849.45	9.23	-0.05	9.23	10.00	10.00	0.00
2,900.00	15.30	359.71	2,898.19	20.30	-0.10	20.30	10.00	10.00	0.00
2,950.00	20.30	359.71	2,945.78	35.57	-0.18	35.57	10.00	10.00	0.00
3,000.00	25.30	359.71	2,991.86	54.94	-0.28	54.94	10.00	10.00	0.00
3,050.00	30.30	359.71	3,036.08	78.25	-0.40	78.25	10.00	10.00	0.00
3,100.00	35.30	359.71	3,078.10	105.32	-0.54	105.32	10.00	10.00	0.00
3,150.00	40.30	359.71	3,117.59	135.95	-0.70	135.95	10.00	10.00	0.00
3,200.00	45.30	359.71	3,154.27	169.91	-0.87	169.91	10.00	10.00	0.00
3,250.00	50.30	359.71	3,187.85	206.94	-1.06	206.94	10.00	10.00	0.00
3,300.00	55.30	359.71	3,218.07	246.75	-1.26	246.75	10.00	10.00	0.00
3,350.00	60.30	359.71	3,244.71	289.04	-1.48	289.05	10.00	10.00	0.00
3,400.00	65.30	359.71	3,267.56	333.50	-1.71	333.50	10.00	10.00	0.00
3,450.00	70.30	359.71	3,286.45	379.77	-1.94	379.78	10.00	10.00	0.00
3,500.00	75.30	359.71	3,301.23	427.52	-2.19	427.53	10.00	10.00	0.00
3,550.00	80.30	359.71	3,311.80	476.37	-2.44	476.38	10.00	10.00	0.00
3,600.00	85.30	359.71	3,318.07	525.96	-2.69	525.97	10.00	10.00	0.00
3,647.04	90.00	359.71	3,320.00	572.95	-2.93	572.96	10.00	10.00	0.00
EOB HLD 90° Inc.									
3,700.00	90.00	359.71	3,320.00	625.91	-3.20	625.92	0.00	0.00	0.00
3,800.00	90.00	359.71	3,320.00	725.91	-3.71	725.92	0.00	0.00	0.00
3,900.00	90.00	359.71	3,320.00	825.91	-4.22	825.92	0.00	0.00	0.00
4,000.00	90.00	359.71	3,320.00	925.91	-4.73	925.92	0.00	0.00	0.00

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
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Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,100.00	90.00	359.71	3,320.00	1,025.90	-5.25	1,025.92	0.00	0.00	0.00
4,200.00	90.00	359.71	3,320.00	1,125.90	-5.76	1,125.92	0.00	0.00	0.00
4,300.00	90.00	359.71	3,320.00	1,225.90	-6.27	1,225.92	0.00	0.00	0.00
4,400.00	90.00	359.71	3,320.00	1,325.90	-6.78	1,325.92	0.00	0.00	0.00
4,500.00	90.00	359.71	3,320.00	1,425.90	-7.29	1,425.92	0.00	0.00	0.00
4,600.00	90.00	359.71	3,320.00	1,525.90	-7.80	1,525.92	0.00	0.00	0.00
4,700.00	90.00	359.71	3,320.00	1,625.90	-8.31	1,625.92	0.00	0.00	0.00
4,800.00	90.00	359.71	3,320.00	1,725.89	-8.82	1,725.92	0.00	0.00	0.00
4,900.00	90.00	359.71	3,320.00	1,825.89	-9.34	1,825.92	0.00	0.00	0.00
5,000.00	90.00	359.71	3,320.00	1,925.89	-9.85	1,925.92	0.00	0.00	0.00
5,100.00	90.00	359.71	3,320.00	2,025.89	-10.36	2,025.92	0.00	0.00	0.00
5,200.00	90.00	359.71	3,320.00	2,125.89	-10.87	2,125.92	0.00	0.00	0.00
5,300.00	90.00	359.71	3,320.00	2,225.89	-11.38	2,225.92	0.00	0.00	0.00
5,400.00	90.00	359.71	3,320.00	2,325.89	-11.89	2,325.92	0.00	0.00	0.00
5,500.00	90.00	359.71	3,320.00	2,425.89	-12.40	2,425.92	0.00	0.00	0.00
5,600.00	90.00	359.71	3,320.00	2,525.88	-12.91	2,525.92	0.00	0.00	0.00
5,700.00	90.00	359.71	3,320.00	2,625.88	-13.43	2,625.92	0.00	0.00	0.00
5,800.00	90.00	359.71	3,320.00	2,725.88	-13.94	2,725.92	0.00	0.00	0.00
5,900.00	90.00	359.71	3,320.00	2,825.88	-14.45	2,825.92	0.00	0.00	0.00
6,000.00	90.00	359.71	3,320.00	2,925.88	-14.96	2,925.92	0.00	0.00	0.00
6,100.00	90.00	359.71	3,320.00	3,025.88	-15.47	3,025.92	0.00	0.00	0.00
6,200.00	90.00	359.71	3,320.00	3,125.88	-15.98	3,125.92	0.00	0.00	0.00
6,300.00	90.00	359.71	3,320.00	3,225.88	-16.49	3,225.92	0.00	0.00	0.00
6,400.00	90.00	359.71	3,320.00	3,325.87	-17.00	3,325.92	0.00	0.00	0.00
6,500.00	90.00	359.71	3,320.00	3,425.87	-17.52	3,425.92	0.00	0.00	0.00
6,600.00	90.00	359.71	3,320.00	3,525.87	-18.03	3,525.92	0.00	0.00	0.00
6,700.00	90.00	359.71	3,320.00	3,625.87	-18.54	3,625.92	0.00	0.00	0.00
6,800.00	90.00	359.71	3,320.00	3,725.87	-19.05	3,725.92	0.00	0.00	0.00
6,900.00	90.00	359.71	3,320.00	3,825.87	-19.56	3,825.92	0.00	0.00	0.00
7,000.00	90.00	359.71	3,320.00	3,925.87	-20.07	3,925.92	0.00	0.00	0.00
7,100.00	90.00	359.71	3,320.00	4,025.86	-20.58	4,025.92	0.00	0.00	0.00
7,200.00	90.00	359.71	3,320.00	4,125.86	-21.09	4,125.92	0.00	0.00	0.00
7,300.00	90.00	359.71	3,320.00	4,225.86	-21.61	4,225.92	0.00	0.00	0.00
7,400.00	90.00	359.71	3,320.00	4,325.86	-22.12	4,325.92	0.00	0.00	0.00
7,500.00	90.00	359.71	3,320.00	4,425.86	-22.63	4,425.92	0.00	0.00	0.00
7,600.00	90.00	359.71	3,320.00	4,525.86	-23.14	4,525.92	0.00	0.00	0.00
7,700.00	90.00	359.71	3,320.00	4,625.86	-23.65	4,625.92	0.00	0.00	0.00
7,800.00	90.00	359.71	3,320.00	4,725.86	-24.16	4,725.92	0.00	0.00	0.00
7,900.00	90.00	359.71	3,320.00	4,825.85	-24.67	4,825.92	0.00	0.00	0.00
8,000.00	90.00	359.71	3,320.00	4,925.85	-25.19	4,925.92	0.00	0.00	0.00
8,100.00	90.00	359.71	3,320.00	5,025.85	-25.70	5,025.92	0.00	0.00	0.00
8,200.00	90.00	359.71	3,320.00	5,125.85	-26.21	5,125.92	0.00	0.00	0.00
8,210.26	90.00	359.71	3,320.00	5,136.11	-26.26	5,136.18	0.00	0.00	0.00
TD at 8210.26 - PBHL Whte Rock Federal #2H									

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well White Rock Federal #2H
Company:	Mack Energy	**TVD Reference:**	KB=17.4 @ 3824.00ft
Project:	Chaves County	**MD Reference:**	KB=17.4 @ 3824.00ft
Site:	Sec 28-T15S-R29E	**North Reference:**	Grid
Well:	White Rock Federal #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Whte Rock Feder - plan hits target center - Point	0.00	0.00	3,320.00	5,136.11	-26.26	730,545.5800	632,308.8100	33.0079180	-104.0365746

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,747.04	2,747.04	0.00	0.00	KOP BLD 10°/100'
3,647.04	3,320.00	572.95	-2.93	EOB HLD 90° Inc.
8,210.26	3,320.00	5,136.11	-26.26	TD at 8210.26

Mack Energy
Project: Chaves County
Site: Sec 28-T15S-R29E
Well: White Rock Federal #2H
Wellbore: Wellbore #1
Plan: Plan #1 (White Rock Federal #2H/Wellbore #1)

WELL DETAILS: White Rock Federal #2H

Ground Elevation:: 3806.60
RKB Elevation: KB=17.4 @ 3824.00ft
Rig Name:

Northing	Easting	Latittude	Longitude
725409.4800	632335.0700	32.993801	104.036536

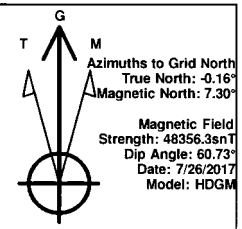
PROJECT DETAILS: Chaves County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W
PBHL White Rock Federal #2H - plan hits target center	8210.00	5136.11	-26.26

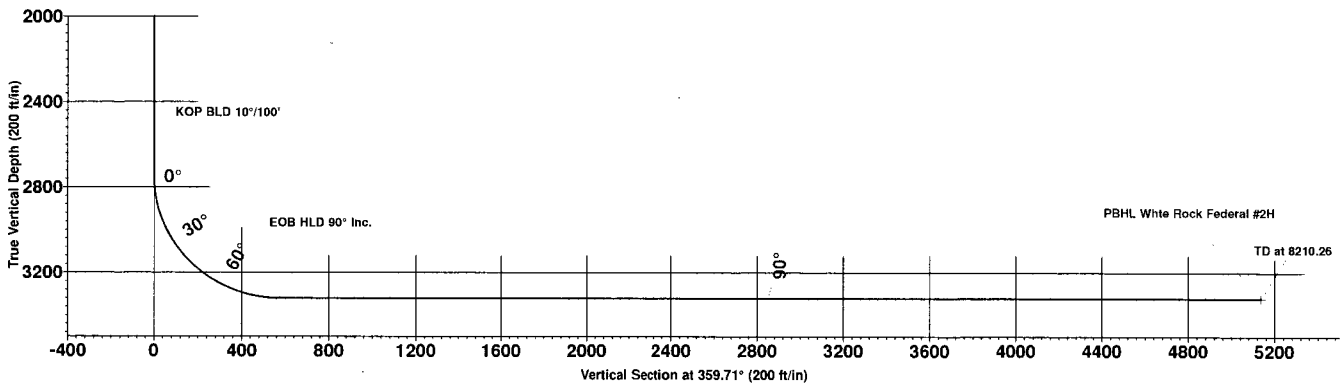
Section Details

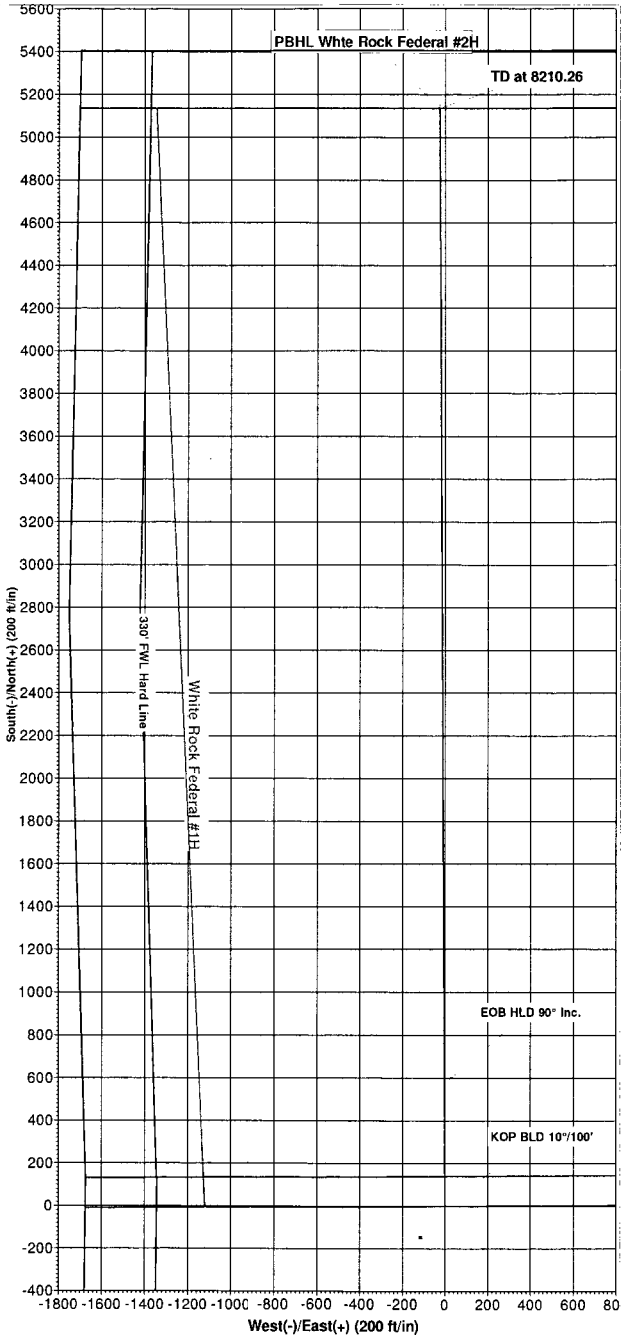
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2747.04	0.00	0.00	2747.04	0.00	0.00	0.00	0.00	0.00	KOP BLD 10°/100'
3647.04	90.00	359.71	3320.00	572.95	-2.93	10.00	359.71	572.96	EOB HLD 90° Inc.
8210.26	90.00	359.71	3320.00	5136.11	-26.26	0.00	0.00	5136.18	TD at 8210.26



Azimuths to Grid North
True North: -0.16°
Magnetic North: 7.30°

Magnetic Field
Strength: 48356.3snT
Dip Angle: 60.73°
Date: 7/26/2017
Model: HDGM





Attached to Form 3160-3
Mack Energy Corporation
White Rock Federal #2H NMNM-131581
SHL: 140 FNL & 1675 FWL, NENW, Sec. 28 T15S R29E
BHL: 270 FNL & 1675 FWL, NENW, Sec. 21 T15S R29E
Chaves County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Top of Salt	364'
Base of Salt	797'
Yates	951'
Seven Rivers	1184'
Queen	1673'
Grayburg	2067'
San Andres	2364'

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas:

Water Sand	150'	Fresh Water
Yates	951'	Oil/Gas
Seven Rivers	1184'	Oil/Gas
Queen	1673'	Oil/Gas
Grayburg	2067'	Oil/Gas
San Andres	2364'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 9 5/8" casing to 200' and circulating cement back to surface will protect the surface fresh water sand. Salt section and shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them by cementing 5 ½" production casing, sufficient cement will be pumped to circulate back to surface.

4. Casing Program:

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, collapse/burst/tension
14 3/4"	0-200'	9 5/8"	36#, J-55, ST&C, New, 20.23237/6.981911/7.04
8 3/4"	0-2600'	7"	29#,HPC-110,LT&C,New,6.351515/3.791258/3.74
8 ¾"	2600-10500'	5 ½"	17#, HCP-110 Buttress, New, 4.929052/3.751498/3.59

5. Cement Program:

9 5/8" Surface Casing: Lead 100sx, RFC+12%PF53+2%PF1+5ppsPF42+.125ppsPF29, yld 1.61, wt 14.4 ppg, 7.3557gals/sx, excess 100%. Tail: 200sx, Class C+1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, excess 100%
7" & 5 ½" Production Casing: Lead 300sx Class C 4% PF 20+4 pps PF45 +1.25pps PF-29, yld 1.84, wt 13.2 ppg, 9.914gals/sx, excess 35%, Tail 1825sx, PVL + 1.3% (BWOW) PF44

+ 5% PF174 + 5% PF606 + .1% PF153 +.4% PF44, yield 1.48, wt 13.0, 7.57gals/sx, 35% excess.

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #10 will consist of a double ram-type (3000 psi WP) minimum preventer. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on bottom. The 11" BOP will be nippled up on the 8 5/8" surface casing and tested by a 3rd party to 2000 psi used continuously until TD is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of intermediate casing. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) with a minimum 3000 psi WP rating

7. Types and Characteristics of the Proposed Mud System:

The well will be drilled to TD with a combination of fresh and cut brine mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-500'	Fresh Water	8.5	28	N.C.
500'-TD'	Cut Brine	9.1	29	N.C.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

8. Auxiliary Well Control and Monitoring Equipment:

A. Kelly cock will be kept in the drill string at all times.
B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9. Logging, Testing and Coring Program:

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log from T.D. to 8 5/8 casing shoe.
B. Drill Stem test is not anticipated.
C. No conventional coring is anticipated.
D. Further testing procedures will be determined at TD.

10. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1,600 psig. Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present

while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is October 1, 2017. Once commenced, the drilling operation should be finished in approximately 5 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

Attachment to Exhibit #10
NOTES REGARDING THE BLOWOUT PREVENTERS
White Rock Federal #2H
Chaves County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

Mack Energy Corporation

Minimum Blowout Preventer Requirements

3000 psi Working Pressure

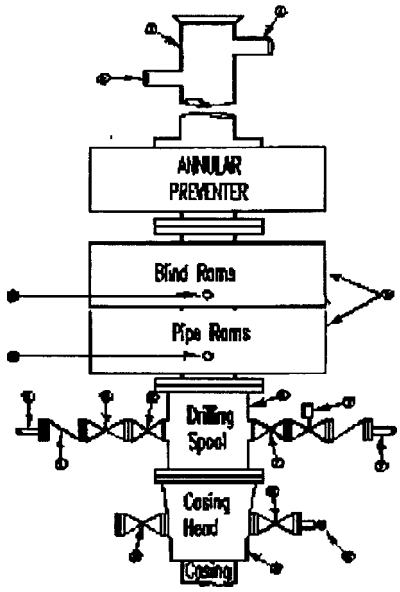
13 3/8 inch- 3 MWP

11 Inch - 3 MWP

EXHIBIT #10

Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min kill line and 3" min. choke line outlets in ram (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"



OPTIONAL

16	Flanged Valve	1 13/16	

CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times
9. Type RX ring gaskets in place of Type R
10.

ME

MEC TO FURNISH:

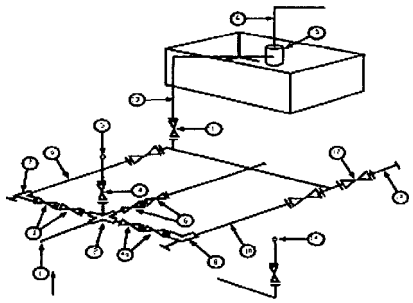
1. Bradenhead or casing head and side valves.
2. Wear bushing, If required.

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

Mack Energy Corporation

Exhibit #11
MIMIMUM CHOKE MANIFOLD
3,000, 5,000, and 10,000 PSI Working Pressure
3M will be used
3 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

*** Location of separator optional**

Below Substructure

Mimimum requirements

No.		3,000 MWP I.D.	Nominal	Rating	5,000 MWP I.D.	Nominal	Rating	10,000 MWP I.D.	Nominal	Rating
1	Line from drilling Spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
2	Cross 3" x 3" x 3" x 2"									10,000
3	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
4	Valve Gate Plug	1 13/16		3,000	1 13/16		5,000	1 13/16		10,000
4a	Valves (1)	2 1/16		3,000	2 1/16		5,000	2 1/16		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		2"	10,000
11	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure quage			3,000			5,000			10,000
15	Gas Separator		2' x5'			2' x5'			2' x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000

(1) Only one required in Class 3M
(2) Gate valves only shall be used for Class 10 M
(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge
6. Line from drilling spool to choke manifold should bee as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees