

## UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS	WELL LOG	ELECTRIC LOGS	WIRE X	WATER SANDS	LOCATION INSPECTED	SUB REPORT/abd
CPL 20321 20322 20323 20324 20325 20326						
DATE FILED	2-20-90					
LAND FEE & PATENTED	STATE LEASE NO	PUBLIC LEASE NO			INDIAN NOG 8702-1116	
DRILLING APPROVED	2-26-90 (EXCEPTION LOCATION)					
SPUDDED IN						
COMPLETED	PUT TO PRODUCING					
INITIAL PRODUCTION						
GRAVITY API						
GOR						
PRODUCING ZONES						
TOTAL DEPTH						
WELL ELEVATION						
DATE ABANDONED	A.O. 7-94					
FIELD	UNDESIGNATED					
UNIT						
COUNTY	SAN JUAN					
WELL NO	LIGHTING ROCK #2L-3			API NO. 43-037-31505		
LOCATION	1340' FSL	FT FROM (M) IS) LINE	1160' FWL	FT FROM (E) (W) LINE	NWSW	1/4 - 1/4 SEC 2

TWP	RGE	SEC	OPERATOR	TWP	RGE	SEC	OPERATOR
				42S	25E	2	CHUSKA ENERGY COMPANY



# CHUSKA ENERGY COMPANY

315 N BEHREND • FARMINGTON, NEW MEXICO 87401 • PHONE (505) 326 5525

February 15, 1990

RECEIVED  
FEB 20 1990

DIVISION OF  
OIL, GAS & MINING

State of Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Building, Suite 350  
Salt Lake City, Utah 84180-1203

Ref: Application for Permit to Drill: Lighting Rock 2L-3 Well,  
San Juan County, Utah

Gentlemen

Attached for your examination and approval is the original and two copies of an Applications for Permit to Drill the Lighting Rock 2L Well NO. 3 in San Juan County, Utah. This well will be drilled as part of an ongoing exploration program.

The location for this well falls outside the guidelines for the State of Utah spacing requirements. However, the site has been selected so as to allow the well bore to penetrate geological structures which have been identified by seismic interpretation. We therefore apply for an exception to the General State Spacing requirements on these grounds. The acreage surrounding the proposed site is either controlled by Chuska Energy or is open Tribal land, as indicated on the attached land plat.

Please advise if you require additional information concerning this application. Chuska will greatly appreciate your prompt consideration.

Sincerely,

Donald W. Barnes  
Operations Manager

DSB/csw  
File: C:\WP\CSWH\ROCK2L3\UTAHCOVR

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

<b>APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK</b>			3 Lease Designation and Serial No NOG 8702-1116	
1a. Type of Work DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>			4 If Indian Allottee or Tribe Name Navajo Tribal	
1b. Type of Well Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone <input type="checkbox"/>			7. Unit Agreement Name	
2. Name of Operator Chuska Energy Company			8 Firm or Lease Name Lighting Rock	
3. Address of Operator 315 North Behrend, Farmington, New Mexico 87401			9 Well No 2L-3	
4. Location of Well (Report location clearly and in accordance with any state requirements) At surface      1340' FSL, 1160' FWL      New			10 Field and Pool or Wildcat Wildcat (Undesignated) (007)	
At proposed prod zone      Same			11 30 Sec 7 8 9 10 or 21 and Survey or Area S2 T42S R25E	
14. Distance in miles and direction from nearest town or post office			12 County or Parish      13 State San Juan      Utah	
15. Distance from proposed location to nearest property or lease line ft (Also to nearest title, line, if any)	16 No. of acres in lease	17 No. of acres assigned to this well		
18 Distance from proposed location to nearest well, drilling completed or applied for on this lease ft	19 Proposed depth 5896' ALH	20. Rotary or cable tools Rotary		
21. Elevations (Show whether DP, RT, GR, etc.) 4596' GR			22 Approx date work will start 5-15-90	
23. PROPOSED CASING AND CEMENTING PROGRAM				
Site of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12-1/4"	8-5/8"	24	500'	371 sx 'G' + 2% CaCl <sub>2</sub>
7-7/8"	5-1/2"	15.5	5896'	739 sx 'G', 65:35 Poz + 6% Gel

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM (If proposal is to deepen or plug back give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any)

24. I hereby certify that this report is true and complete to the best of my knowledge.

Signed: Donald S. Barnes Title: Operations Manager Date: 5-15-90

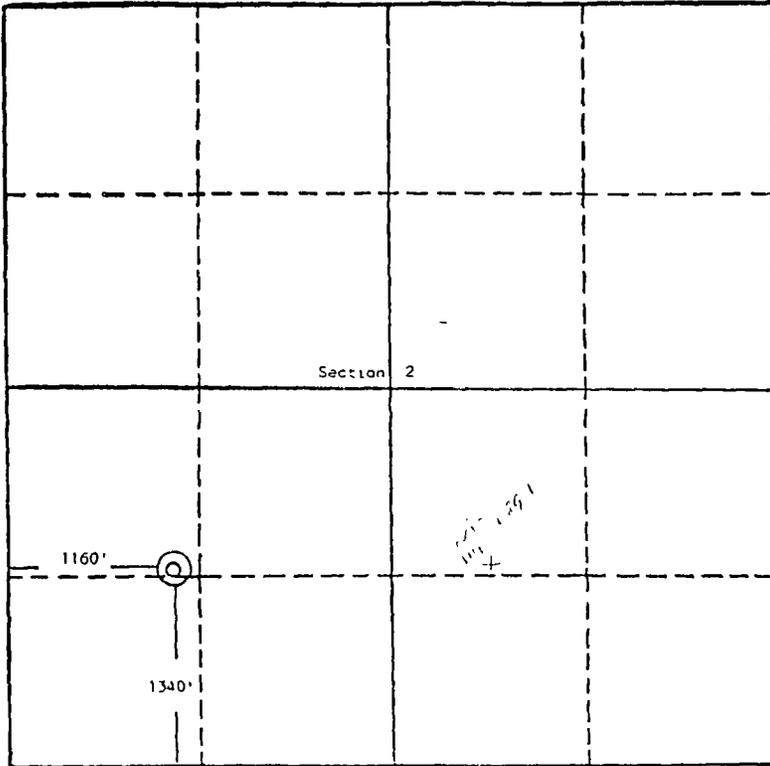
(This space for Federal or State office use)  
 AP# 13-037-31505 Approval Date \_\_\_\_\_

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
 Conditions of approval, if any \_\_\_\_\_

APPROVED BY THE STATE  
 OF UTAH DIVISION OF  
 OIL, GAS, AND MINING  
 DATE: 2-26-90  
 BY: John R. Bays  
 WELL SPACING: RG/5-3-3

\*See Instructions On Reverse Side

Company Chuska Energy Company  
 Well Name & No. Lightning Rock 2 L #3  
 Location 1340' F/SL 1160' F/WL  
 Sec. 2, T. 42 S, R. 25 E, S. L. M., County San Juan, Utah  
 Ground Elevation 4596



Scale, 1 inch = 1,000 feet

Surveyed February 9, 1990

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

Seal



Edgar L. Risenhoover  
 Edgar L. Risenhoover  
 Registered Land Surveyor  
 New Mexico Reg. No. 5979

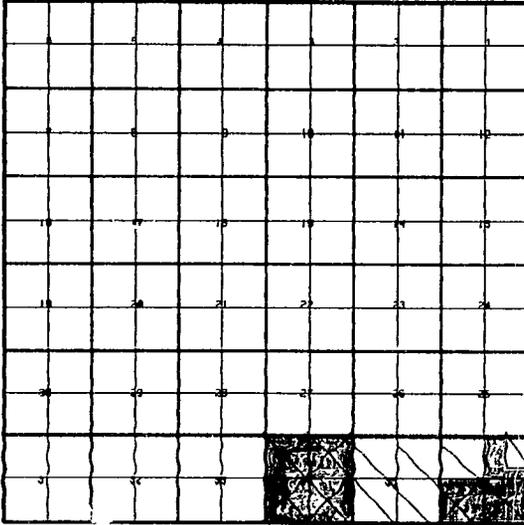
Non-resident certification as authorized by Utah State Law 58-22-21(b)

SAN JUAN COUNTY UTAH

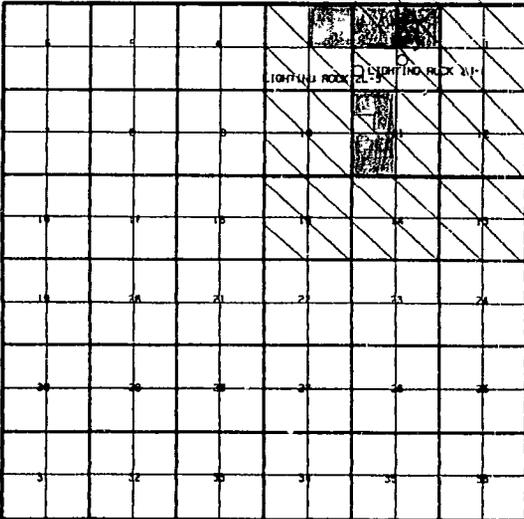
**MAP LEGEND**

	Open Range
	Non-CCO Range
	Range in Section
	Open Lands
	Area of Interest

T41S-R25E



T42S-R25E



CHUSKA ENERGY COMPANY

1) POIN DRILLING PLAN

Lighting Rock 2L Well No. 3  
Section 2, Township 42S, Range 25E  
1340' FSL, 1160' FEL  
San Juan County, Utah

1. SURFACE FORMATION

Geological name of surface formation: Morrison.

2. ELEVATION

Surface elevation is 4,596 GR.

3. ESTIMATED FORMATION TOPS

<u>Depth</u>	<u>Formation</u>	<u>Sub Sea Elevation</u>
Surface	Morrison	+ 4596'
646'	Navajo	+ 3950'
1376'	Ch'ile	+ 3220'
2496'	DeChelly	+ 2100'
2721'	Organ Rock	+ 1875'
3371'	Cedar Mesa	+ 1225'
4436'	Hermosa	+ 160'
5301'	Upper Ismay	- 705'
5401'	Lower Ismay	- 805' Secondary Target
5491'	Desert Creek	- 895' Primary Target
5611'	Akah	- 1015'
5896'	Total Depth	- 1300'

4. PROPOSED CASING/CEMENTING PROGRAM

	<u>Depth</u>	<u>Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Coupling</u>
Surface	500'	8 5/8"	24.0 ppg	K-55	STC
Production:	5,898'	5 1/2"	15.5 ppg	K-55	STC

Surface Cementing:

371 sx (427 ft<sup>3</sup>) Class 'G' cement with 2% CaCl<sub>2</sub> and 1/4 lb/sk Celloflake. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Slurry volume will be calculated at 100% excess over annular volume.

Production Cementing:

First Stage

TD to 3500 (stage collar @ ± 3500'). Lead with 168 sx Class 'G' cement, 65:35 Pozmix with 6% gel and 1/4 lb/sk Celloflake. Weight = 12.7 ppg, yield = 1.85 ft<sup>3</sup>/sk. Tail with 100 sx Class G cement with 2% CaCl<sub>2</sub>. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Total of 426 ft<sup>3</sup>.

Second Stage

3500 to surface. Lead with 271 sx Class 'G' cement, 65:35 Pozmix with 6% gel and 1/4 lb/sk Celloflake. Weight = 12.7 ppg, yield = 1.85 ft<sup>3</sup>/sk. Tail with 100 sx Class 'G' cement with 2% CaCl<sub>2</sub>. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Total of 616 ft<sup>3</sup>.

Note: Exact slurry volumes for the production string will be adjusted according to the caliper log which will be run prior to cementing. Special adjustments may be necessary if significant amounts of salt are drilled.

5. BLOWOUT PREVENTER (See attached schematics)

As abnormal pressure is not anticipated, a 2000 psi BOP system would be sufficient for the drilling of this well. However, due to availability constraints, a 3000 psi system will be used, as per the attached Exhibits "A" and "B". This will be a 10" x 900 Series double ram preventer, equipped with a set of pipe and blind rams.

An accumulator system, with a pressure capacity sufficient to operate the rams three complete cycles without rig power, will be required as part of the rig equipment.

6. PROPOSED MUD PROGRAM

Surface to 3500'

Fresh water, gel, lime and native solids. Weight 8.3 - 8.7 ppg. Gel/lime sweeps as necessary for hole cleaning.

3300' to Total Depth

Low solids, non-dispersed polymer system. Weight 8.6 - 8.8 ppg. Gel/lime sweeps as hole conditions dictate for hole cleaning. Fluid loss to be maintained at 15 cc or less. Fluid loss to be further reduced to 10 cc or less prior to coring, logging or DSTs.

7. AUXILIARY EQUIPMENT

- A. A kelly cock will be installed during drilling operations, with handle available on the rig floor.
- B. Floor (stabbing) valves will be available, on the rig floor at all times, with necessary subs to fit all of the drilling assemblies.
- C. Mud will be the circulating fluid. No abnormal formation pressures are expected.

8. WELL EVALUATION

Open hole electric logging program will consist of a minimum program of DLL-MSFL-SP-GR-Cal, FDC-CNL-GR-Lithodensity from TD to 4000'.

Drill stem testing will be as per the wellsite geologist's recommendations, based on shows. A mud logging unit will be utilized during drilling operations from 4000' to TD.

9. ABNORMAL PRESSURES/GAS

Abnormal pressures are not anticipated. Monitoring of gas and hydrocarbon shows will be by wellsite mud logging unit. H<sub>2</sub>S gas is not anticipated, however regular checks will be made while drilling the well.

10. TIMING

The drilling and evaluation of this well is estimated to be 18 days. Anticipated spud date is 5-15-90.

EXHIBIT "A"  
BLOWOUT PREVENTER

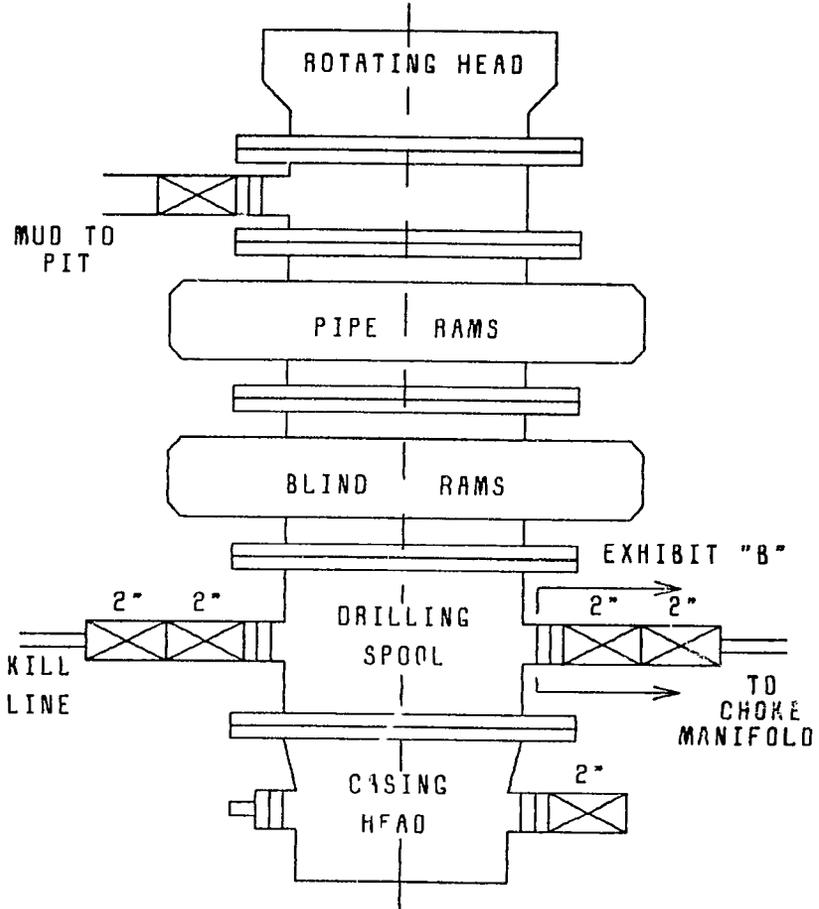
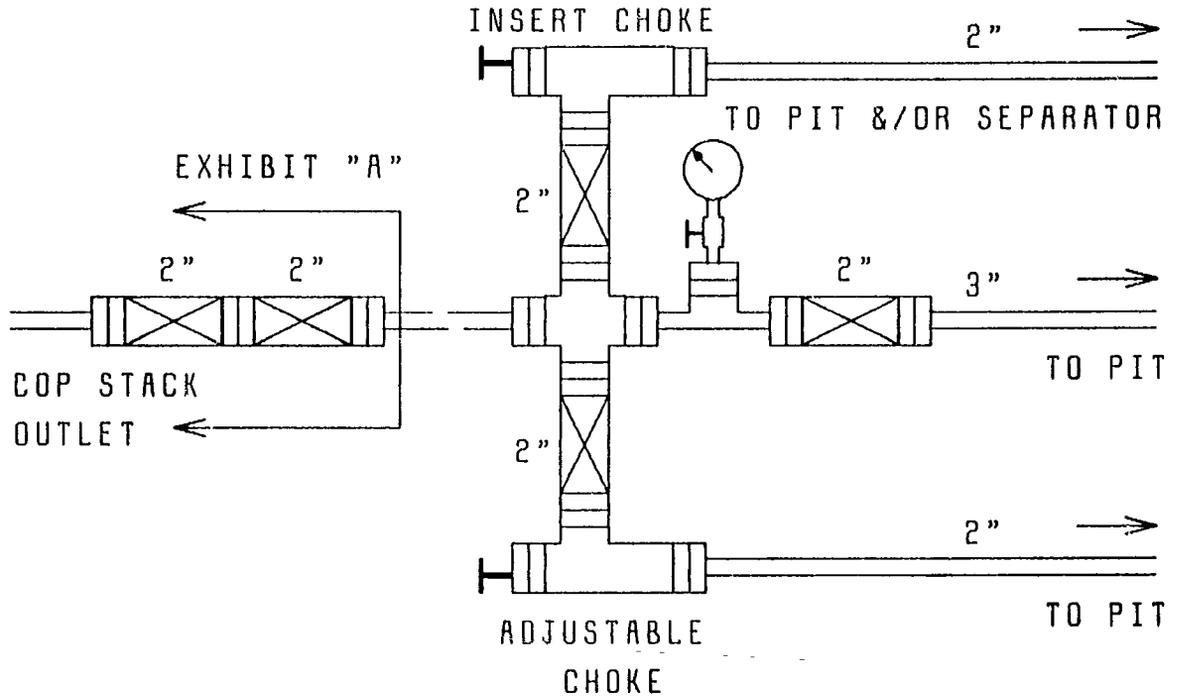


EXHIBIT "B"  
CHOKE MANIFOLD



## DETAILED DRILLING PROGRAM

DATE: February 15, 1990

WELL NAME: Lighting Rock 2L WELL NO.: 3

LOCATION: Section 2, Township 42S, Range 25E  
1340' FSL, 1160' FEL  
San Juan County, Utah

ELEVATION: 4,596' GR

TOTAL DEPTH: 5,896'

PROJECTED HORIZON: Primary target is Desert Creek at 5,491'  
Secondary target is Lower Ismay at 5,401'

### DRILLING, CASING AND CEMENTING PROGRAM

1. Move in and rig up rotary tools. Notify BLM of time of spud and intent to run surface casing.
2. Drill mouse hole and rat hole. Mix mud prior to spudding well.
3. Drill 12 1/4" hole to  $\pm$  500 . Use fresh water gel/lime spud mud for drilling surface hole. Well bore inclination is not to exceed 1 at 500 . Deviation surveys will be run at least at 250 and at casing point.
4. Run 8 5/8", 24 ppf, K-55, STC casing to TD. Cement with 371 sx (427 ft<sup>3</sup>) of Class 'G' cement with 2% CaCl<sub>2</sub> and 1/4 lb/sk Celloflake (sufficient slurry volume to circulate cement to surface).
5. W.O.C. a minimum of 4 hours prior to nipping up BOP stack and related equipment. See BOP schematics for details.
6. Pressure test BOP to 2,000 psi for 30 minutes. Pressure test manifold and all related equipment to 2,000 psi. Pressure test casing to 1,500 psi for 30 min.
7. Drill out surface casing with 7 7/8" bit. Drill 7 7/8" hole to TD. Deviation surveys are to be taken every 500' or on a bit trip, whichever occurs first. Maximum allowable deviation will be 5 at TD, with the maximum allowable rate of change to be 1/100'.
8. Run open hole logs and evaluate. Drill stem testing will be as per the wellsite geologist's recommendation.

9. If the well is determined to be productive, run 5 1/2", 15.5 ppf, K-55, STC casing to TD. Set stage cementing collar at  $\pm$  3,500'. Cement in two stages as per cementing program in 10-point Drilling Plan.
10. Nipple down BOPE. Set 5 1/2" casing slips and cut off casing. Install well head. Release drilling rig and move rig off location.
11. If well is non-productive it will be plugged and abandoned as per State, BLM and Navajo Tribal stipulations.

Lighting Rock 2L Well No. 3  
Section 2, Township 42S, Range 25E  
1340' FSL, 1160' FEL  
San Juan County, Utah

GENERAL COMPLETION PROCEDURE

If the well is determined to be productive, move in completion rig. Perforate, acidize, and test each productive porosity zone. Completion work will commence after Sundry Notice approval is received. Detailed procedures will follow.

PLUGGING AND ABANDONMENT

If the well is determined not to be productive, the well bore will be plugged as per BLM, State and Navajo Tribal requirements.

Lighting Rock 2L Well No. 3  
Section 2, Township 42S, Range 25E  
1340' FSL, 1160' FEL  
San Juan County, Utah

SURFACE USE PLAN

1. EXISTING ROADS

Shown on the attached topographic map are the existing roads in the immediate area. Outlined is the route to be followed from Aneth. Existing roads will be maintained, as necessary, while operations are in progress.

2. PLANNED ACCESS ROAD (SHOWN IN RED)

The access road will be as shown on the attached topographic map. The road will be flat bladed, constructed 14' in width and will be maintained as necessary to prevent excessive damage to the existing terrain. The road will be upgraded if commercial production is established. Approximately 2,200' of new road will be required to be constructed to the location pad. This road will be extended, by approximately another 21,00', and will also service the Lighting Rock 2J-1 well.

3. LOCATION OF EXISTING WELLS & TANK BATTERIES

There are no other wells or facilities in the area.

4. LOCATION OF EXISTING AND PROPOSED FACILITIES

No production facilities are presently in place. Should the well prove to be productive, facilities (tank battery etc) will be sited on the drilling location pad.

5. LOCATION & TYPE OF WATER SUPPLY

Water will be acquired from a private source. The water will be hauled from a flowing well permitted to Hay Hot Oil Inc., permitted under Water Right 09-1419, A60809.

6. SOURCE OF CONSTRUCTION MATERIALS

The need for additional construction materials is not anticipated. In the event that additional materials are required, they will be acquired either from private sources or with the approval of the Navajo Nation.

7. METHODS OF HANDLING WASTE MATERIAL

Trash will be contained on location in an enclosed bin. It will be hauled to an approved disposal site or burned on location if a burning permit is granted. The reserve pit will be lined, with an approved 7 mil liner, for containing drilling fluids. The pit will also be fenced. All drilling fluids, cuttings and chemical waste will be stored in the reserve pit. Liquid hydrocarbons will be stored in temporary storage tanks and hauled from location to approved sales facilities. The reserve pit will be emptied, back filled and restored to natural terrain status upon completion of drilling operations.

8. ANCILLARY FACILITIES

Chemical portable toilet facilities will be provided on location during drilling and completion operations. No camps or air strips are planned for this well.

9. WELL SITE LAYOUT

Attached is a surveyor's staking plat, cut and fill requirements and a schematic of the proposed rig layout.

10. PLANS FOR RESTORATION OF THE SURFACE

The location is laid out on a generally north west to south east trend and will require minimal cut (2' on the north east corner to 1' on the south east corner and on the west side) and fill (1' on the center of the east side). Top soil removed from the pad will be stored at the well site. A reserve pit will be built on terrain containing sparse native vegetation. After drilling operations are complete, drilling fluid in the reserve pit will be allowed to evaporate. All remaining fluid in the pit will be disposed of into an approved disposal site. The reserve pit will remain fenced during the evaporation and disposal process. The pit will then be covered and the topsoil will be returned to the disturbed area. The terrain will be returned as near to its original condition as possible. Following operations, rehabilitation seeding will be in accordance with APD/BLM/BIA stipulations. There are no residents in the immediate area of the site.

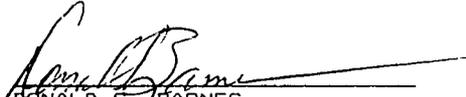
11.

OPERATORS REPRESENTATIVE

CHUSKA ENERGY COMPANY  
315 NORTH BEHREND AVENUE  
FARMINGTON, NEW MEXICO 87401  
DONALD S. BARNES

12. CERTIFICATION

I hereby certify that either I, or persons under my direct supervision have inspected the proposed drill site and access route: that I am familiar with the conditions which presently exist: that the statements made in this plan are, to the best of my knowledge, true and correct and that the work planned will be performed by Chuska Energy, or its sub-contractors, in conformity with the terms and conditions under which it is approved.

  
DONALD S. BARNES  
Operations Manager

CHUSKA ENERGY COMPANY

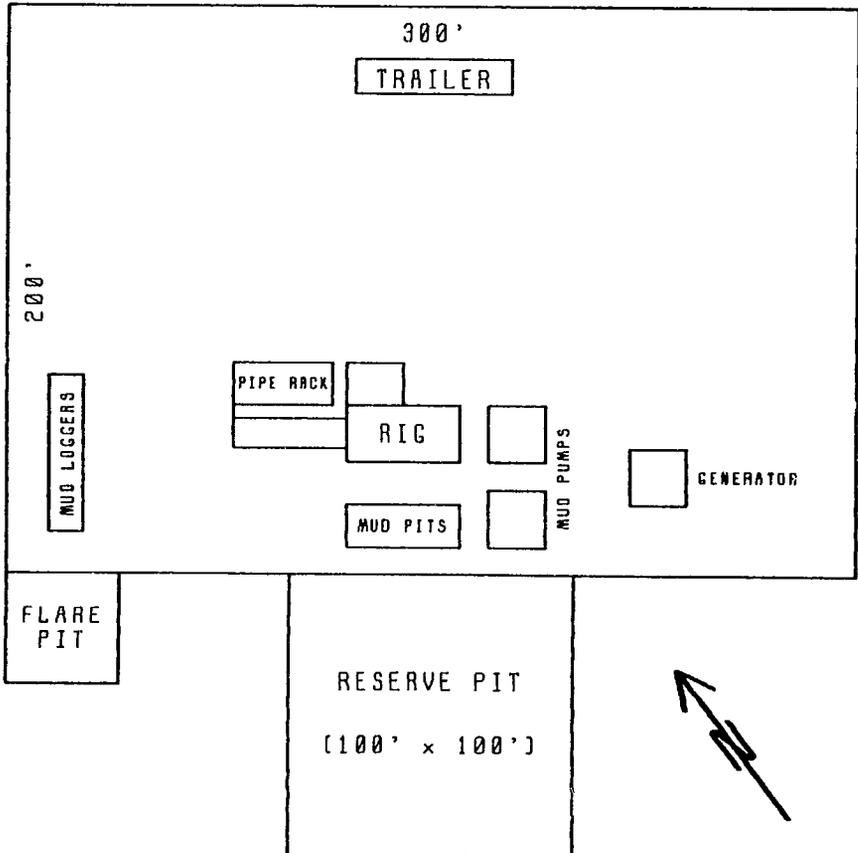
LOCATION LAYOUT

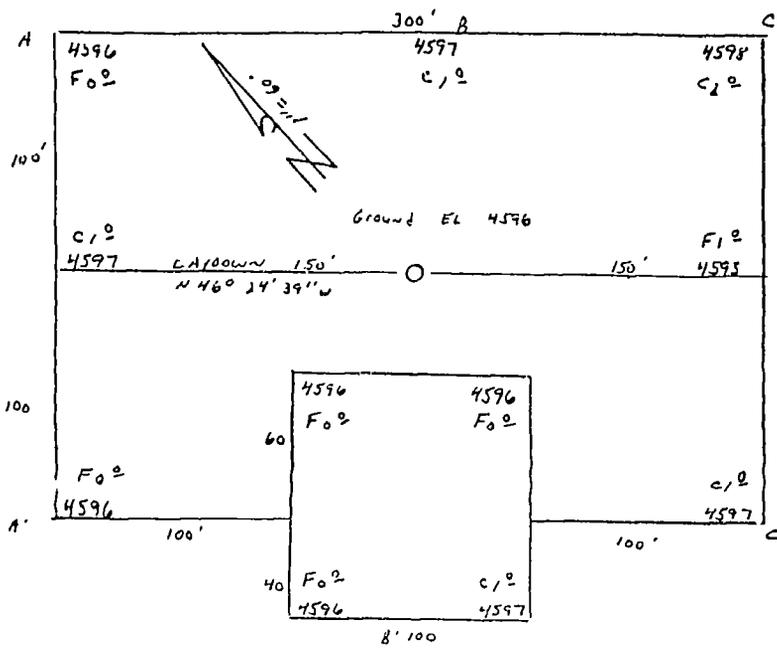
# LIGHTING ROCK 2L-3

1340' FSL, 1160' FWL

SECTION 2, TOWNSHIP 42S, RANGE 25E

SAN JUAN COUNTY, UTAH





Chuska Energy Company  
**OPERATOR**

Lightning Rock 2 L #3  
**WELL NAME & NO.**

1340' F/SL 1160' F/WL  
**FOOTAGES**

2 42S 25E  
**SEC. TWP. RGE.**

San Juan, Utah  
**COUNTY**

February 9, 1990  
**DATE**

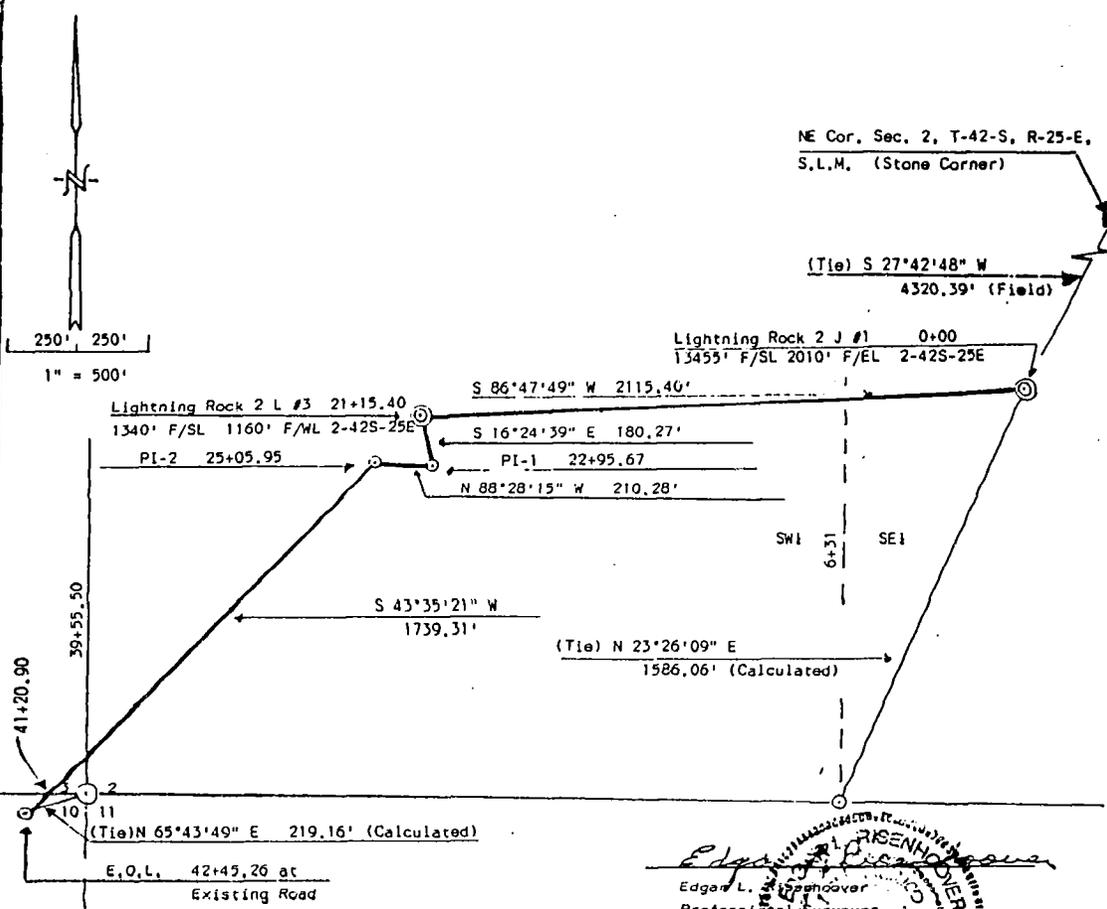
A	4600	-----	-----	-----	-----	4596
	4590	-----	-----	-----	-----	
A'		-----	-----	-----	-----	

H - 1" = 60'  
V - 1" = 30'

B	4600	-----	-----	-----	-----	4596
	4590	-----	-----	-----	-----	
B'		-----	-----	-----	-----	

C	4600	-----	-----	-----	-----	4596
	4590	-----	-----	-----	-----	
C'		-----	-----	-----	-----	

CHUSKA ENERGY COMPANY  
 PROPOSED LIGHTNING ROCK ROAD AND PIPELINE  
 ANETH, SAN JUAN COUNTY, UTAH

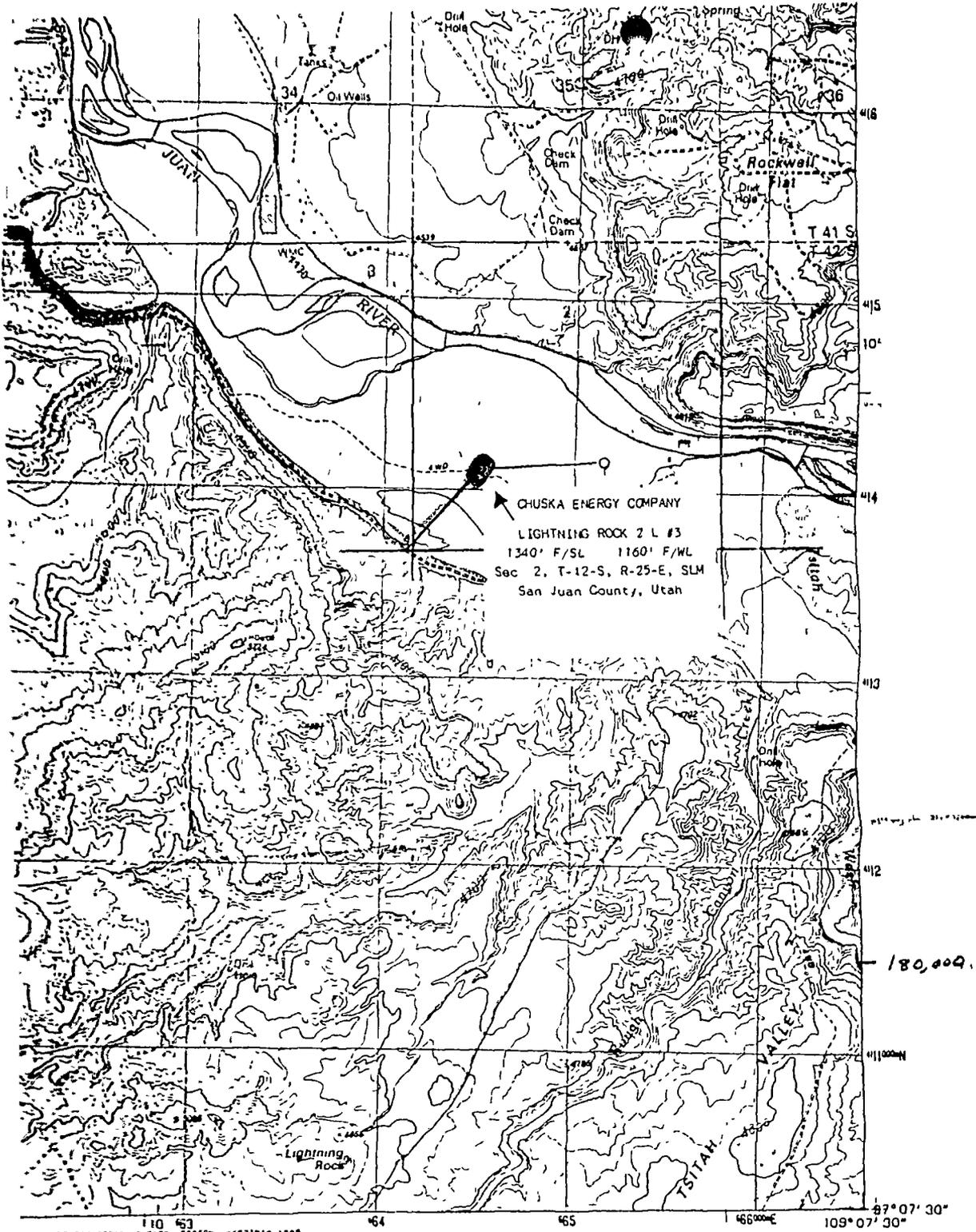


*Edgar L. Pisenhauer*  
 Edgar L. Pisenhauer  
 Professional Surveyor  
 New Mexico Reg. No. 5979  
 Non-resident certification authorized by Utah State Law 58-22-21(b)

SEC.	TWP.	RNG.	1/4 SEC.	WIDTH	LENGTH			ACRES	
					FEET	RODS	MILES		
2	42S	25E	SE1	30'	631.00	38.242	0.120	0.434	
2	42S	25E	SW1	30'	3324.50	201.485	0.630	2.290	
3	42S	25E	SE1	30'	165.40	10.025	0.031	0.114	
10	42S	25E	NE1	30'	124.36	7.536	0.023	0.086	
TOTALS					4245.26	257.288	0.804	2.924	

CHUSKA ENERGY COMPANY  
 PROPOSED ACCESS ROAD  
 AND  
 PROPOSED PIPELINE RIGHT-OF-WAY  
 Sec. 2, 3, 7 10, T-42-S, R-25-S, SLM  
 San Juan County, Utah

SCALE: 1"=500'      DATE: 2/13/90



CHUSKA ENERGY COMPANY  
 LIGHTNING ROCK 2 L #3  
 1340' F/SL 1160' F/WL  
 Sec 2, T-12-S, R-25-E, SLM  
 San Juan County, Utah

180,000

OPERATOR Chaska Energy Company (N9290) DATE 2-22-90

WELL NAME Lighting Rock # 2F-3

SEC N 25 T 4S R 25E COUNTY San Juan

43-037-31505  
API NUMBER

Indean  
TYPE OF LEASE

CHECK OFF:

PLAT

BOND

NEAREST WELL

LEASE

FIELD

POTASH OR OIL SHALE

PROCESSING COMMENTS:

No other well within 420'  
Water Permit 67-1419 / 160809 (Hay Hot Oil, Inc)  
Exception location required on APD (460' radius)

APPROVAL LETTER:

SPACING:  R615-2-3 N/A UNIT  R515-3-2

N/A CAUSE NO. & DATE  R615-3-3

STIPULATIONS:

cc BIA



STATE OF UTAH  
NATURAL RESOURCES  
Water Rights

Norman H. Bangertler, Governor  
Dee C. Hansen, Executive Director  
Robert L. Morgan, State Engineer

Southeastern Area • 453 S. Carbon Avenue • P.O. Box 718 • Price, UT 84501-0718 • 801-637-1303

February 21, 1990

RECEIVED  
FEB 22 1990

Chuska Energy Company  
Attn: Donald S. Barnes, Operations Manager  
315 North Behrend  
Farmington, New Mexico 87401

Re: Lightning Rock 2J-1 (NW4SE4 Sec. 2, T42S, R25E, SLB&M)  
Lightning Rock 2L-3 (NW4SW4 Sec. 2, T42S, R25E, SLB&M)  
Big Bend 8E-1 (SW4NW4 Sec. 8, T40S, R26E, SLB&M)

Dear Mr. Barnes:

This letter will serve as authorization from this Division to proceed with the drilling at the three noted locations. It is understood that the drilling and maintenance water will be hauled to the sites by Hay Hot Oil Inc. under their existing water right 09-1419 (A60809). It is also noted on your request that 0.90 acre feet of water will be required at each location.

If you have any questions concerning this matter, please feel free to contact me.

Sincerely,

Mark P. Page  
Area Engineer

cc: Lisha Romero, Div. of Oil, Gas & Mining  
Jerry Howell, Hay Hot Oil Inc.

MPP/mjk



CHUSKA ENERGY COMPANY

10 POINT DRILLING PLAN

Lighting Rock 2L Well No. 3  
Section 2, Township 42S, Range 25E  
1340' FSL, 1160' FWL  
San Juan County, Utah

1. SURFACE FORMATION

Geological name of surface formation: Morrison.

2. ELEVATION

Surface elevation is 4,596 GP.

3. ESTIMATED FORMATION TOPS

<u>Depth</u>	<u>Formation</u>	<u>Sub Sea Elevation</u>
Surface	Morrison	+ 4596'
646	Navajo	+ 3950'
1376'	Chinle	+ 3220'
2496	DeChelly	+ 2100'
2721	Organ Rock	+ 1875'
3371	Cedar Mesa	+ 1225'
4436	Hermosa	+ 160'
5301'	Upper Ismay	- 705'
5401	Lower Ismay	- 805' Secondary Target
5491	Desert Creek	- 895' Primary Target
5611	Akah	- 1015'
6116	Barker Creek	- 1520'
6491	Pinkerton Trail	- 1895' Secondary Target
6683	Molas	- 2090'
6836	Mississippian	- 2240'
7096	Total Depth	- 2500'

4. PROPOSED CASING/CEMENTING PROGRAM

	<u>Depth</u>	<u>Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Coupling</u>
Conductor	80	13 3/8"	48.0 ppf	H-40	STC
Surface	1,500	8 5/8"	24.0 ppf	K-55	STC
Production:	7,096	5 1/2"	See detail below		

Detailed production string (5 1/2"):

<u>Interval</u>	<u>Weight</u>	<u>Grade</u>	<u>Coupling</u>
0 - 40'	20.0 ppf	L-80	LTC
40 - 5,461'	15.5 ppf	K-55	LTC
5,461' - 6,266	20.0 ppf	L-80	LTC
6,266 - 7,096	17.0 ppf	K-55	LTC

Conductor Cementing:

97 sx (112 ft<sup>3</sup>) Class 'G' cement with 3% CaCl<sub>2</sub> and 1/4 lb/sk Celloflake. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Slurry volume will be calculated at 100% excess over annular volume.

Surface Cementing:

1,089 sx (1,252 ft<sup>3</sup>) Class 'G' cement with 2% CaCl<sub>2</sub> and 1/4 lb/sk Celloflake. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Slurry volume will be calculated at 100% excess over annular volume.

Production Cementing:

First Stage

TD to 3500 (stage collar @ ± 3500). Lead with 280 sx Class G cement, 65:35 Pozmix with 6% gel and 1/4 lb/sk Celloflake. Weight = 12.7 ppg, yield = 1.85 ft<sup>3</sup>/sk. Tail with 100 sx Class G cement with 2% CaCl<sub>2</sub>. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Total of 634 ft<sup>3</sup>.

Second Stage

3500 to surface. Lead with 281 sx Class G cement, 65:35 Pozmix with 6% gel and 1/4 lb/sk Celloflake. Weight = 12.7 ppg, yield = 1.85 ft<sup>3</sup>/sk. Tail with 100 sx Class 'G' cement with 2% CaCl<sub>2</sub>. Weight = 15.8 ppg, yield = 1.15 ft<sup>3</sup>/sk. Total of 636 ft<sup>3</sup>.

Note: Exact slurry volumes for the production string will be adjusted according to the caliper log which will be run prior to cementing. Special adjustments may be necessary if significant amounts of salt are drilled.

5. BLOWOUT PREVENTER (See attached schematics)

As abnormal pressure is not anticipated, a 2000 psi BOP system would be sufficient for the drilling of this well. However, due to availability constraints, a 3000 psi system

will be used, as per the attached Exhibits "A" and "B". This will be a 10" x 900 Series double ram preventer, equipped with a set of pipe and blind rams.

An accumulator system, with a pressure capacity sufficient to operate the rams three complete cycles without rig power, will be required as part of the rig equipment.

#### 6. PROPOSED MUD PROGRAM

##### Surface to 3500'

Fresh water, gel, lime and native solids. Weight 8.3 - 8.7 ppg. Gel/lime sweeps as necessary for hole cleaning.

##### 3500 to 5500'

Low solids, non-dispersed polymer system. Weight 8.6 - 8.8 ppg. Gel/lime sweeps as hole conditions dictate for hole cleaning. Fluid loss to be maintained at 15 cc or less. Fluid loss to be further reduced to 10 cc or less prior to coring, logging or DSTs.

##### 5500 to TD

Saturated salt water, starch. salt gel. Weight 10.0 - 10.5 ppg, viscosity 35 - 40 sec/qt. Fluid loss to be maintained at 15 cc or less. Fluid loss to be further reduced to 10 cc or less prior to coring, logging or DSTs.

#### 7. AUXILIARY EQUIPMENT

- A. A kelly cock will be installed during drilling operations, with handle available on the rig floor.
- B. Floor (stabbing) valves will be available, on the rig floor at all times, with necessary subs to fit all of the drilling assemblies.
- C. Mud will be the circulating fluid. No abnormal formation pressures are expected.

#### 8. WELL EVALUATION

Open hole electric logging program will consist of a minimum program of DLL-ISFL-SP-GR-Cal, FDC-CNL-GR-Lithodensity from TD to 4000 .

Drill stem testing will be as per the wellsite geologist's recommendations, based on shows. A mud logging unit will be utilized during drilling operations from 4000' to TD.

9. ABNORMAL PRESSURES/GAS

Abnormal pressures may be anticipated through the Akah salt section. Mud system and casing program have been designed to counter any abnormal pressures encountered here. Monitoring of gas and hydrocarbon shows will be by wellsite mud logging unit. H<sub>2</sub>S gas is not anticipated, however regular checks will be made while drilling the well.

10. TIMING

The drilling and evaluation of this well is estimated to be 25 days. Anticipated spud date is 5-15-90.

## DETAILED DRILLING PROGRAM

DATE: February 26, 1990

WELL NAME: Lighting Rock 2L WELL NO.: 3

LOCATION: Section 2, Township 42S, Range 25E  
1340 FSL, 1160' FWL  
San Juan County, Utah

ELEVATION: 4,590 R

TOTAL DEPTH: 7.

PROJECTED HORIZON: Primary target is Desert Creek at 5,491  
Secondary target is Lower Ismay at 5,401  
Secondary target is Pinkerton Trail at 6,491

### DRILLING, CASING AND CEMENTING PROGRAM

1. Move in and rig up rotary tools. Notify BLM of time of spud and intent to run surface casing.
2. Drill mouse hole and rat hole. Mix mud prior to spudding well.
3. Drill 12 1/4" hole to  $\pm 80$ . Run 17 1/2" hole opener to  $\pm 80$ . Circulate hole clean and displace with gel/lime spud mud.
4. Run 13 3/8", 48 ppf, H-40, STC conductor and set at  $\pm 80$ .
5. Cement with Class G cement with 3%  $\text{CaCl}_2$  and 1/4 lb/sk Celloflake. Circulate cement to surface.
6. W.O.C. 4 hrs. Nipple up and test to 500 psig.
7. Drill 12 1/4" hole to  $\pm 1,500$ . Use fresh water gel/lime spud mud for drilling surface hole. Well bore inclination is not to exceed 1 at 1,500. Deviation surveys will be run at least at 250' and at casing point.
8. Run 8 5/8", 24 ppf, K-55, STC casing to TD. Cement with 1,089 sx (1,252 ft<sup>3</sup>) of Class G cement with 2%  $\text{CaCl}_2$  and 1/4 lb/sk Celloflake (sufficient slurry volume to circulate cement to surface).
9. W.O.C. a minimum of 4 hours prior to nipping up BOP stack and related equipment. See BOP schematics for details.

10. Pressure test BOP to 2,000 psi for 30 minutes. Pressure test manifold and all related equipment to 2,000 psi. Pressure test casing to 1,500 psi for 30 min.
11. Drill out surface casing with 7 7/8" bit. Drill 7 7/8" hole to  $\pm$  5,500 . Deviation surveys are to be taken every 500' or on a bit trip, whichever occurs first. Maximum allowable deviation will be 5 at TD, with the maximum allowable rate of change to be 1/100'.
12. Break over fresh water mud to saturated salt water, starch, salt gel system. Ensure conversion is complete and mud is conditioned prior to drilling into the Akah at  $\pm$  5,600 . Drill to TD.
13. Run open hole logs and evaluate. Drill stem testing will be as per the wellsite geologist s recommendation.
14. If the well is determined to be productive, run 5 1/2" casing, as per casing program, to TD. Set stage cementing collar at  $\pm$  3,500 . Cement in two stages as per cementing program in 10-point Drilling Plan.
15. Nipple down BOPE. Set 5 1/2' casing slips and cut off casing. Install well head. Release drilling rig and move rig off location.
16. If well is non-productive it will be plugged and abandoned as per State, BLM and Navajo Tribal stipulations.



Norman H. Bangerter

Governor

Dee C. Hansen

Executive Director

Dianne R. Nielson Ph.D.

Division Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

355 West North Temple  
3 Triad Center Suite 350  
Salt Lake City Utah 84180 1203  
801 538 5340

February 26, 1990

Chuska Energy Company  
315 North Behrend  
Farmington, New Mexico 87401

Gentlemen:

Re: Lighting Rock #2L-3 - NW SW Sec. 2, T. 42S, R. 25E - San Juan County, Utah  
1340' FSL, 1160' FWL

Approval to drill the referenced well is hereby granted in accordance with Rule R615-3-3, Oil and Gas Conservation General Rules

In addition, the following actions are necessary to fully comply with this approval:

1. Spudding notification within 24 hours after drilling operations commence.
2. Submittal of an Entity Action Form within five working days following spudding and whenever a change in operations or interests necessitates an entity status change.
3. Submittal of the Report of Water Encountered During Drilling, Form 7.
4. Prompt notification if it is necessary to plug and abandon the well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 538-5340, (Home) 298-7695, or Jim Thompson, Lead Inspector, (Home) 298-9318.
5. Compliance with the requirements of Rule R615-3-20, Gas Flaring or Venting, Oil and Gas Conservation General Rules.
6. Prior to commencement of the proposed drilling operations, plans for facilities for disposal of sanitary wastes at the drill site shall be submitted to the local health department. These drilling operations and any subsequent well operations must be conducted in accordance with applicable state and local health department regulations. A list of local health departments and copies of applicable regulations are available from the Division of Environmental Health, Bureau of General Sanitation, telephone (801) 538-6121.

Page 2  
Chuska Energy Company  
Lighting Rock #2L-3  
February 26, 1990

- 7 This approval shall expire one (1) year after date of issuance unless substantial and continuous operation is underway or an application for an extension is made prior to the approval expiration date.

The API number assigned to this well is 43-037-31505

Sincerely,



R. J. Firth  
Associate Director, Oil & Gas

lcr  
Enclosures  
cc: Bureau of Land Management  
Bureau of Indian Affairs  
D. R. Nielson  
J L Thompson  
WE14/5-6



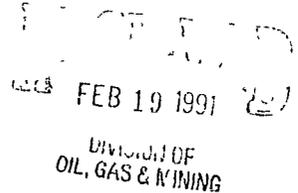
# CHUSKA ENERGY COMPANY

3315 BLOOMFIELD HIGHWAY • FARMINGTON, NEW MEXICO 87401 • PHONE (505) 326 5525

P.O. BOX 780 • FARMINGTON NEW MEXICO 87499

11 February, 1991

State of Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Building, Suite 350  
Salt Lake City, Utah 84180-1203



Ref: Sundry Notice: Lighting Rock 2L-3 Well  
Application for Extension of APD Approval

Gentlemen

Attached for your examination and approval is the original and two copies of the subject Sundry Notice

Please advise if you require additional information concerning this submission.

Sincerely,

*Larry G. Sessions*  
Larry G. Sessions  
Operations Manager

LGS/csw  
File: C:\WP51\LIGHTROK.2L\EXAPDSUN.CVR

encl.

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO NOG 8702-1116	
2. NAME OF OPERATOR Chuska Energy Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo Tribal	
3. ADDRESS OF OPERATOR 3315 Bloomfield Highway, Farmington, New Mexico 87401		7. UNIT AGREEMENT NAME Lighting Rock 2L	
4. LOCATION OF WELL (Report location clearly and in accordance with any State or Federal Survey. See also space 17 below.) At surface 1340' FSL, 1160' FWL		8. FARM OR LEASE NAME Lighting Rock 2L	
14. PERMIT NO 43-037-31505		9. WELL NO 3	
15. ELEVATIONS (Show whether OF RT OR etc) Same		10. FIELD AND POOL, OR WELDCAT Wildcat	
16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		11. COUNTY OR PARISH San Juan	
		12. STATE Utah	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO		SUBSEQUENT REPORT OF	
TEST WATER SHUT OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRAGTURE TREAT <input type="checkbox"/>	MULTIPLE <input type="checkbox"/>	FRACURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) APD Extension <input checked="" type="checkbox"/>	
(Other) <input type="checkbox"/>		(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log Form)	
APPROX DATE WORK WILL START _____		DATE OF COMPLETION _____	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and "ones" pertinent to this work.)

\* Must be accompanied by a current verification report

Owing to further evaluation of the prospect and reserves, spud of this well has been delayed. Chuska Energy hereby applies for an extension to the APD approval on the subject well.

18. I hereby certify that the foregoing is true and correct

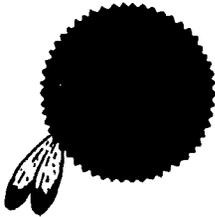
SIGNED: [Signature] TITLE: Operations Engineer DATE: 11 February, 1991

(This space for Federal or State office use)

APPROVED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY

2-25-91  
J.A. Mathews



# CHUSKA ENERGY COMPANY

1775 SHERMAN STREET SUITE 1800 • DENVER, COLORADO 80203 • PHONE (303) 863 7021  
FAX # (303) 863 7210

May 17, 1991

Ms. Vicki Kearney  
Utah Oil & Gas Commission  
355 West North Temple  
Three Triad Center  
Suite 350  
Salt Lake City, Utah  
84180-1203

Dear Ms. Kearney:

Please keep all Chuska Energy Company data confidential until further notice.

Thanks,

A handwritten signature in cursive script that reads "Herb".

Herbert P. Mosca  
Chuska Staff Geologist

RECEIVED

MAY 20 1991

DIVISION OF  
OIL GAS & MINING

ACTION CODE	CURRENT ENTITY NO	NEW ENTITY NO	API NUMBER	WELL NAME	WELL LOCATION				SPUD DATE	EFFECTIVE DATE	
					QQ	SC	TP	RG			COUNTY
A	99999	11568	43-037-31504	<i>Leaf</i> LIGHTING ROCK #2J-1	NWSE	2	42S	25E	SAN JUAN		10-19-93
WELL 1 COMMENTS:											
A	99999	11569	43-037-31505	<i>Leaf</i> LIGHTING ROCK 2L-3	NWSW	2	42S	25E	SAN JUAN		10-19-93
WELL 2 COMMENTS:											
A	99999	11570	43-037-31721	<i>Leaf</i> HILLSIDE 6C-1	NWNE	6	42S	25E	SAN JUAN		10-19-93
WELL 3 COMMENTS:											
A	99999	11571	43-037-31632	<i>Leaf</i> GARTER 9-1	NESE	9	43S	26E	SAN JUAN		10-19-93
WELL 4 COMMENTS:											
WELL 5 COMMENTS:											

**ACTION CODES** (See instructions on back of form)

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (explain in comments section)

**NOTE:** Use COMMENT section to explain why each Action Code was selected

*fc*  
L. CORDOVA (DOGM)  
Signature  
ADMIN. ANALYST -- 10-19-93  
Title Date  
Phone No ( ) \_\_\_\_\_

FEBRUARY 8, 1994

TO: WELL FILE

FROM: K. M. HEBERTSON

RE: Status, Lightning Rock 2L-3 43-037-31505 2-42S-25E

Per telephone conversation with the operator concerning the status of this well, it was determined that the well will not be drilled and the operator has acknowledged that the APD has expired. The operator has been informed that the APD will need to be refiled in order to drill this well at a future date.

As of the above date the APD has been rescinded and the file sent to the LA archives.

KMH

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING  
OIL AND GAS INSPECTION RECORD

WELL NAME: LIGHTING ROCK #2L-3

LEASE:

API: 4303731505

WELL NO:

QTR/QTR: NWSW SECTION: 02

TWP: S420

RANGE: E250

LOCATION: 1340S1160W

FIELD:

OPERATOR: CHUSKA ENERGY COMPANY

CONTRACTOR:

DRILLING / COMPLETION / WORKOVER

Y APD  
SAFETY  
OPERATIONS

WELL SIGN  
POLL. CONTROL  
OTHER

HOUSEKEEPING  
SURFACE USE

BOPE  
PITS

SHUT-IN / TA:

WELL SIGN  
SHUT-IN

HOUSEKEEPING  
TA

EQUIPMENT  
OTHER

SAFETY

ABANDONED:

MARKFR

HOUSEKEEPING

REHAB

OTHER

PRODUCTION:

WELL SIGN  
METERING  
SECURITY

HOUSEKEEPING  
POLL. CONTROL  
SAFETY

EQUIPMENT  
PITS  
OTHER

FACILITIES  
DISPOSAL

GAS DISPOSITION:

VENTED/FLARED

SOLD

LEASE USE

LEGEND: Y - YES OR SATISFACTORY  
N - NO OR UNSATISFACTORY  
A - NOT APPLICABLE

FACILITIES INSPECTED:

REMARKS:

NO GROUND DISTURBED

ACTION:

INSPECTOR: GLENN GOODWIN

DATE: 93/05/05