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USGS
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Memo 4
NV



HPR

Churchill Co.
10/31/77

UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY
Area Geothermal Supervisor's Office
Conservation Division, MS 92
345 Middlefield Road
Menlo Park, CA 94025

OCT 31 1977

Memorandum

To: Interested Parties

From: Area Geothermal Supervisor

Subject: Addendum No. 1, Addendum No. 2, Plan of Operation, Occidental Geothermal, Inc., Federal Leases N-8496 and N-8497, Allen Springs Area, Churchill County, NV (Ref: EA #98)

Enclosed please find Addendum No. 1 and Addendum No. 2 to Occidental Geothermal, Inc.'s proposed Plan of Operation to drill eleven (11) geophysical observation holes on the above Federal leases, in the Allen Springs area, Churchill County, Nevada.

Richard Stone

Enclosures

UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCES LAB.

INTERESTED PARTIES EA#98
OCCIDENTAL GEOTHERMAL, INC.
Plan of Operation: 11 - 3000'± wells
Federal Leases N-8496, N-8497
Allen Springs Area
Churchill County, Nevada

USGS-Conservation Division
District Geothermal Supervisor
Attn: Bernie Moroz
63 Keystone Ave., Suite 102
Reno, NV
Comm.: (702) 784-5676
FTS: 470-5676

USGS-Conservation Division
Office of Conservation Manager
Western Region
Attn: Environmental Staff
345 Middlefield Road, MS 80
Menlo Park, CA 94025
Comm.: (415) 323-8111, Ext. 2093
FTS: 467-2093

USGS-Conservation Division
Area Geologist, Pacific Area
Attn: Henry Cullins
345 Middlefield Road, MS 80
Menlo Park, CA 94025
Comm.: (415) 323-8111, Ext. 2053
FTS: 467-2053

Geothermal Environmental Adv. Panel
Attn: Max Crittenden
U.S. Geological Survey
345 Middlefield Road, MS 75
Menlo Park, CA 94025
Comm.: (415) 323-8111, Ext. 2317
FTS: 467-2317

U.S. Bureau of Land Management
Office of the Nevada State Director
Federal Building, Room 3008
300 Booth Street
Reno, NV 89502
Comm.: (702) 784-5451
FTS: 470-5451

U.S. Bureau of Land Management
Attn: Theodore W. Holland
Geothermal Specialist
Building 50, D-310
Denver Federal Center
Denver, CO 80225
Comm.: (303) 234-5098
FTS: 234-5098

U.S. Bureau of Land Management
Carson City District Office
Attn: Paul Applegate
801 N. Plaza Street
Carson City, NV 89701
Comm.: (702) 882-1631
FTS: 470-5911, ask for 882-1631

U.S. Fish & Wildlife Service
Office of Biological Services
Attn: L.A. Mehrhoff
4620 Overland Road, Rm. 210
Boise, ID 83705
Comm.: (208) 834-1931
FTS: 554-1931

U.S. Fish & Wildlife Service
Attn: Felix Smith
2800 Cottage Way, Rm. E-2727
Sacramento, CA 95825
Comm.: (916) 484-4657
FTS: 468-4657

U.S. Department of Energy
Nevada Operations Office
Attn: John O. Cummings
P.O. Box 14100
Las Vegas, NV 89114
Comm.: (702) 734-3591
FTS: 470-3591

U.S. Department of Energy
Div. of Geothermal Energy, 3rd Floor
Attn: Bert Barnes
20 Massachusetts Ave., NW
Washington, D.C. 20545
Comm.: (202) 376-4902
FTS: 376-4902

U.S. Environmental Protection Agency
Environmental Monitoring & Support
Attn: Michael O'Connell
P.O. Box 15027
Las Vegas, NV 89114
Comm.: (702) 736-2969
FTS: 595-2969

Gulf Mineral Resources Co.
Attn: E.W. Westrick
Exploration Department
1720 S. Bellaire St.
Denver, CO 80222
(303) 758-1700

Hydro-Search, Inc.
Attn: Virgil Wilhite
333 Flint St.
Reno, NV 89501
(702) 322-4172

ICF, Inc.
Attn: Doug Fried
1990 M St., NW
Washington, D.C. 20036
(202) 785-3440

Phillips Petroleum Company
Attn: R.L. Wright
P.O. Box 752
Del Mar, CA 92014
(714) 755-0131

Phillips Petroleum Company
Energy Minerals Division
Attn: R.T. Forest
P.O. Box 10556
Reno, NV 89510
(702) 786-2273

Republic Geothermal, Inc.
Attn: Dwight Carey
P.O. Box 3388
Santa Fe Springs, CA 90670
(213) 945-3661

Republic Geothermal, Inc.
Attn: Jim Sheidenberger
2544 Cleveland Ave.
Santa Rosa, CA 95401
(707) 527-7755

Sunoco Energy Development Co.
Attn: C.T. Clark, Jr.
12700 Park Central Pl., Suite 1500
Dallas, TX 75251
(214) 233-2600, Ext. 515

Mr. Clyde E. Kuhn
2207 Carroll St., Apt. 3
Oakland, CA 94606
(415) 451-3714

University of Utah Research Institute
Earth Science Laboratory
Attn: Phillip M. Wright
Research Park, 391 Chipeta Way
Salt Lake City, UT 84108
(801) 581-5226

Mr. Jack McNamera
Law Center, Rm. 422
University of Southern California
Los Angeles, CA 90007
(213) 741-7569

U.S. Bureau of Reclamation
Attn: Lloyd Osbourne
P.O. Box 640
Carson City, NV 89701
(702) 882-3436

Amax Exploration, Inc.
Attn: Larry Hall
4704 Harlan St.
Denver, CO 80212
(303) 433-6151

Occidental Geothermal, Inc.
Attn: B.J. Wyant
5000 Stockdale Highway
Bakersfield, CA 93309
(805) 327-7351

Dresser Industries
Attn: Jim Fox
475 17th St., Suite 1600
Denver, CO 80202
(303) 893-2780

Thermal Power Co.
Attn: K.R. Davis
601 California St.
San Francisco, CA 94108
(415) 981-5700, Ext. 164

Union Oil Company of California
Geothermal Division
Attn: Neil J. Stefanides
Union Oil Center, Box 7600
Los Angeles, CA 90051
(213) 486-7740

INTERESTED PARTIES for OCCIDENTAL GEOTHERMAL, INC., EA#98

State of Nevada
Department of Human Resources
Capitol Complex
1209 Johnson Street
Carson City, NV 89710
(702) 885-4730

State of Nevada
Division of State Lands
201 S. Fall St., Rm. 338
Capitol Complex
Carson City, NV 89710
(702) 885-4363

State of Nevada
Division of State Parks
Attn: John Meder
Historic Preservation Officer
201 S. Fall St., Rm. 221, Nye Bldg.
Carson City, NV 89701
(702) 885-4384

State of Nevada
Division of Water Resources
Attn: Roland Westergard
201 S. Fall St., Capitol Complex
Carson City, NV 89710
(702) 885-4380

State of Nevada
Environmental Protective Services
Attn: Wendell McCurry/Vern Ross
201 S. Fall St., Capitol Complex
Carson City, NV 89710
(702) 885-4670

State of Nevada
Nevada Department of Fish & Game
P.O. Box 10678
Reno, NV 89510
(702) 784-6214

State of Nevada
Nevada Department of Fish & Game
Attn: Ray Corlett, Regional Mgr.
380 West B Street
Fallon, NV 89406
(702) 423-3171

State of Nevada
Department of Energy
1050 E. William, Suite 405
Carson City, NV 89701
(702) 885-5157

State of Nevada
Nevada State Museum
Attn: Mary Rusco, Archaeologist
600 N. Carson Street
Carson City, NV 89701
(702) 885-4810

Churchill County Commission
Attn: John Hanifan, Chairman
10 West Williams St.
Fallon, NV 89406
(702) 423-5136

California Energy Co., Inc.
Attn: Paul Storm
P.O. Box 3909
Santa Rosa, CA 95402
(707) 526-1000

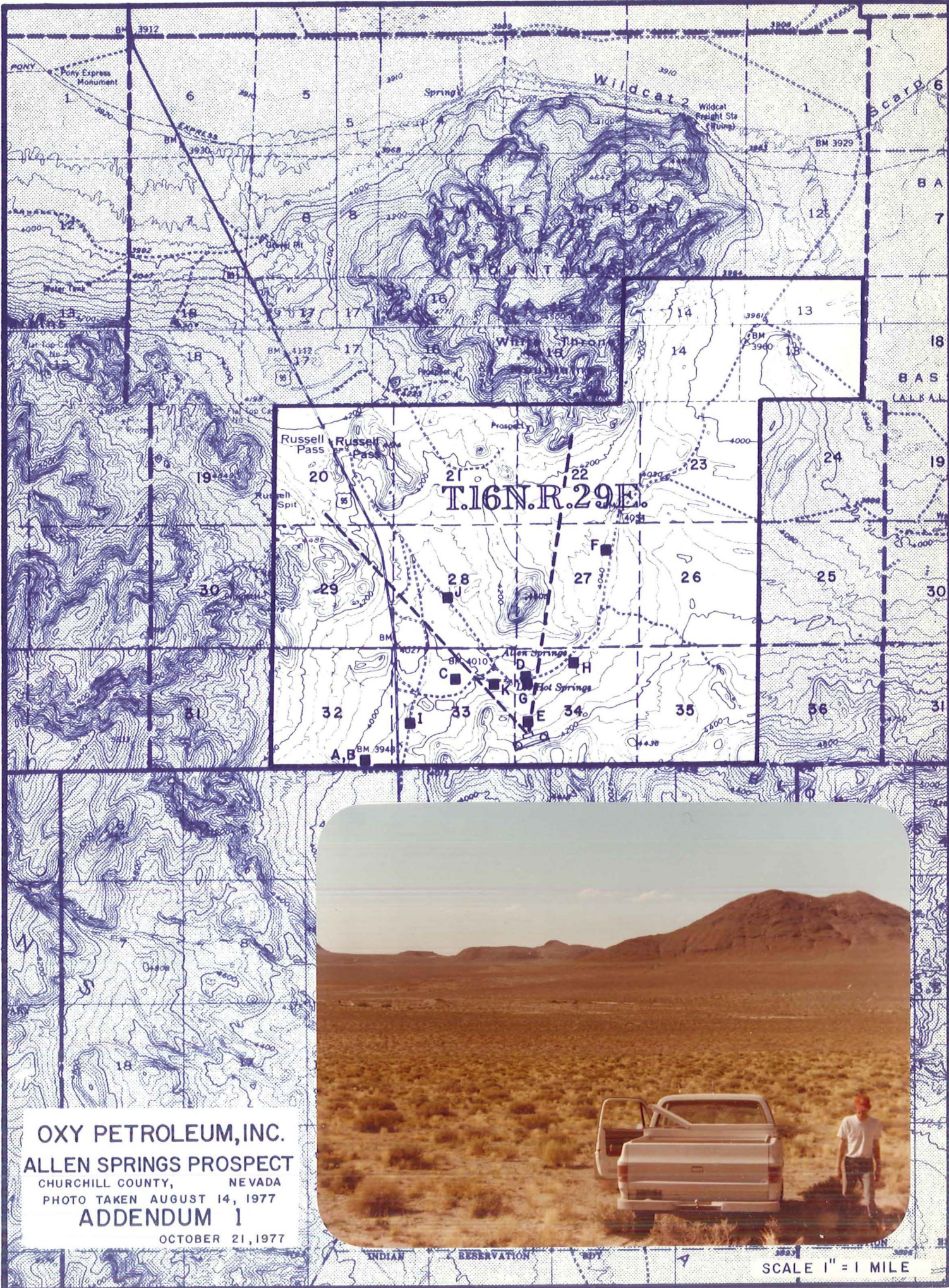
Chevron USA, Inc.
Attn: J.G. Turner/Pat Smith
P.O. Box 3722
San Francisco, CA 94119
(415) 894-2726/(415) 894-2301

Exploration Geologists of Nevada
Attn: Ralph D. Mulhollen
P.O. Box 3043
Reno, NV 89505
(702) 972-6791

Geothermal Power Corporation
Attn: Frank G. Metcalfe
P.O. Box 1186
Novato, CA 94947
(415) 897-7833

GeothermEx
Attn: James B. Koenig
901 Mendocino Ave.
Berkeley, CA 94707
(415) 524-9242

Getty Oil Company
Attn: J.W. Woffington
P.O. Box 5237
Bakersfield, CA 93308
(805) 399-2961



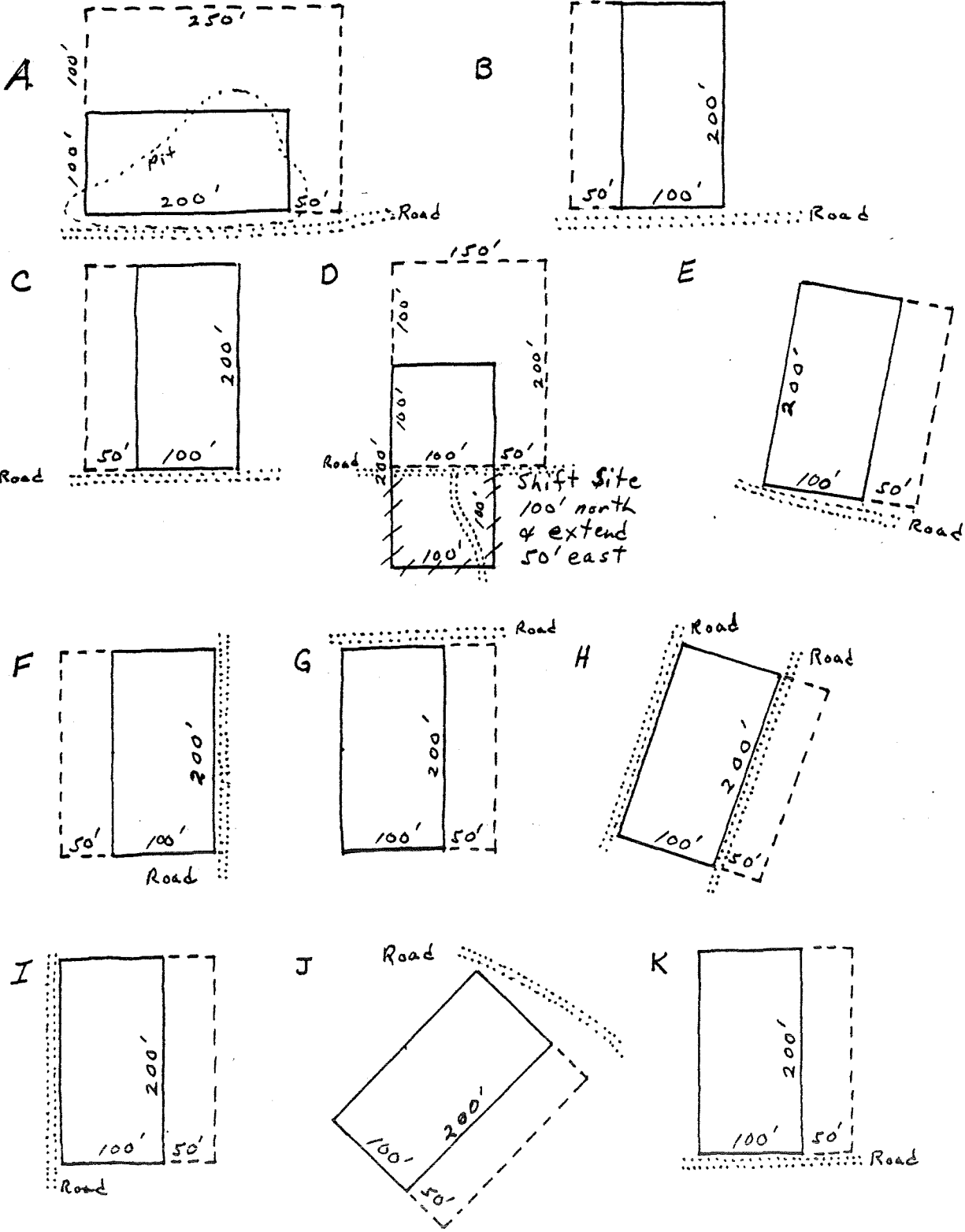
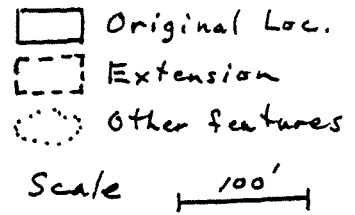
OXY PETROLEUM, INC.
ALLEN SPRINGS PROSPECT
 CHURCHILL COUNTY, NEVADA
 PHOTO TAKEN AUGUST 14, 1977
ADDENDUM 1
 OCTOBER 21, 1977



SCALE 1" = 1 MILE

Occidental Geothermal, Inc.
 Allen Springs Prospect
 Churchill Co., Nev.
 EA # 98
 Addendum No. 4
 Extensions to "drill sites"

10/27/77



Extensions to "drill sites"
 EA # 98 Addendum # 4



OCCIDENTAL EXPLORATION AND PRODUCTION COMPANY

5000 STOCKDALE HIGHWAY • BAKERSFIELD, CALIFORNIA 93309
(805) 327-7351

October 26, 1977

Office of Area Geothermal Supervisor
United States Geological Survey
Conservation Division
345 Middlefield Road
Menlo Park, California 94025

Attention: Mr. David Bickmore

EA #98
Addendum No. 2
Proposed Plan of Operation
Allen Springs Area
Churchill County, Nevada

Gentlemen:

You have expressed uncertainties as to some verbage used by us in the plan of operation for the subject area. We are hereby revising the verbage in our plan of operation to comply with the GRO Orders. This letter is submitted as Addendum No. 2 in an effort to clarify the proposed program. Points of clarification are:

1. Page 6, F. LOGGING AND TESTING PROGRAM

Testing: Tests will be conducted to determine the chemical and physical properties of the subsurface strata as deemed appropriate under existing well bore conditions. These tests would provide information indicating potential future use as a water source for drilling, processing, etc.; or potential for disposal of geothermal fluids. Additional tests to determine the reliability of geophysical techniques may also be conducted.

2. Page 7, G. OPTIONAL PROCEDURES FOR DRILLING AND TESTING ACTIVITIES

Change No. 9 to read as follows: Conduct flow tests of short duration to determine the characteristics of the reservoir and reservoir fluids.

3. Page 11, IX WASTE DISPOSAL INCLUDING LIQUIDS, SOLIDS, TRASH AND HUMAN WASTE

Revise second paragraph to read as follows: During any testing operation, produced fluids will be confined to the sump. After drying, any residue will be buried before reclaiming the pit.

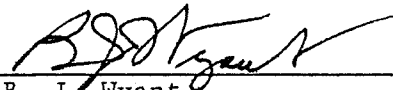
October 26, 1977

4. Page 19, XI RESERVOIR DATA, PRESSURE AND TEMPERATURE REPORTS

Replace paragraph with the following: A record of the formations encountered, their thickness, lithologic characteristics and recorded temperatures will be part of the data gathering process along with initial results of any testing. Analyses of produced fluids will be reported within 30 days after the well is finished. The area geothermal supervisor will be notified of any cementing or testing operations in ample time to witness the proposed operations if he so desires.

We wish to comment at this time on the proposed drilling program. It is because the proposed operations are in an area where no other wells have been drilled that larger pipe and bigger hole are planned. Geothermal and oil field experience has many times demonstrated the desirability in unknown areas of using casing diameters that are generous, allowing flexibility for different circumstances.

Yours very truly,



B. J. Wyant

BJW:te