

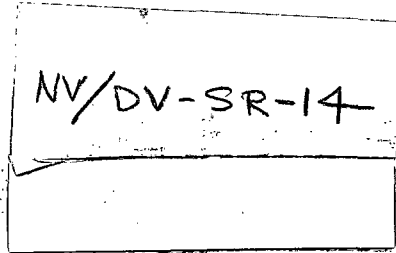
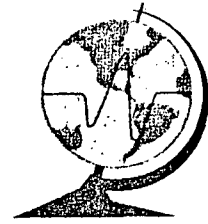
6102375

HR

Haskins • Pfeiffer Inc.

International Geophysical Consultants

1449 Denver Club Building
Denver, Colorado 80202
(303) 573-8958



October 7, 1980

Southland Royalty Company
1000 Fort Worth Club Tower
Fort Worth, Texas 76102
Attn: Mr. Jere Denton

RE: Dixie Valley Area
Churchhill & Pershing
Counties, Nevada

Dear Mr. Denton:

Seismic data for the Dixie Valley Prospect Area were acquired by Petroleum Geophysical Co. party No. 302. The data were recorded in SEG-B format by Texas Instrument's DFS-5 amplifiers. An 8-128Hz filter was used on recording at a sample rate of 2 ms.

Energy source consisted of four Mertz-11 vibrators equipped with Pelten Electronics Advance 1 Model 4 instruments. Sixteen sweeps were used per V.P. with sweep pilot of 12-60Hz. V.P. interval was 220 feet with a group interval of 110 feet. Stack is 2400% from 96 trace instruments with a spread geometry 5280'-440'-0'-440'-5280'.

Data processing was performed by Western Geophysical Co. Complex and rapidly changing geologic environment introduced difficult velocity and stacking problems. These problems were resolved by Western's diligence in the analysis of the stacking velocities and design of deconvolution parameters to equalize the frequency spectrum to attenuate short period multiples. Since the dips in the area were generally less than 20 degrees, "Finite Difference" digital migration was used to collapse diffractions generated by faulting and to place reflected energy in the true time domain position.

It should be noted that any additional shooting in the area will be more effective from the standpoint of migration techniques if line orientation is designed normal to the strike shown by existing control.

From available control, three maps have been constructed. These are :

- 1) Migrated Producing Aquifer
- 2) Migrated Pluton
- 3) Non-Migrated Shallowest Flow

Identification is from a synthetic seismogram constructed using the sonic log of the Thermal Power; Dixie Fed. 66-21 in Twp. 24N, Rge. 36E, Sec. 21, or by geologic definition of the mapped event. A discussion of the maps submitted follows:

MIGRATED PRODUCING AQUIFER

The event identified as the producing aquifer in the Thermal Power Well Dixie Fed. 66-21 is coincident with a high amplitude event generated on the synthetic seismogram from that well. A reasonable correlation exists between the synthetic and the recorded seismic data at the well. This event, in its migrated position is the basis for the map under discussion.

Because the seismic lines cross from the sedimentary basin to positions overlying the pluton, interruptions occur in the continuity of data from the aquifer. In such cases it becomes necessary to re-establish continuity through correlation across the data gaps.

The overall configuration of the event mapped indicates the Thermal Power well encountered the aquifer in an overthrust block off the forefront of the pluton. The aquifer terminates both against the pluton and basinward. A series of events with character similar to the aquifer can be noted on the sections. Because of the limited areal extent of the individual events, the map has been constructed using the event with characteristic response in the nearest equivalent stratigraphic position. Termination of events is marked by hatchers.

MIGRATED PLUTON

The purpose of this map is to show the configuration of the forefront of the pluton so that the contact between the aquifer and the pluton can be viewed in perspective. The criteria used for defining the forefront is the zone of termination of coherent energy.

NON-MIGRATED SHALLOWEST FLOW

Since no appreciable geothermal gradient is indicated in the Thermal Power well, it is possible that any potential aquifer would be suitable for production without regard to depth of burial. This map is constructed to show the shallowest position at which an event with character similar to the identified aquifer, could be expected.

Southland Royalty Company
Page 2
October 7, 1980

RECOMMENDATIONS

At this stage of exploration, plans should be made to increase the density of seismic control in the areas available for drilling. This additional control should use parameters compatible with the existing data. Care should be taken to keep all new lines normal to strike to aid migration. Processing should be carefully supervised so that data quality will be compatible with that now at hand.

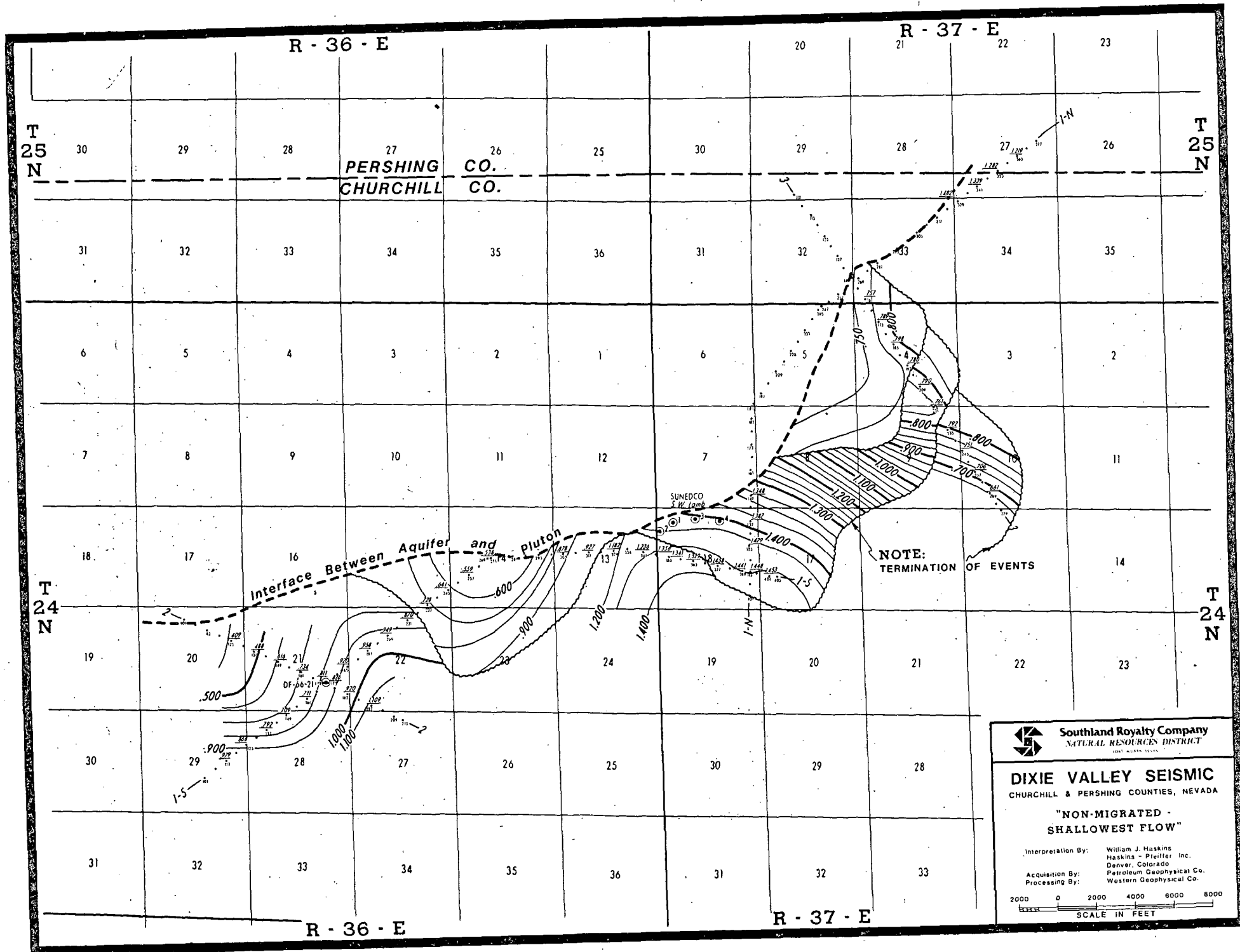
Yours truly,

Haskins-Pfeiffer, Inc.

A handwritten signature in cursive script, appearing to read "William J. Haskins".

William J. Haskins

WJH/lf

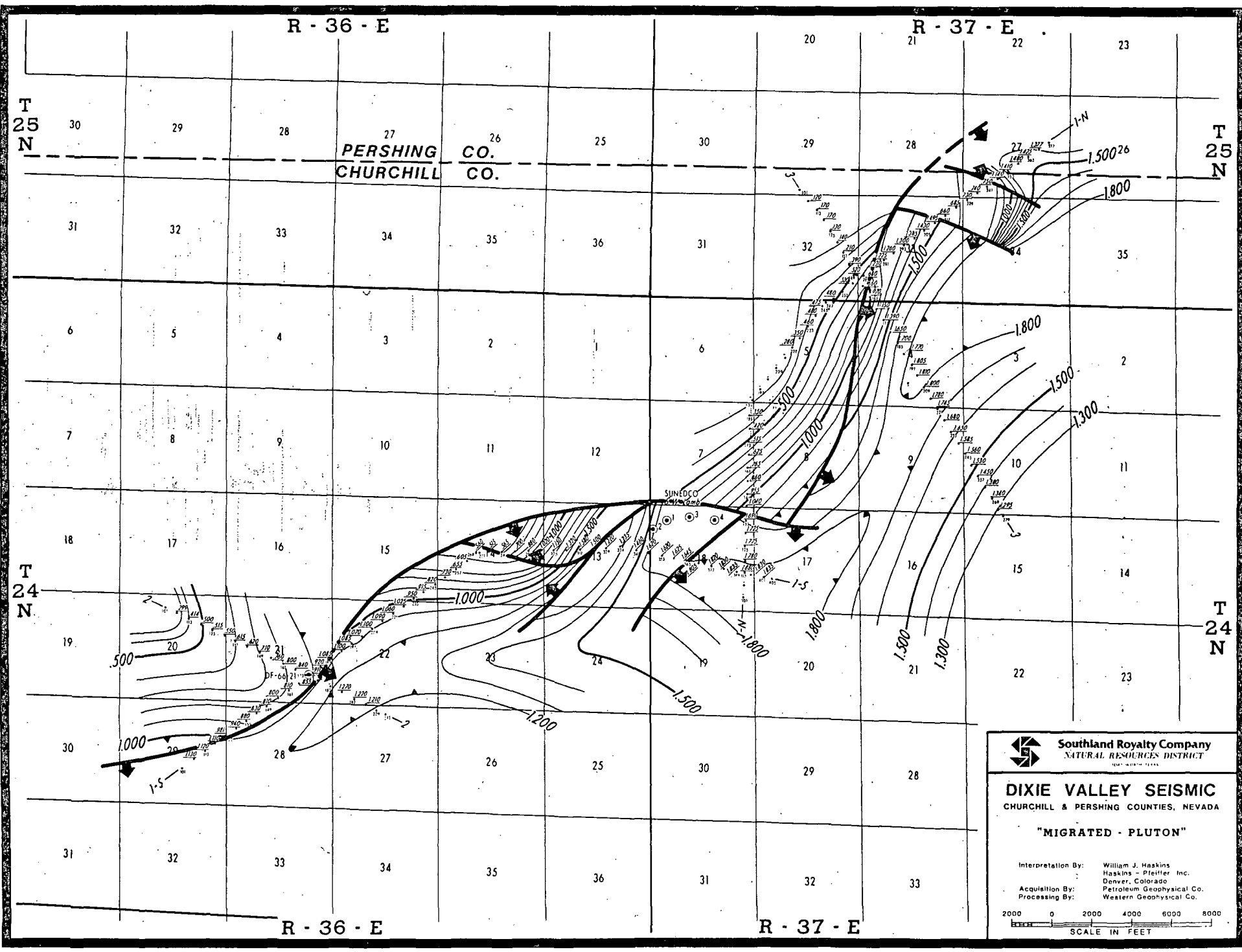



 **Southland Royalty Company**
NATURAL RESOURCES DISTRICT
1001 MAIN ST. LAS VEGAS, NEVADA

DIXIE VALLEY SEISMIC
CHURCHILL & PERSHING COUNTIES, NEVADA

"NON-MIGRATED - SHALLOWEST FLOW"

Interpretation By: William J. Haskins
Haskins - Pfeiffer Inc.
Denver, Colorado
Acquisition By: Petroleum Geophysical Co.
Processing By: Western Geophysical Co.

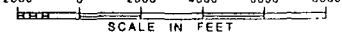


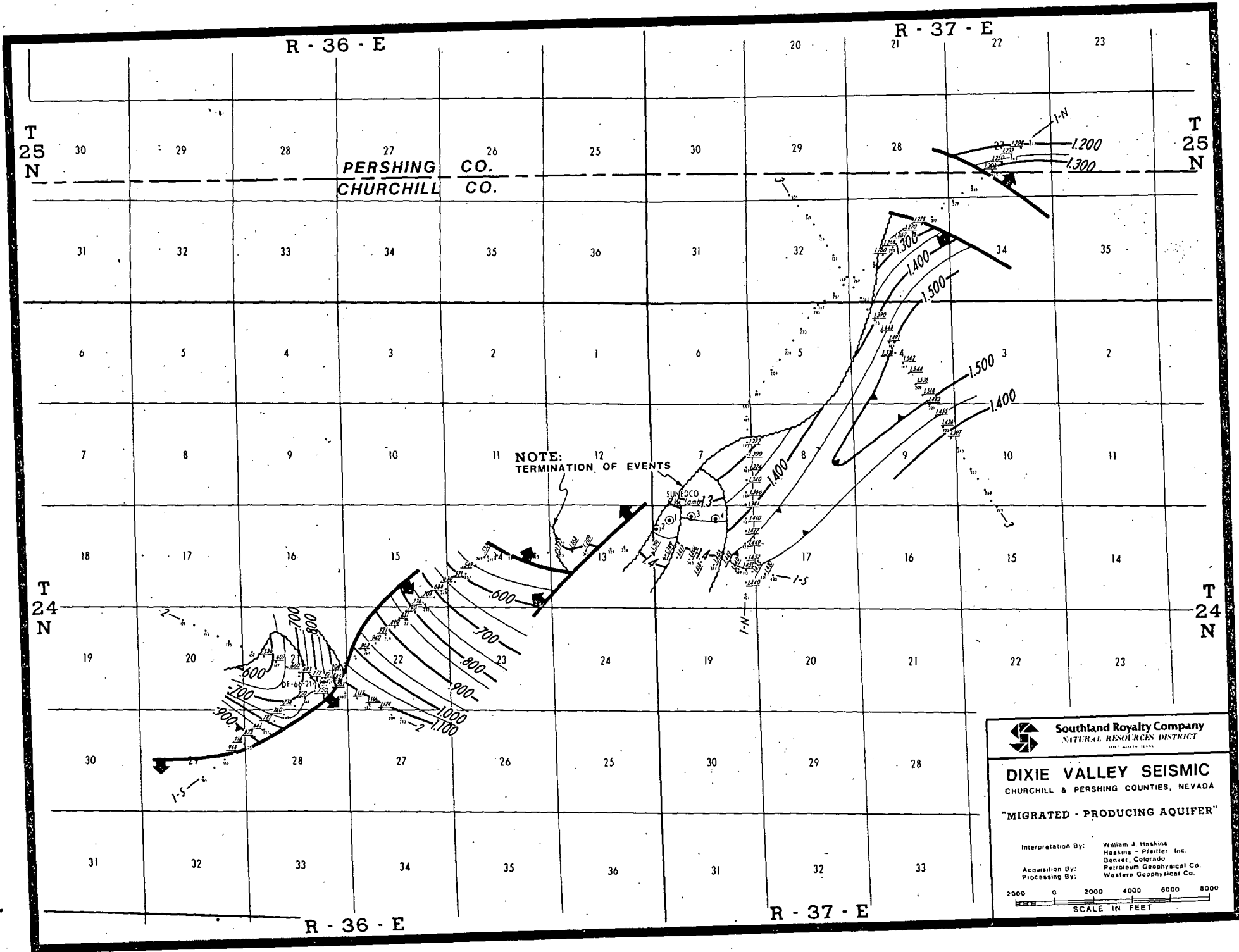

Southland Royalty Company
 NATURAL RESOURCES DISTRICT
HEAD OFFICE IN TEXAS

DIXIE VALLEY SEISMIC
 CHURCHILL & PERSHING COUNTIES, NEVADA

"MIGRATED - PLUTON"

Interpretation By: William J. Haskins
 Haskins - Pfeiffer Inc.
 Denver, Colorado
 Acquisition By: Petroleum Geophysical Co.
 Processing By: Western Geophysical Co.

2000 0 2000 4000 6000 8000

 SCALE IN FEET



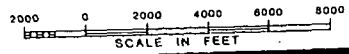
NOTE:
TERMINATION OF EVENTS

 **Southland Royalty Company**
NATURAL RESOURCES DISTRICT

DIXIE VALLEY SEISMIC
CHURCHILL & PERSHING COUNTIES, NEVADA

"MIGRATED - PRODUCING AQUIFER"

Interpretation By: William J. Haskins
Haskins - Pfeiffer Inc.
Denver, Colorado
Acquisition By: Petroleum Geophysical Co.
Processing By: Western Geophysical Co.



R - 36 - E

R - 37 - E

T 25 N

T 25 N

T 24 N

T 24 N

PERSHING CO.
CHURCHILL CO.

SUNEDCO
S.W. Lamb

R - 36 - E

R - 37 - E

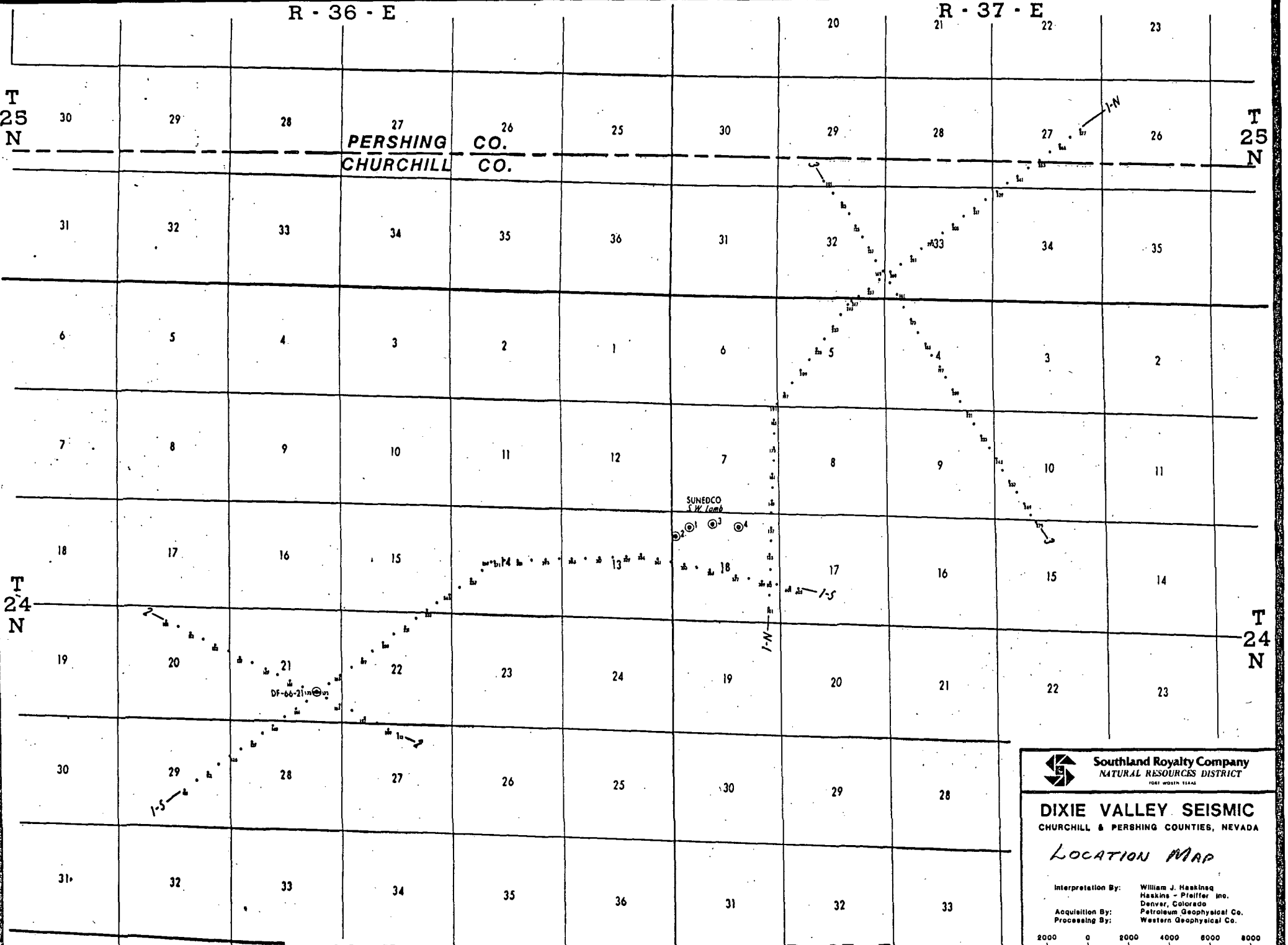
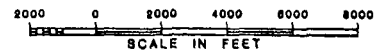


Southland Royalty Company
NATURAL RESOURCES DISTRICT
FOUR MOUTH SEALS

DIXIE VALLEY SEISMIC
CHURCHILL & PERSHING COUNTIES, NEVADA

LOCATION MAP

Interpretation By: William J. Haskins
Haskins - Pfeiffer Inc.
Denver, Colorado
Acquisition By: Petroleum Geophysical Co.
Processing By: Western Geophysical Co.



UNIVERSITY OF UTAH RESEARCH INSTITUTE

UURI

EARTH SCIENCE LABORATORY
391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

DATA TRANSMITTAL ACKNOWLEDGEMENT

I hereby acknowledge receipt and temporary possession of the following digital data tapes from the Stillwater, Nevada seismic reflection survey. I agree that these data tapes will be insured during transit for not less than \$1,000.00 and that these data tapes will be returned to: **The Earth Science Laboratory, University of Utah Research Institute, Attention Dr. Howard P. Ross, 391 Chipeta Way, Suite C, Salt Lake City, UT 84108-1295** not later than November 3, 1987, in good condition.

Data tapes Received:

Line No. 2	Field Correlated Tape	J7905344
Line No. 3	Field Correlated Tape	J7905342
Line No. 4	Field Correlated Tape	J7905343

DATED:

October 27, 1987



S. Bryce Montgomery,
Geologist
representing
CEJA Corporation
4400-One Williams Center
Tulsa, OK 74172-0144



EARTH SCIENCE LABORATORY
391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

W Oct. 20 '87

DATA TRANSMITTAL ACKNOWLEDGEMENT

By signing this data transmittal form I hereby
acknowledge receipt and temporary possession of the

following: from Howard P. Ross, Earth Science Laboratory,
University of Utah Research Institute.

— Seismic data tapes for the Stillwater, Nevada
geothermal resource area, as itemized below.

Reel J8006166

— 1 copy of supporting data including: location map;
tape record listing; land seismic recording log; data listing
of survey position. 36 pages, total.

I agree to return all data tapes in good order prior to

Lewis Katz

Representing:

Union Geothermal Division

Union Oil Company of California

Union Oil Center, Box 7600, Los Angeles, California 90051

Telephone (213) 486-6260

GEO9-236



Carel Otte
President

June 1, 1979

Mr. James B. Cotter
Contracting Officer Representative
U.S. Department of Energy
Nevada Operations Office
P.O. Box 14100
Las Vegas NV 89114

Dear Mr. Cotter:

RE: Contract DE-AC08-79ET27012

In response to the Department of Energy Division of Geothermal Energy's (DGE) program to acquire additional data relevant to the ongoing Geothermal Reservoir Assessment work in Northern Nevada, the Geothermal Division of the Union Oil Company of California (Union) submits for your consideration this proposal for a 24-fold, seismic reflection survey in the Stillwater prospect. Such survey is intended to complement the data now being acquired by DGE under Contract DE-AC08-79ET27012.

The seismic survey would be planned for the month of July of this year and is expected to encompass approximately 12 line miles of reflection work. The survey would tie into the existing wells in the Contract Area and it is hoped would provide more definitive data on the faulting pattern within the Stillwater KGRA. Technical specifications and program for the proposed survey are as attached.

Union proposes that DGE provide funds for third party cost to Union of survey data acquisition and processing, such cost not to exceed \$85,000. Seismic field work to acquire the data, including mobilization and demobilization of the seismic crew, is estimated to be approximately \$5,833 per line mile for the 12 line miles of survey proposed. If actual field conditions are such that cost per line mile exceeds such figure than the line miles shot will be reduced such that total acquisition cost to DGE does not exceed \$70,000. Data processing, including migration, is estimated to be approximately \$1,250 per line mile and total processing cost to DGE shall be no more than \$15,000. However, in the event that data acquisition cost is less than \$70,000 than such difference may be applied to processing cost if at the time such additional processing is considered desirable by DGE in consultation with Union. Details of the proposed survey cost to DGE are included in "Optional Form 60" attached.

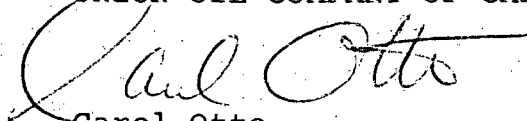
James B. Cotter
June 1, 1979
GEO9-236, Pg. 2

Union would provide survey supervision and management. A technical report on the survey, which would include all pertinent survey data and processed sections, would be delivered to DGE within three (3) months of survey completion. Cost to Union for survey supervision and management is estimated to be approximately \$21,000.

We recognize the cooperation and support provided by DOE in our efforts to explore and evaluate the Stillwater KGRA and will appreciate your consideration of this proposal as a supplement to our existing Contract.

Yours very truly,

UNION OIL COMPANY OF CALIFORNIA



Carel Otte
President, Geothermal Division

CO:jl

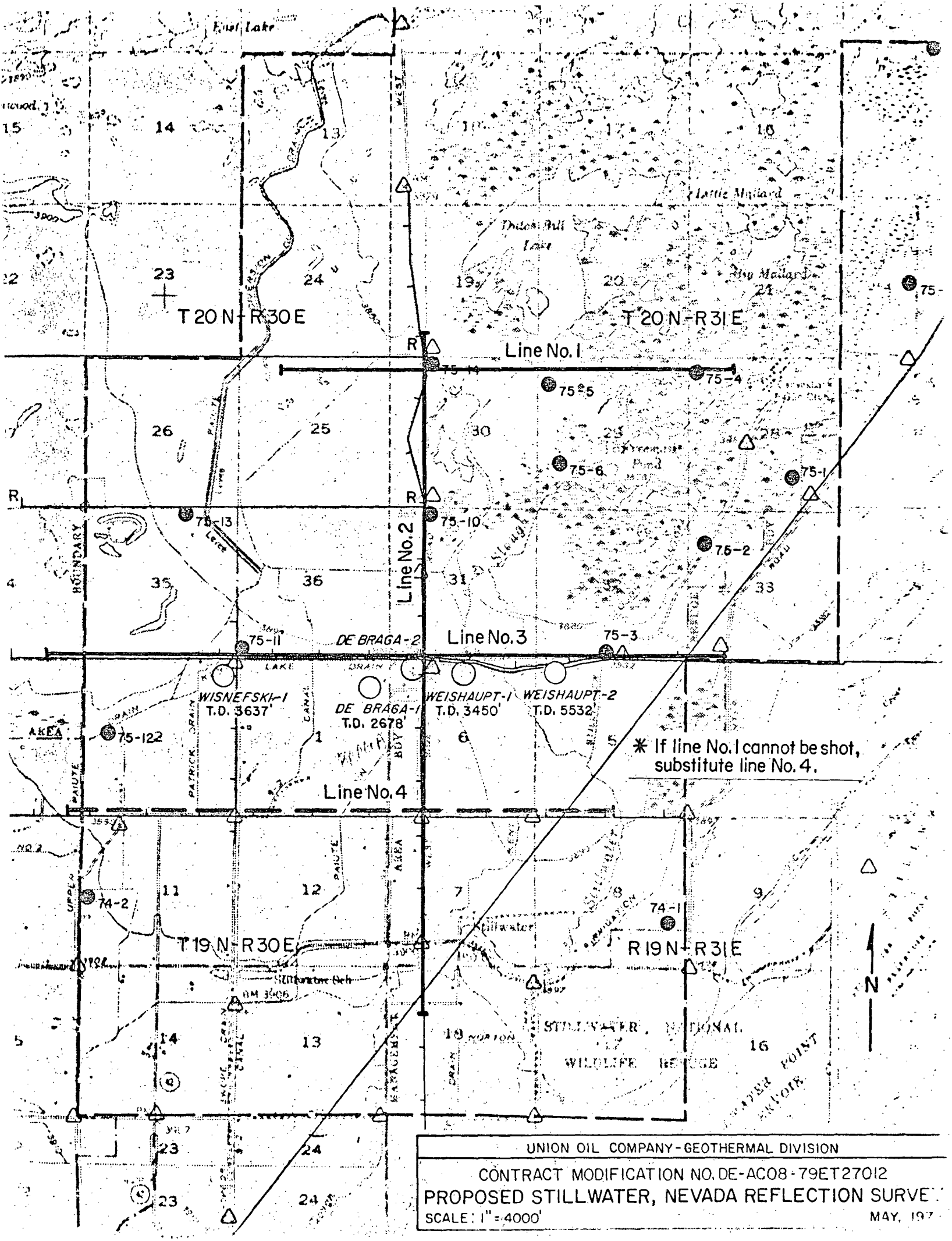
Contract Modification, DE-AC08-79ET27012
Technical Specifications, Proposed Seismic Reflection Survey
Stillwater, Nevada

For the seismic reflection survey proposed in the Stillwater area, recommended design parameters for the field procedure include:

Vibroseis source
2400% coverage
110' group spacing
12 geophones/group minimum
12-60 Hz sweeps
16 sweeps minimum
10-20 sec sweeps
4 sec records, minimum

Due to the nature of the area, dynamite is not a viable source. In addition, if line 1 on the enclosed map cannot be shot using Vibroseis, we may wish to substitute all or part of line 4.

Processing should also include migration to aid in fault identification.



UNION OIL COMPANY - GEOTHERMAL DIVISION
 CONTRACT MODIFICATION NO. DE-AC08-79ET27012
 PROPOSED STILLWATER, NEVADA REFLECTION SURVEY
 SCALE: 1" = 4000'
 MAY, 197

CONTRACT PRICING PROPOSAL
(RESEARCH AND DEVELOPMENT)

Office of Management and Budget
Approval No. 29-RO184

This form is for use when (i) submission of cost or pricing data (see FPR 1-1.807-3) is required and (ii) substitution for the Optional Form 39 is authorized by the contracting officer.

PAGE NO.

1

NO. OF PAGES

3

NAME OF OFFEROR

Union Oil Co. of California

SUPPLIES AND/OR SERVICES TO BE FURNISHED

24-fold seismic reflection survey of the Stillwater geothermal anomaly

HOME OFFICE ADDRESS

461 S. Boylston Street
Los Angeles, Calif. 90017

DIVISION(S) AND LOCATION(S) WHERE WORK IS TO BE PERFORMED

Geothermal Division

TOTAL AMOUNT OF PROPOSAL

\$ 85,000

GOVT SOLICITATION NO.

DE-AC08-79ET-27012

DETAIL DESCRIPTION OF COST ELEMENTS

1. DIRECT MATERIAL (Itemize on Exhibit A)		EST COST (\$)	TOTAL EST COST*	REFER-ENCE*
a. PURCHASED PARTS				
b. SUBCONTRACTED ITEMS				
c. OTHER—(1) RAW MATERIAL				
(2) YOUR STANDARD COMMERCIAL ITEMS				
(3) INTERDIVISIONAL TRANSFERS (At other than cost)				
TOTAL DIRECT MATERIAL				
2. MATERIAL OVERHEAD* (Rate %X\$ base=)				
3. DIRECT LABOR (Specify)		ESTIMATED HOURS	RATE/HOUR	EST COST (\$)
TOTAL DIRECT LABOR				
4. LABOR OVERHEAD (Specify Department or Cost Center)*		O.H. RATE	X BASE=	EST COST (\$)
TOTAL LABOR OVERHEAD				
5. SPECIAL TESTING (Including field work at Government installations)			EST COST (\$)	
TOTAL SPECIAL TESTING				
6. SPECIAL EQUIPMENT (If direct charge) (Itemize on Exhibit A)				
7. TRAVEL (If direct charge) (Give details on attached Schedule)			EST COST (\$)	
a. TRANSPORTATION				
b. PER DIEM OR SUBSISTENCE				
TOTAL TRAVEL				
8. CONSULTANTS (Identify—purpose—rate)			EST COST (\$)	
TOTAL CONSULTANTS				
9. OTHER DIRECT COSTS (Itemize on Exhibit A)			85,000	
10. TOTAL DIRECT COST AND OVERHEAD			85,000	
11. GENERAL AND ADMINISTRATIVE EXPENSE (Rate % of cost element Nos.)*				
12. ROYALTIES*				
13. TOTAL ESTIMATED COST			85,000	
14. FEE OR PROFIT				
15. TOTAL ESTIMATED COST AND FEE OR PROFIT			85,000	

This proposal is submitted for use in connection with and in response to (Describe RFP, etc.)

Contract Modification, DE-AC08-79ET-27012

and reflects our best estimates as of this date, in accordance with the Instructions to Offerors and the Footnotes which follow.

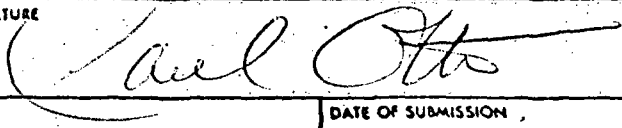
TYPED NAME AND TITLE Carel Otte, President	SIGNATURE 
NAME OF FIRM Union Geothermal Division Union Oil Co. of California	DATE OF SUBMISSION June 1, 1979

EXHIBIT A—SUPPORTING SCHEDULE (Specify. If more space is needed, use reverse)

COST EL NO.	ITEM DESCRIPTION (See footnote 5)	EST COST (\$)
	Supporting schedule attached as page 3 of this Form 60.	

I. HAS ANY EXECUTIVE AGENCY OF THE UNITED STATES GOVERNMENT PERFORMED ANY REVIEW OF YOUR ACCOUNTS OR RECORDS IN CONNECTION WITH ANY OTHER GOVERNMENT PRIME CONTRACT OR SUBCONTRACT WITHIN THE PAST TWELVE MONTHS?

YES NO (If yes, identify below.)

NAME AND ADDRESS OF REVIEWING OFFICE AND INDIVIDUAL DCAA, San Francisco Region, Oakland, CA. 94626	TELEPHONE NUMBER/EXTENSION (415) 466-3043
---	--

II. WILL YOU REQUIRE THE USE OF ANY GOVERNMENT PROPERTY IN THE PERFORMANCE OF THIS PROPOSED CONTRACT?

YES NO (If yes, identify on reverse or separate page)

III. DO YOU REQUIRE GOVERNMENT CONTRACT FINANCING TO PERFORM THIS PROPOSED CONTRACT?

YES NO (If yes, identify.): ADVANCE PAYMENTS PROGRESS PAYMENTS OR GUARANTEED LOANS

IV. DO YOU NOW HOLD ANY CONTRACT (Or, do you have any independently financed (R&D) projects) FOR THE SAME OR SIMILAR WORK CALLED FOR BY THIS PROPOSED CONTRACT?

YES NO (If yes, identify.): **DE-AC08-11ET-28405**

V. DOES THIS COST SUMMARY CONFORM WITH THE COST PRINCIPLES SET FORTH IN AGENCY REGULATIONS?

YES NO (If no, explain on reverse or separate page)

Contract Modification, No. DE-AC08-79ET27012
Proposed Stillwater Seismic Reflection Survey

COST ESTIMATES

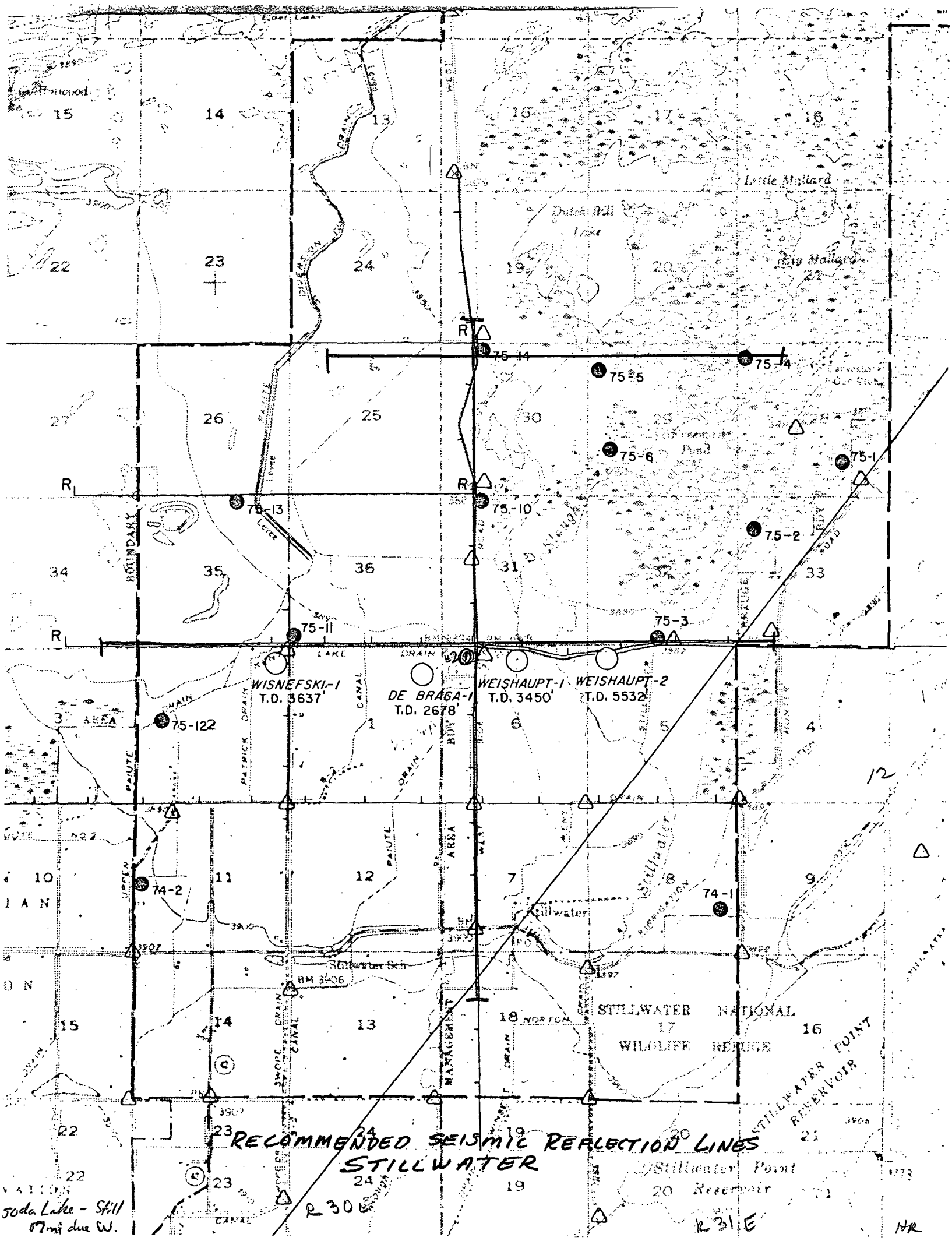
	<u>TOTAL COST</u>	<u>COST PER LINE MILE</u>
<u>DATA ACQUISITION</u>		
Mobilization and Demobilization	\$ 7,000	
Shooting and Recording	<u>63,000</u>	
Subtotal	\$70,000	\$5,833
<u>DATA PROCESSING</u>	\$15,000	\$1,250
<u>TOTAL DGE SURVEY COST</u>	\$85,000	\$7,083

MEMO ROUTE SLIP

Form ERDA-93 (1-75) ERDAM 0240

 See me about this. For concurrence. For action. Note and return. For signature. For information.

TO (Name and unit) <i>Dr. H.P. Ross</i> <i>LIURI/ESL</i>	INITIALS DATE	REMARKS
TO (Name and unit)	INITIALS DATE	REMARKS <i>EXPL. TECH. PROG.</i>
TO (Name and unit)	INITIALS DATE	REMARKS <i>Howard,</i>
FROM (Name and unit) <i>Joe Fiore</i> <i>DOE/NV</i>	REMARKS	<i>Union proposal per our</i> <i>telecon.</i> <i>Joe</i>
PHONE NO.	DATE <i>6/5/79</i>	



**RECOMMENDED SEISMIC REFLECTION LINES
STILLWATER**

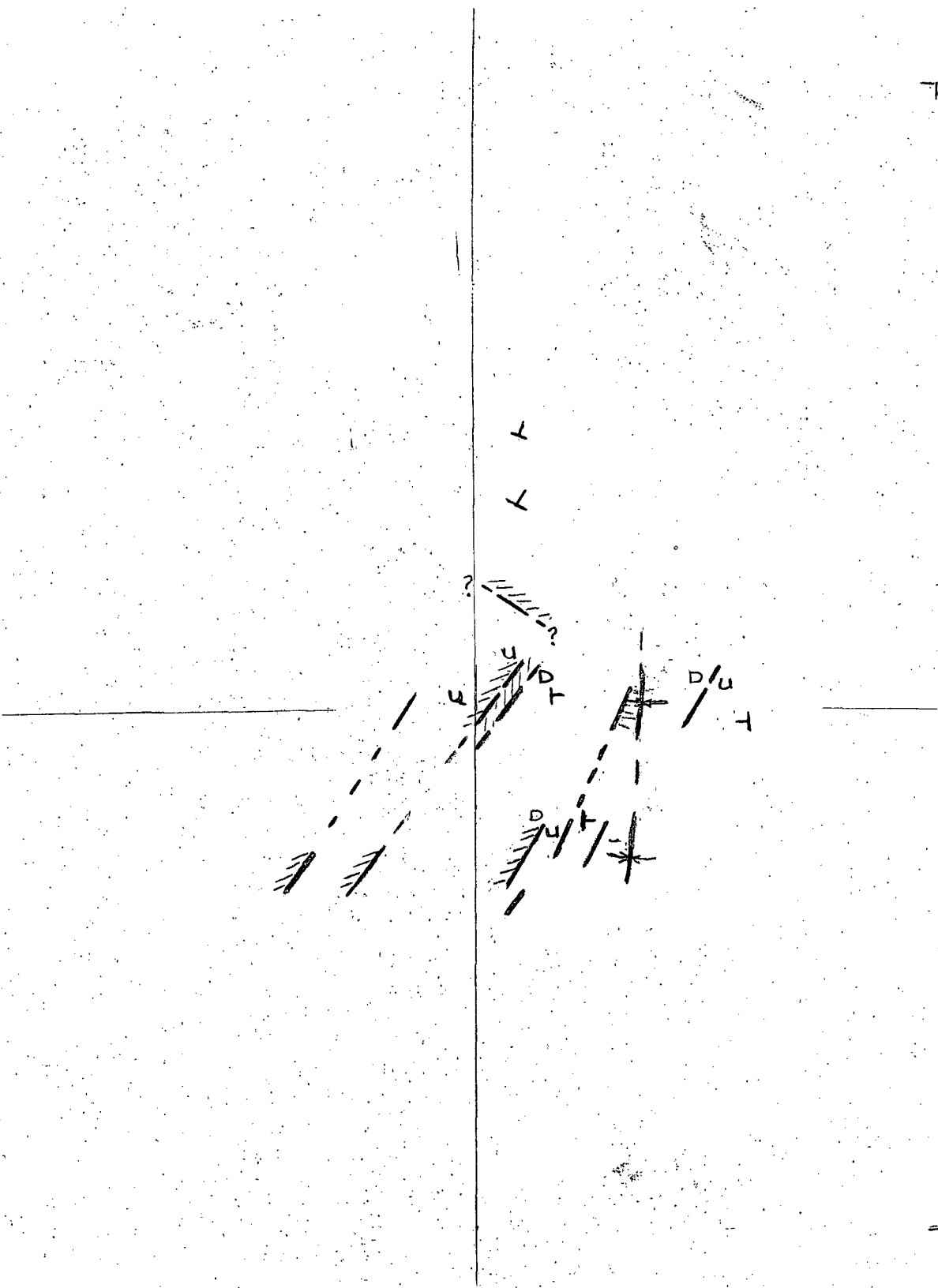
R300

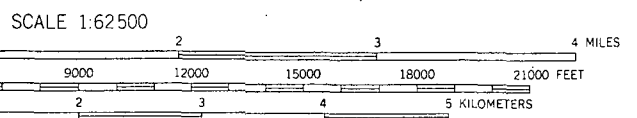
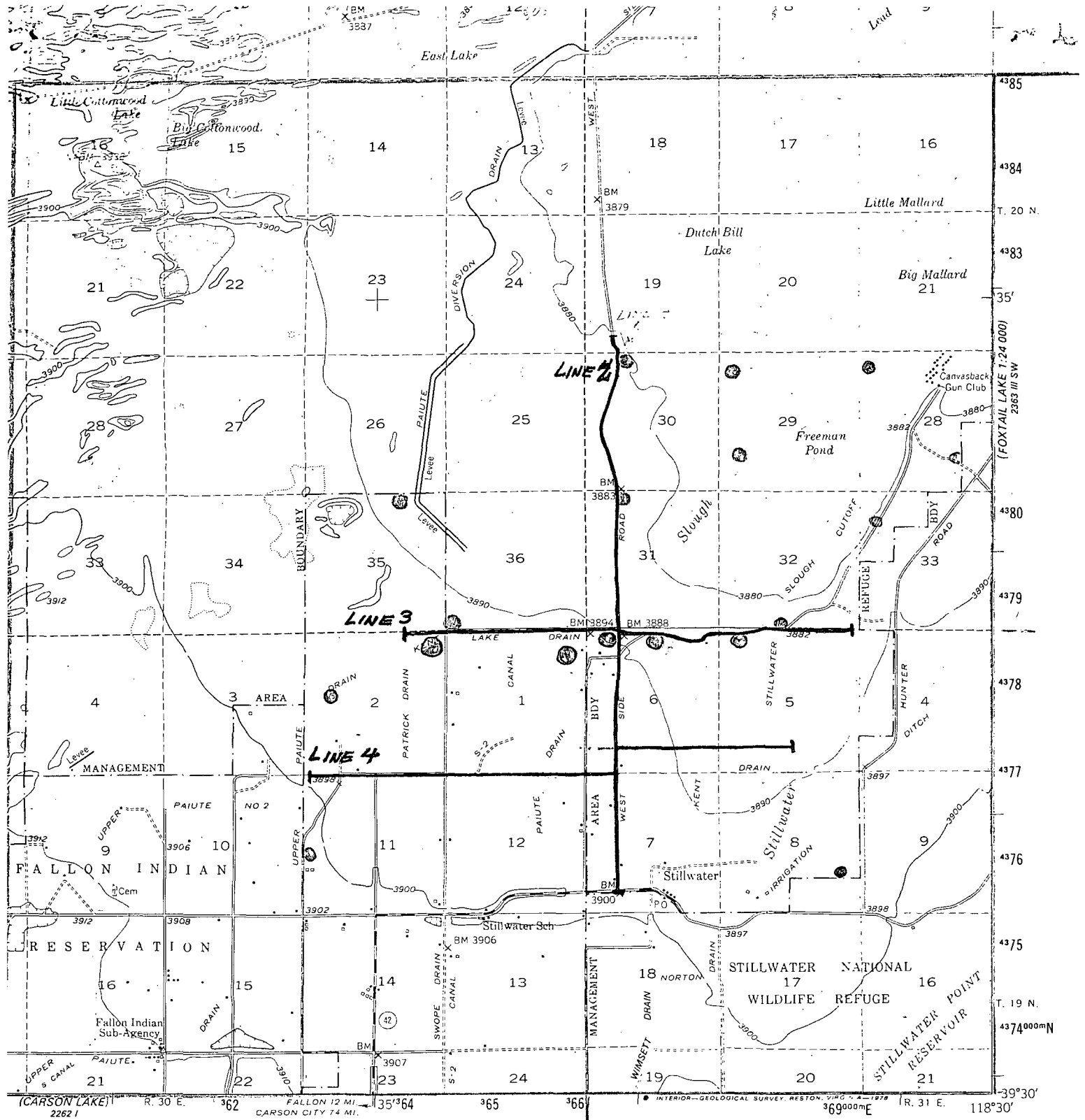
R31E

Soda Lake - Still
07 mi due W.

NR

E-W trend to gravity data, 6 mi S, SW of here





ROAD CLASSIFICATION

Heavy-duty	4 LANE 6 LANE	Light-duty
Medium-duty	4 LANE 6 LANE	Unimproved dirt

U. S. Route State Route



OUR INTERVAL 10 FEET
 METRIC VERTICAL DATUM OF 1929

1:50,000 NATIONAL MAP ACCURACY STANDARDS
 DENVER, COLORADO 80225. OR RESTON, VIRGINIA 22092
 PHOTOCOPY MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

STILLWATER, NEV.
 N1930-W11830/15

- Thermal Grad. Holes
- Deep Exploration Wells
 3637'; 2678'; 3450'; 5532';
- Seismic Lines

1950

AMS 2263 I—SERIES V796

2828' N. W. NW
 (DIAMOND CANYON)
 1:24,000

MEMO ROUTE SLIP Form ERDA-93 (1-75) ERDAM 0240		See me about this.	For concurrence.	For action.
		Note and return.	For signature.	For Information.
TO (Name and unit) Dr. H. P. Ross LURI/ESL 420 Chipeta Way	INITIALS	REMARKS		
	DATE			
TO (Name and unit) 702-734-3424	INITIALS	REMARKS		
	DATE			
TO (Name and unit)	INITIALS	REMARKS Howard, Here's cc of Getty Expl. Tech. proposal & draft of Chevron-		
	DATE			
FROM (Name and unit) Joe Fiore DOE/NV	REMARKS Soda Lake final report.			
	Joe			
PHONE NO. 702 734-3424	DATE 7/19/79			

TO H.P. ROSS



Getty Oil Company | P.O. Box 5237, Bakersfield, California 93308

California Exploration and Production Division

July 13, 1979

Department of Energy
Nevada Operations Office
P. O. Box 14100
Las Vegas, Nevada 89114

Attention: Mr. J. B. Cotter
Contracting Officer

Re: Contract Pricing Proposal Approval
Award Contract DE-AC08-79ET27008
Colado Area, Northern Basin and Range

Gentlemen:

Getty Oil Company herewith encloses Contract Pricing Proposal Form No. 60, wherein we request the Department of Energy's consideration and approval to grant funding of \$20,325.00 for a Geothermometric Geochemical Survey under Award Contract DE-AC08-79ET27008, Colado Area.

This funding will permit a Geothermometric Geochemical Survey to be accomplished by International Engineering Company, Inc., under the direction of Getty Oil Company, as Contractor.

Very truly yours,

GETTY OIL COMPANY

O/S N. J. KAPPELER

N. J. Kappeler
Division Exploration Manager

NJK:JJD:js

Enclosure

cc: Mr. J. N. Fiore

HEAVY
FV2 AECY2

JUL 18 6 06 PM '79

BEU: AED
D. D. O. E.

CONTRACT PRICING PROPOSAL

(RESEARCH AND DEVELOPMENT)

Office of Management and Budget
Approval No. 29-RO184

This form is for use when (i) submission of cost or pricing data (see FPR 1-3.807-3) is required and (ii) substitution for the Optional Form 59 is authorized by the contracting officer.

PAGE NO. 1

NO. OF PAGES 4

NAME OF OFFEROR GETTY OIL COMPANY	SUPPLIES AND/OR SERVICES TO BE FURNISHED A complete set of data from a Geothermometric Geochemical Survey at Colado K.G.R.A., Pershing County, Nevada
HOME OFFICE ADDRESS P. O. Box 5237 Bakersfield, California 93388	DIVISION(S) AND LOCATION(S) WHERE WORK IS TO BE PERFORMED Award Contract DE-AC08-79ET27008 Colado - Northern Basin and Range
TOTAL AMOUNT OF PROPOSAL \$ 20,325.00	GOVT SOLICITATION NO. RFP No. ET-78-R-08-0003

DETAIL DESCRIPTION OF COST ELEMENTS

1. DIRECT MATERIAL (Itemize on Exhibit A)	EST COST (\$)	TOTAL EST COST ¹	REFERENCE ²
a. PURCHASED PARTS			
b. SUBCONTRACTED ITEMS			
c. OTHER—(1) RAW MATERIAL			
(2) YOUR STANDARD COMMERCIAL ITEMS			
(3) INTERDIVISIONAL TRANSFERS (At other than cost)			
TOTAL DIRECT MATERIAL		20,325.00	
2. MATERIAL OVERHEAD ³ : (Rate % XS base=)			
3. DIRECT LABOR (Specify)	ESTIMATED HOURS	RATE/HOUR	EST COST (\$)
TOTAL DIRECT LABOR			
4. LABOR OVERHEAD (Specify Department or Cost Center) ³	O.H. RATE	X BASE=	EST COST (\$)
TOTAL LABOR OVERHEAD			
5. SPECIAL TESTING (Including field work at Government installations)		EST COST (\$)	
TOTAL SPECIAL TESTING			
6. SPECIAL EQUIPMENT (If direct charge) (Itemize on Exhibit A)			
7. TRAVEL (If direct charge) (Give details on attached Schedule)		EST COST (\$)	
a. TRANSPORTATION			
b. PER DIEM OR SUBSISTENCE			
TOTAL TRAVEL			
8. CONSULTANTS (Identify—purpose—rate)		EST COST (\$)	
TOTAL CONSULTANTS			
9. OTHER DIRECT COSTS (Itemize on Exhibit A)			
10. TOTAL DIRECT COST AND OVERHEAD		20,325.00	
11. GENERAL AND ADMINISTRATIVE EXPENSE (Rate % of cost element Nos.)			
12. ROYALTIES ⁴			
13. TOTAL ESTIMATED COST		20,325.00	
14. FEE OR PROFIT			
15. TOTAL ESTIMATED COST AND FEE OR PROFIT			

INSTRUCTIONS TO OFFERORS

1. The purpose of this form is to provide a standard format by which the offeror submits to the Government a summary of incurred and estimated costs (and attached supporting information) suitable for detailed review and analysis. Prior to the award of a contract resulting from this proposal the offeror shall, under the conditions stated in FPR 1-3.807-3 be required to submit a Certificate of Current Cost or Pricing Data (See FPR 1-3.807-3(h) and 1-3.807-4).

2. In addition to the specific information required by this form, the offeror is expected, in good faith, to incorporate in and submit with this form any additional data, supporting schedules, or substantiation which are reasonably required for the conduct of an appropriate review and analysis in the light of the specific facts of this procurement. For effective negotiations, it is essential that there be a clear understanding of:

- a. The existing, verifiable data.
- b. The judgmental factors applied in projecting from known data to the estimate, and
- c. The contingencies used by the offeror in his proposed price.

In short, the offeror's estimating process itself needs to be disclosed.

3. When attachment of supporting cost or pricing data to this form is impracticable, the data will be described (with schedules as appropriate) and made available to the contracting officer or his representative upon request.

4. The formats for the "Cost Elements" and the "Proposed Contract Estimate" are not intended as rigid requirements. These may be presented in different format with the prior approval of the Contracting Officer if required for more effective and efficient presentation. In all other respects this form will be completed and submitted without change.

5. By submission of this proposal the offeror grants to the Contracting Officer, or his authorized representative, the right to examine, for the purpose of verifying the cost or pricing data submitted, those books, records, documents and other supporting data which will permit adequate evaluation of such cost or pricing data, along with the computations and projections used therein. This right may be exercised in connection with any negotiations prior to contract award.

FOOTNOTES

1. Enter in this column those necessary and reasonable costs which in the judgment of the offeror will properly be incurred in the efficient performance of the contract. When any of the costs in this column have already been incurred (e.g., on a letter contract or change order), describe them on an attached supporting schedule. Identify all sales and transfers between your plants, divisions, or organizations under a common control, which are included at other than the lower of cost to the original transferee or current market price.

2. When space in addition to that available in Exhibit A is required, attach separate pages as necessary and identify in this "Reference" column the attachment in which the information supporting the specific cost element may be found. No standard format is prescribed; however, the cost or pricing data must be accurate, complete and current, and the judgment factors used in projecting from the data to the estimates must be stated in sufficient detail to enable the Contracting Officer to evaluate the proposal. For example, provide the basis used for pricing materials such as by vendor quotations, shop estimates, or invoice prices; the reason for use of overhead rates which depart significantly from experienced rates (reduced volume, a planned major re-arrangement, etc.); or justification for an increase in labor rates (anticipated wage and salary increases, etc.). Identify and explain any contingencies which are included in the proposed price, such as anticipated costs of rejects and defective work, or anticipated technical difficulties.

3. Indicate the rates used and provide an appropriate explanation. Where agreement has been reached with Government representatives on the use of forward pricing rates, describe the nature of the agreement. Provide the method of computation and application of your overhead expense, including cost breakdown and showing trends and budgetary data as necessary to provide a basis for evaluation of the reasonableness of proposed rates.

4. If the total cost entered here is in excess of \$250, provide on a separate page the following information on each separate item of royalty or license fee: name and address of licensor; date of license agreement; patent numbers, patent application serial numbers, or other basis on which the royalty is payable; brief description, including any part or model numbers of each contract item or component on which the royalty is payable; percentage or dollar rate of royalty per unit; unit price of contract item; number of units; and total dollar amount of royalties. In addition, if specifically requested by the contracting officer, a copy of the current license agreement and identification of applicable claims of specific patents shall be provided.

5. Provide a list of principal items within each category indicating known or anticipated source, quantity, unit price, competition obtained, and basis of establishing source and reasonableness of cost.

CONTINUATION OF EXHIBIT A—SUPPORTING SCHEDULE AND REPLIES TO QUESTIONS II AND V.

The following cost estimates for this project are based on a firm bid of International Engineering Company, Inc.

Cost Estimate for Typical Geothermometric Geochemical Survey

<u>Intangibles</u>	<u>Cost</u>
1 Geologist: 4 pre-field days checking records in Bay Area, Reno, and Carson City, Nevada, at \$235/day	\$ 940.00
1 Geologist: 15 field days collecting samples: 4/day, 60 samples at \$235/day	3,995.00
17 days per diem at \$35/day	595.00
Sample shipping from Lovelock, Nev., to San Diego, Calif.	250.00

Intangibles (continued)

Transportation:

4-wheel drive vehicle - San Francisco, Calif., to Lovelock, Nevada, and return: 630 miles at 15¢/mi.	94.50
Field Operations: 920 miles (2-wheel drive mode) 15¢/mi.	138.00
1,410 miles (4-wheel drive mode) 25¢/mi.	352.50

Sample analyses for:

Si, Na, K, Ca, Mg, HCO ₃ , CO ₂ , F, SO ₄ , Hg, B, NH ₄ , pH in field and in laboratory: 60 samples at \$40/sample	2,400.00
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Interpretation by Franco Tonani

4,000.00

1 Geologist:

16 days assimilating and compiling results at \$235/day	3,760.00
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Principle Investigator:

60 hours finalizing report at \$30/hr.	1,800.00
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Total Intangibles 18,325.00

Tangibles

Technical support, typing, drafting, printing, etc.	2,000.00
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Total Tangibles 2,000.00

TOTAL SURVEY COST \$ 20,325.00



Chevron Resources Company
A Division of Chevron Industries, Inc.
225 Bush Street, San Francisco, California
Mail Address: P.O. Box 3722, San Francisco, CA 94119

March 30, 1979

Mr. Joseph N. Fiore
U.S. Department of Energy
Nevada Operations Office
P.O. Box 14100
Las Vegas, NV 89114

Dear Mr. Fiore:

As a result of work done under contract ET-78-C-08-1590, Geothermal Reservoir Assessment Case Study, Northern Basin and Range Province, Beowawe, Nevada, we believe additional work prior to drilling the geothermal exploratory hole required to complete the new data program under the subject contract is desirable to permit selection of a well site with greater assurance of adequately testing the geothermal reservoir known to exist in the area. We, therefore, suggest the technical program outlined below should be undertaken without delay. We wish to request that DOE fund 100% of this program.

Chevron proposes three studies which, combined with previous work, will insure the determination of an optimum well location.

1. Temperature holes

The twenty-five temperature holes shown on the attached map will be drilled to 500', or two days of drilling, at Chevron's option. Chevron may drill selected locations deeper than 500' if in its opinion shallower temperature data are insufficient or misleading.

After completion of the twenty-five holes specified above, Chevron will select ten of the remaining locations for drilling of 500' temperature holes. We expect the locations will be where the first phase of the additional program indicates higher than normal temperatures, but Chevron may choose the locations for any valid technical reason.

At this time, we estimate the 35 hole program will cost \$105,000, or \$3,000/hole. Unforeseen price rises, or abnormal drilling conditions could cause the program cost to rise; therefore, we cannot guarantee the completion of all 35 holes for the specified cost.

Mr. Joseph N. Fiore
U.S. Department of Energy

-2-

March 30, 1979

2. Spontaneous Potential (S.P.)

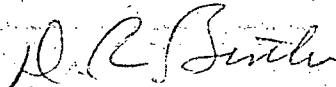
Two square miles of detailed SP coverage within the three square mile area indicated on the attached map, will be performed. The survey, which will augment earlier, less detailed work, is to delineate zones of hot water movement. Cost for the survey is \$4,000.

3. Mercury Sampling

Approximately 200 - 300 samples for mercury analysis will be taken over the area indicated on the attached map. Mercury is an indicator of near surface faulting. Experience has shown that such faulting often localized geothermal systems. Cost is estimated as \$1,000.

We look forward to an affirmative response to this request as soon as practicable since adoption of the program may require an extension of time to fulfill Chevron's original contract obligations.

Yours very truly,



D. R. Butler

Attachment: Map

MEMO ROUTE SLIP Form ERDA-93 (1-75) ERDAM 0240		See me about this.	For concurrence.	For action.
		Note and return.	For signature.	For information.
TO (Name and unit) H.P. Ross UURI	INITIALS	REMARKS		
	DATE			
TO (Name and unit)	INITIALS	EARTH POWER BALTAZOR		
	DATE			
TO (Name and unit)	INITIALS	Howard, Received this late today.		
	DATE			
FROM (Name and unit)	REMARKS	Extra copy for your review. Not much tech info. provided.		
PHONE NO.	DATE 2/31/79	Joe		

MEMO ROUTE SLIP
Form ERDA-93 (1-75) ERDAM 0240

See me about this.
Note and return.

For concurrence.
For signature.

For action.
 For information.

TO (Name and unit) H.P. Ross LURI 420 CHIPETA WAY SUITE 120	INITIALS	REMARKS
	DATE	GSI SEISMIC DATA
TO (Name and unit)	INITIALS	REMARKS Howard,
	DATE	Here's copy of draft contract language associated w/ purchase of GSI Roosevelt data.
TO (Name and unit)	INITIALS	REMARKS
	DATE	I think it needs more work in terms of how the Gov't or its rep will be allowed to use the data. Any suggestions?
FROM (Name and unit) Joe Fiore DOE/NV	REMARKS	Joe
PHONE NO. 702 734-3424	DATE 7/9/79	

*Same as K1 with
GSI Company*

The reflective ^{on} seismic data shall be maintained as proprietary to GSI for a period of five years after the effective date of this

Contract and shall not be reproduced during that period. However, the Government and/or its representatives ~~may make the data~~ *shall be permitted to interpret seismic sections* available for inspection without limitation, and descriptions of and ~~interpretations based on the data may be made~~ *shall be permitted and and publish interpretations of the seismic sections and* ~~by any person inspecting~~ *make the seismic section available for review and/or distribution* the data without any recourse whatsoever by GSI against such person

or the Government.

At the end of the five year period the data shall become the property of the Government and the obligation of the Government to maintain the data as proprietary to GSI and to refrain from copying and distributing the data shall terminate.

didn't pay

*We can show to anybody
Contract to make map
GSI contract for us to do it*



Department of Energy
Nevada Operations Office
P. O. Box 14100
Las Vegas, NV 89114

Mr. Jere Denton
Southland Royalty Co.
1000 Ft. Worth Club Tower
Fort Worth, TX 76102

APR 16 1979

Dear Mr. Denton:

MEETING FOR REVIEW OF ADDITIONAL GEOPHYSICAL WORK, DIXIE VALLEY NEVADA

The subject meeting is scheduled to be held at the UURI facilities,
420 Chipeta Way, Suite 120, Salt Lake City, UT at 10:00am on
April 25, 1979.

Please refer questions to Mr. J. N. Fiore, NV (702)734-3424 or Dr. H. P.
Ross, UURI (801)581-5144.

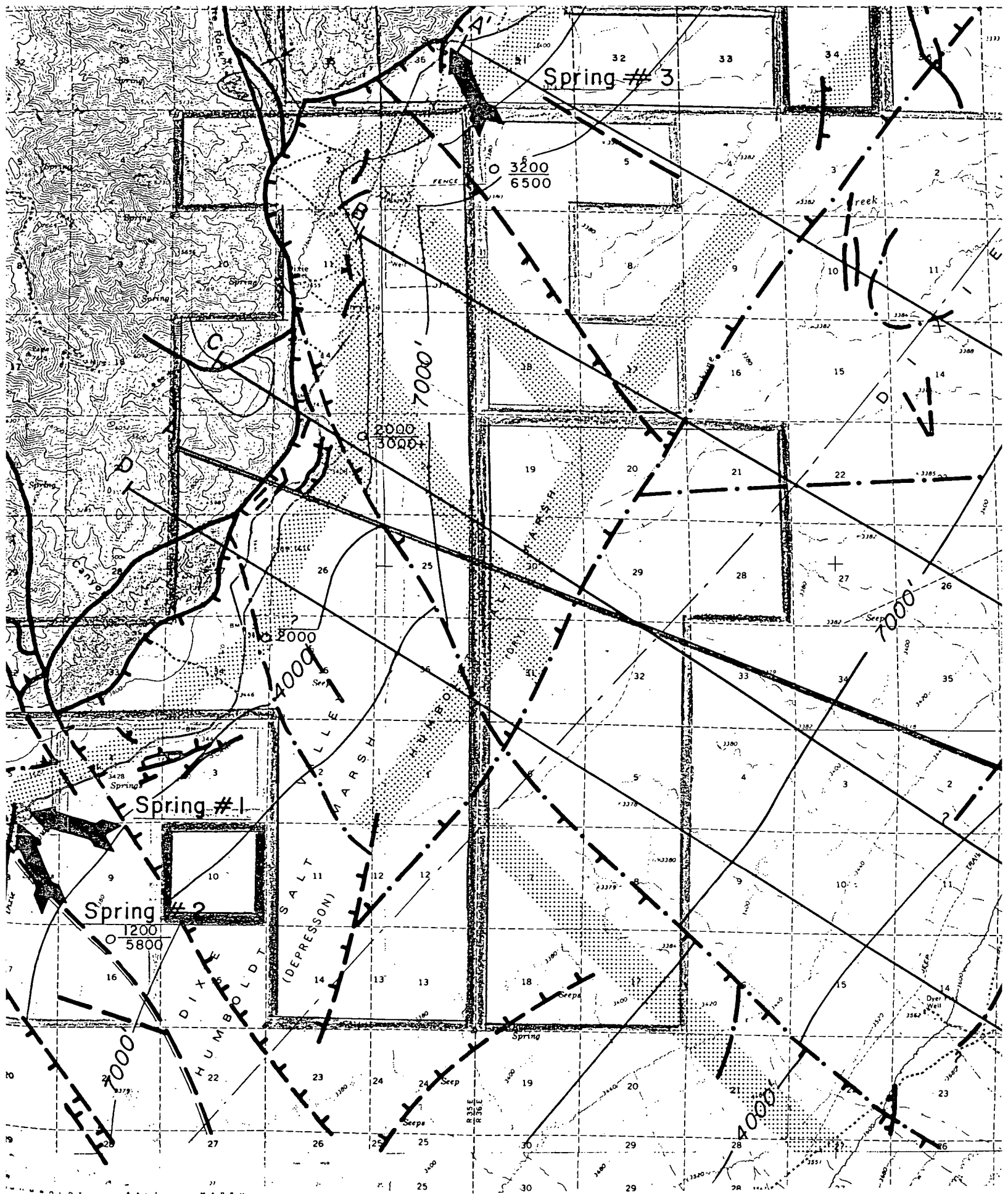
Sincerely,

Original Signed by
JAMES B. COTTER

J. B. Cotter, Director
Engineering and Energy
Applications Division

E&EAD:JNF-892

cc: H. P. Ross, UURI, Salt Lake City, UT

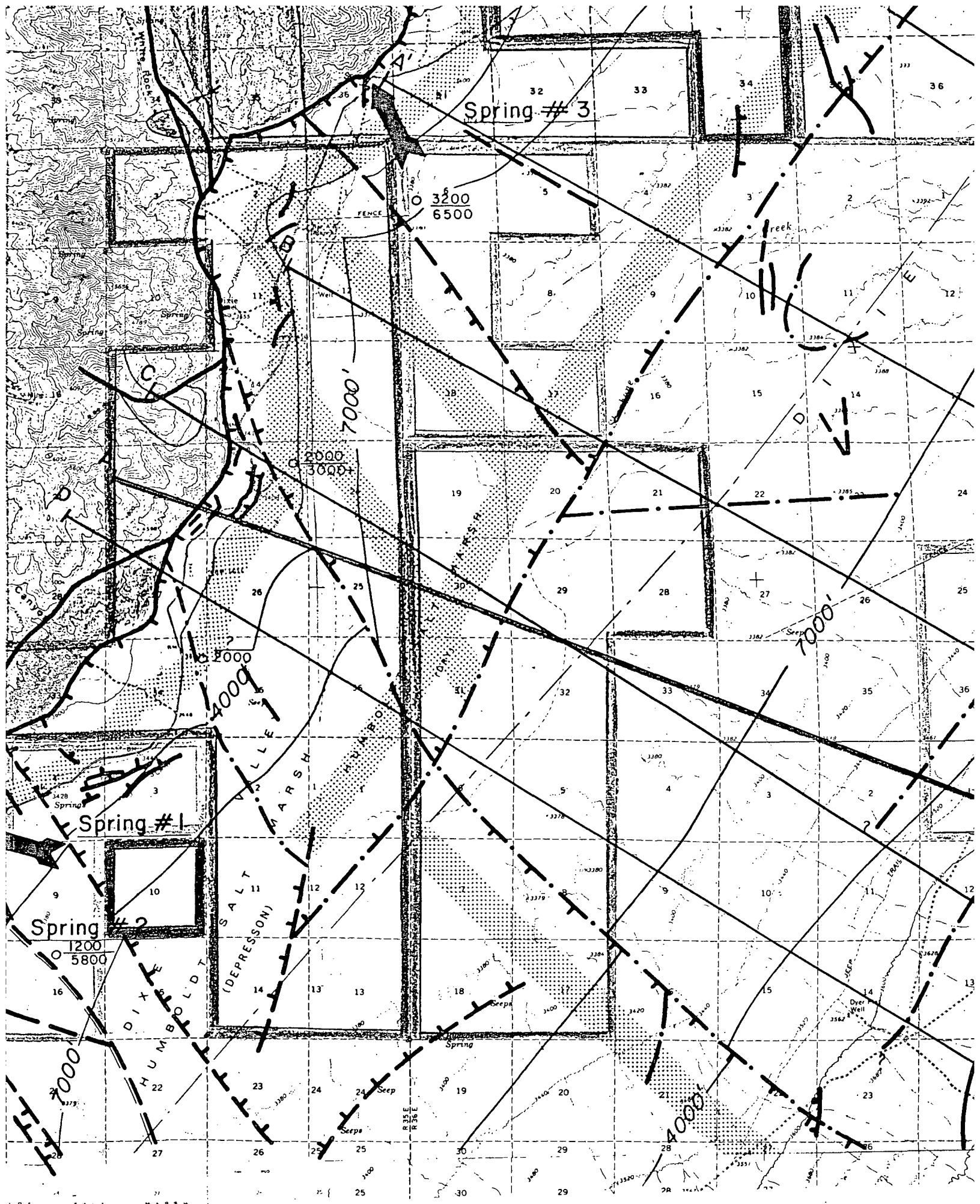


R 35 E

118° 00'

R 36 E

118° 55'



118°00'

118°55'

R 35 E

R 36 E