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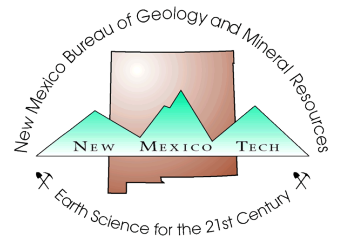
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Inventory of geothermal leasing and drilling activity in New Mexico

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Soaring oil and gas prices and a recognition of limited supplies have stimulated an increasing interest in the development of geothermal energy in New Mexico. Two recent things indicate this increased interest. First, the 1979 New Mexico Legislature passed law #19-13-6 that established areas referred to as Known Geothermal Resource Fields (KGRF's). Enacted primarily to increase state revenue, this law also establishes much more extensive boundaries around the federally designated Known Geothermal Resource Areas (KGRA's) (Summers, 1979). Six of the 11 KGRF's are in or adjacent to the Rio Grande valley, an area that shows the greatest potential for geothermal development. Second, the number of drilling permits approved in the last year (June 1979 to July 1980) has more than tripled from previous years.

In New Mexico three separate government agencies administer the leasing of state and federal lands and the issuing of permits for geothermal well drilling. As a result, no single source of information on geothermal exploration activity within the state has been available. Furthermore, none of these agencies routinely provides a map showing the area they regulate. The New Mexico Bureau of Mines

and Mineral Resources has developed a computerized inventory of state and federal land leased and drilling permits granted. This inventory was first prepared in conjunction with a survey of geothermal development activity in the state (Stone and Mizell, 1977). The computer program used in the inventory was developed by Mizell (1980). The inventory is updated at least every six months and more frequently when warranted.

Geothermal leasing and drilling activity information is entered into the computer inventory by township, range, section, and quarter section; basic component of the grid is a unit measuring 2 townships, N-S, by 3 ranges, E-W.

The Bureau's inventory may be utilized by specifying an area of interest, such as Township 27 South, Range 19 West (T27S, R19W). The inventory is then searched for all leasing and drilling activity within that area. Output consists of two parts: first, a computer listing showing lessee or driller, location, lease or well number, and lease dates or date of drilling permit approval; second, a computer plot showing the location of the leases or drilling sites for the 2-township by 3-range area that includes the specified township and range.

The Animas Valley of Hidalgo County is the only area in which there has been both state and federal land leasing as well as drilling. Therefore, sample computer lists and associated computer plots of leasing and drilling activity in a part of the Animas Valley are provided for clarification. For this example, the specified area of interest was T27S, R19W. Table 1 lists the federal lease locations in the search area associated with this locality. Fig. 1 is a computer plot of federal lease locations listed in table 1. *Quad* refers to quarter sections with 1 = NE, 2 = NW, 3 = SW, and 4 = SE. The number following the name of the lessee is the number assigned by the state or federal agency. Table 2 lists state lease locations in the area of interest, and fig. 2 is a computer plot of locations listed in table 2. Table 3 lists wells permitted in the area, and fig. 3 shows their locations. Under expiration date in table 3 the well name instead of the date is listed because drilling does not expire but produces a well, whose location is maintained in the inventory.

The computer list may indicate more sites than are shown on the computer maps because wells or lease locations are plotted only to the nearest quarter section and because several wells or leased areas can occur in an area of that size.

A current printout of the geothermal leasing and drilling inventory is available for inspection at the New Mexico Bureau of Mines and Mineral Resources in Socorro. All or parts of the inventory may be purchased through the Bureau publications office (telephone 505-835-5410) for the price of computer time involved.

SOURCES OF LEASING AND DRILLING DATA USED IN COMPUTER INVENTORY.

Sources of Leasing and Drilling Data*	Information Provided By Sources	Frequency of Information Release (Update)	Accuracy of Information In Computer Plotting
1. New Mexico Oil Conservation Div. P.O. Box 2080 Santa Fe, New Mexico 87501	Drilling permits available for inspection at Oil Conservation Division Office; copies on file at New Mexico Bureau of Mines and Mineral Resources	Permits released to the public as soon as approved	100% to ¼ section (160 acres)
2. MINFO P.O. Box 2288 Santa Fe, New Mexico 87501	Listing of leasing on state and federal land with detail to ¼ section	Published weekly; leasing information available within a week of leasing application acceptance	State lands leased: 95% to ¼ section Federal lands leased: 90% to section, 50% to ¼ section
3. New Mexico State Land Office Minerals Division P.O. Box 1148 Santa Fe, New Mexico 87501	Computer printout of land areas leased with detail to section	Not updated regularly; printout provided upon request	Used as a check for MINFO
4. U.S. Bureau of Land Management P.O. Box 1449 Santa Fe, New Mexico 87501	Listing of land areas leased with detail to township and range	Not updated regularly; listing provided upon request	Used as a check for MINFO

* Sources for leasing and drilling on private lands are not readily available

TABLE 1—COMPUTER PRINTOUT OF FIG. 1 DESCRIBING FEDERAL LEASE LOCATIONS.

LOCATION				LESSEE	LEASE DATE	EXPIRATION DATE
T27S	R19W	SEC 15	QUAD 3	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 15	QUAD 4	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 15	QUAD 1	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 15	QUAD 2	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 18	QUAD 1	CHEVRON OIL CO 23192	11-01-76	UNKNOWN
T27S	R19W	SEC 22	QUAD 1	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 22	QUAD 2	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 22	QUAD 3	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 22	QUAD 4	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 26	QUAD 1	AMAX EXP INC 24880	11-01-76	UNKNOWN
T27S	R19W	SEC 26	QUAD 2	AMAX EXP INC 24880	11-01-76	UNKNOWN
T27S	R19W	SEC 26	QUAD 3	AMAX EXP INC 24880	11-01-76	UNKNOWN
T27S	R19W	SEC 26	QUAD 4	AMAX EXP INC 24880	11-01-76	UNKNOWN
T27S	R19W	SEC 27	QUAD 1	AMAX EXP INC 24880	11-01-76	UNKNOWN
T27S	R19W	SEC 27	QUAD 4	AMAX EXP INC 24880	11-01-76	UNKNOWN
T27S	R19W	SEC 34	QUAD 1	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 34	QUAD 2	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 35	QUAD 1	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 35	QUAD 2	AMAX EXP INC 24884	12-01-76	UNKNOWN
T27S	R19W	SEC 3	QUAD 1	CHEVRON OIL CO 23193	11-01-76	UNKNOWN
T27S	R19W	SEC 8	QUAD 1	CHEVRON OIL CO 23195	12-28-76	UNKNOWN
T27S	R19W	SEC 8	QUAD 2	CHEVRON OIL CO 23195	12-28-76	UNKNOWN

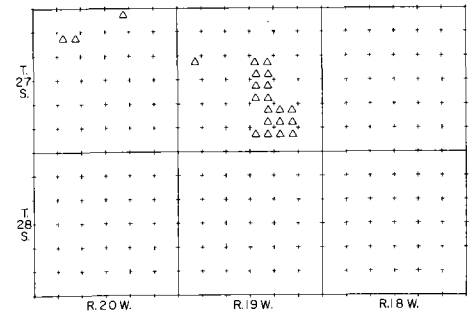


FIGURE 1—FEDERAL LEASE LOCATIONS IN THE ANIMAS VALLEY, NEW MEXICO.

TABLE 2—COMPUTER PRINTOUT OF FIG. 2 DESCRIBING STATE LEASE LOCATIONS.

LOCATION				LESSEE	LEASE DATE	EXPIRATION DATE
T27S	R19W	SEC 2	QUAD 1	BURMAH O&G CO GTR139	08-14-74	08-14-79
T27S	R19W	SEC 2	QUAD 2	BURMAH O&G CO GTR139	08-14-74	08-14-79
T27S	R19W	SEC 2	QUAD 3	BURMAH O&G CO GTR139	08-14-74	08-14-79
T27S	R19W	SEC 2	QUAD 4	BURMAH O&G CO GTR139	08-14-74	08-14-79
T27S	R19W	SEC 3	QUAD 2	BURMAH O&G CO GTR140	08-14-74	08-14-79
T27S	R19W	SEC 4	QUAD 1	BURMAH O&G CO GTR141	08-14-74	08-14-79
T27S	R19W	SEC 4	QUAD 2	BURMAH O&G CO GTR141	08-14-74	08-14-79
T27S	R19W	SEC 5	QUAD 1	BURMAH O&G CO GTR142	08-14-74	08-14-79
T27S	R19W	SEC 5	QUAD 2	BURMAH O&G CO GTR142	08-14-74	08-14-79
T27S	R19W	SEC 5	QUAD 3	BURMAH O&G CO GTR142	08-14-74	08-14-79
T27S	R19W	SEC 5	QUAD 4	BURMAH O&G CO GTR142	08-14-74	08-14-79
T27S	R19W	SEC 8	QUAD 2	BURMAH O&G CO GTR229	03-12-75	03-12-80
T27S	R19W	SEC 9	QUAD 1	BURMAH O&G CO GTR230	03-12-75	03-12-80
T27S	R19W	SEC 9	QUAD 2	BURMAH O&G CO GTR230	03-12-75	03-12-80
T27S	R19W	SEC 9	QUAD 3	BURMAH O&G CO GTR230	03-12-75	03-12-80
T27S	R19W	SEC 9	QUAD 4	BURMAH O&G CO GTR230	03-12-75	03-12-80
T27S	R19W	SEC 16	QUAD 1	BURMAH O&G CO GTR231	03-12-75	03-12-80
T27S	R19W	SEC 16	QUAD 2	BURMAH O&G CO GTR231	03-12-75	03-12-80
T27S	R19W	SEC 16	QUAD 3	BURMAH O&G CO GTR231	03-12-75	03-12-80
T27S	R19W	SEC 16	QUAD 4	BURMAH O&G CO GTR231	03-12-75	03-12-80

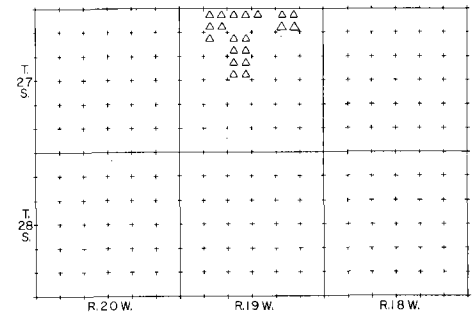


FIGURE 2—STATE LEASE LOCATIONS IN THE ANIMAS VALLEY, NEW MEXICO.

TABLE 3—COMPUTER PRINTOUT OF FIG. 3 DESCRIBING APPROVED DRILLING SITES.

LOCATION				LESSEE	LEASE DATE	EXPIRATION DATE
T27S	R19W	SEC 9	QUAD 3	AMINOIL USA	04-04-77	NMA10
T27S	R20W	SEC 1	QUAD 1	CHEVRON OIL	05-01-76	L-3
T27S	R20W	SEC 1	QUAD 3	CHEVRON OIL	05-01-76	L-5
T27S	R20W	SEC 9	QUAD 1	CHEVRON OIL	05-01-76	L-4
T27S	R20W	SEC 11	QUAD 2	CHEVRON OIL	05-01-76	L-2
T28S	R20W	SEC 14	QUAD 2	AMAX EXP INC	10-18-76	22
T27S	R20W	SEC 16	QUAD 2	CHEVRON OIL	05-01-76	L-1
T27S	R20W	SEC 21	QUAD 2	CHEVRON OIL	05-01-76	L-6
T27S	R20W	SEC 23	QUAD 1	AMAX EXP INC	09-20-76	11
T27S	R20W	SEC 36	QUAD 1	AMAX EXP INC	09-20-76	17

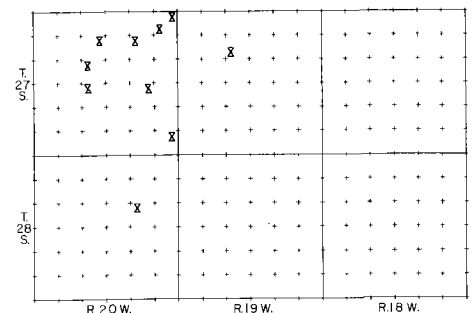


FIGURE 3—APPROVED DRILLING SITES IN THE ANIMAS VALLEY, NEW MEXICO.

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