District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED
JUL 0 3 2009
HOBBSOCD

Form C-144
June 16, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action: ☒ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

Operator: Cimarex Energy Co. of Colorado OGRID #: 162683
Address: PO Box 140907; Irving, TX 75014-0907
Facility or well name: Franklin 18 Fee No. 3
API Number: 30-005-29037 OCD Permit Number: P1-00104
U/L or Qtr/Qtr I Section 18 Township 15S Range 31E County: Chaves
Center of Proposed Design: Latitude 33° 00' 50.67" Longitude 103° 51' 13.55" NAD: ☐1927 ☒ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation
☐ Lined ☐ Unlined
Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC
☐ Other _____ ☐ String-Reinforced
Seams: ☐ Welded ☐ Factory ☐ Other _____
Volume: _____bbl Dimensions: L_____ x W_____ x D_____

☒ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
☐ Drying Pad ☐ Tanks ☒ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined
Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC
☐ Other _____
Seams: ☐ Welded ☐ Factory ☐ Other _____
Volume: _____bbl _____yd^3
Dimensions: Length_____ x Width_____

☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: _____bbl
Type of fluid: _____
Tank Construction material: _____
☐ Secondary containment with leak detection
☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner
☐ Visible sidewalls only
☐ Other _____
Liner type: Thickness _____mil ☐ HDPE ☐ PVC
☐ Other _____

Fencing: Subsection D of 19.15.17.11 NMAC
☐ Chain link, six feet in height, two strands of barbed wire at top
☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
Netting: Subsection E of 19.15.17.11 NMAC
☐ Screen ☐ Netting ☐ Other_____
☐ Monthly inspections
Signs: Subsection C of 19.15.17.11 NMAC
☐ 12'x24', 2' lettering, providing Operator's name, site location, and emergency telephone numbers
☐ Signed in compliance with 19.15.3.103 NMAC

☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

Administrative Approvals and Exceptions:
Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.
Please check a box if one or more of the following is requested, if not leave blank:
☐ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.
☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Geologic and Hydrogeologic Data (required for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (required for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

NMAC

☐ Previously Approved Design (attach copy of design) API Number: to be assigned

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

Proposed Closure: 19.15.17.13 NMAC

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ Permanent Pit ☐ Below-grade Tank ☐ Closed-loop System ☐ Alternative

Proposed Closure Method: ☒ Waste Excavation and Removal

☐ On-site Closure Method (only for temporary pits and closed-loop systems)

☐ In-place Burial ☐ On-site Trench Burial

☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

Waste Removal Closure For Closed-loop Systems That Utilize Haul-off Bins Only: (19.15.17.13.D NMAC) ***Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings.***

Disposal Facility Name: CRI Disposal Facility Permit Number: R-9166

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☐ Construction and Design of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Zeno Farris Title: Manager Operations Administration

Signature: Zeno Farris Date: July 2, 2008

e-mail address: zfarris@cimarex.com Telephone: 972-443-6489

OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: [signature] **Approval Date:** 7/8/08

Title: [illegible] **OCD Permit Number:** P1-00104

Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

☐ **Closure Completion Date:**

Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method

☐ If different from approved plan, please explain.

Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Proof of Closure Notice
- ☐ Proof of Deed Notice (if applicable)
- ☐ Plot Plan
- ☐ Confirmation Sampling Analytical Results
- ☐ Waste Material Sampling Analytical Results
- ☐ Disposal Facility Name and Permit Number
- ☐ Soil Backfilling and Cover Installation
- ☐ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude Longitude NAD: ☐1927 ☐ 1983

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Title:

Signature: Date:

e-mail address: Telephone:

CIMAREX

Zero Discharge System

General Operational Plan

The Cimarex Zero Discharge system is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This ensures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

System Schematic **(see attached)**

Operation Plan:

1. **Primary Shakers:** The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

2. **Mud Cleaner:** The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydro cyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.

3. **Centrifuges:** The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

   The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

4. **Dewatering System:** The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

   The dewatering system may not be necessary for shallow wells. There are not as many solids generated and the drilling time is short. Additionally, fluids from these wells are sometimes trucked to deeper wells for processing where the dewatering system is already available.

5. **Drying Auger:** The drying auger is designed to remove excess liquid from drill cuttings. This accomplished by gravity separation of fluid from cuttings while the cuttings are augured uphill to a discharge point.

6. **Sump Drying Auger:** During bottoms up or sweep conditions the shakers can flood. The drying auger system has an overflow pipe that transfers fluids to a fluid sump where liquids are returned to the system using a submersible sand pump.
7. **Sump:** The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be

used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

8. **Cuttings Boxes:** Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

9. **Reserve Fluids (Tank Farm):** A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and tested for all regulated toxic materials. If found they are removed and disposed of per regulatory requirements.

All **trash** is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

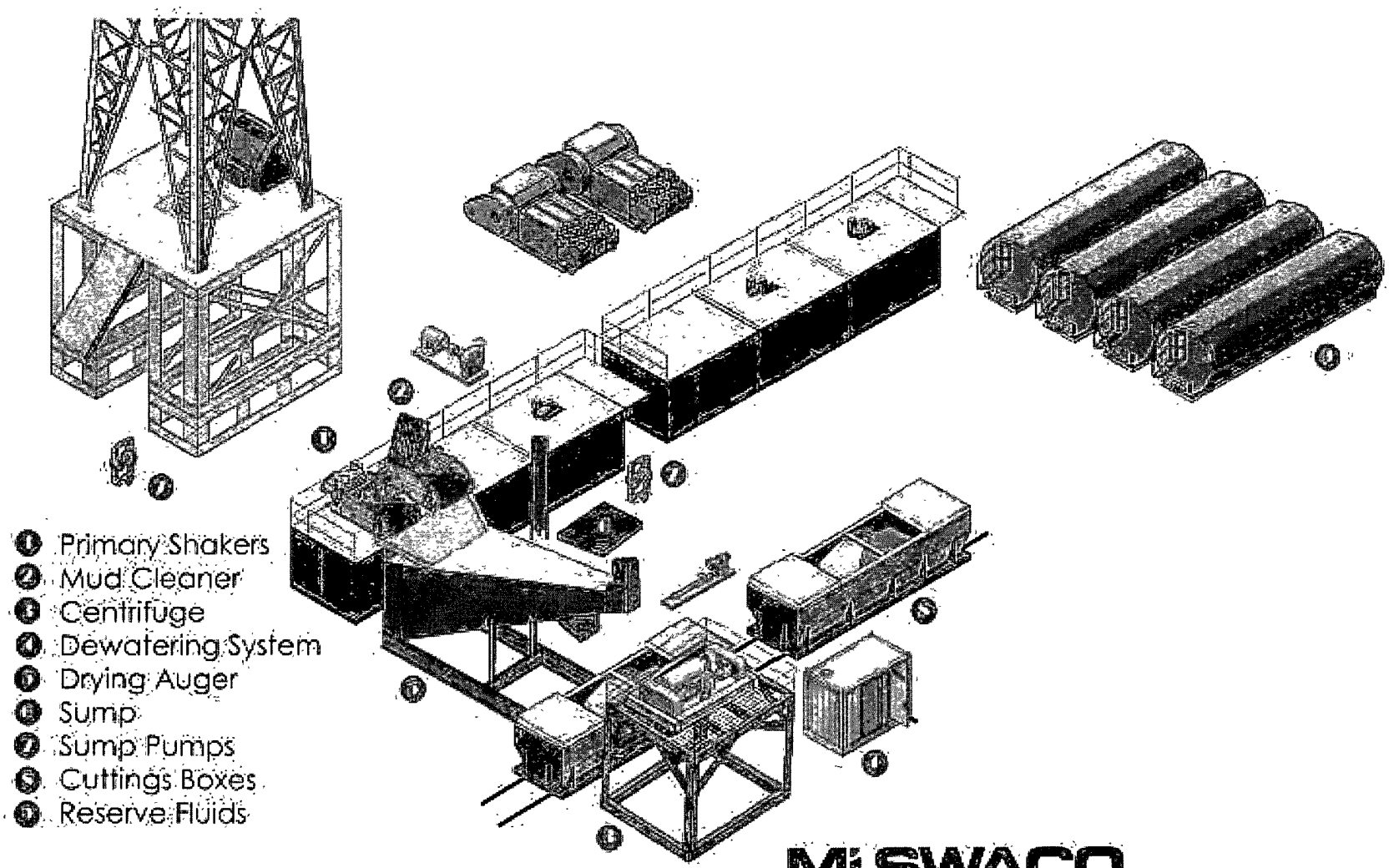
During the cementing process the excess **cement returned** to the surface is diverted to the cuttings boxes. The cement is allowed to harden and can be broken before hauling to the disposal site.

These closed loop operations can be monitored by our service technicians. **Daily logs** are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A **Contract field supervisor** manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of Cimarex safety and operational policy.

CIMAREX

Closed Loop with Drying Auger and Dewatering System



1. Primary Shakers
2. Mud Cleaner
3. Centrifuge
4. Dewatering System
5. Drying Auger
6. Sump
7. Sump Pumps
8. Cuttings Boxes
9. Reserve Fluids

MI SWACO

FAUX

30-005-29038

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
1301 W Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-005-29038	✓	Abo Wildcat

Property Code	Property Name	Well Number
37248	LANGLEY "33" STATE	2

OGRID No.	Operator Name	Elevation
162683	CIMAREX ENERGY CO. OF COLORADO	4397'

Surface Location

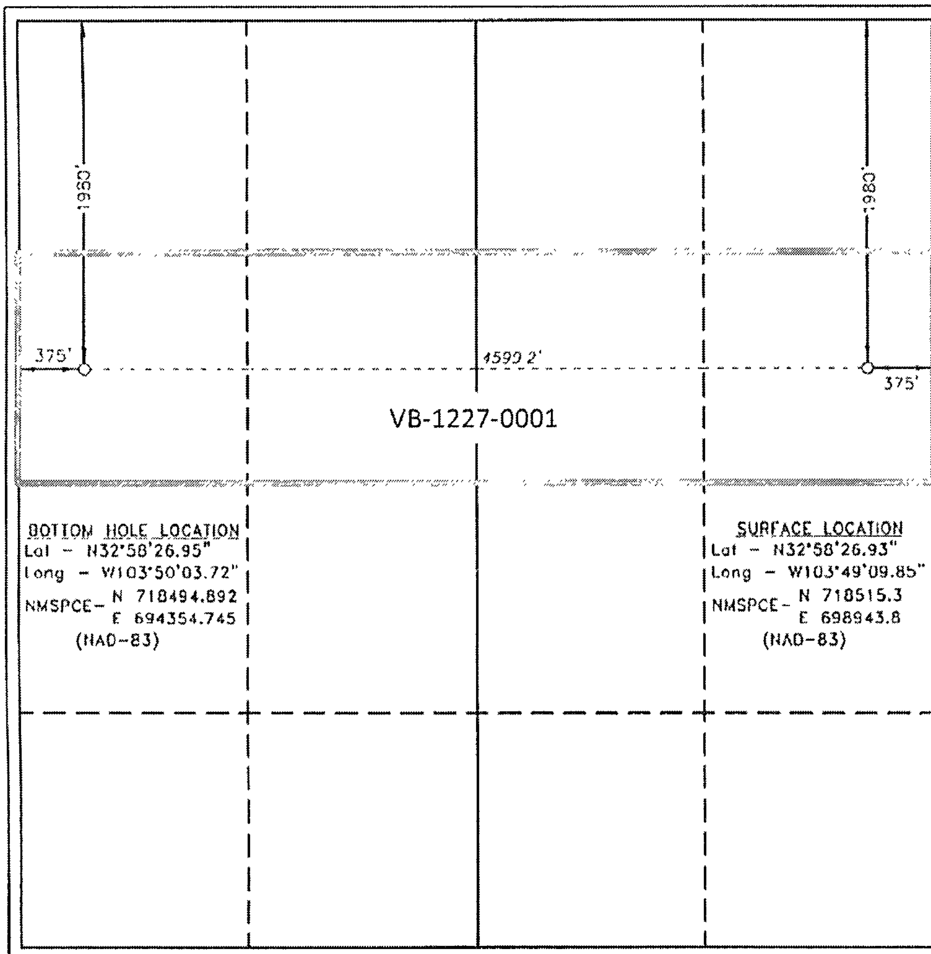
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	33	15 S	31 E		1980	NORTH	375	EAST	CHAVES

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
E	33	15 S	31 E		1980	NORTH	375	WEST	CHAVES

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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



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 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.

Zeno Farris 07-07-08
Signature Date

Zeno Farris
Printed Name

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 supervison, and that the same is true and correct to the best of my belief.

MAY 2, 2008
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977

W.O. No. 19430

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

Planned Wellpath Report

Preliminary

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	**Cimarex Energy Co. of Colorado**	Slot	**No. 2H SHL**
Area	**Chaves County, NM**	Well	**No. 2H**
Field	**(Langley) Sec 33, T15S, R31E**	Wellbore	**No. 2H PWB**
Facility	**Langley 33 St Com No. 2H**		

REPORT SETUP INFORMATION

Projection System	**NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet**	Software System	**WellArchitect® 2.0**
North Reference	**Grid**	User	**Victor Hernandez**
Scale	**0.999938**	Report Generated	**6/25/2008 at 1:27:56 PM**
Convergence at slot	**0.28° East**	Database/Source file	**WA_Midland/No._2H_PWB.xml**

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	**East[ft]**	**Easting[USft]**	**Northing[USft]**	**Latitude**	**Longitude**
Slot Location	**0.00**	**0.00**	698943.80	718515.30	32°58'26.930"N	103°49'09.845"W
Facility Reference Pt			**698943.80**	**718515.30**	32°58'26.930"N	103°49'09.845"W
Field Reference Pt			**698936.50**	**720119.70**	32°58'42.805"N	103°49'09.839"W

WELLPATH DATUM

Calculation method	**Minimum curvature**	Rig on No. 2H SHL (RT) to Facility Vertical Datum	**18.00ft**
Horizontal Reference Pt	**Facility Center**	Rig on No. 2H SHL (RT) to Mean Sea Level	**4415.00ft**
Vertical Reference Pt	**Rig on No. 2H SHL (RT)**	Facility Vertical Datum to Mud Line (Facility)	**0.00ft**
MD Reference Pt	**Rig on No. 2H SHL (RT)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**269.75°**

Planned Wellpath Report

Preliminary

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	**Cimarex Energy Co. of Colorado**	Slot	**No. 2H SHL**
Area	**Chaves County, NM**	Well	**No. 2H**
Field	**(Langley) Sec 33, T15S, R31E**	Wellbore	**No. 2H PWB**
Facility	**Langley 33 St Com No. 2H**		

WELLPATH DATA (50 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00	0.000	269.745	0.00	0.00	0.00	0.00	0.00	Tie On
8570.00	0.000	269.745	8570.00	0.00	0.00	0.00	0.00	KOP
8670.00†	30.000	269.745	8665.49	25.59	-0.11	-25.59	30.00	
8770.00†	60.000	269.745	8735.40	95.49	-0.42	-95.49	30.00	
8868.74	89.622	269.745	8760.98	189.73	-0.84	-189.72	30.00	EOC
8870.00†	89.622	269.745	8760.99	190.99	-0.85	-190.98	0.00	
8970.00†	89.622	269.745	8761.65	290.98	-1.29	-290.98	0.00	
9070.00†	89.622	269.745	8762.31	390.98	-1.74	-390.98	0.00	
9170.00†	89.622	269.745	8762.97	490.98	-2.18	-490.97	0.00	
9270.00†	89.622	269.745	8763.63	590.98	-2.63	-590.97	0.00	
9370.00†	89.622	269.745	8764.29	690.98	-3.07	-690.97	0.00	
9470.00†	89.622	269.745	8764.95	790.97	-3.52	-790.97	0.00	
9570.00†	89.622	269.745	8765.61	890.97	-3.96	-890.96	0.00	
9670.00†	89.622	269.745	8766.27	990.97	-4.41	-990.96	0.00	
9770.00†	89.622	269.745	8766.93	1090.97	-4.85	-1090.96	0.00	
9870.00†	89.622	269.745	8767.59	1190.96	-5.30	-1190.95	0.00	
9970.00†	89.622	269.745	8768.25	1290.96	-5.74	-1290.95	0.00	
10070.00†	89.622	269.745	8768.90	1390.96	-6.19	-1390.95	0.00	
10170.00†	89.622	269.745	8769.56	1490.96	-6.63	-1490.94	0.00	
10270.00†	89.622	269.745	8770.22	1590.96	-7.08	-1590.94	0.00	
10370.00†	89.622	269.745	8770.88	1690.95	-7.52	-1690.94	0.00	
10470.00†	89.622	269.745	8771.54	1790.95	-7.96	-1790.93	0.00	
10570.00†	89.622	269.745	8772.20	1890.95	-8.41	-1890.93	0.00	
10670.00†	89.622	269.745	8772.86	1990.95	-8.85	-1990.93	0.00	
10770.00†	89.622	269.745	8773.52	2090.94	-9.30	-2090.92	0.00	
10870.00†	89.622	269.745	8774.18	2190.94	-9.74	-2190.92	0.00	
10970.00†	89.622	269.745	8774.84	2290.94	-10.19	-2290.92	0.00	
11070.00†	89.622	269.745	8775.50	2390.94	-10.63	-2390.91	0.00	
11170.00†	89.622	269.745	8776.16	2490.94	-11.08	-2490.91	0.00	
11270.00†	89.622	269.745	8776.82	2590.93	-11.52	-2590.91	0.00	

Planned Wellpath Report

Preliminary

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	**Cimarex Energy Co. of Colorado**	Slot	**No. 2H SHL**
Area	**Chaves County, NM**	Well	**No. 2H**
Field	**(Langley) Sec 33, T15S, R31E**	Wellbore	**No. 2H PWB**
Facility	**Langley 33 St Com No. 2H**		

WELLPATH DATA (50 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11370.00†	89.622	269.745	8777.48	2690.93	-11.97	-2690.90	0.00	
11470.00†	89.622	269.745	8778.14	2790.93	-12.41	-2790.90	0.00	
11570.00†	89.622	269.745	8778.80	2890.93	-12.86	-2890.90	0.00	
11670.00†	89.622	269.745	8779.46	2990.93	-13.30	-2990.90	0.00	
11770.00†	89.622	269.745	8780.12	3090.92	-13.75	-3090.89	0.00	
11870.00†	89.622	269.745	8780.78	3190.92	-14.19	-3190.89	0.00	
11970.00†	89.622	269.745	8781.44	3290.92	-14.63	-3290.89	0.00	
12070.00†	89.622	269.745	8782.10	3390.92	-15.08	-3390.88	0.00	
12170.00†	89.622	269.745	8782.75	3490.91	-15.52	-3490.88	0.00	
12270.00†	89.622	269.745	8783.41	3590.91	-15.97	-3590.88	0.00	
12370.00†	89.622	269.745	8784.07	3690.91	-16.41	-3690.87	0.00	
12470.00†	89.622	269.745	8784.73	3790.91	-16.86	-3790.87	0.00	
12570.00†	89.622	269.745	8785.39	3890.91	-17.30	-3890.87	0.00	
12670.00†	89.622	269.745	8786.05	3990.90	-17.75	-3990.86	0.00	
12770.00†	89.622	269.745	8786.71	4090.90	-18.19	-4090.86	0.00	
12870.00†	89.622	269.745	8787.37	4190.90	-18.64	-4190.86	0.00	
12970.00†	89.622	269.745	8788.03	4290.90	-19.08	-4290.85	0.00	
13070.00†	89.622	269.745	8788.69	4390.89	-19.53	-4390.85	0.00	
13170.00†	89.622	269.745	8789.35	4490.89	-19.97	-4490.85	0.00	
13268.51	89.622	269.745	8790.00[1]	4589.40	-20.41	-4589.35	0.00	No. 2H BHL

Planned Wellpath Report

Preliminary

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	**Cimarex Energy Co. of Colorado**	Slot	**No. 2H SHL**
Area	**Chaves County, NM**	Well	**No. 2H**
Field	**(Langley) Sec 33, T15S, R31E**	Wellbore	**No. 2H PWB**
Facility	**Langley 33 St Com No. 2H**		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 2H BHL	13268.51	8790.00	-20.41	-4589.35	**694354.74**	**718494.89**	32°58'26.947"N	103°50'03.716"W	point

SURVEY PROGRAM Ref Wellbore: No. 2H PWB Ref Wellpath: Preliminary

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	13268.51	NaviTrak (Standard)		No. 2H PWB

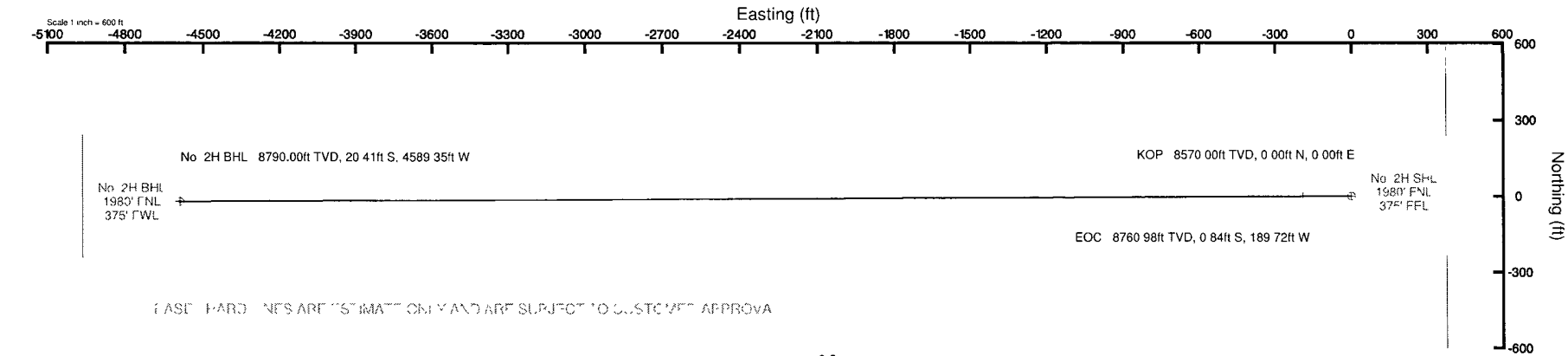
Cimarex Energy Co. of Colorado

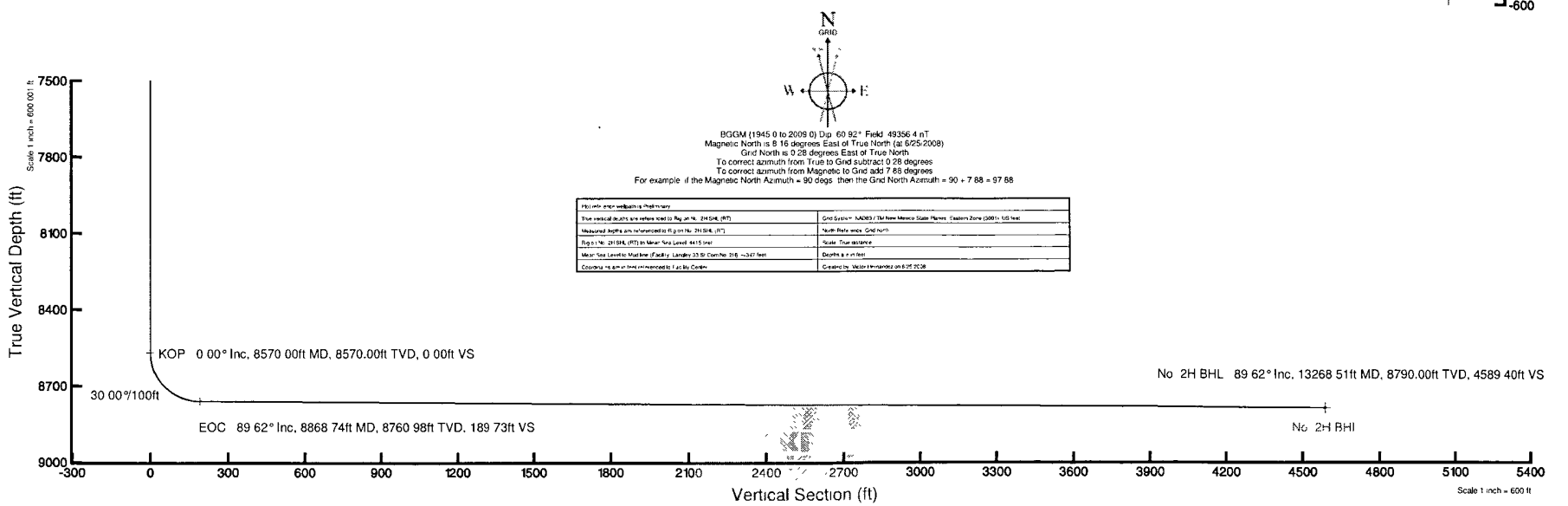
Location	Chaves County, NM	Slot	No 2H SHL
Field	(Langley) Sec 33, T15S, R31E	Well	No. 2H
Facility	Langley 33 St Com No 2H	Wellbore	No 2H PWB

BAKER HUGHES INTEQ

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	269.745	0.00	0.00	0.00	0.00	0.00
KOP	8570.00	0.000	269.745	8570.00	0.00	0.00	0.00	0.00
EOC	8868.74	89.622	269.745	8760.98	-0.84	-189.72	30.00	189.73
No. 2H BHL	13268.51	89.622	269.745	8790.00	-20.41	-4589.35	0.00	4589.40





PROPOSED WELLPATH REPORT (CSV version)
Prepared by Baker Hughes INTEQ
Software System: WellArchitect®2.0

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co. of Colorado
Area	Chaves County, NM
Field	(Langley) Sec 33, T15S, R31E
Facility	Langley 33 St Com No. 2H
Slot	No. 2H SHL
Well	No. 2H
Wellbore	No. 2H PWB
Wellpath	Preliminary
Sidetrack	(none)

REPORT SETUP INFORMATION

Projection :	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet
North Refe	Grid
Scale	0.999938
Convergen	0.28° East
Software S	WellArchitect®
User	Victor Hernandez
Report Ger	6/25/2008 at 1:27:58 PM
DataBase/S	WA_Midland/ev8182.xml

WELLPATI	Local North	Local East	Grid East	Grid North	Latitude	Longitude
	[ft]	[ft]	[ft]	[ft]		
Slot Locati	0	0	698943.8	718515.3	32°58'26.9	103°49'09.845"W
Facility Ref			698943.8	718515.3	32°58'26.9	103°49'09.845"W
Field Refer			698936.5	720119.7	32°58'42.8	103°49'09.839"W

WELLPATH DATUM

Calculation	Minimum curvature
Horizontal I	Facility Center
Vertical Re	Rig on No. 2H SHL (RT)
MD Refere	Rig on No. 2H SHL (RT)
Field Vertic	Mean Sea Level
Rig on No.	18.00ft
Rig on No.	4415.00ft
Facility Ver	0.00ft
Section Ori	0.00ft
Section Ori	0.00ft
Section Azi	269.75°

WELLPATH DATA Wellbore: No. 2H PWB Wellpath: Preliminary † = interpolated/extrapola

	MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS
	[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]
	0	0	269.745	0	0	0	0	0
	8570	0	269.745	8570	0	0	0	0
†	8670	30	269.745	8665.49	25.59	-0.11	-25.59	30
†	8770	60	269.745	8735.4	95.49	-0.42	-95.49	30

	8868.74	89.622	269.745	8760.98	189.73	-0.84	-189.72	30
†	8870	89.622	269.745	8760.99	190.99	-0.85	-190.98	0
†	8970	89.622	269.745	8761.65	290.98	-1.29	-290.98	0
†	9070	89.622	269.745	8762.31	390.98	-1.74	-390.98	0
†	9170	89.622	269.745	8762.97	490.98	-2.18	-490.97	0
†	9270	89.622	269.745	8763.63	590.98	-2.63	-590.97	0
†	9370	89.622	269.745	8764.29	690.98	-3.07	-690.97	0
†	9470	89.622	269.745	8764.95	790.97	-3.52	-790.97	0
†	9570	89.622	269.745	8765.61	890.97	-3.96	-890.96	0
†	9670	89.622	269.745	8766.27	990.97	-4.41	-990.96	0
†	9770	89.622	269.745	8766.93	1090.97	-4.85	-1090.96	0
†	9870	89.622	269.745	8767.59	1190.96	-5.3	-1190.95	0
†	9970	89.622	269.745	8768.25	1290.96	-5.74	-1290.95	0
†	10070	89.622	269.745	8768.9	1390.96	-6.19	-1390.95	0
†	10170	89.622	269.745	8769.56	1490.96	-6.63	-1490.94	0
†	10270	89.622	269.745	8770.22	1590.96	-7.08	-1590.94	0
†	10370	89.622	269.745	8770.88	1690.95	-7.52	-1690.94	0
†	10470	89.622	269.745	8771.54	1790.95	-7.96	-1790.93	0
†	10570	89.622	269.745	8772.2	1890.95	-8.41	-1890.93	0
†	10670	89.622	269.745	8772.86	1990.95	-8.85	-1990.93	0
†	10770	89.622	269.745	8773.52	2090.94	-9.3	-2090.92	0
†	10870	89.622	269.745	8774.18	2190.94	-9.74	-2190.92	0
†	10970	89.622	269.745	8774.84	2290.94	-10.19	-2290.92	0
†	11070	89.622	269.745	8775.5	2390.94	-10.63	-2390.91	0
†	11170	89.622	269.745	8776.16	2490.94	-11.08	-2490.91	0
†	11270	89.622	269.745	8776.82	2590.93	-11.52	-2590.91	0
†	11370	89.622	269.745	8777.48	2690.93	-11.97	-2690.9	0
†	11470	89.622	269.745	8778.14	2790.93	-12.41	-2790.9	0
†	11570	89.622	269.745	8778.8	2890.93	-12.86	-2890.9	0
†	11670	89.622	269.745	8779.46	2990.93	-13.3	-2990.9	0
†	11770	89.622	269.745	8780.12	3090.92	-13.75	-3090.89	0
†	11870	89.622	269.745	8780.78	3190.92	-14.19	-3190.89	0
†	11970	89.622	269.745	8781.44	3290.92	-14.63	-3290.89	0
†	12070	89.622	269.745	8782.1	3390.92	-15.08	-3390.88	0
†	12170	89.622	269.745	8782.75	3490.91	-15.52	-3490.88	0
†	12270	89.622	269.745	8783.41	3590.91	-15.97	-3590.88	0
†	12370	89.622	269.745	8784.07	3690.91	-16.41	-3690.87	0
†	12470	89.622	269.745	8784.73	3790.91	-16.86	-3790.87	0
†	12570	89.622	269.745	8785.39	3890.91	-17.3	-3890.87	0
†	12670	89.622	269.745	8786.05	3990.9	-17.75	-3990.86	0
†	12770	89.622	269.745	8786.71	4090.9	-18.19	-4090.86	0
†	12870	89.622	269.745	8787.37	4190.9	-18.64	-4190.86	0
†	12970	89.622	269.745	8788.03	4290.9	-19.08	-4290.85	0
†	13070	89.622	269.745	8788.69	4390.89	-19.53	-4390.85	0
†	13170	89.622	269.745	8789.35	4490.89	-19.97	-4490.85	0
	13268.51	89.622	269.745	8790	4589.4	-20.41	-4589.35	0

T A R G E T S

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude
(1) No. 2H	13268.51	8790	-20.41	-4589.35	694354.7	718494.9	32°58'26.9	103°50'03.

SURVEY PROGRAM Ref Wellbore: No. 2H PWB Ref Wellpath: Preliminary

Start MD [ft]	End MD [ft]	Pos Unc M	Log Name/ Wellbore
18	13268.51	NaviTrak (Standard)	No. 2H PWB