

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.  
NOG-8308-1033

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
Navajo

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
Navajo Tribal

9. WELL NO.  
44-35

10. FIELD AND POOL, OR WILDCAT  
Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 35, 41S, 24E

12. COUNTY OR PARISH  
San Juan

13. STATE  
NM

1a. TYPE OF WORK  
DRILL  DEEPEN  PLUG BACK

b. TYPE OF WELL  
OIL WELL  GAS WELL  OTHER   
SINGLE ZONE  MULTIPLE ZONE

2. NAME OF OPERATOR  
Chuska Energy Co.

3. ADDRESS OF OPERATOR  
c/o 3E Company, Inc., Box 190, Farmington, NM 87499

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
At surface 540' FSL & 500' FEL

At proposed prod. zone  
200' FSL, 525' FEL

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)

16. NO. OF ACRES IN LEASE  
5120

17. NO. OF ACRES ASSIGNED TO THIS WELL  
40

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

19. PROPOSED DEPTH  
5700 *Actual well*

20. ROTARY OR CABLE TOOLS  
Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
4633 GR

22. APPROX. DATE WORK WILL START\*  
November 1, 1984

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17	13 3/8	54.5	100	See Attached cement informat
12 1/4	8 5/8	24	1300	
7 7/8	5 1/2	15.5	5700	

See attached.

RECEIVED

OCT 09 1984

DIVISION OF OIL  
GAS & MINING

APPROVED BY THE STATE  
OF UTAH DIVISION OF  
OIL, GAS, AND MINING

DATE: 10/18/84  
BY: John K. Day

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. SIGNED John Alexander TITLE Agent DATE October 1, 1984

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

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

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions On Reverse Side

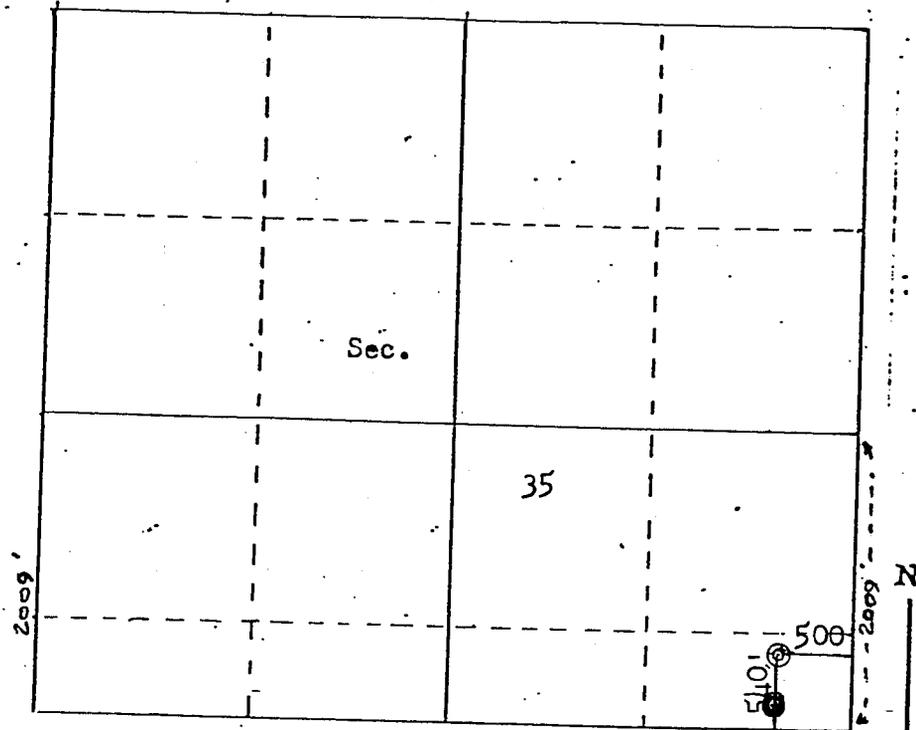
COMPANY CHUSKA ENERGY COMPANY

LEASE NAVAJO TRIBAL WELL NO. 44-35

SEC. 35, T. 11S, R. 24E  
San Juan County, Utah

LOCATION 510' E SL 500' E EL

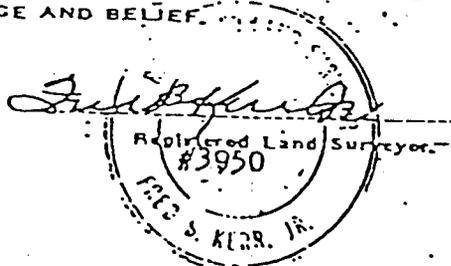
ELEVATION 4633 ungraded ground



SCALE—4 INCHES EQUALS 1 MILE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM  
FIELD NOTE OF ACTUAL SURVEYS MADE BY ME UNDER MY SUPER-  
VISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE AND BELIEF.

SEAL:



SURVEYED November 4, 1983

FORMATION INFORMATION AND  
DRILLING PRACTICES

CHUSKA ENERGY CO.  
Navajo Tribal 44-35  
540' FSL & 500' FEL  
Sec 35, 42S, 24E  
San Juan Co., Utah

1. Surface Formation: Bluff Sandstone

2. Estimated Formation Tops:

Dechelly	2660'
Organ Rock	2750'
Hermosa	4570'
Upper Ismay	5420'
Lower Ismay	5530'
Desert Creek	5570'
T. D.	5700'

3. Estimated Depth of Anticipated Oil, Gas Water or Minerals:

Oil	5530'
Oil	5570'

4. Proposed Casing Program:

0-100' 8 5/8", 24 lb/ft, ST & C K-55 new casing; cement with 300 cubic feet Class. "B" + 2% CaCl<sub>2</sub> + 1/4 lb celophane flakes per sack.

0-1300' 8 5/8", 24 lb/ft, ST & C, K=55 new casing; cement with 800 cubic feet 65-35 poz mix + 2% CaCl<sub>2</sub>. Cement will be brought to surface.

0-5700'T.D. 5 1/2", 15.5 lb/ft, ST & C, K-55 new casing; cement with 450 cubic feet 50-50 poz mix + 2% CaCl<sub>2</sub> + 10% salt + 0.8% fluid loss additive. Cement top at 4000'.

5. Pressure Control Equipment - Blow Out Preventor:

The attached schematic shows the type of blowout preventor to be used while drilling. The unit will be tested to 800 psi prior to drilling from under surface pipe.

6. Drilling Fluids:

DEPTH	TYPE	VIS.	WEIGHT	FLUID LOSS
0-1300'	Gel-lime	35-45	9.0	not controlled
500-4000'	Gel-chem	35-45	9.5	15cc
4000-5800'	Low solids	45-50	10.0	9cc

7. Auxiliary Equipment:

- a. Bit float
- b. Stabbing valve to be used in drill pipe when kelly is not connected.

8. Logging - Coring - Testing Program:

Logging - Open Hole : IES, CNL, FDC  
Mud : 4000' to t.d.

Testing : possible in Lower Ismay and Desert Creek

Coring : None planned

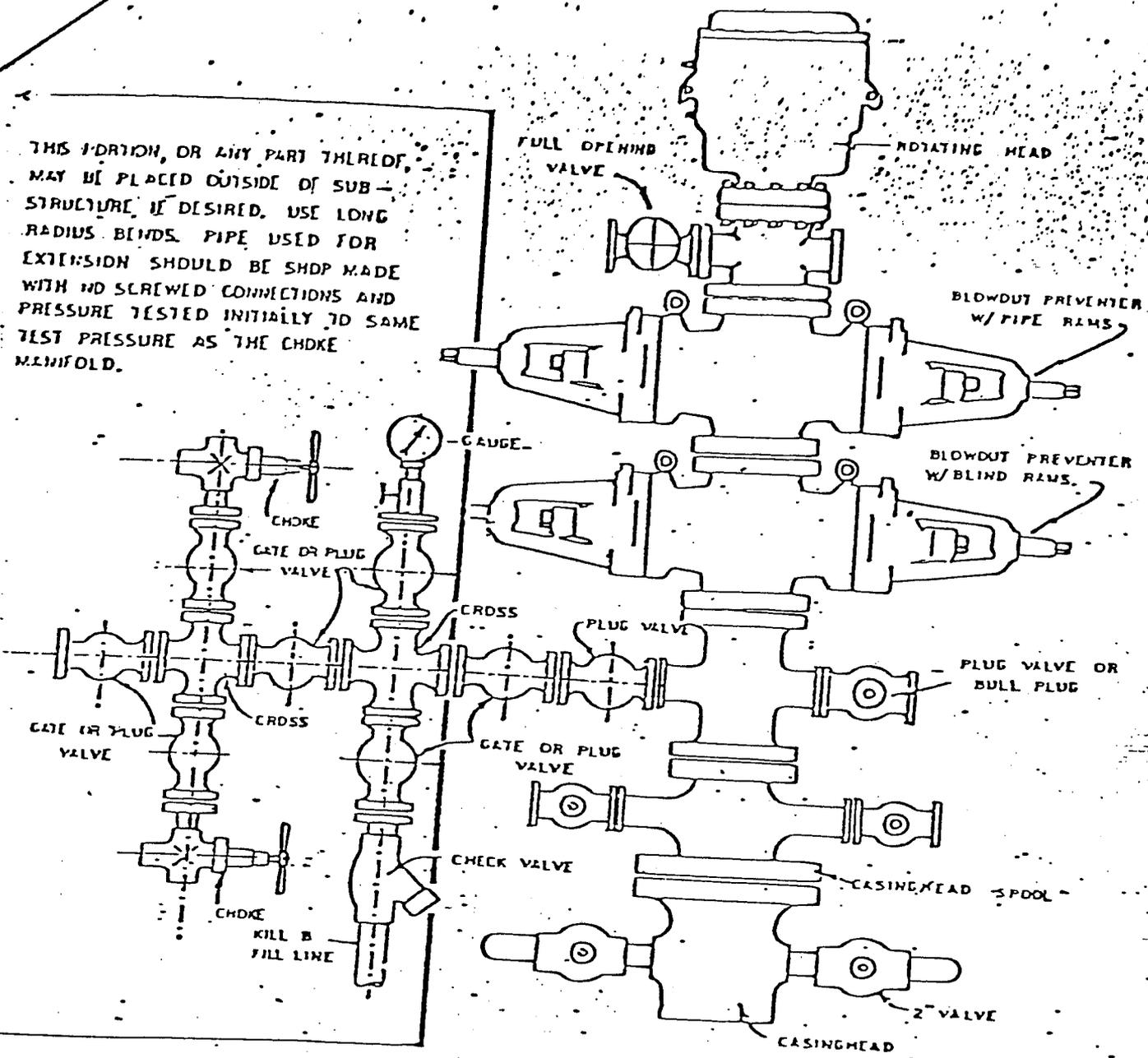
9. Abnormal Temperatures, Pressures or Potential Hazards:

None Expected

10. Starting Date:

Anticipated starting date is November 1, 1984. Approximately 5 days will be required to build roads and location. Drilling will take about 15 days. Completion should be accomplished in 6 days.

THIS PORTION, OR ANY PART THEREOF, MAY BE PLACED OUTSIDE OF SUB-STRUCTURE, IF DESIRED. USE LONG RADIUS BENDS. PIPE USED FOR EXTENSION SHOULD BE SHOP MADE WITH WELD SCREWED CONNECTIONS AND PRESSURE TESTED INITIALLY TO SAME TEST PRESSURE AS THE CHDKE MANIFOLD.



BLOWOUT PREVENTER HOOKUP

SURFACE USE PLAN

CHUSKA ENERGY CO.  
Navajo Tribal 44-35  
540' FSL and 500' FEL  
Sec 35, 411S, 24E  
San Juan Co., Utah

1. Existing Roads (shown in green)

The attached topographic map shows all existing roads within one mile of the proposed location. The access road will join an existing dirt road.

2. Planned Access Road (shown in red)

The new access road will run east from the existing secondary road approximately 2000' to the well site. Maximum grade will be 10%. Water bars will be used to prevent erosion.

3. Location of Existing Wells

All existing oil, gas, water, drilling and disposal wells are shown on the attached topographic map.

4. Location of Tank Batteries, Prod. Facilities & Prod. Gathering & Service Lines

All production facilities are to be contained within the proposed location site. The operator intends to lay a 3" steel gas gathering line in the access road right of way. The line will be rated at 2,000 psi, wrapped and buried 18". A plat showing the survey stations for this line is attached.

5. Location and Type of Water Supply

Water will be trucked from the San Juan River, 9 miles north of the location.

6. Source of Construction Materials

Any gravel or other construction material that can not be obtained from the excess accumulated from building the location will be purchased from the Navajo Tribe.

7. Methods of Handling Waste Disposal

All trash will be carried to a land fill or burned. All nonburnable materials (drilling fluids, cuttings, chemicals) will be stored in the reserve pit and then buried when they have dried. Any oil produced while drilling will be trucked from the location prior to leaving pit to dry out. Pits will be completely fenced during drying time, then backfilled with dirt prior to preparing the location for production or abandonment.

8. A portable chemical toilet will be supplied for human waste.

9. Ancillary Facilities - No ancillary facilities are planned.

10. Well Site Layout - The attached layout shows the drilling rig with all associated facilities. Cut and fill required is also indicated.

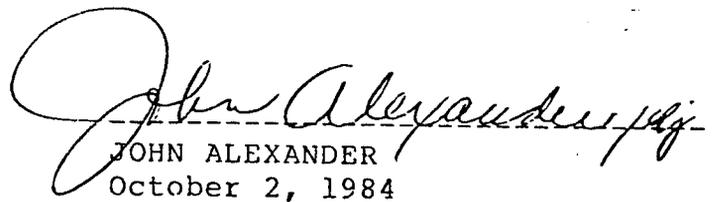
11. Plans for Restoration of Surface

Restoration of the wellsite and access road will begin within 90 days of well completion, weather permitting, and if required by private land owner. Should well be abandoned, the drilling site will be reshaped to its approximate former contour. The access road will be plowed up and leveled. Both drillsite and road will have any topsoil replaced and will be reseeded when germination of seeds can take place. In either case, cleanup of the site will include burning of any safely burnable material, filling of all pits, carrying away of all nonburnable material and any chemicals that cannot be safely buried, and the hauling off of any oil that may have accumulated on the pits while drilling. A burn permit will be acquired if necessary.

12. This site is 3 1/2 mile Southwest of the San Juan river near Aneth, Utah. The location is flat and covered with native vegetation. There are no residences in the area.

13. John Alexander  
3E Company, Inc.  
P.O. Box 190  
Farmington, NM 87499  
Phone: 505-326-1135

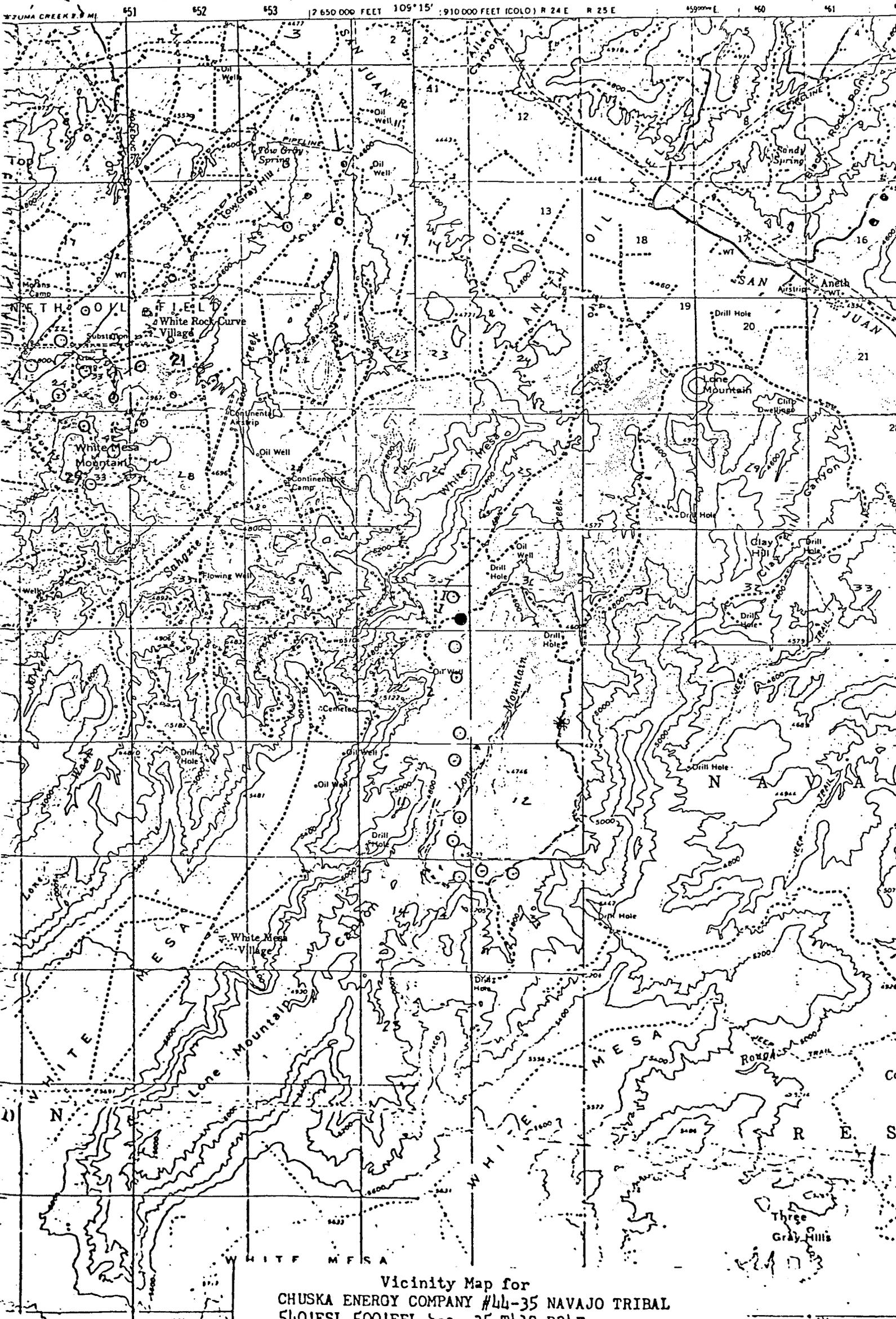
14. I hereby certify that I, or persons under by direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in the plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Chuska Energy Co. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

  
JOHN ALEXANDER  
October 2, 1984

JA:kj

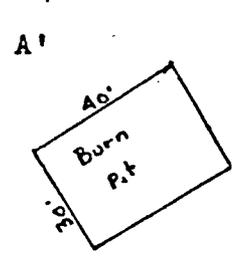
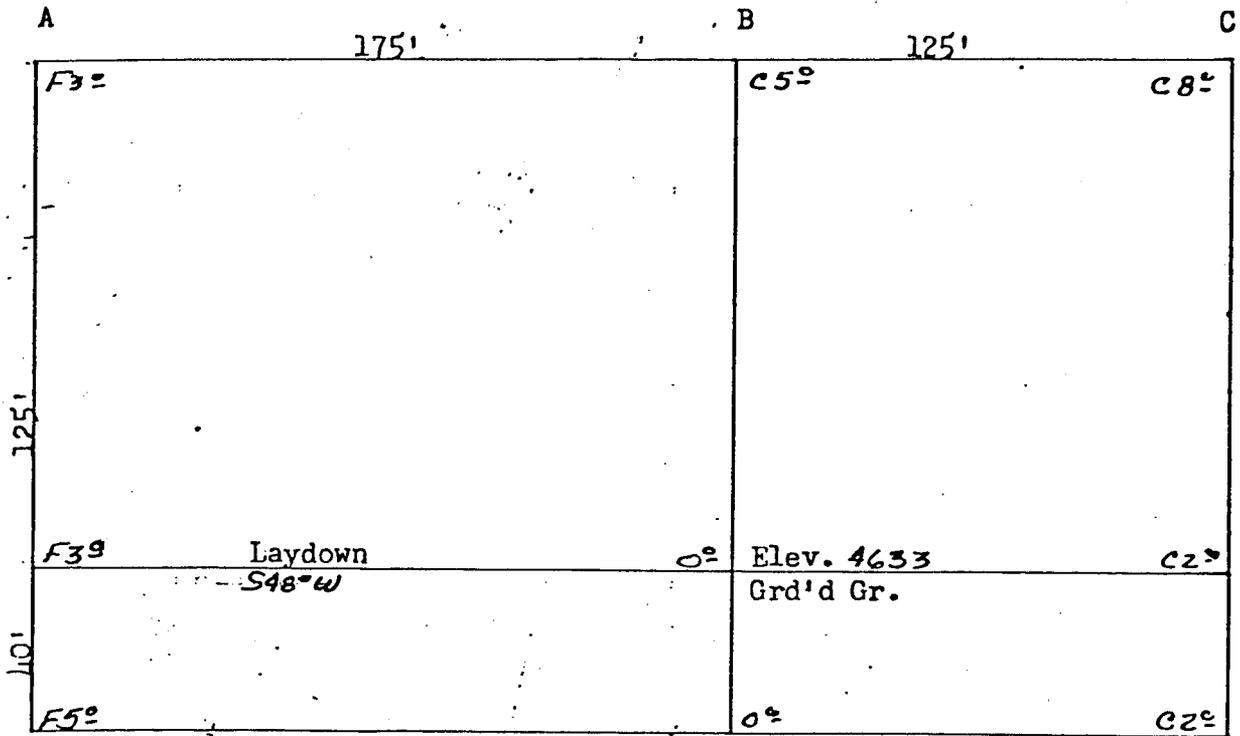
WHITE MESA VILLAGE QUADRANGLE  
UTAH  
15 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

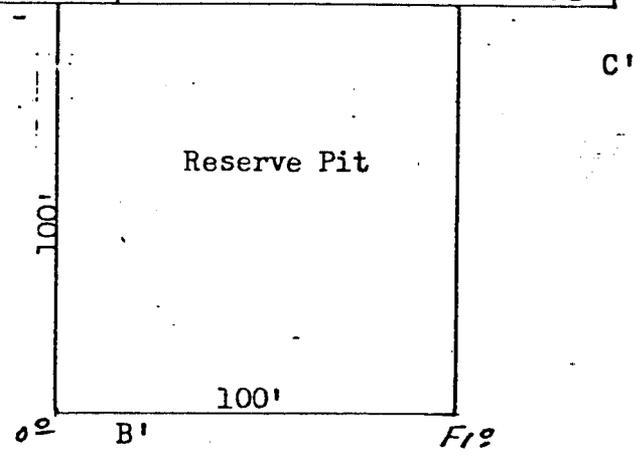
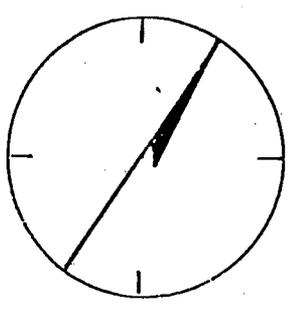


Vicinity Map for  
CHUSKA ENERGY COMPANY #44-35 NAVAJO TRIBAL  
540'FSL 500'FEL Sec. 35-T41S-R24E  
SAN JUAN COUNTY, UTAH

Drill Holes  
Drill Hole



Scale: 1"=50'



A-A' Vert: 1"=30' Horiz: 1"=100' C/L

4640						
4630						
4620						

B-B' C/L

4640						
4630						

C-C' C/L

4640						
4630						

OPERATOR Chuska Energy Co. DATE 10-12-84

WELL NAME Navajo Tribal #44-35

SEC SESE 35 T 41S R 24E COUNTY San Juan  
Irregular Section

43-037-31089  
API NUMBER

Indian  
TYPE OF LEASE

POSTING CHECK OFF:

<input type="checkbox"/>	INDEX	<input type="checkbox"/>	HL	<input type="checkbox"/>
<input type="checkbox"/>	NID	<input type="checkbox"/>	PI	<input type="checkbox"/>
<input type="checkbox"/>	MAP	<input type="checkbox"/>		<input type="checkbox"/>

PROCESSING COMMENTS:

No other oil wells within 1000' (Lease No. the same as  
Exception location requested - Geology  
Need water permit  
425. 24E-5-2)

APPROVAL LETTER:

SPACING:  A-3 \_\_\_\_\_ UNIT  c-3-a \_\_\_\_\_ CAUSE NO. & DATE

c-3-b  c-3-c

SPECIAL LANGUAGE:

1- Water  
~~2- Exc. loc. (consent of offset oper.)~~  
2- Exc. loc. (consent of offset oper.)  
3- BOP - 3000 psi - 8 5/8" casing.

RECONCILE WELL NAME AND LOCATION ON APD AGAINST SAME DATA ON PLAT MAP.

AUTHENTICATE LEASE AND OPERATOR INFORMATION

VERIFY ADEQUATE AND PROPER BONDING

AUTHENTICATE IF SITE IS IN A NAMED FIELD, ETC.

APPLY SPACING CONSIDERATION

ORDER \_\_\_\_\_

UNIT \_\_\_\_\_

c-3-b

c-3-c

CHECK DISTANCE TO NEAREST WELL.

CHECK OUTSTANDING OR OVERDUE REPORTS FOR OPERATOR'S OTHER WELLS.

IF POTASH DESIGNATED AREA, SPECIAL LANGUAGE ON APPROVAL LETTER

IF IN OIL SHALE DESIGNATED AREA, SPECIAL APPROVAL LANGUAGE.

# 3E COMPANY, INC.

*Engineering • Energy • Exploration*

P. O. Box 190    --    505/326-1135

FARMINGTON, NEW MEXICO 87499

October 10, 1984

State of Utah  
Division of Oil Gas and Mining  
4241 State Office Building  
Salt Lake City, UT 84114

Attention Mr. Norm Stout

Re: Non-standard location  
Chuska Energy Co.  
Navajo Tribal #44-35

**RECEIVED**

**OCT 15 1984**

**DIVISION OF OIL  
GAS & MINING**

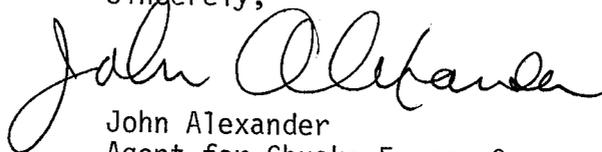
Gentlemen:

Chuska Energy Company, PO Box 190 Farmington, NM 87499, requests approval for an unorthodox location of the subject well. The Navajo Tribal #44-35 has a surface location of 540' FSL and 500' FEL 35-41S-24E. The hole is to be deviated to a bottom hole location of 200' FSL and 525' FEL 35-41S-24E, San Juan County. Target formation is the Desert Creek, Aneth Field.

A standard location from the south line at this site may be off the structure. This spacing exception is requested because of geology.

The offset operators have been notified of this applicaiton.

Sincerely,



John Alexander  
Agent for Chuska Energy Co.

sh

COMPANY CHUSKA ENERGY COMPANY

LEASE NAVAJO TRIBAL

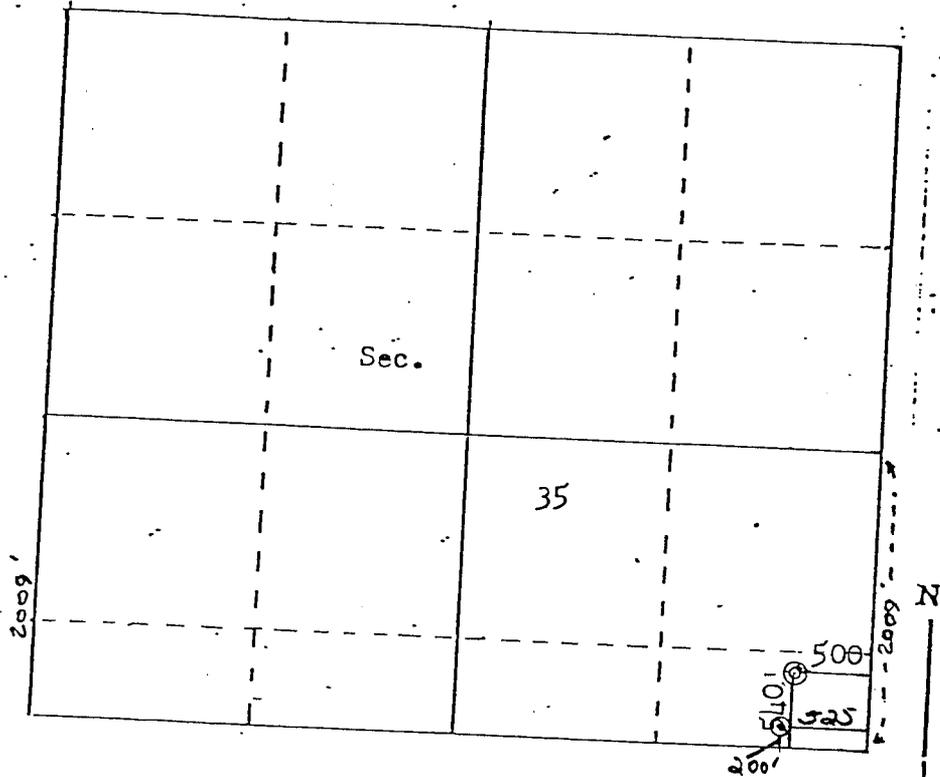
WELL NO. 44-35

SEC. 35, T. 11S, R. 21E

San Juan County, Utah

LOCATION 510' ESL 500' FEL bottom hole: 200' ESL & 525' FEL

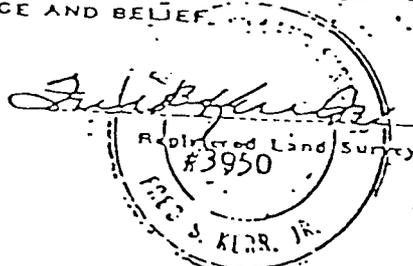
ELEVATION 4633 ungraded ground



SCALE—4 INCHES EQUALS 1 MILE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTE OF ACTUAL SURVEYS MADE BY ME UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

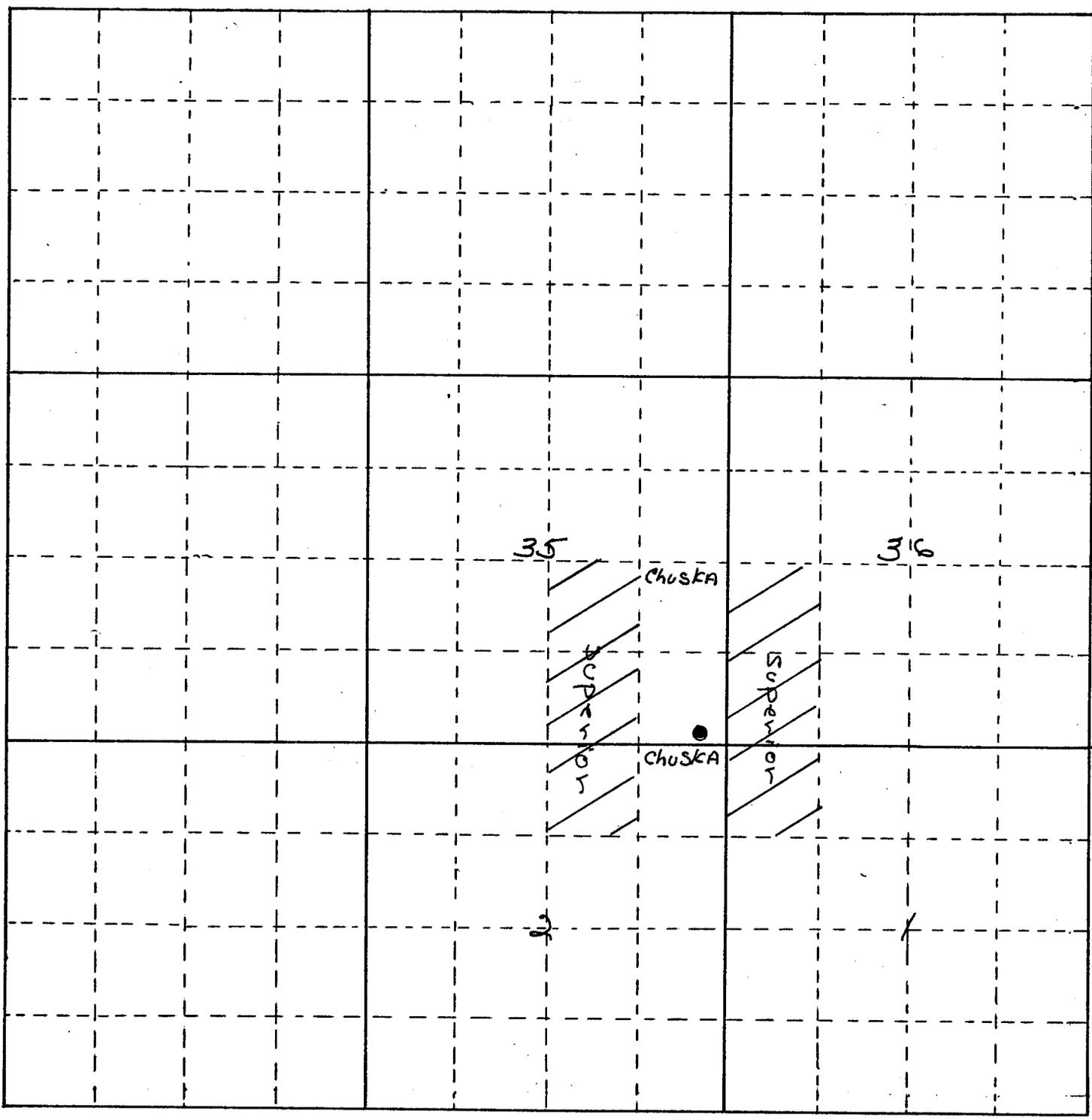
SEAL



SURVEYED November 4, 1983

FARMINGTON, N. M.

24E 25E



41S

42S

● SUBJECT WELL  
CHUSKA ENERGY CO.  
NAVAJO TRIBAL 44-35  
OFF SET OPERATORS

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

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.)

5. LEASE DESIGNATION AND SERIAL NO.

NOG-8308-1033

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Navajo Tribal

9. WELL NO.

44-35

10. FIELD AND POOL, OR WILDCAT

Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

35-41S-24E

12. COUNTY OR PARISH 13. STATE

San Juan

Utah

OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR

Chuska Energy Co.

3. ADDRESS OF OPERATOR

c/o 3E Company, PO Box 190, Farmington, NM 87499

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*  
See also space 17 below.)

At surface 540' FSL & 500' FEL

At total depth: 200' FSL & 525' FEL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

4633' GL

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other) Change bottom hole location

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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 zones pertinent to this work.)\*

The operator intends to deviate this hole to a bottom hole location indicated above. Application has been made for a non-standard location. A new well plat is attached.

All other facets of the application remain unchanged.

RECEIVED

OCT 15 1984

DIVISION OF OIL  
GAS & MINING

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

SIGNED

*John Alexander*  
John Alexander

TITLE Agent

DATE 10-10-84

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

112

COMPANY CHUSKA ENERGY COMPANY

LEASE NAVAJO TRIBAL

WELL NO. 44-35

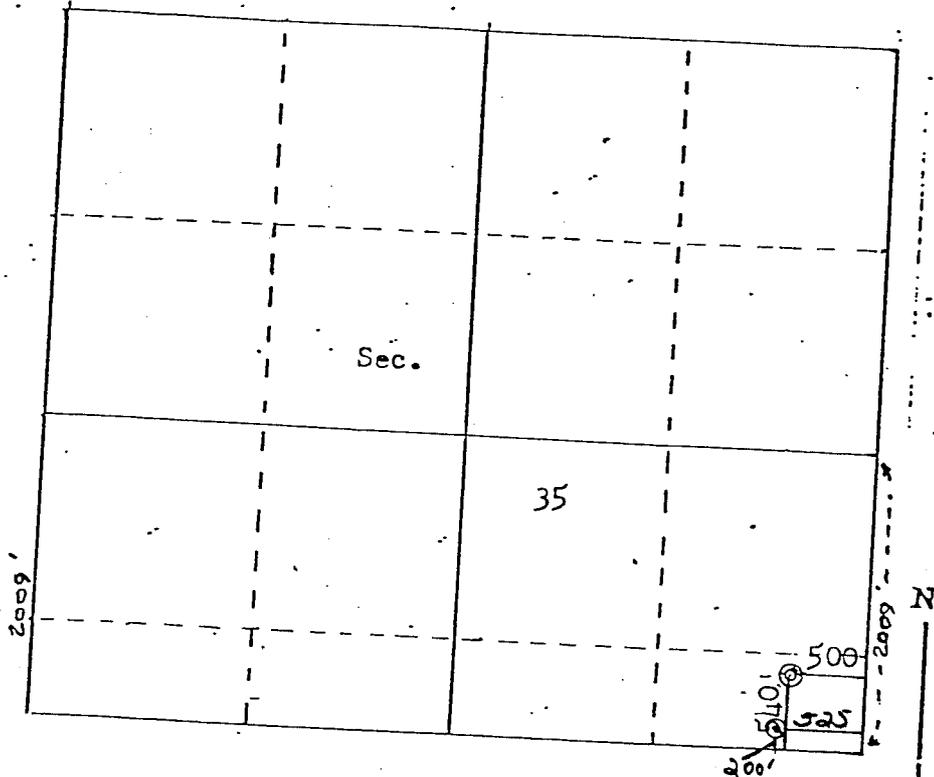
SEC. 35, T. 11S

R. 24E

San Juan County, Utah

LOCATION 540' ESI 500' EEL bottom hole: 200' ESI & 525' EEL

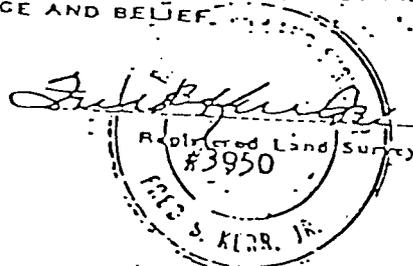
ELEVATION 4633 ungraded ground



SCALE—4 INCHES EQUALS 1 MILE

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SCALE



SURVEYED

November 4, 1983

83

FARMINGTON, N. M.



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dianne R. Nielson, Ph.D., Division Director

October 18, 1984

Chuska Energy Company  
c/o 3E Company, Inc.  
P. O. Box 190  
Farmington, New Mexico 87499

Gentlemen:

Re: Well No. Navajo Tribal #44-35 - SE SE Sec. 35, T. 41S, R. 24E  
(Surface) 540' FSL, 500' FEL, (BHL) 200' FSL, 525' FEL  
San Juan County, Utah

Approval to drill the above referenced oil well is hereby granted in accordance with Rule C-3(c), General Rules and Regulations and Rules of Practice and Procedure, subject to the following stipulations:

1. Prior to commencement of drilling, receipt by the Division of evidence providing assurance of an adequate and approved supply of water.
2. Submittal to the Division of information justifying the necessity for an exception location and verification of ownership within a radius of 660 feet of the proposed location and consent of offset operator.
3. Blowout prevention equipment with a minimum of 3000 psi working pressure should be used after drilling out of 8 5/8" casing.

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

1. Spudding notification to the Division within 24 hours after drilling operations commence.
2. Submittal to the Division of completed Form OGC-8-X; Report of Water Encountered During Drilling.
3. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 533-5771, (Home) 298-7695 or R. J. Firth, Associate Director, (Home) 571-6068.

Page 2  
Chuska Energy Company  
Well No. Navajo Tribal #44-35  
October 18, 1984

4. Compliance with the requirements and regulations of Rule C-27, Associated Gas Flaring, General Rules and Regulations, Oil and Gas Conservation.
5. 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 43-037-31089.

Sincerely, -



R. J. Firth  
Associate Director, Oil & Gas

as  
Enclosures  
cc: Branch of Fluid Minerals  
Bureau of Indian Affairs



DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

API #43-037-31089

NAME OF COMPANY: CHUSKA ENERGY

WELL NAME: Navajo Tribal #44-35

SECTION SE SE 35 TOWNSHIP 41S RANGE 24E COUNTY San Juan

DRILLING CONTRACTOR Coleman

RIG # 2

SPUDDED: DATE 11-14-84

TIME 12:00 PM

How \_\_\_\_\_

DRILLING WILL COMMENCE \_\_\_\_\_

REPORTED BY John Alexander

TELEPHONE # 505-326-1135

DATE 11-16-84 SIGNED AS

# 3E COMPANY, INC.

Engineering • Energy • Exploration

P. O. Box 190 — 505/326-1135

FARMINGTON, NEW MEXICO 87499

October 10, 1984

The Superior Oil Co.  
Drawer G  
Cortez, CO 81321

Attention Land Department

Re: Request for unorthodox location  
Chuska Energy Co.

**RECEIVED**  
NOV 20 1984

**DIVISION OF  
OIL, GAS & MINING**

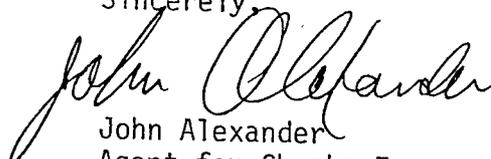
Gentlemen:

Chuska Energy Company has applied for an unorthodox location of its Navajo Tribal #44-35. The well is to be deviated from a surface location of 540' FSL and 500' FEL 35-41S-24E to a bottom hole location of 200' FSL and 525' FEL in the same section. Target formation is the Desert Creek.

This request is made on the basis of geology.

We ask that you waive a public hearing on this matter by executing one copy of this letter and returning it in the enclosed envelope.

Sincerely,



John Alexander  
Agent for Chuska Energy Co.

sh

The Superior Oil Co. waives a public hearing in the above matter.

W. W. McMahon, Jr. 10/22/84  
Name Date

ACTING GEOLOGY MANAGER/DENVER DIVISION  
Name & Title (Typed)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE\*  
(Other instructions on reverse side)

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.)

OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR  
Chuska Energy Co.

3. ADDRESS OF OPERATOR  
c/o 3E Co., Box 190, Farmington, NM 87499

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\* See also space 17 below.)  
At surface 540' FSL & 500' FEL

At T.D.: 200' FSL & 525' FEL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

4646 KB

5. LEASE DESIGNATION AND SERIAL NO.

NOG-8308-1033

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

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8. FARM OR LEASE NAME

Navajo Tribal

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44-35

10. FIELD AND POOL, OR WILDCAT

Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

35-41S-24E

12. COUNTY OR PARISH 13. STATE

San Juan

Utah

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT.

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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 zones pertinent to this work.)\*

Spud 17 1/2" hole 11-15-84. Coleman Drilling Rig #2 as drilling contractor. Drill to 85ft. Ran 13 3/8" 68 lb/ft casing to 83ft. Cemented with 133 cu. ft Class "B" cement containing 3% CaCl2 and 1/4 lb cellophane flake per sack. Circulated 56 cu. ft of cement to surface. Job complete 11-15-84.

RECEIVED  
NOV 20 1984

DIVISION OF  
OIL, GAS & MINING

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

SIGNED

*Bret D. Cook*  
Bret D. Cook

TITLE Agent

DATE 11-15-84

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

SUBMIT IN TRIPPLICATE\*  
(Other instructions on re-  
verse side)

**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.)

5. LEASE DESIGNATION AND SERIAL NO.

NOG-8308-1033

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Navajo Tribal

9. WELL NO.

44-35

10. FIELD AND POOL, OR WILDCAT

Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

35-41S-24E

12. COUNTY OR PARISH | 13. STATE

San Juan

Utah

14. PERMIT NO.

43-037 - 31089

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

4648 KB

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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 zones pertinent to this work.)\*

The operator, Chuska Energy Co., has plugged and abandoned the Navajo Tribal 44-35 on December 3, 1984. Ran 4 1/2" drill pipe and spotted Class "B" cement plugs as follows:

INTERVAL	CU. FT. CEMENT	FORMATIONS
5141-5241	44 across	Upper Ismay top
4273-4373	44 across	Hermosa top
2347-2447	44 across	De Chelly top
1263-1363	44 across	Surface casing shoe
0-50	18	Plug at surface

Dry hole marker was set. Job complete 12-03-84.

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

SIGNED

*Bret D. Cook*  
Bret D. Cook

TITLE Agent

DATE 12-3-84

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

Federal approval of this action is required before commencing operations.

TITLE

**ACCEPTED  
APPROVED BY THE STATE  
OF UTAH DIVISION OF  
OIL, GAS, AND MINING**

\*See Instructions on Reverse Side

DATE: 12/17/84  
BY: *John R. Boye*

ORAL APPROVAL TO PLUG AND ABANDON WELL

*wall file*

Operator Chuska Representative John Alexander  
*Navajo Tribal*

Well No. 44-35 Location 1/4 1/4 Section 35 Township 41S Range 24E

County San Juan Field \_\_\_\_\_ State \_\_\_\_\_

Unit Name and Required Depth \_\_\_\_\_ Base of fresh water sands \_\_\_\_\_

T.D. 5555 Size hole and Fill per sack " \_\_\_\_\_ Mud Weight and Top \_\_\_\_\_ #/gal. \_\_\_\_\_

Casing Size	Set At	Top of Cement	To Be Pulled	Plugging Requirements		
				From	To	Sacks Cement
<u>8 5/8</u>	<u>1319</u>	_____	_____	<u>① 5154</u>	<u>5254</u>	_____
_____	_____	_____	_____	<u>② 5298</u>	<u>5398</u>	_____
<u>Formation</u>	<u>Top</u>	<u>Base</u>	<u>Shows</u>	<u>③ 2340</u>	<u>2440</u>	_____
<u>Ismay</u>	<u>5204</u>	_____	_____	<u>④ 1269</u>	<u>1369</u>	_____
<u>Hermosa</u>	<u>5348</u>	_____	_____	<u>⑤ Surface plug.</u>	_____	_____
<u>DeChelly</u>	<u>2390</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

REMARKS

DST's, lost circulation zones, water zones, etc., \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Approved by JRB Date 12/2/84 Time 1900 hrs. a.m. / p.m.

- Verbal approval obtained from BLM - Moab.  
 - May run pipe x not plug - they will let us know.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

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.)

OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR

Chuska Energy Co.

3. ADDRESS OF OPERATOR

c/o 3E Company, Box 190, Farmington, NM 87499

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*  
See also space 17 below.)

At surface 540' FSL & 500' FEL

At total depth: 200' FSL & 525' FEL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, CR, etc.)

4633 GR

16.

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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 zones pertinent to this work.)\*

Drilled 12 1/4" hole to 1330 ft. Ran 8 5/8" 24 lb casing to 1322 ft. Cemented with: 775 cu.ft Class "B" cement containing 4% Gel, 2% CaCl2, 1/2 lb cellophane flake per sack; and tailed in with 325 cu.ft. Class "B" cement containing 2% CaCl2 and 1/4 lb cellophane flake per sack.

Outside job down 13 3/8"-8 5/8" annulus with 148 cu.ft Class "B" cement with 2% CaCl2. Cement stayed at surface. Job complete 11-17-84.

RECEIVED  
DEC 03 1984

DIVISION OF  
OIL, GAS & MINING

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

SIGNED

*Bret D. Cook*

TITLE Agent

DATE 11-19-84

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

**UNITED STATES**  
**DEPARTMENT OF THE INTERIOR**  
**GEOLOGICAL SURVEY**

SUBMIT IN DUPLICATE\*  
See other instructions on reverse side)

Form approved.  
Budget Bureau No. 42-R35

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG\***

5. LEASE DESIGNATION AND SERIAL NO.  
NOG-8308-1033

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
Navajo

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
Navajo Tribal

9. WELL NO.  
44-35

10. FIELD AND POOL, OR WILDCAT  
Aneth

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA  
35-41S-24E

1a. TYPE OF WELL: OIL WELL  GAS WELL  DRY  Other \_\_\_\_\_

b. TYPE OF COMPLETION: NEW WELL  WORK OVER  DEEP-EN  PLUG BACK  DIFF. RESVR.  Other \_\_\_\_\_

2. NAME OF OPERATOR  
Chuska Energy Co.

3. ADDRESS OF OPERATOR  
c/o 3E Co., Inc., Box 190 Farmington, NM 87499

4. LOCATION OF WELL (Report location clearly and in accordance with State requirements)  
At surface 540' FSL & 500' FEL  
At top prod. interval reported below **SESE**  
At total depth 200' FSL & 525 FEL

**RECEIVED**  
DEC 14 1984

12. COUNTY OR PARISH  
San Juan

13. STATE  
Utah

14. PERMIT NO. 43-037-31028  
DATE ISSUED 05-18-84

15. DATE SPUNDED 11-15-84

16. DATE T.D. REACHED 12-2-84

17. DATE COMPL. (Report to State) Plugged

18. U.S. ELEVATIONS (DF, REB, RT, GE, ETC.)\* 4648 KB

19. ELEV. CASINGHEAD N/A

20. TOTAL DEPTH, MD & TVD 5555 MD

21. PLUG, BACK T.D., MD & TVD

22. IF MULTIPLE COMPL., HOW MANY\*

23. INTERVALS DRILLED BY ROTARY TOOLS 10-5555

23. INTERVALS DRILLED BY CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)\*  
Plugged & Abandoned

25. WAS DIRECTIONAL SURVEY MADE  
Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN  
DIL, DC, CNL, GR *Sample*

27. WAS WELL CORED  
No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	68	83	17 1/2"	133cuft class B, 3% CaCl2	None
8 5/8"	24	1322	12 1/4"	1/4lb. flocele per sack 775cuft class B, 4% gel 2%CaCl2, 472cuft Class B, 2%CaCl2, 1/4lb Flocele	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
N/A					N/A		

30. TUBING RECORD

31. PERFORATION RECORD (Interval, size and number)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
None	

33.\* PRODUCTION

DATE FIRST PRODUCTION \_\_\_\_\_ PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) **Plugged & Abandoned** WELL STATUS (Producing or shut-in) **Plugged**

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) \_\_\_\_\_ TEST WITNESSED BY \_\_\_\_\_

35. LIST OF ATTACHMENTS \_\_\_\_\_

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Bret D. Cook TITLE Agent DATE 12-3-84

\*(See Instructions and Spaces for Additional Data on Reverse Side)



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

5. LEASE DESIGNATION AND SERIAL NO.  
NOG 8308 1033

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to surface. See Form  
Use "APPLICATION FOR PERMIT—" for such proposals.)

INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

OIL WELL  GAS WELL  OTHER

DEC 17 1984

7. PERMIT AGREEMENT NAME

8. FARM OR LEASE NAME  
Navajo Tribal

9. WELL NO.

44-35

10. FIELD AND POOL, OR WILDCAT

Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

35-41S-24E

12. COUNTY OR PARISH 13. STATE

San Juan Utah

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

WATER SHUT-OFF

REPAIRING WELL

FRACTURE TREAT

MULTIPLE COMPLETE

FRACTURE TREATMENT

ALTERING CASING

SHOOT OR ACIDIZE

ABANDON\*

SHOOTING OR ACIDIZING

ABANDONMENT\*

REPAIR WELL

CHANGE PLANS

(Other)

(Other) Lay Natural Gas Line

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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 zones pertinent to this work.)

Operator intends to lay 2 7/8" threaded and coupled tubing on the surface. This line will carry gas to the pipe line connection in Sec.2-Twn.42S-Rng.24E. A surveyors plat of the line is attached. Archaeology for the line has been completed.

The line is steel and rated at 7260 psi. Operating pressure is expected to be 35 psi.

DEC 7 1984

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

SIGNED

*John Alexander*  
John Alexander

TITLE

Agent

DATE

12/1/84

(This space for Federal or State office use)

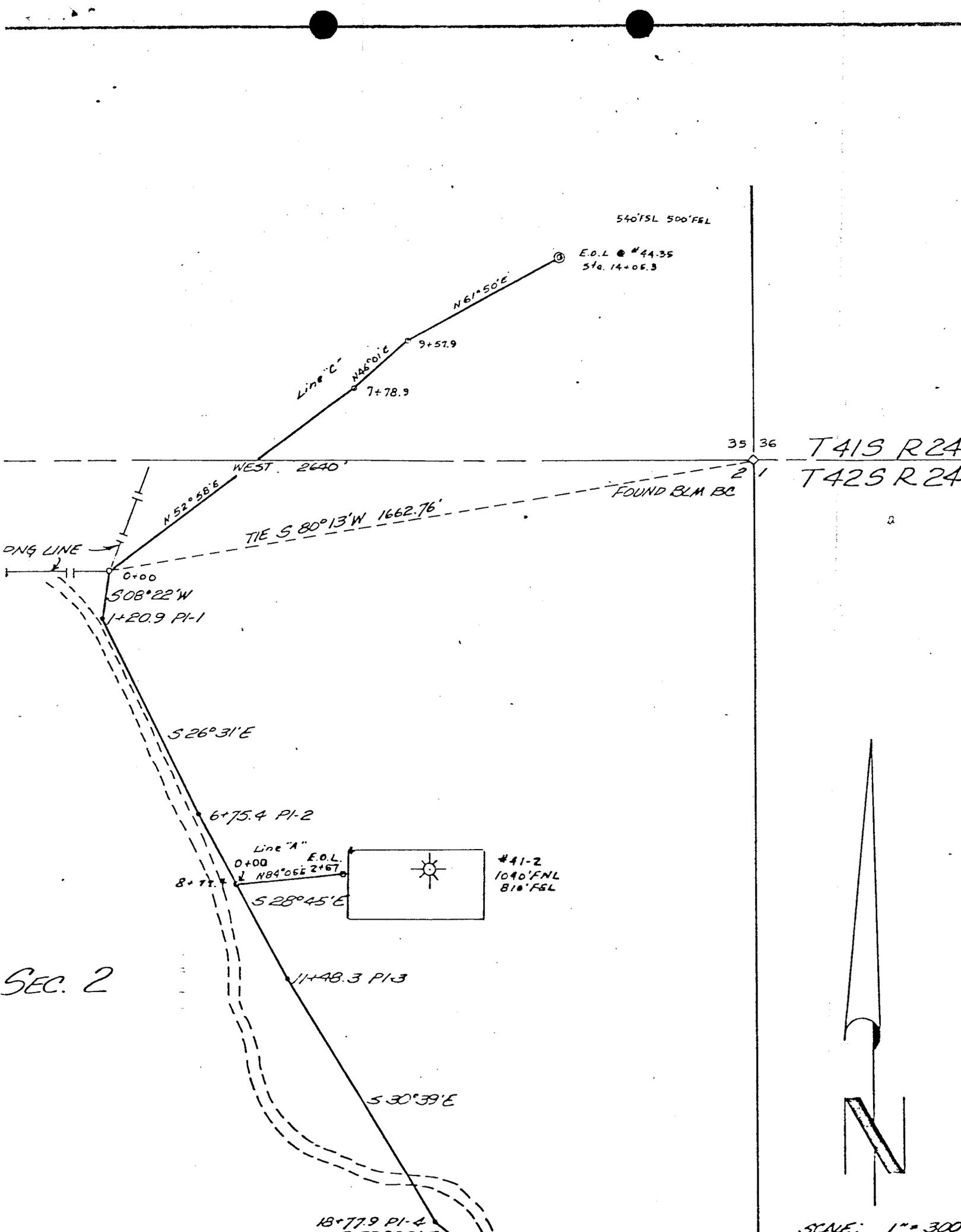
APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side



**TERRA SERVICES, INC.**  
163 SOUTH VAN GORDON ST. • LAKEWOOD, COLORADO 80228  
303/988-5111

**RECEIVED**  
DEC 26 1984

December 19, 1984

**DIVISION OF  
OIL, GAS & MINING**

Mr. Norman Stout  
Utah Oil Division  
4241 State Office Building  
Salt Lake City, Utah 84111

Dear Mr. Stout

Enclosed is your final copy of the Well Log covering Chuska Energy Company:

Navajo Tribal #44-35  
540' FSL and 500' FWL  
Sec. 35, T41S, R24E  
San Juan County, Utah

Should you have any questions pertaining to this Well Log or any other matter which we can be of assistance, please contact us.

Sincerely,



Joel R. Parise  
Vice President  
Sales and Operations

JRP:mh

**TERRA SERVICES, INC.**

163 SOUTH VAN GORDON ST. • LAKEWOOD, COLORADO 80228  
303/988-5111

CHUSKA ENERGY COMPANY

Navajo Tribal #44-35  
540' FSL and 500' FWL  
Sec. 35, T41S, R24E  
San Juan County, Utah

TERRA SERVICES, INC.

1645 Court Place, Suite 218  
Denver, Colorado 80202

(303) 534-2871

Supervisors: Joel Parise  
Steve Szekula

Logger: Dudley Deardorff  
Trainee: Janna Rohrbaugh

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CHUSKA ENERGY COMPANY  
Navajo Tribal #44-35

WELL DATA

OPERATOR: Chuska Energy Company  
P.O. Box 2118  
Farmington, New Mexico 87499  
  
(505) 326-5594

WELL: Navajo Tribal #44-35

LOCATION: 540' FSL and 500' FWL  
Sec. 35, T41S, R24E  
San Juan County, Utah

FIELD: Greater Aneth (White Mesa Unit)

ELEVATIONS: Ground Level - 4633'  
Kelly Bushing--4646'

CONTRACTOR: Coleman Drilling Rig #2  
P.O. Drawer 3337  
Farmington, New Mexico 87499  
  
(505) 327-4935

DRILLING FLUIDS: Engineer: John Hunter  
Fresh Water to 2200'  
Weighted, Gel-Dispersed Mud - 2200' + - TD

COMPANY REPRESENTATIVE: 3E Company, Inc.  
P.O. Box 190  
Farmington, New Mexico 87499  
  
(505) 326-1135

Representative: John Alexander

WELLSITE GEOLOGIST: Chuska Energy Company  
P.O. Box 2118  
Farmington, New Mexico 87499  
  
(505) 326-5594

Geologist: John Pudliner

MUDLOGGING COMPANY: Terra Services, Inc.  
1645 Court Place, Suite 218  
Denver, Colorado 80202  
  
(303) 534-2871

Mudlogger: Dudley Deardorff  
Trainee: Janna Rohrbaugh

CHUSKA ENERGY COMPANY  
Navajo Tribal #44-35

WELL DATA, continued

MUDLOGGING SERVICES: Rigged up on November 25, 1984. Commenced logging operation at 05:00 hours on November 26, 1984, at a depth of 4300'. Operation consisted of a one-man unit with a trainee. Hotwire and Gas Chromatograph were instrumentation. Logging unit released at 14:00 hours on December 2, 1984.

SPUD DATE: November 15, 1984

COMPLETED DRILLING DATE AND STATUS: December 2, 1984. Plug and abandon.

BOTTOM HOLE FORMATION: Chimney Rock Shale unit of the Paradox Formation

DRILL PIPE SIZE: Drill Pipe - 4-1/2" 16.6 #/ft.  
Tool Joint - 5-1/4"  
Thread type - XH

Drill Collars - 2-1/4" X 6-1/4"  
Thread Type - XH

MUD PUMPS: No. 1 - OP 1-700 5-1/3 X 8  
No. 2 - IDECO - 600 5 X 16

CASING PROGRAM: 8-5/8" LT and C 24 #/ft. K-55 Set at 1319'

TOTAL DEPTH: Driller's Depth: 5555'  
Deviated True Vertical Depth: 5530.80'  
Electric Log Depth:

ELECTRIC LOG COMPANY: Dresser - Atlas  
Farmington, New Mexico

SURVEY RECORD

<u>DEPTH</u>	<u>DEVIATION ANGLE</u>	<u>TYPE TOOL</u>	
382'	1/2°	Wireline	
865'	1-3/4°	Wireline	
1015'	1-3/4°	Wireline	Conventional -
1169'	2	Wireline	Non-Directional
1330'	2-3/4°	Drop Tool	Survey Tool used
1625'	1-1/2°	Wireline	until 3100'.
1937'	1°	Wireline	
2217'	1-1/4°	Wireline	
2558'	1°	Wireline	
2868'	1°	Wireline	
3000'	1-1/4°	Drop Tool	

Assume Vertical to 3100'. Declination: 13° E

CHUSKA ENERGY COMPANY  
Navajo Tribal #44-35

SURVEY RECORD, continued

<u>MEASURED DEPTH</u>	<u>ANGLE</u>		<u>DIRECTION</u>		<u>COURSE LENGTH</u>		<u>TRUE</u>
	<u>AVG.</u>	<u>ACTUAL</u>	<u>AVG.</u>	<u>ACTUAL</u>	<u>MEASURED</u>	<u>ACTUAL</u>	<u>MEASURED DEPTH</u>
3216'	1/2°	1°	S77°E	S77°E	116'	116.00'	3216.00'
3247'	1°	1°	S71.5°E	S66°E	31'	31.00'	3247.00'
3430'	2°	3°	S43.5°E	S21°E	183'	182.89	3429.89'
3492'	3-1/8°	3-1/4°	S21°E	S21°E	62'	61.91'	3491.80'
3524'	3-3/4°	4-1/4°	S20°E	S19°E	32'	31.93'	3523.73'
3602'	5-5/8°	7°	S12.5°E	S06°E	78'	77.62'	3601.35'
3662'	7-1/4°	7-1/2°	S03°E	- 5 -	60'	59.52'	3660.87'
3725'	7-5/8°	7-3/4°	S01.5°E	S03°W	63'	62.44'	3723.31'
3797'	8°	8-1/4°	S03.5°W	S04°W	72'	71.30'	3794.51'
3859'	8-1/2°	8-3/4°	S05°W	S06°W	62'	61.32'	3855.93'
3922'	9°	9-1/4°	S08°W	S10°W	63'	62.22	3918.15'
4055'	9-3/8°	9-1/2°	S10°W	S10°W	133'	131.22'	4049.37'
4180'	9-1/4°	9°	S10°W	S10°W	125'	123.37'	4172.74'
4301'	9°	9°	S10.5°W	S11°W	121'	119.51'	4292.25'
4394'	8-7/8°	8-3/4°	S11°W	S11°W	93'	91.89'	4384.14'
4512'	8-7/8°	9°	S11°W	S11°W	118'	116.59'	4500.73'

CHUSKA ENERGY COMPANY  
Navajo Tribal #44-35

SURVEY RECORD, continued

<u>MEASURED DEPTH</u>	<u>ANGLE</u>		<u>DIRECTION</u>		<u>COARSE LENGTH</u>		<u>TRUE</u>	
	<u>AVG.</u>	<u>ACTUAL</u>	<u>AVG.</u>	<u>ACTUAL</u>	<u>MEASURED</u>	<u>ACTUAL</u>	<u>MEASURED</u>	<u>DEPTH</u>
4668'	9-1/8°	9-1/4°	S10.5°W	S10°W	156'	154.03'	465	76'
4820'	9-1/2°	9-3/4°	S14°W	S18°W	152'	149.92'	4804.68'	
4915'	9-7/8°	10°	S19°W	S21°W	95'	93.59'	4898.27'	
5085'	9-5/8°	9-1/4°	S20.5°W	S20°W	170'	167.61'	5065.88'	
5178'	8-5/8°	8°	S22°W	S25°W	93'	91.95'	5157.83'	
5268'	7-7/8°	7-3/4°	S26W	S27°W	90'	89.15'	5246.98'	
5390'	8°	8-1/4°	S26.5°W	S26°W	122'	120.81'	5367.79'	
5514'	8-3/4°	9-1/4°	S27.5°W	S29°W	124'	122.56'	5490.35'	
5555' Proj.	9-3/8°	9-1/2°	S29°W	S29°W	41'	40.45'	553	80'

BIT RECORD

<u>NO.</u>	<u>SIZE</u>	<u>MAKE</u>	<u>TYPE</u>	<u>DEPTH OUT</u>	<u>FEET DRILLED</u>	<u>HOURS DRILLED</u>	<u>FEET/ HOURS</u>
1	12-1/4"	RTC	H5-51	86'	86'	3-1/2	24.57'
2	17-1/2"	HTC	OSC-1G	86'	86'	2	43.0'
3-RR#1	12-1/4"	RTC	HS-51	1330'	1244'	16-3/4	74.27'
4	7-7/8"	Varel	V-517-A	3079'	1749'	34-1/2	50.7'
5	7-7/8"	Sanvick	CFS-30	3250'	171'	8	21.38'
6	7-7/8"	SEC	MHHN	3296'	46'	9-1/4	4.97'
7	7-7/8"	SEC	S86F	3491'	193'	10-1/2	18.38'
8	7-7/8"	SEC	S86F	3575'	77'	8	9.63'
9	7-7/8"	STC	F-3	3955'	380'	20	19.0'
10-RR#9	7-7/8"	STC	F-3	4427'	472'	38-3/4	12.18'
11	7-7/8"	SEC	S86F	4933'	506'	51-1/4	9.87'
12	7-7/8"	STC	F-3	5555'	622'	46-3/4	13.3'

DRILLING PARAMETERS

<u>DEPTH</u>	<u>RPM</u>	<u>WOB</u>	<u>PP</u>	<u>SPM</u>	
4320'	65	40	1800	98	NOTE: Drilling Parameters prior to 4300' were unavailable at TD. Knowledge book was not on location.
4626'	65-70	40	1800	98	
4783	70	38-40	1800	98	
4924'	70	38	1800	98	
4933'	70	42	1800	98	
5099'	70	48	1800	98	
5183'	65	40	1800	98	
5486'	65	40	1750	98	

CHUSKA ENERGY COMPANY  
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MUD REPORTS

<u>DATE</u>	<u>11-14</u>	<u>11-15</u>	<u>11-16</u>	<u>11-17</u>	<u>11-18</u>	<u>11-18</u>	<u>11-19</u>	<u>11-19</u>	<u>11-20</u>	<u>11-21</u>	<u>11-22</u>	<u>11-23</u>	<u>11-24</u>
Time	07:00	11:00	11:30	08:00	19:00	22:00	01:00	10:00	13:00	12:00	07:00	07:00	11:30
Depth	0'	96'	930'	1330'	2195'	2380'	2590'	2890'	3250'	3298'	3492'	3575'	3895'
Mud Weight #/gal						9.2	9.9+	10.1	9.9	10.1	9.9+	10.3	10.4
Funnel Viscosity		W	W	W	W	39	43	37	42	44	40	43	40
Plastic Viscosity		A	A	A	A	10	12	13	14	15	14	15	14
Yield Point		T	T	T	T	7	9	6	7	8	9	8	6
Gel Strengths 10 sec/10 min		E	E	E	E	1/6	1/8	1/7	1/9	1/10	1/11	1/11	1/8
PH		R	R	R	R	11.5	11.5	12.0	11.5	11.5	12.0	11.5	12.5
Filtrate cc						11.4	10.0	7.8	8.6	9.2	7.8	7.8	7.6
Filter Cake 32nds"						1/32	1/32	1/32	1/32	1/32	1/32	1/32	1/32
Pm						.8	.8	1.4	1.5	1.5	1.4	1.1	1.8
PF/ME						.5	.5	1.0	1.1	1.0	1.0	.8	1.2
Chlorides PPM					11:00	11:00	24:00	19:00	17:00	18:00	40:00	41:00	43:00
Calcium PPM					120	80	80	40	120	120	100	120	160
Sand Content%						.125	.125	.125	.125	.125	.125	.125	.125
Solids Content%						5.75	10	11	10	11	10	12	12.5
Water Content %						94.25	90	89	90	89	90	88	87.5

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MUD REPORTS, continued

<u>DATE</u>	<u>11-25</u>	<u>11-26</u>	<u>11-27</u>	<u>11-28</u>	<u>11-29</u>	<u>11-30</u>	<u>12-1</u>	<u>12-1</u>	12-2
Time	09:00	10:00	10:30	10:00	11:00	11:00	10:00	17:00	06:00
Depth	4095'	4355'	4525'	4735'	4933'	5125'	5340'	5420'	5555'
Mud Weight #/Gal	10.2	10.3	10.4	10.3	10.3	10.3	10.3	10.3	10.2
Funnel Viscosity	40	40	38	38	37	40	37	41	41
Plastic Viscosity	15	16	14	14	14	15	14		15
Yield Point	9	7	5	7	9	9	6		7
Gel Strengths 10 Sec/ 10/Min	1/14	1/10	1/8	1/9	1/9	1/10	1/7		1/9
FH	11.5	12.5	12.5	12.5	12.5	12.0	12.5	12.5	12.5
filtrate cc	9.6	8.0	7.4	7.6	7.4	6.2	6.4	7.6	7.8
Filter Cake 32nds"	1/32	1/32	1/32	1/32	1/32	1/32	1/32		1/32
Fm	1.1	1.8	1.7	1.8	1.7	1.6	1.8		1.9
Pf/Mf	.8	1.2	1.2	1.2	1.2	1.0	1.2		1.1
Chlorides PPM	32:00	34:00	30:00	28:00	24:00	26:00	24:00	23:00	21:00
Calcium PPM	240	80	40	40	40	40	40		80
Sand Content %	.125	.125	.125	.125	.125	.125	.125		.125
Solids Content %	11	12	12	11	11	11	11		11
Water Content %	89	88	88	89	89	89	89		89

FORMATION TOPS

Ground Level Elevation - 4633'

Kelly Bushing Elevation - 4646'

<u>FORMATION OR UNIT</u>	<u>EST. SAMPLE TOP</u>	<u>E-LOG TOP</u>	<u>THICKNESS</u>
Hermosa Gp - Honaker Trail	4301' (+345')	4348' (+298')	856'
Upper Ismay	5146' (-500')	5204' (-558')	124'
Lower Ismay	5264' (-618')	5328' (-682')	36'
Gothic Shale	5300' (-654')	5364' (-718')	21'
Desert Creek	5316' (-670')	5385' (-739')	143'
Anhydrite	5322'-30' (-676'-84')	5400'-24' (-754'-78')	
Desert Creek Porosity	5362' (-716')		
Chimney Rock Shale	5479' (-833')	5528' (-882')	

FORMATION SUMMARY

The Chuska Energy Company's Navajo Tribal #44-35 well, located in Section 35, Township 41 South, Range 24 East of San Juan County, Utah, was spud on November 15, 1984. It was drilled to a total depth of 5555' (driller's depth) on December 2, 1984 at 06:00 hours.

The primary objective of this well was to evaluate the production potential of any hydrocarbon show(s) associated with the Desert Creek cycle of the Paradox Formation of the Hermosa Group.

Possible shows in the Upper and Lower Ismay cycles of the Paradox Formation were of secondary interest. The formation encountered during mudlogging operations were Pennsylvanian in age.

PENNSYLVANIAN PERIOD

I. HERMOSA GROUP

- A. Honaker Trail Formation
- B. Paradox Formation
  - 1. Upper Ismay
  - 2. Lower Ismay
  - 3. Gothic Shale
  - 4. Desert Creek
  - 5. Chimney Rock

Terra Services commenced logging at a depth of 4300' (+346'), on November 26, 1984 at 05:00 hours, and completed logging at a driller's depth of 5555' (-909'), on December 2, 1984 at 14:00 hours.

A. Honaker Trail Formation

Formation Top: 4348' (+298')

Thickness: 856'

Average Penetration Rate: 5-7 Min/Ft

The Honaker Trail Formation consists of alternating beds of limestone and shale with interbedded layers of siltstone and sandstone.

FORMATION SUMMARY, continued

The Limestone occurs in varying shades gray and gray-brown, and is generally crypto to micrycrystalline, and dense to microsucrosic in texture. It is clean to slightly argillaceous and is generally hard with tight to no porosity.

The Shales occur in partially mottled shades of gray and brown. It is blocky, earthy, firm, and silty in part. The shale is partly calcareous and slightly micaceous in part.

The Siltstones are generally medium to dark brown, and moderately calcareous, while the Sandstones usually occur in light shades of gray and brown. They are very fine to medium grained, subround to angular, and moderately to poorly sorted. The sandstone is firm to friable, and predominately calcareous, and displays tight to fair intergranular porosity.

Little or no gas was present in the Honaker Trail Formation, and no shows were encountered.

B. Paradox Formation

1. Upper Ismay Unit

Top at: 5204' (-558')

Thickness: 124'

Average Penetration Rate: 3-5 Min/Ft

The Upper Ismay unit of the Paradox Formation consists of limestone with small amounts of shale and dolomite. The Limestone occurs in varying shades of gray, brown, and gray-brown, with occasional occurrences of white, cream, and light pink. It is generally crypto to microcrystalline, dense to very fine granular, and firm to hard. It is occasionally fossiliferous and exhibits tight to poor intercrystalline porosity. The limestone shows little or no evidence of hydrocarbons.

FORMATION SUMMARY, continued

The Shale is medium to dark gray, blocky, earthy, firm, and calcareous in part.

The Dolomite is dark brown to dark gray-brown, cryptocrystalline, cherty, dense, and hard. It exhibits very tight porosity and no evidence of hydrocarbons.

There were several small shows, associated with this zone, the largest of which was 65 units total gas. Background gases were generally from 5-10 units total gas. No other evidence of hydrocarbons occurred with the shows.

2. Lower Ismay Unit

Top at: 5328' (-682;)

Thickness: 36'

Average Penetration Rate: 3-5 Min/Ft

The Lower Ismay unit of the Paradox formation consists of Limestone with minor interbeds of shale and anhydrite. The Limestone occurs in light to medium shades of gray, and is generally microcrystalline with microcrystalline to granular texture. It is very chalky, and argillaceous in part. The limestone is soft to hard, and exhibits a poor intercrystalline porosity. There is occasional medium brown oil stain, with a bright, yellow green fluorescence and a slow, streaming, white cut.

The shale is dark gray brown, blocky, sooty, carbonaceous, and calcareous. It is generally soft with occasional pyrite. The anhydrite is white, stained orange, and soft.

Several gas shows, were associated with this unit, the largest being 240 units total gas. Background gases were at 3-5 units total gas.

FORMATION SUMMARY, continued

3. Gothic Shale Unit

Top at: 5364' (-718')

Thickness: 21'

Average Penetration Rate: 3 Min/Ft

The Gothic shale unit of the Paradox formation consists of dark gray to black shale. It is blocky to sub-platy, earthy to sooty, moderately to very calcareous, carbonaceous, and firm. Two gas shows, were associated with this unit. The first was 108 units total gas, the second was 104 units. A generally increased background gas (25-30 units) was observed following this zone.

4. Desert Creek Unit

Top at: 5385' (-739')

Thickness: 143'

Average Penetration Rate: 4-5 Min/Ft

The Desert Creek Unit of the Paradox Formation consists predominantly of Limestone occurs in light to medium shades of gray and brown. It is microcrystalline, and generally microsucrosic in texture. It is moderately to very argillaceous, occasionally chalky, but generally firm to hard. It is dolomitic in part, with trace amounts of pyrite. The limestone exhibits poor to good intercrystalline porosity, and occasional fair to good vugular porosity. It exhibits spotty to even bright yellow fluoresence, and a fair to good milky cut.

Several shows were associated with this zone, the largest of which, was 208 units total gas. Background gases were in the 25-30 unit range.

FORMATION SUMMARY, continued

5. Chimney Rock Shale Unit

Top at: 5528' (-882')

Thickness:

Average Penetration Rate: 6-8 Min/Ft

The Chimney Rock Shale unit, of the Paradox Formation, consists of alternating beds of Shale, limestone, and minor dolomites. The Shale is dark gray-brown to black, blocky to platy, sooty, carbonaceous, and calcareous. It is soft to firm with occasional pyrite.

The Limestone is light gray to light brown, microcrystalline, occasionally cryptocrystalline, with a dense to lithographic texture. It is slightly argillaceous, occasionally chalky, but generally hard and tight.

The Dolomite is light to medium brown, microcrystalline, micro-sucrosic, firm to hard, with a poor to fair intercrystalline porosity.

Little or no evidence of hydrocarbons was observed, but a gas show of 104 units total gas was associated with the dolomite. Background gases in this zone were in the 50-75 unit range.

CHUSKA ENERGY COMPANY  
Navajo Tribal #44-35

SHOW REPORT

Show No. 1: 5347' to 5351'

Drilling Break No. 1: 5347' to 5351'

Lithology: Type LS 95%

Remarks: Lime is very chalky, could be difficult to produce.

Check RW.

Porosity: (Matrix) Est. % Poor, maybe 5-8% at best if even that much.

(Fracture) Evidence for fracturing - None observed

Stain: Patchy, pin point, dark, live, some live

% in total cuttings - 15-20% observed

Stain on fracture faces - No

Fluorescence: Color - bright pale yellow - slightly green;

% in total ctgs - 80%

Cut (Chlorothene): Good slow streaming cut, pale to milky yellow

PERIOD	DT	MUD GAS UNITS	GAS CHROMATOGRAPH			
			C1	C2	C3	C4
Before		4 Units	11	4	2	Trace
During	5347-51	240 Units	520	348	204	42
After		20 Units	48	16	8	4

Recognized by: Mumby, Deardorff at 1:30 P.M., December 1, 1984

Called: Pudliner at 1:35 P.M., December 1, 1984

REMARKS: Limestone, light to medium grey, microcrystalline, micro-sucrosic, slightly gray green, hard to soft, poor interchrySTALLINE, intergranular porosity, very chalky, argillaceous in part.

Check porosity and water saturation, looks as if it might have some potential if the chalk is clear from some of the zone.

CHUSKA ENERGY COMPANY  
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SHOW REPORT, continued

Show No. 2: 5459' to 5463'

Drilling Break #2: 5459' to 5463'

Lithology: Type DOLO 70%

Remarks: The dolomite is limy

Porosity: (Matrix) Est. % Good Intergranular to minor vugular porosity  
8-10%

(Fracture) Evidence for fracturing - None observed

Stain: Even, light, live.

% in total cuttings - 50%

Stain on fracture faces - Not applicable

Fluorescence: Color - bright yellow, slightly blue

% in total ctgs - 75%

Cut(Chlorothene): Good, fairly milky yellow, streaming cut leaves  
moderate halo

PERIOD	DT	MUD GAS UNITS	GAS CHROMATOGRAPH			
			C1	C2	C3	C4
Before	18		16	8	4	Trace
During	208		208	192	88	16
After	18		16	8	4	Trace

Recognized by: Mumby, Deardorff at 9:45 A.M., December 1, 1984

Called: Pudliner at 9:50 P.M. on December 1, 1984

REMARKS: Dolomite 70%, light brown, microcrystalline, sucrosic  
to granular, minor vugs from fair to good intergranular, minor  
vugular porosity, clean, limy in part.

Good show, check RW

CHUSKA ENERGY COMPANY  
Navajo Tribal #44-35

APPENDIX A

\*Abbreviations used at request of Geologist

- 5280'-5285' 95% Ls, lt m brn, mbrn, mgy, pred micxl, occ crpxl, micsuc, grn in pt, dns in pt, hd, fri, TT-p intxl, sl intgran porosity, chky, arg, pos sl slty in pt. pyr in pt. Occ fos deb.
- 5% Sh, m-dk gy, blk, sl plty rthy, calc, sft, occ pyr.  
5% mnr cht, m brn, mgy.
- 5285'-5290' 95% Ls, m-lt brn, mgy, mic-crpxl in pt, micsuc - dns, hd, Tt-lith, bcmg incr arg, chky in pt, nsfoc, 5%. Sh m-dk gy, blk, rthy, sl calc, frm, occ pyr. 5% at max. Cht, mbrn, mot lt bl in pt.
- 5290'-9295' 90% Ls, lt-mbrn, lt-mgg, micxl, vf xl, sl gry, lith in pt, hd, tt in txl porosity, pos sl slty, arg, sl chky in pt, occ pgr, chty, 10%. Sh dk gg blk, blk, sdy, sl carb calc frm, mnr cht mbrn mot lt bl in pt.
- 5295'-5300' 100% Ls, lt, mgy, lt mbrn, micxl, micsuc, tt gran, hd, fri, tt-p in tex, sl intgran porosity, chky, arg, slty, sdy, biot w occ pyr, nstoc. Mnr Sh, AA, Cht, mbrn, mgy in pt.
- 5300'-5305' 95% Ls, mgy-mbrn, mnr lt gy, lt bn, micxl, micsuc, gran, hd, fri, p intxl, intgran porosity, chky, arg, occ slty, pyr, mnr pp to banded, mbrn o stn, (3% of cutting) pp - spotty, pale yel hydcbflor. (7% of smpl) sl slow strmg - bldg cut, leaving weak halo. 5%. Sh dk gy blk, soty, sl carb, calc from 5%, w/mnr Cht, m brn, mgy bl.

APPENDIX A, continued

- 5305'-5310' 95% Ls, mgy m brn, mnr lt brn gy micxl, mic suc-gran, hd-fri, p-tt intxl porosity chky, arg, slty in pt, occ chty, mnr fos deb, mnr pp m brn o stn (<2% of smpl), mnr sp pale yel hydcc flor (< 2% of smpl), sl stmg cut. 5% Sh, AA 5%, mnr Cht, mbrn, mgy bl.
- 5310'-5315' 95% Ls, lt-m brn gy, micxl, micsuc-f gran, hd, frm, lt p intxl porosity, chky, arg, occ slty, no vis stn, n flor, no cut. 5% Sh, m-dk gy, blk, soty sl carb, calc from 5% max, mnr Cht, mbrn, mgy bl.
- 5315'-5320' 80% Sh, dk gy-blk, blk, soty, carb, slty in pt, calc-lmy sft, occ pyr, Ls as abv, 20%.
- 5320'-5325' 50% Sh, dk gy-blk, blk, soty, carb, slty in pt, calc-lmy sft occ pyr.
- 30% Ls, lt-mbrn gy micxl, micsuc, f gran hd-frm, lt-p intxl porosity, chky, arg shy in pt, nsfoc 20%. Anhy wh stn orng, v sft.
- 5325'-5330' 85% Ls, lt-mgy, mnr mbrn, micxl, gran-micsuc, fri-frm f intgran-intxl porosity, f cln-chky, pos occ sd gr, nsfoc. 10% Anhy wh stn orng, sft, 5% Sh, AA.
- 5330'-5335' 95% Ls, lt-mgy, mnr mbrn, micxl, gran-micsuc, fri-frm, f-p intgran-intxl porosity, f cln-chky, arg in pt, occ biot, nsfoc. 5% Sh, dk gy, blk, blk, soty, carb, calc, sl slty sft-frm, mar Anhy, wh stn orng, v sft.

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APPENDIX A, continued

5335'-5340' 95% Ls, lt-mgy, micxl, gran bcmg pred mic suc, frm-hd,  
lt intxl porosity, chky sl arg mnr fos deb. Sh AA.  
5%

5340'-5345' 95% Ls lt-mgy, micxl, mic suc - slt gran, hd-frm, lt  
intxl porosity, chky, sl arg, mnr fos dk b. 5% Sh,  
dk gy, blk, blk, soty, carb, calc frm.

SHOW 5345'-5350' 95% Ls, lt mgy, micxl, mic suc-sl gran, hd-sft p intxl-  
intgran porosity v chky, arg in pt, patchy, m brn  
ostn, bri yel-sl gn hydc flor, slow stmg cut. Sh  
AA 5%.

5350'-5355' 95% Ls, lt gy, mnr mgy micxl, m micsuc - v f gran, frm,  
hd, p intxl, sl int gran porosity, chky, sl arg,  
mnr pp, m brn ostn, sp pale yel-sl gn hydc flor  
(40% of Smpl) slow stmg - rad cut. 5% Sh dk gy,  
blk, blk, soty, carb, calc., lmy, frm.

5355'-5360' 95% Ls, lt mgy, micxl, micsuc, f grn in pt, frm-hd ptt  
intxl porosity, chky, sl arg, no vis stn, mnr sp  
pale yel-sl gn hydc flor (15% of Smpl) sl stmg, pred  
bldg cut. 5% Sh, AA.

GOTHIC 5360'-5365' 80% Sh, dk gy brn, blk, soty, carb, calc, lmy, sft,  
occ pyr, sl slty in pt, Ls AA, 20%.

5365'-5370' 90% Sh dk gy brn-blk, blk soty, carb, calc, lmy, sft  
occ pyr. 10% Ls, lt m gy, micxl, micsuc-sl gran,  
hd-frm tt porosity, chky, arg in pt. Nsfoc.

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APPENDIX A, continued

- 5370'-5375' 50% Sh, dk gy brn-blk, blk, soty, carb, calc, lmy sft, occ pyr.
- 50% Ls, lt mgy mic-crpxl in pt, micsuc-dns in pt, lt lighi chky in pt, arg. nsfoc.
- 5375'-5380' 90% Sh dk gy, blk, blk, soty, carb, calc-lmy, sft, occ pyr. 10% Ls lt mgy, mic-crpxl in pt, micsuc-dns, in pt, hd tt-lith, chky in pt sl arg nsfoc.
- 5380'-5385' 80% Ls lt-mgy brn, micxl, micsuc-f gran, hd-frm, lt-p intxl intgran porosity, sl arg, chky, chk decr. occ vsl sdy, Sh as abv. 20%.
- 5390'-5395' 40% Sh, mgy-dk gy brn, blk, soty, slty, carb, frm-hd, pyr, 50% Ls lt-mgy brn micxl, micsuc, f gran hd-frm, lt intxl porosity, arg-sl shy occ pyr, no vis stn, tr pp bri yel hydrc flor, vsl bldg cut.
- 10% Anhy, wh, stn, orng, gummy.
- 5395'-5400' 80% Anhy, wh stn orng gummy, 15% Sh, m-dk gy, blk soty-sl rthy, slty, cclc, frm, pyr. 5% as abv.
- 5400'-5405' 70% Anhy wh pk, gummy. 30% Ls, lt mgy brn, micxl, mic suc-occf gran, hd-frm lt-pintxl porosity, varg. pyr in pt, nsfoc. Mnr Sh as abv.
- 5405'-5410' 80% Anhy wh, slpk, gummy. 10% Sh m-dk gy blk, blk, soty, cwbc calc, lmy frm. 10% Ls as abv.

APPENDIX A, continued

SLIGHT SHOW

- 5410'-5425' 70% Anhy, wh-sl pk, gummy. 20% Ls, m-dk gy brn, micxl, micsuc, v f gran hd frm, tt-pintxl porosity varg, acc ch ky, pyr in pt. 10% Sl dk gy-blk, blk soty, carb, calc frm max.
- 5415'-5420' 80% Ls m-dk gy brn, micxl, pred mic suc, vf gran in pt, hd tt intxl porosity, varg - sl shy, no vis stn flor, vsl bldg cut in pt.s 20% Anhy, wh stn orng pk gummy.
- 5420'-5425' 80% Ls, dk gy brn, micxl, mic suc - sl gran in pt, hd tt-p intxl porosity. Varg sl dol pos mics in pt occ pyr. 20% Sh dk gy brn, plty, soty, calc, sl lmy, trm.
- 5425'-5430' 95% Ls, dk gy brn, micxl, mic suc, hd tt intxl porosity, v arg, chty, occ pgr, occ chky, nsfoc, mnr Cht. 5% Sh AA.
- 5430'-5440' 95% Ls, m-dk gy, micxl, micsuc- f gran in pt, hd fri, tt-pintxl porosity, varg - sl chky, chty in pt, occ pyr, no vis stn, flor, v sl occ bldg cut, mnr Cht, dk gy, mnr 5% Sh, dk gy, blk, blk, soty, carb, calc frm.
- 5440'-5445' 95% Ls, lt m gy, micxl, micsuc, f gran, hd frm tt-p pred intxl porosity, arg, in pt, bcmg f cln, nsfoc, mnr cht, m-lt gy. 5% Sh dk gy, blk blk soty, calc-sl lmy from occ pgr.
- 5445'-5450' 95% Ls, lt-mgy, micxl, mic suc-gran, hd-frm p intgran intxl porosity, chkg-arg in pt, nsfoc, mnr Cht, fmsl, lt gy, Sh AA 5%.

APPENDIX A, continued

- 5450'-5455' 100% Ls, lt gy, mic-crpxl, in pt, f gran-dns, tt-lith, chky-sl arg, in pt, f cln in pt, pos mnr fos dcb, nsfoc.
- 5455'-5460' 30% Dol, lt brn, mnr lt gy, micxl, suc-gran, mnr vugs, frm-hd, f-g intgran-mnr vug porosity, sp-even lt brn ostn, Sp-even, bri yel hydc flor, g f fist milky yel stmg cut.
- 70% Ls lt gy, micxl, suc-gran hd-frm lt-p intgran porosit no vis stn flor, occ sl bldg cut.
- 5460'-5465' 70% dol, lt brn, occ lt gy micxl, suc-gran mnr vugs, frm hd, f-g intgran-mnr vug porosity, cln, sp, even lt brn ostn sp-even bri yel hydc flor, g f fast stmg cut. 30% Ls, lt gy occ mgy, mic-sl crpxl, gran-dns, hd lt itgran porosity, sl arg, nsfoc 30%.
- 5465'-5470' As abv, Dol. 50%, Ls 50%.
- 5470'-5480' 60% Dol, dk brn-dk gy brn, mic-crpxl, v txln-dns, hd, v arg, sl shy, chty, nsfoc pyr, mnr, Cht, dk brn. 40% Ls, lt-m gy, miccxl. Mic suc-vfxln, hd, tt, varg, nsfoc.
- 5480'-5490' 70% LS, lt m brn gy, micxl, mic suc-gry hd, lt intxl porosity, varg, chky in pt, pyr in pt nsfoc. 30% dol. m-dk brn mic-crpxl, vfxl-dns in pt, hd lith in pt, chty, varg, mnr Cht, dk brn.

APPENDIX A, continued

- 5490'-5500' 90% Ls, lt m gy sl lt brn, micxl, micsuc, vf gran, hd  
tt intxl porosity, chky, mnr mnrl flor no cut.  
10% dol. lt brn, micxl, suc-gran frm pintxl-intgran  
porosity, f cln, no vis stain, mnr yel hydc flor  
v sl stmg, bldg cut.
- 5500'-5510' 80% Ls, lt m gy, mic-crpxl in pt, v f xln, dns, hd, lt-  
lith, chky in pt, arg in pt, sl dol Mnrmnrl flor  
nsfoc. 20% Dol, lt gy brn, micxl, suc-f gran fri-  
frm f integran-intxl porosity, fcln, lmy in pt, no  
vis stn, mnr pp flor, occ sl bldg cut.
- 5510'-5520' 60% Sh, dk gy brn-blk, blk, soty, carb, sl slty, calc- sl  
dol, frm mod hd, pyr. 30% Ls, lt m gy mic-crpxl,  
vtxln-dns hd lt chky-arg in pt, occ pyr, nsfoc.  
10% dol, dk brn gy, mic-crpxl in pt, fxl, dns, hd  
tt-lith, varg, chty, nsfoc.
- 5520'-5530' 90% Sh blk, dk gy brn, blk-pty, soty, carb, calc-occlmy,  
sft-frm pyr. 10% Ls, lt m brn, lt gy mic-crpxl,  
fxl-dns, hd, tt porosity in pt, arg in pt.
- 5530'-5540' 90% Sh blk-dk gy brn, blk, pty, soty, carb, calc sft-  
frm pyr in pt. 10% Ls, lt gy lt brn, mic-crpxl,  
txl-dns, hd, tt intxl porosity in pt, chky, arg in  
pt, nsfoc.
- 5540'-5550' 90% Ls lt s m brn, lt gy, crp-micxl, dns-v txl, hd occ  
lt porosity, chky and arg in pt, pos mnr fos deb,  
occ chty, nsfoc. 10% Sh, blk dk gy brn, blk, pty,  
soty, carb, calc, frm-sft.

APPENDIX A, continued

5550'-5560' 50% Sh, dk gy, blk, blk, sl plty, soty, carb, calc,  
sft-frm.

25% Dol, mgy, micxl, suc-f gran, frm p intgran-intxl  
porosity, v arg-sl shy mnr bd sp m brn ostn, mnr  
pp-sp dul yel hydrc flor, sl v slow stmg pred bldg  
cut.

25% Ls lt gy lt brn, mic-crpxl, fxl-dns, hd tt porosity  
in pt, arg and chky in pt, nsfoc.