CONFIDENTIAL

Release Date 9/24/83

SUMATRA ENERGY 1-17 SANTA FE 836
NW NW 17-12N-26E APACHE CO.

COUNTY APACHE AREA 5 mi. W of St. Johns LEASE NO. Santa Fe

WELL NAME SUMATRA ENERGY CO. 1-17 SANTA FE

LOCATION NW NW SEC 17 TWP 12N RANGE 26E FOOTAGE 495 fnl, 660 fwl

ELEV 6410 GR 6420 KB SPUD DATE 2-25-83 STATUS P & A 3/24/83 * TOTAL DEPTH 4143

See Circle 75' grad. COMP. DATE 3/23/83 *converted to water well

CONTRACTOR Bayless Drilling Co., 216 S. Hill, Farmington, NM 87401

| CASING SIZE | DEPTH | CEMENT | LINER SIZE & DEPTH |
|---|---|---|---|
| 8 5/8" | 810' | 143 sx | |

DRILLED BY ROTARY
DRILLED BY CABLE TOOL
PRODUCTIVE RESERVOIR
INITIAL PRODUCTION

| FORMATION TOPS | DEPTHS | SOURCE L.L. | SOURCE E.L. | REMARKS |
|---|---|---|---|---|
| Malpai | 0 - 86' | | | |
| Chinle | 86 - 538 | | | |
| Moenkopi | 538 - 750 | | | |
| Kaibab | 750 - 830 | | | |
| Coconino | 830 - 1123 | | | |
| Supai | 1123 - 2515 | | | |
| Fort Apache | 2515 - 2940 | | | |
| Nacho | 2940 - 3528 | | | |
| Redwall | 3528 - 4016 | | | |
| Granite Wash | 4016 - 4072 | | | |
| Pre-Cambrian | 4072 - 4143 | | | |

| ELECTRIC LOGS | PERFORATED INTERVALS | PROD. INTERVALS |
|---|---|---|
| DUAL INDUCTION LOG | NA | NA |
| COMPUTER ANALYZED LOG | NA | NA |
| NEUTRON LOG | NA | NA |
| MUD LOG | | |

SAMPLE LOG
SAMPLE DESCRP.
SAMPLE NO. 1850
CORE ANALYSIS
DSTs
3 tests 150' - 4143'

REMARKS

APP. TO PLUG
PLUGGING REP. X
COMP. REPORT

WATER WELL ACCEPTED BY Lake Investment Co.

BOND CO. Commercial Union Ins. Co. BOND NO. CC 71053-10
DATE 1-3-83

BOND AMT. $ 5,000 CANCELLED ORGANIZATION REPORT x

FILING RECEIPT 2356 LOC. PLAT x WELL BOOK x PLAT BOOK x

API NO. 02-001-20279 DATE ISSUED 1-10-83 DEDICATION W/2 NW/4

PERMIT NUMBER 836

(over)

RECEIVED
MAR 23 1983
O & G CONS. COMM.

TO: Oil and Gas Conservation Commission
State of Arizona

This is to advise you that I accept the abandoned wildcat well, known as the SUMATRA ENERGY SANTA FE R.R. located on the NW NW ¼-¼ of Section 17 Township 12N Range 26E, County of Apache. Arizona, as a water well to be used for domestic purposes.

Further, I accept full responsibility for the proper maintenance and use of the above well, including final plugging, in full compliance with the Rules and Regulations adopted by the Oil and Gas Conservation Commission.

I understand that I am responsible for compliance with the provisions of the State Water Code, Chapter 1, Title 45, Arizona Revised Statutes and with any applicable requirements of U.S. Geological Survey. LAKE INVESTMENT COMPANY

Signature Henry H. Leigh
Henry H. Leigh, President
Address ~~3550 N Central #401~~
Phoenix, Arizona 85012

- - - - - - - - - - - - - - - - - - - - - -

State of Arizona
County of Apache

On this, the 22nd day of March, 19 83, before me, Henry H. Leigh, the undersigned officer, personally appeared Henry H. Leigh, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument and acknowledged that executed the same for the purpose therein contained.

In witness whereof I hereunto set my hand and official seal.

Notary Public Cecil R. Gibson
Cecil R. Gibson
My Commission expires 10-16-85

State of Arizona
OIL & GAS CONSERVATION COMMISSION
WATER WELL ACCEPTANCE
Form 26 - File one copy

Permit No. _____

RECEIVED
APR 18 1983
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Henry H. Leigh, President
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Cecil R. Gibson

My Commission expires 10-16-85

State of Arizona
OIL & GAS CONSERVATION COMMISSION
WATER WELL ACCEPTANCE
Form 26 - File one copy

Permit No. _____

RECEIVED
APR 1 1983
O & G CONS. COMM.

# PLUGGING RECORD

00836

| | | | |
|---|---|---|---|
| Operator: Sumatra Energy Company | | Address: 999 - 18th Street, Ste. 1400, Denver, CO 80202 | |
| Federal, State, or Indian Lease Number, or lessor's name if fee lease. | Well No. #1-17 | Field & Reservoir: N/A | |
| Location of Well: 495' FNL 660' FWL | Sec-Twp-Rge or Block & Survey: Section 17, Twp 12N Rg 26E | County: Apache | |
| Application to drill this well was filed in name of: same as above | Has this well ever produced oil or gas: No | Character of well at completion (initial production): Oil (bbls/day): -- | Gas (MCF/day): -- / Dry? Yes |
| Date plugged: 03/24/83 | Total depth: 4143 | Amount well producing when plugged: Oil (bbls/day): -- | Gas (MCF/day): -- / Water (bbls/day): -- |

| Name of each formation containing oil or gas. Indicate which formation open to wellbore at time of plugging | Fluid content of each formation | Depth interval of each formation | Size, kind & depth of plugs used. Indicate zones squeeze cemented, giving amount cement |
|---|---|---|---|
| Moenkopi - Triassic | Fresh oil staining-Water | 538- 750 | |
| Kaibab - Permain | oil staining | 750- 830 | tagged, plug @ 1015' |
| Coconino - Permian | fresh water | 830-1123 | 1350' 100 sac class "B" |
| Fort Apache/Supai-Permain | salt water | 2515-2940 | 2570' 50 sac |
| Nacho-Pennsylvanian | 60' gas shows | 2940-3528 | 3450' 50 sac |
| Redwall-Mississippian | 7' gas shows, water | 3528-4016 | 3970' 50 sac |

## CASING RECORD

| Size pipe | Put in well (ft.) | Pulled out (ft.) | Left in well (ft.) | Give depth and method of parting casing (shot, ripped, etc.) | Packers and shoes |
|---|---|---|---|---|---|
| 8-5/8" | | | 810' | N/A | Surface casing |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Was well filled with mud-laden fluid, according to regulations?

Indicate deepest formation containing fresh water.

## NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE

| Name | Address | Direction from this well: |
|---|---|---|
| Santa Fe Railroad | | Lease owner |
| Lake Investment Co. | 3550 N. Central, Ste. 401, Phoenix | Surface owner |
| | | |

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.

- see attached Department of Resources "Well Driller Report".

Use reverse side for additional detail.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Manager of Operations of the Sumatra Energy Company (company) and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

March 31, 1983
Date

Signature

Permit No.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Plugging Record
File One Copy

Form No. 10

DEPARTMENT OF
WATER RESOURCES

STATE OF ARIZONA

WELL DRILLER REPORT PN 836

This report should be prepared by the driller in all detail and filed with the Department within 30 days following completion of the well.

1. Owner Lake Investment Company - Keith Lay
Name
3550 North Central, Suite #401, Phoenix, Arizona 85012
Address

2. Lessee or Operator Santa Fe Railroad - lease owner
Name
Sumatra Energy - operator of oil and gas drilling
Address

3. Driller Bayless Drilling Company
Name
216 South Hill, P.O. Box 2669, Farmington, New Mexico 87401
Address

4. Location of well: 595'SNL 660' EWL Section 17 - Township 12 North, Range 26 East

5. Permit No. (if issued) 00836 (Oil and Gas Commission)

DESCRIPTION OF WELL

6. Total depth of hole 4,143 ft. Plugged back depth 1,015 feet
7. Type of Casing 8-5/8' 24# J-55 ST&C
8. Diameter and length of casing 8-5/8 in. from surface to 810', _____ in from _____ to _____.
9. Method of sealing at reduction points N/A
10. Perforated from N/A to _____, from _____ to _____, from _____ to _____
11. Size of cuts N/A Number of cuts per foot N/A
12. If screen was installed: Length N/A ft. Diam _____ in. Type _____
13. Method of construction Drilled with rotary rig.
drilled, dug, driven, bored, jetted, etc.
14. Date started 03/ (Month) 04/ (day) 83 (year)
15. Date completed 03/ (Month) 24/ (day) 83 (year)
16. Depth to water 538-1123 ft. (If flowing well, so state.)
17. Describe point from which depth measurements were made, and give sea-level elevation if available.
18. If flowing well, state method of flow regulation Mud weight plus blank-off collar
19. REMARKS:

Triassic + Permian - clean fresh water sands

Triassic - oil stained sands

Pennsylvanian + Mississippian -

gas shows in limestones.

DO NOT WRITE IN THIS SPACE
OFFICE RECORD
Registration No. _____
Received _____ By _____
Entered _____ By _____
File No. _____

(Well log to appear on Reverse side)

**Picks by Steven L. Rauzi, June 1996**

Sumatra Energy Santa Fe #1-17, NW NW 17-12N-26E (836) Elevation: 6420' DF
Drilled February, March 1983

| | | |
|---|---|---|
| Malpai fm | 0' (+6410') fractured basalt | |
| Triassic Chinle fm | 86' (+6434') | |
| Triassic Moenkopi fm | ???' (+????') | |
| Permian Kaibab ls | 538' (+5882') | 292' |
| Permian Coconino ss | 830' (+5590') | 130' |
| Permian Supai fm | 960' (+5460') | 2480' |
| Supai Corduroy | 960' (+5460') | 970' |
| Supai Ft. Apache | 1930' (+4490') | 95' |
| Supai Big A Butte | 2025' (+4395') | 480' |
| Supai Amos Wash | 2505' (+3915') | 935' |
| Pennsylvanian Naco ls | 3440' (+2980') | 576'+ |
| Granite Wash | 4016' (+2404') | 56' |
| Precambrian granite | 4072' (+2348') | 71' |
| TD | 4143' (+2277') | |

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O & G CONS. COMM.

# LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

| FROM (FEET) | TO (FEET) | DESCRIPTION OF FORMATION MATERIAL |
|---|---|---|
| 0 | 86' | Malpai formation - fractured basalt |
| 86' | 538' | Chinle formation - Triassic,sandstone - red-brown, |
| | | shaley and limey |
| 538' | 750' | Moenkopi formation - Triassic, aeolian sand - clean, |
| | | white, well sorted, rounded, frosted;oil staining - parabitumin |
| 750' | 830' | Kaibab formation - Permain,dolomite - light brown microsucrosic |
| | | oil staining - parabitumin. |
| 830' | 1123' | Coconino formation - Permian,aeolian sand - clean, white |
| | | well sorted, rounded frosted, unconsolidated |
| 1123' | 2515' | Supai formation - Permian,anhydrites, salts, limestones, |
| | | sands- shales, interbedded and mixed, red-orange. |
| 2515' | 2940' | Fort Apache' member of Supai - Permian,sandstone grading |
| | | to shaley-limey sand red-orange. |
| 2940' | 3528' | Nacho formation- Pennsylvanian, salt cap, calcarious shale |
| | | red brown with limestone inclusions, alternating shaley |
| | | limestone, salt beds - red brown. 60' of gas shows in |
| | | limestones 6% porosity, 40% water saturation |
| 3528' | -- | Redwall formation- Mississippian,limestones, shaley |
| | | sands, shales and dolomites mixed and interbedded, |
| | | red-brown.7' of gas shows in limestone 4% porosity, |
| | | 40% water saturation |
| 4016' | 4072' | Granite wash - shales, conglomerates |
| 4072' | 4143 T.D. | Basement - Pre-Cambrian,conglomerate |

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller W. A. Scott
Name

Address

Date March 31, 1983

2-73

DEPARTMENT OF
WATER RESOURCES

STATE OF ARIZONA

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(Well log to appear on Reverse side)

RECEIVED
APR 1 3 1983
O & G CONS. COMM.

M E M O R A N D U M

TO: Earl Cranston
Dick Hoefle
Jeff Scott
Bill Young
Charles Hoefle

DATE: April 13, 1983

FROM: Bill Proudfoot

SUBJECT: Log Analysis of Santa Fe #1-17 Well
Concho Prospect, Arizona

***

I have reviewed the logs on the subject well to determine lithology and potential pay zones.

SUMMARY

The Naco formation of the Pennsylvanian Age had gas shows in the mud logs. There was 138' of pay thin limestones interbedded with shales. Using a 4-5% porosity cut off and a 65% water saturation cut off, there was 50' of effective net pay. Effective porosities in this net-pay ranged from 4 to 9% with a weight average of 5.2%. Water saturation ranged from 25 to 65% with a weight average of 36%.

Given that the open hole logs are valid, and that the gas zones are permeable enough to drain 160 acres, a similar well drilled could be expected to have about 1 BCF in recoverable gas reserves. If the tighter gas pays contributes, reserves could be more. Depending on permeability, i.e. with fractures etc., limestones with porosites as low as 3% have been quite productive.

Review of Abandonment Decision

Although these gas shows would normally have been tested, the condition of the hole in the subject well was such that a drill stem test would be very risky.

Since the testing would require the casing the well with another 100 M$ committment, and there is no ready gas market in the area; the decision was made to plug this well.

* For the marked open hole logs, see the well file.

P/N 836

SANTA FE #1-17

Log Analysis of Gas Pay

| Interval Ft KB | Pay Ft. | Net Effective Pay Ft. | Effective Porosity % | Water Saturation % | Hydrocarbon Pay ø(1-Sw)h Ft. | Mud Log Gas Increase yes/no |
|---|---|---|---|---|---|---|
| 3350-3360 | 15 | 6 | 8 | 50 | 0.24 | ? |
| 3440-3460 | 18 | 6 | 7 | 50 | 0.21 | Yes |
| 3475-3500 | 19 | 5 | 5 | 50 | 0.13 | Yes |
| 3560-3570 | 7 | 5 | 4 | 40 | 0.12 | Yes |
| 3600-3610 | 12 | 2 | 9 | 40 | 0.11 | Yes |
| 3625-3635 | 12 | 4 | 4 | 50 | 0.08 | Yes |
| 3660-3680 | 16 | 5 | 4 | 40 | 0.12 | No |
| 3690-3720 | 14 | 5 | 9 | 40 | 0.27 | No |
| 3840-3860 | 12 | 9 | 7 | 40 | 0.38 | Yes |
| Total/or Weighted Average | 138 | 50 | 5.2 | 36 | 1.66 | |

PN836

## Volumetric Determination of Potential Gas Reserves

Original Gas in Place

$h = 50$ ft.
$\emptyset_e = 5.2\%$
$Sw = 36\%$
$A = 160$ acres

$OGIP = 43.560\ h \times \emptyset \times (1 - Sw) \times A \times Bg$ MCF

$OGIP = 43560\ (50)\ (0.052)\ (1-0.36) \times 160 \times 131.$ MCF

$OGIP = 1.5$ BCF

## Original Formation Volume Factor

$$Bg = \frac{35.35\ Pi}{Zi\ \ Ti}$$

Assuming a normal fresh water gradient

$$Pi = 8.8\#/gal \times 0.052\ \frac{Psi.\ gal}{\#\ ft} \times 3600'$$

$Pi = 1650$ psi

$Ti = 95°\ F = 555°R$

$Zi = 0.8$

$$Bh - \frac{35.35\ (1650)}{0.8\ \ (555)} = 131.\ \frac{psi(s)}{psi(r)}$$

## Volumetric Recovery Factor

- for sensitivity

$$Rf = 1 - \frac{PaZi}{PiZa}$$

$Pa = 100$ psi (using compression eventually)
$Za - 0.98$

$$Rf = 1 - \frac{100\ (.8)}{1650\ (.98)} = 0.85$$

$Pa = 500$ psi (without compression) $Rf = 0.75$

## Potential Recoverable Gas Reserves

Recoverable Reserves = OGIP X Rf

- use Rf = 0.8 to be conservative

Recoverable Reserves = 1.5 BCF X 0.80
= 1.2 BCF

P/N 836

Water Resistivity

The use of a Rw = 0.04 ohm . M has been based on:

1. Geologically, below the Supai formation, the zones are salty. Using a saturated NaCl salt system at reservoir temperature of 95°F, gives an Rw = 0.03 ohm . m

2. The following clean zones if assumed* to contain 100% salt water, yields the following:

| Depth ft. | Effective Porosity % | Deep Resistivity ohm.m | Calculated Water Resistivity ohm . m |
|---|---|---|---|
| 3950 | 15 | 1.5 | 0.034 |
| 3990 | 12 | 3 | 0.043 |

$$Sw^2 = \frac{Rw * 1}{Rd \ \phi^2} \qquad Rw = Sw^2 Rd \ \phi^2$$

*if some hydrocarbon is present, Rw will calculate lower.

3. The Rwa calculation in the computer analyzed log, gives values between o.02 and 0.04 ohm . m

P/N 836

Sumatra Energy Company

One Denver Place, Suite 1400
999 18th Street
Denver, Colorado 80202
(303) 623-6935

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DRILLING REPORT - CONCHO
SECO Santa Fe 1-17
WNW Section 17, T12N-R26E
Apache Co., Arizona

2/24/83 MIRU to spud well.

1 2/25/83 Well spud this a.m. Depth 20'.

2 2/26/83 Depth 30', made 10'. Hard drilling in volcanics w/ percussion dry hole rig.
3 2/27/83

4 2/28/83 Depth 37', made 7'. Commenced blasting and alternate drilling.

5 3/1/83 Depth 39'. Opening up hole.

6 3/2/83 Depth 39'. Continuing to drill & blast as go. Will set conductor pipe this evening. Mudlogger on site tomorrow morning, will RU in morning.

7 3/3/83 Setting conductor pipe this a.m. Bayless rig moving on, will rig up this p.m. Doing rig repair. Mudlogger on site.

8 3/4/83 Depth 45', made 11'. RU to drill. Spudded 7:30 a.m. Making pilot hole: 7-7/8", then to 12¼".
DC: $19,928 CC: $38,860

9 3/5/83 Day 2. Depth 323', made 283'. Fm: Chinle. Drlg w/7-7/8" button bit, drlg. pilot hole. Survey: 2-1/8° @ 80'. MW: wtr.
DC: $7,518 CC: $44,878 8.377 16+/50

10 3/6/83 Day 3: Depth 396', made 73'. Fm: Chinle. Reaming from 7-7/8" to 12¼" bit, Survey 3° @ 396'. MW: wtr. Drld pilot hole to 396' w/7-7/8" bit. Trpd out for 12¼" bit, reamed to 110'. Conditioned mud, back to reaming.
DC: $17,604 CC: $62,482

11 3/7/83 Day 4: Depth 396'. Reaming at 285'. MW 9. Vis 66. WL 29.
DC: $4,613 CC: $67,095

12 3/8/83 Day 5: Depth 685', made 400'. Drlg surface.
MW 10.2. Vis 82. WL 30. Finished opening up hole from 7-7/8" - 12¼", drlg new hole.
DC: $5,484 CC: $72,579

13 3/9/83 Day 6: Depth 840', made 155'. Fm: Coconino. Running casing. Surveys: 4-3/4° @ 650', 5¼° @ 840". Tripped for Bit #3A: 12¼ Smith DG.
MW 10.4. Vis 83. WL 25.
DC: $17,481 CC: $90,060

Sumatra Energy Company

One Denver Place, Suite 1400
999 18th Street
Denver, Colorado 80202
(303) 623-6935

DRILLING REPORT - CONCHO
SECO Santa Fe 1-17
WNW Section 17, T12N-R26E
Apache Co., Arizona



3/10/83 Day 7: Depth 840', made 0'. Fm: Coconino Mixing Mud Dev 0°, Casing set @ 810'
DC: $17,193 CC: $107,253

3/11/83 Day 8: Depth 1024', made 214'. Fm Coconino, drlg. Differentially stuck in Coconino, switchback to fresh water mud, because unstuck, back to drlg. Mud wt. 8.9, Vis 42, WL 30
DC: $13,706 CC: $120,959

3/12/83 Day 9: Depth 1670', made 616'. Drlg. Fm: Supai. Survey: 2° @ 1471'. MW 9.5.Vis 38. WL 16.8.
DC: $10,445 CC: $131,404

3/13/83 Day 10. Depth 1935', made 265'. Present operations: rig repair. Fm: Supai. Tripped for Bit #2. Survey: 2° @ 1935'. MW 9.3. Vis 40. WL 12.2.
DC: $12,469 CC: $143,873

3/14/83 Day 11. Depth 2262', made 327'. Drlg. in Supai. Down 10-3/4 hrs. to repair transmission. MW 9.5. Vis 40. WL 12.8.
DC: $5,880 CC: $149,753.

3/15/83 Day 12: Depth 2611', made 349'. Mixing mud and LCM. Fm: Supai. Lost mud @2585', 2594'.
DC: $7,370 CC: $157,123

3/16/83 Day 13: Depth 2985', made 374'. Drlg. in Ft. Apache.
DC: $15,290 CC: $172,143

3/17/83 Day 14: Depth 3274', made 289'. Drlg. in Ft. Apache. MW 9.5. Vis 50. WL 10.2.
DC: $10,376 CC: $182,789

3/18/83 Depth 3547', made 273'. Fm: Naco. Circulating, will begin logging this a.m. MW 9.6. Vis 56. WL 14.2.
DC: $11,798 CC: $194,587

3/19/83 Day 16: Depth 3547', made 0'. Tripping in. Bit #3: Security 7-7/8" in @ 3,547'. Fm: Naco. Down 5¼ hrs. for repairs, logging for 5 hrs.
DC: $18,892 CC: $213,482

3/20/83 Day 17: Depth 3742', made 195'. Drlg in Naco. MW 9.7. Vis 40. WL 14.7.
DC: $6,308 CC: $219,790

3/21/83 Day 18: Depth 3958', made 216'. Drlg in Naco. WM 9.3. Vis 40. WL 13.2
DC: $7,637 CC: $220,427

Sumatra Energy Company

One Denver Place, Suite 1400
999 18th Street
Denver, Colorado 80202
(303) 623-6935



DRILLING REPORT - CONCHO
SECO Santa Fe 1-17
WNW Section 17, T12N-R26E
Apache Co., Arizona

3/22/83 Depth 4143' TD, made 185'. Fm: Basement. Circulating, preparing to log. MW 9.3. Vis 56. WL 10.1
DC: $7,868 CC: $235,295

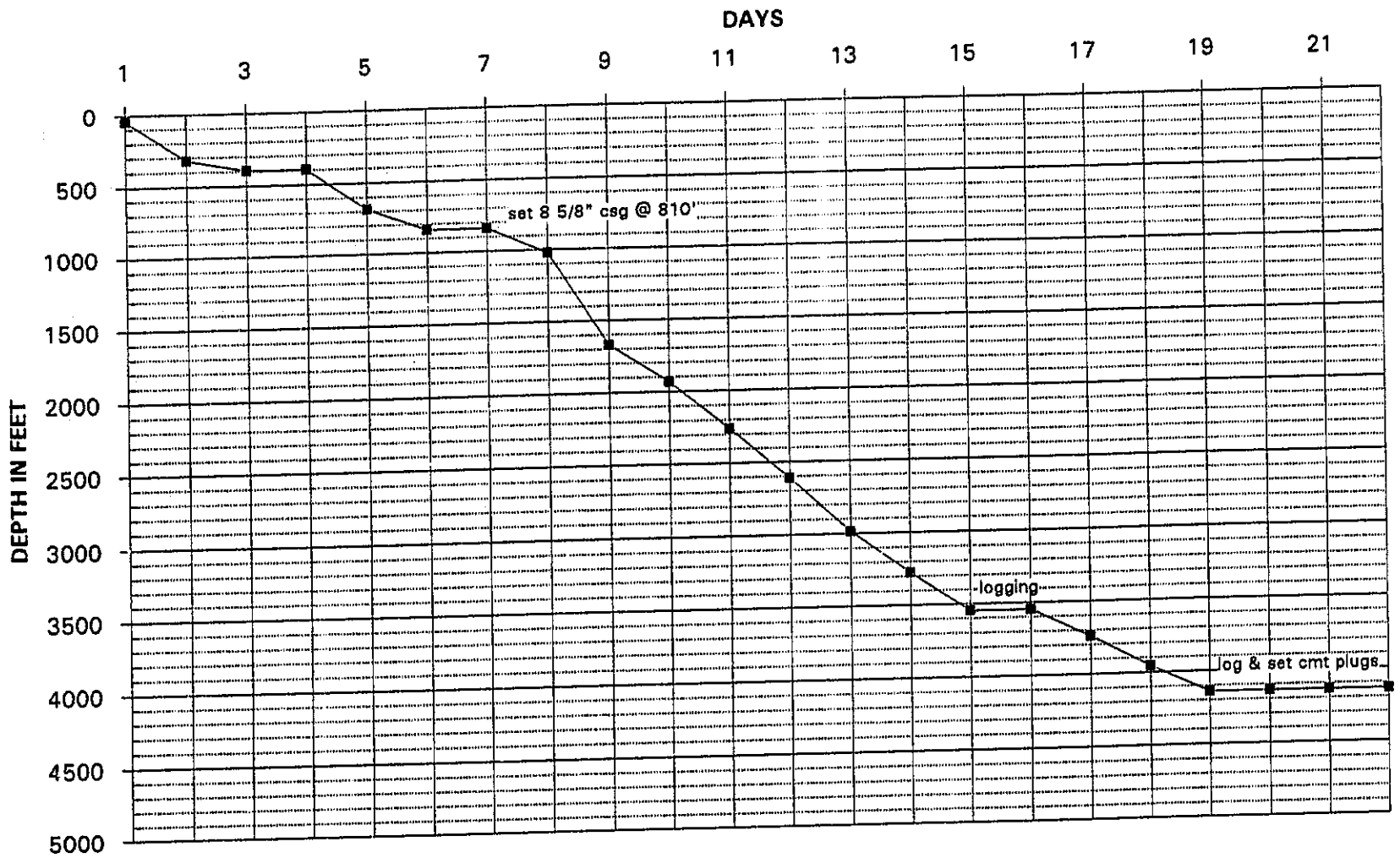
3/23/83 Day 20: Depth 4143', made 0'. Fm: Basement. Presently waiting on orders, plan to P+A. Hourly breakdown: trip 7½, logging 7½ , waiting on orders 9.
DC: $13,927 CC: $249,222

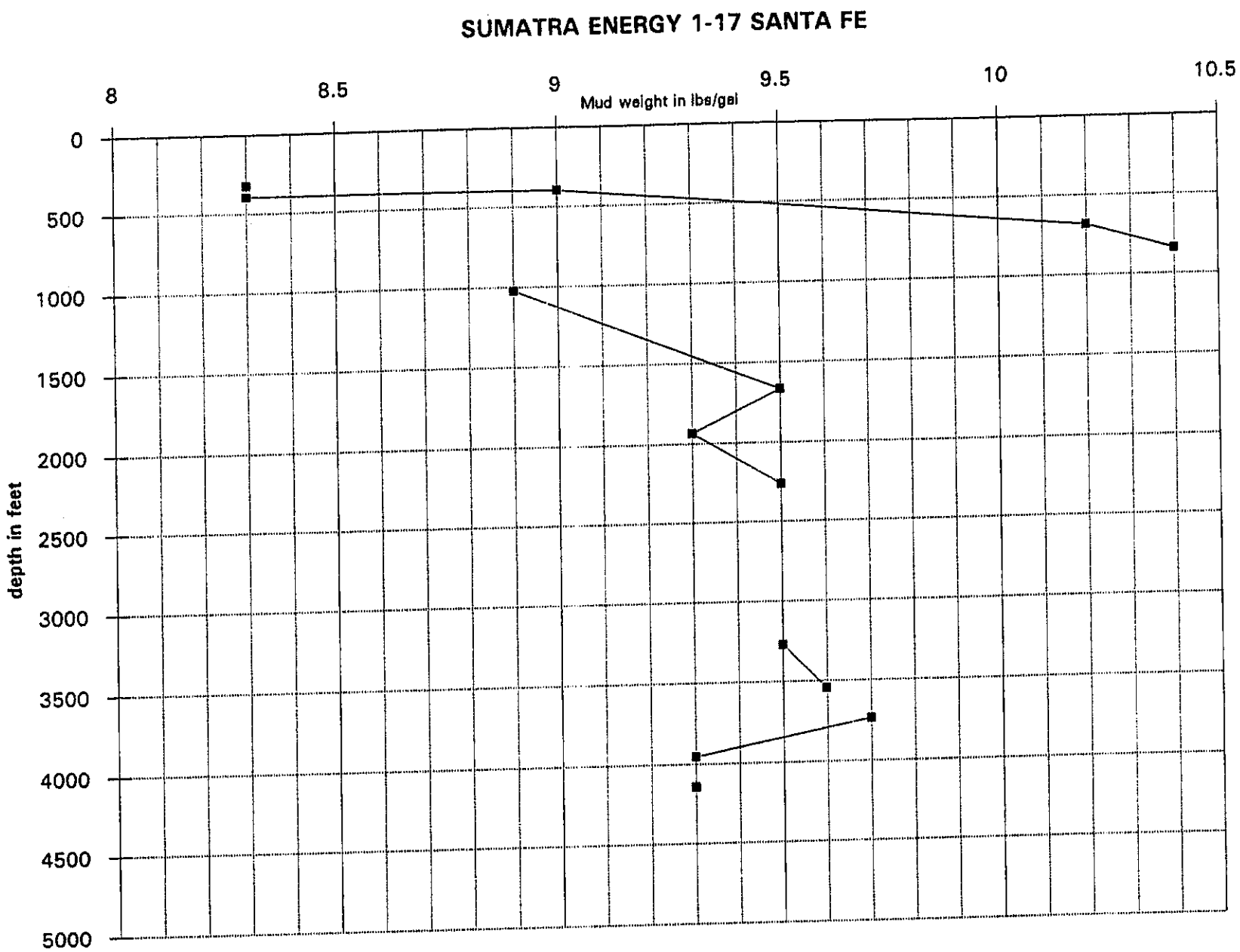
3/24/83 Day 21. Depth 4143', made 0'. Fm: Basement. Tag plug and lay down drill pipe. Plug set: 1st @ 3970' w/50 sx Class B cmt, 2nd @ 3450' w/ 50 sx, 3rd @ 2570' w/50 sx, 4th @ 1350' w/100 sx. Tag plug @ 1015'. Hourly breakdown: rig repair 6, plug 2-1/4, lay down pipe 1-3/4, WOC 2, trips 5, WO orders 7.
DC: $9598 CC: $258,820

3/25/83 Day 22. Depth 4143'. Tagged plug @ 1015' (¼ hr.). Laid down drill pipe and rigged down ( 5-3/4 hr.). Rig released @ 12:00 p.m. Moved rig out.
DC: $4,755 CC: $263,575

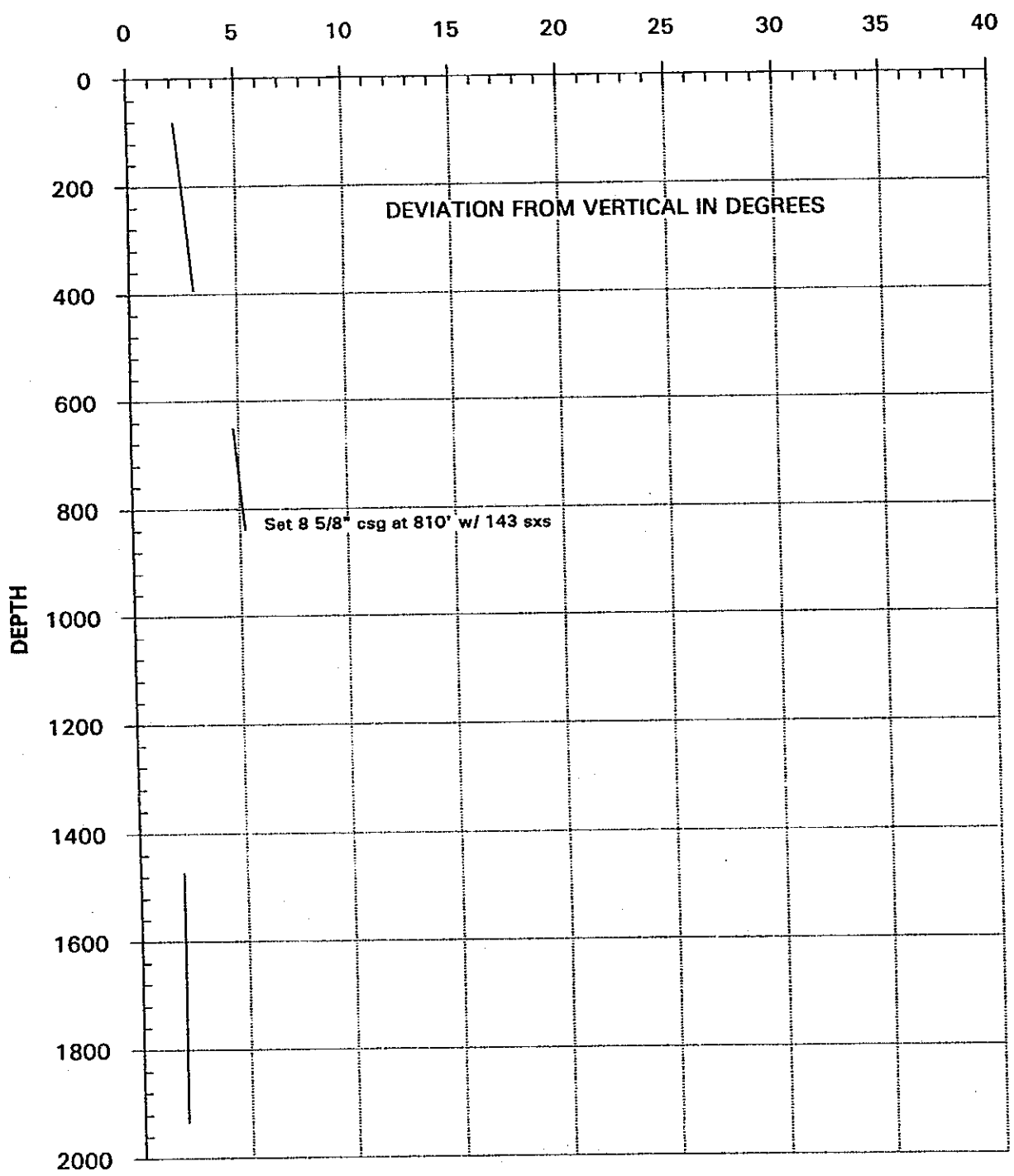
FINAL REPORT

## SUMATRA ENERGY 1-17 SANTA FE

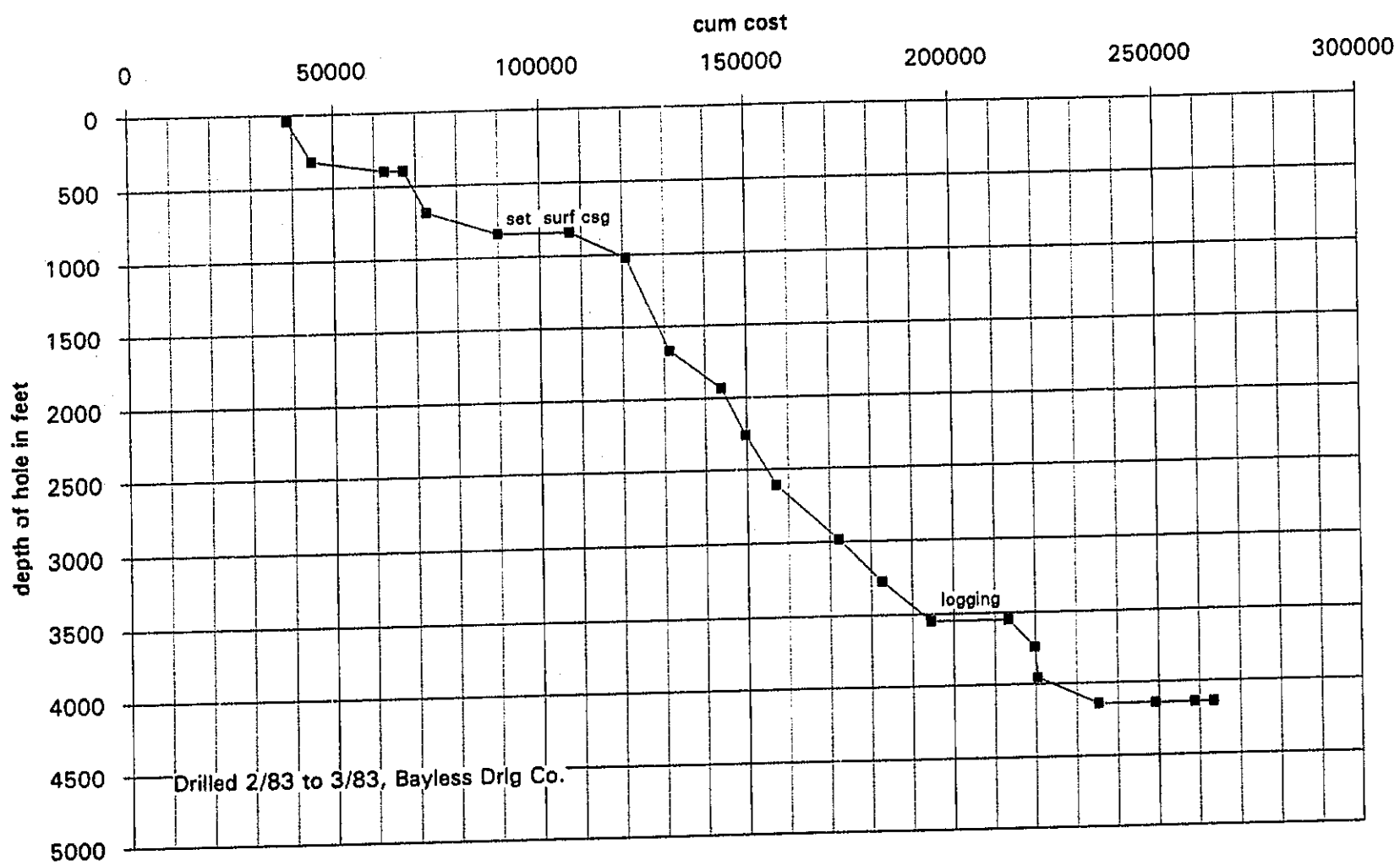


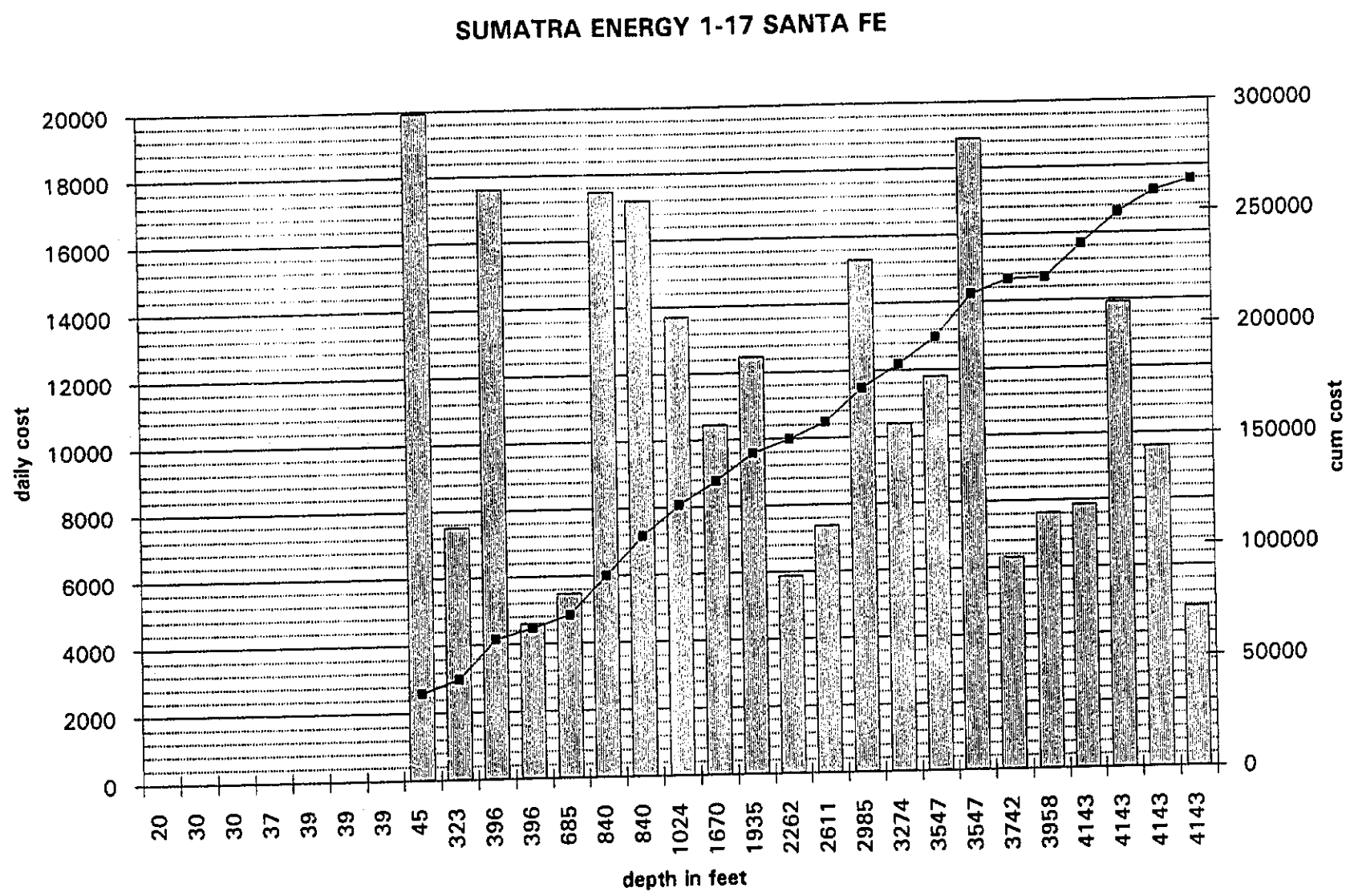

SUMATRA ENERGY 1-17 SANTA FE
Mud weight in lbs/gal
8
8.5
9
9.5
10
10.5
depth in feet
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

SUMATRA ENERGY 1-17 SANTA FE



## SUMATRA ENERGY 1-17 SANTA FE




SUMATRA ENERGY 1-17 SANTA FE
daily cost
cum cost
depth in feet
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
0
50000
100000
150000
200000
250000
300000
20
30
30
37
39
39
39
45
323
396
396
685
840
840
1024
1670
1935
2262
2611
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3547
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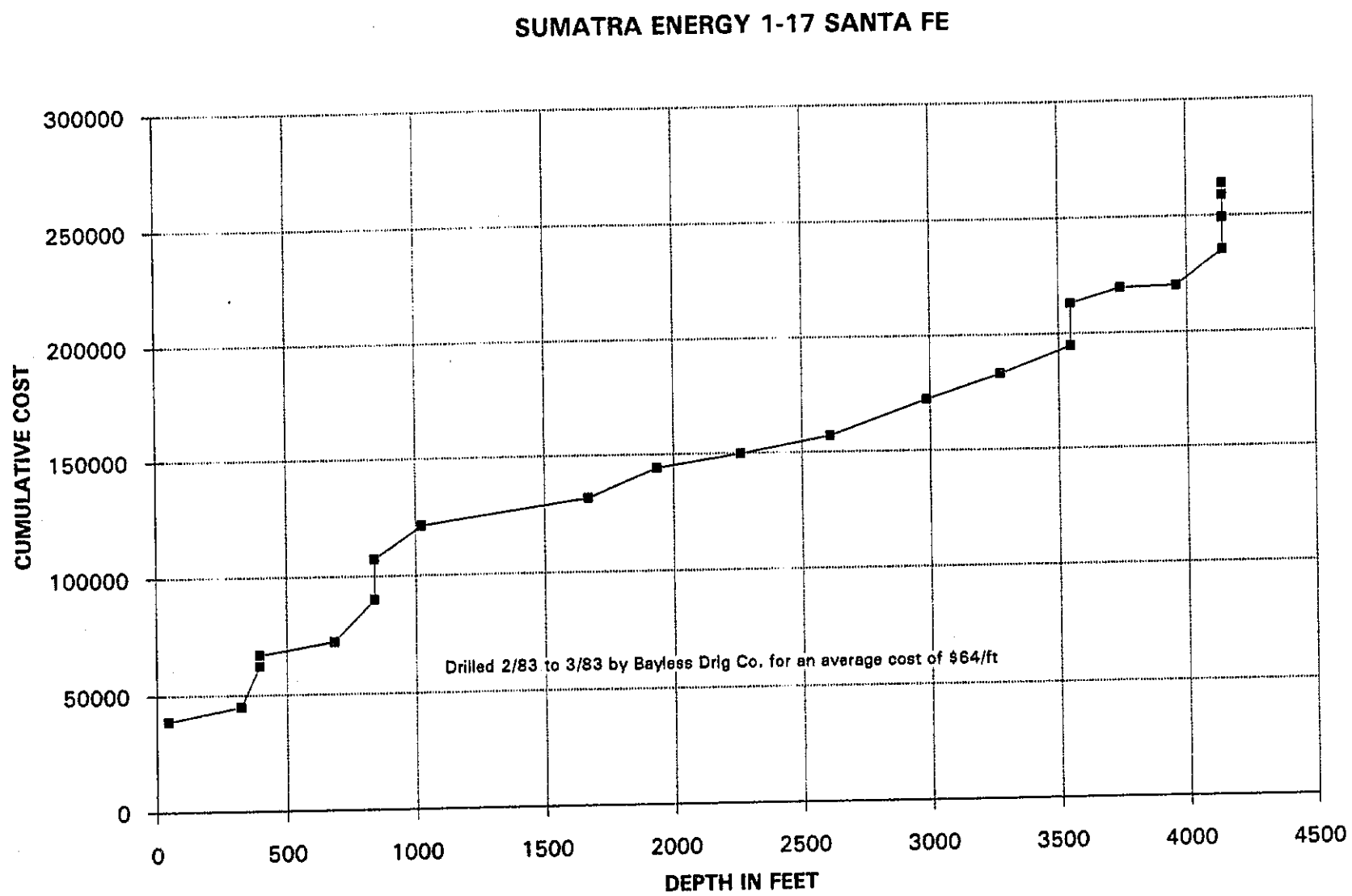
3742
3958
4143
4143
4143
4143


SUMATRA ENERGY 1-17 SANTA FE
CUMULATIVE COST
300000
250000
200000
150000
100000
50000
0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
DEPTH IN FEET
Drilled 2/83 to 3/83 by Bayless Drlg Co. for an average cost of $64/ft

3-24-83

Sumatra Energy
Well No. 1-17 Santa Fe

3-22-83 Departed office @ 11:50 am
Arrived in Concho @ 6:00 pm + first met w/ Mr. Larry Parker, representative for Lake Investment Co. This company has negotiated w/ Sumatra to take over this well + convert it to a water well. We went over the abandonment procedure. I then met w/ John Larsen, geologist, + learned from him that Welex would finish logging at ± 10:00 pm + that barring bad weather he would fly the logs to Denver @ ± 4:00 am. Checked in at Concho Valley Motel.

3-23-83 Met w/ Roy Baughman, drilling consultant, at 9:30 am He stated that the logs went out to Denver as scheduled and that he had ordered the cementers (B.J.) to bring 250 Sxs of cement. He also ordered a sprocket + chain unit for the rotary from the drilling contractor, Baylis Drlg. Both items were due in Concho at ± 7:00 pm. The cementers arrived but no part from Baylis. The weather conditions were very bad all the way from NM. Waited till 9:00 pm + decided to go ahead + plug w/o the use of the rotary table. With d.p. hanging @ 3920' displaced 50 sxs of cem. (calc to fill to 3750'). Broke the d.p. manualy + layed down several strings. At about 10:30 pm the Baylis truck arrived with the part.

It took 2 1/2 hours to install new part. Were all set to start plugging again (Plug #2) & the compressor on the cementing truck broke down. Hooked up to the Rig compressor + started plugging. With d.p. hanging @ ~~3250'~~ 3450' displaced 50 Sxs of cement (Calc to fill to 3280') With d.p. hanging @ ~~2400~~ 2570' displaced 50 Sxs of cement + (Calc to fill to 2400'). With d.p. hanging @ 1350' displaced 100 Sxs of cement (Calc to fill to 977') The top of this last plug is to be tagged by Sumatra before they start rigging down (+ to be called in to me) In summary this hole is as follows: 8 5/8" Cem. 810' T.D. 4143' Plugged w/ cement 3920'-3750'±, 3450'-3280'±, 2570'-2400'±, and 1350'-977'±. The top of the last plug was tagged @ 1015' (called in by Roy Baughman)

3-24-83
Depart well sit @ 3:35 a.m.
Arrived in Mesa @ 8:00 am.

mileage ± 700 miles

#836

Sumatra Energy
well 1-17 Santa Fe P/N 836 3-20-83

3-16-83 Departed office @ 12:30 pm. Schedule as reported by Bill Proudfoot w/ Sumatra was to log late this night + test or abandon well in the morning.
Arrived in Show Low @ 6:30 pm + checked in at the Apache Pines Motel. Went to well site + learned from Mr. Ray Baughman, drilling consultant, that:
1. The T.D of the well was 3144'
2. Management had decided to drill until 6:00 am. next morning + then decide.
Departed well site @ 9:00 pm

3-17-83 Arrived @ well site @ 7:30 am + the T.D was 3274'. Went over an abandonment program with Mr. Baughman after he informed me that the well was to be turned over as a water well. The Supai + the lower Coconino ss was to be segregated with at least 200 lineal feet of cement, leaving approx. 250' to 300' of open Coconino below the shoe of the 8 5/8" surf. casing @ 810'. Called the office + had Noanne call Mr. Henry Leigh's office for confirmation that they planned to take the well over. The T.D. @ 2:00 pm was 3362'. They decided to drill further until 3:00 pm + then prepare to log @ about 8 or 9 that evening. Departed for Show Low. At 5:15 pm received a call from Mr. Baughman saying that they would continue drilling until 10:00 pm + then decide what to do. Welex was on it's way + Nat. Cementers were on stand by.

3-18-83 Arrived @ well site @ 8:00 am. T.D. 3547'
Mr. Baughman reported that at this time it looked like Welex

would start logging @ noon. Logging would take about 6 to 7 hours + that John Larsen, geologist + owner of the mud-logging truck would interpret logs. Roy also ordered 200 Sks of cement. Left well site.

Went back to well + talked to geologist. The latest was that the well would be drilled another 200 feet. Apparently Sumatra was encouraged by a couple of gas blips (5 + 15 units) in the Naco Fm. John Larsen also reported following geo.:

| | | |
|---|---|---|
| Malapai | @ | surface |
| Chinle | @ | 68' |
| Moenkopi | @ | 560' |
| Kaibab | @ | 760' |
| Coconino | @ | 830' |
| Supai | @ | 1120' |
| Ft. Apache | @ | 1630' |
| Naco | @ | 3030' (transition) |

These points were picked by some geologist other than the ones on mud wagon. Left well site.

3-19-83 Arrived near the well @ 10:30 a.m. Heavy snow storm prevented me from getting to well. Went to hotel where Mr. Baughman was staying + waited for him until 12:30 pm. He reported a T.D. of 3640' + that now Sumatra planned to drill to the Pre-Cambrian (± 4500'). I left for Show Low

Departed for home ± 2:00 pm Arrived in Mesa @ 6:45 pm. Bad weather all the way to Globe.

Drlg. Contractor - Baylis Rig #2
Drlg. Consultant - Roy Baughman
Mileage - 200 miles

Sumatra Energy
well No. 1-17 Santa Fe

3-10-83

3-7-83 Departed home @ 6:30 pm
checked in Apache Pines Motel @ 11:00 pm

3-8-83 Arrived @ wellsite @ 9:00 a.m., the time scheduled for running the surface casing (8 5/8").
Mr. Roy Baughman, Drlg. Consultant reported:
1. 13 3/8" conductor cem. @ 30'
2. Drilled 7 7/8" pilot hole to 400' & later under-reamed to 12 1/4" – had some loss circ. problems but were able to stay on top of problem – had plenty of water & loss circ. material on hand.
3. Drilled 12 1/4" hole 400' to 697' & when I got there they were preparing to pull out of the hole for a bit change – would be ready next day @ 1:30 a.m.

3-9-83 Drilled to 840' (present T.D.)
Started running in surf. csg. @ 1:40 am & upon running 2nd joint, got stuck in the volcanics just below the shoe of the conductor pipe.

Cemented the 8 5/8", 24 lb., J-55, casing @ 810' with 143 Sx of cem. Had excellent returns – departed for Shiprock @ 11:00 a.m.
Arrived home @ 6:30 pm

Drlg. Contractor – Bayliss Rig #2 Farmington, NM
Cem. " – National Cementers " "

Mileage 800 miles

# PERMIT TO DRILL

This constitutes the permission and authority from the

OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA,

To: SUMATRA ENERGY COMPANY
(OPERATOR)

to drill a well to be known as

1-17 SANTA FE
(WELL NAME)

located 495 FEET FROM NORTH LINE AND 660 FEET FROM THE WEST LINE

Section 17 Township 12 NORTH Range 26 EAST, APACHE County, Arizona.

The W/2 NW/4 of said Section, Township and Range is dedicated to this well.

Said well is to be drilled substantially as outlined in the attached Application and must be drilled in full compliance with all applicable laws, statutes, rules and regulations of the State of Arizona.

Issued this 10th day of January, 19 83.

OIL AND GAS CONSERVATION COMMISSION

By R. A. Stone
Enforcement EXECUTIVE DIRECTOR

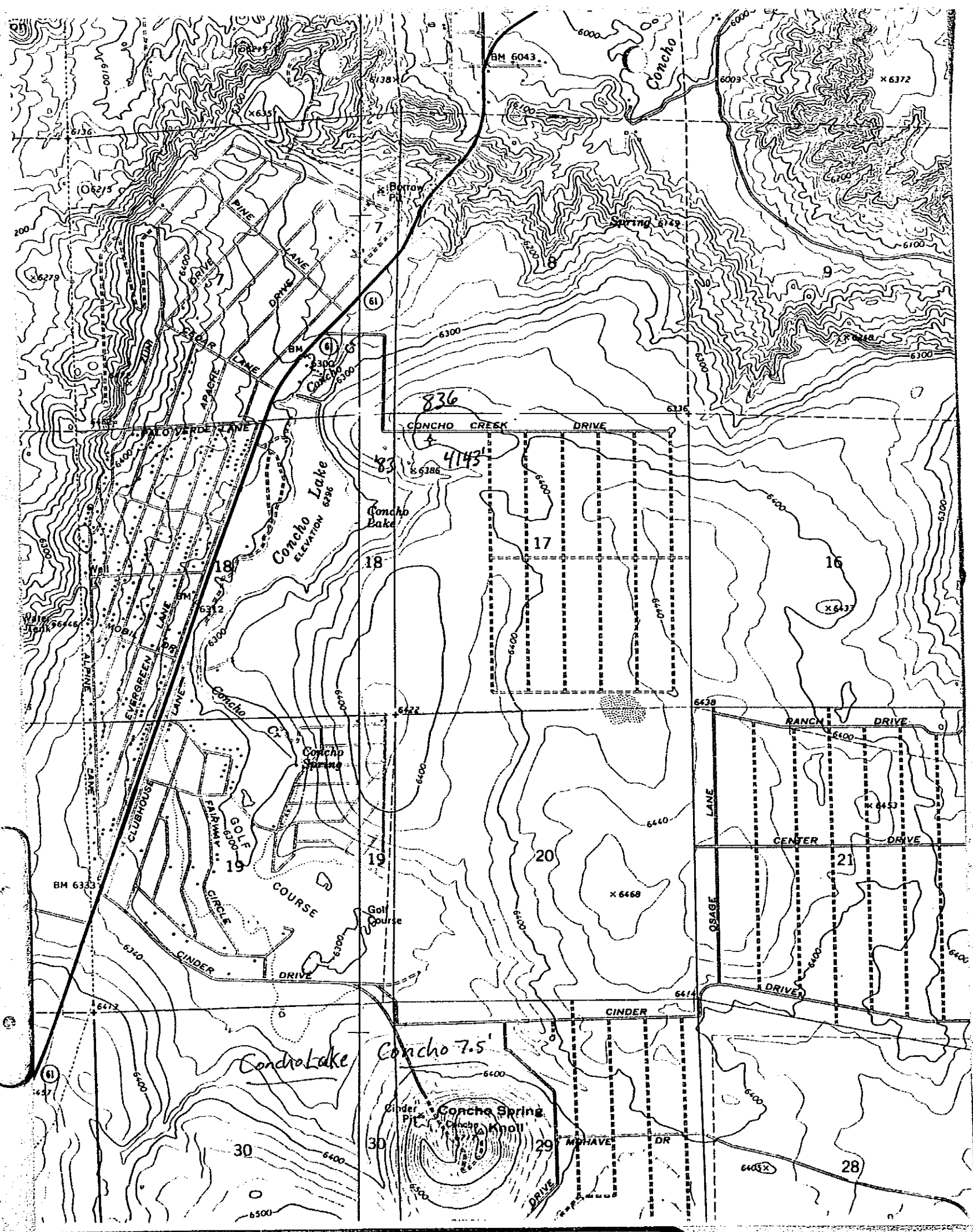
PERMIT [illegible]

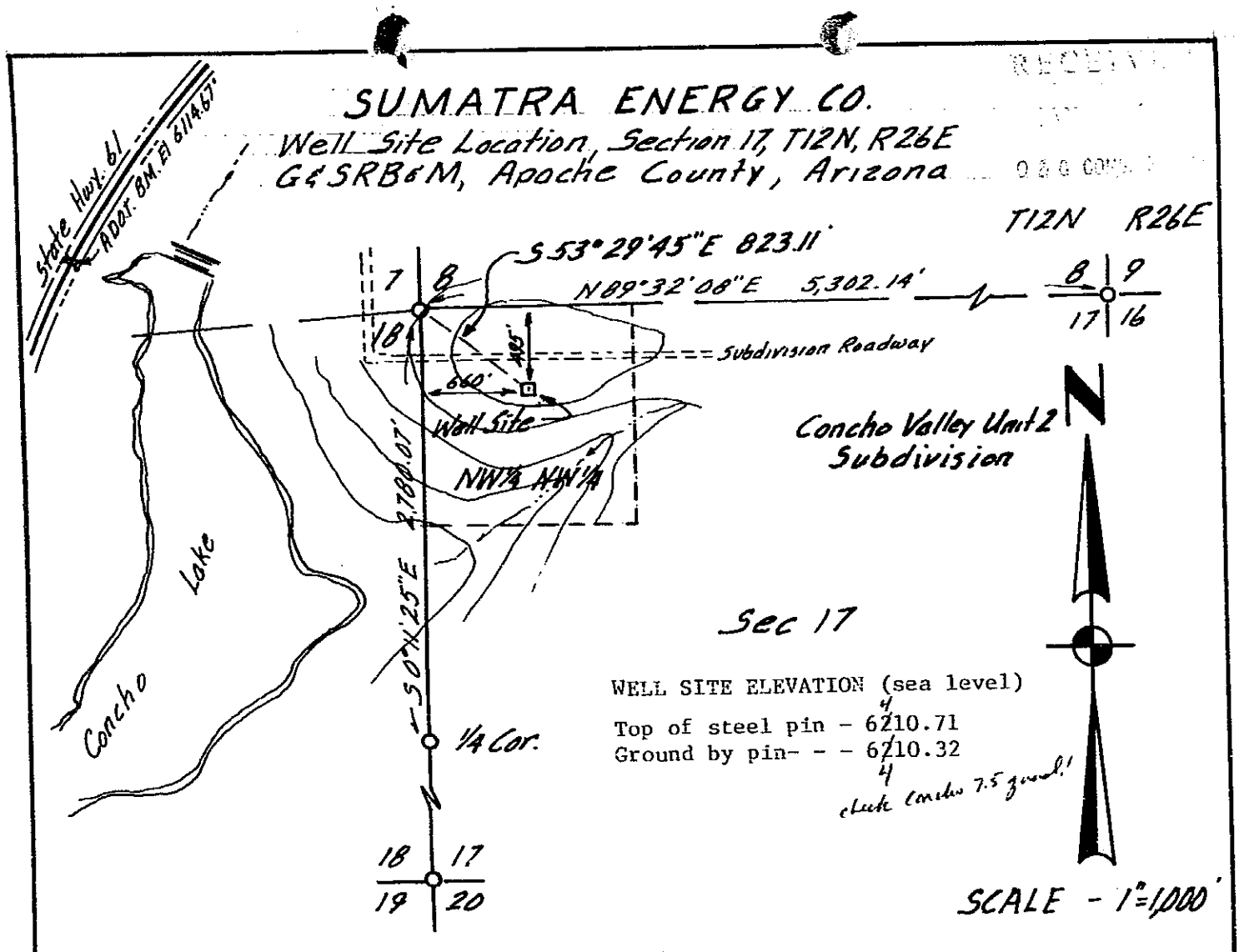
RECEIPT NO. 2356

A.P.I. NO. 02-001-20270

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill
FORM NO. 27

TEN FOOT SAMPLES ARE REQUIRED FROM SURFACE


BM 6043
Concho
Borrow Pit
Spring 6149
PINE LANE
DRIVE
ZUNI
APACHE
PALO VERDE LANE
CONCHO CREEK DRIVE
836
4143'
Concho Lake
ELEVATION 6296
Concho Lake
Concho Cr
Concho Spring
EVERGREEN
ALPINE
LANE
MOBIL
CLUBHOUSE
GOLF
FAIRWAY
CIRCLE
COURSE
Golf Course
BM 6333
CINDER DRIVE
RANCH DRIVE
CENTER DRIVE
OSAGE
DRIVER
CINDER
Concho Lake
Concho 7.5'
Cinder Pit
Concho Spring
Concho Knoll
MOHAVE DR
DRIVE
7
8
9
16
17
18
19
20
21
28
29
30




LEGAL DESCRIPTION

A well site located in the Northwest quarter of the Northwest quarter of Section 17, T12N, R26E, G&SRB&M, Apache County, Arizona at a point 495.00 feet South of the North Section line and 660.00 feet East of the West Section line, being more particularly described as follows:

COMMENCING at the Northwest corner of said Section 17; thence South 53°29'45" East, a distance of 823.11 feet to the center point of the well site.

CERTIFICATION

I hereby certify that this map and description was made from a field survey of the well site shown and is true and correct to the best of my knowledge and belief.

REGISTERED LAND SURVEYOR
CERTIFICATE NO. 8995
KEITH SHREEVE
DATE SIGNED 12-22-87
Arizona U. S. A.

RECEIVED

# APPLICATION FOR PERMIT TO DRILL OR RE-ENTER

APPLICATION TO DRILL ☒ RE-ENTER OLD WELL ☐

O. & G. CONS. COMM.

SUMATRA ENERGY COMPANY
NAME OF COMPANY OR OPERATOR

999 - 18th Street
One Denver Place, Ste 1400 — Denver, City — Colorado, State — 80202
Address

Bayless Drilling Co.
Drilling Contractor

216 S. Hill, Farmington, N.M. 87401
Address

(4)

## DESCRIPTION OF WELL AND LEASE

| | | |
|---|---|---|
| Federal, State or Indian Lease Number, or if fee lease, name of lessor: RR - Santa Fe | Well number: 1-17 [redacted] | Elevation (ground): 6210.3 |
| Nearest distance from proposed location to property or lease line: 495 feet | Distance from proposed location to nearest drilling, completed or applied—for well on the same lease: N/A feet | |
| Number of acres in lease: 160 | Number of wells on lease, including this well, completed in or drilling to this reservoir: 1 | |
| If lease, purchased with one or more wells drilled, from whom purchased: Name: Santa Fe Energy Co. | Address: 7200 I-40 West, Amarillo, Texas 79106 | |
| Well location (give footage from section lines): 495' S of NL 660' E of WL | Section—township—range or block and survey: T12N R26E (Sec. 17) | Dedication (Comply with Rule 105): W½ NW¼ (80 Acs) |
| Field and reservoir (if wildcat, so state): Wildcat | County: Apache | |
| Distance in miles, and direction from nearest town or post office: 5 miles to the west of St. Johns, Arizona | | |
| Proposed depth: 4000' | Rotary or cable tools: Rotary | Approx. date work will start: January, 1983 |
| Bond Status: Single well; Amount: $5,000.00 | Organization Report: On file ___ Or attached X | Filing Fee of $25.00: Attached X |

Remarks:

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Operations Manager of the Sumatra Energy Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

W. A. Rouchoff
Signature

December 30, 1982
Date

Permit Number: 836
Approval Date: 1-10-83
Approved By: R. A. Ytana

Notice: Before sending in this form be sure that you have given all informationa requested. Much unnecessary correspondence will thus be avoided.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Application to Drill or Re-enter
File Two Copies

Form No. 3

(Complete Reverse Side)

API No.: 02-001-20279

1. Operator shall outline the dedicated acreage for *both* oil and gas wells on the plat.

2. A registered professional engineer or land surveyor registered in the State of Arizona or approved by the Commission shall show on the plat the location of the well and certify this information in the space provided.

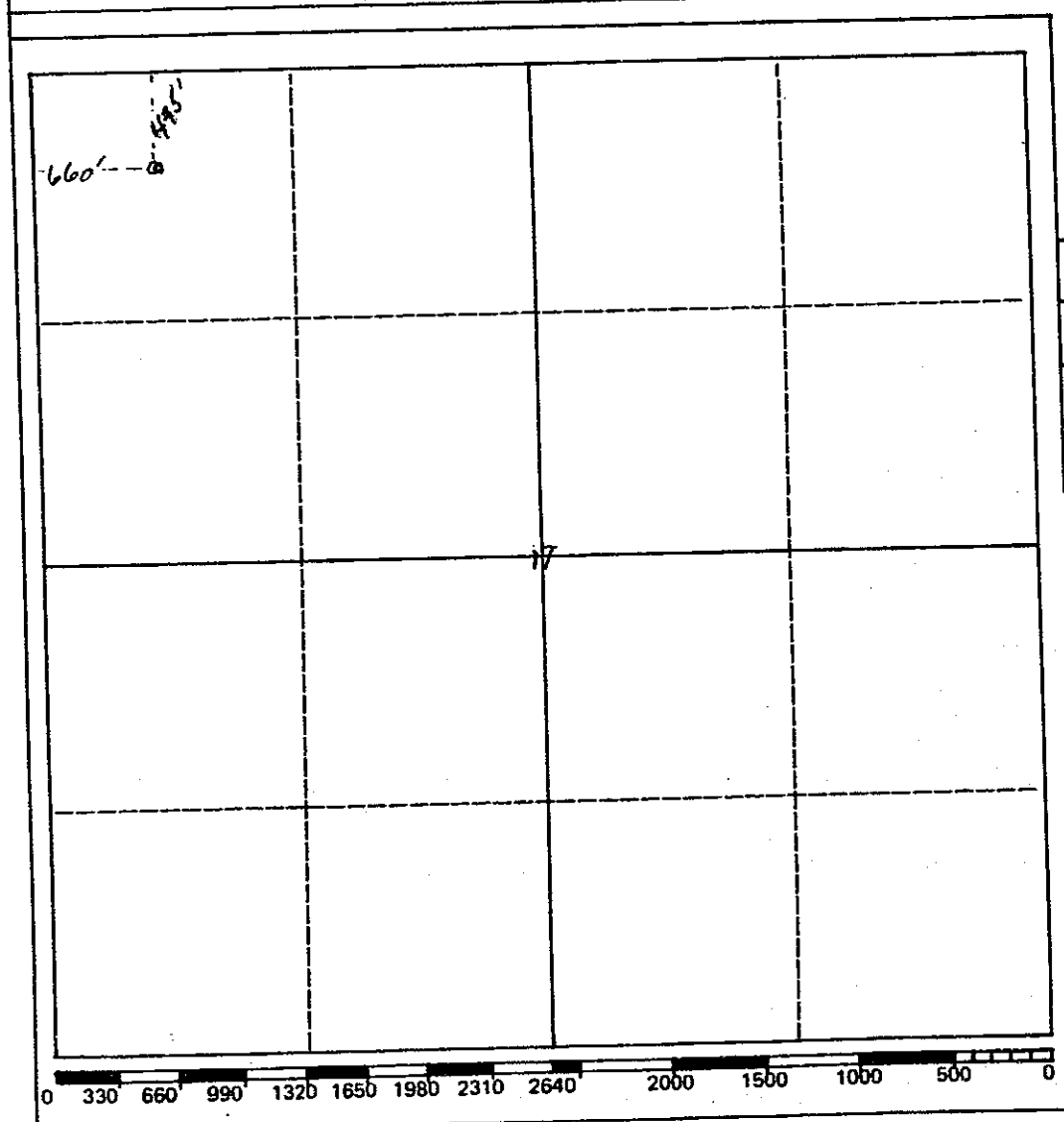
3. ALL DISTANCES SHOWN ON THE PLAT MUST BE FROM THE OUTER BOUNDARIES OF THE SECTION.

4. Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES_____ NO__X__.

5. If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES__X__ NO_____. If answer is "yes," Type of Consolidation Farmout Agreement

6. If the answer to question four is "no," list all the owners and their respective interests below:

| Owner | Land Description |
|---|---|
| High Plains | NW¼ 17-12N-26E |
| Santa Fe | All 17-12N-26E |




**CERTIFICATION**

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

W.A. Proudfoot

Name: W.A. Proudfoot

Position: Operations Manager

Company: Sumatra Energy Co.

Date: December 30, 1982

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

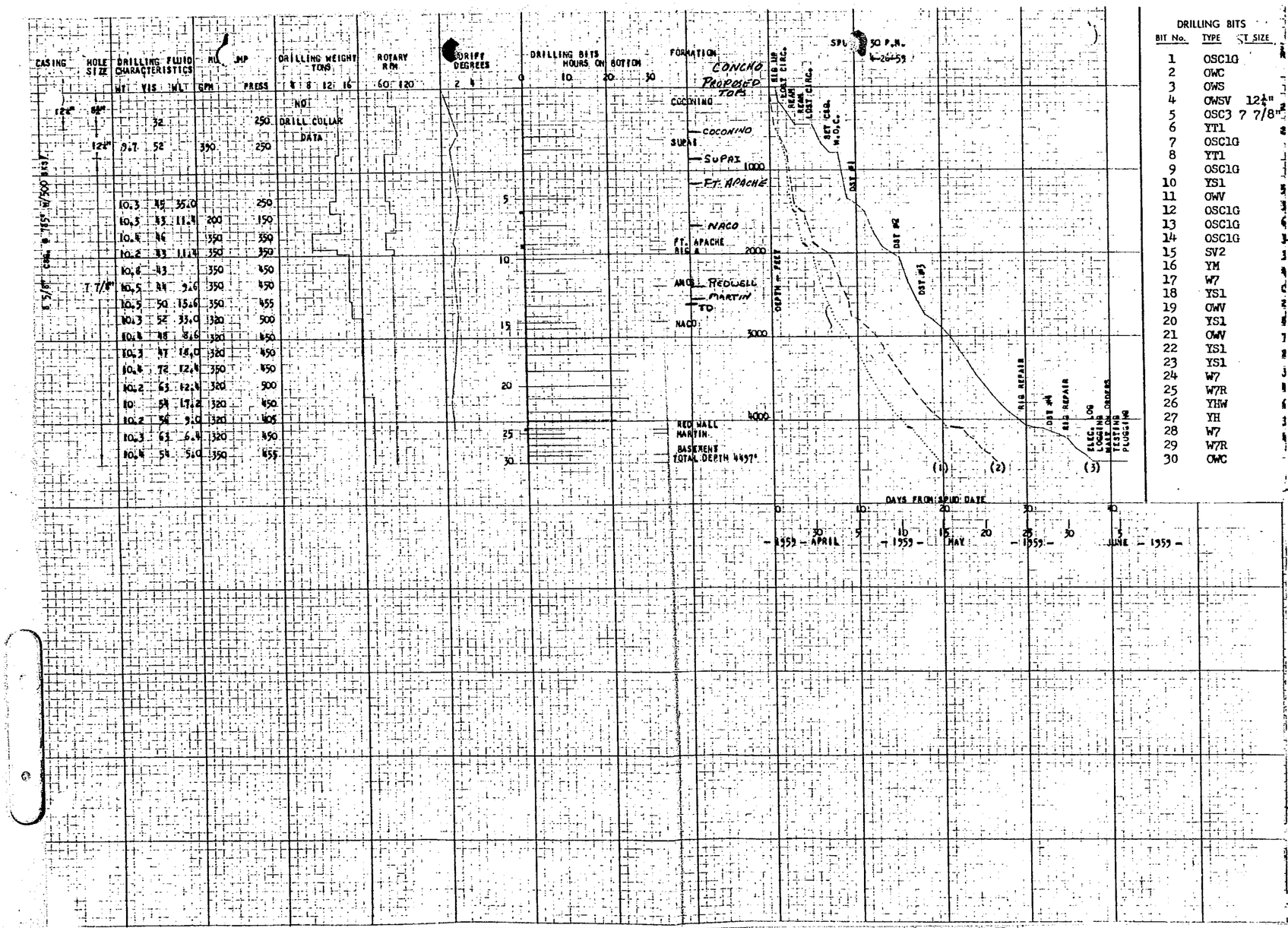
Date Surveyed: 12/27/82

Registered Professional Engineer and/or Land Surveyor: Plat forth coming

Certificate No.

**PROPOSED CASING PROGRAM**

| Size of Casing | Weight | Grade & Type | Top | Bottom | Cementing Depths | Sacks Cement | Type |
|---|---|---|---|---|---|---|---|
| 8 5/8" | #24 | J-55 | KB | 800' | 0-800' | 200 sacks | Class A |
| 5½" | #15.5 | J-55 | KB | TD | 0-TD | undetermined to surface | Class A |




| DRILLING BITS | | |
|---|---|---|
| BIT No. | TYPE | SIZE |
| 1 | OSC1G | |
| 2 | OWC | |
| 3 | OWS | |
| 4 | OWSV | 12¼" |
| 5 | OSC3 | 7 7/8" |
| 6 | YT1 | |
| 7 | OSC1G | |
| 8 | YT1 | |
| 9 | OSC1G | |
| 10 | YS1 | |
| 11 | OWV | |
| 12 | OSC1G | |
| 13 | OSC1G | |
| 14 | OSC1G | |
| 15 | SV2 | |
| 16 | YM | |
| 17 | W7 | |
| 18 | YS1 | |
| 19 | OWV | |
| 20 | YS1 | |
| 21 | OWV | |
| 22 | YS1 | |
| 23 | YS1 | |
| 24 | W7 | |
| 25 | W7R | |
| 26 | YHW | |
| 27 | YH | |
| 28 | W7 | |
| 29 | W7R | |
| 30 | OWC | |

CONTRACTOR: BRANNON & MURRAY DRILLING CO.

RIG DESCRIPTION

Drawworks Brewster N-4 w/L. C. Moore 98' Mast

Drill Engines 983024 Waukesha WAKEU

Mud Pump Engine Continuous HP Rating 245 at Speed Operated Compounded (2) 61x623 LeRoi H-844

Mud Pumps Continuous HP Rating 225 at 2000 RPM (1) Ideal C-150 (7 1/4" x 12") IHP 150 (2) Ideal D-50 (5" x 10") IHP 50 (3)

Drill Pipe 4 1/2" 16.60# w/ 4 1/2" OD TJ

Drill Collars 6 1/4" x 30' x 2 1/4"

Kelly 4 1/4" x 40' x 2 3/4" Standpipe 47' I.D. 3 3/4"

Swivel Emsco L-140 Hose 55' I.D. 2 3/4"

WATER SOURCE: Water Well on Location

BIT SUMMARY

| Size | No. Bits | Footage | No. Hours | Feet/ Hour | Feet/ Bit | Hrs. On Bot/Bit |
|---|---|---|---|---|---|---|
| DRILLING | | | | | | |
| 8 3/4" | 1 | 443 | 13.2 | 33.5 | 443 | 13.2 |
| 12 1/4" | 3 | 342 | 28.5 | 12.0 | 114 | 9.5 |
| 7 7/8" | 24.8 | 3606 | 404.0 | 8.9 | 145 | 16.3 |
| REAMING | | | | | | |
| 12 1/4" | 1 | 443 | 43.7 | 9.9 | 443 | 43.7 |
| 7 7/8" | 1.2 | 106 | 8.0 | 13.3 | 88 | 6.6 |
| DIAMOND CORING | | | | | | |
| 6 1/8" | 1 | 106 | 24.5 | 4.3 | - | - |

LEGEND

DRILLING CURVES

——— Overall Drilling Progress Curve

– – – – Net Drilling Progress Curve: (Includes only time on bottom, normal trips, connections, drift surveys, rig service, normal mud mixing, i.e., related to normal drilling progress.)

. . . . . Rotating Progress Curve

Coring

Diamond Drilling

Red Arrow: Highlights hazards, severe lost circ., etc.

DRILLING BITS

RR–Rerun Bits

Rm–Reaming Bits for Core Hole

–Diamond Drilling

–Diamond Coring

DRILLING ANALYSIS SERVICE CO.

C. A. Johnson Bldg., Denver, Colorado

Copyright

February, 1960

DASCO Chart IV

OPERATOR PA[illegible]MERICAN PE

WELL New Mexico & Arizona

LOC. Sec. 25 T 12 N R 23 E

Spot Loc.: SW NE

Navajo County, Arizona

Elev.: 6253' GR

TIME ANALYSI

From Spud Date to To

Items:

Drilling on bottom

Coring on bottom

(1) Rotating progress (Percent of Net Drlg. 74.6

Drill trips, rig service, etc.

Core trips, rmg. hole, etc.

(2) Net drilling progress

Mechanical downtime

Cond. hole Lost Circ.

Circ. samples, wait/orders

Drill stem test (Four)

Surveys: Elec. Log

Fishing

Rig up on spud date

Casing: ream, run, WOC, test

(3) Overall time to T.D.

Operations After Reach

Elec. Log

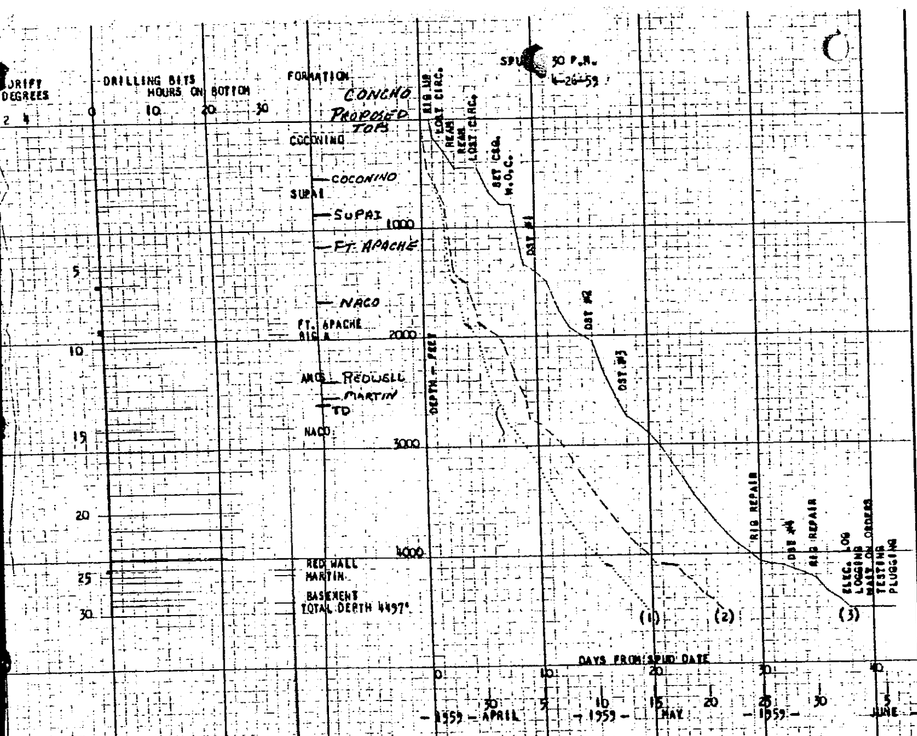
Testing, Wait on Orders

Plugging

Total Time After T.D.

MUD ADDITIVES

| Additive | Q (LB |
|---|---|
| Salt Gel | 34.2 |
| Bentonite | 32.3 |
| Starch | 13.0 |
| Preservative | 1.5 |
| Lime | 2 |
| Hulls | |
| Flaxshive | |
| Fiber | |




DRILLING BITS

| BIT No. | TYPE | BIT SIZE |
|---|---|---|
| 1 | OSC1G | |
| 2 | OWC | |
| 3 | OWS | |
| 4 | OWSV | 12¼" |
| 5 | OSC3 | 7 7/8" |
| 6 | YT1 | |
| 7 | OSC1G | |
| 8 | YT1 | |
| 9 | OSC1G | |
| 10 | YS1 | |
| 11 | OWV | |
| 12 | OSC1G | |
| 13 | OSC1G | |
| 14 | OSC1G | |
| 15 | SV2 | |
| 16 | YM | |
| 17 | W7 | |
| 18 | YS1 | |
| 19 | OWV | |
| 20 | YS1 | |
| 21 | OWV | |
| 22 | YS1 | |
| 23 | YS1 | |
| 24 | W7 | |
| 25 | W7R | |
| 26 | YHW | |
| 27 | YH | |
| 28 | W7 | |
| 29 | W7R | |
| 30 | OWC | |

CONTRACTOR: BRANNON & MURRAY DRILLING CO.

## RIG DESCRIPTION

Drawworks: Brewster N-4 w/L. C. Moore 98' Mast
Drill Engines: 983024 Waukesha WAKEU
Continuous HP Rating 245 at Speed Operated
Mud Pump Engine: Compounded (2) 6 1/2x6 1/2 LeRoi H-844
Continuous HP Rating 225 at 2000 RPM
Mud Pumps: (1) Ideal C-150 (7 1/4" x 12") IHP 150
(2) Ideal D-50 (5" x 10") IHP 50
(3)
Drill Pipe: 4 1/2" 16.60# w/ 4 1/2" OD TJ
Drill Collars: 6 1/4" x 30' x 2 1/4"
Kelly: 4 1/4" x 40' x 2 3/4" Standpipe: 47' I.D. 3 3/4"
Swivel: Emco L-140 Hose: 55' I.D. 2 3/4"

WATER SOURCE: Water Well on Location

## BIT SUMMARY

| Size | No. Bits | Footage | No. Hours | Feet/ Hour | Feet/ Bit | Hrs. On Bot/Bit |
|---|---|---|---|---|---|---|
| **DRILLING** | | | | | | |
| 8 3/4" | 1 | 443 | 13.2 | 33.5 | 443 | 13.2 |
| 12 1/4" | 3 | 342 | 28.5 | 12.0 | 114 | 9.5 |
| 7 7/8" | 24.8 | 3606 | 404.0 | 8.9 | 145 | 16.3 |
| **REAMING** | | | | | | |
| 12 1/4" | 1 | 443 | 43.7 | 9.9 | 443 | 43.7 |
| 7 7/8" | 1.2 | 106 | 8.0 | 13.3 | 88 | 6.6 |
| **DIAMOND CORING** | | | | | | |
| 6 1/8" | 1 | 106 | 24.5 | 4.3 | - | - |

## LEGEND

DRILLING CURVES
——— Overall Drilling Progress Curve
– – – – – Net Drilling Progress Curve: (Includes only time on bottom, normal trips, connections, drift surveys, rig service, normal mud mixing, i.e., related to normal drilling progress.)
. . . . . Rotating Progress Curve
——— Coring
|——| Diamond Drilling
——→ Red Arrow: Highlights hazards, severe lost circ., etc.

DRILLING BITS
RR–Rerun Bits
Rm–Reaming Bits for Core Hole

–Diamond Drilling
–Diamond Coring

DRILLING ANALYSIS SERVICE CO.
C. A. Johnson Bldg., Denver, Colorado

Copyright February, 1960

DASCO Chart IV - 1233 - BMA
OPERATOR: PAN AMERICAN PETROLEUM CORP.
WELL: New Mexico & Arizona Land "B" No. 1
LOC: Sec. 25 T 12 N R 23 E
Spot Loc.: SW NE
Navajo County, Arizona
Elev.: 6253' GR ____ KB

## TIME ANALYSIS
From Spud Date to Total Depth

| Items: | Days | % |
|---|---|---|
| Drilling on bottom | 18.6 | 49.0 |
| Coring on bottom | 1.0 | 2.6 |
| (1) Rotating progress (Percent of Net Drlg. 74.6 %) | 19.6 | 51.6 |
| Drill trips, rig service, etc. | 4.1 | 10.8 |
| Core trips, rmg. hole, etc. | 2.7 | 7.1 |
| (2) Net drilling progress | 26.4 | 69.5 |
| Mechanical downtime | 1.2 | 3.2 |
| Cond. hole Lost Circ. | 2.3 | 6.0 |
| Circ. samples, wait/orders | 0.3 | 0.8 |
| Drill stem test (Four) | 3.4 | 8.9 |
| Surveys: Elec. Log | 0.1 | 0.3 |
| Fishing | - | - |
| Rig up on spud date | 0.8 | 2.1 |
| Casing: ream, run, WOC, test | 3.5 | 9.2 |
| (3) Overall time to T.D. | 38.0 | 100. |

Operations After Reaching T.D.

| | Days |
|---|---|
| Elec. Log | 0.7 |
| Testing, Wait on Orders | 2.9 |
| Plugging | 0.4 |
| Total Time After T.D. | 4.0 |

## MUD ADDITIVES

| Additive | Quantity (Lbs.-Sks) | Lbs./Ft. of Hole |
|---|---|---|
| Salt Gel | 34,200 lbs. | 7.6 |
| Bentonite | 32,300 lbs. | 7.2 |
| Starch | 13,000 lbs. | 2.9 |
| Preservative | 1,575 lbs. | 0.4 |
| Lime | 200 lbs. | - |
| Hulls | 46 sks. | - |
| Flaxshive | 36 sks. | - |
| Fiber | 24 sks. | - |

836

GEOLOGICAL REPORT

ON

SUMATRA ENERGY COMPANY

SANTA FE #1-17

W/2 NW/4 SEC. 17, T12N, R26E

APACHE COUNTY, ARIZONA

LARSEN
GEO LOGGING

P.O. BOX 600
LAFAYETTE, CO 80026
1-303-666-9400

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# GEOLOGICAL REPORT
# ON
# SUMATRA ENERGY COMPANY
# SANTA FE #1-17
# W/2 NW/4 SEC. 17, T12N, R26E
# APACHE COUNTY, ARIZONA

BY
JOHN G. LARSEN
FOR
LARSEN GEO LOGGING

## WELL SUMMARY

| | |
|---|---|
| OPERATOR: | Sumatra Energy Company |
| WELL: | Santa Fe # 1-17 |
| LOCATION: | W/2 NW/4 Sec. 17, T12N, R26E |
| COUNTY: | Apache |
| STATE: | Arizona |
| SPUD DATE: | March 3, 1983 |
| COMPLETION: | March 22, 1983 |
| ELEVATIONS: | 6410' GL, 6420' KB |
| TOTAL DEPTH: | 4143' |
| CONTRACTOR: | Bayless |
| RIG #: | #2 |
| GEOLOGIST: | John G. Larsen |
| ENGINEER: | Roy Baugman |
| TOOL PUSHER: | Tom Daniels |
| DRILLING MUD: | Low solids, salt saturated |
| MUD COMPANY: | Concord Drilling Services, Inc. |
| CASING: | 16" set to 31', 8 5/8" to 810' |
| MUD LOGGING: | Larsen Geo Logging, Tom Moore |
| TYPE UNIT: | One man |
| DST DEPTHS: | None |
| CORE INTERVALS: | None |
| ELECTRIC LOGS: | Welex, Farmington; DLL, SP. GR, NDL NPL. |
| LOGGING ENG.: | Curt Kusken |
| BOTTOM FORM.: | Granite Basement |
| WELL STATUS: | Plugged and abandoned, casing left for water well compl. |

FORMATION TOPS

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

GL 6410' KB 6420'

| Formation/Member | Drill Depth/Sample | E-Logs | Subsea |
|---|---|---|---|
| Malpai | 0 | | |
| Chinle | 68' | 86' | +6334 |
| Moenkopi | ? | ? | ? |
| Kaibab | ? | 512' | +5895 |
| Coconino | 565 | 538 | +5880 |
| Supai | 1120 transition | 1100 | +5320 |
| Fort Apache | 1630 | 2515 | +3905 |
| Naco | 3030 Transition | 3440 | +2980 |
| T.D. | | 4143 | |

WELL CHRONOLOGY

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| DATE | DEPTH | 24 HR. FOOTAGE | OPERATION |
|---|---|---|---|
| 3/4/83 | 30 | 0 | Start up rig & serv., drlg, no returns, repair swivel, drlg, sur. |
| 3/5/83 | 323 | 283 | Drlg no returns, circ, sur 3° @ 396, TOOH make up 12¼ bit, ream 7 7/8 hole to 12¼, ream to 100' TOH, cond mud & mix LCM. |
| 3/6/83 | 396 | 73 | Mix LCM, pump LCM, TIH pick up bit TOH, ream, unplug flow lines, ream serv. rig, ream. |
| 3/7/83 | 396 | 0 | Ream, serv rig, drlg, mix LCM, lost circ @523', drlg. |
| 3/8/83 | 685 | 289 | Drlg, serv rig, drlg, circ, sur 4 3/4° @ 697, trip for bit #3, TIH, ream 120' to botm, repair corrosion bearing, drlg, circ, POOH, rig up casing crew. |
| 3/9/83 | 840 | 155 | Run 8 5/8 to 70', work pipe, tite, run 8 5/8, rig up & circ, cement by National, Farmington, 143 sks, 3% Cl WOC, change seat 4 valves on D-750, nipple up & pressure test to 800 lb., TIH, tighten cat head, lost tools, hunt for crows foot, XO tong discs. |
| 3/10/83 | 840 | 0 | Test pipe rams to 900 PSI, drlg cmnt, circ & cond mud, drlg, circ & build volume, loosing returns slowly, drill, hole loosing fluid, serv rig, tighten swivel, sur 4° @ 969', drlg, circ to pull up pipe to repair swivel, stuck, pull 8 jts, repair swivel, circ water flow, hand injured, lost end of ring finger. |

WELL CHRONOLOGY

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| DATE | DEPTH | 24 HR. FOOTAGE | OPERATION |
|---|---|---|---|
| 3/11/83 | 1054 | 214 | Clean pits, mix mud, TIH, mix LCM, drlg, ser rig, sur $2^{o}$ @ 1471 drlg. |
| 3/12/83 | 1670 | 616 | Drlg, ser rig, drlg, input shaft to rotary trans broke, take a part, sur $2^{o}$ @ 1935, chain out of hole, TIH to 800'. |
| 3/13/83 | 1935 | 265 | Chain in to 800', WO parts, repair drive shaft, TIH, wash 35' to botm, drlg, kelly hose burst, pull 4 jts & cut hose, repair, TIH, drlg, repair flange on rotary riser, drlg. |
| 3/14/83 | 2262 | 327 | Drlg, rpr flange on rotary riser to table, drlg, lost circ @ 2585', pull 6 jts, mix LCM, circ & build volume. |
| 3/15/83 | 2611 | 349 | Build volume, TIH & break circ, drlg, lost circ @ 2594', pull 8 jts, build volume, mix LCM, TIH, break circ, circ & cond, drlg, ser rig, drlg, go through pump D-750, drlg. |
| 3/16/83 | 2985 | 374 | Drlg, ser rig, drlg, rotary chain flew to pieces, replace same, drlg. |
| 3/17/83 | 3274 | 289 | Drlg, ser rig, drlg, power divider chain, pull 6 jts & repair chain in drive line. |
| 3/18/83 | 3547 | 273 | Drlg, repair rotary chain, rig ser, drlg, bail on kelly broken, jerry rig, pull out of hole to run E-logs, rig up loggers, logging, rig ser. |
| 3/19/83 | 3547 | 0 | Logging, rig down loggers, TIH, drlg, rig ser. |
| 3/20/83 | 3742 | 195 | Drlg, rig ser, drlg. |

WELL CHRONOLOGY

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| DATE | DEPTH | 24 HR. FOOTAGE | OPERATION |
|---|---|---|---|
| 3/21/83 | 3958 | 216 | Drlg, rig ser, drlg. |
| 3/22/83 | 4143 | 185 | Drlg, rig ser, drlg, lower drive shaft differential down, chain out, rig up loggers, logging, rig ser, TIH, chain. |
| 3/23/83 | 4143 | 0 | Chain in hole, repair shaft differential. |

# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | MARCH 4/82 |
| REPORT NUMBER | 1 |
| SPUD DATE | MARCH 4/82 |
| DAYS FROM SPUD | 1 |
| PRESENT ACTIVITY | DRILLING [illegible] |

| | | | |
|---|---|---|---|
| OPERATOR | [illegible] ENERGY | CONTRACTOR | [illegible] DRILLING |
| RIG NO | 2 | | |
| REPORT FOR | [illegible] VAUGHAN | REPORT FOR | TOM DRUMMOND |
| WELL NAME AND LOCATION | [illegible] 1-17 | STATE | [illegible] |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | | DRILLING ASSEMBLY | | | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | | NOZZLE VEL ft/sec | | PUMP NO | MODEL | | DC SIZE in. | LENGTH ft. | | | ft/min | HOLE VOLUME Bbl | |
| SIZE inches | | BIT PRESS LOSS psi | | LINER SIZE in. | STROKE in. | | DC SIZE in. | LENGTH ft. | | | ft/min | CASING VOLUME Bbl | |
| TYPE | | HYDRAULIC HORSEPOWER | | DISPLACEMENT PER STR Bbl | .0169 | | DC SIZE in. | LENGTH ft. | | | ft/min | PIT VOLUME Bbl | |
| NOZZLE SIZES 32nd's | | HOURS ON BIT | | STROKES PER MIN | | | DP SIZE in. | LENGTH ft. | | | ft/min | TOTAL VOLUME Bbl | |
| DEPTH IN feet | | BIT WT. lb | | OUTPUT Bbl/min | | | DP SIZE in. | LENGTH ft. | | | ft/min | VOL DUMPED Bbl | |
| DRILL RATE ft/hr | | CASING PROGRAM | | PRESSURE Psi | | | DP TOOL JT TYPE | | | | | DILUTION RATE gal/min | |
| RPM | | Surface in. | LENGTH ft. | REMARKS | | | | | SAMPLE: ☐ FLOWLINE ☐ PIT | | | BOTTOMS Up min | |
| MUD PROPERTIES | | Interm in. | LENGTH ft. | Drilling Surface with | | | | | | | | CIRCULATION TIME MINS | |
| TIME | | Interm in. | LENGTH ft. | Fresh Water (Plug | | | | | | | | SURVEYS | |
| DEPTH ft | | Liner in. | LENGTH ft. | Hole) Bore Cure. | | | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 10 | Production in. | LENGTH ft. | Drilling Pond. | | | | | | | | 50 | |
| GRADIENT psi/ft | .8 | ANNULAR HYDRAULICS | | | | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 7 | "N" MED | | | | | | | | | | | |
| FUNNEL VIS sec/qt | C | "K" MED. | | | | | | | | | | | |
| PLASTIC VIS cps | R- | "N" LOW | | | | | | | | | | | |
| YIELD POINT lb/100ft² | | "K" LOW | | | | | | | | | | | |
| GEL STRENGTH lb/100ft² | | ANN. PRESS. LOSS psi | | | | | | | | | | | |
| PH ☐ STRIP ☐ METER | | E.C.D. lb/gal | | | | | | | | | | | |
| FILTRATE cm³ 30 min-100psi | | "Z" DC | | MUD PROPERTY SPECIFICATIONS | | | | | | | | | |
| CAKE THICKNESS 32nd's | | "Z" DP | | WEIGHT WATER | | VISCOSITY | | FILTRATE | | PH | | | |
| ALKALINITY Pf | | Dac. EXP | | BY AUTHORITY: | | ☐ Operator's written ☐ Operator's Representatives | | | ☐ Drilling Contractor ☐ Owner | | | | |
| ALKALINITY Mf | | | | RECOMMENDED TREATMENT: | | | | | | | | | |
| CHLORIDES mg/L | | | | | | | | | | | | | |
| POTASSIUM mg/L | | | | Lowered water Additions To [illegible] | | | | | | | | | |
| CALCIUM mg/L | | | | | | | | | | | | | |
| SAND CONTENT % by vol | | | | | | | | | | | | | |
| SOLIDS CONT % by vol | | | | | | | | | | | | | |
| OIL CONTENT % by vol | | | | | | | | | | | | | |
| BENTONITE lb/Bbl | | | | | | | | | | | | | |
| BARITE lb/Bbl | | | | | | | | | | | | | |
| LOW DENS lb/Bbl | | | | | | | | | | | | | |
| POLYMER lb/Bbl | | | | | | | | | | | | | |
| FLOWLINE TEMP °F | | | | | | | | | | | | | |
| HTHP FILT cm³ 500psi | | | | | | | | | | | | | |
| OIL/WATER RATIO | | | | | | | | | | | | | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | |
| 300 | 6 [illegible] Bicarbonate |
| 100 | |
| 80 | |
| 60 | |
| 30 | |
| 20 | |

| | | | | | |
|---|---|---|---|---|---|
| COST SINCE LAST CHECK | 141.00 | TSR | [illegible] (Cache) | PHONE | |
| TOTAL COST TO DATE | 1411.00 | RESIDENCE | [illegible] | MOBILE | |
| TRUCKER | | WAREHOUSE | [illegible] | PHONE | |

IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS AUTHORIZING THE INFRINGMENT OF ANY VALID PATENT AND IT IS AGREED THAT CONCORD DRILLING SERVICES SHALL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS AND IS TO BE HELD HARMLESS.

# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | | | |
|---|---|---|---|
| DATE | 5-6 March 83 | REPORT NUMBER | 3 |
| SPUD DATE | March 4 1983 | DAYS FROM SPUD | 3 |
| PRESENT ACTIVITY | Drilling Surface | | |

| | | | |
|---|---|---|---|
| OPERATOR | Sunstar Energy | CONTRACTOR | Parker Drilling |
| | | RIG NO. | 2 |
| REPORT FOR | Ron Tenenbaum | REPORT FOR | Tom Daniels |
| | | STATE | Arizona |
| WELL NAME AND LOCATION | Santa Fe Pn. #1-17 | | |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | | | DRILLING ASSEMBLY | | | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | | NOZZLE VEL. ft/sec | | PUMP NO | | MODEL | | DC SIZE in. | | LENGTH ft. | | ft/min | HOLE VOLUME Bbl | |
| SIZE inches | | BIT PRESS LOSS psi | | LINER SIZE in. | | STROKE in. | | DC SIZE in. | | LENGTH ft. | | ft/min | CASING VOLUME Bbl | |
| TYPE | | HYDRAULIC HORSEPOWER | | DISPLACEMENT PER STROKE | | | | DC SIZE in. | | LENGTH ft. | | ft/min | PIT VOLUME Bbl | |
| NOZZLE SIZES 32nds | | HOURS ON BIT | | STROKES PER MIN | | | | DP SIZE in. | | LENGTH ft. | | ft/min | TOTAL VOLUME Bbl | |
| DEPTH IN feet | | BIT WT. lb | | OUTPUT Bbl/min | | | | DP SIZE in. | | LENGTH ft. | | ft/min | VOL DUMPED Bbl | |
| DRILL RATE ft/hr | | CASING PROGRAM | | PRESSURE psi | | | | DP TOOL JT. TYPE | | | | | DILUTION RATE gal/min | |
| R.P.M. | | Surface in. | LENGTH ft. | REMARKS | | | | | | | | | BOTTOMS UP min | |
| MUD PROPERTIES | | Interm in. | LENGTH ft. | | | | | | | | | | CIRCULATION TIME MINS | |
| TIME | 6 pm | Interm in. | LENGTH ft. | Drilling Surface - | | | | | | | | | SURVEYS | |
| DEPTH ft | 1343 (1.) | Liner in. | LENGTH ft. | Reamed 180' To 12 1/4" | | | | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | Opened | Production in. | LENGTH ft. | Mixed Lem Pac | | | | | | | | | | |
| GRADIENT psi/ft | | ANNULAR HYDRAULICS | | Regained Returns 4AM | | | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | | "N" MED | | March 6th. | | | | | | | | | | |
| FUNNEL VIS sec/qt | 60 | "K" MED | | | | | | | | | | | | |
| PLASTIC VIS cps | 6/1cm | "N" LOW | | | | | | | | | | | | |
| YIELD POINT lb/100ft² | 9 22 | "K" LOW | | | | | | | | | | | | |
| GEL STRENGTH lb/100ft² | — | ANN. PRESS. LOSS psi | | | | | | | | | | | | |
| pH ☐ STRIP ☐ METER | | E.C.D. lb/gal | | | | | | | | | | | | |
| FILTRATE cm³ 30 min-100psi | | "Z" DC | | MUD PROPERTY SPECIFICATIONS | | | | | | | | | | |
| CAKE THICKNESS 32nds | | "Z" DP | | WEIGHT | | VISCOSITY | | FILTRATE | | | | PH | | |
| ALKALINITY Pf | | Dac. EXP. | | BY AUTHORITY: | ☐ Operator's written ☐ Operator's Representative | | | ☐ Drilling Contractor ☐ Other | | | | | | |
| ALKALINITY Mf | | | | RECOMMENDED TREATMENT: | | | | | | | | | | |
| CHLORIDES mg/L | | | | Mix 75x Multiseal Per Tour | | | | | | | | | | |
| POTASSIUM mg/L | | | | 50x Sawdust " " | | | | | | | | | | |
| CALCIUM mg/L | | | | 50x Petro Chip " " | | | | | | | | | | |
| SAND CONTENT % by vol | | | | | | | | | | | | | | |
| SOLIDS CONT % by vol | | | | Maintain Vis 60 sec/qt w/Gel | | | | | | | | | | |
| OIL CONTENT % by vol | | | | | | | | | | | | | | |
| BENTONITE lb/Bbl | | | | | | | | | | | | | | |
| BARITE lb/Bbl | | | | | | | | | | | | | | |
| LOW DENS. lb/Bbl | | | | | | | | | | | | | | |
| POLYMER lb/Bbl | | | | | | | | | | | | | | |
| FLOWLINE TEMP °F | | | | | | | | | | | | | | |
| HTHP FILT cm³ 500psi | | | | | | | | | | | | | | |
| OIL/WATER RATIO | | | | | | | | | | | | | | |
| VG READINGS | MATERIALS ADDED SINCE LAST CHECK | | | | | | | | | | | | | |
| 600 | | | | | | | | | | | | | | |
| 300 | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |

SAMPLE: ☐ FLOWLINE ☐ PIT

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | | TSR | R. Machey |
| TOTAL COST TO DATE | 1411.00 | RESIDENCE | Concho |
| TRUCKER | | WAREHOUSE | |
| | | PHONE | |
| | | MOBILE | |
| | | PHONE | |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | MARCH 7/5 |
| REPORT NUMBER | 3 |
| SPUD DATE | MARCH 4/5 |
| DAYS FROM SPUD | 4 |
| PRESENT ACTIVITY | Drilling Surface |
| RIG NO | 2 |

OPERATOR: Santa Fe Energy Co
CONTRACTOR: Fawcett Drilling
REPORT FOR: Ray Bauchman
REPORT FOR: Tom Daniels
STATE: Kansas
WELL NAME AND LOCATION: Santa Fe #1-17

| BIT RECORD | |
|---|---|
| BIT NO | 1 |
| SIZE inches | Reaming |
| TYPE | 12¼ |
| NOZZLE SIZES 32nds | From 7⅞ |
| DEPTH IN feet | |
| DRILL RATE ft/hr | 7 |
| R.P.M. | 60 |

| BIT HYDRAULICS | |
|---|---|
| NOZZLE VEL ft/sec | [illegible] |
| BIT PRESS LOSS psi | |
| HYDRAULIC HORSEPOWER | 5 int |
| HOURS ON BIT | |
| B.T.WT. lb | |

| CASING PROGRAM | | |
|---|---|---|
| Surface | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Liner | in. | LENGTH ft. |
| Production | in. | LENGTH ft. |

| PUMP PERFORMANCE | | |
|---|---|---|
| PUMP NO | 1 | MODEL |
| LINER SIZE in. | | STROKE in. |
| DISPLACEMENT PER STROKE bbl | .0119 | |
| STROKES PER MIN | 100 | |
| OUTPUT Bbl/min | 6.9 | |
| PRESSURE O psi | 200+ | |

| DRILLING ASSEMBLY | | | |
|---|---|---|---|
| DC SIZE in. | 7 in | LENGTH ft. | 285 |
| DC SIZE in. | | LENGTH ft. | |
| DC SIZE in. | | LENGTH ft. | |
| DP SIZE in. | | LENGTH ft. | |
| DP SIZE in. | | LENGTH ft. | |
| DP TOOL JT TYPE | | | |

| ANNULAR VELOCITY | |
|---|---|
| | 6.1 |
| ft/min | |
| ft/min | |
| ft/min | |
| ft/min | |

| MUD SYSTEM DATA | |
|---|---|
| HOLE VOLUME bbl | 411 |
| CASING VOLUME bbl | |
| PIT VOLUME bbl | 120 |
| TOTAL VOLUME Bbl | 711 |
| VOL. DUMPED Bbl | |
| DILUTION RATE gal/min | 1/2" |
| BOTTOMS UP min | |
| CIRCULATION TIME MINS | |

SAMPLE: ☐ FLOWLINE ☐ PIT

REMARKS: Reaming - Surface

| MUD PROPERTIES | |
|---|---|
| TIME | 7:50 |
| DEPTH ft | 285 |
| MUD WEIGHT lb/gal | 9.0 |
| GRADIENT psi/ft | .468 |
| HYDROSTATIC psi @ DEPTH | 94 |
| FUNNEL VIS sec/qt | 66 |
| PLASTIC VIS cps | 5 |
| YIELD POINT lb/100ft² | 13 |
| GEL STRENGTH lb/100ft² | 2/5 |
| Ph ☐ STRIP ☐ METER | 9.0 |
| FILTRATE cm³ 30 min-100psi | 29.5 |
| CAKE THICKNESS 32nds | 2 |
| ALKALINITY Pf | .01 |
| ALKALINITY Mf | .11 |
| CHLORIDES mg/L | Nil |
| POTASSIUM mg/L | Nil |
| CALCIUM mg/L | 127 |
| SAND CONTENT % by vol | Tr. |
| SOLIDS CONT % by vol | 5.4 |
| OIL CONTENT % by vol | Nil |
| BENTONITE lb/Bbl | 10 |
| BARITE lb/Bbl | — n/a |
| LOW DENS. lb/Bbl | — n/a |
| POLYMER lb/Bbl | — n/a |
| FLOWLINE TEMP °F | 51° |
| HTHP FILT cm³ 500psi | |
| OIL/WATER RATIO | |

| ANNULAR HYDRAULICS | |
|---|---|
| "N" MED | 5 |
| "X" MED | 0 |
| "N" LOW | 5 |
| "X" LOW | 5 |
| ANN. PRESS LOSS psi | 0 |
| E.C.D. lb/gal | 0 |
| "Z" DC | 0 |
| "Z" DP | |
| Dac. EXP. | |
| LCM % | 19% |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | 5 - 6 MARCH |
| 300 | 28 Gal - 354.10 |
| 100 | 185 MULTISEAL 987.55 |
| 80 | 20 SAWDUST 120.00 |
| 60 | 75 CHIP - 315.00 |
| 30 | 2 LIME - 24.60 |
| 20 | 12 Kwik Seal - 357.60 |

MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| | | | |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

RECOMMENDED TREATMENT:

1) TODAY ADD PER TOUR:
10 sx MULTISEAL
5 sx SAWDUST
5 sx PETROCHIP

2) MAINTAIN VIS 60 sec/qt WITH Gel

3) KEEP EYE ON PIT LEVEL AT ALL TIMES AND CALL ME IF LOSSES ARE DETECTED.

| SURVEYS | |
|---|---|
| DEPTH ft. | DEVIATION |
| | |

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | 5548.20 | TSR | K. MACKEY |
| TOTAL COST TO DATE | 5659.20 | RESIDENCE | Conda. |
| TRUCKER | | WAREHOUSE | |
| | | PHONE | |
| | | MOBILE | |
| | | PHONE | |

IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT CONCORD DRILLING SERVICES SHALL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS AND IS TO BE HELD HARMLESS.

# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | March 8/82 |
| REPORT NUMBER | 4 |
| SPUD DATE | March 4/82 |
| DAYS FROM SPUD | 5 |
| PRESENT ACTIVITY | Drilling Surface |

| | |
|---|---|
| OPERATOR | [illegible] Energy Co. |
| CONTRACTOR | Bayless Drilling |
| RIG NO. | 2 |
| REPORT FOR: | [illegible] |
| REPORT FOR | Tom Davies |
| STATE | Arizona |
| WELL NAME AND LOCATION | [illegible] Fe Rd # 1-17 |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | | NOZZLE VEL ft/sec | [illegible] | PUMP NO | MODEL | DC SIZE 9 in | LENGTH 1025 ft | ft/min [illegible] | HOLE VOLUME Bbl | 40 |
| SIZE inches | 8 Bowen | BIT PRESS LOSS psi | | LINER SIZE in. | STROKE in. | DC SIZE in. | LENGTH ft. | ft/min | CASING VOLUME bbl | |
| TYPE | 7 7/8 T. | HYDRAULIC HORSEPOWER | [illegible] | DISPLACEMENT PER STR Bbl | .0169 | DC SIZE in. | LENGTH ft. | ft/min | PIT VOLUME Bbl | 200 |
| NOZZLE SIZES 32nds | 13 7 1 | HOURS ON BIT | | STROKES PER MIN | 120 | DP SIZE in. | LENGTH ft. | ft/min | TOTAL VOLUME Bbl | 241 |
| DEPTH IN feet | | BIT WT. lb | | OUTPUT Bbl/min | 6.9 | DP SIZE in. | LENGTH ft. | ft/min | VOL DUMPED bbl | ~11 |
| DRILL RATE ft/hr | | CASING PROGRAM | | PRESSURE ☐ psi | [illegible] | DP TOOL JT. TYPE | | | DILUTION RATE gal/min | 1/2 " |
| R.P.M. | | Surface in. | LENGTH ft. | REMARKS | | SAMPLE: ☐ FLOWLINE ☐ PIT | | | BOTTOMS UP min | 7 |
| MUD PROPERTIES | | Interm in. | LENGTH ft. | Last Csg - 539' - Mixed | | | | | CIRCULATION TIME MINS | [illegible] |
| TIME | 7 AM | Interm 11 in. | LENGTH ft. | Lime, Polymers instantly | | | | | SURVEYS | |
| DEPTH ft | 1165 | Liner in. | LENGTH ft. | (Usual D.T.) | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 10.2 | Production in. | LENGTH ft. | | | | | | | |
| GRADIENT psi/ft | .531 | ANNULAR HYDRAULICS | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 363.3 | "N" MED | | | | | | | | |
| FUNNEL VIS sec/qt | 82 | "K" MED | 5 | | | | | | | |
| PLASTIC VIS cps | 13 | "N" LOW | 5 | | | | | | | |
| YIELD POINT lb/100ft² | 27 | "K" LOW | 6 | | | | | | | |
| GEL STRENGTH lb/100ft² | 6/34 | ANN. PRESS. LOSS psi | 1 | | | | | | | |
| PH ☐ STRIP ☐ METER | 8.5 | E.C.D. lb/gal | 6 | | | | | | | |
| FILTRATE cm³ 30 min-100psi | 3.0 | "Z" DC | E | MUD PROPERTY SPECIFICATIONS | | | | | | |
| CAKE THICKNESS 32nds | 2+ | "Z" DP | | WEIGHT | VISCOSITY | FILTRATE | PH | | | |
| ALKALINITY Pf | .01 | Disc. EXP. | | BY AUTHORITY: | ☐ Operator's written ☐ Operator's Representative | ☐ Drilling Contractor ☐ Other | | | | |
| ALKALINITY Mf | .11 | LCM | | RECOMMENDED TREATMENT: | | | | | | |
| CHLORIDES mg/L | nil | Gauge - 38% | | Today | | | | | | |
| POTASSIUM mg/L | nil | | | ① Every 4 hours of Drilling Add | | | | | | |
| CALCIUM mg/L | 95 | | | 5 sx Multi Seal and 4 sx. Polymer | | | | | | |
| SAND CONTENT % by vol | 1/4 | | | Chip. | | | | | | |
| SOLIDS CONT % by vol | [illegible] | | | | | | | | | |
| OIL CONTENT % by vol | nil | | | ② Add 5 sx Starch at 20 min/sx | | | | | | |
| BENTONITE lb/Bbl | 18 | | | | | | | | | |
| BARITE lb/Bbl | N/A | | | | | | | | | |
| LOW DENS. lb/Bbl | N/A | | | ③ Run a 1" stream of water | | | | | | |
| POLYMER lb/Bbl | N/A | | | while Drilling. | | | | | | |
| FLOWLINE TEMP °F | N/A (5°) | | | | | | | | | |
| HTHP FILT cm³ 500psi | N/A | | | | | | | | | |
| OIL/WATER RATIO | N/A | | | | | | | | | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | Mud 7 |
| 300 | 7 Gel |
| 100 | 7 Multi Seal |
| 80 | 5 Saw |
| 60 | |
| 30 | |
| 20 | |

| | | | | |
|---|---|---|---|---|
| COST SINCE LAST CHECK | 271.15 | TSR | K. Mackey | PHONE |
| TOTAL COST TO DATE | 5710.05 | RESIDENCE | Pinetop | MOBILE |
| TRUCKER | | WAREHOUSE | | PHONE |

IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT CONCORD DRILLING SERVICES SHALL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS AND IS TO BE HELD HARMLESS

# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | REPORT NUMBER |
| SPUD DATE | DAYS FROM SPUD |
| PRESENT ACTIVITY | |

| | | |
|---|---|---|
| OPERATOR | CONTRACTOR | RIG NO. |
| REPORT FOR | REPORT FOR | |
| WELL NAME AND LOCATION | | STATE |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | | NOZZLE VEL ft/sec | | PUMP NO | MODEL | DC SIZE in. | LENGTH ft. | ft/min | HOLE VOLUME bbl | |
| SIZE inches | | BIT PRESS LOSS psi | | LINER SIZE in. | STROKE in. | DC SIZE in. | LENGTH ft. | ft/min | CASING VOLUME bbl | |
| TYPE | | HYDRAULIC HORSEPOWER | | DISPLACEMENT PER STR bbl | | DC SIZE in. | LENGTH ft. | ft/min | PIT VOLUME bbl | |
| NOZZLE SIZES 32nds | | HOURS ON BIT | | STROKES PER MIN | | DP SIZE in. | LENGTH ft. | ft/min | TOTAL VOLUME bbl | |
| DEPTH IN feet | | BIT WT. lb | | OUTPUT Bbl/min | | DP SIZE in. | LENGTH ft. | ft/min | VOL DUMPED bbl | |
| DRILL RATE ft/hr | | CASING PROGRAM | | PRESSURE O psi | | DP TOOL JT TYPE | | | DILUTION RATE gal/min | |
| RPM | | Surface in. | LENGTH ft. | REMARKS | | SAMPLE: O FLOWLINE O PIT | | | BOTTOMS UP min | |
| MUD PROPERTIES | | Intermi in. | LENGTH ft. | | | | | | CIRCULATION TIME MINS | |
| TIME | | Interm in. | LENGTH ft. | | | | | | SURVEYS | |
| DEPTH ft | | Liner in. | LENGTH ft. | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | | Production in. | LENGTH ft. | | | | | | | |
| GRADIENT psi/ft | | ANNULAR HYDRAULICS | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | | "N" MED | | | | | | | | |
| FUNNEL VIS sec/qt | | "K" MED | | | | | | | | |
| PLASTIC VIS cps | | "N" LOW | | | | | | | | |
| YIELD POINT lb/100ft² | | "K" LOW | | | | | | | | |
| GEL STRENGTH lb/100ft² | | ANN PRESS LOSS psi | | | | | | | | |
| PH O STRIP O METER | | ECD lb/gal | | | | | | | | |
| FILTRATE cm³ 30 min/100psi | | "Z" DC | | MUD PROPERTY SPECIFICATIONS | | | | | | |
| CAKE THICKNESS 32nds | | "Z" DP | | WEIGHT | VISCOSITY | FILTRATE | PH | | | |
| ALKALINITY Pf | | Dic EXP | | BY AUTHORITY: | O Operator's written O Operator's Representative | O Drilling Contractor O Other | | | | |
| ALKALINITY Mf | | | | RECOMMENDED TREATMENT: | | | | | | |
| CHLORIDES mg/L | | | | | | | | | | |
| POTASSIUM mg/L | | | | | | | | | | |
| CALCIUM mg/L | | | | | | | | | | |
| SAND CONTENT % by vol | | | | | | | | | | |
| SOLIDS CONT % by vol | | | | | | | | | | |
| OIL CONTENT % by vol | | | | | | | | | | |
| BENTONITE lb/Bbl | | | | | | | | | | |
| BARITE lb/Bbl | | | | | | | | | | |
| LOW DENS. lb/Bbl | | | | | | | | | | |
| POLYMER lb/Bbl | | | | | | | | | | |
| FLOWLINE TEMP °F | | | | | | | | | | |
| HTHP FILT cm³ 500psi | | | | | | | | | | |
| OIL/WATER RATIO | | | | | | | | | | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | |
| 300 | |
| 100 | |
| 60 | |
| 60 | |
| 30 | |
| 20 | |

| | | | | |
|---|---|---|---|---|
| COST SINCE LAST CHECK | | TSR | | PHONE |
| TOTAL COST TO DATE | | RESIDENCE | | MOBILE |
| TRUCKER | | WAREHOUSE | | PHONE |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | March 10/83 |
| REPORT NUMBER | 6 |
| SPUD DATE | March 4/83 |
| DAYS FROM SPUD | 7 |
| PRESENT ACTIVITY | Drlg. out Cement |

| | |
|---|---|
| OPERATOR | Sumaran Energy Co. |
| CONTRACTOR | Fluness Drilling |
| RIG NO | 1 |
| REPORT FOR | Roy Baughman |
| REPORT FOR | Tom Daniels |
| WELL NAME AND LOCATION | Sanna Fe R2 #1-17 |
| STATE | Mississippi |

## BIT RECORD

| | |
|---|---|
| BIT NO. | 1 |
| SIZE inches | 7 7/8 |
| TYPE | S88 |
| NOZZLE SIZES 32nds | 9-12 9-12 |
| DEPTH IN feet | 810 |
| DRILL RATE ft/hr | 2 |
| R.P.M. | 60 |

## MUD PROPERTIES

| | |
|---|---|
| TIME | 9:30am |
| DEPTH ft | 810 |
| MUD WEIGHT lb/gal | 10.0 |
| GRADIENT psi/ft | .520 |
| HYDROSTATIC psi @ DEPTH | 421 |
| FUNNEL VIS sec/qt | 40 |
| PLASTIC VIS cps | 12 |
| YIELD POINT lb/100ft² | 26 |
| GEL STRENGTH lb/100ft² | 3/7 |
| PH ☐ STRIP ☐ METER | 9.5 |
| FILTRATE cm³ 30 min-100psi | 19.8 |
| CAKE THICKNESS 32nds | 2 |
| ALKALINITY Pf | .17 |
| ALKALINITY Mf | .24 |
| CHLORIDES mg/L | 205m |
| POTASSIUM mg/L | — |
| CALCIUM mg/L | 460 |
| SAND CONTENT % by vol | nil |
| SOLIDS CONT % by vol | 1 1/2% |
| OIL CONTENT % by vol | nil |
| BENTONITE lb/Bbl | N/A |
| BARITE lb/Bbl | N/A |
| LOW DENS. lb/Bbl | Nil |
| POLYMER lb/Bbl | N/A |
| FLOWLINE TEMP °F | 56° |
| HTHP FILT cm³ 500psi | N/A |
| OIL/WATER RATIO | N/A |

## BIT HYDRAULICS

| | |
|---|---|
| NOZZLE VEL ft/sec | 224 |
| BIT PRESS LOSS psi | 561 |
| HYDRAULIC HORSEPOWER | 1.95 |
| HOURS ON BIT | — |
| BIT WT. lb | 12-12M |

## CASING PROGRAM

| | | |
|---|---|---|
| Surface | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Liner | in. | LENGTH ft. |
| Production | in. | LENGTH ft. |

## ANNULAR HYDRAULICS

| | |
|---|---|
| "N" MED | .50 |
| "K" MED. | 3.2 |
| "N" LOW | .6 |
| "K" LOW | 1.1 |
| ANN PRESS. LOSS psi | 37 |
| E.C.D. lb/gal | 10.32 |
| "Z" DC | 522 L |
| "Z" DP | 215 L |
| Dec. EXP. | N/A |

## PUMP PERFORMANCE

| | |
|---|---|
| PUMP NO | 1 |
| MODEL | [illegible] |
| LINER SIZE in. | [illegible] |
| STROKE in. | [illegible] |
| DISPLACEMENT PER STK Bbl | .069 |
| STROKES PER MIN | 100 |
| OUTPUT Bbl/min | 6.9 |
| PRESSURE O psi | |

## DRILLING ASSEMBLY

| | | |
|---|---|---|
| DC SIZE 9 1/4 in. | LENGTH 1[illegible] ft. | |
| DC SIZE in. | LENGTH ft. | ft/min |
| DC SIZE in. | LENGTH ft. | ft/min |
| DP SIZE 4 1/2 in. | LENGTH 1[illegible] ft. | N/A ft/min |
| DP SIZE in. | LENGTH ft. | ft/min |
| DP TOOL JT. TYPE | | |

## ANNULAR VELOCITY

| |
|---|
| [illegible] |
| ft/min |
| ft/min |
| N/A ft/min |
| ft/min |

## MUD SYSTEM DATA

| | |
|---|---|
| HOLE VOLUME Bbl | |
| CASING VOLUME Bbl | 55 |
| PIT VOLUME Bbl | 200 |
| TOTAL VOLUME Bbl | 255 |
| VOL DUMPED Bbl | — |
| DILUTION RATE gal/min | 40 |
| BOTTOMS UP min | 10 |
| CIRCULATION TIME MINS | 37 |

## REMARKS

SAMPLE: ☐ FLOWLINE ☐ PIT

Preparing To Drill out of Cement - Mudding up

## SURVEYS

| DEPTH ft. | DEVIATION |
|---|---|
| | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| | | | |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

## RECOMMENDED TREATMENT:

(1) Trouble
Mix
(a) 20 sx Salt every 3 HRS.
(b) Control W/L. 40'-50 w/ Gel
AND Deflo 150 IN A 1:5 Ratio.
(c) Run Mechanical Equipment and 1/2" Stream of water while Drilling.
(d) Watch Tank Volume
Marker. For Possible losses.

Thanks.
RM

## VG READINGS

| | |
|---|---|
| 600 | 50 |
| 300 | 38 |
| 100 | |
| 60 | |
| 30 | |
| 20 | |
| D = 3 | |

## MATERIALS ADDED SINCE LAST CHECK

March 9
90 Salt

TOTAL TRUCKING TO DATE: 2097.60

Van Rental - To DATE
7 days @ 25/DAY = 175.00
6 days @ 25/DAY = 150.00
325.00

| | |
|---|---|
| COST SINCE LAST CHECK | 720.00 |
| TOTAL COST TO DATE | 7214.05 |
| TRUCKER | |

| | | |
|---|---|---|
| T.S.R. | K. Mackey | PHONE |
| RESIDENCE | Concho. | MOBILE |
| WAREHOUSE | | PHONE |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE: March 10/02 | REPORT NUMBER |
| SPUD DATE: March 4/02 | DAYS FROM SPUD: 7 |
| PRESENT ACTIVITY: Drill out Cement | |

| | | | |
|---|---|---|---|
| OPERATOR: Summit Energy Co. | CONTRACTOR: Hamilton Drilling | | RIG NO. 2 |
| REPORT FOR: Ron Trawinski | REPORT FOR: Tom Daniels | | |
| WELL NAME AND LOCATION: Tarn Ex Pp # 1-17 | | | STATE |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO. | 1 | NOZZLE VEL. ft/sec | 221 | PUMP NO. | MODEL | DC SIZE 4 1/2 in. | LENGTH 115 ft. | | ft/min | HOLE VOLUME Bbl | |
| SIZE inches | 7 7/8 | BIT PRESS LOSS psi | 224 | LINER SIZE in. | STROKE in. | DC SIZE in. | LENGTH ft. | | ft/min | CASING VOLUME Bbl | 55 |
| TYPE | Sed | HYDRAULIC HORSEPOWER | 1.45 | DISPLACEMENT PER STK Bbl | .069 | DC SIZE in. | LENGTH ft. | | ft/min | PIT VOLUME Bbl | [illegible] |
| NOZZLE SIZES 32nd's | 7-12 | HOURS ON BIT | — | STROKES PER MIN | 100 | DP SIZE 4 1/2 in. | LENGTH [illegible] ft. | | ft/min 17 | TOTAL VOLUME Bbl | [illegible] |
| DEPTH IN feet | 810 | BIT WT. lb | 10-15m | OUTPUT Bbl/min | 6.9 | DP SIZE in. | LENGTH ft. | | ft/min | VOL DUMPED Bbl | — |
| DRILL RATE ft/hr | 2 | CASING PROGRAM | | PRESSURE psi | | DP TOOL JT TYPE | | | | DILUTION RATE gal/min | 4.4 |
| RPM | 60 | Surface [illegible] in. | LENGTH [illegible] ft. | REMARKS | | SAMPLE: ☐ FLOWLINE ☐ PIT | | | | BOTTOMS UP min | 15 |
| MUD PROPERTIES | | Interm in. | LENGTH ft. | [illegible] To Drill out | | | | | | CIRCULATION TIME mins | 37 |
| TIME | [illegible] | Interm in. | LENGTH ft. | of Cement - mudding | | | | | | SURVEYS | |
| DEPTH ft | [illegible] | Liner in. | LENGTH ft. | up | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 11.0 | Production in. | LENGTH ft. | | | | | | | | |
| GRADIENT psi/ft | .520 | ANNULAR HYDRAULICS | | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 421 | "N" MED. | [illegible] | | | | | | | | |
| FUNNEL VIS sec/qt | 41 | "K" MED | 3.2 | | | | | | | | |
| PLASTIC VIS cps | 15 | "N" LOW | .6 | | | | | | | | |
| YIELD POINT lb/100ft² | 26 | "K" LOW | 1.1 | | | | | | | | |
| GEL STRENGTH lb/100ft² | 3/7 | ANN. PRESS. LOSS psi | 37 | | | | | | | | |
| PH ☐ STRIP ☐ METER | 9.5 | ECD lb/gal | 10.32 | | | | | | | | |
| FILTRATE cm³ 30 min-100psi | 1.6 | "Z" DC | 522 L | MUD PROPERTY SPECIFICATIONS | | | | | | | |
| CAKE THICKNESS 32nd's | 2 | "Z" DP | 215 L | WEIGHT | VISCOSITY | FILTRATE | | PH | | | |
| ALKALINITY Pf | .17 | Dec. Exp. | N/A | BY AUTHORITY: | ☐ Operator's written ☐ Operator's Representative | ☐ Drilling Contractor ☐ Other | | | | | |
| ALKALINITY Mf | .24 | | | RECOMMENDED TREATMENT: | | | | | | | |
| CHLORIDES mg/L | 205m | | | A Tower | | | | | | | |
| POTASSIUM mg/L | — | | | mix | | | | | | | |
| CALCIUM mg/L | 440 | | | w/ 20 sx Salt every 3 hrs. | | | | | | | |
| SAND CONTENT % by vol | n/a | | | to Control Vis. 40-50 w/Col | | | | | | | |
| SOLIDS CONT % by vol | 14.5 Mcl | | | AND Take 150 in A 1:5 Ratio | | | | | | | |
| OIL CONTENT % by vol | n/a | | | to Run Mechanical Equipment | | | | | | | |
| BENTONITE lb/Bbl | N/A | | | and 1/2" Stream of water while | | | | | | | |
| BARITE lb/Bbl | N/A | | | Drilling. | | | | | | | |
| LOW DENS. lb/Bbl | N/A | | | w/ Watch Tank Volume | | | | | | | |
| POLYMER lb/Bbl | N/A | | | Monitor For Possible Losses. | | | | | | | |
| FLOWLINE TEMP °F | 56° | | | | | | | | | | |
| HTHP FILT cm³ 500psi | N/A | | | | | | | | | | |
| OIL/WATER RATIO | N/A | | | | | | | | | | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 50 | [illegible] |
| 300 35 | 40 Salt |
| 100 | |
| 60 | Total Trucking To |
| 60 | Date: 2097.60 |
| 30 | |
| 20 | Van Rental - To Date |
| 6 = 3 | 7 days @ 25/Day = 175.00 |
| | 6 days @ 25/Day = 150.00 |
| | 325.00 |

| | | | | |
|---|---|---|---|---|
| COST SINCE LAST CHECK | 720.00 | T.S.R. | K. Mackey | PHONE |
| TOTAL COST TO DATE | 7211.05 | RESIDENCE | Concho. | MOBILE |
| TRUCKER | | WAREHOUSE | | PHONE |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | MARCH 11/83 |
| REPORT NUMBER | 7 |
| SPUD DATE | MARCH 4/83 |
| DAYS FROM SPUD | 8 |
| PRESENT ACTIVITY | DRILLING AHEAD |

| | |
|---|---|
| OPERATOR | SUMATRA ENERGY CO. |
| CONTRACTOR | HAYLESS DRILLING |
| RIG NO. | 2 |
| REPORT FOR | Roy BAUGHMAN |
| REPORT FOR | Tom Daniels |
| STATE | ARIZONA |
| WELL NAME AND LOCATION | SANTA FE PR #1-17 |

| BIT RECORD | |
|---|---|
| BIT NO | 1 |
| SIZE inches | 7 7/8 |
| TYPE | S80 |
| NOZZLE SIZES 32nd's | 2-11 |
| DEPTH IN feet | 810 |
| DRILL RATE ft/hr | 30 |
| R.P.M. | 40-60 |

| BIT HYDRAULICS | |
|---|---|
| NOZZLE VEL ft/sec | 251 |
| BIT PRESS LOSS psi | 516 |
| HYDRAULIC HORSEPOWER | 1.95 |
| HOURS ON BIT | |
| BIT WT. lb | 10-12 |

| CASING PROGRAM | | |
|---|---|---|
| Surface | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Liner | in. | LENGTH ft. |
| Production | in. | LENGTH ft. |

| PUMP PERFORMANCE | | | |
|---|---|---|---|
| PUMP NO | 1 | MODEL | [illegible] |
| LINER SIZE in. | [illegible] | STROKE in. | [illegible] |
| DISPLACEMENT PER STROKE | .069 | | |
| STROKES PER MIN | 100 | | |
| OUTPUT Bbl/min | 6.9 | | |
| PRESSURE psi | 600 | | |

| DRILLING ASSEMBLY | | | |
|---|---|---|---|
| DC SIZE 7 1/4 in. | LENGTH 2 1/2 ft. | | |
| DC SIZE in. | LENGTH ft. | | |
| DC SIZE in. | LENGTH ft. | | |
| DP SIZE 5 1/2 in. | LENGTH 102 ft. | | |
| DP SIZE in. | LENGTH ft. | | |
| DP TOOL JT. TYPE | | | |

| ANNULAR VELOCITY | |
|---|---|
| ft/min | 227 |
| ft/min | |
| ft/min | |
| ft/min | 195 |
| ft/min | |

| MUD SYSTEM DATA | |
|---|---|
| HOLE VOLUME Bbl | [illegible] |
| CASING VOLUME Bbl | [illegible] |
| PIT VOLUME Bbl | 160 |
| TOTAL VOLUME Bbl | 330 |
| VOL DUMPED Bbl | 100 |
| DILUTION RATE gal/min | 11 |
| BOTTOMS UP min | 10 |
| CIRCULATION TIME MINS | 210 |

| MUD PROPERTIES | |
|---|---|
| TIME | 9:30 AM |
| DEPTH ft | 1054 |
| MUD WEIGHT lb/gal | 8.9 |
| GRADIENT psi/ft | .46 |
| HYDROSTATIC psi @ DEPTH | 485 |
| FUNNEL VIS sec/qt | 42 |
| PLASTIC VIS cps | 7 |
| YIELD POINT lb/100ft² | 11 |
| GEL STRENGTH lb/100ft² | 2/5 |
| PH ☐ STRIP ☐ METER | 9.0 |
| FILTRATE cm³ 30 min-100psi | 30 |
| CAKE THICKNESS 32nds | 2 |
| ALKALINITY Pf | .03 |
| ALKALINITY Mf | .08 |
| CHLORIDES mg/L | 12650 |
| POTASSIUM mg/L | NIL |
| CALCIUM mg/L | 270 |
| SAND CONTENT % by vol | NIL |
| SOLIDS CONT % by vol | 5.2 |
| OIL CONTENT % by vol | NIL |
| BENTONITE lb/Bbl | 8 |
| BARITE lb/Bbl | NIL |
| LOW DENS lb/Bbl | NIL |
| POLYMER lb/Bbl | NIL |
| FLOWLINE TEMP °F | 53 |
| HTHP FILT cm³ 500psi | – |
| OIL:WATER RATIO | – |

| ANNULAR HYDRAULICS | |
|---|---|
| "N" MED. | .41 |
| "K" MED. | 2.8 |
| "N" LOW | .33 |
| "K" LOW | 3.6 |
| ANN PRESS. LOSS psi | 39 |
| E.C.D. lb/gal | 9.1 |
| "Z" DC | Lam |
| "Z" DP | |
| Disc. EXP. | |

| SURVEYS | |
|---|---|
| DEPTH ft. | DEVIATION |
| 969 | 4° |

REMARKS — SAMPLE: ☐ FLOWLINE ☐ PIT

DRILLING AHEAD.
D. HOLE STILL STUCK
FOR ½ HOUR IN SALT
MUD. DISPLACED HOLE
TO WATER AND FREED
PIPE.
CONVERTED TO LSND
SYSTEM.

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | MARCH 10 |
| 300 | Defoamer - 5 |
| 100 | STARCH - 25 |
| 80 | Formaldehyde - 3 |
| 60 | SALT - 210 |
| 30 | Gel - 85 Van Rental |
| 20 | Mica - 25 To D.L. - 375.00 |
| | SALT Gel - 125 Trucking - 2097.60 |
| | Kwik Seal - 12 |
| | Multi Seal - 3 |
| COST SINCE LAST CHECK | 5831.30 |
| TOTAL COST TO DATE | 13045.35 |
| TALLYKER | |

MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| [illegible] | [illegible] | | 9.0 |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

RECOMMENDED TREATMENT:

1) Add 10 sx MULTISEAL AND 10 sx MICA EVERY 3 HRS WHILE DRILLING
2) Add 15 x CAUSTIC / TOUR
3) Run 1" STREAM of Water while DRILLING.

Thanks

| | | | |
|---|---|---|---|
| T.S.R. | K. VINCKEY | PHONE | |
| RESIDENCE | Cuero | MOBILE | |
| WAREHOUSE | | PHONE | |

IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT CONCORD DRILLING SERVICES SHALL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS AND IS TO BE HELD HARMLESS

# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | | | |
|---|---|---|---|
| DATE | March 12/03 | REPORT NUMBER | 6 |
| SPUD DATE | March 4/03 | DAYS FROM SPUD | 9 |
| PRESENT ACTIVITY | Drill inc. Ahead | | |

| | | | |
|---|---|---|---|
| OPERATOR | Sumatra Energy Co. | CONTRACTOR | Fearless Drilling |
| | | RIG NO | 2 |
| REPORT FOR | Ray Rauchman | REPORT FOR | Tom Daniels |
| WELL NAME AND LOCATION | Santa Fe RR # 1-17 | STATE | Arizona |

| BIT RECORD | |
|---|---|
| BIT NO | 1 |
| SIZE inches | 7 7/8 |
| TYPE | S80 |
| NOZZLE SIZES 32nds | 2-13 |
| DEPTH IN feet | 810 |
| DRILL RATE ft/hr | 30 |
| RPM | 40-60 |

| BIT HYDRAULICS | |
|---|---|
| NOZZLE VEL. ft/sec | 251 |
| BIT PRESS LOSS psi | 516 |
| HYDRAULIC HORSEPOWER | 1495 |
| HOLES ON BIT | 57 1/2 |
| BIT WT. lb | 10-12 M |

| CASING PROGRAM | | |
|---|---|---|
| Surface | in. | LENGTH ft. 40 |
| Interm | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Liner | in. | LENGTH ft. |
| Production | in. | LENGTH ft. |

| PUMP PERFORMANCE | |
|---|---|
| PUMP NO 1 | MODEL D-375 |
| LINER SIZE in. 6 | STROKE in. 12 |
| DISPLACEMENT PER STR Bbl | .069 |
| STROKES PER MIN | 100 |
| OUTPUT Bbl/min | 6.9 |
| PRESSURE psi | 1000 |

| DRILLING ASSEMBLY | | | |
|---|---|---|---|
| DC SIZE in. 7 3/4 | LENGTH ft. 315 | | |
| DC SIZE in. | LENGTH ft. | | |
| DC SIZE in. | LENGTH ft. | | |
| DP SIZE in. 4 1/2 | LENGTH ft. 1322 | | |
| DP SIZE in. | LENGTH ft. | | |
| DP TOOL JT. TYPE | | | |

| ANNULAR VELOCITY | |
|---|---|
| DC ft/min | 224 |
| ft/min | |
| ft/min | |
| DP ft/min | 143 |
| ft/min | |

| MUD SYSTEM DATA | |
|---|---|
| HOLE VOLUME Bbl | 5[illegible] |
| CASING VOLUME Bbl | 5[illegible] |
| PIT VOLUME Bbl | 130 |
| TOTAL VOLUME Bbl | 2[illegible] |
| VOL DUMPED Bbl | 50 |
| DILUTION RATE gal/min | 1/2 |
| BOTTOMS UP min | 17 |
| CIRCULATION TIME MINS | 40 |

| MUD PROPERTIES | |
|---|---|
| TIME | 7:00 M |
| DEPTH ft | 1670 |
| MUD WEIGHT lb/gal | 9.5 |
| GRADIENT psi/ft | .49 |
| HYDROSTATIC psi @ DEPTH | 825 |
| FUNNEL VIS sec/qt | 38 |
| PLASTIC VIS cps | 10 |
| YIELD POINT lb/100ft² | 12 |
| GEL STRENGTH lb/100ft² | 3/5 |
| Pm ☐ STRIP ☐ METER | 7.0 |
| FILTRATE cm³ 30 min-100psi | 11.8 |
| CAKE THICKNESS 32nds | 2 |
| ALKALINITY Pf | .01 |
| ALKALINITY Mf | .03 |
| CHLORIDES mg/L | 65M |
| POTASSIUM mg/L | nil |
| CALCIUM mg/L | 120 |
| SAND CONTENT % by vol | 1/4 |
| SOLIDS CONT % by vol | 6.6 |
| OIL CONTENT % by vol | nil |
| BENTONITE lb/Bbl | 8 |
| BARITE lb/Bbl | nil |
| LOW DENS lb/Bbl | — |
| POLYMER lb/Bbl | — |
| FLOWLINE TEMP °F | — |
| HTHP FILT cm³ 500psi | — |
| OIL/WATER RATIO | — |

| ANNULAR HYDRAULICS | |
|---|---|
| "N" MED | .110 |
| "K" MED | 3.1 |
| "N" LOW | .37 |
| "K" LOW | 2.6 |
| ANN. PRESS. LOSS psi | 39 |
| E.C.D. lb/gal | 9.7 |
| "Z" DC | Lam |
| "Z" DP | Lam |
| Disc. Exp. | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | March 11 |
| 300 | Gel-67 |
| 100 | Micas-100 |
| 80 | Multi-37 |
| 60 | Soda Ash-2 |
| 30 | Caustic-7 |
| 20 | Petro Flo-20 |
| | Cmc-4 |

REMARKS — SAMPLE: ☐ FLOWLINE ☐ PIT

Drilling in Supai
Drilled Salt and
Paldum (Anhydrite)
Last PM

| SURVEYS | |
|---|---|
| DEPTH ft. | DEVIATION |
| 1471 | 2° |

MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| 9.0 | 40 | 10 | 9.0 |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

RECOMMENDED TREATMENT:

A. Today:
a. Lower water loss to 10cc
w. 15 sx Starch at 10min/sx

b. Add 5sx Multisal and 5sx Micas every 4 hours. and Bypass over Shakes.

c. Add 2sx Soda Ash every 6 hrs.

D. Add 2sx Caustic every tour.

E. Maintain Viscosity 40 w Pv to 150 and Gel in a 5:1 Ratio.

Thanks.
Ron.

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | 5145.15 | TSR | R. Mackey |
| TOTAL COST TO DATE | 18190.50 | RESIDENCE | |
| TRUCKER | | WAREHOUSE | |

PHONE / MOBILE / PHONE

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | March 13/93 |
| REPORT NUMBER | 7 |
| SPUD DATE | March 4/93 |
| DAYS FROM SPUD | 10 |
| PRESENT ACTIVITY | Repairing Top |

| | |
|---|---|
| OPERATOR | Sumatra Energy Co. |
| CONTRACTOR | Endless Drilling |
| RIG NO. | 2 |
| REPORT FOR | Rod Raughman |
| REPORT FOR | Tom Daniels |
| STATE | Arizona |
| WELL NAME AND LOCATION | South Ft. Rd St 1-17 |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | 1 | NOZZLE VEL ft/sec | 251 | PUMP NO | 1 | DC SIZE 6 in | LENGTH 1/6 ft | | ft/min 2.0 | HOLE VOLUME Bbl | 76 |
| SIZE inches | 7 7/8 | BIT PRESS LOSS psi | 516 | LINER SIZE in | STROKE in | DC SIZE in | LENGTH ft | | ft/min | CASING VOLUME Bbl | 58 |
| TYPE | S 9-1 | HYDRAULIC HORSEPOWER | 1.95 | DISPLACEMENT PER STK Bbl | .069 | DC SIZE in | LENGTH ft | | ft/min | PIT VOLUME bbl | 145 |
| NOZZLE SIZES 32nds | 2-12 1-12 | HOURS ON BIT | 1.84 | STROKES PER MIN | 100 | DP SIZE 4 1/2 in | LENGTH 1357 ft | | ft/min 1.8 | TOTAL VOLUME Bbl | 294 |
| DEPTH IN feet | 810 | BIT WT. lb | 10-12 | OUTPUT Bbl/min | 1.9 | DP SIZE in | LENGTH ft | | ft/min | VOL DUMPED Bbl | — |
| DRILL RATE ft/hr | 30 | CASING PROGRAM | | PRESSURE Psi | 700 | DP TOOL JT. TYPE | | | | DILUTION RATE gal/min | 1 11 |
| R.P.M. | 40-140 | Surface 8 5/8 in | LENGTH 1.9 ft | REMARKS | | SAMPLE: ☐ FLOWLINE ☐ PIT | | | | BOTTOMS UP min | 20 |
| MUD PROPERTIES | | Interm in | LENGTH ft | Lost Pressure in Transmission | | | | | | CIRCULATION TIME MINS | 11 |
| TIME | 5:30 pm | Interm in | LENGTH ft | While Tripping For | | | | | | SURVEYS | |
| DEPTH ft | 1235 | Liner in | LENGTH ft | Bit #1 | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 9.3 | Production in | LENGTH ft | | | | | | | | |
| GRADIENT psi/ft | .182 | ANNULAR HYDRAULICS | | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 936 | "N" MED. | .41 | | | | | | | | |
| FUNNEL VIS sec/qt | 40 | "K" MED. | 2.52 | | | | | | | | |
| PLASTIC VIS cps | 10 | "N" LOW | .34 | | | | | | | | |
| YIELD POINT lb/100ft² | 19 | "K" LOW | 3.2 | | | | | | | | |
| GEL STRENGTH lb/100ft² | 3/6 | ANN PRESS. LOSS psi | 31 | | | | | | | | |
| pH ☐ STRIP ☐ METER | 8.0 | E.C.D lb/gal | 9.43 | | | | | | | | |
| FILTRATE cm³ 30 min-100psi | 12.2 | "Z" DC | 64m | | | | | | | | |
| CAKE THICKNESS 32nds | 2 | "Z" DP | 64m | | | | | | | | |
| ALKALINITY Pf | .22 | Dnc. EXP. | | | | | | | | | |
| ALKALINITY Mf | .10 | | | | | | | | | | |
| CHLORIDES mg/L | 8.2m | | | | | | | | | | |
| POTASSIUM mg/L | nil | | | | | | | | | | |
| CALCIUM mg/L | 470 | | | | | | | | | | |
| SAND CONTENT % by vol | 1/4 | | | | | | | | | | |
| SOLIDS CONT % by vol | 6.4 | | | | | | | | | | |
| OIL CONTENT % by vol | — | | | | | | | | | | |
| BENTONITE lb/Bbl | — | | | | | | | | | | |
| BARITE lb/Bbl | — | | | | | | | | | | |
| LOW DENS. lb/Bbl | — | | | | | | | | | | |
| POLYMER lb/Bbl | — | | | | | | | | | | |
| FLOWLINE TEMP °F | 54 | | | | | | | | | | |
| HTHP FILT cm³ 500psi | — | | | | | | | | | | |
| OIL/WATER RATIO | — | | | | | | | | | | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 39 | 2 MARCH 12 |
| 300 29 | Gel-107 |
| 100 | Petro 150-97 |
| 60 | CMC-5 |
| 60 | Soda Ash-12 sxs |
| 30 | Caustic-6 |
| 20 | Defoamer-24 |
| 3-0 | Nutplug Coarse |
| | Multiseal-10 |
| | Mica-10 |
| COST SINCE LAST CHECK | 3457.35 |
| TOTAL COST TO DATE | 21948.85 |
| TRUCKER | |

**MUD PROPERTY SPECIFICATIONS**

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| 9.0 | 40 | 10 | 7.0 |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

**RECOMMENDED TREATMENT:**

1. When Back To Drilling:

Add

1.5 sx Multiseal and 5 sxs Mica Every 4 Hrs and By Pass To The Pit.

2. Maintain Viscosity 40 sec/qt with Petro-150 and Gel in a 5:1 Ratio.

3. Add 3 sxs Starch Every 3 Hrs while Drilling At 15 min/ft

4. Run A 1" Stream of Inhibitor while Drilling.

| | | | |
|---|---|---|---|
| TSR | R. Mackey | PHONE | |
| RESIDENCE | Cuero | MOBILE | |
| WAREHOUSE | | PHONE | |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE March 14/93 | REPORT NUMBER 11 |
| SPUD DATE March 4/93 | DAYS FROM SPUD 11 |
| PRESENT ACTIVITY Drilling Ahead | |

| | | | |
|---|---|---|---|
| OPERATOR | Sumatra Energy Co. | CONTRACTOR | Valley Drilling |
| REPORT FOR | Roy Baughman | REPORT FOR | Tim Daniels |
| WELL NAME AND LOCATION | Santa Fe RP # 1-17 | STATE | Kansas |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | 2 | NOZZLE VEL. ft/sec | 220 | PUMP NO | MODEL [illegible] | DC SIZE 6 1/4 in | LENGTH 180 ft | ft/min [illegible] | HOLE VOLUME bbl | 1[illegible] |
| SIZE inches | 7 7/8 | BIT PRESS LOSS psi | 1[illegible]9 | LINER SIZE in | STROKE in | DC SIZE in | LENGTH ft | ft/min | CASING VOLUME bbl | 5[illegible] |
| TYPE | S 9 J | HYDRAULIC HORSEPOWER | 2.3 | DISPLACEMENT PER STR bbl | 10.0[illegible] | DC SIZE in | LENGTH ft | ft/min | PIT VOLUME bbl | 170 |
| NOZZLE SIZES 32nds | 3/12's | HOURS ON BIT | | STROKES PER MIN | [illegible] | DP SIZE 4 1/2 in | LENGTH 7714 ft | 17[illegible] ft/min | TOTAL VOLUME bbl | 350 |
| DEPTH IN feet | 1915 | BIT WT. lb | 10-12 | OUTPUT Bbl/min | 6.9 | DP SIZE in | LENGTH ft | ft/min | VOL. DUMPED bbl | |
| DRILL RATE ft/hr | 27 | CASING PROGRAM | | PRESSURE psi | 500 | DP TOOL JT. TYPE | | | DILUTION RATE gal/min | 10 |
| R.P.M. | 40-60 | Surface 8 5/8 in | LENGTH 270 ft | REMARKS | | SAMPLE. ☐ FLOWLINE ☐ PIT | | | BOTTOMS UP min | 25 |
| MUD PROPERTIES | | Intermediate in | LENGTH ft | | | | | | CIRCULATION TIME MINS | 24 |
| TIME | 7:00am | Intermediate in | LENGTH ft | Drilling Ahead After | | | | | SURVEYS | |
| DEPTH ft | 2215 | Liner in | LENGTH ft | Transmission Repair | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 9.5 | Production in | LENGTH ft | Mud Somewhat Foamy | | | | | 1935 | 3° |
| GRADIENT psi/ft | .519 | ANNULAR HYDRAULICS | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 1117 | "N" MED. | [illegible] | - Dumping Shaker | | | | | | |
| FUNNEL VIS sec/qt | 40 | "K" MED. | 1.5 | Tank This Am. | | | | | | |
| PLASTIC VIS cps | 13 | "N" LOW | .4 | | | | | | | |
| YIELD POINT lb/100ft² | 6521 | "K" LOW | 2.6 | | | | | | | |
| GEL STRENGTH lb/100ft² | 5/9 | ANN. PRESS LOSS psi | 37 | | | | | | | |
| PH D STRIP O METER | 8.0 | ECD lb/gal | 10.0 | | | | | | | |
| FILTRATE cm³ 30 min-100 psi | 12.8 | "Z" DC | Ann | | | | | | | |
| CAKE THICKNESS 32nds | 2 | "Z" DP | Ann | | | | | | | |
| ALKALINITY Pf | TR | Disc. EXP. | | | | | | | | |
| ALKALINITY Mf | TR | | | | | | | | | |
| CHLORIDES mg/L | 105M | | | | | | | | | |
| POTASSIUM mg/L | — | | | | | | | | | |
| CALCIUM mg/L | 440 | | | | | | | | | |
| SAND CONTENT % by vol | 1/4 | | | | | | | | | |
| SOLIDS CONT % by vol | 7.0 (197.bbl) | | | | | | | | | |
| OIL CONTENT % by vol | — | | | | | | | | | |
| BENTONITE lb/Bbl | — | | | | | | | | | |
| BARITE lb/Bbl | — | | | | | | | | | |
| LOW DENS lb/Bbl | — | | | | | | | | | |
| POLYMER lb/Bbl | - | | | | | | | | | |
| FLOWLINE TEMP °F | 56 | | | | | | | | | |
| HTHP FILT cm³ 500psi | — | | | | | | | | | |
| OIL/WATER RATIO | — | | | | | | | | | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 47 | Mach 13 |
| 300 19 | Gel-8 |
| 100 15 | 150-42 |
| 60 | Caustic-1 |
| 30 | Starch-3 |
| 20 | Multi-5 |
| | Mica-5 |

**MUD PROPERTY SPECIFICATIONS**

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| 9.0 | 40 | 10-12 | 8.[illegible] |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Dir.Eng Contractor ☐ Other

**RECOMMENDED TREATMENT:**

Tanks

1) Dump and Clean Shaker Tank.

2) Rebuild Volume with Fresh water and Retro 150 + Gel in a 5:1 Ratio For A 40 Sec/Qt Vis.

3) Add 3 sx Starch Every 3 Hrs While Drilling.

4) Add 5 sx Multi Seal And 5 sx Mica Every 3 Hours And By Pass Over The Shaker.

NOTE: When Defoamer Arrives Add 2 Pails over 40 min.

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | 978.50 | TSR | K. Mackey |
| TOTAL COST TO DATE | 20,927.35 | RESIDENCE | Cancho. |
| TRUCKER | | WAREHOUSE | |

PHONE / MOBILE / PHONE

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | March 15/83 |
| REPORT NUMBER | 11 |
| SPUD DATE | March 4/83 |
| DAYS FROM SPUD | 12 |
| PRESENT ACTIVITY | Mixing Mud |
| RIG NO | 2 |

| | |
|---|---|
| OPERATOR | Sumatra Energy Co. |
| CONTRACTOR | [illegible] Drilling |
| REPORT FOR | Dan Bringhurst |
| REPORT FOR | Dan Phillips |
| STATE | [illegible] |
| WELL NAME AND LOCATION | Santa Fe RR # 1-17 |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | 2 | NOZZLE VEL. ft/sec | 250 | PUMP NO 1 | MODEL D 700 | DC SIZE 11 in | LENGTH 60 ft | ft/min | HOLE VOLUME Bbl | 124 |
| SIZE inches | 7 7/8 | BIT PRESS LOSS psi | 669 | LINER SIZE in | STROKE in | DC SIZE in | LENGTH ft | ft/min | CASING VOLUME Bbl | 50 |
| TYPE | S 82 | HYDRAULIC HORSEPOWER | 2.3 | DISPLACEMENT PER STR Bbl | .069 | DC SIZE in | LENGTH ft | ft/min | PIT VOLUME Bbl | 170 |
| NOZZLE SIZES 32nd's | 3/12 | HOURS ON BIT | | STROKES PER MIN | 100 | DP SIZE 4 1/2 in | LENGTH ft | HWDP 1 CT 3 ft/min | TOTAL VOLUME Bbl | 350 |
| DEPTH IN feet | 1935 | BIT WT lb | 10-12 | OUTPUT Bbl/min | 6.9 | DP SIZE in | LENGTH ft | ft/min | VOL. DUMPED Bbl | |
| DRILL RATE ft/hr | — | CASING PROGRAM | | PRESSURE psi | | DP TOOL JT. TYPE | | | DILUTION RATE gal/min | |
| R.P.M. | 40-60 | Surface in | LENGTH ft | REMARKS | | SAMPLE | ☐ FLOWLINE ☐ PIT | | BOTTOMS UP min | |
| MUD PROPERTIES | | Interm in | LENGTH ft | Lost Circ. at 2580' Mixed Pill Got Returns. Drilled To 2600' Lost Circ. Again. Mixing Mud This A.M. | | | | | CIRCULATION TIME UNDS | |
| TIME | 7 AM | Interm in | LENGTH ft | | | | | | SURVEYS | |
| DEPTH ft | 2611 | Liner in | LENGTH ft | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | | Production in | LENGTH ft | | | | | | | |
| GRADIENT psi/ft | L | ANNULAR HYDRAULICS | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 0 | "N" MED | | | | | | | | |
| FUNNEL VIS sec/qt | C | "K" MED. | | | | | | | | |
| PLASTIC VIS cps | T | "N" LOW | | | | | | | | |
| YIELD POINT lb/100ft² | | "K" LOW | | | | | | | | |
| GEL STRENGTH lb/100ft² | C | ANN. PRESS. LOSS psi | | | | | | | | |
| PH ☐ STRIP ☐ METER | 1 | E.C.D. lb/gal | | | | | | | | |
| FILTRATE cm³ 30 min-100 psi | R | "Z" DC | | | | | | | | |
| CAKE THICKNESS 32nd's | C | "Z" DP | | | | | | | | |
| ALKALINITY Pf | U | Dac. EXP. | | | | | | | | |
| ALKALINITY Mf | 1 | | | | | | | | | |
| CHLORIDES mg/L | N | | | | | | | | | |
| POTASSIUM mg/L | T | | | | | | | | | |
| CALCIUM mg/L | 1 | | | | | | | | | |
| SAND CONTENT % by vol | 0 | | | | | | | | | |
| SOLIDS CONT % by vol | N | | | | | | | | | |
| OIL CONTENT % by vol | | | | | | | | | | |
| BENTONITE lb/Bbl | | | | | | | | | | |
| BARITE lb/Bbl | | | | | | | | | | |
| LOW DENS. lb/Bbl | | | | | | | | | | |
| POLYMER lb/Bbl | | | | | | | | | | |
| FLOWLINE TEMP °F | | | | | | | | | | |
| HTHP FILT cm³ 500psi | | | | | | | | | | |
| OIL/WATER RATIO | | | | | | | | | | |

**MUD PROPERTY SPECIFICATIONS**

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| | | | |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

**RECOMMENDED TREATMENT:**

1) Raise Viscosity To 90 sec/qt w/ Bel

2) Add 5 Kwik Seal with 4 sx Chip and 2 sx Mica To Obtain 40% Lcm in Tanks.

Thanks.
RM.

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | March 14 |
| 300 | Contractor Hours |
| 100 | Mobilization |
| 60 | Two Shift. |
| 60 | 3# Mica |
| 30 | 30 Gel |
| 20 | 4# Poly 150 |
| | 6# Kwikseal |
| | 95 Poly Chip |

| | | | | |
|---|---|---|---|---|
| COST SINCE LAST CHECK | [illegible] 3815.30 | TSR | R Mackey | PHONE |
| TOTAL COST TO DATE | [illegible] | RESIDENCE | | MOBILE |
| TRUCKER | 6,707.75 | WAREHOUSE | | PHONE |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE March 11 | REPORT NUMBER 12 |
| SPUD DATE March 9th | DAYS FROM SPUD 12 |
| PRESENT ACTIVITY | |

| | | |
|---|---|---|
| OPERATOR Cantera Energy Co. | CONTRACTOR Express Drilling | RIG NO 2 |
| REPORT FOR: [illegible] | REPORT FOR [illegible] | STATE [illegible] |
| WELL NAME AND LOCATION Santa Fe KR #1-17 | | |

| BIT RECORD | |
|---|---|
| BIT NO | 2 |
| SIZE inches | 7 7/8 |
| TYPE | S 84 |
| NOZZLE SIZES 32nds | 3/12 |
| DEPTH IN feet | 1935 |
| DRILL RATE ft/hr | 2.3 |
| RPM | 40-60 |

| BIT HYDRAULICS | |
|---|---|
| NOZZLE VEL ft/sec | [illegible] |
| BIT PRESS LOSS psi | 1.6 |
| HYDRAULIC HORSEPOWER | 2.3 |
| HOURS ON BIT | 29 3/4 |
| BIT WT. lb | 10-20 |

| CASING PROGRAM | | |
|---|---|---|
| Surface | 9 5/8 in. | LENGTH 300 ft |
| Interm | in. | LENGTH ft |
| Interm | in. | LENGTH ft |
| Liner | in. | LENGTH ft |
| Production | in. | LENGTH ft |

| PUMP PERFORMANCE | |
|---|---|
| PUMP NO 1 | MODEL [illegible] |
| LINER SIZE in. | STROKE in. |
| DISPLACEMENT PER STR bbl | .0169 |
| STROKES PER MIN | 100 |
| OUTPUT bbl/min | 1.69 |
| PRESSURE psi | |

| DRILLING ASSEMBLY | | |
|---|---|---|
| DC SIZE 6 1/2 in. | LENGTH 270 ft | |
| DC SIZE in. | LENGTH ft | |
| DC SIZE in. | LENGTH ft | |
| DP SIZE 4 1/2 in. | LENGTH 1917 ft | |
| DP SIZE in. | LENGTH ft | |
| DP TOOL JT. TYPE | | |

| ANNULAR VELOCITY | |
|---|---|
| ft/min DC 197 | |
| ft/min | |
| ft/min | |
| ft/min DP 73.3 | |
| ft/min | |

| MUD SYSTEM DATA | |
|---|---|
| HOLE VOLUME bbl | 111 |
| CASING VOLUME bbl | [illegible] |
| PIT VOLUME bbl | 190 |
| TOTAL VOLUME bbl | 417 |
| VOL DUMPED bbl | — |
| DILUTION RATE gal/min | 10 |
| BOTTOMS UP min | 20 |
| CIRCULATION TIME MINS | 60 |

| MUD PROPERTIES | |
|---|---|
| TIME | [illegible] |
| DEPTH ft | 3006 |
| MUD WEIGHT lb/gal | 9.0 |
| GRADIENT psi/ft | .4165 |
| HYDROSTATIC psi @ DEPTH | 1406 |
| FUNNEL VIS sec/qt | 50 |
| PLASTIC VIS cps | 10 |
| YIELD POINT lb/100ft² | 38 |
| GEL STRENGTH lb/100ft² | 5/17 |
| PH ☐ STRIP ☐ METER | 8.0 |
| FILTRATE cm³ 30 min-100psi | 23 |
| CAKE THICKNESS 32nds | 2 |
| ALKALINITY Pf | .01 |
| ALKALINITY Mf | .10 |
| CHLORIDES mg/L | 91,000 |
| POTASSIUM mg/L | — |
| CALCIUM mg/L | 220 |
| SAND CONTENT % by vol | 1/4 |
| SOLIDS CONT % by vol | 6.0 |
| OIL CONTENT % by vol | — |
| BENTONITE lb/Bbl | — |
| BARITE lb/Bbl | — |
| LOW DENS. lb/Bbl | — |
| POLYMER lb/Bbl | — |
| FLOWLINE TEMP °F | 51° |
| HTHP FILT cm³ 500psi | — |
| OIL/WATER RATIO | . |

| ANNULAR HYDRAULICS | |
|---|---|
| "N" MED. | .27 |
| "K" MED. | 5.7 |
| "N" LOW | .4 |
| "K" LOW | 2.0 |
| ANN. PRESS. LOSS psi | 13 |
| E.C.D. lb/gal | 9.3 |
| "Z" DC | 1.0 min |
| "Z" DP | 1.0 min |
| Disc. EXP. | |

REMARKS — SAMPLE: ☐ FLOWLINE ☐ PIT

Drilling Ahead.

| SURVEYS | |
|---|---|
| DEPTH ft. | DEVIATION |
| | |

MUD PROPERTY SPECIFICATIONS

WEIGHT 9.0 | VISCOSITY 40-45 | FILTRATE N/C | PH 9.0

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

RECOMMENDED TREATMENT:

1) Maintain Viscosity 40-45 Sec/qt w/gel.

2) This Am Add:
a. 2 sx Soda Ash (30 min w/50)
b. 1 sx Caustic (60 min)
c. 5 sx Petro Flow (10 min w/50)

3) Run A 1" stream of water while drilling.

4) Add 7 sx Kwik Seal and 7 sx Petro Chip Every 3 Hours.

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 45 | Mud 15 |
| 300 42 | 10 - yel |
| 100 16 | 16 - 150 |
| 80 38 | 16 - Saw |
| 60 | 42 - Seal |
| 30 | 4 - Caustic |
| 20 | 4 - defoamer |
| | 54 - Mica. |

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | $6,417.46 | TSR | K. MACKEY |
| TOTAL COST TO DATE | $ 1,013.70 | RESIDENCE | |
| TRUCKER | | WAREHOUSE | |

PHONE / MOBILE / PHONE

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | MARCH 17/83 |
| REPORT NUMBER | 13 |
| SPUD DATE | MARCH 4/83 |
| DAYS FROM SPUD | 14 |
| PRESENT ACTIVITY | DRILLING AHEAD |

| | |
|---|---|
| OPERATOR | SUMATRA ENERGY CO. |
| CONTRACTOR | KAYLESS DRILLING |
| RIG NO | 2 |
| REPORT FOR: | ROY BAUCHMAN |
| REPORT FOR | DAN PHILLIPS |
| STATE | ARIZONA |
| WELL NAME AND LOCATION | SANTA FE RR# 1-17 |

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | 2 | NOZZLE VEL. ft/sec | 280 | PUMP NO 1 | MODEL 12-75 | DC SIZE 6 1/4 | LENGTH 448 ft | ft/min 294 | HOLE VOLUME Bbl | 171 |
| SIZE inches | 7 7/8 | BIT PRESS LOSS psi | 669 | LINER SIZE in. | STROKE in. | DC SIZE in. | LENGTH ft | ft/min | CASING VOLUME Bbl | 52 |
| TYPE | S84 | HYDRAULIC HORSEPOWER | 2.3 | DISPLACEMENT PER STK Bbl | .069 | DC SIZE in. | LENGTH ft | ft/min | PIT VOLUME Bbl | 180 |
| NOZZLE SIZES 32nd's | 3/12 | HOURS On BIT | | STROKES PER MIN | 100 | DP SIZE 5 1/2 in. | LENGTH 2222 ft | 143 ft/min | TOTAL VOLUME Bbl | 419 |
| DEPTH IN feet | 1935 | BIT WT. lb | 10-20 | OUTPUT Bbl/min | 6.9 | DP SIZE in. | LENGTH ft | ft/min | VOL DUMPED Bbl | 50 |
| DRILL RATE ft/hr | 7 min/ | CASING PROGRAM | | PRESSURE ☐ psi | 1000 | DP TOOL JT TYPE | | | DILUTION RATE gal/min | 1" |
| RPM | 1.0 | Surface 13 3/8 in. | LENGTH 210 ft | | | | | | BOTTOMS UP min | 30 |
| MUD PROPERTIES | | Interm in. | LENGTH ft | | | | | | CIRCULATION TIME MINS | 63 |
| TIME | 8AM | Interm in. | LENGTH ft | | | | | | SURVEYS | |
| DEPTH ft | 3270' | Liner in. | LENGTH ft | | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 9.5 | Production in. | LENGTH ft | | | | | | | |
| GRADIENT psi/ft | .49 | ANNULAR HYDRAULICS | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 1615 | "N" MED | .33 | | | | | | | |
| FUNNEL VIS sec/qt | 50 | "K" MED. | 6.1 | | | | | | | |
| PLASTIC VIS cps | 12 | "N" LOW | .30 | | | | | | | |
| YIELD POINT lb/100ft² | 17 | "K" LOW | 7.0 | | | | | | | |
| GEL STRENGTH lb/100ft² | 5/10 | ANN PRESS. LOSS psi | 45 | | | | | | | |
| PH ☐ STRIP ☐ METER | 8.5 | E.C.D. lb/gal | 9.75 | | | | | | | |
| FILTRATE cm³ 30 min-100psi | 10.2 | "Z" DC | LAM | | | | | | | |
| CAKE THICKNESS 32nd's | 2 | "Z" DP | LAM | | | | | | | |
| ALKALINITY Pt | .01 | Occ. EXP. | | | | | | | | |
| ALKALINITY Mf | .06 | | | | | | | | | |
| CHLORIDES mg/L | 9600 | | | | | | | | | |
| POTASSIUM mg/L | — | | | | | | | | | |
| CALCIUM mg/L | 200 | | | | | | | | | |
| SAND CONTENT % by vol | 1/2 | | | | | | | | | |
| SOLIDS CONT % by vol | 7.4 | | | | | | | | | |
| OIL CONTENT % by vol | — | | | | | | | | | |
| BENTONITE lb/Bbl | — | | | | | | | | | |
| BARITE lb/Bbl | — | | | | | | | | | |
| LOW DENS. lb/Bbl | — | | | | | | | | | |
| POLYMER lb/Bbl | — | | | | | | | | | |
| FLOWLINE TEMP °F | 56° | | | | | | | | | |
| HTHP FILT cm³ 500psi | — | | | | | | | | | |
| OIL/WATER RATIO | — | | | | | | | | | |

SAMPLE: ☐ FLOWLINE ☐ PIT

**REMARKS**

Drilling Ahead
Currently 4070 KCM

Hole in Good
Condition.

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | MARCH 16/83 |
| 300 | |
| 100 | TOTAL MUD |
| 80 | COST TO |
| 60 | DATE: |
| 30 | AFTER INVENTORY |
| 20 | 45894.25 |

**MUD PROPERTY SPECIFICATIONS**

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| 9.0 | 50 | 10-12 | 9.0 |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

**RECOMMENDED TREATMENT:**

1) Mud is in Good Shape
For logging.

J. Fowler
R. Mackey

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | | TSR | RUSTY R. MACKEY — PHONE |
| TOTAL COST TO DATE | 45894.25 | RESIDENCE | Pancho. — MOBILE |
| TRUCKER | | WAREHOUSE | PHONE |

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | MARCH 18/95 |
| REPORT NUMBER | 14 |
| SPUD DATE | MARCH 4/95 |
| DAYS FROM SPUD | 15 |
| PRESENT ACTIVITY | Prep. To Trip To hog |

OPERATOR: Sumatra Energy Co.
CONTRACTOR: Daylight Drilling
RIG NO: 2
REPORT FOR: Ron Baughman
REPORT FOR: Dan Phillips
STATE: Louisiana
WELL NAME AND LOCATION: Santa Fe RAF 1-17

| BIT RECORD | | BIT HYDRAULICS | | PUMP PERFORMANCE | | DRILLING ASSEMBLY | | ANNULAR VELOCITY | MUD SYSTEM DATA | |
|---|---|---|---|---|---|---|---|---|---|---|
| BIT NO | 2 | NOZZLE VEL ft/sec | 250 | PUMP NO 1 | MODEL D-750 | DC SIZE 6 1/2 in | LENGTH 718 ft | ft/min | HOLE VOLUME Bbl | 172 |
| SIZE inches | 7 3/8 | BIT PRESS LOSS psi | 669 | LINER SIZE in. | STROKE in. | DC SIZE in. | LENGTH ft. | ft/min | CASING VOLUME bbl | 37 |
| TYPE | S84 | HYDRAULIC HORSEPOWER | 2.3 | DISPLACEMENT PER STR Bbl | .069 | DC SIZE in. | LENGTH ft. | ft/min | PIT VOLUME Bbl | 180 |
| NOZZLE SIZES 32nds | 3/12 | HOURS ON BIT | 10-12 | STROKES PER MIN | 100 | DP SIZE 4 1/2 in. | LENGTH 3799 ft | ft/min 17 | TOTAL VOLUME Bbl | 410 |
| DEPTH IN feet | 1935 | BIT WT. lb | 10-20 | OUTPUT Bbl/min | 6.9 | DP SIZE in. | LENGTH ft. | ft/min | VOL DUMPED Bbl | 50 |
| DRILL RATE ft/hr | — | CASING PROGRAM | | PRESSURE psi | 1000 | DP TOOL JT. TYPE | | | DILUTION RATE gal/min | 1" |
| R.P.M | 60 | Surface 9 5/8 in | LENGTH 718 ft | REMARKS | | SAMPLE: ☐ FLOWLINE ☐ PIT | | | BOTTOMS UP min | 30 |
| MUD PROPERTIES | | Interm in. | LENGTH ft. | T.D. Preparing To hog | | | | | CIRCULATION TIME MINS | 64 |
| TIME | 6 AM | Interm in. | LENGTH ft. | | | | | | SURVEYS | |
| DEPTH ft | 3547 | Liner in. | LENGTH ft. | Hole in Good Shape | | | | | DEPTH ft. | DEVIATION |
| MUD WEIGHT lb/gal | 9.1 | Production in. | LENGTH ft. | | | | | | | |
| GRADIENT psi/ft | .494 | ANNULAR HYDRAULICS | | | | | | | | |
| HYDROSTATIC psi @ DEPTH | 1752 | "D" MED | .47 | | | | | | | |
| FUNNEL VIS sec/qt | 60 | "K" MED | 4.3 | | | | | | | |
| PLASTIC VIS cps | 15 | "N" LOW | .33 | | | | | | | |
| YIELD POINT lb/100ft² | 17 | "K" LOW | 6.8 | | | | | | | |
| GEL STRENGTH lb/100ft² | 5/12 | ANN. PRESS. LOSS psi | 45 | | | | | | | |
| PH ☐ STRIP ☐ METER | 8.5 | E.C.D lb/gal | 9.9 | | | | | | | |
| FILTRATE cm³ 30 min-100psi | 14.2 | "Z" DC | 6.6m | MUD PROPERTY SPECIFICATIONS | | | | | | |
| CAKE THICKNESS 32nds | 2 | "Z" DP | 6.6m | WEIGHT | VISCOSITY | FILTRATE | PH | | | |
| ALKALINITY Pf | .02 | Dec. EXP. | | BY AUTHORITY: | ☐ Operator's written ☐ Operator's Representative | ☐ Drilling Contractor ☐ Other | | | | |
| ALKALINITY Mf | .13 | | | RECOMMENDED TREATMENT: | | | | | | |
| CHLORIDES mg/L | 69 4m | | | 1) Mud in Good Shape for hogging | | | | | | |
| POTASSIUM mg/L | — | | | | | | | | | |
| CALCIUM mg/L | 200 | | | | | | | | | |
| SAND CONTENT % by vol | 1/2 | | | | | | | | | |
| SOLIDS CONT % by vol | 8.4 | | | | | | | | | |
| OIL CONTENT % by vol | — | | | | | | | | | |
| BENTONITE lb/Bbl | — | | | | | | | | | |
| BARITE lb/Bbl | — | | | | | | | | | |
| LOW DENS. lb/Bbl | — | | | | | | | | | |
| POLYMER lb/Bbl | — | | | | | | | | | |
| FLOWLINE TEMP °F | 57° | | | | | | | | | |
| HTHP FILT cm³ 500psi | — | | | | | | | | | |
| OIL/WATER RATIO | — | | | | | | | | | |
| VG READINGS | MATERIALS ADDED SINCE LAST CHECK | | | | | | | | | |
| 600 | March 17 | | | | | | | | | |
| 300 | | | | | | | | | | |
| 100 | 12 ~~Shrimp~~ Petro Chip | | | | | | | | | |
| 80 | | | | | | | | | | |
| 60 | | | | | | | | | | |
| 30 | March-18 | | | | | | | | | |
| 20 | 2 CMC | | | | | | | | | |
| | 386.20 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| COST SINCE LAST CHECK | 108.00 | TSR | | | | | | | | |
| TOTAL COST TO DATE | 41,302.45 | RESIDENCE | | | | | | | | |
| TRUCKER | | | WAREHOUSE | | | | | | | |

PHONE
MOBILE
PHONE

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# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | MARCH 19/83 |
| REPORT NUMBER | 15 |
| SPUD DATE | MARCH 4/83 |
| DAYS FROM SPUD | 16 |
| PRESENT ACTIVITY | TRIPPING IN TO DRILL |

OPERATOR: SUMATRA ENERGY CO.
CONTRACTOR: BAYLESS DRILLING
RIG NO:
REPORT FOR: RAY BAUCHMAN
REPORT FOR: DAN PHILLIPS
STATE: N/RIO ARIB.
WELL NAME AND LOCATION: SANTA FE RR # 1-17

| BIT RECORD | |
|---|---|
| BIT NO | |
| SIZE inches | |
| TYPE | |
| NOZZLE SIZES 32nds | |
| DEPTH IN feet | |
| DRILL RATE ft/hr | |
| R.P.M. | |

| BIT HYDRAULICS | |
|---|---|
| NOZZLE VEL ft/sec | |
| BIT PRESS LOSS psi | |
| HYDRAULIC HORSEPOWER | |
| HOURS ON BIT | |
| B.T.WT. lb. | |

| CASING PROGRAM | | |
|---|---|---|
| Surface | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Liner | in. | LENGTH ft. |
| Production | in. | LENGTH ft. |

| PUMP PERFORMANCE | | |
|---|---|---|
| PUMP NO | MODEL | |
| LINER SIZE in. | STROKE in. | |
| DISPLACEMENT PER STR Bbl | .069 | |
| STROKES PER MIN | 100 | |
| OUTPUT Bbl/min | 6.9 | |
| PRESSURE psi | | |

| DRILLING ASSEMBLY | | |
|---|---|---|
| DC SIZE in. | LENGTH ft. | |
| DC SIZE in. | LENGTH ft. | |
| DC SIZE in. | LENGTH ft. | |
| DP SIZE 4 1/2 in. | LENGTH 5199 ft. | |
| DP SIZE in. | LENGTH ft. | |
| DP TOOL JT. TYPE | | |

| ANNULAR VELOCITY | |
|---|---|
| ft/min | |
| ft/min | |
| ft/min | 143 |
| ft/min | |

| MUD SYSTEM DATA | |
|---|---|
| HOLE VOLUME Bbl | |
| CASING VOLUME Bbl | |
| PIT VOLUME Bbl | |
| TOTAL VOLUME Bbl | |
| VOL DUMPED Bbl | |
| DILUTION RATE gal/min | |
| BOTTOMS UP min | |
| CIRCULATION TIME MINS | |

| MUD PROPERTIES | |
|---|---|
| TIME | T |
| DEPTH ft | R |
| MUD WEIGHT lb/gal | I |
| GRADIENT psi/ft | P |
| HYDROSTATIC psi @ DEPTH | P |
| FUNNEL VIS sec/qt | I |
| PLASTIC VIS cps | N |
| YIELD POINT lb/100ft² | G |
| GEL STRENGTH lb/100ft² | |
| pH ☐ STRIP ☐ METER | I |
| FILTRATE cm³ 30 min-100psi | N |
| CAKE THICKNESS 32nds | |
| ALKALINITY Pf | H |
| ALKALINITY Mf | O |
| CHLORIDES mg/L | L |
| POTASSIUM mg/L | E |
| CALCIUM mg/L | |
| SAND CONTENT % by vol | |
| SOLIDS CONT % by vol | |
| OIL CONTENT % by vol | |
| BENTONITE lb/Bbl | |
| BARITE lb/Bbl | |
| LOW DENS. lb/Bbl | |
| POLYMER lb/Bbl | |
| FLOWLINE TEMP °F | |
| HTHP FILT cm³ 500psi | |
| OIL/WATER RATIO | |

| ANNULAR HYDRAULICS | |
|---|---|
| "N" MED. | |
| "K" MED | |
| "N" LOW | |
| "K" LOW | |
| ANN. PRESS LOSS psi | |
| ECD lb/gal | |
| "Z" DC | |
| "Z" DP | |
| Disc. EXP. | |

REMARKS — SAMPLE: ☐ FLOWLINE ☐ PIT

Lay To Bottom
Circulate
Running Back In Hole
This A.M.

| SURVEYS | |
|---|---|
| DEPTH ft. | DEVIATION |
| | |

MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE | PH |
|---|---|---|---|
| | | | |

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

RECOMMENDED TREATMENT:

1) Dump Run Clean Shaker Tank.
2) Run 1" Stream of Water.
3) Add 10 sxs Petro Flow

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | MARCH 19 |
| 300 | 10 Petro Chip. |
| 100 | |
| 80 | |
| 60 | |
| 30 | |
| 20 | |

| | | | |
|---|---|---|---|
| COST SINCE LAST CHECK | 470.00 | TSR | PHONE |
| TOTAL COST TO DATE | 4,472. | RESIDENCE | MOBILE |
| TRUCKER | | WAREHOUSE | PHONE |

IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT CONCORD DRILLING SERVICES SHALL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS AND IS TO BE HELD HARMLESS

# CONCORD DRILLING SERVICES INC.
# FIELD SERVICE REPORT

| | |
|---|---|
| DATE | March 20 1983 |
| REPORT NUMBER | 16 |
| SPUD DATE | March 4/83 |
| DAYS FROM SPUD | 17 |
| PRESENT ACTIVITY | Drilling Ahead |

OPERATOR: Sunoco Energy
CONTRACTOR: Boyles Drilling
RIG NO.:
REPORT FOR: Roy Baughman
REPORT FOR: Don Phillips - Tom Daniels
STATE: Ark.
WELL NAME AND LOCATION: Saint Ex RR # 1-17

| BIT RECORD | |
|---|---|
| BIT NO | 4 |
| SIZE inches | 7 7/8 |
| TYPE | S-84 |
| NOZZLE SIZES 32nds | 3-12 |
| DEPTH IN feet | 3547 |
| DRILL RATE ft/hr | 30 |
| R.P.M. | 1.0 |

| BIT HYDRAULICS | |
|---|---|
| NOZZLE VEL ft/sec | 250 |
| BIT PRESS LOSS psi | 669 |
| HYDRAULIC HORSEPOWER | 2.3 |
| HOURS ON BIT | 20 |
| BIT WT. lb | 20 |

| CASING PROGRAM | | |
|---|---|---|
| Surface | in. | LENGTH 10 ft. |
| Interm | in. | LENGTH ft. |
| Interm | in. | LENGTH ft. |
| Liner | in. | LENGTH ft. |
| Production | in. | LENGTH ft. |

| PUMP PERFORMANCE | |
|---|---|
| PUMP NO | 1 |
| MODEL | D-750 |
| LINER SIZE in. | |
| STROKE in. | |
| DISPLACEMENT PER STR bbl | .069 |
| STROKES PER MIN | 68 |
| OUTPUT bbl/min | 4.69 |
| PRESSURE psi | 1,000 |

| DRILLING ASSEMBLY | | |
|---|---|---|
| DC SIZE in. | 7 | LENGTH 94 ft. |
| DC SIZE in. | | LENGTH 60 ft. |
| DC SIZE in. | | LENGTH ft. |
| DP SIZE in. | 4 1/2 | LENGTH 3456 ft. |
| DP SIZE in. | | LENGTH ft. |
| DP TOOL JT TYPE | | |

| ANNULAR VELOCITY | |
|---|---|
| DC ft/min | |
| ft/min | |
| ft/min | |
| DP ft/min | 87.8 |
| ft/min | |

| MUD SYSTEM DATA | |
|---|---|
| HOLE VOLUME bbl | 225 |
| CASING VOLUME bbl | 45 |
| PIT VOLUME bbl | 180 |
| TOTAL VOLUME bbl | 460 |
| VOL DUMPED bbl | 50 |
| DILUTION RATE gal/min | 1.1 |
| BOTTOMS UP min | 53 |
| CIRCULATION TIME mins | 104 |

| MUD PROPERTIES | |
|---|---|
| TIME | 7 AM |
| DEPTH ft | 3742 |
| MUD WEIGHT lb/gal | 9.7 |
| GRADIENT psi/ft | .504 |
| HYDROSTATIC psi @ DEPTH | 1887 |
| FUNNEL VIS sec/qt | 40 |
| PLASTIC VIS cps | 14 |
| YIELD POINT lb/100ft² | 15 |
| GEL STRENGTH lb/100ft² | 2/5 |
| PH ☐ STRIP ☐ METER | 8.0 |
| FILTRATE cm³ 30 min-100psi | 14.7 |
| CAKE THICKNESS 32nds | 2 |
| ALKALINITY Pf | .01 |
| ALKALINITY Mf | .12 |
| CHLORIDES mg/L | 42m |
| POTASSIUM mg/L | — |
| CALCIUM mg/L | 210 |
| SAND CONTENT % by vol | 1/4 |
| SOLIDS CONT % by vol | 7.6 |
| OIL CONTENT % by vol | — |
| BENTONITE lb/Bbl | — |
| BARITE lb/Bbl | — |
| LOW DENS. lb/Bbl | — |
| POLYMER lb/Bbl | — |
| FLOWLINE TEMP °F | 57° |
| HTHP FILT cm³ 500psi | — |
| OIL/WATER RATIO | — |

| ANNULAR HYDRAULICS | |
|---|---|
| "N" MED | .41 |
| "K" MED | 5.3 |
| "N" LOW | .29 |
| "K" LOW | 8.6 |
| ANN. PRESS. LOSS psi | 40 |
| ECD lb/gal | 9.85 |
| "Z" DC | LAM |
| "Z" DP | LAM |
| Dec. EXP. | |

| VG READINGS | MATERIALS ADDED SINCE LAST CHECK |
|---|---|
| 600 | March 15 |
| 300 | Retro Flo - 10 |
| 100 | Gel - 3 |
| 80 | STARCH - 15 |
| 60 | Chip - 16 |
| 30 | Mica - 10 |
| 20 | CAUSTIC - 2 |
| | Cottonseed - 1 |
| | Knik Seal - 7 |

| | |
|---|---|
| COST SINCE LAST CHECK | 1318.00 |
| TOTAL COST TO DATE | 47796.00 |
| TRUCKER | |

REMARKS: Showed Pump Down To Lower K Valve and Increase Cleaning - No Fill Last Trip. Connections Good.

* 7AM - Dumping Shaker Tank

SAMPLE: ☐ FLOWLINE ☐ P.IT

SURVEYS

| DEPTH ft. | DEVIATION |
|---|---|
| | |

MUD PROPERTY SPECIFICATIONS

WEIGHT 9.0 | VISCOSITY | FILTRATE 10 cc | PH

BY AUTHORITY: ☐ Operator's written ☐ Operator's Representative ☐ Drilling Contractor ☐ Other

RECOMMENDED TREATMENT:

1) Add 15 sxs Starch At 5-6 min/sx (By Pass Shaker 1 circulation)

2) Run A 1" Stream of Water while Drilling

3) Add 7 sxs Chip And 7 sx Knik Seal Every 4 Hours And By-Pass Over Shaker

4) Maintain Pump Strokes 68 SPM.

| | | | |
|---|---|---|---|
| TSR | R. Mackey | PHONE | |
| RESIDENCE | Conway | MOBILE | |
| WAREHOUSE | | PHONE | |

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SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| SURFACE | Volcanics | |
| 0-0350 | | - drilling with 7 7/8" bit, no returns. |
| 30-0150 | | - reaming with 12¼" bit, no returns. |
| 150-0160 | SS | - clr-red, fine-pebble, p srt, sbang, clay cmt, sl calc. |
| | VOL | - blk-brn, vitreous, vugular, olivene phenocnysts. |
| 160-0170 | SS | - clr-red a/a, tr LS and chert pbl fragments. |
| 170-0180 | SS | - a/a. |
| 180-0190 | SS | - clr-red-wht, f-m gr, sbang-ang, p srt, chty, lmy, unconsolidated ip. |
| 190-0220 | | - Lost Circ. |
| 220-0240 | SS | - clr-wht-pink, f-m gr, sbang-ang, p srt, chty, uncons. |
| 240-0260 | | - Lost Circ. |
| 260-0280 | SS | - a/a, LS & cht fragments. |
| 280-0320 | | - Lost Circ. |
| 320-0330 | SS | - a/a, red, f gr, sbang, w srt, shy, sl dolo. |
| 330-0430 | | - Lost Circ. |
| 430-0440 | SS | - clr-wht-red, f gr, sbang, w srt, tt wht cly cmt, calc, mica. |
| 440-0450 | SS | - a/a, SLTST, red blky, calc. |
| 450-0460 | SS | - clr-wht-red, f-m gr, sbang, m srt, tt, wht calc cmt, mica. |
| | SH | - red-varigated, blky. |
| | SLTST | - red, blky, shy. |
| 460-0470 | SS | - clr-wht-grn-red, f-m gr, sbang, tt, wht cly cmt, occ qtz, chrt pbls. |
| | SH | - gy-blue, sft, blky, waxy, red SLTST a/a. |
| 470-0480 | SS | - a/a, occ unconsolidated. |
| 480-0490 | SS | - a/a, red SLTST, blky. |
| 490-0500 | SLTST | - red, blky, sft, shy, calc. |
| 500-0520 | SLTST | - red a/a. |
| | SS | - clr-wht-dk grn, f-m gr, sbrd, m srt, tt, wh cly cmt, calc, occ intbd w/ red SLTST. |
| 520-0540 | SS | - clr-gy, f-m gr, m srt, sbang, tt, wh cly calc cmt, mica, occ qtz pbls, tr LS - lt brn, micxln, no vis Ø. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 540-0550 | SS | - a/a, tt, calc. |
| | DOLO | - wh, micxln, dense, no vis Ø. |
| | LS | - tr, lt brn, micxln, dense, no vis Ø. |
| 550-0570 | SS | - clr, f gr, sbrd, w srt, light calc cmt-clear, frosted, wh cly-calc cmt, occ dolo cmt. |
| | DOLO | - wh-crm, micxln, dns, no vis Ø, sdy ip. |
| 570-0580 | SS | - clr, f gr, sbrd, w srt, clr-wh-crm dolo cmt. |
| | DOLO | - crm, micxln, dns, no vis Ø-occ sl vuggy. |
| 580-0590 | SS | - clr, sbrd, w srt, clean. |
| | DOLO | - a/a. |
| 590-0600 | SS | - clr, f gr, sbrd, clean, occ lt red cly calc cmt. |
| 600-0610 | SS | - a/a. |
| 610-0640 | NS | LCM returns only. |
| 640-0650 | SS | - clear, f gr, sbrd, w srt, clean, fros gr, uncons. |
| 650-0710 | NS | Lost circ, LCM returns only. |
| 710-0720 | SS | - clr, sbang-rd, f gr, occ fros, uncons, (trip sample) |
| 720-0730 | NS | |
| 730-0740 | SS | - clr, sbrd, f-occ m gr, pred w srt, clean, fros, occ unconsolidated. |
| 740-0750 | SS | - clr-gy-lt brn, f gr-occ m gr, w srt, tt, slty, lt calc cmt-dolo, no vis Ø, blk dd oil stn, no live flor, lt yel ring. |
| 750-0760 | SS | - clr-gy, f-occ m gr, tt, shy-dolo, blk dd oil stn, no flor, lt yel ring. |
| | DOLO | - lt brn, v f gr, suc, sdy, no vis Ø, occ blk dd oil stn, no live flor. |
| 760-0770 | DOLO | - lt brn, v f gr, suc, sdy, no vis Ø, occ blk dd oil stn, no live flor. |
| | SS | - a/a, dolomitic. |
| 770-0780 | DOLO | - lt brn, mic suc, sdy, no vis Ø, occ chky, occ blk dd oil stn, no live flor, lt yel ring. |
| 780-0790 | SS | - clr-gy, f gr, w srt, dolo, shy, tt, no vis Ø, occ tr dd oil stn a/a. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 790-0800 | DOLO | - a/a, lt gy-lt brn, mic suc, no vis Ø, sdy, occ tr blk dd oil stn, occ chky. |
| 800-0810 | DOLO | - a/a, occ dd oil stn, no live cuts. |
| 810-0820 | SS | - clr, f gr, sbrd, fros, w srt, clean, fros gr. |
| | DOLO | - lt brn, mic suc, sdy, no vis Ø, occ blk dd oil stn. |
| 820-0830 | SS | - clr, sbrd, f gr, w srt, clean-dolo. |
| | DOLO | - lt brn, mic suc, tt. |
| 830-0840 | DOLO | - lt brn, mic suc, sdy, no vis Ø, occ blk dd oil stn, no live flor, lt yel ring. |
| | SS | - clr, f gr, w srt, occ fros, clean-occ dolo cmt, occ shy. |
| 840-0860 | SS | - clr, f gr, sbrd, w srt, fros gr, clean-lt calc cmt. |
| 860-0870 | SS | - clr, f gr, clean, a/a. |
| 870-0880 | SS | - clr, f gr, w srt, clean, a/a. |
| 880-0890 | SS | - clr, clean, a/a. |
| 890-0900 | SS | - clr, f gr, sbrd, w srt, lt calc cmt, clean, fros gr. |
| 900-0910 | SS | - clr, clean, a/a. |
| 910-0920 | SS | - clr, clean, a/a, tr wh calc cmt to thin bedded wh clys, sl calc. |
| 920-0930 | SS | - clr, clean, a/a, tr wh sl calc clys. |
| 930-0940 | SS | - clr, clean, a/a. |
| 940-0950 | SS | - clr, f gr, sbrd, w srt, clean, lt calc cmt, fros gr, occ wh sl calc clys. |
| 950-0960 | SS | - clr, clean, a/a. |
| 960-0970 | SS | - clr, clean, a/a. |
| 970-0980 | SS | - clr, sbrd, f gr, w srt, occ clean, lt red cly cmt, fros gr. |
| 980-0990 | SS | - clr-lt orng, clean, a/a. |
| 990-1000 | SS | - clr-lt orng, f gr, sbrd, pred clean, lt orng cly cmt-clean. |
| 1000-1010 | SS | - clr-lt orng, clean-occ w cmted, a/a. |
| 1010-1020 | SS | - clr-lt orng, sbrd, f gr, w srt, tt-clean, lt orng cmt, sl calc. |
| 1020-1030 | SS | - clr-lt orng, clean, a/a. |
| 1030-1040 | SS | - lt orng, sbrd, w srt, f gr. |
| 1040-1050 | SS | - lt orng, a/a. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 1050-1060 | SS | - lt orng-clr, f gr, sbrd, w srt, clean-lt calc cmt, pred clean-occ tt. |
| 1060-1070 | SS | - clr, sbrd, f gr, w srt, clean. |
| 1070-1080 | SS | - clr, clean, f gr, a/a. |
| 1080-1090 | SS | - clr-lt orng, f-v f gr, w srt, sbrd, clean-tt, lt dolo cmt. |
| 1090-1100 | SS | - clr-lt orng, f-v f gr, a/a. |
| 1100-1110 | SS | - lt orng-orng, v f gr, sbrd, w srt, tt, lt dolo cly cmt. |
| 1110-1120 | SS | - lt orng-orng, v f gr, w srt, a/a. |
| | ANHY | - clr xtln-wh opaque. |
| 1120-1130 | SS | - orng, tt, a/a. |
| | ANHY | - clr xln, brit-wh, sft opaque. |
| | DOLO | - lt brn-gy, dns, micxln, no vis Ø, no shows. |
| 1130-1140 | ANHY | - wh, sft, op-clr, xln, brit, occ tr red-pink. |
| | DOLO | - gy-brn, hd, dns, micxln, no vis Ø, anhy. |
| 1140-1150 | ANHY | - wh, sft, op. |
| 1150-1160 | NS | - LCM |
| 1160-1170 | ANHY | - wh-clr, sft-xln. |
| 1170-1180 | NS | - LCM |
| 1180-1190 | ANHY | - wh, sft, op, occ xln. |
| 1190-1210 | ANHY | - wh-clr, sft-brit, no shows. |
| 1210-1220 | ANHY | - pred clr-wh, xln, sft, dns, no shows. |
| 1220-1230 | ANHY | - pred clr-wh, a/a, tr lt orng SS v f gr. |
| 1230-1240 | ANHY | - pred clr, xln, brit, tr intbd orng SS. |
| 1240-1250 | ANHY | - clr, xln, brit, wh, sft, no shows, tr occ orng SS, dolo. |
| 1250-1260 | ANHY | - clr-orng-wh, xln-sft op, tr purp SH. |
| 1260-1270 | ANHY | - clr-wh, op, xln-sft, occ orng. |
| 1270-1280 | ANHY | - clr-wh-orng, sft-brit, dns. |
| | DOLO | - tr orng, sdy. |
| 1280-1290 | ANHY | - clr-wh-orng, sft-brit, dns occ sdy. |
| | SS | - clr-orng, v f gr, sbrd, w srt, tt, anhy. |
| 1290-1300 | ANHY | - clr-orng-wh, sft-brit, dns, occ v sdy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 1300-1310 | ANHY | - clr-orng-wh, sft-brit, dns occ v sdy. |
| 1310-1320 | ANHY | - clr-wh-orng, sft-brit, occ xln, occ sdy. |
| 1320-1330 | ANHY | - clr-wh-orng, sft-brit, xln. |
| | SS | - orng-clr, f gr, sbrd, w srt, tt, anhy. |
| 1330-1340 | ANHY | - clr-wh-orng, sft-brit, xln. |
| | SS | - orng-wh-clr, f gr, sbrd, w srt, tt, anhy- tr dolo. |
| 1340-1350 | ANHY | - clr-wh-orng, a/a. |
| | DOLO | - lt brn-gy, micxln, dns, frm, occ sdy-anhy. |
| | SS | - orng, anhy, a/a. |
| 1350-1360 | DOLO | - gy brn, micxln, dns, frm, sdy, anhy, no vis Ø. |
| | ANHY | - clr-wh, a/a. |
| | SS | - tt, dolo-anhy, a/a. |
| 1360-1370 | ANHY | - clr-wht, xln, dns. |
| | DOLO | - gy-brn, micxln-v f gr suc, frm-dns, no vis Ø, sdy ip-anhy, no shows. |
| 1370-1380 | DOLO | - lt brn-gy, micxln-v f gr suc, dns, no vis Ø, frm-hd, anhy. |
| | ANHY | - wh-clr, dns, xln, occ dolo. |
| 1380-1390 | ANHY | - wh-clr, dns, xln, occ orng, sdy. |
| | DOLO | - lt brn-gy, micxln-v f gr suc, dns, no vis Ø, hd-frm, anhy ip. |
| | SH | - tr, blk-gy, fiss, hd. |
| 1390-1400 | ANHY | - wh-occ clr, dns, frm, occ sdy-dolo. |
| | DOLO | - gy-lt brn, dns, micxln-v f gr, no vis Ø, anhy. |
| 1400-1410 | ANHY | - clr-wh, xln-dns, hd-sft, occ sdy. |
| | DOLO | - lt brn, micxln, dns, hd, no vis Ø, occ vf gr, no vis Ø. |
| | SS | - orng, f gr, sbrd, w srt, tt, anhy. |
| 1410-1420 | ANHY | - clr-wh, xln-amor, dns, occ sdy. |
| | SS | - orng, tt, anhy, a/a. |
| | DOLO | - lt brn, dns, a/a. |
| 1420-1430 | ANHY | - wh-clr-gy, dns, brit, occ orng, sdy. |
| | SS | - dk orng, shy-orng, tt, anhy, a/a. |

SAMPLE DESCRIPTIONS

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 1430-1440 | ANHY | - clr-gy, dns, brit, occ orng. |
| | DOLO | - lt brn, dns, micxln, no vis Ø, occ anhy. |
| 1440-1450 | ANHY | - wh-clr, dns. |
| | SS | - orng, sbrd, f gr, w srt, tt, anhy, cly-shy. |
| | DOLO | - tr a/a. |
| 1450-1460 | ANHY | - clr-wh, dns, xln-amor, occ orng sdy. |
| | SS | - orng, tt a/a - orng shy-anhy. |
| 1460-1470 | ANHY | - clr-wh, dns, occ sdy. |
| | SS | - clr-orng, f gr, sbrd, w srt, tt, anhy, occ shy. |
| 1470-1480 | ANHY | - clr-wh, dns. |
| | SS | - clr-orng, f gr, w srt, tt, anhy, occ shy. |
| 1480-1490 | ANHY | - clr-wh, dns, occ xln, amor, occ orng sdy. |
| | SS | - clr-orng, f gr, w srt, tt, anhy, orng cly cmt. |
| 1490-1500 | ANHY | - clr-wh, dns, a/a. |
| | SS | - lt orng-clr, v f-f gr, pred w srt, tt anhy, orng-dk orng cly cmt. |
| 1500-1510 | ANHY | - clr-wh, dns, xln-amor, occ sdy. |
| | SS | - orng-clr, vf gr-f gr, w srt, tt, hvy dk orng cly cmt. |
| 1510-1520 | ANHY | - wh-clr, dns, occ sdy. |
| | SS | - lt orng-orng, vf gr-f gr, w srt, tt, clean-occ hvy orng cly cmt, occ tr DOLO, lt brn, dns. |
| 1520-1530 | ANHY | - wh-lt gy, dns, amor. |
| | SS | - orng-dk orng, vf gr-f gr, w srt, tt, orng cly cmt, anhy. |
| 1530-1540 | ANHY | - wh-clr, dns, amor. |
| 1540-1550 | ANHY | - wh-clr-occ pink, dns. |
| | SS | - lt orng-orng, vf gr-f gr, tt, orng cly cmt. |
| | SALT | - going into solution, fresh water mud clorides up, tr solution casts in anhydrite. |
| 1550-1560 | ANHY | - wh, dns, a/a. |
| | SS | - lt orng-orng, tt, a/a. |
| 1560-1570 | ANHY | - wh-clr-gy, dns, sdy ip, tr solution cavities, SALT. |
| | SS | - orng, vf gr, sbrd, w srt, tt, hvy orng cly cmt, anhy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 1570-1580 | ANHY | - clr-gy, occ xln, dns, occ solution cavities. |
| | SS | - orng, vf gr, tt, a/a. |
| 1580-1590 | ANHY | - clr-wh-lt gy, dns, SALT casts. |
| | SS | - lt orng-dk orng, vf gr, cly, tt. |
| 1590-1600 | SS | - dk orng, vf gr-slty, tt, red cly cmt, occ solution vugs. |
| | ANHY | - wh-orng, dns, a/a, tr blk, SH, fiss, hd. |
| 1600-1610 | ANHY | - clr-gy, dns, abnt solution casts. |
| | SS | - orng, vf gr-slty, tt, cly, solution casts. |
| 1610-1620 | ANHY | - clr-gy, dns, abnt solution casts. |
| | SS | - orng, vf gr-slty, tt, cly, solution casts. |
| 1620-1630 | SS | - orng, vf gr-slty, cly, tt, solution casts. |
| | ANHY | - gy-wh-clr, dns, abnt solution casts. |
| 1630-1640 | LS | - gy, xln, vf gr, occ solution Ø, dolo, sl shy, no shows. |
| | ANHY | - gy, dns. |
| 1640-1650 | LS | - gy, micxln-vf gr xln, dns, frm, anhy i pt, occ dolo. |
| | ANHY | - wh-clr, xln, dns. |
| 1650-1660 | LS | -gy, dns, vf gr xln, no vis Ø, dolo xls, anhy, no shows. |
| 1660-1670 | LS | - gy, dns, vf gr xln, occ sln vugs, clean, frm, occ brn DOLO xls, intbd w/ anhy, salt. |
| 1670-1680 | LS | - gy, dns, vf gr xln, occ sln vugs, clean, frm, occ dolo, occ pel-ool. |
| 1680-1690 | LS | - lt gy-lt brn, vf gr xln, dns, occ ool, clean, frm, occ sln casts, dolo. |
| | ANHY | - clr, xln, brit, occ orng, sdy. |
| | SS | - orng, vf gr, w srt, sbrd, tt, orng cly cmt, anhy. |
| 1690-1700 | SS | - orng, vf gr-f gr, sbang, w srt, tt, orng cly cmt, anhy, occ gy-clr a/a. |
| | ANHY | - clr-orng-gy, xln, dns, sdy. |
| 1700-1710 | SS | - lt red, vf gr-f gr-slty, tt, w srt, cly, anhy, occ casts, sln vugs. |
| | ANHY | - clr-gy, dns, occ xln, sln casts. |
| 1710-1720 | SS | - red-orng, vf gr-slty, w srt, tt, cly-v shy, anhy, occ clear, clean orng SS. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 1710-20 (cont) | ANHY | - clr-wh-orng, xln-amor, sln casts. |
| 1720-1730 | SS | - red-orng, vf gr-slty, v cly, anhy. |
| | ANHY | - clr-orng, xln, dns. |
| 1730-1740 | SS | - red-orng, slty-f gr, w srt, v cly ip, anhy. |
| | ANHY | - clr-gy, a/a. |
| 1740-1750 | SS | - red orng, slty-f gr, tt, cly, sln casts. |
| | ANHY | - clr-wh, xln-amor, brit, sln casts. |
| 1750-1760 | SS | - red orng, slty-f gr, w srt, tt, cly, anhy. |
| | ANHY | - clr-wh, xln-amor, cly ip. |
| 1760-1770 | SS | - red orng, slty-f gr, tt, cly, anhy. |
| | ANHY | - clr-wh, xln-amor, sdy-slty. |
| 1770-1780 | NS | - LCM |
| 1780-1790 | SS | - red orng, slty-f gr, tt, sln casts. |
| | ANHY | - clr, a/a. |
| 1790-1800 | SS | - red orange, slty-vf gr, a/a, salts. |
| | ANHY | - clr, xln, a/a, salts. |
| 1800-1810 | SS | - red orng, slty-f gr, tt, w srt, shy, salt casts. |
| | ANHY | - clr-orng red, xln-amor, salt casts. |
| 1810-1820 | SS | - red orng, slty-f gr, tt, w srt, occ v cly. |
| | ANHY | - clr-gy-orng, sdy ip |
| 1820-1830 | ANHY | - wh-clr, xln-amor, dns, salt casts. |
| | DOLO | - lt gy, vf gr, xln, no vis Ø, dns, frm, occ shy. |
| 1830-1860 | SS | - red orng, vf gr-f gr, w srt, sbrd, tt, red cly cmt, occ anhy. |
| | ANHY | - clr-wh, xln-amor, dns. |
| 1860-1880 | SS | - red orng, vf-f gr, w srt, sbrd, tt, red orng cly cmt, occ anhy. |
| | ANHY | - pred wh, dns, sft-occ xln, clr. |
| 1880-1890 | SS | - red orng, tt, a/a, sme gy. |
| | ANHY | - xln, a/a |
| 1890-1910 | SS | - red orng-gy, vf-f gr, tt, orng red cly cmt, anhy. |
| | ANHY | - xln, occ salt casts, a/a. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 1910-1920 | SS | - red orng, vf gr-f gr, a/a. |
| 1920-1930 | SS | - red orng, a/a, occ salt casts, anhy a/a. |
| 1930-1940 | ANHY | - clr, xln, orng occ, salt casts. |
| | SS | orng red a/a. |
| 1940-1950 | ANHY | - clr, xln-orng stn, salt casts. |
| | SS | - red orng a/a. |
| 1950-1960 | ANHY | - clr, xln, orng stn a/a-gy-wh. |
| | DOLO | - lt brn, vf gr, xln, dns, no vis Ø, ool ghosts. |
| 1960-1970 | ANHY | - gy-wh-clr, xln-amor, dns a/a. |
| | DOLO | - lt brn, micxln-vf gr xln, dns, no vis Ø. |
| 1970-1980 | ANHY | - gy-wh-clr, amor-xln, dns, frm. |
| 1980-2000 | ANHY | - gy, a/a. |
| 2000-2020 | LS | - lt brn-gy, vf gr xln, dns, no vis Ø, tr DOLO, tr gy-SH, hd, fiss, sln casts, occ dolo spar. |
| | ANHY | - clr-gy, xln-amor, dns, sln casts. |
| 2020-2030 | LS | - lt brn-gy, vf gr-sparitic, dns, no vis Ø, dolo spar, shy. |
| | ANHY | - gy, amor, dns. |
| 2030-2040 | LS | - lt brn-gy, vf gr-sparitic, dns, no vis Ø, occ dolo spar, shy, occ ool. |
| 2040-2050 | LS | - gy, vf gr-sparitic, dns, no vis Ø, shy, tr ool, tr anhy. |
| 2050-2060 | LS | - gy, vf gr-sparitic, dns, no vis Ø, shy, anhy. |
| 2060-2070 | LS | - gy, vf gr-sparitic, dns, no vis Ø, ool ip, occ shy, anhy. |
| 2070-2080 | SS | - red orng, f-vf gr, w srt, tt, cly, occ gy-anhy. |
| 2080-2140 | Bucket Sample - LCM etc, misrepresentative. | |
| 2140-2150 | LS | - lt brn-gy, vf gr-sparitic, dns, no vis Ø, occ dolo sparite, occ ool, occ anhy. |
| 2150-2160 | LS | - lt brn, a/a. |
| 2160-2170 | SS | - red orng, vf-f gr, tt, no vis Ø, red orng cly cmt anhy. |
| | LS | - tr lt brn, sln Ø, vugular, tr ool-Foram breccia. |
| 2170-2180 | SS | - red orng, a/a, anhy, w/ sln casts, salts. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 2180-2190 | SS | - red orng, a/a. |
| | ANHY | - gy-clr, amor-xln, occ sln casts, salts. |
| 2190-2210 | NS | |
| 2210-2220 | LS | - lt brn-gy, vf gr-litho-occ f gr, dns, no vis Ø, occ sdy, sln vugs, dolo sparite, ool, anhy. |
| 2220-2240 | LS | - lt brn, vf gr-litho-occ f gr, dns, no vis Ø, occ dolo spar, ool ip to Foram breccia. |
| 2240-2250 | LS | - lt brn-gy, vf gr sparite-litho, no vis Ø-occ sln vugs, dolo sparite, occ ool, anhy ip, salt sln casts, anhy. |
| 2250-2260 | LS | - lt gy, a/a. |
| 2260-2270 | SS | - red orng, f gr, w srt, tt, cly cmt, anhy. |
| | ANHY | - wh-clr, xln-amor, dns, brit. |
| 2270-2280 | SS | - red orng, vf gr-slty, w srt, tt, cly red cmt, anhy, occ clr, gr, a/a. |
| | ANHY | - clr-wh, xln, occ red stn. |
| 2280-2290 | SS | - red orng, slty, a/a. |
| | ANHY | - a/a. |
| 2290-2300 | SS | - red orange, slty, a/a. |
| | DOLO | - lt brn, vf gr, suc, good vis Ø, clean sln vugs. |
| | ANHY | - wh-clr, dns, xln-amor, brit-sft. |
| 2300-2310 | SS | - red orng, slty, a/a. |
| | ANHY | - clr-wh, dns, a/a. |
| | DOLO | - lt brn, vf gr, xln, occ anhy, pred no vis Ø-occ suc w/ vis Ø, vugular, clean, occ solution Ø. |
| 2310-2320 | SS | - red orng, slty-vf gr, tt, w srt, occ v cly to CLYST, occ orng, sft, waxy, blky. |
| | ANHY | - clr-wht, xln-amor, a/a. |
| | DOLO | - lt brn, vf gr-f gr, suc, pred dns-occ good Ø, vugular, clean-tr dk ? carb mat, stn, no flor cut. |
| 2320-2330 | DOLO | - lt brn, vf-f gr, tt-occ good Ø, sln vugs, tr arg, clean. |
| 2330-2340 | DOLO | - lt brn, vf-f gr, tt-occ good Ø, a/a, clean. |
| 2340-2350 | DOLO | - lt brn, clean a/a-tr blk possibly petroliferous residue, lt stn, occ banding, no cut, flor. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 2350-2360 | SS | - red orng, vf gr-slty, tt, cly, anhy. |
| | DOLO | - lt brn, vf-f gr, sl Ø-v good Ø, clean, suc ip, tr blk residue, v lt, no flor, v lt hue cut, less than 5% spl. |
| 2360-2370 | SS | - red orng, vf gr-slty, tt, cly, anhy. |
| | DOLO | - lt brn, vf-f gr, dns,occ sl Ø-v good Ø, vugular. |
| 2370-2380 | SS | - red orng, slty-vf gr, tt, cly, anhy. |
| | ANHY | - clr-wh-orng stn, dns, xln-amor. |
| | DOLO | - lt brn, vf-f gr, sl Ø-v good Ø, anhy ip, clean. |
| 2380-2390 | SS | - red orng, slty-vf gr, tt, cly, anhy, occ v cly. |
| | ANHY | - clr-wh, amor-xln, dns, brit. |
| 2390-2400 | SS | - red orng, a/a, occ salt solution casts. |
| | ANHY | - a/a. |
| | DOLO | - lt brn, vf gr-micxln, dns, no vis Ø, occ anhy. |
| 2400-2410 | SS | - red orng, slty-vf gr, tt, cly ip, anhy, occ salt casts. |
| | ANHY | - red stn, xln, dns. |
| | DOLO | - lt brn, vf gr-micxln-occ f gr, tt-occ good Ø, clean. |
| 2410-2420 | SS | - red orng, slty-vf gr, tt, occ clear gr, cly, anhy ip, occ claystone salt casts. |
| | ANHY | - clr-red stn, xln, dns. |
| | DOLO | - lt brn, vf gr, tt, dns, anhy. |
| 2420-2430 | SS | - slty-cly, a/a, sln casts. |
| | ANHY | - a/a. |
| 2430-2440 | SS | - red orng, vf gr-slty, cly, tt, anhy, occ intbd SH, CLYST, sln casts. |
| | ANHY | - a/a, clr-red stn. |
| 2440-2450 | SS | - red orng, vf gr-slty, tt, cly, anhy, solution casts. |
| | ANHY | - clr-red orng, xln, dns. |
| | DOLO | - lt brn, dns, no vis Ø, anhy. |
| 2450-2460 | SS | - red orng, f gr-slty, tt, cly, anhy. |
| | ANHY | - clr-red orng-gy, dns, xln ip, salt casts. |
| 2460-2470 | SS | - red orng, vf gr-slty, occ v cly-CLYST, tt, anhy. |
| | ANHY | - clr-red orng-gy, dns. |
| | DOLO | - lt brn, dns, micxln, anhy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 2470-2480 | SS | - red orng a/a. |
| | ANHY | - clr-wh a/a. |
| | DOLO | - lt brn-gy a/a. |
| 2480-2490 | SS | - red orng, tt, a/a. |
| | ANHY | - clr-gy, a/a. |
| | DOLO | - lt gy-lt brn, vf-f gr, tt-occ Ø, clean, anhy. |
| 2490-2500 | SS | - red orng, vf gr-slty, tt, cly, anhy, salt casts, cly. |
| | ANHY | - clear-wh-red orng, a/a. |
| | DOLO | - lt gy-brn, micxln, dns, anhy. |
| 2500-2510 | SS | - red orng-clr-wh, anhy, salt casts, a/a. |
| | ANHY | - a/a. |
| | DOLO | - tr, lt brn, dns, anhy. |
| 2510-2520 | SS | - red orng, vf gr, tt, w srt, cly, anhy. |
| | ANHY | - clr-red stn, xln, dns. |
| | DOLO | - lt brn, micxln, dns, no vis Ø, clean. |
| 2520-2530 | SS | - red orng, a/a, - abnt salt casts. |
| | ANHY | - a/a abnt salt casts. |
| 2430-2540 | SS | - red orng-gy, vf gr, cly, tt, anhy salt casts. |
| | ANHY | - clr-gy, xln-amor, salt casts. |
| 2540-2550 | SS | - red orng, a/a, v cly, CLYST. |
| | ANHY | - clr-gy a/a. |
| | DOLO | - lt brn, micxln, dns, cln. |
| 2550-2560 | SS | - red orng, vf gr-slty, tt, occ v cly-CLYST, anhy. |
| | ANHY | - gy-clr-red stn, dns, xln-amor, salt casts. |
| | DOLO | - gy-lt brn, dns, no vis Ø, cln. |
| 2560-2570 | SS | - red orng, tt, cly, anhy, a/a. |
| | ANHY | - clr-red stn, a/a. |
| | DOLO | - gy, dns, micxln, a/a. |
| 2570-2580 | SS | - red orng, slty-v cly, occ CLYST, tt, a/a salt casts. |
| | ANHY | - clr-wh, xln-amor. |
| | DOLO | - tr lt brn, dns, a/a. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 2580-2590 | SS | - red brn, slty-cly, tt, salt casts, a/a. |
| | ANHY | - wh-gy-orng stn, dns, salt casts, a/a. |
| | DOLO | - lt brn-gy, dns, micxln, no vis Ø, cln. |
| 2590-2610 | NS | - Lost circulation |
| 2610-2700 | NS | - Lost circulation, drilled 2½ jts w/ no returns. |
| 2700-2710 | SS | - red orng, vf-f gr, tt, lt cly cmt, no vis Ø. |
| | DOLO | - lt brn, dns, micxln-vf gr xl, good Ø, cln. |
| 2710-2730 | NS | - |
| 2730-2740 | SS | - red orng, vf gr, tt, w srt, red cly cmt. |
| | ANHY | - clr-wh, dns, a/a. |
| 2740-2750 | SS | - orng red, vf gr, w srt, tt, cly occ cln, wh anhy. |
| 2750-2780 | SS | - orng red, vf-f gr, w srt, tt, anhy. |
| | ANHY | - wh, dns, blky. |
| 2780-2810 | SS | - orng, vf-f gr, w srt, tt, cly-v cly, CLYST, anhy. |
| | ANHY | - clr, xln, brit. |
| | DOLO | - buff, vf gr, dns, no vis Ø. |
| 2810-30 | SS | - orng red-occ wh, a/a. |
| | SH | - red, frm, blky, occ v slty, hd. |
| 2830-2840 | NS | |
| 2840-2850 | SS | - orng red, slty-vf gr, w srt, tt, cly, blky. |
| | SH | - orng red, sft-frm, cly-slty, blky. |
| 2850-2870 | SS | - orng red, v slty-vf gr, tt, w srt, v cly. |
| 2870-2890 | NS | |
| 2890-2900 | SS | - orng red, vf gr, w srt, tt, cly, sl calc. |
| | SH | - orng red-red brn, occ v sft-frm, blky, slty, occ making much mud. |
| 2900-2910 | SS | - orng red, slty-vf gr, a/a. |
| | SH | - orng red, a/a. |
| 2910-2930 | SS | - orng red, slty-vf gr, w srt, tt, cly, sl dolo. |
| | SH | - orng red-red brn, frm-hd, blky. |
| 2930-2940 | NS | |
| 2940-2950 | SS | - orng red-occ wh, slty-f gr, w srt, tt, cly, sl dolo. |
| 2950-2960 | SS | - a/a. anhy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 2960-2980 | SS | - orng red-red brn, slty-vf gr, cly, w srt, tt, dolo, occ CLYST, lt red, making mud. |
| 2980-2990 | SS | - orng red, v slty, dolo, a/a. |
| 2990-3000 | SLTST | - red brn, hd, blky, dolo. |
| 3000-3020 | SS | - a/a - SLTST, a/a. |
| | SH | - red brn, hd, blky-sft, making mud, sl dolo. |
| 3020-3030 | SS | - SLTST, a/a. |
| | SH | - red brn, sft-hd, blky, lmy, slty. |
| 3030-3040 | SH | - red brn, frm, hd-sft, blky, occ slty, lmy, containing: occ LS, pel, red brn, micrite, weathered? |
| 3040-3050 | SH | - red brn, a/a, w/ LS nod, red brn. |
| 3050-3060 | SH | - red brn, frm, blky, calc, LS nod, slty. |
| 3060-3070 | SH | - red brn, frm, blky, calc, slty, occ red brn LS nod, occ gy, wxy SH. |
| 3070-3080 | SH | - red brn, blky, frm, slty, calc. |
| | SH | - gy, wxy, blky, tr sdy. |
| 3080-3090 | SH | - red brn, slty, blky, frm, calc, LS pel incl. |
| 3090-3100 | SH | - red brn, frm, blky, slty, lmy, w/ red brn LS pel. |
| 3100-3110 | SH | - red brn-tr wh mot, frm, blky, slty-occ sdy, lmy w/ LS pel incl. |
| 3110-3120 | SH | - red brn-lav mot, frm-hd, blky, lmy, LS pel. |
| 3120-3130 | SH | - red brn, frm-hd, blky, wxy-slty, lmy, LS pel. |
| | SS | - tr brn, vf gr, tt, w srt. |
| 3130-3140 | SH | - red brn, hd-sft, slty, blky, lmy, LS pel, red brn, tr Anhy, wh intbd w/ SH. |
| 3140-3150 | SH | - red brn-tr lav mot, frm-hd, occ slty, wxy, lmy, LS pel, red brn-lav, dns, hd, weathered? |
| 3150-3160 | SH | - red brn, frm, blky, slty, calc, occ wxy, w/ LS pel a/a. |
| 3160-3170 | SH | - red brn, a/a, occ mot, LS pel incl a/a. |
| 3170-3180 | SH | - red brn, slty-sdy, occ mot, LS pel incl a/a, tr Anhy. |
| 3180-3190 | SH | - red brn-mot-occ brn, slty-sdy, LS pel incl. |
| 3190-3200 | SH | - red brn-mot, slty-sdy, LS pel incl, tr Anhy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 3200-3210 | SH | - red brn-wh mot, slty-sdy, LS pel a/a. |
| 3210-3220 | SH | - red brn-mot, slty-sdy, frm-sft, LS pel incl, anhy ip. |
| 3220-3230 | SH | - red brn, mot, slty-sdy, sft-frm, anhy, LS pel incl. |
| 3230-3240 | SH | - red brn-mot, slty-sdy, sft-frm, anhy, calc, LS pel incl. |
| 3240-3250 | SH | - red brn-mot, slty-sdy, sft-frm, anhy, calc, LS pel incl. |
| 3250-3260 | SH | - red brn, a/a, LS pel incl a/a. |
| 3260-3270 | SH | - red brn-mot, slty-sdy, sft-frm, calc, anhy, LS pel a/a. |
| 3270-3280 | SH | - red brn, sft-hd, blky, slty, calc. |
| 3280-3290 | SH | - red brn-mot wh-gy, slty, hd, calc, LS pel incl, tr LS - gy, dns, micxln, no vis Ø. |
| 3290-3300 | SH | - red brn-purp-mot, a/a w/ LS pel a/a. |
| 3300-3310 | SH | - red brn w/ LS incl a/a. |
| 3310-3320 | SH | - red brn, slty-wxy, hd, calc, LS incl, pel, red brn, dns, micxln, weathered surface?. |
| 3320-3330 | SH | - red brn w/ LS incl a/a. |
| 3330-3350 | NS | |
| 3350-3360 | SH | - red brn-purp-mot, sft-hd, slty, calc, tr anhy, LS incl, pel, red brn, dns, micrite, weathered appearance. |
| 3360-3370 | SH | - red brn-mot, slty, calc, a/a w/ LS pel incl & clr qtz pbl-chty fragments. |
| 3370-3380 | SH | - red brn-mot a/a w/ LS a/a. |
| 3380-3390 | SH | - red brn-mot a/a, abnt LS-pel, w/ cht, tr Anhy, eight (8) unit gas increase over background of 0 units, $C_1$-$C_4$+. |
| 3390-3400 | SH | - red brn-mot, a/a abnt LS- breccia. |
| 3400-3410 | SH | - red brn-wh mot, sft-hd, slty, calc, containing LS pel, red brn, micrite, dns, rd weathered appearance. |
| | LS | - red brn-mar, dns, hd, no vis Ø, cht-qtz frag. |
| 3410-3420 | SH | - red brn w/ LS incl a/a, cht, wh-clr, iron stained. |
| 3420-3430 | SH | - red brn-mot-purp a/a w/ LS incl a/a, cht frag, clr-op, occ brec w/ calc cmt. |
| 3430-3440 | SH | - red brn-mot-purp a/a, w/ LS incl a/a. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 3440-3450 | SH | - red brn, mot-purp, sft-hd, slty, calc, w/ LS incl, pel-nod, dns, micrite occ resembling concretions, multi colored, ringed, cht frag, clr-wh, iron stn, ang, calc sparite cmt, occ opaline frag. |
| 3450-3460 | SH | - red brn-purp a/a w/ incl a/a. |
| | LS | - wh-pink-gy, dns, micrite, no vis Ø, occ calc sparite, fracture fill, Fusulinids ?, tr Foram brec biocl deb. |
| 3460-3470 | SH | - red brn a/a. |
| | LS | - wh-crm-mar mot, dns, micrite, no vis Ø, calc sparite, fossiliferous, Forams, Crin, no stn, flor, cut. |
| 3470-3480 | SH | - a/a. |
| | LS | - a/a abnt biocl. |
| 3480-3490 | SH | - red brn, frm-hd, slty, calc, LS pel incl, cht frag, clr-opalline. |
| | LS | - wh-red mot-gy grn, dns, micxln, no vis Ø, abnt fos deb, no stn-cut-flor. |
| 3490-3500 | SH | - a/a. |
| | LS | - wh-red mot-gy grn, dns, micxln, no vis Ø, abnt fos deb, no stn cut flor. |
| 3500-3510 | SH | - red brn, frm, slty, calc, LS nod incl a/a. |
| | LS | - wh-grn, mot, dns, no vis Ø, abnt calc fill sparite, abnt fos deb, no cut flor stn. |
| 3510-3530 | NS | |
| 3530-3540 | SH | - red brn, frm-hd, slty, calc, LS incl, red brn. |
| | LS | - wh-gy-red brn, dns, micrite, no vis Ø, abnt fos deb, calc sparite. |
| 3540-3550 | SH | - red brn, frm-hd, slty, calc, LS incl a/a. |
| | LS | - wh-gy-red brn, dns, micrite, no vis Ø, abnt fos deb. |
| 2550-3560 | LS | - lt brn-brn-crm, vf gr-micrite, no vis Ø, dns occ arg, fos deb, occ sdy. |
| | SH | - a/a. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company

WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 3560-3570 | LS | - lt brn-brn-gy, vf gr, micxln, dns, v sl Ø, occ arg, fos, occ sdy, occ dolo. |
| | DOLO | - pink-wh, dns, no vis Ø. |
| 3570-3580 | LS | - wh-gy, micrite, dns, fos, occ dolo, occ arg-intbd w/ SS. |
| | SH | - lt gy, sft, blky, carb. |
| 3580-3590 | LS | - wh-gy-lt brn, dns, micrite, fos, occ cht. |
| | SH | - red brn, hd, slty, calc, w/ LS pel incl. |
| 3590-3600 | LS | - wh-yel-mot, dns, micxln, occ calc sparite, fos-occ ool, occ arg. |
| | SH | - red brn a/a, occ lt gy, earthy, carb. |
| 3600-3610 | SH | - red brn-gy-wh mot, hd, calc. |
| | LS | - a/a, tr w/ fv gr xln, sl vis Ø. |
| 3610-3620 | SH | - red brn-purp mot, frm, lmy, LS pel incl. |
| | LS | - lt gy, micrite-vf gr xln, dns, occ shy. |
| 3620-3630 | SH | - red brn-purp mot, sft-hd, lmy, LS pel incl, occ tr gy SH sft carb. |
| | LS | - lt gy, dns, micrite, intbd w/ SH. |
| 3630-3640 | LS | - lt gy-crm-red brn, dns, micrite, occ shy. |
| | SH | - red brn, hd, slty, calc. |
| 3640-3650 | SH | - red brn-purp-mot, frm-hd, lmy, slty-wxy. |
| | LS | - wh-crm-lt brn, dns, hd, occ fossiliferous, intbd w/ SH, occ arg. |
| 3650-3660 | SH | - red brn a/a, lmy, slty-sdy, occ SS- red brn, v f gr, lt cmt. |
| | LS | - wh-red brn, dns, micrite, occ arg-intbd w/ SH. |
| 3660-3670 | SH | - red brn, frm, lmy, slty-sdy, LS pel incl, tr Anhy. |
| | LS | - crm-wh, dns, micrite, occ fossils, intbd w/ SH. |
| | SS | - brn red, vf gr, tt, lt cly smt. |
| 3670-3680 | SH | - red brn-purp-mot, frm, slty-wxy, LS pel incl. |
| | LS | - wh, dns, micritic, sdy ip. |
| 3680-3690 | SH | - red brn-purp mot, slty, tr anhy, LS pel incl. |
| | LS | - wh-crm, dns, micritic, occ anhy, slty ip |
| 3690-3700 | SH | - red brn-purp-gy-mot, frm-hd, slty, blky-plty, abnt LS pel incl, tr anhy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 3700-3710 | SH | - red brn-purp-mot, a/a w/ LS pel, w/ intbd Anhy. |
| 3710-3720 | SH | - red brn-mot a/a, LS incl a/a, tr Anhy. |
| 3720-3730 | SH | - red brn-gy, a/a LS incl, occ gy carb-mica. |
| 3730-3740 | SH | - red brn-purp-gy, frm-sft, blky, occ slty, LS pel incl. |
| 3740-3750 | SH | - red brn-purp-mot, frm, blky, slty, lmy, LS pel incl. |
| 3750-3760 | SH | - red brn-purp-gy, a/a w/ LS pel incl, red brn weathered look. |
| | LS | - wh-crm, dns, micrite, no vis Ø, tr ool, tr calc spar, tr anhy. |
| 3760-3780 | NS | |
| 3780-3790 | SH | - red brn-purp-gy, sft-frm, blky, slty, lmy, w/ LS incl. |
| | SS | - brn, vf gr, w srt, tt, cly cmt. |
| 3790-3800 | SH | - red brn-purp-gy-mot, sft, blky, occ slty, lmy, LS incl. |
| 3800-3810 | SH | - colored a/a, occ slty, limey, LS incl. |
| 3810-3820 | SH | - vgt a/a, occ slty, w/ LS pel incl, occ sdy. |
| 3820-3830 | SH | - vgt a/a, occ slty-sdy, tr Anhy, Ls incl. |
| 3830-3840 | SH | - vgt, sft-frm, blky-plty, slty, occ anhy, limey, w/ LS incl to tr thin bedded LS - crm, micrite, tr ool. |
| 3840-3850 | SH | - red brn-gy-purp mot, frm, blky, slty, lmy, LS incl, thin bedded LS- red brn-gy, micrite. |
| | SS | - red brn-gy, vf gr, w srt, cln. |
| 3850-3860 | SH | - red brn-vgt, a/a w/ LS pel incl. |
| | LS | - wh-gy, dns, micrite, occ ool. |
| 3860-3870 | SH | - vgt, slty, lmy, LS incl, tr ochre carb SH. |
| 3870-3880 | SH | - vgt a/a-tr gy carb. |
| | SS | - gy, vf gr, w srt, tt, cln, abnt mica-blk min gr-amber yel qtz gr. |
| 3880-3890 | SS | - gy-wh, vf gr, w srt, tt, cln, abnt min gr vf-f gr, blk-yel-sl grn, ang. |
| 3890-3900 | SH | - vgt, sft, blky, slty, lmy, LS incl, tr gy carb SH. |
| 3900-3910 | SH | - vgt a/a, occ sdy, tr cht. |
| 3910-3920 | SH | - red brn-gy-och, vgt, sft-frm, slty, blky, lmy, LS pel incl, occ sdy. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 3920-3930 | SH | - vgt a/a, slty-sdy, occ cht opalline-yel-clr. |
| 3930-3940 | SH | - red brn-brn-gy, sft-frm, blky, LS pel incl intbd w/ Anhy wh-pink, xl. |
| | LS | - crm, dns, micrite, occ ool sparite. |
| 3940-3950 | SH | - vgt a/a, anhy, LS pel incl. |
| | LS | - tr a/a. |
| 3950-3960 | SH | - vgt, sft-frm, blky, lmy, chty, occ LS pel incl a/a. |
| 3960-3970 | SH | - vgt, sft-frm, blky, lmy, chty. |
| 3970-3980 | SH | - vgt a/a. |
| 3980-3990 | SH | - vgt, LS incl, tr Anhy. |
| | LS | - purp-crm-lt brn, dns, micritic. |
| 3990-4000 | SH | - vgt, abnt LS pel incl, weathered, tr Anhy. |
| | LS | - purp-crm, dns, micrite, no vis Ø. |
| 4000-4010 | SH | - red brn-gy-grn, frm, blky, slty. |
| 4010-4020 | SH | - red brn, vgt, slty-sdy. tr LS- crm, micrite, dns. |
| 4020-4030 | SH | - vgt a/a, v sdy. |
| | LS | - wh-pink-crm, dns, micrite. |
| 4030-4040 | SH | - vgt, a/a slty-sdy, occ cht, detrital cgl. |
| 4040-4050 | SH | - vgt, slty, lmy, occ sdy. |
| | LS | - tr crm-wh, dns, micrite. |
| | CGL | - clr, qtz, red stn, ang, mica-chlor. |
| 4050-4060 | SH | - red brn-purp-grn-mot, frm, blky, slty-sdy, lmy, LS pel incl - gy, micrite. |
| | CGL | - qtz-clr-smokey-red, ang, pel frag, mica-chlor. |
| 4060-4070 | SH | - vgt a/a, LS pel incl, intbd w cgl. |
| | CGL | - qtz-pbl-bldr, amor, qtz-clr-smokey-red-yel, ang frag, mica-chlor, occ magnetite. |
| 4070-4080 | SH | - vgt, lmy, slty, intbd w cgl. |
| | CGL | - qtz pbl-bldr, amor, qtz-clr-smokey-red-yel, ang frag, mica-chlor, tr magnt, occ calc sparite. |

SAMPLE DESCRIPTION

OPERATOR: Sumatra Energy Company WELL: Santa Fe #1-17

| | | |
|---|---|---|
| 4080-4090 | CGL | - a/a. |
| | DOLO | - red orng, sdy, tt. |
| 4090-4100 | CGL | - qtz-orng-yel, ang, amor, mica-chlor-occ magnt. |
| 4100-4110 | SH | - red brn-gy, occ wh non calc cly, weathered cgl, slty, blky, non cala. |
| | CGL | - a/a. |
| 4110-4120 | CGL | - qtz, clr-smokey-orng, amor, ang frag, mica, chlor, occ magnt, occ wh, cly, weathered cgl. |
| 4120-4130 | CGL | - qtz-orng-clr-smokey, amor, ang frag, mica, chlor, occ magnt. |
| 4130-4143 | CGL | - qtz-orng-clr-smokey, amor, ang frag, mica, chlor, occ magnt. |

RECEIVED
APR 13 1983
O & G CONS. COMM.

# M E M O R A N D U M

TO: Earl Cranston
Dick Hoefle
Jeff Scott
Bill Young
Charles Hoefle

DATE: April 13, 1983

FROM: Bill Proudfoot

SUBJECT: Log Analysis of Santa Fe #1-17 Well
Concho Prospect, Arizona

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***

I have reviewed the logs on the subject well to determine lithology and potential pay zones.

## SUMMARY

The Naco formation of the Pennsylvanian Age had gas shows in the mud logs. There was 138' of pay thin limestones interbedded with shales. Using a 4-5% porosity cut off and a 65% water saturation cut off, there was 50' of effective net pay. Effective porosities in this net-pay ranged from 4 to 9% with a weight average of 5.2%. Water saturation ranged from 25 to 65% with a weight average of 36%.

Given that the open hole logs are valid, and that the gas zones are permeable enough to drain 160 acres, a similar well drilled could be expected to have about 1 BCF in recoverable gas reserves. If the tighter gas pays contributes, reserves could be more. Depending on permeability, i.e. with fractures etc., limestones with porosites as low as 3% have been quite productive.

## Review of Abandonment Decision

Although these gas shows would normally have been tested, the condition of the hole in the subject well was such that a drill stem test would be very risky.

Since the testing would require the casing the well with another 100 M$ committment, and there is no ready gas market in the area; the decision was made to plug this well.

* For the marked open hole logs, see the well file.

SANTA FE #1-17

Log Analysis of Gas Pay

| Interval Ft KB | Pay Ft. | Net Effective Pay Ft. | Effective Porosity % | Water Saturation % | Hydrocarbon Pay $\phi(1-Sw)h$ Ft. | Mud Log Gas Increase yes/no |
|---|---|---|---|---|---|---|
| 3350-3360 | 15 | 6 | 8 | 50 | 0.24 | ? |
| 3440-3460 | 18 | 6 | 7 | 50 | 0.21 | Yes |
| 3475-3500 | 19 | 5 | 5 | 50 | 0.13 | Yes |
| 3560-3570 | 7 | 5 | 4 | 40 | 0.12 | Yes |
| 3600-3610 | 12 | 2 | 9 | 40 | 0.11 | Yes |
| 3625-3635 | 12 | 4 | 4 | 50 | 0.08 | Yes |
| 3660-3680 | 16 | 5 | 4 | 40 | 0.12 | No |
| 3690-3720 | 14 | 5 | 9 | 40 | 0.27 | No |
| 3840-3860 | 12 | 9 | 7 | 40 | 0.38 | Yes |
| Total/or Weighted Average | 138 | 50 | 5.2 | 36 | 1.66 | |

## Volumetric Determination of Potential Gas Reserves

Original Gas in Place

$h = 50$ ft.
$\emptyset_e = 5.2\%$
$Sw = 36\%$
$A = 160$ acres

$OGIP = 43.560\ h \times \emptyset \times (1 - Sw) \times A \times Bg$ MCF

$OGIP = 43560\ (50)\ (0.052)\ (1-0.36) \times 160 \times 131.$ MCF

$OGIP = 1.5$ BCF

## Original Formation Volume Factor

$$Bg = \frac{35.35\ Pi}{Zi\ \ Ti}$$

Assuming a normal fresh water gradient

$$Pi = 8.8\#/gal \times 0.052\ \frac{Psi.\ gal}{\#\ ft} \times 3600'$$

$Pi = 1650$ psi

$Ti = 95°\ F = 555°R$

$Zi = 0.8$

$$Bh - \frac{35.35\ (1650)}{0.8\ \ (555)} = 131.\ \frac{psi(s)}{psi(r)}$$

## Volumetric Recovery Factor

- for sensitivity

$$Rf = 1 - \frac{PaZi}{PiZa}$$

$Pa = 100$ psi (using compression eventually)

$Za - 0.98$

$$Rf = 1 - \frac{100\ (.8)}{1650\ (.98)} = 0.85$$

$Pa = 500$ psi (without compression) $Rf = 0.75$

## Potential Recoverable Gas Reserves

Recoverable Reserves = OGIP X Rf

- use Rf = 0.8 to be conservative

Recoverable Reserves = 1.5 BCF X 0.80
= 1.2 BCF

Water Resistivity

The use of a Rw = 0.04 ohm . M has been based on:

1. Geologically, below the Supai formation, the zones are salty. Using a saturated NaCl salt system at reservoir temperature of 95°F, gives an Rw = 0.03 ohm . m

2. The following clean zones if assumed* to contain 100% salt water, yields the following:

| Depth ft. | Effective Porosity % | Deep Resistivity ohm.m | Calculated Water Resistivity ohm . m |
|---|---|---|---|
| 3950 | 15 | 1.5 | 0.034 |
| 3990 | 12 | 3 | 0.043 |

$$Sw^2 = \frac{Rw * 1}{Rd \ \emptyset^2} \qquad Rw = Sw^2 Rd \ \emptyset^2$$

*if some hydrocarbon is present, Rw will calculate lower.

3. The Rwa calculation in the computer analyzed log, gives values between o.02 and 0.04 ohm . m

**Oil and Gas Conservation Commission**
STATE OF ARIZONA
5150 N. 16th STREET, SUITE B-141
PHOENIX, ARIZONA 85016
PHONE: (602) 255-5161

April 19, 1991

Mr. Rex Bennnett
Lake Investment Company
Concho, Arizona 85924

Dear Rex:

To follow up your request for information this morning, I've enclosed the plugging record and the driller's log for the Sumatra Energy Santa Fe 1-17 well.

Don't hesitate to call if you need additional information.

Sincerely,

Steve

Steven L. Rauzi
Oil & Gas Specialist

Enclosures

March 16, 1984

Mr. Jeff Obermiller
Statistical Analyst
American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005

Dear Mr. Obermiller:

Thank you for your letter of March 13, 1984, regarding drilling costs and activity in Arizona.

I have checked our files on the list of operators you sent and find that all holes have been plugged and abandoned. However, I am enclosing the last known addresses of the operators in the hope that they might be of some use to you.

If I can be of any further assistance, please do not hesitate to contact me.

Sincerely,

Sheila Burgan
Secretary
Enforcement Section

Enclosure

ENCLOSURE

Bedrock Oil Company 1 State — P & A 11/09/82
2705 Swiss Avenue
Dallas, Texas 75204
Harold L. Witcher, Vice President

Sumatra Energy Company 1-17 Santa Fe — P & A 03/24/83*
999 - 18th Street
One Denver Place, Suite 1400
Denver, Colorado 80202
W. A. Proudfoot, Operations Manager

*Converted to water well

Gail W. Sponseller 1 Sponseller — P & A 09/07/82
P. O. Box 488
Corona, California 91720
Gail W. Sponseller, Individual

LAKE INVESTMENT COMPANY

3550 N. CENTRAL / SUITE 401 / PHOENIX, ARIZONA 85012 / TELEPHONE 277-2671

RECEIVED
MAR 23 1983
O & G CONS. COMM.

AKD
RAY

March 22, 1983

Mr. A. K. Doss, Director
Oil & Gas Conservation Commission
State of Arizona
1645 West Jefferson #420
Phoenix, Arizona 85007

Form 26 - Water Well Acceptance

Dear Mr. Doss:

Enclosed is our executed form 26 advising that we accept the abandoned wildcat well, known as the Sumatra Energy Santa Fe R.R. located on the NW NW ¼ ¼ of Section 17, Township 12N, Range 26E, Apache County, Arizona as a water well to be used for domestic purposes.

Very truly yours,

Henry H. Leigh

Henry H. Leigh
President

HHL:cg

encl.

cc: Mr. Bill Proudfoot
Sumatra Energy Company
Denver, Colo 80202

836

Sumatra Energy Company

One Denver Place, Suite 1400
999 18th Street
Denver, Colorado 80202
(303) 623-6935

RECEIVED
FEB 22 1983
O & G CONS. COMM.

February 18, 1983

Mr. R. A. Yearra
ARIZONA OIL AND GAS COMMISSION
1645 W. Jefferson, Ste. 420
Phoenix, Arizona 85007

Dear Mr. Yearra:

Enclosed please find a drilling program, in duplicate, for the Santa Fe #1-17 well.

Please accept my apology for the delay in getting this program to you. We had to rework the Geological Program with updated information making it necessary for extra delay. I hope that this does not inconvenience you in any way.

Sincerely,

William A. Proudfoot
Manager of Operations

WAP:vk
Enclosures

836

January 10, 1983

Mr. William Proudfoot
Sumatra Energy Co., Inc.
1400 - One Denver Place
999 - 18th St.
Denver, CO 80202

Re: State Permit 836
1-17 Santa Fe
Sec. 17-12N-26E Apache County

Dear Mr. Proudfoot:

Enclosed are approved application for permit to drill, permit to drill, receipt, and approved performance bond for the reference well.

Also enclosed are instructions for weekly progress reports and handling of well samples.

If we can be of further assistance, please advise.

Sincerely,

R. A. Ybarra
Enforcement Director

/os
Encl.

RECEIVED
JAN 10 1983
O & G CONS. COMM.

OLLIVER/PILCHER
INSURANCE

January 7, 1983

State of Arizona
Oil & Gas Conservation Commission
1645 W. Jefferson
Phoenix, Arizona 85007

Re: Sumatra Energy YCompany, Bond # CC71053-10

Gentlemen:

Enclosed herewith are two copies of the above mentioned bond which we have counter-signed as Arizona Resident Agents. The Montana agent for Sumatra is Hoiness-LeBar Insurance, P. O. Box 30638, Billings 59107. If you have any questions, please contact Helen Zier at Hoiness-LeBar.

Thank you.

Regards,
OLLIVER/PILCHER INSURANCE

Maryann Carafello

Maryann Carafello
Associate Technical Supervisor
encl.

6150 N. 16th Street • Phoenix, Arizona 85016 • Tlx 66-8413 • (602) 277-5703

OFFICE OF
**Oil and Gas Conservation Commission**
STATE OF ARIZONA
1645 WEST JEFFERSON, SUITE 420
PHOENIX, ARIZONA 85007
PHONE: (602) 271-5161

April 21, 1983

Sumatra Energy Company
One Denver Place, Suite 1400
Denver, Colorado 80202

Re: Sumatra Energy Company
Well No. 1-17 Santa Fe
Bond No. CC 71053-10
Apache County, Arizona

Dear Mr. Proudfoot:

This will acknowledge receipt of all required reports and logs upon abandonment of subject well on March 24, 1983.

Performance of abandonment operations as required and receipt of reports and logs constitutes our approval for release of above-captioned bond.

Thank you for your promptness. It was a pleasure working with you, Roy Baughman, and the Bayless drilling people.

Sincerely,

R. A. Ybarra

R. A. Ybarra
Enforcement Director

RAY:bg

cc: Hoiness-LeBar Insurance Company

Bond No. CC 71053-10

RECEIVED

JAN 10 1983

O & G CONS. COMM.

# PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. _____

That we: SUMATRA ENERGY COMPANY

of the County of Arapahoe in the State of Colorado

as principal, and COMMERCIAL UNION INSURANCE COMPANY

of Boston, Massachusetts

AUTHORIZED TO DO BUSINESS WITHIN THE STATE OF ARIZONA.

as surety, are held and firmly bound unto the State of Arizona and the Oil and Gas Conservation Commission, hereinafter referred to as the "Commission", in the penal sum of Five Thousand and no/100---------- lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, and each of us, and each of our heirs, executors, administrators or successors, and assigns jointly and severally, firmly by these presents.

The conditions of this obligation are that, whereas the above bounden principal proposes to drill a well or wells for oil, gas or stratigraphic purposes in and upon the following described land situated within the State, to-wit:

495 South of Northline 660 East of Westline Section 17, Township 12 North, Range 26 East
Apache County, Arizona (May be used as blanket bond or for single well)

NOW, THEREFORE, if the above bounden principal shall comply with all the provisions of the Laws of this State and the rules, regulations and orders of the Commission, especially with reference to the requirements of A.R.S. § 27-516, providing for the proper drilling, casing and plugging of said well or wells, and filing with the Oil and Gas Conservation Commission all notices and records required by said Commission, then in the event said well or wells do not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, this obligation is void; otherwise it shall remain in full force and effect.

Whenever the principal shall be, and declared by the Oil and Gas Conservation Commission in violation of the Laws of this State and the rules, regulations and orders of the Commission, the surety shall promptly:

1. Remedy the violation by its own efforts, or
2. Obtain a bid or bids for submission to the Commission to remedy the violation, and upon determination by the Commission and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Commission, and make available as work progresses sufficient funds to pay the cost of remedying the violation; but not exceeding, including other costs and damages for which the surety may be liable hereunder, the amount set forth in the first paragraph hereof.

Liability under this bond may not be terminated without written permission of this Commission.

CANCELLED

DATE 4-21-83

WITNESS our hands and seals, this 3rd day of January, 19 83.

SUMATRA ENERGY COMPANY

BY: Earl M. Grantz
Principal

WITNESS our hands and seals, this 3rd day of January, 19 83.

COMMERCIAL UNION INSURANCE COMPANY

BY: Kip W. Vandeventer
Kip W. Vandeventer, Surety Attorney-in-fact

Jerry A. Underwood
(Surety, Resident Arizona Agent
If issued in a state other than Arizona)

(If the principal is a corporation, the bond should be executed by its duly authorized officers, with the seal of the corporation affixed. When principal or surety executes this bond by agent, power of attorney or other evidence of authority must accompany the bond.)

Approved
Date 1-10-83
STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
By: R. A. Yarna

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Bond
File Two Copies
Form No. 2

Permit No. 836

RECEIVED

JAN 10 1983

O & G. CONS. COMM.

# POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the COMMERCIAL UNION INSURANCE COMPANY, a corporation duly organized and existing under the laws of the Commonwealth of Massachusetts, and having its principal office in the City of Boston, Massachusetts, hereinafter called, instituted and appointed, and does by these presents make and constitute and appoint John A. Petentler, James D. Hoiness, Melvin P. Hoiness, Julia S. La Grange, Les L. Jensen, Kip W. Vandeventer and Luella Morken all of Billings, Montana

and each of them its true and lawful Attorney-in-Fact, to make, execute, seal and deliver for and on its behalf as surety any and all bonds or undertakings

and the execution of such bonds or undertakings in pursuance of these presents, shall be binding upon said Company as fully and amply, to all intents and purposes, as if such bonds were signed by the President, sealed with the corporate seal of the Company, and duly attested by its Secretary, hereby ratifying and confirming all the acts of said Attorney-in-Fact pursuant to the power herein given. This Power of Attorney is made and executed pursuant to and by authority of the following resolutions adopted by the Board of Directors of the COMMERCIAL UNION INSURANCE COMPANY at a meeting duly called and held on the twenty-seventh day of July, 1972:

Resolved: That the President, or any Vice-President, or any Assistant Vice-President, may execute for and in behalf of the company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, the same to be attested when necessary and the seal of the company affixed thereto by the Secretary, or any Assistant Secretary; and that the President, or any Vice-President, or Assistant Vice-President, may appoint and authorize an Attorney-in-Fact to execute on behalf of the company any and all such instruments and to affix the seal of the company thereto; and that the President, or any Vice-President, or any Assistant Vice-President, may at any time remove, any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That Attorneys-in-Fact may be given full power and authority to execute for and in the name and on behalf of the company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the company as if signed by the President and sealed and attested by the Secretary, and, further, Attorneys-in-Fact are hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and are also authorized and empowered to certify to a copy of any of the by-laws of the company as well as any resolution of the Directors having to do with the execution of bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and to certify copies of the Power of Attorney or with regard to the powers of any of the officers of the company or of Attorneys-in-Fact.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Directors of the COMMERCIAL UNION INSURANCE COMPANY at a meeting duly called and held on the twenty-seventh day of July, 1972:

"Resolved: That the signature of the President, or any Vice-President, or any Assistant Vice-President, and the signature of the Secretary or any Assistant Secretary and the Company Seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Attorneys-in-Fact for purposes only of executing and attesting any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the company as the original signature of such officer and the original seal of the company, to be valid and binding upon the company with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, the COMMERCIAL UNION INSURANCE COMPANY, has caused these presents to be signed by its Assistant Vice-President and its corporate seal to be hereto affixed, duly attested by its Secretary on this 23rd day of August 19 82

COMMERCIAL UNION INSURANCE COMPANY

Attest: Raymond M. Defossez — Raymond M. Defossez, Secretary

By John M. Garrett — John M. Garrett, Assistant Vice-President

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF SUFFOLK SS.

On this 23rd day of August 19 82, before me personally came John M. Garrett, Assistant Vice-President, and Raymond M. Defossez, Secretary of the COMMERCIAL UNION INSURANCE COMPANY, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and they acknowledged the execution of the same, and being by me duly sworn, severally and each for himself deposeth and sayeth, that they are the said officers of the Company aforesaid, and that the seal affixed to the preceding instrument is the corporate seal of said Company and that the said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority and direction of the said Company.

Joseph H. Dinan, Jr. — Notary Public
*(My Commission expires February 11, 1988)*

## CERTIFICATE

I, the undersigned, Assistant Secretary of the COMMERCIAL UNION INSURANCE COMPANY, a Massachusetts Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked; and furthermore, that the Resolutions of the Board of Directors set forth in the power of attorney are now in force.

Signed and sealed at the City of Boston. Dated this 3rd day of January 19 83

Andrejs J. Grots — Assistant Secretary

C60903-10

3-82

## ORGANIZATION REPORT

RECEIVED
JAN 10 1983
O & G CONS. COMM.

Full Name of the Company, Organization, or Individual
SUMATRA ENERGY COMPANY, INC.

Post Office Address (Box or Street Address)
One Denver Place, Suite 1400, 999 18th Street, Denver, CO 80202

Plan of Organization (State whether organization is a corporation, joint stock association, firm or partnership, or individual)
Corporation

Purpose of Organization (State type of business in which engaged)
Oil and gas exploration, development and production

If a reorganization, give name and address of previous organization.
N/A

| If a foreign corporation, give (1) State where incorporated | (2) Name and post office address of state agent | (3) Date of permit to do business in state |
|---|---|---|
| Colorado | CT Corporation System<br>14 N. 18th Avenue<br>Phoenix, AZ 85007 | 4/13/81 |

| Principal Officers or Partners (if partnership) NAME | TITLE | POST OFFICE ADDRESS |
|---|---|---|
| Richard C. Hoefle | Chairman | 999 18th St., Ste. 1400<br>Denver, CO 80202 |
| Earl M. Cranston | President | 999 18th St., Ste. 1400<br>Denver, CO 80202 |
| Jeffrey J. Scott | Executive Vice President | 999 18th St., Ste. 1400<br>Denver, CO 80202 |
| | | |
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| | | |
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| | | |

| DIRECTORS NAME | POST OFFICE ADDRESS |
|---|---|
| Robert Kearby | 1667 Cole Blvd., Golden, CO 80401 |
| John R. Moran, Jr. | 707 17th St., Ste. 2400, Denver, CO 80202 |
| Richard C. Hoefle | 999 18th St., Ste. 1400, Denver, CO 80202 |
| Earl M. Cranston | 999 18th St., Ste. 1400, Denver, CO 80202 |
| Jeffrey J. Scott | 999 18th St., Ste. 1400, Denver, CO 80202 |

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the President of the Sumatra Energy Company, Inc. (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature Earl M. Cranston, President

January 3, 1983
Date

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Organization Report
File One Copy
Form No. 1

4/82

**Sumatra Energy Company**
Suite 1400
One Denver Place
999 18th Street
Denver, Colorado 80202

RECEIVED

O & G CONS. COMM.

TO Oil & Gas Conservation Commission
1645 W. Jefferson Street, Suite 420
Phoenix, AZ 85007

DATE December 29, 1982

SUBJECT

Gentlemen:

Enclosed herewith is application for permit to drill, along with the survey plat from Shreeve & Associates reflecting the location of the proposed drillsite.

Our check in the amount of $25.00 is enclosed as payment of the required fee. We are in the process of obtaining the bond, and that will be forwarded as soon as possible. If you have any questions, or require any additional information, please contact at (303) 623-6935.

Yours very truly,

SUMATRA ENERGY COMPANY, INC.

William Proudfoot

William Proudfoot
Operations Manager

wt

wt

Form ML 5-N73 The Drawing Board, Inc., Box 505, Dallas, Texas