

# HARKEN SOUTHWEST CORPORATION

(formerly Chuska Energy Company)

March 23, 1995

Mr. Michael E. Stogner  
Oil Conservation Division  
New Mexico Oil Conservation Commission  
2040 S. Pacheco  
Santa Fe, New Mexico 87505



RE: Approval of Unorthodox Location  
N. Chimney Rock 10M-1  
Section 10-31N-18W  
852' FWL & 726' FSL  
San Juan County, New Mexico

Gentlemen:

With reference to our recent telephone conversation, Harken Southwest Corporation ("HSW") hereby respectfully requests approval of the above captioned unorthodox location based upon geologic/geophysical conditions existing at our N. Chimney Rock Prospect.

The proposed well is located 726' FSL of a designated drilling tract consisting of 160 surface contiguous acres (SW/4 Section 10-31N-18W), however, said boundary line is an internal section line found inside our lease boundaries (see attached plat). Furthermore, all ownership, royalty and working interest is common throughout our lease area. This information, combined with HSW's desire to drill on our seismic line, due to significant velocity gradients in the area (i.e. structurally high wells are in time lows) warrants approval of HSW's request for an exception to the well location requirements of Rule 104 B.II.(a).

To assist you in your review we enclose the following:

- (1) Appropriate geologic maps, cross sections, and/or logs.
- (2) A copy of the BLM Application for Permit to Drill and related attachments.
- (3) A plat indicating proposed location for the captioned well and HSW's lease boundary.

Our hopes are to commence the drilling of the captioned well on or before April 10, 1995, thus we request your assistance in expediting approval of our application.

Mr. Michael E. Stogner  
New Mexico Oil Conservation Commission  
March 23, 1995  
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If you require any additional information or clarification of the enclosed documents, please contact the undersigned or Rachelle Montgomery at (214) 753-6900.

Thanking you in advance for your assistance in this matter.

Yours very truly,

HARKEN SOUTHWEST CORPORATION

A handwritten signature in cursive script, reading "Michael R. Childers". The signature is written in dark ink and is positioned above the printed name and title.

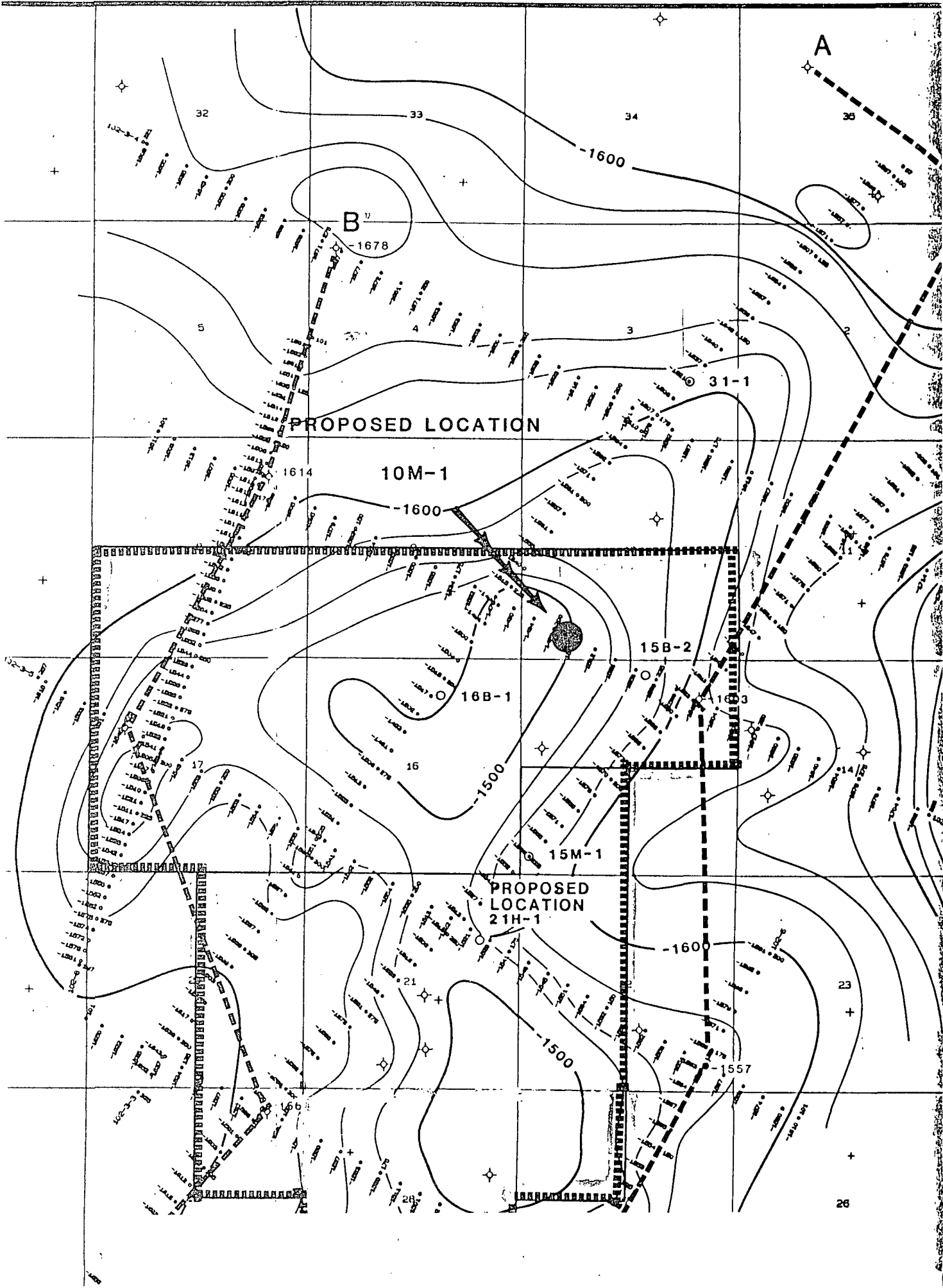
Michael R. Childers  
Vice President Land

MRC/mjy  
Attachments

cc: Rachelle Montgomery

**HARKEN SOUTHWEST CORPORATION**

T  
31  
N



**NORTH CHIMNEY ROCK DRILLING BLOCK A**  
Township 31 North, Range 18 West  
 Section 8: S/2  
 Section 9: S/2  
 Section 10: S/2  
 Section 15: N/2  
 Section 16: ALL  
 Section 17: ALL

07/18/90 2,560.00

**NORTH CHIMNEY ROCK DRILLING BLOCK B**  
Township 31 North, Range 18 West  
 Section 15: SW/4  
 Section 20: E/2  
 Section 21: ALL  
 Section 22: W/2  
 Section 27: NW/4  
 Section 28: ALL  
 Section 29: NE/4

07/18/90 2,400.00

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/>			5. LEASE DESIGNATION AND SERIAL NO. NOG 8707-1159		
b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>			6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo		
2. NAME OF OPERATOR Harken Southwest Corporation			7. UNIT AGREEMENT NAME N/A		
3. ADDRESS AND TELEPHONE NO. P.O. Drawer 612007 Dallas, TX 75261 (817) 695-4900			8. FARM OR LEASE NAME, WELL NO. N. Chimney Rock 10M #1		
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.) At surface 852' FWL & 726' FSL At proposed prod. zone			9. API WELL NO.		
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* +/-8 miles north/northwest of Shiprock, NM			10. FIELD AND POOL, OR WILDCAT Wildcat		
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any) 852'			16. NO. OF ACRES IN LEASE 2560		17. NO. OF ACRES ASSIGNED TO THIS WELL 160
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.			19. PROPOSED DEPTH +/-8545		20. ROTARY OR CABLE TOOLS Rotary
21. ELEVATIONS (Show whether DF, RT, GR, etc.) 5097' GL/5110' KB			22. APPROX. DATE WORK WILL START* Fall 1994		

23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8"-H40	48	160'	220 sx "G"
12-1/4"	4-1/2"-J55	10.5	0-TD	2235 sx "G" Stage cement as
8-3/4"				outlined in 10 Point (Attached)

Attached:

Surface Use Plan  
Ten Point Drilling Plan  
Detailed Drilling Plan  
H2S Contingency Plan  
Attachments as detailed in proposed plans.

cc: State of New Mexico & Navajo Nation

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

SIGNED Rachelle Montgomery TITLE Production Administrator DATE 7/19/94

(This space for Federal or State office use)

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

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
CONDITIONS OF APPROVAL, IF ANY:

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

\*See Instructions On Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.

NOG 8707-1159

6. If Indian, Allottee or Tribe Name

Navajo

7. If Unit or CA, Agreement Designation

N/A

8. Well Name and No.

N. Chimney Rock 10M #1

9. API Well No.

10. Field and Pool, or Exploratory Area

Wildcat

11. County or Parish, State

San Juan, NM

**SUBMIT IN TRIPLICATE**

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

Harken Southwest Corporation

3. Address and Telephone No.

P.O. Drawer 612007, Dallas, TX 75261 (817) 695-4900

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec. 10-31N-18W  
852' FWL & 726' FSL

**12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

**TYPE OF SUBMISSION**

- ☒ Notice of Intent  
☐ Subsequent Report  
☐ Final Abandonment Notice

**TYPE OF ACTION**

- ☐ Abandonment  
☐ Recompletion  
☐ Plugging Back  
☐ Casing Repair  
☐ Altering Casing  
☒ Other Amend APD  
☐ Change of Plans  
☐ New Construction  
☐ Non-Routine Fracturing  
☐ Water Shut-Off  
☐ Conversion to Injection  
☐ Dispose Water

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

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)"

Setting Depth for 13-3/8" surface casing has been changed from 160' to 200'. Cement volumes will be adjusted to bring cement to surface.

Harken request the approval of using the production string of 4-1/2", 10.5 ppf casing. Analysis of DST and production test from 12 wells in the immediate area of 31N-18W indicate a maximum pressure gradient of 0.51 psi/ft (9.8 lbs/gal). The fore mentioned gradient was derived from the Cactus Drilling Corp - Navajo "A" #1 in Sec 29-31N-18W testing the Penn-Paradox formation at a depth of 6705 (Pressure = 3450 psi). Extrapolated to a TD of 8525' (x.51 psi/ft) yields 4348 psi versus the collapse rating of 4010 of 4-1/2", 10.5# casing. Given the substantial well data of the area it is inconceivable to get a total evacuated casing. There are no naturally under pressure zones in the area, nor is there any substantial production in the area that would pressure deplete any zone. It would only require, in the above case, to have 778' of fresh water (8.34 lbs/gal) to reduce the differential pressure down to 4010 psi. Harken typically uses a 50%-75% evacuation for collapse design.

A total of 16 Paradox DST's and one (1) Mississippian DST were assessed from the above wells.. The range of pressure gradients were 0.307-0.51 psi/ft with eleven tests being less than 0.465 psi/ft (salt water gradient), 3 between 0.465& 0.490 and 3 in the 0.51 psi/ft range. A pressure gradient of 0.47 psi/ft would yield a bottom hole pressure of 4008 psi, which in the case of 100% evacuated casing would not exceed collapse.

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

Signed

*Richard Montgomery*

Title

Production Administrator

Date

8/8/94

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

# HARKEN SOUTHWEST CORPORATION

## TEN POINT DRILLING PLAN

### N. Chimney Rock 10M

Section 10, Township 31N Range 18W

Surface: 726' FSL & 852' FWL

San Juan County, New Mexico

This well is to be drilled as an exploratory test. The test will be drilled to an approximate depth of 8545' MD where it will TD in the Ignacio formation. The primary objective is the Paradox Formation.

#### 1. SURFACE FORMATION:

Geological name of the surface formation: Mancos Shale

#### 2. ELEVATION:

Surface elevation is 5097' GL/5110' KB

#### 3. ESTIMATED TOPS OF GEOLOGICAL MARKERS:

FORMATION	ANTICIPATED DEPTH	ANTICIPATED SUBSEA	LITHOLOGY	REMARKS
Greenhorn	1099	+4011	ls	
Dakota	1160	+3950	ss	Sec. Objective
Entrada	2452	+2658	ss	
Chinle	3072	+2038	ss/sltst/shale	
De Chelly	4159	+951	ss	
Organ Rock	4501	+609	ss/sltst/shale	
Cedar Mesa	5010	+100	ss/sltst/shale	
Hermosa	5924	-814	ls/dolo/anhy	
Ismay	6675	-1565	ls/dolo/anhy	Primary Objective

3. ESTIMATED TOPS OF GEOLOGICAL MARKERS: (Continued)

FORMATION	ANTICIPATED DEPTH	ANTICIPATED SUBSEA	LITHOLOGY	REMARKS
Desert Creek	6745	-1685	ls/dolo/anhy	Primary Objective
Akah	6965	-1855	ls/dolo/anhy	
Barker Creek	7146	-2036	ls/dolo/anhy	
Pinkerton Trail	7411	-2301	dolo/anhy/sltst	
Molas	7643	-2533	shale/sltst	Sec. Objective
Mississippian	7771	-2661	ls/dolo	
Elbert	8076	-2966	ls/dolo	
McCracken	8248	-3138	ss	
Aneth	8310	-3200	ls/dolo	
Ignacio	8445	-3335	ss	Sec. Objective
Total Depth	8545	-3435		

ANTICIPATED FORMATIONS FOR WATER, OIL, GAS AND OTHER MINERALS:

Potential Waterbearing formation:

DeChelly  
Dakota

Primary Mineral bearing formations (Oil and/or Gas):

Paradox: Desert Creek Barker Creek Akah  
Ismay Pinkerton Trail

Possible Mineral bearing formations (Secondary Objectives)

Dakota  
Mississippian  
Ignacio

District I  
PO Box 1980, Hobbs, NM 88241-1980  
District II  
PO Drawer DD, Artesia, NM 88211-0719  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 21, 1994  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code		3 Pool Name	
4 Property Code		5 Property Name North Chimney Rock			6 Well Number 10M - 1
7 OGRID No.		8 Operator Name Harken Southwest Corporation			9 Elevation 5097'

10 Surface Location

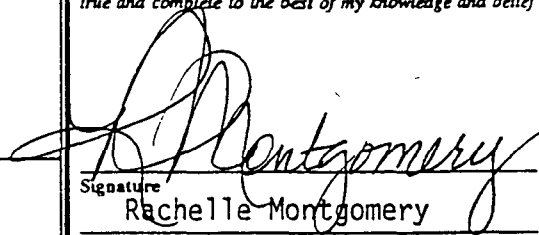
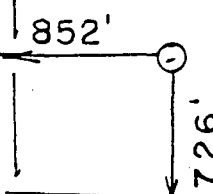
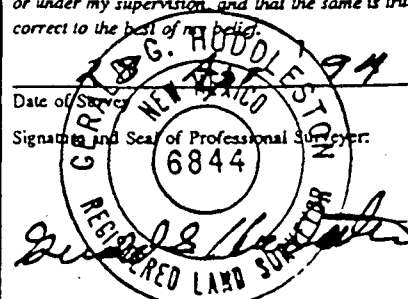
UL or lot no.	Section 10	Township 31N	Range 18W	Lot Idn	Feet from the 726	North/South line South	Feet from the 852	East/West line West	County San Juan
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11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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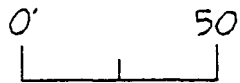
12 Dedicated Acres 160	13 Joint or Infill	14 Consolidation Code	15 Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

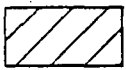
16	sta. 200 line 102-1-2 236,892 x 2,151,844 y from seismic	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief  Signature Rachelle Montgomery Printed Name Production Administrator Title 7/21/94 Date
		18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.  Date of Survey Signature and Seal of Professional Surveyor Certificate Number



Chimney Rock 10M - 1  
well pad & section



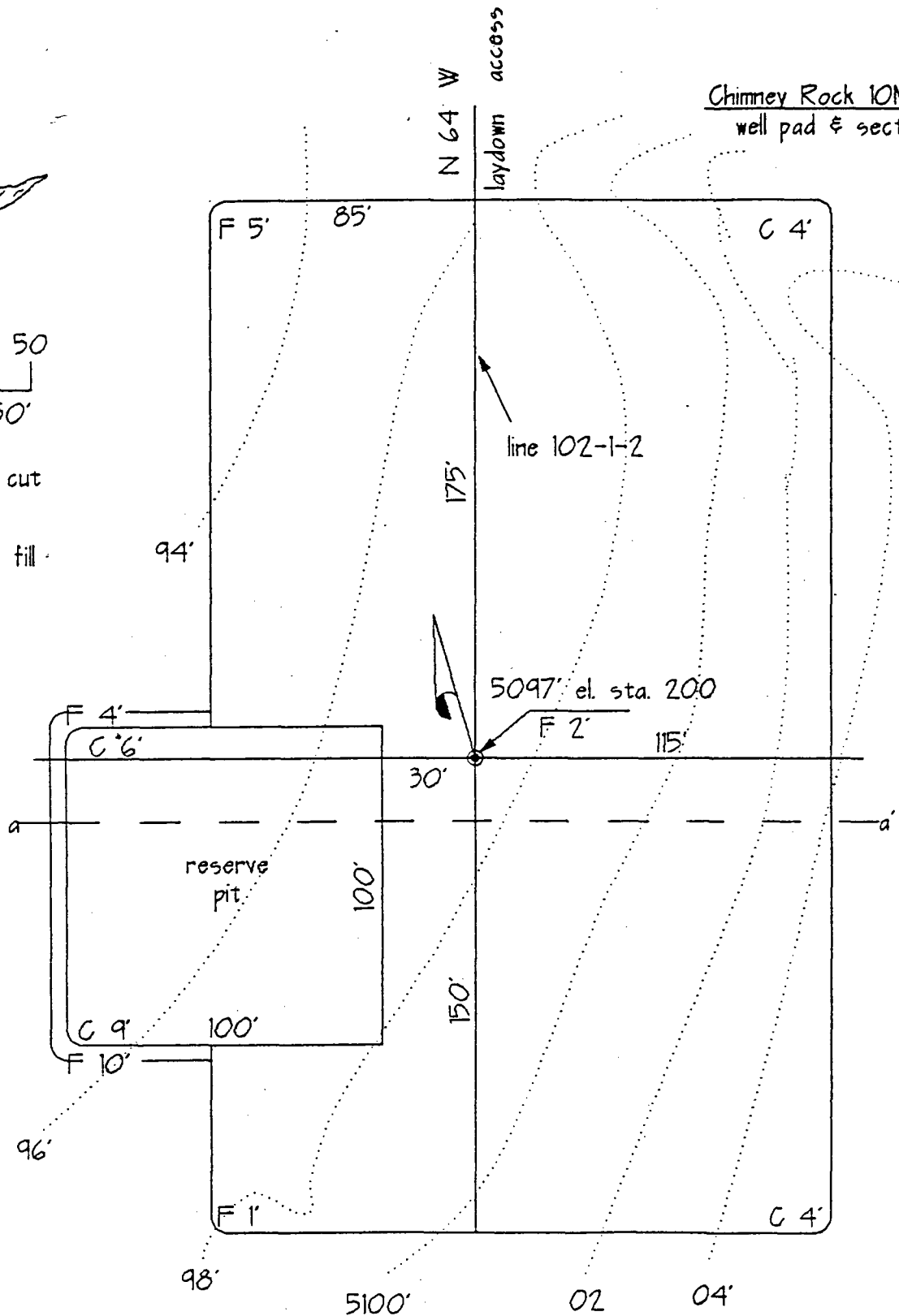
Scale 1" = 50'



cut



fill



Section a - a'