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**GEOTHERMAL LEASING AND PERMITTING DATA
BASE—A TOOL FOR FUTURE PLANNING**

Final Report, August 22, 1979—December 31, 1980

By
Gene V. Beeland
Estelle Schumann
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December 1980

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Chevy Chase, Maryland

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A TOOL FOR FUTURE PLANNING

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Chevy Chase, Maryland 20015

PREPARED FOR THE
DEPARTMENT OF ENERGY
DIVISION OF GEOTHERMAL ENERGY
UNDER CONTRACT NO. DE-AC01-79ET27208

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SECTION I

INTRODUCTION

A data file on all separate actions taken by the responsible agencies in implementing the Geothermal Steam Act of 1970 (P.L. 91-581) has been developed under contract to the Division of Geothermal Energy, Department of Energy. The data file covers the competitive and non-competitive leasing programs of the Bureau of Land Management (BLM), the consulting role of the US Forest Service (FS) in issuing leases on lands wholly or partially within that agency's jurisdiction, and the post-lease permitting program of the US Geological Survey (GS).

This file is capable of providing two unique services to the geothermal community. These are:

- area- or site-specific information on geothermal prospect areas
- a mechanism for monitoring the performance of the non-competitive leasing program.

The collection of the information which will permit these functions was initiated in 1978 to support the efforts of the Interagency Geothermal Streamlining Task Force, a group organized to develop and recommend remedial changes in the above programs to the Interagency Geothermal Coordinating Council. The results of that program were reported to the Task Force and to the Department of Energy in a report entitled Statistical Characterization of the Federal Geothermal Leasing and Permitting Program, the final version of which is in printing at DOE's National Technical Information Center at Oak Ridge, Tennessee. The preliminary report was printed as an appendix to the Task Force report to the IGCC of January 1979.

In the performance of the Task Force assignment, a computerized data base on the non-competitive leasing program was developed. While the Geological Survey maintains a computerized file on the status and final disposition of each non-competitive application, its format would not serve the Task Force need to:

- track each application through the various steps in the non-competitive leasing process
- quantify the timeframe of each action taken
- quantify the length of time applications have been pending at various milestones awaiting required action
- obtain specific insight into Forest Service performance.

Thus, a format was developed with the assistance of BLM and Forest Service personnel which would serve these purposes, and the required data were obtained from the files of the BLM State Offices where the lease applications

are received and from Forest Service Regional Offices responsible for that agency's consultation. The states covered include:

Arizona	Nevada
California	New Mexico
Colorado	Oregon
Idaho	Utah
Montana	Washington
Wyoming	

Complete data--information on all non-competitive lease applications--were obtained from most offices on the format shown in Appendix A. However, due to the large number of applications filed in five offices, and the man-hours which would be required to assemble the complete file, a selection of only one in 10 applications was requested from these offices. They include BLM in Idaho, Nevada, New Mexico, and Utah, and the Forest Service in Idaho.

The limitations on the data file imposed by this approach and by discrepancies in the data provided were overcome by statistical analytical techniques*, tests of which indicated that the confidence interval of the data used represented about $\pm 10\%$ of the average performance. Thus, partial data were sufficient to serve the purposes of the Task Force, and it was not then envisioned that the data file would be used for any purpose beyond the one-time needs of the Task Force. It was subsequently determined, however, that by expanding the data base to include all of the actions in all offices, the file could provide the two very useful services identified above.

The development of the full non-competitive data base and preparing it for ready accession for these purposes constituted a major task of the DGE contract which is the subject of this report. Nearly six workweeks were required to record directly onto computer coding sheets the data from the files of the offices from which only partial data had been previously retrieved. A sample sheet is shown in Appendix B.

Subsequently, the data file was again expanded to include:

- the competitive leasing history by KGRA
- pre-lease exploratory permits (These permits are obtained from BLM by filing Notice of Intent to Conduct Exploration applications and are commonly called "NOI" permits. Forest Service pre-lease prospecting permits are commensurate.)
- post-lease exploratory permits (These permits are issued by the Geological Survey for exploratory work by the lessee once a lease is issued and permit geophysical work and shallow and deep temperature gradient holes. The cut-off point between "shallow" and "deep" is 500 feet.)

* Schlaifer, R. 1959. Probability and Statistics for Business Decisions, The Monte Carlo Method. McGraw-Hill Book Co., NY.

- post-lease drilling permits (These permits are obtained by filing an application for a permit to drill (APD) and are required for all wells drilled for development, testing, production, and reinjection. How "deep" is "deep" in this context is less clear-cut in GS practice.)
- leases on state land
- state drilling permits.

The competitive history was obtained from the Geological Survey's Computerized Bidding History of Competitive Geothermal Lease Sales on Federal Land (Format K-1). The format of the information provided was simplified to facilitate tracking of re-offered tracts which, if counted more than once, would greatly inflate the acreage actually offered.

The post-lease exploratory and drilling permit records were similarly obtained from GS files--Format G-5, GS's, APD's, and Drilling Histories Sequenced by Number. The purpose of entering modified versions of the GS data into the WAPORA, Inc. file is discussed below.

The data on pre-lease exploratory permits on Federal land, state leases, and state drilling permits were gathered from the cognizant BLM and state offices during the course of this project. Information on Forest Service pre-lease prospecting permits was also obtained, but the number of such permits issued for geothermal exploration is insignificant.

This report describes the format of the non-competitive data base, which is by far the most voluminous compilation, and the contribution of which it is capable as a source of area- and site-specific information and as a monitor of progress in the non-competitive leasing program. The report also discusses 1) the potential use of the total data base in planning for the commercialization of the resource, and 2) maps prepared to provide a visual presentation of the data.

SECTION II

THE NON-COMPETITIVE DATA BASE

FORMAT

The non-competitive data base developed initially in support of the Task Force streamlining effort consists of two parts. The first is designed to quantify the timeframes required for processing each application through each step in the leasing system. The second contains information on areas designated by BLM and the Forest Service for application of the environmental assessment requirements of the National Environmental Policy Act of 1969 (NEPA).

The leasing process data consist of the date on which the initial action, lease application, occurred, and the dates of completion of each subsequent action. This format permits quantification of the time lag occurring at each step, and, in turn, allows comparison of the delay involved in each step with the timeframes occurring in others. The major steps are itemized in Table 1.

This table is taken from the Statistical Characterization cited earlier and has been approved by Task Force members as accurately simplifying the non-competitive leasing process illustrated in full in the following figure. This process flow diagram was originally prepared for use in a related Division of Geothermal Energy report entitled "Geothermal Development on Federal Lands: The Impediments and Potential Solutions."

Performance at each step in the process is measured by the computer in two ways. The breakdown is between 1) those applications which have reached a given milestone and have been processed through it, and 2) those applications which have reached the milestone and are still pending there because the action has not been completed. The terminology used in tables introduced later in this section to reflect these two situations is "In Process" and "Still Pending," respectively.

The step-by-step progress, or lack of it, can be illustrated in two ways. First, the computer is programmed to search the data file and print out a table representing the performance of BLM and the Forest Service, by state, and by composite for all agency actions in all 11 states. An example of this type of measurement is shown in Table 2. This particular table represents the composite, overall BLM performance.

The steps shown in this table are keyed to Table 1 as follows:

Application to Sending to D/F (District/Forest) is the length of time between Steps 1 and 2

Sending to D/F to Return to State is the timeframe for Step 3

Returned from D/F to Sending to GS is the period between Steps 3 and 4

TABLE 1

MAJOR ACTIONS INVOLVED IN THE FEDERAL GEOTHERMAL NON-COMPETITIVE LEASING PROCESS

STEP 1 - DATE OF APPLICATION

The date of application is the date of filing stamped on the envelope containing the application when it is received in the appropriate BLM State Office. All applications are received by BLM, whether or not Forest Service lands are involved.

STEP 2 - TRANSMITTAL TO APPROPRIATE BLM DISTRICT OFFICE OR FOREST SERVICE REGIONAL OFFICE

The application is transmitted by the BLM State Office according to the ownership of the lands involved. The time lapse between the date of application and the date of submittal is the first source of potential delay in the process.

STEP 3 - CONSIDERATION OF THE APPLICATION BY THE BLM DISTRICT OFFICE AND/OR THE FOREST SERVICE

At this stage, environmental reviews are conducted; lease/no lease/conditional lease decisions are made; and special stipulations are developed. Forest Service District Offices and National Forests may both be involved in Forest Service consideration along with the Regional Office. When consideration is completed, the application is returned to the BLM State Office. The time lapse between receipt of the application at the District/Forest Service and its return is the second point of potential delay.

STEP 4 - TRANSMITTAL TO GS FOR STIPULATION REVIEW

A time lapse may also occur between return of the application to the BLM State Office and its transmittal to GS for stipulation review.

STEP 5 - REVIEW OF STIPULATIONS

The time lapse for this step is measured by the date on which the application is returned again to the BLM State Office.

STEP 6 - CLEARLISTING

Once the BLM State Office has secured the applicant's signature on the executed lease form, the last major step in the process is "clearlisting" by the GS Area Geothermal Supervisor's office--i.e., determining that none of the acreage covered by the lease is in a known geothermal resource area (KGRA), a designation which requires leasing by competitive bid.

STEP 7 - FINAL DISPOSITION OF NON-COMPETITIVE APPLICATIONS

An application may be withdrawn by the applicant at any point in the process before the lease has been signed by BLM; the application may be rejected; or a lease may be issued. Rejections may also occur at any point in the process, up through the clearlisting determination after the applicant has signed the lease.

Federal Noncompetitive Leasing Process

Primary Responsibility - BLM

ABBREVIATIONS

BLM - Bureau of Land Management
 BLM-DO - Bureau of Land Management District Office
 BLM-SO - Bureau of Land Management State Office
 GS - U.S. Geological Survey
 GS-RCM - U.S. Geological Survey, Regional Conservation Manager
 AGS - Area Geothermal Supervisor
 GS-AG - U.S. Geological Survey Area Geologist

GS-DO - U.S. Geological Survey District Office
 FWS - Fish and Wildlife Service
 FWS-RO - Fish and Wildlife Service Regional Office
 FWS-DO - Fish and Wildlife Service Area Office
 EA - Environmental Analysis (prepared by BLM)
 GEAP - Geothermal Environmental Advisory Panel
 R/C - Agency Review and Comment
 DOE - Department of Energy

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TABLE 2

ILLUSTRATIVE COMPUTER TABLE SHOWING TIMEFRAMES FOR ACTIONS IN THE FEDERAL
NON-COMPETITIVE GEOTHERMAL LEASING PROCESS--COMPOSITE BLM PERFORMANCE

!EQUATE 4 NEWGEO
!EQUATE 2 OLDGEO
!GEOA2F
CREATE OUTPUT FILE, YES OR NO NO
USE CREATED FILE, YES OR NO NO
DO EACH 1
LIST ERRORS, YES OR NO NO
PRINT HISTOGRAMS, YES OR NO YES
ENTER STATE ABBREV OR ALL ALL
ENTER B OR F OR ALL B

PROCESS	MINIMUM	25 PCT	50 PCT	AVERAGE	75 PCT	MAXIMUM	NUMBER	PERCENT
TOTAL APPLICATIONS							3992	
APPLICATION TO SENDING TO D/F	1	5	20	40	55	277	1231	30.84
SENDING TO D/F TO RETURN TO STATE	1	5	18	38	60	185	347	16.21
RETURNED FROM D/F TO SENDING TO GS	1	5	12	20	21	193	332	8.32
SENDING TO GS TO RETURN TO STATE	1	2	3	9	7	216	1012	25.35
RETURNED FROM GS TO CLEARLIST	1	1	2	5	4	159	811	20.32
CLEARLIST TO ISSUANCE	1	1	2	4	4	194	811	20.32
CLEARLIST TO REJECTION	117	117	117	117	117	117	1	.03
APPLICATION TO WITHDRAWAL	1	17	41	49	62	268	1294	32.41
APPLICATION TO ISSUANCE	6	38	69	76	101	275	1208	30.26
APPLICATION TO REJECTION	2	15	24	40	62	230	641	16.06
APPLICATION AND STILL PENDING	49	64	98	133	159	337	293	7.34
SENT TO D/F AND STILL PENDING	46	155	194	194	217	337	435	10.90
RETURNED FROM D/F AND STILL PENDING	57	132	136	161	174	323	51	1.28
SENT TO GS AND STILL PENDING	43	46	158	167	233	277	9	.23
RETURNED FROM GS AND STILL PENDING	49	59	125	102	128	180	25	.63
CLEARLISTED AND STILL PENDING	108	108	209	203	210	286	6	.15

Sending to GS to Return to State is the timeframe for Step 5

Returned from GS to Clearlist represents Step 6

Clearlist to Issuance and Clearlist to Rejection measure the timeframe from Step 6 to Step 7

All measurements are in weeks. For example, the table shows that the minimum amount of time lapse between receipt of applications at BLM State Offices to their transmittal to the appropriate District Offices is one week; the average time lapse is 40 weeks; and the maximum is 277 weeks. The number of applications transmitted is 1,231, or 30.84% of total applications. The number still pending at this step--i.e., have not yet been transmitted--is 293, or 7.34%. The fact that these combined numbers do not equal the total applications received is explained by the large number of applications rejected because of filing errors and applications withdrawn before they could be forwarded to the District Offices. These situations are discussed later in this report.

The timeframes for separate actions are also measured by the histograms illustrated in Appendix C which distribute the applications processed over the various timeframes involved, from 10 weeks or less up to 280 weeks. The number of applications processed within each timeframe is also presented visually with asterisks, with each asterisk representing an increment of 10. The erratic performance indicated by these numbers is described in detail in the Statistical Characterization.

Table 2 also shows the total processing time for applications from the date of filing to final action--i.e., withdrawal, lease issuance, or rejection. For example, the shortest timeframe for lease issuance by BLM is six weeks; average is 76 weeks; and maximum is 275 weeks. Leases have been issued on 1,208 applications or 30.26%.

All of this portion of the data base was derived from the file of data sheets illustrated in Page 1 of Appendix A and Appendix B. The second portion of the data base consists of information on the individual areas designated for determining the environmental impact of geothermal development and was supplied by Page 2 of the data sheets illustrated in Appendix A.

In the case of BLM, these areas were formerly called "EAR areas," or environmental assessment report areas, after the title given to the NEPA-required documents which do not constitute a full-blown environmental impact statement (EIS). The term used today is environmental assessment, or EA. Until very recently, BLM had not found it necessary to prepare EIS's in view of the existence of the Department of the Interior programmatic EIS on the entire geothermal leasing program. On the other hand, the Forest Service has most frequently prepared an EIS on its areas under consideration for geothermal leasing. Other nomenclature for similar documents is also used. To avoid confusion in terminology, the numerous areas designated for environmental review were called "study areas" throughout the Task Force project, and the same term is used in this report.

These areas may embrace only one KGRA; in some cases they cover a KGRA and surrounding non-competitive areas; and in many instances non-competitive

acreage alone is involved. The last type is usually engendered by the filing of multiple non-competitive lease applications in a non-KGRA area. Before the decision to issue leases pursuant to these applications, not to lease, or to lease only with attached conditions, the anticipated impact of geothermal development must be ascertained through the same process applied to KGRA acreage before a lease sale may be held.

In addition to the location of the land applied for in the non-competitive applications, local factors are used to establish the study area boundaries. These may include such features as homogeneous surface and climatic features and considerations of population, economics, and social conditions as required by NEPA and 40 CFR Part 1502.

Thus, the study areas vary widely in size as shown in Table 3. In Nevada, where entire resource areas already established for other purposes were selected for study of the impact of geothermal development, some study areas cover several million acres. At the other end of the scale, one study area in Arizona encompasses only 690 acres and one in Oregon covers only 589 acres. A supplemental study in Colorado for only one lease covered 2,120 acres.

Thus, information developed on individual study areas can only be considered area-specific in some cases, but site-specific in others. These terms, as used here, are somewhat arbitrary and may vary according to the size of the study area as compared with how narrowly defined an area of interest is. However, information on a few hundred, or even a few thousand, acres can be considered reasonably site-specific in states covering 100,000 square miles or more. This point is clarified by the maps discussed in Section II.

The number of study areas per state reported as of June 1978 is as follows:

Arizona - 7	Nevada - 18
California* - 44	New Mexico - 9
Colorado - 11	Oregon & Washington - 33
Idaho - 25	Utah - 14
Montana - 8	Wyoming - 7

As is seen in Appendix A, the data supplied on the study areas include:

- total acreage
- KGRA acreage
- non-competitive acreage
- BLM acreage
- Forest Service acreage
- non-Federal acreage
- applications covered by study area

NEED FOR COMPLETE DATA BASE

The five offices from which only 10% data was initially collected have processed about 60% of the applications filed (over 70% of those filed if California is excluded) and have issued over 80% of the leases, and absolute numbers--as opposed to percentages--on their records could not be developed

* BLM only; Forest Service did not supply data.

TABLE 3

SIZE OF STUDY AREAS DESIGNATED
AS OF MAY 1978

ST.	STUDY AREA	ACREAGE	ST.	STUDY AREA	ACREAGE
AZ	Gila Box	30,400	CA	Anza	15,360
	San Jose Wash	20,360	cont.	Glamis/Dunes	33,185
	Hassayampa Plain	89,970		East Mesa	77,000
	Coconino Forest	427,000		Big Valley	7,680
	Roskrige Mts.	--		Timbered Crater	70,408
	Burro Creek	12,623		Ford Dry Lake	7,687
	San Bernardino	3,000		Bristol-Amboy	69,120
CA*	Honey Lake	58,880		Westmoreland	--
	Upper Pit R.	188,160		Eagle Lake	No map available
	Surprise-Warner			Pisgah	46,080
	Valleys	241,920		Bend	No map available
	Surprise Valley	--		San Felipe	92,160
	Suppl.		CO	Waunita H.S. PVA	3,269
	Lassen	104,493		Ouray-Ridgeway PVA	3,345
	Beckwourth	13,120		Steamboat Springs	7,596
	Hayden Hill	68,780		Dunton Rico PVA	3,202
	Glass Mt.	6,898,939		Mineral H.S.-Valley	
	Medicine Lake	289,280		View	8,428
	Lovelady Ridge	6,879		Wagonwheel Gap PVA	--
	Geysers	163,428		Mt. Princeton	--
	Geysers/Calistoga	4,128		Montrose District	22,161
	Geysers/Calistoga			Alamosa Resource Area	50,200
	Expansion	211,131		Canyon City	83,520
	Middle Mt.	41,245		Canyon City Suppl.	28,334
	Indian Valley	48,128		Canyon City Suppl.	2,120
	Big Foot Mt.	24,218	ID	Bruneau-Grandview-	
	Cow Mt.	42,900		Mt. Home	271,600
	Little Horse Mt.	1,188		Crane Creek Amended	25,500
	Knoxville	33,000		Parma Area	8,700
	Witter Spring	39,680		Cassia Co.	482,400
	Saline Valley	22,150		Liddy H.S. Amended	1,209
	Bodie	47,425		Heise H.S.	13,000
	Lake Crowley	63,525		Mud Lake	11,500
	Owens Lake	20,725		Freedom	5,400
	Tecopa	24,950		Craters of the Moon	70,000
	Mono-Long Valley	460,256		Big Southern Butte	25,000
	Coso	80,640		Oneida Narrows	19,000
	Sespe	7,040		Twin Lakes	10,000
	Randsburg	64,640		Sulphur-Wood Canyon	10,000
	Spangler	8,320		Grays Lake West	14,000
	Searles Lake	35,000		Grays Lake	50,000
	N. Salton Sea	43,520		Blackfoot Reserv.	140,000
	Yuba	14,720			

*No study area data received from California Forest Service office.

Table 3 (continued)

<u>ST.</u>	<u>STUDY AREA</u>	<u>ACREAGE</u>	<u>ST.</u>	<u>STUDY AREA</u>	<u>ACREAGE</u>
ID	Sharkey H.S.	7,500	NM	Socorro-Socorro	
cont.	Magic	50,000	cont.	Peak	624,814
	Craters of the Moon			Radium Springs	1,816,320
	(Carey)	30,000		Silver City	1,629,910
	Clover Creek	30,000		Gila Lower Frisco	855,256
	Warm Lake			Ojo Caliente	170,240
	(Vulcan H.S.)	3,878			
	Caribou	1,204,000	OR &	Warner Valley (incl.	
	Island Park	530,000	WA	Crump Geyser)	405,000
	Grandjean	13,894		Klamath	650,000
	Idaho City	--		Summer Lake	167,000
MT	Barkells H.S. &			Goose Lake Valley	4,120
	Biltmore H.S.	10,576		Glass Butte	130,000
	Hunter H.S.	50,000		Glass Butte Suppl.	--
	Chico H.S.	(no study)		Vale Addition	65,217
	Corwin H.S.	39,394		Vale KGRA	8,940
	Island Park	41,000		Bully Creek	106,575
	Spokane Hills	2,240		Cow Creek	366,406
	Marysville	86,328		Oregon Canyon	1,038,000
	Boulder H.S.	81,920		No. Malheur	2,300,000
NV	Jakes Valley-			Alvord	200,000
	Sunnyside	1,042,366		Burns Butte	71,959
	Stateline	3,847,711		So. Pueblo	14,273
	Brady Hazen	128,600		Mt. Hood	158,000
	Cherry Creek	2,149,900		Lava 8-Mile	
	Baker	1,591,800		White R.	38,000
	Esmerelda	3,105,160		Bull Run	101,400
	Elko	10,850,902		Timber Line Lodge	589
	Shoshone	2,677,800		Clackmas	334,000
	Ft. Churchill-			Green Spirit (WA)	80,000
	Clan Alpine	3,320,000		Gifford Pinchot EIS	
	Buffalo Hills	1,457,000		incl. Wild, Cougar,	
	Pinenut-Walker	1,481,000		Upper Cispus (WA)	300,000
	Tonopah	3,907,149		Indian Heaven incl.	
	Pyramid	927,196		White Panther (WA)	60,000
	Mina	1,314,400		Mt. Baker/	
	Eureka	2,109,193		Snoqualmie (WA)	24,000
	Fairview	2,250,000		Okanogan (WA)	(application withdrawn)
	Caliente-Virgin			Fremont	55,000
	Valley	6,709,280		Breitenbush	47,283
	Winnemucca	6,666,406		West Breitenbush	12,807
NM	Kilbourne Hole	880,640		Belknap-Foley	103,000
	Lightning Dock	971,520		McCredie	25,000
	San Ysidro,			Sisters	48,000
	Santa Ana Mesa	277,284		Fort Rock	570,000
	Baca Location	496,950	UT	Cauldera	80,000
				Thermo H.S.	96,000

Table 3 (continued)

<u>ST.</u>	<u>STUDY AREA</u>	<u>ACREAGE</u>
UT cont.	Roosevelt H.S.	48,000
	Escalante	330,000
	New Castle	80,000
	Minersville	425,000
	Sevier Lake	3,050,000
	Monroe Joseph Cove Fort-	27,400
	Sulphurdale	79,071
	Juab Co.	1,343,066
	Tintic Mts.	80,000
	Beaver/Fillmore	630,000
	Pine Valley	50,000
	Markagunt Plateau	120,000
	Enterprise P.U.	23,669
WY	Bridger Teton	42,817
	Rock Springs	39,926
	Bridger N.F.	110,455
	Teton N.F.	20,367
	Targhee	128,843
	Rock Springs/Caribou	7,447
	W-53354 thru W-53561	20,147

from the partial data. In the overall statistical results needed by the Task Force, the chance of over- or under-emergence of one action in one instance was counterbalanced by the same chance for over- or under-distribution of another action. But since random selection did not select out a proportionate balance of all actions in all cases, totals for these offices could not be derived by multiplication.

Thus, it was not possible to characterize performance by numbers of leases, rejections, or withdrawals, or, most importantly, the acreage involved. In some cases, leases issued on 25% of the applications filed might represent only a tenth of the acreage applied for. Conversely, leases issued on only a small percentage of the applications could represent a large amount of acreage. Thus, for the file to be used as a fully effective monitor on progress, a complete data base is required.

The limiting effect of the 1-in-10 data on any kind of analysis of the data within the study areas was even more acute than its influence on the composite BLM or Forest Service or state-by-state analysis, and, in fact, rendered it useless for "micro" studies. For example, the random selection of files might not pick up a single application within a given study area, when in fact it was an active non-competitive area. Perhaps only two applications would be identified in an area which were both withdrawn or rejected, but full data would show that multiple others were filed and went to lease. Conversely, two or three leases issued in reasonably short timeframes could erroneously indicate that leasing was moving ahead promptly in an area when in fact numerous applications were still pending after months or years.

With complete "Page 1" data (Appendix A) allocating all applications to the study area in which the acreage applied for is located, the study area information provides a mechanism for extracting area- or site-specific non-competitive leasing information from the computerized data file. By reprogramming the data file to the study area level, the entire history of non-competitive leasing within each area can be obtained, as illustrated in Table 4 and localized tables and histograms comparable to those in Table 2 and Appendix C, can be retrieved.

With this information a profile on each study area can be developed which indicates:

- number of applications filed and acreage applied for
- number of leases issued and acreage leased
- number of applications and acreage withdrawn
- number of applications and acreage rejected
- reasons for rejection
- number of pending applications and acreage involved

TABLE 4

SAMPLE DATA PRINTOUT BY STUDY AREA
ROOSEVELT HOT SPRINGS, UTAH*
 !STUARA
 ENTER STATE ABBREV UT
 ENTER STUDY AREA ABBREV RO

				Date of Applica- tion	Step 2	Step 3	Step 4	Step 5	Step 6	Date With- drawn	Date Lease Issued	Date Re- jected	Land Description
UT 25195	B	RO	2375	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25196	B	RO	2560	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25197	B	RO	1920	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25198	B	RO	2280	13174	0	0	0	0	0	0		51474	2 265 9W
UT 25199	B	RO	997	13174	0	0	0	0	0	0		51474	2 265 9W
UT 25212	B	RO	2560	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25213	B	RO	2560	13174	0	0	0	0	0	0		51474	2 265 9W
UT 25214	B	RO	2560	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25215	B	RO	1280	13174	0	0	0	0	0	41274		0	0 275 9W
UT 25246	B	RO	2560	13174	0	0	0	0	0	0		32774	2 275 9W
UT 25247	B	RO	2560	13174	0	0	0	0	0	0		32775	2 265 9W
UT 25248	B	RO	2240	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25249	B	RO	2280	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25250	B	RO	2280	13174	0	0	0	0	0	0		51474	2 265 9W
UT 25253	B	RO	2560	12874	32475	42275	32475	0	62675	0	070375	50374*	2 275 9W
UT 25256	B	RO	2560	13174	0	0	0	0	0	0		52474	2 275 9W
UT 25258	B	RO	2560	12874	22075	50975	22075	60874	61674	0	061774	11675*	8 275 11W
UT 25264	B	RO	2384	13174	0	0	0	0	0	41174		0	0 265 9W
UT 25265	B	RO	2272	13174	0	0	0	0	0	41174		0	0 275 9W
UT 25266	B	RO	2240	13174	0	0	0	0	0	41174		0	0 275 9W
UT 25267	B	RO	1600	13174	0	0	0	0	0	41174		0	0 265 9W
UT 25281	B	RO	2560	13174	0	0	0	0	0	0		51474	2 275 9W
UT 25282	B	RO	2560	13174	0	0	0	0	0	0		51474	2 265 9W
UT 25305	B	RO	2295	12974	21475	40275	21475	100775	102375	0	102475	11675*	8 265 9W
UT 25308	B	RO	2240	12974	32475	51475	32475	100975	102575	0	102475	22675*	5 265 9W
UT 25309	B	RO	1940	13174	0	0	0	0	0	0	062174	11674*	0 265 10W
UT 25312	B	RO	2560	13174	0	0	0	0	0	0	0	72674	1 275 9W
UT 25319	B	RO	2536	13074	30375	50275	30375	0	61775	0	061875	31675*	11 265 10W
UT 25320	B	RO	1656	13074	32475	42275	32475	0	61175	0	061675	0	0 265 10W
UT 25321	B	RO	2157	13074	31475	32675	31475	51575	60275	0	060275	1	0 275 9W
UT 25332	B	RO	1384	12574	31075	42275	30775	0	61375	0	100675	21475*	0 275 5W
UT 25355	B	RO	2480	13174	0	0	0	0	0	32874		0	0 275 9W
UT 25356	B	RO	2240	13174	0	0	0	0	0	0		56674	2 275 9W
UT 25369	B	RO	1240	13174	0	0	0	0	0	32174		0	0 365 14W
UT 25370	B	RO	1260	13174	0	0	0	0	0	32174		0	0 315 14W
UT 25372	B	RO	1260	13174	0	0	0	0	0	32174		0	0 315 13W
UT 25373	B	RO	2523	13174	0	0	0	0	0	0		51474	2 365 12W
UT 25580	B	RO	2080	20774	32475	42275	32475	0	61775	0	061875	0	0 265 9W
UT 25584	B	RO	2560	20874	112574	12875	32475	61874	62174	0	062474	0	0 275 10W
UT 25585	B	RO	2560	20874	32475	42275	32475	0	61775	0	061875	0	0 265 10W
UT 26266	B	RO	2297	51574	32475	42275	32475	0	61775	0	061875	21475*	0 275 9W
UT 26268	B	RO	2560	51574	32475	40974	32475	61674	62174	0	062474	0	0 275 9W
UT 27426	B	RO	2182	71074	0	0	0	0	0	0	061875	0	0 265 8W
UT 27430	B	RO	781	73074	0	0	0	0	0	112475		42975*	0 275 9W
UT 27431	B	RO	80	73174	0	0	0	0	0	0		82274	0 265 9W
UT 29849	B	RO	1971	33175	0	0	0	0	0	42475		0	0 275 7W
UT 29850	B	RO	1956	33175	0	0	0	0	0	42475		0	0 255 7W
UT 29851	B	RO	1609	33175	0	0	0	0	0	42475		0	0 275 8W
UT 29852	B	RO	1920	33175	0	0	0	0	0	42475		0	0 255 8W
UT 29853	B	RO	2247	33175	0	0	0	0	0	0		0	0 255 4W
UT 30310	B	RO	2021	52975	72975	40974	72975	60674	61674	0	060174	63075*	11 265 9W
UT 31763	B	RO	811	112175	0	0	0	0	0	0		39574	0 265 8W
UT 32219	B	RO	811	10275	0	0	0	0	0	0	092374	0	0 265 8W
UT 33657	B	RO	2606	52874	0	0	0	0	0	11177		0	0 265 8W
UT 33658	B	RO	1929	52874	0	0	0	0	0	11677		0	0 265 8W
UT 36674	B	RO	2304	13078	90878	102778	90678	122278	122278	0	010278	0	0 275 12W
UT 39799	B	RO	1202	21078	90878	102778	90678	122278	122278	0	010278	0	0 275 12W
UT 39800	B	RO	742	21078	90878	102778	90678	122278	122278	0	010278	0	0 275 12W
UT 40632	B	RO	1599	62678	120178	122378	112778	12678	20278	0	020678	0	0 265 10W
UT 40633	B	RO	1956	62678	90678	102778	90578	121878	122278	0	020278	0	0 275 7W
UT 40634	B	RO	1920	61578	90678	102778	90578	121878	122278	0	020278	0	0 265 8W
UT 40635	B	RO	1945	61578	90678	102778	90578	121878	122278	0	010278	0	0 275 7W
UT 40636	B	RO	840	61578	90678	102778	90578	121878	122278	0	010278	0	0 275 8W

 STATE = UT STUDY AREA = RO
 NO. OF APPLICATIONS = 63 TOTALING 125319 ACRES
 NO. OF LEASES ISSUED = 20 TOTALING 40607 ACRES

*Applicants have been added.

- number of leases and acreage relinquished or terminated
- number of existing leases and acreage under lease.

The uses which may be made of both parts of this data file are discussed below and sample data analyses are presented.

SECTION III

USE OF THE DATA BASE

THE DATA BASE AS A POTENTIAL SYSTEM MONITOR

As discussed earlier, the non-competitive geothermal data base quantifies 1) the timeframe required for each action on each application as it moves through the process and 2) the timeframe from the date of application to final disposition. The data can be manipulated to:

- provide summary tables as shown in Table 2 by agency, by state or study area, and composite BLM and Forest Service performance
- provide time lapse distribution as shown in Appendix C
- monitor performance by year.

The last capability was illustrated in the Statistical Characterization through an evaluation of BLM performance by year. Table 5, which is taken from that document, was derived from US Geological Survey records* through a cumbersome and time-consuming manual effort. This approach was the only means of assessing annual progress at that time because, although the computer program in use was capable of compiling the data in a format to serve that purpose, the partial data prevented the use of actual numbers. Now, however, with full data and future updates, annual progress can be measured by the computer in terms of numbers of leases issued and the timeframe required, and improvement at any step in the system can be assessed on an annual basis. The key step of interest is, of course, Step 3 in Table 1, the consideration of the application by the BLM District Office and/or the Forest Service.

The data in the file as it exists today are divided into three data bases which are described in Table 6. The first of these is the compilation developed for the Task Force study using the partial data. This base is reprinted in this report only to show the transformation to the full file and no further use can be foreseen for it.

Data Base No. 2 is the most significant one in that it represents conditions in the non-competitive leasing program at the outset of the streamlining effort and will provide the basis for any future assessment of progress utilizing the data file. Data Base No. 3 can be considered current for all practical purposes through September/October 1979 and provides the first assessment of progress in the five most active offices.

* US Geological Survey Conservation Division, Office of the Area Geothermal Supervisor, Applications and Lease Records System, FORMAT A-3, Combined USGS and BLM Pre-Lease History Sequenced by Application Number and Date of Action.

TABLE 5
BLM PERFORMANCE BY YEAR

State	1974					1975					1976					1977				
	Timeframes					Timeframes					Timeframes					Timeframes				
	Appls. Filed	Leases Issued	%	Range	Av.	Appls. Filed	Leases Issued	%	Range	Av.	Appls. Filed	Leases Issued	%	Range	Av.	Appls. Filed	Leases Issued	%	Range	Av.
Arizona	20	3	15	7-18	17.5	22	1	4	18*	18*	5	--	--	--	--	10	--	--	--	--
California	470	8	1	20-35	30	106	2	1	9**	9**	68	--	--	--	--	52	--	--	--	--
Colorado	79	37	47	14-37	23	6	4	66	3-15	12.6	--	--	--	--	--	15	--	--	--	--
Idaho	232	70	30	9-49	22	119	31	26	14-32	26.3	44	34	77	7-21	12	99	7	7	6-8	6.5
Montana	39	7	18	5-32	28	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--
Nevada	1002	263	26	8-31	20	174	92	53	4-21	10	70	45	64	3-16	9.2	105	45	42	2-18	11
New Mexico	369	66	18	10-37	21	94	14	15	5-21	19	34	2	5	6**	6**	41	--	--	--	--
Oregon	488	78	16	18-47	33	79	22	28	5-24	18	29	6	20	14-22	17	15	--	--	--	--
Utah	282	133	47	7-50	23.5	51	36	70	8-18	12.4	83	32	38	6-20	11	80	9	11	5-12	6
TOTAL	2981	638	21		23	651	202	31		15.7	333	119	36		11	420	61	14		7.8

* Only one

** Timeframe for all

TABLE 6

DESCRIPTION OF DATA BASES
USED IN THE DATA TABLESDATA BASE No. 1

These data are identical to the information reported in an earlier DOE study, Statistical Characterization of the Federal Geothermal Leasing and Permitting Program, which was also printed as an appendix to Geothermal Streamlining Recommendations, A Report to the Interagency Geothermal Coordinating Council from the Streamlining Task Force on Streamlining the Federal Leasing and Environmental Review Procedures, January 1979. The data utilized track the step-by-step progress, by date, of non-competitive geothermal leasing applications through the leasing process. Data on all applications processed by the following offices are included:

GROUP I

<u>BLM</u>	<u>Forest Service</u>
Arizona	Arizona
California	California
Colorado	Colorado
Montana	Montana
Oregon/Washington	Nevada
Wyoming	New Mexico
	Oregon/Washington
	Utah
	Wyoming

Data on 10%, or a random selection of 1 in 10 files, for the following offices are also included in Data Base No. 1:

GROUP II

<u>BLM</u>	<u>Forest Service</u>
Idaho	Idaho
Nevada	
New Mexico	
Utah	

All Data Base No. 1 information is current to June 1978.

DATA BASE No. 2

This data base includes all actions of all of the above offices to June 1978.

Table 6 (continued)

DATA BASE No. 3

These data include all actions of the above Group I office to June 1978 and all actions of the Group II offices to September/October 1979. Since the Group I offices accounted for less than 20% of the non-competitive leases issued between January 1974 and June 1978, and BLM summaries indicate continuing relatively lower levels of activity, the records of these offices were not updated for this program for reasons explained in the text.

The data files of the BLM and Forest Service offices which provided full data to June 1978 were not updated in 1979 because:

- no effects of the streamlining effort would be expected at that point
- BLM summary records indicate that movement in those offices between 1 June 1978 and September/October 1979 was not significant (BLM action in Oregon may be an exception to this generalization.)
- it would not have been cost-effective to retrieve such a small amount of data before the remedial effects could be observed. (Since no easily accessible record of each action by date is currently available, a full search of the files for actions subsequent to 1 June 1978 would be required.)

The non-competitive program is not a static one in any event and constantly changes with new applications, withdrawals, rejections, and leases issued. Thus, a fixed picture at any point is not only virtually impossible to establish but not necessary to observe trends in performance.

The quality of the files on non-competitive applications in the various BLM State Offices appears to be improving considerably as the program gains experience. However, in earlier files some actions are undated; in others, dates shown are "non-sequitur" in that they do not follow in the expected sequence; and in others actions are shown to have taken place although there is no evidence that they were preceded by actions prerequisite to their occurrence. Thus, lack of data or non-sequential data which the computer is programmed not to accept tends to reduce total numbers from BLM's reported totals somewhat as indicated in Table 7.

However, it is not felt that this imperfection in data quality reduces the value of the data or limits reliance on it. The file adequately serves to demonstrate the pattern of agency performance as well as to indicate the order of magnitude of geothermal interest in specific areas, as discussed below.

DATA ANALYSIS

The ensuing tables support the validity of the Task Force approach of assessing the record on the basis of partial data since the differences between Data Base No. 1 and No. 2 are not sufficient to change the basis for its recommendations. In fact, the relationship of the statistical approximation to actual performance percentages is very close in many instances. Where there is a somewhat greater difference than expected, it commonly indicates a better BLM performance when the full record of its four offices most active in handling non-competitive geothermal applications is considered.

The differences of the greatest magnitude are seen in Table 8 which shows that the percentage of BLM applications which had gone to lease as of June 1978 was actually 28% rather than the 18% indicated by the partial data, and the average timeframe for issuing leases was 76 weeks from date of application rather than 97 weeks. The number of leases issued had increased to at least 30% in late 1979, a figure which would probably be slightly higher if the actions of the less active offices for the 16-17 months between June 1978 and late 1979 were included. The timeframe for issuance remained the same.

TABLE 7

APPLICATION TOTALS USED FOR DATA TABLES

	DATA BASE #1	DATA BASE #2	DATA BASE #3
<u>Composite</u>			
BLM	1560	3634	3992
FS	1743	1777	1811
<u>Arizona</u>			
BLM	58	58	58
FS	68	68	68
<u>California</u>			
BLM	615	615	615
FS	410	410	410
<u>Colorado</u>			
BLM	127	127	127
FS	38	38	38
<u>Idaho</u>			
BLM	106	367	427
FS	255	289	323
<u>Montana</u>			
BLM	34	34	34
FS	53	53	53
<u>Nevada</u>			
BLM	143	1373	1599
FS	9	9	9
<u>New Mexico</u>			
BLM	70	163*	197*
FS	34	34	34
<u>Oregon and Washington</u>			
BLM	269	269	269
FS	739	739	739
<u>Utah</u>			
BLM	54	535	573
FS	99	99	99
<u>Wyoming</u>			
BLM	93	93	93
FS	38	38	38

*This figure excludes withdrawals, rejections, and refusals. No data are available on these actions.

TABLE 8
TIME LAPSE (IN WEEKS) FROM DATE OF APPLICATION TO WITHDRAWAL OF
APPLICATION, LEASE ISSUANCE, OR TO LEASE REJECTION
(See Table 2 for Data Base).

Agency	APPLICATION TO WITHDRAWAL						APPLICATION TO LEASE ISSUANCE						APPLICATION TO REJECTION						% OF TOTAL APPLS. PENDING		
	Data Base #1		Data Base #2		Data Base #3		Data Base #1		Data Base #2		Data Base #3		Data Base #1		Data Base #2		Data Base #3		Data Base #1	Data Base #2	Data Base #3
	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.			
<u>Composite</u>																					
BLM	54	35	49	32	49	32	97	18	76	28	76	30	40	16	39	17	40	16	30	22	21
FS	62	32	68	34	68	33	111	2	110	2	110	2	35	9	35	9	35	9	56	55	55
<u>Arizona</u>																					
BLM	69	17	69	17	69	17	77	5	77	5	77	5	18	47	18	47	18	47	33	33	33
FS	12	7	12	7	12	7	79	1	79	1	79	1	27	10	27	10	27	10	81	81	81
<u>California</u>																					
BLM	53	39	53	39	53	39	111	2	111	2	111	2	39	23	39	23	39	23	38	38	38
FS	54	52	54	52	54	52	--	0	--	0	--	0	36	11	36	11	36	11	39	39	39
<u>Colorado</u>																					
BLM	56	57	56	57	56	57	96	22	96	22	96	22	37	5	37	5	37	5	10	10	10
FS	110	11	110	11	110	11	94	13	94	13	94	13	--	0	--	0	--	0	76	76	76
<u>Idaho</u>																					
BLM	49*	30*	51	12	54	11	98*	16*	77	48	77	41	52*	15*	60	5	58	4	39*	33	41
FS	75*	16*	111	27	114	26	145*	1*	107	1	107	<1	44*	1*	48	1	48	<1	83*	70	72
<u>Montana</u>																					
BLM	118	24	118	24	118	24	134	18	134	18	134	18	14	50	14	50	14	50	9	9	9
FS	99	38	99	38	99	38	--	0	--	0	--	0	7	40	7	40	7	40	31	31	31
<u>Nevada</u>																					
BLM	48*	41*	48	40	47	38	63*	36*	64	32	61	35	41*	13*	43	21	41	19	10*	8	8
FS	--	0	--	0	--	0	92	56	92	56	92	56	--	0	--	0	--	0	44	44	44
<u>New Mexico</u>																					
BLM	153*	10*	**	**	**	**	94*	60*	84	25	122	34	119*	10*	**	**	**	**	21*	74	58
FS	9	21	9	21	9	21	28	3	28	3	28	3	--	0	--	0	--	0	76	76	76
<u>Oregon & Wash.</u>																					
BLM	108	16	108	16	108	16	118	36	118	36	118	36	93	5	93	5	93	5	44	44	44
FS	68	30	68	30	68	30	128	2	128	2	128	2	45	9	45	9	45	9	60	60	60
<u>Utah</u>																					
BLM	38*	13*	39	28	38	33	85*	48*	74	41	72	47	25*	24*	29	18	30	17	17*	12	2
FS	73	40	73	40	73	40	97	6	97	6	97	6	34	3	34	3	34	3	41	41	41
<u>Wyoming</u>																					
BLM	14	92	14	92	14	92	--	0	--	0	--	0	--	0	--	0	--	0	8	8	8
FS	19	34	19	34	19	34	124	11	124	11	124	11	75	50	75	50	75	50	50	50	50

*1-in-10 data.

**Data on withdrawals and rejections were not available.

Table 9, a composite summary of step-by-step performance, indicates that at the critical Step 3--consideration by the District Office including environmental review and stipulation development--the average BLM timeframe is reduced from 60 weeks on the basis of partial data to 41 weeks. In addition, the period during which the lease is prepared, sent to the applicant for signature, and clearlisted by GS is also reduced from an average of 12 weeks to five. These figures indicate that the record on these purely administrative functions was better in the four most active BLM offices than it was in those with fewer applications to process. (Although BLM in California had received a similarly high number of applications, it was not "lumped" with those four offices because of the low degree of action on them.)

There are some less favorable reflections on overall performance by the addition of the full performance of these offices but none of particular significance. Other records are almost identical using either the partial or full data base.

Data base No. 1 is shown in all subsequent tables and may be compared with the other data bases if desired. However, the purpose of this analysis is not to dwell further on those relationships but to evaluate progress between June 1978 and the fall of 1979 in those offices where the data base was completed and updated--BLM in Idaho, Nevada, New Mexico, and Utah and the Forest Service in Idaho--and to illustrate use of the data file for this purpose.

As noted above, the updated information shows that the percentage of BLM applications resulting in leases has risen to 30%. While this figure demonstrates encouraging progress, it represents about the only good news to be found in the updated data tables.

The Forest Service record remains at 2% of applications leased, a figure that was not expected to change because few FS applications were added in the update. Its average timeframe for issuing leases--over two years--was similarly unchanged.

Otherwise, the record of "progress" in the handling of applications at the various steps in the process is indifferent. Small improvements are offset by small "backslides." For example, Table 9 shows that the timeframe for consideration of applications by BLM District Offices (Step 3) is reduced from 41 weeks to 38. However, the State Office record for dispatching new applications to the District Offices (Steps 1-2) exactly offsets the three weeks gained in Step 3.

The most significant factor which emerges from the data, and it can be seen in Tables 9 through 15, is the "stretch-out" in the length of periods over which applications have been pending at various points in the system. Table 9 shows that as of late 1979 both BLM and Forest Service "pending" periods have consistently worsened, doubling or tripling in some cases. One implication here is that as the leasing program moves further and further away from its inception in January 1974, some applications remain "hung up" at various points for various reasons and have become dormant for increasingly lengthening periods of time. It was demonstrated in the earlier Statistical Characterization that the large influx of January 1974 applications was still influencing the "still pending" record, and that situation appears unchanged.

TABLE 9

COMPOSITE SUMMARY OF STEP-BY-STEP PERFORMANCE IN NON-COMPETITIVE GEOTHERMAL PROGRAM

(See Table 1 for explanation of steps
and Table 2 for data base.)

Time Lapse	Av. No. of Weeks (Data Base #1)								% of Total Applications (Data Base #1)								Av. No. of Weeks (Data Base #2)								% of Total Applications (Data Base #2)								Av. No. of Weeks (Data Base #3)								% of Total Applications (Data Base #3)							
	In				Still				Acted				Still				In				Still				Acted				Still				In				Still				Acted				Still			
	Process				Pending				Upon				Pending				Process				Pending				Upon				Pending				Process				Pending				Upon				Pending			
	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS										
Between Steps 1 and 2	36	24	109	126	44	73	5	4									37	25	78	148	31	74	8	3								40	26	133	175	31	73	7	4									
In Step 3	60	81	105	159	16	7	22	42									41	79	103	156	16	8	11	41								38	79	194	263	16	7	11	40									
Between Steps 2 and 4	18	20	112	49	11	2	1	4									17	20	67	52	8	2	2	4								20	20	161	157	8	2	1	4									
In Step 5	4	5	73	8	12	1	<1	<1									10	4	59	8	23	2	<1	<1								9	4	167	115	25	2	<1	<1									
Between Steps 5 and 6	12	9	29	180	10	1	1	<1									5	9	29	170	17	1	<1	<1								5	9	102	296	20	1	<1	<1									
Between Steps 6 and 7																																																
Lease Issuance	5	18	110	176	13	2	<1	<8									4	17	99	176	18	2	<1	8								4	17	203	283	20	2	<1	8									
Rejection	117	29			<1	<1											117	29			<1	<1										117	29			1	1											

TABLE 10

TIME LAPSE (IN WEEKS) FROM RECEIPT OF APPLICATION IN BLM OFFICE TO SUBMITTAL
TO BLM DISTRICT OFFICE OR TO FOREST SERVICE
(See Step 2, Table 1, and Table 2 for Data Base)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Composite</u>												
BLM	36	109	44	5	37	78	31	8	40	133	31	7
FS	24	126	73	4	25	148	74	3	26	175	73	4
<u>Arizona</u>												
BLM	17	--	53	0	17	--	53	0	17	--	53	0
FS	13	--	82	0	13	--	82	0	13	--	82	0
<u>California</u>												
BLM	87	86	33	6	87	86	33	6	87	86	38	6
FS	105	36	38	2	105	36	38	2	105	36	38	2
<u>Colorado</u>												
BLM	11	227	35	4	11	227	35	4	11	227	35	4
FS	11	--	100	0	11	--	100	0	11	--	100	0
<u>Idaho</u>												
BLM	35*	97*	43	18	35	69	74	12	34	132	73	14
FS	41*	131*	42	17	45	173	79	9	45	160	70	17
<u>Montana</u>												
BLM	15	231	41	6	15	231	41	6	15	231	41	6
FS	14	--	62	0	14	--	62	0	14	--	62	0
<u>Nevada**</u>												
<u>New Mexico</u>												
BLM	56*	213*	81*	4*	49	113	29	54	111	138	43	38
FS	145	--	79	0	145	--	79	0	145	--	79	0

*1-in-10 data

** Nevada omitted because of procedural differences.

Table 10 (continued)

Agency	Percent of				Percent of				Percent of			
	Average No. of Weeks		Total Applications		Average No. of Weeks		Total Applications		Average No. of Weeks		Total Applications	
	(Data Base #1)		(Data Base #1)		(Data Base #2)		(Data Base #2)		(Data Base #3)		(Data Base #3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Oregon and Washington</u>												
BLM	1	224	94	<1	1	224	94	<1	1	224	94	<1
FS	1	--	98	0	1	--	98	0	1	--	98	0
<u>Utah</u>												
BLM	32*	179*	52*	<1*	35	39	35	7	32	180	39	32
FS	26	211	16	0	26	211	16	0	26	211	16	0
<u>Wyoming</u>												
BLM	18	--	18	0	18	--	18	0	18	--	18	0
FS	6	--	98	0	6	--	98	0	6	--	98	0

TABLE 11

TIME LAPSE (IN WEEKS) FOR CONSIDERATION BY BLM DISTRICT OFFICE AND/OR FOREST SERVICE
(See Step 3, Table 1, and Table 2 for Data Base)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Composite</u>												
BLM	60	105	16	22	41	103	31	28	38	194	16	11
FS	81	159	7	42	79	156	7	41	79	263	7	40
<u>Arizona</u>												
BLM	49	95	7	33	49	95	7	33	49	95	7	33
FS	53	81	1	81	53	81	1	81	53	81	1	81
<u>California</u>												
BLM	43	81	<1	32	43	81	<1	32	43	81	<1	32
FS	81	56	<1	12	81	56	<1	12	81	56	<1	12
<u>Colorado</u>												
BLM	60	166	21	1	60	166	21	1	60	166	21	1
FS	92	210	32	50	92	210	32	50	92	210	32	50
<u>Idaho</u>												
BLM	45*	54*	24*	16*	36	78	47	16	36	143	41	23
FS	--*	161*	0*	63*	28	146	79	60	36	255	2	53
<u>Montana</u>												
BLM	82	--	21	0	82	--	21	0	82	--	21	0
FS	--	212	0	4	--	212	0	4	--	212	0	4
<u>Nevada**</u>												
<u>New Mexico</u>												
BLM	32*	49*	73*	7*	37	25	29	1	25	85	39	4
FS	16	144	47	29	16	144	47	29	16	144	47	29

*1-in-10 data.

**Nevada omitted because of procedural differences.

Table '11 (continued)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Oregon and Washington</u>												
BLM	81	171	43	35	81	171	43	35	81	171	43	35
FS	127	181	7	54	127	181	7	54	127	181	7	54
<u>Utah</u>												
BLM	26*	76*	44*	7*	21	58	33	1	20	0	39	0
FS	32	119	11	5	32	119	11	5	32	118	11	5
<u>Wyoming</u>												
BLM	---	84	0	8	--	84	0	8	--	84	0	8
FS	58	135	23	50	58	135	23	50	58	135	23	50

TABLE 12

TIME LAPSE (IN WEEKS) BETWEEN RETURN TO BLM STATE OFFICE
TO SUBMITTAL TO GS FOR STIPULATION REVIEW
(See Step 4, Table 1, and Table 2 for Data Base)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Composite</u>												
BLM	18	112	11	1	17	67	8	2	20	161	8	1
FS	20	48	2	4	20	52	2	4	20	157	2	4
<u>Arizona</u>												
BLM	7	--	5	0	7	--	5	0	7	--	5	0
FS	9	--	1	0	9	--	1	0	9	--	1	0
<u>California</u>												
BLM	--	--	0	0	--	--	0	0	--	--	0	0
FS	--	--	0	0	--	--	0	0	--	--	0	0
<u>Colorado</u>												
BLM	9	176	14	6	9	176	14	6	9	176	14	6
FS	9	144	11	21	9	144	11	21	9	144	11	21
<u>Idaho</u>												
BLM	22*	94*	11*	2*	13	51	36	3	13	152	31	3
FS	--*	28*	0*	1*	18	93	<1	1	18	174	<1	2
<u>Montana</u>												
BLM	14	--	21	0	14	--	21	0	14	--	21	0
FS	--	--	0	0	--	--	0	0	--	--	0	0
<u>Nevada**</u>												
<u>New Mexico</u>												
BLM	13*	65*	67*	7*	24	39	9	16	22	128	25	12
FS	--	21	0	47	--	21	0	47	--	21	0	47

*1-in-10 data.

**Nevada data omitted on this step because of procedural differences.

Table 12 (continued)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
30 Oregon and Washington												
BLM	26	83	29	2	26	83	29	2	26	83	29	2
FS	22	34	2	3	22	34	2	3	22	34	2	3
Utah												
BLM	13*	56*	24*	4*	8	58	<1	1	41	--	2	0
FS	1	57	1	8	1	57	1	8	1	57	1	8
Wyoming												
BLM	--	--	0	0	--	--	0	0	--	--	0	0
FS	41	--	11	0	41	--	11	0	41	--	11	0

TABLE 13

TIME LAPSE (IN WEEKS) FOR GS STIPULATION REVIEW
(See Step 5, Table 1, and Table 2 for Data Base)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Composite</u>												
BLM	4	73	12	<1	10	59	23	<1	10	59	23	<1
FS	5	8	1	<1	4	8	2	<1	4	156	2	<1
<u>Arizona</u>												
BLM	2	--	5	0	2	--	5	0	2	--	5	0
FS	1	--	1	0	1	--	1	0	1	--	1	0
<u>California</u>												
BLM	--	--	0	0	--	--	0	0	--	--	0	0
FS	--	--	0	0	--	--	0	0	--	--	0	0
<u>Colorado</u>												
BLM	3	--	13	0	3	--	13	0	3	--	13	0
FS	4	8	0	5	4	8	0	5	4	8	0	5
<u>Idaho</u>												
BLM	4*	51*	10*	1*	3	51	35	<1	3	158	32	<1
FS	--*	--*	0*	0*	2	--	<1	0	2	--	<1	0
<u>Montana</u>												
BLM	4	--	21	0	4	--	21	0	4	--	21	0
FS	--	--	0	0	--	--	0	0	--	--	0	0
<u>Nevada**</u>												
<u>New Mexico</u>												
BLM	3*	--*	67	0	13	148	24	<1	9	152	37	1
FS	--	--	0	0	--	--	0	0	--	--	0	0

*1 in 10 data.

**Nevada data omitted on this step because of procedural differences.

Table 13 (continued)

Agency	Average No. of Weeks		Percent of		Average No. of Weeks		Percent of		Average No. of Weeks		Percent of	
	(Data Base # 1)		(Data Base # 1)		(Data Base # 2)		(Data Base # 2)		(Data Base # 3)		(Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Oregon and Washington</u>												
BLM	5	117	37	1	5	117	37	1	5	117	37	1
FS	5	--	2	0	5	--	2	0	5	--	2	0
<u>Utah</u>												
BLM	2*	8*	22*	2*	39	42	23	3	36	--	30	0
FS	2	--	1	0	2	--	1	0	2	--	1	0
<u>Wyoming</u>												
BLM	--	--	0	0	--	--	0	0	--	--	0	0
FS	7	--	11	0	7	--	11	0	7	--	11	0

TABLE 14

TIME LAPSE (IN WEEKS) BETWEEN STIPULATION REVIEW AND CLEARLISTING
(See Step 6, Table 1, and Table 2 for Data Base)

Agency	Average No. of Weeks (Data Base # 1)		Percent of Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Percent of Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Percent of Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
<u>Composite</u>												
BLM	12	29	10	1	5	29	17	<1	5	29	17	<1
FS	9	180	1	<1	9	170	1	<1	9	276	1	<1
<u>Arizona</u>												
BLM	1	--	3	0	1	--	3	0	1	--	3	0
FS	1	--	1	0	1	--	1	0	1	--	1	0
<u>California</u>												
BLM	--	--	0	0	--	--	0	0	--	--	0	0
FS	--	--	0	0	--	--	0	0	--	--	0	0
<u>Colorado</u>												
BLM	9	--	9	0	9	--	9	0	9	--	9	0
FS	1	--	11	0	1	--	11	0	1	--	11	0
<u>Idaho</u>												
BLM	16*	15*	9*	1*	4	73	35	<1	4	180	32	<1
FS	--*	--*	0*	0*	2	--	<1	0	16	167	<1	<1
<u>Montana</u>												
BLM	21	--	3	0	21	--	3	0	21	--	3	0
FS	--	180	0	2	--	180	0	2	--	180	0	2
<u>Nevada**</u>												
<u>New Mexico</u>												
BLM	10*	97*	57*	3*	5	67	24	2	10	54	34	3
FS	--	--	0	0	--	--	0	0	--	--	0	0

* 1-in-10 data

**Nevada omitted because of procedural differences.

Table 14 (continued)

Agency	Percent of				Percent of				Percent of			
	Average No. of Weeks (Data Base # 1)		Total Applications (Data Base # 1)		Average No. of Weeks (Data Base # 2)		Total Applications (Data Base # 2)		Average No. of Weeks (Data Base # 3)		Total Applications (Data Base # 3)	
	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	In Process	Still Pending	Acted Upon	Still Pending
Oregon and Washington	13	20	31	5	13	20	31	5	13	20	31	5
BLM	11	34	2	3	11	34	2	3	11	34	2	3
FS												
Utah	5*	--*	20*	0*	3	64	22	<1	3	90	28	<1
BLM	23	--	1	0	23	--	1	0	23	--	1	0
FS												
Wyoming	--	--	0	0	--	--	0	0	--	--	0	0
BLM	15	--	11	0	15	--	11	0	15	--	11	0
FS												

TABLE 15

TIME LAPSE (IN WEEKS) BETWEEN CLEARLISTING AND LEASE ISSUANCE/REJECTION
(See Step 7, Table 1 and Table 2 for Data Base)

	Clearlist to Lease Issuance						Clearlist to Rejection						Clearlist and Still Pending					
	Data Base #1		Data Base #2		Data Base #3		Data Base #1		Data Base #2		Data Base #3		Data Base #1		Data Base #2		Data Base #3	
	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Tot Appls.	Av. # of Weeks	% of Total Appls.	Av. # of Weeks	% of Total Appls.
<u>Composite</u>																		
BLM	5	13	4	19	4	20	117	<1	117	<1	117	<1	110	1	99	<1	203	<1
FS	18	2	17	2	17	2	29	<1	29	<1	29	<1	176	8	176	8	283	7
<u>Arizona</u>																		
BLM	1	3	1	3	1	3	--	0	--	0	--	0	--	0	--	0	--	0
FS	1	1	1	1	1	1	--	0	--	0	--	0	--	0	--	0	--	0
<u>California</u>																		
BLM	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
FS	--	0	--	0	--	0	29	<1	29	<1	29	<1	177	25	177	25	177	25
<u>Colorado</u>																		
BLM	2	13	2	13	2	13	--	0	--	0	--	0	--	0	--	0	--	0
FS	5	11	5	11	5	11	--	0	--	0	--	0	--	0	--	0	--	0
<u>Idaho</u>																		
BLM	7*	13*	5	2	5	2	--*	0*	--	0	--	0	47*	1	87	<1	193	<1
FS	--*	0*	--	0	--	0	--*	0*	--	0	--	0	--*	0	--	0	--	0
<u>Montana</u>																		
BLM	--	0	--	0	--	0	117	3	117	3	117	3	180	3	180	3	180	3
FS	--	0	--	0	--	0	--	0	--	0	--	0	183	25	183	25	183	25
<u>Nevada</u>																		
BLM	5*	33*	4	28	4	31	--*	0*	--	0	--	0	172*	1*	123	<1	145	<1
FS	9	44	9	44	9	44	--	0	--	0	--	0	118	33	118	33	118	33
<u>New Mexico</u>																		
BLM	4*	30*	84	25	1	7	--*	0*	**	**	--	0	--*	0	--	0	--	0
FS	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
<u>Oregon & Washington</u>																		
BLM	6	33	6	33	6	33	--	0	--	0	--	0	103	1	103	<1	103	<1
FS	34	2	34	2	34	2	--	0	--	0	--	0	174	2	174	2	174	2
<u>Utah</u>																		
BLM	4*	29*	2	28	3	34	--*	0*	--	0	--	0	--*	0*	--	0	--	0
FS	1	3	1	3	1	3	--	0	--	0	--	0	--	0	--	0	--	0
<u>Wyoming</u>																		
BLM	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
FS	2	11	2	11	2	11	--	0	--	0	--	0	--	0	--	0	--	0

* 1-in-10 data.

** Data on rejections were not available.

While many of these applications have been partially rejected, withdrawn, or suspended, some acreage is still pending for final disposition.

In April 1978, 62 BLM applications were still pending in Idaho which had been on file for 36 months or more, and the Forest Service in Idaho had 143 in this category. The figures for BLM in Nevada, New Mexico, and Utah were 197, 144, and 135 respectively, to consider only those offices where the data were updated in 1979. The "stretch-out" indicated in the various step-by-step tables indicates that such applications in several states are still awaiting leasing decisions. The major exception is that the data indicate (Table 11) that BLM in Utah has cleared away this backlog at the critical Step 3--District Office consideration.

The general guide in interpreting the tables is that a decrease in the average number of weeks at a given step and an increase in percentage acted upon indicate progress, and the reverse shows "backslide." Decreases and increases in the percent pending fall into these same categories respectively. As the tables proceed through the process, the percentages involved became smaller in many cases, and some of the longest timeframes apply to such an insignificant number of applications that they should be disregarded as indicative of anything more than a major hangup of one or two applications. These cases may represent especially troublesome circumstances, or they may indicate that they have simply "slipped through the crack." While neither is a desirable situation, the small percentage will show that they are not representative of the general performance.

THE DATA BASE AS A SOURCE OF AREA- AND SITE-SPECIFIC INFORMATION

Need for Localized Information

Assessing the potential of promising areas for the commercialization of the geothermal resource requires the consideration and correlation of many types of information. Of necessity, a large body of the factors to be taken into account must reflect conditions specific to each area evaluated.

In addition to geologic indicia, the physical and chemical characteristics of the resource itself, and related factors, there are other significant indicators. These include the degree of interest shown in an area by knowledgeable potential developers and the limitations which may be imposed by environmental considerations and other institutional restraints. Insight into these more subjective considerations can be obtained through knowledge of the leasing patterns occurring in each area being evaluated.

The degree of interest is reflected in the number of bids on competitive tracts of KGRA land offered for sale and in the number of non-competitive applications filed, although the latter factor must be qualified as discussed below. Shifts in interest may be detected by patterns in withdrawal of applications and relinquishment or termination of leases, and environmental and related constraints can become evident through a study of both applications rejected and long delays in final action on applications, as well as the amount of KGRA acreage offered for sale.

The competitive leasing information is by its very nature area-specific since records are kept by individual KGRA. There has been a paucity of infor-

mation, however, on non-competitive leasing which is descriptive of local situations. The relative significance of this lack vis-a-vis the competitive history is illustrated by the fact that over 7,000 non-competitive applications have been filed resulting in 1,332 leases embracing over 2.3 million acres while only 296 competitive leases containing 510,000 acres have resulted from over 130 lease sales.

The importance of the non-competitive information can also be pointed up in another way. Only 30 of the 107 KGRA's were designated by the Survey on the basis of geologic indicia alone although another 30 contain acreage also deemed to meet the geologic criteria for KGRA designation. The remaining 47 were designated solely on the basis of "competitive interest." This term in the Steam Act actually means "competitive overlap" in that the entire acreage covered by non-competitive lease applications is designated as KGRA if at least one-half of the lands are also covered by another lease application filed during the same 30-day period. Thus, nearly half of the KGRA's, which are commonly considered to be high priority areas, have no more claim to automatic priority than other areas of high non-competitive interest where the happenstance of overlap has not occurred. The majority of these were formed during the early flurry of applications, and this occurrence is not frequent today. (Changes in the overlap procedure are anticipated due to new legislation.)

Interpretation of the Localized Data Base

The use of a multiple number of non-competitive applications filed for land in an area as an indicator of genuine interest must be qualified, as suggested above. This is because any U.S. citizen may submit a non-competitive lease application and, provided he has paid the filing fee and the first year's annual rental for the lands, be awarded a lease regardless of whether he has any intent to exploit the resource. While the regulations pursuant to the Geothermal Steam Act (30 CFR, Section 3203.5) include safeguards against the holding of land for extended periods without diligent exploration directed toward commercial production of the resource, many individuals file applications for and obtain leases for purely speculative purposes. The primary motive is potential financial gain in holding land which may become valuable to a serious developer.

The non-competitive record is "cluttered" with speculative applications, and while they, too, may be considered a show of interest of a sort, they must be weeded out in order to separate the real from apparent interest in any given area. Oil companies and those formed solely for geothermal production may themselves speculate with applications in the sense that they file for more land than they would be permitted to hold under the acreage limitations because they cannot predict where their applications will be approved, in what order, or in what timeframe. In this way, they protect a land position in areas where they wish to explore, and can explore knowing that they have the "first right of refusal." Nevertheless, applications filed by corporations known to be seriously seeking a commercial geothermal resource speak more authoritatively about the ultimate prospects of an area than those identifiable as solely speculative.

Shifts in patterns manifested by withdrawal of applications and relinquishment of leases may or may not imply diminishing interest in an area.

First, the erratic behavior of speculators in filing applications and withdrawing them within a brief period must be eliminated from consideration in this determination. For example, in one Colorado area, 35 applications were filed by individuals for acreage within about 12 square miles and all have been withdrawn; none have been filed by a serious developer. This is a very common occurrence. In addition, in areas where several leases have been issued to individuals, many have been terminated by BLM, the reasons for which are unimportant in terms of the degree of serious interest in the area.

On the other hand, when a major company withdraws an application or relinquishes a lease (or permits it to be terminated for non-payment of rentals or failure to meet other requirements), it may mean that unsuccessful exploration on the land or on nearby parcels has reduced his interest. Knowledge of such exploration is critical to the area's prospects and supplies a key piece of information.

Otherwise, a withdrawal may indicate that the applicant has simply become impatient with the long delay in action on the application, or he may be aware that it is caught up in an environmental problem. Relinquishment of leases may only reflect the fact that the lessee is reaching the acreage limitation and feels that other leases are more important to him. While the data file will not reveal motivation, it does provide the basis for inquiry.

Relinquishment and termination of leases may significantly affect the amount of acreage currently under lease, and these factors greatly minimize, in some areas, the value of statistics on total acreage leased. (Relinquishment is an action by the lessee to surrender his lease; termination of a lease is an action by BLM to end the claim of the lessee for various reasons, such as non-payment of rental, but which may include the applicant's indicated desire to relinquish the land).

The amount of acreage in pending applications which may potentially be leased is not a static figure either. It fluctuates constantly with withdrawals, rejections, and new applications. The data file referred to herein shows that about a third of all applications filed are withdrawn and that 16% and 9% are rejected by BLM and the Forest Service respectively. Withdrawal and rejection may occur at any point in the leasing process, although the probability of a BLM application being withdrawn decreases greatly after the application moves through the initial steps in the process. The probability that a Forest Service application will be withdrawn remains almost constant at about 75% at each step in the process.

The effect of withdrawal--and to a lesser extent, rejection--can be especially pronounced at the local level. In some cases, as suggested above, it will be found that all applications filed have been withdrawn or rejected.

A study of the reasons for rejection will identify the areas where the environmental issue is negatively influencing leasing. While the Task Force study shows that this reason accounts for only about 7% of rejection overall, its effect in an area where it is a major factor will be more influential than this statistic indicates. In addition, it can be expected that many more rejections may occur for environmental reasons in the future as applications that have been "hung up" in the environmental review process are ultimately turned down, especially by the Forest Service.

About half of all rejections occur because of applicant error and these rejections have no significance in terms of the future of other applications in the area. These reasons are important here only to show that environmental concern is not the reason. This type of rejection occurs because of:

- deficiency in legal description
- failure to file proper fees
- failure to file preliminary plan of operation
- failure to file information required under 30 CFR 3202.2 regarding acreage already under lease and other qualifications
- failure to apply for all available lands as prescribed by 30 CFR 3210.2-1(C)
- application made for lands previously filed on
- application to lease lands in which the U.S. has no mineral interest
- application to lease land not available for lease (national parks, etc.)
- application made for land already under lease.

Two other reasons account for most of the other rejections which are similarly not indicative of environmental problems. These include erroneously filing for KGRA land and filing for land which overlaps with another application and results in the formation of a KGRA.

The performance of the issuing agency in issuing leases in an area provides an important clue as to whether development at an early date is possible or whether it will be stymied indefinitely due to agency inaction because of environmental sensitivity, other reasons, or both. There are known situations, for example, where there is personnel antipathy toward development of any kind on the land under their jurisdiction, and inaction will continue until management decisions to effect changes are made.

An agency's performance can be judged by area statistics showing the minimum, average, and maximum timeframes from application to lease and identifying the point or points in the leasing process where the greatest and most frequent hang-ups occur. The latter information is easily accessed by the above mentioned frequency distribution histograms.

Sample Area- and Site-Specific Analysis

The future use of the study area data is exemplified in the partially-completed set of forms in Appendix D. These forms were developed to illustrate how the aggregate data can be used, and the forms will be completed through scheduled analysis of the maps prepared under this contract and discussed in Section IV.

The sample forms present profiles on leasing and permitting in the areas of the hot-water hydrothermal convection systems with estimated temperatures in excess of 150° C listed in Table 5 of the U.S. Geological Survey Circular 790, Assessment of Geothermal Resources of the United States-1978. These areas are used as examples because they are among those of highest interest. No data are presented for Alaska because there has been no geothermal leasing or permitting activity in that state. Hawaii is not represented because there are no Federal lands available for leasing there, and only one state lease has been issued to the University of Hawaii for acreage at Puna. The Yellowstone caldera in Wyoming is similarly omitted since national park land is not available for leasing.

The study area encompassing each system was identified through the GS latitude/longitude citation. It was used to determine a township/range location, the legal land description provided on all lease applications.

The areas in California--Brawley and Heber--which contain almost no Federal land are included since preliminary analysis indicates that wells for geothermal purposes have been drilled in these areas under state permits. Other study areas also embrace non-Federal land, and, in such cases, the completed forms will include data on state leases and permits. The permits for wells on private land afford the only readily available information on geothermal activities in that sector. Land ownership will be determined from BLM maps for future profiles of specific areas. Such research will allow a comparison of the pace of development of the geothermal resource on lands in private ownership with the pattern of development on Federal and state-owned lands.

Entry of the GS data, in a modified form, into the WAPORA file will permit the computer to include competitive and post-lease information. The locations will be determined through match-up of legal land descriptions.

The information on study area acreage and non-competitive leasing activity is current through May 1978, and is illustrative of the non-competitive situation at the outset of the streamlining effort. It is to be noted that clarifications are needed in the study area acreage data as reported by the various field offices. The KGRA and the non-competitive acreage should equal the total acreage as should the sum of the BLM, FS, and non-Federal acreage. This is frequently not the case.

It will also be noted that in some cases the acreage applied for is larger than the study area itself. There are two probable explanations for this. First, there may be overlaps in acreage which are not sufficient by individual applications to trigger KGRA designation. This situation may account for a large part of the discrepancy. And, second, assignment of applications, and thus the acreage covered by such applications, to study areas is somewhat less than precise in some instances. It is known, for example, that the personnel responsible for the assignment in one large state use an 8½" x 11" map of the state with black dots to illustrate the study areas for this purpose.

Reasons for rejection are not always given. Where rejection appears to be an important issue and is not fully explained, a check could be made with the appropriate District or Forest office. Usually, a general response would be sufficient, and information specific to each application involved would not be needed.

Perhaps the most important observation to be made on the data sheets in Appendix D collectively is that they show that less than 500 non-competitive leases had been issued in these important areas for less than a million acres of land when the streamlining effort was undertaken, and Nevada alone accounted for 78% of the leases and 81% of the acreage. California had issued 11 leases for less than 17,000 acres. It is understood from BLM sources that this performance has not improved appreciably.

The first study area shown, Surprise-Warner Valleys in California, offers a good example of a large number of rejections which, without information to the contrary, might lead to the conclusion that non-competitive leasing will be difficult in this area. While this can be said, to date, as suggested above, of almost any area in California, the reasons here indicate that the block of 26 rejections occurred because the land applied for was within a KGRA and not because of environmental reasons which might lead to further rejections in the future for the same reason.

The large number of withdrawals in The Geysers area appears to reflect speculation to a great extent since a number of applications filed by individuals known to engage in this activity were included. In addition, the well-known Hunt family of Texas also withdrew several applications, and this group is reputed to conduct exploratory work in some areas prior to withdrawal. In order to determine whether this was the case in The Geysers area will be discerned through the BLM record on NOI permits for shallow temperature gradient wells. The reasons for the large number of rejections were not provided. This information can be obtained either from the Ukiah BLM District Office or the California State Office.

Environmental reasons are given for one rejection in the Crane Creek area of Idaho, yet 14 leases have been issued. Thus, the environmental conflict appears to have been a site-specific problem only. Similarly, environmental reasons have accounted for some rejections in the Fort Churchill-Clan Alpine study area of Nevada, yet 169 leases have been issued. This is, of course, a very large area of over 3,000,000 acres which encompasses a variety of local conditions.

Forest Service inactivity is evident in the Newberry Caldera and Fort Rock Planning Unit in Oregon where 151 applications have been filed for over 325,000 acres, and no leases have been issued. Taking into account withdrawals and rejections, 113 applications are still pending for over 229,000 acres. While reasons for 18 total and 21 partial rejections are not given, the strongest possibility is that they represent BLM rejections on the basis of filing errors since the other data suggest that the lease/no lease decision has not yet been made. This area will be subject to a pilot test of a new mode of leasing initiated for Oregon and Washington State National Forests by the Forest Service in an effort to clear up its backlog of lease applications.

The Alvord study area in Oregon shows an exemplary record of leasing, but is also one of the puzzling examples in terms of acreage. Less than 10,000 acres of non-competitive land were reported to be in the study area, yet the non-competitive leases issued are reported to cover nearly 30,000 acres. One possible explanation is that the environmental assessment area or the acreage covered by planning documents has been expanded to allow a larger area to go to lease.

The Lassen, Geysers, Mono-Long Valley, and Dunes areas in California, Buffalo Hills in Nevada, and Roosevelt Hot Springs in Utah exemplify the effect of withdrawal/rejection on total acreage in still pending lease applications. The acreage initially applied for is considerably reduced, to none in some cases.

The most important message of the aggregated competitive data is that about 63% of the tracts and 62% of the acreage offered in these favorable areas have been leased, and these percentages would be higher if bids offered and rejected as unacceptable by GS and the acreage covered by them were counted. This competitive performance is considerably better than the overall record. Taking into account all sales in all "geothermal" states, only 48% of the tracts and 53% of the acreage offered have attracted bids.

This comparison lends credence to industry's claim that competitive leasing generally is deterred by the fact that the most attractive acreage is not offered. The high temperature of the resource in these areas apparently rendered them sufficiently attractive to warrant more active bidding. In addition to the relatively high number of tracts bid, the instances of multiple bids for the same tracts are much more frequent than is the case in the overall record.

For example, one tract at Alvord KGRA in Oregon drew bids from Getty Oil Company, Republic Geothermal, Inc., Natomas Company, Phillips Petroleum Company, Magma Energy Inc., and Hunt Oil Company. Thus, six potentially serious bidders were interested in the tract, and this was a common occurrence in that area.

The information on the data sheets in Appendix D is self-explanatory. The above situations are highlighted here only to illustrate the possible interpretation of the data on these and other study areas.

SECTION IV

MAPPING OF GEOTHERMAL DATA

The data file described in the previous sections of this report has been mapped to provide a visual tool to the DOE/BLM/FS/GS effort to prioritize geothermal prospect areas. The purpose of the maps is to highlight all shows of interest in finding and utilizing geothermal energy as expressed in leasing and permitting patterns and to show their relationship to designated areas of significance in geothermal development. These presentations are unique in that the collective information they convey has never previously been assembled.

The information mapped, methodology of preparing the maps, the inter-relationships of the features mapped, and problems encountered are discussed here. Detailed analysis of the individual maps is scheduled for the near future.

DESCRIPTION OF THE MAPS

The US Geological Survey 1:500,000 topographic maps were utilized as base maps. Among other features, these maps show the national forest areas, national parks, and national monuments. The forest areas are particularly significant in this use of the maps because of concern over the slow pace of the Forest Service in leasing land for geothermal development, as demonstrated by the tables in Section III.

The national parks and monuments are potentially significant in the future of geothermal leasing because of the high degree of protection afforded the air quality of such pristine areas under the "prevention of significant deterioration" (PSD) program of the Environmental Protection Agency (Title I of the Clean Air Act (P.L. 95-95 as amended by P.L. 95-190)). National parks of over 6,000 acres were designated by the Act as mandatory Class I areas, where the least development will be permitted, and the Secretary of the Interior has recommended a list of national monuments for the same designation. Appendix E identifies both types of areas. Geothermal development is statutorily precluded within these areas (Geothermal Steam Act and the enabling legislation establishing the individual parks and monuments), but if their air quality would be adversely affected by development in their vicinity, it will be difficult to obtain a permit to construct new sources of air pollution nearby. The relationship between geothermal development and PSD areas is discussed in detail in a report also prepared under this contract entitled, The Potential Effects of Environmental Regulatory Procedures on Geothermal Development.

The first overlay on the base map shows the following designated areas:

- KGRA's established by the Geological Survey in accordance with Section 2(e) of the Geothermal Steam Act. These areas require geothermal leasing by competitive bidding.
- PGRA's, potential geothermal resource areas, designated as such by GS because of their prospective value for geothermal energy. These do not carry statutory authority and do not require competitive bidding.

- Areas designated for review of the environmental impact of geothermal development. These areas are described and listed as designated to June 1978 in Section II. The boundaries of these areas were furnished by BLM and the Forest Service.

Three types of KGRA's are indicated on the overlay. As shown in the legends of the maps, the following types are indicated by number:

- 1 - those established because of acreage overlap, described in Section III
- 2 - those established on the basis of geologic criteria alone
- 3 - those which contain both geologic criteria and competitive interest areas

The differentiation as to type was made so that their potential influence on development can be assessed in evaluating the priority status of KGRA's. It was found during the Task Force study that bidder interest varies among the categories. The highest degree of interest in the largest amount of land has been shown in the "both" category although more interest has been demonstrated on a small percentage of the acreage offered in the competitive interest category. Considerably less acreage has been leased in the geologic criteria category, although it is by far the largest and theoretically most promising, both because so little of this acreage has been offered and bids have been received on only about half of that offered.

The second overlay on the maps shows the Forest Service RARE II wilderness areas and administratively endorsed wilderness areas. Mapping of these two areas was requested by the Forest Service. The presentation on this overlay will be extended to include areas designated as non-wilderness and as further planning areas in a scheduled up-date of the maps.

The third overlay presents the Federal data base described in Section II. To review, the seven features of the geothermal leasing and permitting programs considered to be "shows of interest" include:

- non-competitive lease applications
- applications that resulted in leases
- competitive tracts offered for lease which received no bids
- competitive leases
- pre-lease exploratory permits
- post-lease exploratory permits
- post-lease drilling permits.

These features are mapped by township, an area of approximately six square miles. During the planning stages, it was agreed by BLM and the Forest Service that this degree of detail was sufficient for the purposes of the maps and that mapping by section (1/36 of a township) in such large states would not add to their utility.

The fourth overlay on the maps illustrates the location of state geothermal leases and drilling permits. The permit information needs refinement as to which were for exploratory holes and which for deep wells. This information is readily available from some states, but in others, poor records or treatment of shallow geothermal exploratory wells as common water wells hindered a consistent breakdown within the scope of this initial mapping effort.

The files of California drilling permits are not available to the public since they include proprietary well log data. Therefore, the drilling permit indicators for that state mean actual wells, records on which were obtained from Federal (GS) records.

While geothermal exploration has occurred in Alaska, there is no record of permits for this purpose. Authority to issue such permits has only recently been enacted.

By using the base map and the several overlays, the relationship of the various indications of interest in geothermal energy to the Class I PSD areas, KGRA's, PGRA's, environmental study areas, and Forest Service RARE II classifications can be discerned. As was expected, non-competitive activity tends to "cluster" around the KGRA's although exceptions are noted.

METHODOLOGY

A total of 13 maps were prepared. These cover 11 states--Alaska and Hawaii were omitted for the reasons described in Section III--with the maps of California and Montana divided into two sections each. It is interesting to note that all states mapped except Idaho, Utah, and Washington are among the 10 largest in the country, and those states follow closely behind. In size, they range up to nearly 160,000 square miles. Thus, with the 1:500,000 scale of the maps, they are quite large, averaging about 20 square feet.

The paper topographic maps were first laminated to provide a more serviceable base, and the overlays were pin-registered to provide permanent alignment. The area features are distinguished by distinctive shading film as identified in the map legends.

In determining the methods to be used in mapping the seven Federal indicators, several approaches were considered. It was felt that the greatest visual impact would derive from showing each occurrence of each type of action by a separate symbol--e.g., 12 dots for 12 non-competitive lease applications. However, it was found that since the townships are represented on the map by only approximately one square inch that this presentation was impossible within township limits when the potential existed for multiple occurrence of multiple actions. This "cluster" effect frequently extends over several

contiguous townships, thus ruling out several other drafting techniques. Therefore, each type of action is represented by a different colored dot with the number of occurrences printed on it.

The cluster effect also imposed other limitations. For example, all non-competitive applications in the data file are shown--Data Base No. 3 in Table 6--and, except for those resulting in leases, no distinction as to their status is made--i.e., withdrawn, rejected, or still pending. While this distinction would be desirable--although it is always in fluctuation--and a great deal of consideration was given to it, space limitations and clarity ruled against the use of several additional symbols within townships. Analysis of this type will be provided from the computer data base.

It should also be noted that applications, leases, and permits frequently cover acreage in more than one township. To illustrate this kind of detail would require maps of small areas showing sections. Therefore, these features, with one exception, were mapped by "primary" township, or the first one listed in the record of the application, lease, or permit.

Another presentation considered and finally rejected as impractical was differentiation of applications according to study area. This became excessively complex since in many instances applications allocated to more than one study area appear in the same township. This was pointed up early in a rough work map of The Geysers area where considerable overlap occurs.

Another problem was that the pre- and post-lease exploratory data were not consistent in the form available which resulted in inconsistent handling on the maps. In the case of the pre-lease permits, the existence of the permit itself is indicated only once, in one township. This was done even though acreage in multiple townships is commonly covered by one permit. One encountered in Utah, for example, embraced land in nearly 30 townships. Thus, the maps count as a show of interest only the permit and not each site of geophysical work or individual exploratory holes.

This approach was necessitated by the fact that the files on pre-lease activities only infrequently disclose what the permittee did on the land or exactly where he did it. The permit applications may state, for example, that four shallow temperature holes will be drilled, but there is nothing in the record to indicate whether they were or were not drilled, or, if so, where. This information is not required on the notice of completion submitted to terminate the permit.

The BLM employee who investigates the explored area to check for compliance with the permit terms is, of course, aware of any holes drilled, but no record is made for the file. If very highly site-specific information were needed on this point, the chances are that it could be developed in many instances through direct contact with the investigating employee. The scope of this project did not, however, permit this degree of individualized attention to each of the dozens of pre-lease NOI's issued.

In order to provide a better visual scope of areas covered by these permits, the primary township was not always used, and an effort was made to "scatter" permit locations among the various townships covered by them.

In contrast to this treatment of pre-lease NOI's, the post-lease exploration activities under GS post-lease NOI's are mapped individually--that is, sites of all separate geophysical work and all individual actual or proposed temperature gradient hole sites are shown. This admittedly inconsistent approach was adopted after considerable consideration of all alternatives, and the overriding factor was that the maps should provide as much information as possible when there are means for verifying it.

In this case, the GS has computerized its record and the breakdown among geophysical work, shallow and deep temperature gradient holes, and the status of the holes is documented by township and range. Thus, though only 213 GS NOI's have been issued, 1,569 separate activities permitted under them are shown on maps. The breakdown by state is shown in Table 16.

It is to be noted that 40% of the shallow holes and 70% of the deep wells are only proposed at this writing. However, since the permittees have shown an interest in drilling at the sites permitted, and their permits are still valid, they were included. In the case of test and other wells permitted only under an APD permit, of 125 holes approved, 26 are only in the proposed stage. These include 15 in Nevada, 9 in California, 2 in Utah, and 1 in New Mexico. In order to provide the ability to separate out the not-drilled and proposed gradient holes and deep wells, sheets such as that shown in Appendix F have been prepared to accompany each map.

Appendix G illustrates the overlay information as it was prepared and provided to the graphics personnel who performed the actual mapping. With all of the data sorted in advance, the mapper only had to locate each township once.

The maps are, in effect, summaries of the available information. It was felt that to make them more complex would reduce their utility for their intended purpose, and that any need for more detail would best be served by utilizing the original data.

DISCUSSION

The maps are as complete as the obtainable data permitted, and considering the magnitude of the total information presented, there are relatively few missing pieces. To the extent that these gaps are recognized, they occur exclusively in the study area data.

Obtaining the boundaries of the study areas reported in 1978 and listed in Table 3 presented the most difficult problems in the entire mapping effort. The primary source of this information was photocopies of the area maps from the environmental analysis documents supplied by the various BLM and Forest Service offices. Many of these were of such poor quality as to be barely legible and/or were not plainly marked--a few were not identified at all. In some instances, current employees are unfamiliar with the study areas and will even deny that an identified study occurred or that such an area was designated; others report that no map is available for specific areas. In these cases, it was impossible to make the maps consistent with Table 3.

Almost no information was supplied on the study areas in Oregon and Washington, although a communication identifying a commercial source for this

TABLE 16

BREAKDOWN OF ACTUAL OR PROPOSED POST-LEASE ACTIVITY UNDER EXPLORATION (NOI) PERMITS

State	Shallow Temperature Gradient Holes			Deep Temperature Gradient Holes			Geophysical Work
	Total Permitted	Not Drilled	Proposed	Total Permitted	Not Drilled	Proposed	
California	24	6	0	6	0	2	13
Colorado	6	5	1	0	0	0	0
Idaho	0	0	0	0	0	0	39
Nevada	212	13	83	69	18	36	177
New Mexico	147	10	51	84	1	73	37
Oregon	111	6	58	15	0	8	40
Utah	<u>61</u>	<u>12</u>	<u>33</u>	<u>8</u>	<u>2</u>	<u>4</u>	<u>104</u>
TOTAL	561	52	226	176	21	123	410

information arrived after the mapping was finished. The Montana study area information is currently in hand, but similarly arrived too late to be included in this project. Appendix H identifies the data known to be missing if the information reported in 1978 is correct.

It is hoped that the maps and this report will serve as an impetus for better and more complete information on environmental study areas.

In most states, the gap in study area boundaries is not serious enough to account entirely for the fact that some non-competitive applications and leases appear to fall outside the boundaries of a study area. Other reasons may include:

- Clerical errors may have been made in recording the legal land description of applications and leases.
- In four states--Idaho, New Mexico, Nevada, and Utah--some of the data on applications and leases are more recent than the study area data, and new study areas may have been designated to cover them. The number of instances of this potential circumstance is expected to be very low, if it has occurred at all.
- As noted elsewhere in this report, applications are sometimes assigned to study areas in a less than precise manner, and it is possible that some are outside the boundaries of the area to which they are assigned.

The fact that the acreage covered by applications is not in designated study areas is significant in that, under BLM regulations (30 CFR Subpart 3200), leases cannot be issued until an environmental assessment is conducted. If an issued lease actually falls outside study area boundaries, a mistake of some sort appears to have occurred. It will be prudent to determine the prevailing circumstance before making decisions concerning important areas.

Another question which is expected to arise in detailed analysis of the maps derives from the fact that preliminary analysis shows that all applications in two study areas were withdrawn several months before the environmental analysis was initiated. Since the withdrawal is recorded in the BLM State Office and the EA is conducted by the District Office/Forest, it is not known whether the latter was unaware of the withdrawals or whether the EA was conducted for reasons other than the once-existing applications. If the former situation is the accurate one, it points up the need for improved communication between the two levels of offices so that funds and manpower will not be used for studies where they are not needed.

Persons knowledgeable on specific areas may find that the data presented do not represent what they know to be the situation in that area. There are several possible reasons for this. They include, along with clerical errors, the following:

- BLM's non-competitive files dating from the earlier years of the program are often poorly maintained. The current adjudicators are aware of this situation, which occurred largely because of the January 1974 deluge of applications, but since the files themselves are the only source of information, there is no way to rectify it.

- Files on pre-lease exploration permits appear to be incomplete in some cases. This observation was corroborated by some state officials who find it difficult to trace permits for this activity on Federal land.
- Differences in state regulations account for what might otherwise appear to be omissions. For example, in New Mexico water right permits are required only in declared underground water basins, and additional basins are designated from time to time. Thus, a permit might be required now that was not at the time wells were drilled.
- Some states have problems with temperature gradient holes being drilled unlawfully without a permit, and therefore there is no record of them.

On the whole, however, in spite of isolated anomalies in the data, the maps appear to be generally representative of the level of activity which has occurred. Now that the mapping of the entire massive data base is complete, more attention can be given in the future to specific areas and apparent discrepancies can be individually analyzed.

APPENDIX A

GEOTHERMAL DATA SHEET Oregon State Office
SUBMITTING OFFICE: _____

PAGE 1 OF 2 PAGES

1	2	3	4 ACTIONS									
			4-A	4-B	4-C	4-D	4-E	4-F	4-G	4-H	4-I	4-J
BLM DISTRICT/ FS FOREST STUDY AREA (INC APPL. OR PRIVILEGE DIST OR 12987)	APPLICANT/ LESSEE	LOCATION & SIZE (TOWNSHIP, RANGE, SECTION, PRINCIPAL MERIDIAN, & ACREAGE) Will. Mer.	APPLI- CATION	TO DIST./ FOREST FOR RECOMMENDA- TION	RETURNED FROM DIST./ FOREST	SENT TO GS FOR STIP. REVIEW	RETURNED TO STATE	KGRA CLEARLIST	APPL. WITHDRAWN	NO LEASE ISSUED/ SALE	LEASE REJECTED*	LEASE TERMINATED
	California Geothermal, Inc.	T23S/R22E, Secs. 15 & 26. T23S/R23E, Sec. 30. (1920)	6-27-74	7-1-74	12-1-76	1-8-78	2-3-78				4-7-78 (1,120.00) (12)	
OR 12990	California Geothermal, Inc.	T23S/R22E, Secs. 13, 19, 25 & 28. (2280)	6-27-74	7-1-74	12-1-76	1-8-78	2-3-78		12-16-74 (1,000.00)		4-7-78 (1,280.00) (12)	
OR 12991	California Geothermal, Inc.	T23S/R22E, Secs. 14, 35 & 32. T23S/R23E, Sec. 18. (2002.72)	6-27-74	7-1-74	12-1-76	1-8-78	2-3-78		12-19-74 (400.00)		4-7-78 (920.00) (12)	
OR 12992	California Geothermal, Inc.	T23S/R22E, Secs. 17, 23, 30 & 33. (2037.85)	6-27-74	7-1-74	12-1-76	1-8-78	2-3-78		12-16-74 (998.00)		1-13-78 (440.00) 4-7-78 (600.00) (12)	
OR 12999	California Geothermal, Inc.	T23S/R23E, Secs. 28, 29, 31 & 32. (2561.12)	6-27-74	7-1-74	12-1-76	7-14-77	7-25-77	9-22-77	-	10-1-77	-	
OR 13000	California Geothermal, Inc.	T24S/R23E, Secs. 5, 10 & 17. (1418)	6-27-74	7-1-74	12-1-76	7-14-77	7-25-77	9-22-77	-	10-1-77		
OR 13001	California Geothermal, Inc.	T24S/R22E, Secs. 10, 12 & 14. (1320)	6-27-74	7-1-74	12-1-76	7-26-77	8-8-77	11-16-77	-	2-1-78	-	

* See INSTRUCTIONS FOR CODE.

† ROUNDED RATIO OF NO. FEDERAL TO BLM/FS ACREAGE (E.G., 90/10, 75/25, 50/50, 25/75).

‡ PUT IN PARENTHESES IF ESTIMATED.

Appendix A (continued)

PRINEVILLE

PAGE 2 OF 2 PAGES

5	6							7		8					9	DETAIL 1
	6-A	6-B	6-C	6-D	6-E	6-F	6-G	7-A	7-B	8-A	8-B	8-C	8-D	8-E		
No. of UNIT'S	TOTAL	KGRA	NC	BLM	FS	NON-FED. ^D	IN SPECIAL STUDY AREA	TYPE ^A	COMPLETION DATE ^C	BEGUN ^C	DRAFT ^C	FINAL ^C	COST ^C	SLIPPAGE ^A	POOD ^C	BLM DISTRICT/ FS FOREST STUDY AREA
3	130,000	-	39,740	76,560	-	20-80	130,000	1	(9-30-79)	7/74	-	8-2-76	1 MM plus \$14,000 contract	Archaeological Survey	-	Glass Butte EAR
0	10,136	-	10,136	10,136	-	-	-	-	-	9/77	-	12-8-77	1 MM	-	-	Glass Butte Supplemental EAR

687

GEOHERMAL CODING SHEET

APPENDIX B

ST	APPL #	B F	STUDY AREA	ACRES	Application	To D/F	FROM D/F	To GS	RETURNED FROM STATE	CLEARLIST	WITHDRAWN	LEASE ISSUED	LEASE REJECTED	RENEW	RENEW																																																																
																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Thermal Resource	UT	37153	FEU	1912	032977	072077		072077							275060																																																																
AMAX Exploration		37162	BSE	1324	032977	051377	052577	071378	072078	072478	031578*	072778	053178*	0923	06																																																																
"		37165	BSE	1608	032977	051377	052577	071778	072078	072478	031578*	072778		22	05																																																																
"		37167	BTU	2240	033177	051377	052377	071778	072078	072478	021778*	072778		31	12																																																																
"		37168	BTU	2558	032977	051377	052377	071378	072078	072478	021778*	072778		31	11																																																																
"		37169	BTU	2554	033177	051377	052377	071378	072078	072478	021778*	072778		31	11																																																																
"		37170	BTU	2553	032977	051377	052377	071378	072478	072478	021778*	072778		31	11																																																																
"		37171	BTU	1916	032977	051377	052377	071378	072078	072478	021778*	072778		31	11																																																																
Pacific Energy Corp		37379	BSE	1920	041977	061077	062477	060877	081077	081677		082277		21	08																																																																
"		37380	BSE	1920	041977	061077	062477	060877	081277	081677		082277	052377*	0920	08																																																																
"		37381	BSE	1917	041977	061077	062477	060877	081677	081677		082277		20	08																																																																
		37382	BSE	1920	042277	061077	062477	060877		081677		082277		20	08																																																																

* A standard card form, IRM electro BBR157, is available for punching statements from this form.

** Number of forms per pad may vary slightly

APPENDIX C

EXAMPLE STEP-BY-STEP FREQUENCY DISTRIBUTION OF NON-COMPETITIVE LEASE APPLICATIONS OVER VARIOUS TIMEFRAMES (See Table 1 for explanation of steps.)

HISTOGRAM FOR APPLICATION TO SENDING TO D/F

WKS	APPL
10 I	432 I*****
20 I	200 I*****
30 I	74 I*****
40 I	76 I*****
50 I	72 I*****
60 I	144 I*****
70 I	18 I**
80 I	11 I**
90 I	23 I***
100 I	44 I*****
110 I	8 I*
120 I	14 I**
130 I	5 I*
140 I	11 I**
150 I	58 I*****
160 I	0 I
170 I	6 I*
180 I	0 I
190 I	8 I*
200 I	5 I*
210 I	4 I*
220 I	3 I*
230 I	3 I*
240 I	0 I
250 I	5 I*
260 I	3 I*
270 I	0 I
280 I	4 I*

1231

HISTOGRAM FOR SENDING TO D/F TO RETURN TO STATE

WKS	APPL
10 I	286 I*****
20 I	56 I*****
30 I	55 I*****
40 I	20 I**
50 I	18 I**
60 I	51 I*****
70 I	24 I***
80 I	32 I****
90 I	10 I*
100 I	22 I***
110 I	4 I*
120 I	10 I*
130 I	40 I****
140 I	1 I*
150 I	2 I*
160 I	5 I*
170 I	8 I*
180 I	0 I
190 I	3 I*

647

HISTOGRAM FOR RETURNED FROM D/F TO SENDING TO GS

WKS	APPL
10 I	161 I*****
20 I	87 I*****
30 I	16 I**
40 I	31 I****
50 I	3 I*
60 I	17 I**
70 I	3 I*
80 I	0 I
90 I	1 I*
100 I	0 I
110 I	6 I*
120 I	1 I*
130 I	0 I
140 I	0 I
150 I	5 I*
160 I	0 I
170 I	0 I
180 I	0 I
190 I	0 I
200 I	1 I*

332

Appendix C (continued)

HISTOGRAM FOR SENDING TO GS TO RETURN TO STATE

WKS	APPL
10 I	837 I*****
20 I	72 I*****
30 I	19 I**
40 I	15 I**
50 I	9 I*
60 I	16 I**
70 I	24 I**
80 I	9 I*
90 I	2 I*
100 I	1 I*
110 I	0 I
120 I	0 I
130 I	2 I*
140 I	1 I*
150 I	0 I
160 I	1 I*
170 I	0 I
180 I	1 I*
190 I	2 I*
200 I	0 I
210 I	0 I
220 I	1 I*

1012

HISTOGRAM FOR RETURNED FROM GS TO CLEARLIST

WKS	APPL
10 I	720 I*****
20 I	48 I*****
30 I	18 I**
40 I	3 I*
50 I	2 I*
60 I	9 I*
70 I	2 I*
80 I	0 I
90 I	0 I
100 I	3 I*
110 I	2 I*
120 I	0 I
130 I	1 I*
140 I	0 I
150 I	0 I
160 I	3 I*

811

Appendix C (continued)

HISTOGRAM FOR CLEARLIST TO ISSUANCE

WKS	APPL
10 I	748 I*****
20 I	39 I****
30 I	11 I**
40 I	0 I
50 I	10 I*
60 I	2 I*
70 I	0 I
80 I	0 I
90 I	0 I
100 I	0 I
110 I	1 I*
811	

HISTOGRAM FOR CLEARLIST TO REJECTION

WKS	APPL
120 I	1 I*
1	

HISTOGRAM FOR APPLICATION TO WITHDRAWAL

WKS	APPL
10 I	224 I*****
20 I	136 I*****
30 I	214 I*****
40 I	69 I*****
50 I	80 I*****
60 I	212 I*****
70 I	82 I*****
80 I	37 I****
90 I	27 I***
100 I	40 I****
110 I	68 I*****
120 I	19 I**
130 I	18 I**
140 I	6 I*
150 I	3 I*
160 I	14 I**
170 I	22 I***
180 I	8 I*
190 I	3 I*
200 I	1 I*
210 I	6 I*
220 I	1 I*
230 I	1 I*
240 I	2 I*
250 I	0 I
260 I	0 I
270 I	1 I*

1294

Appendix C (continued)

HISTOGRAM FOR APPLICATION TO ISSUANCE

WKS	APPL
10 I	5 I*
20 I	91 I*****
30 I	125 I*****
40 I	106 I*****
50 I	98 I*****
60 I	72 I*****
70 I	149 I*****
80 I	142 I*****
90 I	62 I*****
100 I	51 I*****
110 I	32 I****
120 I	53 I*****
130 I	89 I*****
140 I	28 I****
150 I	13 I**
160 I	11 I**
170 I	5 I*
180 I	21 I***
190 I	11 I**
200 I	9 I*
210 I	8 I*
220 I	8 I*
230 I	12 I**
240 I	1 I*
250 I	0 I
260 I	0 I
270 I	3 I*
280 I	3 I*

1208

HISTOGRAM FOR APPLICATION TO REJECTION

WKS	APPL
10 I	90 I*****
20 I	159 I*****
30 I	123 I*****
40 I	35 I****
50 I	19 I**
60 I	46 I*****
70 I	28 I****
80 I	78 I*****
90 I	7 I*
100 I	16 I**
110 I	16 I**
120 I	5 I*
130 I	7 I*
140 I	3 I*
150 I	2 I*
160 I	1 I*
170 I	0 I
180 I	2 I*
190 I	0 I
200 I	2 I*
210 I	0 I
220 I	1 I*
230 I	1 I*

641

HISTOGRAM FOR APPLICATION AND STILL PENDING

WKS	APPL
50 I	5 I*
60 I	48 I*****
70 I	35 I****
80 I	25 I****
90 I	24 I***
100 I	10 I*
110 I	6 I*
120 I	17 I**
130 I	7 I*
140 I	17 I**
150 I	21 I***
160 I	9 I*
170 I	7 I*
180 I	2 I*
190 I	4 I*
200 I	4 I*
210 I	1 I*
220 I	1 I*
230 I	0 I
240 I	0 I
250 I	2 I*
260 I	10 I*
270 I	2 I*
280 I	3 I*
290 I	1 I*
300 I	1 I*
310 I	1 I*
320 I	2 I*
330 I	1 I*
340 I	27 I***

293

Appendix C (continued)

HISTOGRAM FOR SENT TO D/F AND STILL PENDING

WKS	APPL
50 I	10 I*
60 I	0 I
70 I	0 I
80 I	21 I***
90 I	4 I*
100 I	8 I*
110 I	9 I*
120 I	11 I**
130 I	18 I**
140 I	13 I**
150 I	2 I*
160 I	18 I**
170 I	6 I*
180 I	5 I*
190 I	38 I****
200 I	144 I*****
210 I	17 I**
220 I	1 I*
230 I	15 I**
240 I	7 I*
250 I	7 I*
260 I	17 I**
270 I	1 I*
280 I	3 I*
290 I	6 I*
300 I	0 I
310 I	0 I
320 I	15 I**
330 I	8 I*
340 I	31 I****

435

HISTOGRAM FOR RETURNED FROM D/F AND STILL PENDING

WKS	APPL
60 I	2 I*
70 I	0 I
80 I	2 I*
90 I	0 I
100 I	1 I*
110 I	0 I
120 I	4 I*
130 I	0 I
140 I	22 I***
150 I	1 I*
160 I	4 I*
170 I	0 I
180 I	4 I*
190 I	0 I
200 I	0 I
210 I	0 I
220 I	0 I
230 I	2 I*
240 I	1 I*
250 I	0 I
260 I	0 I
270 I	1 I*
280 I	5 I*
290 I	0 I
300 I	0 I
310 I	1 I*
320 I	0 I
330 I	1 I*

51

Appendix C (continued)

HISTOGRAM FOR SENT TO GS AND STILL PENDING

WKS	APPL
50 I	3 I*
60 I	0 I
70 I	0 I
80 I	0 I
90 I	0 I
100 I	0 I
110 I	0 I
120 I	0 I
130 I	0 I
140 I	0 I
150 I	0 I
160 I	1 I*
170 I	0 I
180 I	0 I
190 I	0 I
200 I	0 I
210 I	0 I
220 I	1 I*
230 I	0 I
240 I	2 I*
250 I	0 I
260 I	1 I*
270 I	0 I
280 I	1 I*

9

HISTOGRAM FOR RETURNED FROM GS AND STILL PENDING

WKS	APPL
50 I	1 I*
60 I	5 I*
70 I	3 I*
80 I	0 I
90 I	1 I*
100 I	0 I
110 I	0 I
120 I	0 I
130 I	13 I**
140 I	1 I*
150 I	0 I
160 I	0 I
170 I	0 I
180 I	1 I*

25

HISTOGRAM FOR CLEARLISTED AND STILL PENDING

WKS	APPL
110 I	1 I*
120 I	0 I
130 I	0 I
140 I	0 I
150 I	1 I*
160 I	0 I
170 I	0 I
180 I	0 I
190 I	0 I
200 I	0 I
210 I	2 I*
220 I	0 I
230 I	0 I
240 I	0 I
250 I	0 I
260 I	0 I
270 I	1 I*
280 I	0 I
290 I	1 I*

6

APPENDIX D

AREA- AND SITE-SPECIFIC DATA ON 45 GEOTHERMAL PROSPECT AREAS

(Scheduled analysis of the maps discussed
in Section IV will provide information
with which to complete this set of
data sheets and to prepare others
as needed.)

GS Designation: Surprise Valley Area

Study Area: Surprise-Warner Valley

BLM District/Forest: Susanville (BLM)

State: California

EAR STATUS: Completed 10/75

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Ped.
241,920	72,446	54,274	126,720	0	115,200

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
42	72,240	Partial: 2 Total: 8	16,849	Partial: 12 Total: 26	50,034	5	6,294	3	2,063	0	0	5	6,294

Reasons for Rejection

26 - KGRA determination
6 - Land previously filed on
1 - Land not available for lease
1 - Failure to apply for all available lands

Non-Competitive Lessees

Eason Oil Co.
Mobil Oil Corp.
Supron Energy Corp.

Other Applicants

Gulf Oil Corp.

Application

To Lease-Mos.
Min. Av. Max.
9 15 21

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
34,591	16	10,584	5	4	7,897	1	2,586

Competitive lessees

Supron Energy Corp.
Getty Oil Co. - Terminated
Dow Chemical - Terminated

Other Bidders

Southern Union Prod. Co.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Morgan Springs - Growler Springs

Study Area: Lassen

State: California

BLM District/Forest: Susanville (BLM)

EAR STATUS: Not Scheduled - 34,560 acres in RARE II/Roadless Study Area

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
104,493	78,642	23,040	0	77,680	26,813

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
28	60,569	Partial: 0 Total: 16	37,233	Partial: 2 Total: 12	23,440	0	0	0	2,350*	0	0	0	0

*Partially rejected.

Reasons for Rejection

- 7 - Lands previously filed on
- 1 - Land not available for lease
- 1 - Failure to provide all information

Non-Competitive Lessees

Other Applicants

Thermal Expl. Co.
Hunt Oil Co.
Hunt family
Individuals

Application

To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Sulphur Bank Mine (Hot Bolata): Clear Lake Volcanic Field Area

Study Area: Geysers, Geysers/Calistoga, Geysers Expansion

State: California

BLM District/Forest: Ukiah (BLM)

EAR STATUS: Initially used DOI Generic EIS;
Geysers/Calistoga 5/75; Expansion 6/76

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
378,687	378,687	0*	76,748	5,671	296,268

*This accurately represents data supplied.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
217	408,308*	Partial: 1 Total: 132**	245,116	Partial: 10 Total: 68	135,064	0	0	17	28,128	0	0	0	0

*Includes some "grandfather" acreage. **Hunts and other individuals, primarily.

Reasons for Rejection

Mostly not given
11 - KGRA determination
3 - Failure to file for all available land

NC Lessees

Other Applicants:

Union Oil Co. of Calif.
AMOCO Prod. Co.
Sunoco Energy Dev. Co.
Pacific Energy Corp.
Shell Oil Co.
Chevron USA, Inc.

Republic Geothermal, Inc./
City of Burbank
Phillips Petroleum Co.
Natomas Co.
Amax Expl., Inc.^a

Application To Lease-Mos.

NOI's

Min. Av. Max.
--- --- ---

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
15,667	26	14,801	23	0	0	23	14,801

Competitive Lessees

Shell Oil Co.
Thermogenics, Inc.
Union Oil Co. of Calif.
Magma Power & Thermal Power
Occidental Petroleum Corp.
Signal Oil and Gas Co.
Aminoil USA, Inc., and
Natomas Co.

Other Bidders

Geothermal Resources, Inc.
Chevron USA, Inc.
No. Calif. Power Agency
Dow Chemical, USA
Calif. Geothermal
Santa Clara City
Individuals

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

^aOther Applicants (continued):

Geothermal Resources, Inc.
Energy Partners
Thermal Resources, Inc.
Earth Power Corp.
Hunt family
Individuals

"Grandfather" Conversions:

Burma Oil
Union/Magma/Thermal Power
Occidental Petroleum

CS Designation: Long Valley Caldera
 Study Area: Mono-Long Valley
 BLM District/Forest: Bakersfield (BLM)

State: California

EAR STATUS: Tabled by FS

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
460,256*	460,256	0	103,690	288,406	68,160

*Assumed to = KGRA.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
6	10,454	Partial: 0 Total: 6	10,456	0	0	0	0	0	0	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

California Geothermal, Inc.

State of Calif., Dept. of Transpt.

Hunt family

Application

To Lease-Mos.

Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
13,714	7	5,483	3	0	0	3	5,483

Competitive Lessees

Chevron USA, Inc.

Getty Oil Co./Mono Power Co.

Republic Geothermal, Inc.

Other Bidders

Geothermal Resources, Inc.

Union Oil Co. of Calif.

California Geothermal, Inc.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Coso Area
 Study Area: Coso
 BLM District/Forest: Bakersfield (BLM)

State: California

EAR STATUS: Estimated completion 9/80.

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
87,602*	56,880	30,722	64,460	22,962	0

*Questionable.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
58	126,776	Total: 12	27,372	Partial: 3 Total: 28	67,988	0	0	18	33,096	0	0	0	0

Reasons for Rejection

- 19 - Land not available for lease
- 2 - Failure to apply for all available lands
- 2 - KGRA determination

NC Lessees

Other Applicants

Mono Power Co.
 Getty Oil Co.
 Sulphur River Expl. Co.
 Sunoco Energy Div. Co.
 Hunt Oil Co.
 Individuals

Supron Energy Corp.
 Union Oil Co. of Calif.
 Crownite Corp.
 Southern Union Prod. Co.
 Hunt family

Application To Lease-Mos.
 Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Randsburg

Study Area: Randsburg (also see Searles Lake and Spangler Hills)

State: California

BLM District/Forest: Riverside (BLM)

EAR STATUS: Completed 6/76; Supplement 6/77

ACREAGE*

Total	KGRA	NC	BLM	FS	Non-Fed.
86,020	12,880	23,680	35,333	0	1,233

*Data are apparently faulty.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
34	75,950	0	0	Partial: 6 Total: 10	20,953	0	0	24	54,997	0	0	0	0

Reasons for Rejection

- 9 - KGRA determination
- 4 - Failure to apply for all available land

Non-Competitive Lessees

Other Applicants

Getty Oil Co.
Magma Power Co.
Mono Power Co.
Phillips Petroleum Co.
Hunt family
Union Oil Co. of Calif.

Application
To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

Competitive Lessees

Other Bidders

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Randsburg

Study Area: Searles Lake (also see Randsburg and Spangler Hills)

State: California

BLM District/Forest: Bakersfield (BLM)

EAR STATUS: Completed 6/76; S. Searles Lake 6/77

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
34,845	0	34,845	34,845	0	0

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
5	11,537	0	0	Partial: 4	2,039	5	9,498	0	0	0	0	5	9,498

Reasons for Rejection

U.S. has no mineral interest in land applied for
Land not available for lease
Land already under lease

Non-Competitive Lessees

Kerr-McGee Chemical Corp.

Other Applicants

Application To Lease-Mos.

Min.	Av.	Max.
22	28	34

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits
					0

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Randsburg

Study Area: Spangler Hills (also see Randsburg and Searles Lake)

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: Completed 6/76; Supplement 6/77

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
8,320 (approx.)	0	8,320	8,320	0	0

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
1	2,560	1	2,560	0	0	0	0	0	0	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Individuals

Application
To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - None - no KGRA acreage.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Salton Sea Area

Study Area: N. Salton Sea

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: Scheduled to be completed 10/78

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
43,520	0	38,880	38,880	0	4,640

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
6	8,343	0	0	Partial: 2	2,191	1*	761	5	7,852	0	0	1	761

*Labelled Palo Verde.

Reasons for Rejection
Land already under lease

Non-Competitive Lessees
Magma Energy, Inc.

Other Applicants
Individuals

Application
To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - None - no KGRA acreage.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Salton Sea Area

Study Area: S. Salton Sea

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
95,014*	95,014 (disputed)	0	18,644**	0	76,170

*Assumed to = KGRA. **Bureau of Reclamation.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
4	8,804	0	0	0	0	0	0	4	8,804	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Union Oil Co. of Calif.

Application
To Lease-Mos.

Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Westmorland/Brawley

Study Area: Brawley

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: (If there has been activity, information should emerge from mapping effort.)

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
0	28,885	0	0	0	28,885

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filled	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: East Mesa

Study Area: East Mesa

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: Scheduled to be completed 3/80

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
77,000	38,365	*	32,725 (KGRA)	**	4,840 (KGRA)

*No study area map available for breakdown. **No breakdown available.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
28	59,648	Total: 12	26,883	0	0	0	0	16	20,995	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Republic Geothermal, Inc.
City of Burbank
Individuals

Application
To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
30,408*	14*	18,729	9	0	0	9	18,729

*Reoffered acreage is counted only once.

Competitive Lessees

Magma Power Co.
Republic Geothermal, Inc. -
Geothermal Energy
Union Oil Co.

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Border Area

Study Area: Glamis

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: Probably initiated in 1980

Will have wilderness and critical
habitat problems.

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
25,500*	25,500	0	23,425**	0	2,080

*Assumed to = KGRA. **Bureau of Reclamation.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
30	68,812	Total: 8	18,574	Partial: 1 Total: 1	2,547	0	0	21	47,691	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Republic Geothermal, Inc.
Sunoco Energy Development, Co.
Individuals

Application
To Lease-Nos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Border Area

Study Area: Dunes

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: Probably initiated in 1980

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
7,680*	7,680	0	7,680**	0	0

*Assumed to = KGRA. **Bureau of Reclamation.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
31	57,000	Total: 28	52,511	0	0	0	0	3	4,489	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Natomas Co.
City of Burbank
Sunoco Energy Dev. Co.
Sun Oil Co.
Republic Geothermal
Individuals

Application
To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Heber

Study Area: Heber

BLM District/Forest: Riverside (BLM)

State: California

EAR STATUS: (If there has been activity, information should emerge from mapping effort.)

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
0	28,885	0	0	0	28,885

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Paradise Hot Springs

Study Area: (The latitude-longitude reference given by GS for Paradise Hot Springs places this area very close to two NC applications filed in the San Juan National Forest.)

State: Colorado

BLM District/Forest: San Juan National Forest

EAR STATUS: Not provided

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
2	2,575	0	0	Partial: 2	460	0	0	2	2,115	0	0	0	0

Reasons for Rejection

- 1 - Failure to apply for all available land
- 2 - No US mineral interest in land applied for

Non-Competitive Lessees

Other Applicants

Phillips Petroleum Co.

Application To Lease-Mos.

Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - None - no KGRA acreage.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Crane Creek - Cove Creek Area

Study Area: Crane Creek

BLM District/Forest: Boise (BLM)

State: Idaho

EAR STATUS: Completed 2/78.

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
25,500 (sic)	4,342	65,500	60,000	0	5,500

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
19	35,000	Partial: 1 Total: 1	1,778	Partial: 12 Total: 2	5,162	13	24,343	3	3,717	0	0	13	24,343

Reasons for Rejection

- 2 - KGRA determination
- 6 - Failure to apply for all available land
- 6 - No US mineral interest in lands applied for
- 1 - Environmental reasons

Non-Competitive Lessees

Atlantic Richfield Co.
Phillips Petroleum Co.
Gulf Mineral Resources Co.
Union Oil Co. of Calif.

Other Applicants

Chevron USA, Inc.
Thermal Resources, Inc.
Individuals

Application

To Lease-Mon.
Min. Av. Max.
15 37 51

NOI's

COMPETITIVE LEASING ACTIVITY

<u>Offered</u>		<u>Bid</u>		<u>Relinq./Term.</u>		<u>Existing Leases</u>	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
1,381	1	1,381	1	0	0	1	1,381

Competitive Lessees

Supron Energy Corp.

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

<u>Leases</u>		<u>Drilling Permits</u>	
#	Acreage	Shallow	Deep

GS Designation: Big Creek Hot Springs

Study Area: Sharkey Hot Springs

State: Idaho

BLM District/Forest: Salmon (BLM)

EAR STATUS: Completion projected 8/79; 200 acres in roadless review.

(This is the same general area; it is not known whether Big Creek Hot Springs is actually encompassed by the study area.)

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
7,500 (sic)	0	21,428 (sic)	7,500	0	0

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
9	21,428	Total: 6	18,214	Total: 2	1,927	0	0	1	1,286	0	0	0	0

Reasons for Rejection

Failure to file preliminary plan of operation.

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - None - no GGRA acreage.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Baltazor Hot Springs

Study Area: Winnemucca

State: Nevada

BLM District/Forest: Winnemucca (BLM)

EAR STATUS: Completed 1/76.

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
6,606,066	60,340	4,606,066	6,372,690	309,280	2,000,000

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
275	579,345	Partial: 24 Total: 84	53,462	Partial: 36 Total: 59	140,679	107	235,363	25	149,843	2	1,900	105	233,463

Reasons for Rejection

Incomplete data - mostly filing errors on the part of the applicant.

Non-Competitive Lessees

Phillips Petroleum Co.
Ladd Petroleum Corp.
Sulphur River Expl., Inc.
Sumatra Oil Corp.
Union Oil Co. of Calif.*

Other Applicants

Natomas Co.
Magma Power Co.
Mobil Oil Co.
Southland Royalty &
Thermal Power Co.

Application

To Lease-Mos.
Min. Av. Max.
Chevron USA, Inc. <3 18 38
Steam Corp. of Amer.
Individuals

NOI's

COMPETITIVE LEASING ACTIVITY - APPLIES ONLY TO BALTAZOR HOT SPRINGS KGRA

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
5,537	3	5,537	3	0	0	3	5,537

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

Competitive Lessees

Earth Power Corp.
(partial assignment to Thermal Resources and US Geothermal)

Other Bidders

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

***Non-Competitive Lessees (continued)**

U.S. Geothermal Co.
Thermal Resources Inc.
Individuals

CS Designation: Pinto Hot Springs

Study Area: See Winnemucca for acreage and non-competitive information.

State: Nevada

BLM District/Forest: Winnemucca (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - Applies only to Pinto Hot Springs KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
7,974	4	7,974	4	0	0	4	7,974

Competitive Lessees

Union Oil Co. of Calif.
Individuals

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Great Boiling Springs (Gerlach)

Study Area: Buffalo Hills

BLM District/Forest: Winnemucca (BLM)

State: Nevada

EAR STATUS: Completed 6/75

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
1,457,000	80,189	0	1,370,349	0	Approx. 87,000

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
272	556,249	Partial: 4 Total: 77	171,495	Partial: 20 Total: 146	299,530	40	77,596	9	4,628	17	30,206	24	47,390

Reasons for Rejection

Data are incomplete but indicate that special study area acreage (e.g., wilderness) played a strong role.

Non-Competitive Lessees

Chevron USA, Inc.
Geothermal Resources Int. (termin.)
Sunoco Energy Dev. Co. (1 termin.)
Union Oil Co. of Calif.
Oil Resources, Inc.
Sulphur River Expl. Co.*

Other Applicants

Natomas Co.
Mobil Oil Co.
Delta Funds Inc.
Al-Aquitaine Expl., Ltd.
Individuals

Application

To Lease-Mos.
Min. Av. Max.
3.5 15 24

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
22,564	11*	14,174	7	3,888	Partial: 3 Total: 1	6	10,286

*Reoffered acreage counted only once.

Competitive Lessees

Sunoco Energy Dev. Co.
Occidental Geothermal, Inc.

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

*Non-Competitive Lessees (continued)

Southland Royalty & Thermal Power Co. (termin.)
Sun Oil Co. (termin.)
Hunt family
Individuals

CS Designation: San Emidio Desert

Study Area: See Buffalo Hills for acreage and non-competitive information.

State: Nevada

BLM District/Forest: Carson City (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - Applies only to San Emidio Desert KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
5,231*	3*	1,612	1	0	0	1	1,512

*Reoffered acreage counted only once.

Competitive Lessees

Other Bidders

Chevron USA, Inc.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Steamboat Springs

Study Area: Pinenut - Walker

BLM District/Forest: Carson City

State: Nevada

EAR STATUS: Completed 7/75

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
1,481,000	7,054	881,946	638,000	250,000	592,400

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
42	72,697	Partial: 2 Total: 22	40,385	Partial: 7 Total: 5	10,644	14	23,692	1	*	1	1,282	13	22,409

*An anomaly in the data shows more acreage leased, withdrawn, and rejected than applied for.

Reasons for Rejection

Non-Competitive Lessees

Occidental Geothermal, Inc.
Diablo Expl., Inc.
Chevron USA, Inc.
Sulphur River Expl. Co.
Al-Acquitaine Expl., Ltd.
Kissinger Petroleum
Hunt family

Other Applicants

Gulf Mineral Resources Co.
Anschutz Corp.
Steam Corporation of America
Southland Royalty & Thermal Power Co.
Individuals

Application To Lease-Mos.

Min.	Av.	Max.
4	13	27

NOI's

COMPETITIVE LEASING ACTIVITY**

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
1,796	2	1,796	2	0	0	2	1,796

**Applies only to Steamboat Springs KGRA.

Competitive Lessees

Phillips Petroleum Co. & Gulf Oil Corp.
Geothermal Resources Int.

Other Bidders

Animoil USA, Inc.
Southern Union Prod. Co.
Geothermal Energy and Mineral Corp.
National Geothermal Corp.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Lee Hot Springs
 Study Area: Fort Churchill - Clan Alpine
 BLM District/Forest: Carson City (BLM)

State: Nevada

EAR STATUS: Completed 4/75

ACREAGE

Total	KCRA	NC	BLM	FS	Non-Fed.
3,320,000	357,698	2,520,302	2,878,000	0	Approx. 4,316,000

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
445	980,351	Partial: 24 Total: 191	418,144	Partial: 24 Total: 47	100,592	169	384,106	38	77,509	21	36,450	148	347,656

Reasons for Rejection

Competitive Overlap
 Failure to apply for all avail. lands
 No US mineral interest in lands applied for
 Land not available for lease
 Environmental reasons

Non-Competitive Lessees

Geothermal Resources Int.
 Western Steam Co.
 GeoProducts Corp.
 Mobil Oil Corp.
 Diablo Expl., Inc. (termin.)
 Republic Geothermal, Inc. (termin.)
 (continued)**

Other Applicants

Western Steam Co.
 Republic Geothermal, Inc.
 Oil Resources, Inc.
 Individuals

Application

To Lease-Mos.
 Min. Av. Max.
 2 14 31

NOI's

COMPETITIVE LEASING ACTIVITY*

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	---	---	---	---	---	---

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

Competitive Lessees

Animoil USA, Inc.

Other Bidders

*Applies only to Lee Hot Springs KCRA.

**Non-Competitive Lessees (continued)

Union Oil. Co. of Calif.	Occidental Petroleum
Al-Acquitaine and Lissinger	Southland Royalty Co.
Petroleum (termin.)	Steam Corporation of America
Thermal Resources, Inc., and	Kissinger Petroleum Co. (1 termin.)
Amox Expl. Co.	Supron (1 termin.)
Sulphur River Expl. Co.	Sunoco Energy Dev. Co.
Chevron USA, Inc.	Earth Power Corp.
Anadarko Prod. Co.	Hunt family
Phillips Petroleum Co.	Individuals

GS Designation: Soda Lake Area; Stillwater Area

Study Area: See Fort Churchill - Clan Alpine for acreage and non-competitive information.

State: Nevada

BLM District/Forest: Carson City (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - Applies only to Stillwater-Soda Lake KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
47,157*	22*	13,259	6	3	4,448	6	8,881

*Reoffered acreage counted only once.

Competitive Lessees

Phillips Petroleum Co.
Chevron USA, Inc.
Union Oil Co. of Calif.

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Fernley Area

Study Area: See Fort Churchill - Clan Alpine for acreage and non-competitive data.

State: Nevada

BLM District/Forest: Carson City (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY*

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

*The GS latitude/longitude citation for the Fernley area places it within or close to the Brady-Hazen KGRA. See that sheet for related competitive data.

GS Designation: Brady Hot Springs; Desert Peak Area

Study Area: Reincorporated into Winnemucca Study Area

BLM District/Forest: Winnemucca (BLM)

EAR STATUS: Completed 7/74

State: Nevada

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

Applies only to Brady-Hazen KGRA of which
COMPETITIVE LEASING ACTIVITY - Desert Peak is the NE corner.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
51,747*	26*	35,128	19	4	7,183	15	27,945

*Reoffered acreage counted only once.

Competitive Lessees

Other Bidders

Geothermal Resources Int.
Southern Union Prod. Co. (rel.)
Thermal Power Co.
Phillips Petroleum Co.
Supron Energy Corp.
Union Oil Co. of Calif.
Magma Energy, Inc.
Magma Power Co.
Individuals

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Humboldt House

Study Area: See Winnemucca for acreage and non-competitive information.

State: Nevada

BLM District/Forest: Winnemucca (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

It will be ascertained which KGRA encompasses

COMPETITIVE LEASING ACTIVITY - Humboldt House.

<u>Offered</u>		<u>Bid</u>		<u>Relinq./Term.</u>		<u>Existing Leases</u>	
<u>Acreage</u>	<u>Tracts</u>	<u>Acreage</u>	<u>Tracts</u>	<u>No.</u>	<u>Acreage</u>	<u>No.</u>	<u>Acreage</u>

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

<u>NOI's</u>	<u>Plans of Operation</u>	<u>Plans of Development</u>	<u>Plans of Injection</u>	<u>Plans of Production</u>	<u>Drilling Permits</u>

ACTIVITY ON STATE/PRIVATE LAND

<u>Leases</u>		<u>Drilling Permits</u>	
<u>#</u>	<u>Acreage</u>	<u>Shallow</u>	<u>Deep</u>

GS Designation: Kyle Hot Springs

Study Area: See Winnemucca for acreage and non-competitive information.

State: Nevada

BLM District/Forest: Winnemucca (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - Applies only to Kyle Hot Springs KGRA.

<u>Offered</u>		<u>Bid</u>		<u>Relinq./Term.</u>		<u>Existing Leases</u>	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
2,400	1	2,400	1	0	0	1	2,400

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits
					0

ACTIVITY ON STATE/PRIVATE LAND

<u>Leases</u>		<u>Drilling Permits</u>	
#	Acreage	Shallow	Deep

Competitive Lessees

Other Bidders

Chevron USA, Inc.

CS Designation: Leach Hot Springs

Study Area: See Winnemucca for acreage and non-competitive information.

State: Nevada

BLM District/Forest: Winnemucca (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - Applies only to Leach Hot Springs KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
12,246	5	12,246	5	0	0	5	12,246

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

Competitive Lessees

Animoil USA, Inc.

Other Bidders

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Beowawe Hot Springs

Study Area: Beowawe

State: Nevada

BLM District/Forest: Battle Creek/Elko (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
33,224*	33,224	0	No data	No data	No data

*Assumed to = KGRA.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
16,530*	8*	13,766	6	0	0	6	13,766

*Reoffered acreage is counted only once.

Competitive Lessees

Other Bidders

Chevron USA, Inc.
Getty Oil Co.
Supron Energy Corp.

Natomas Co.
Aminoil USA, Inc.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Sulphur Hot Springs (Hot Sulphur Springs)

Study Area: See Elko for acreage and non-competitive information

State: Nevada

BLM District/Forest: Elko (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY - Applies only to Ruby Valley KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
4,663	3	4,023	2	Partial 1	200	2	3,823

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

Competitive Lessees

Chevron USA, Inc.

Other Bidders

Getty Oil Co.

CS Designation: Hot Sulphur Springs (Tuscarora)

Study Area: Elko

State: Nevada

BLM District/Forest: Elko (BLM)

EAR STATUS: Completed 6/75

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
10,850,902	45,007	7,008,079	6,043,369	1,079,896	3,797,816

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
63	117,040	Partial: 5 Total: 20	42,483	Partial: 9 Total: 7	21,252	26	56,234	10	*	11	22,647	15	33,587

*Anomaly in the data shows more acreage withdrawn, rejected, and leased than applied for.

Reasons for Rejection

Competitive overlap
KGRA determination
Failure to apply for all avail. lands
No U.S. mineral interest in land applied for
Environmental reasons

Non-Competitive Lessees

Diablo Expl. Inc.
Chevron USA, Inc.
Geothermal Resources Int.
Getty Oil Co.
Mobil Oil Corp.
(continued)**

Other Applicants

Application To Lease-Mos.

Min.	Av.	Max.
<3	15	31

NOI's

COMPETITIVE LEASING ACTIVITY*

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
1,312	1	1,312	1	0	0	1	1,312

Competitive Lessees

Other Bidders

*Applies only to Warm Springs KGRA which is in the close vicinity of Tuscarora.

*Non-Competitive Lessees (continued)

Union Oil Co. of Calif.
Supron Energy Corp.
Al-Acquitaine & Kissinger Petroleum
Sulphur River Expl., Inc.
Thermax Co.
Individuals (many relinquished)

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Valles Caldera

Study Area: Baca Location No. 1 and Jemez Div.

State: New Mexico

BLM District/Forest: Santa Fe National Forest

EAR STATUS: Completed 1/77

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
496,950	76,641	74,000 (sic)	0	473,600*	Approx. 100,000

*Including approx. 92,000 acres with mineral estate in private ownership.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
29	55,088	**	**	**	**	0	0	29	55,088	0	0	0	0

**Due to filing differences in New Mexico, these breakdowns are not available.

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Chevron USA, Inc.
Sunoco Energy Div. Co.
Individuals

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
29,374	17	25,624	15	0	0	15	25,624

Competitive Lessees

Amex Expl., Inc.
Phillips Petroleum Co.
Aminoil USA, Inc.

Other Bidders

Sunoco Energy Dev. Co.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Newberry Caldera

Study Area: Newberry Caldera and Fort Rock Planning Unit

BLM District/Forest: Deschutes National Forest

Newberry - estimated completion 7/80
 EAR STATUS: Fort Rock - estimated completion 1/80

State: Oregon

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
80,000		50,000		80,000	
570,000	30,120	280,000	0	570,000	Approx.
650,000		330,000		650,000	41,000

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
151	325,153	Partial: 2 Total: 20	42,239	Partial: 21 Total: 18	53,883	0	0	113	229,031	0	0	0	0

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application
 To Lease-Mos.
 Min. Av. Max.

NOI's

Sun Oil Co. Phillips Petroleum Co.
 Hawthorne Oil Co. Union Oil Co.
 Delta Funds, Inc. Individuals
 California Geothermal, Inc. (large no.)

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Crump's Hot Springs
 Study Area: Warner Valley
 BLM District/Forest: Lakeview (BLM)

State: Oregon

EAR STATUS: Completed 4/75.

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
405,000	35,974	64,995	315,000	0	90,000 (approx.)

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
45	79,990	PARTIAL: 1 TOTAL: 13	27,852	PARTIAL: 17 TOTAL: 3	22,881	17	25,715	12	3,542	2	1,560	15	24,155

Reasons for Rejection

- 1-Deficiency in legal description
- 1-Failure to file preliminary POD
- 6-KGRA determination
- 7-Failure to apply for all available land
- 3-No US mineral interest in land applied for

Non-Competitive Lessees

Chevron USA, Inc.
 Steam Corp. of America
 Hunt Family
 Individuals

Other Applicants

Application To Lease-Mos.

Min.	Av.	Max.
24	32	43

NOI's

COMPETITIVE LEASING ACTIVITY: APPLIES ONLY TO CRUMP GEYSER KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
33,985*	22*	21,704	10	0	0	10	21,704

*Reoffered acreage counted only once. 9 tracts were offered 5 times and not bid on.

Competitive Lessees

Chevron USA, Inc.
 Hunt Oil Co.

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Mickey Hot Springs

Study Area: Alvord

BLM District/Forest: Burns (BLM)

State: Oregon

EAR STATUS: Completed 2/75 (Roadless review and MFP scheduled for completion 9/82)

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
approx. 200,000	92,900	(sic) 9,614	106,438	0	(approx.) 80,000

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
23	32,285	PARTIAL: 1 TOTAL: 0	640	PARTIAL: 9 TOTAL: 0	4,675	21	29,088	2	*	5	7,010	16	22,078

*Anomaly in data shows more acreage withdrawn, rejected, and leased than applied for.

Reasons for Rejection

Mostly KGRA determination

Non-Competitive Lessees

Data Funds, Inc.
Hawthorne Oil Co. (terminated)
Supron Energy Corp.
Energy Partners (terminated)
Calif. Geothermal Inc.
Andarko Prod. Co.**

Other Applicants

Application

To Lease-Mos.

Min.	Av.	Max.
4.5	18	32.5

NOI's

COMPETITIVE LEASING ACTIVITY: APPLICABLE ONLY TO MICKEY HOT SPRINGS KGRA.

COMPETITIVE LEASING ACTIVITY: APPLICABLE ONLY TO ACREAGE NOT UNDER EXISTING LEASES							
Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
Total acreage	12	14,999*	6*	0	0	7,520	3

* Three bids totalling 7,479 acres were rejected by CS.

Competitive Lessees

Al-Aquitaine Expl. Ltd.

Other Bidders

Republic Geothermal, Inc.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

ACTIVITY ON STATE/PRIVATE LAND			
Leases		Drilling Permits	
#	Acreage	Shallow	Deep

** N-C Lessees (cont.)

Getty Oil Co. Individuals (several term.)
Pacific Energy Corp.

CS Designation: Alvord Hot Springs

Study Area: See Alvord for acreage and non-competitive information

State: Oregon

BLM District/Forest: Burns (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filled	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY: APPLIES ONLY TO ALVORD HOT SPRINGS KGRA

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
94,339*	46*	36,629	20**	10	21,374	10	15,255

*Reoffered acreage counted only once. **Tracts leased; bids on many tracts were not accepted.

Competitive Lessees

Al-Aquitaine Expl., Ltd.
Republic Geothermal, Inc.
Chevron USA, Inc.
Mapco, Inc.
Getty Oil Co.
Anadarko Prod. Co.

Other Bidders

Southern Union Prod. Co.
Natomas Co.
Phillips Petroleum Co.
Union Oil Co. of Calif.
Hunt Oil Co.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Hot (Borax) Lake Area

Study Area: See Alvord for acreage and non-competitive information

State: Oregon

BLM District/Forest: Burns (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY: APPLIES ONLY TO BORAX LAKE HOT SPRINGS KGRA

<u>Offered</u>		<u>Bid</u>		<u>Relinq./Term.</u>		<u>Existing Leases</u>	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
Total acreage not given	15	17,808	8*	0	0	5	11,018

*Bids on 3 tracts totalling 6,790 acres were rejected by GS.

Competitive Lessees

Mapco, Inc.
Getty Oil Co.
Southern Union Prod. Co.

Other Bidders

Chevron USA, Inc.
Union Oil Co. of Calif.
Natomas Co.
Phillips Petroleum Co.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

<u>Leases</u>		<u>Drilling Permits</u>	
#	Acreage	Shallow	Deep

CS Designation: Trout Creek Area

Study Area: Burns (BLM)

State: Oregon

BLM District/Forest: See Alvord for acreage and non-competitive information

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filled	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Leasees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY : APPLIES ONLY TO TROUT CREEK AREA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Leasees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Neal Hot Springs

Study Area: Vale KGRA; Vale Addition including Vale Hot Springs

BLM District/Forest: Vale (BLM)

State: Oregon

EAR STATUS: Vale KGRA (Leasing Unit 1), 4/74;

Vale Addition 7/75

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
74,157	14,555	35,912	47,362	0	27,164 (Approx.)

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
16	35,913	PARTIAL: 4 TOTAL: 0	4,890	PARTIAL: 4 TOTAL: 2	6,080	9	21,825	5	3,118	0	0	9	21,825

Reasons for Rejection

KGRA determination
Failure to apply for all avail. land
No US mineral interest in lands
applied for

Non-Competitive Lessees

Earth Power Corp.
Thermal Resources, Inc.
U.S. Geothermal Corp.

Other Applicants

Hydrothermal Energy and Minerals, Inc.
Union Oil Co.

Application

To Lease-Mos.
Min. Av. Max.
6 7.5 52

NOI's

COMPETITIVE LEASING ACTIVITY : APPLIES ONLY TO NEAL HOT SPRINGS

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
None	None	--	--	--	--	--	--

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Vale Hot Springs

Study Area: See Vale KGRA and Vale addition including Vale Hot Springs for acreage and non-competitive information.

State: Oregon

BLM District/Forest: Vale (BLM)

EAR STATUS: _____

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filled	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease

Reasons for Rejection

Non-Competitive Lessees

Other Applicants

Application To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY : APPLIES ONLY TO VALE HOT SPRINGS KGRA.

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
13,920	7	13,920	7	0	0	7	13,920

Competitive Lessees

Republic Geothermal, Inc.
Union Oil Co. of Calif.
Geothermal Resources Intl.
Amax Expl., Inc.

Other Bidders

Magma Energy, Inc.
LVD Corp.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

CS Designation: Roosevelt Hot Springs

Study Area: Roosevelt Hot Springs

BLM District/Forest: Cedar City (BLM)

State: Utah

EAR STATUS: Completed 6/74

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
48,500	29,791	18,709	43,600	0	4,800 (approx.)

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
61	123,697	PARTIAL: 0 TOTAL: 16	27,508	PARTIAL: 10 TOTAL: 20	53,103	19	39,796	6	3,290	1	1,280	18	38,516

Reasons for Rejection

Nearly 45,000 acres rejected because of competitive overlap

Non-Competitive Lessees

Geothermal Expl. Co., Inc.
Davon, Inc.
Thermagencies, Inc.
Thermal Power Co.
Thermal Power Co. of Utah
Individuals

Other Applicants

Phillips Petroleum Co.
Gulf Mineral
Getty Oil Co.
Earth Sciences, Inc.
Geothermal Expl. Co., Inc.
American Oil Shale Corp. (see below)

Application To Lease-Mos.

Min. Av. Max.
12 21.5 31

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
24,671*	14*	24,671	14	1	1,200	13	23,471

*Reoffered acreage counted only once.

Competitive Lessees

Union Oil Co. of Calif.
Phillips Petroleum Co.
Getty Oil Co.
Hunt family

Other Bidders

Gulf Oil Corp.
Al-Aquitaine Expl., Ltd.
American Shale Oil Corp.
Individuals (Terminated)

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

Other Applicants (Continued)

Steam Corp. of America
Amax Expl., Inc.
Individuals

GS Designation: Cove Fort-Sulphurdale

Study Area: Cove Fort - Sulphurdale

State: Utah

BLM District/Forest: Fishlake National Forest; BLM

EAR STATUS: Completed 1/75

ACREAGE

Total	KGRA	NC	BLM	FS	Non-Fed.
79,071	24,074	54,999	46,588	32,483	0

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq./Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
63	125,731	PARTIAL: 1 TOTAL: 28	58,491	PARTIAL: 0 TOTAL: 13	33,033	23	43,426	Data anomaly shows - 1	*	1	811	22	42,616

*Anomalies in the data show more acreage withdrawn, rejected, and leased than applied for.

Reasons for Rejection

Nearly all KGRA determination
1 - competitive overlap

Non-Competitive Lessees

Union Oil Co. Earth Power
Amex Expl. Co. Thermal Resources, Inc.
Thermax Hunt Family
Geothermal Expl.
LVD Corp. Individuals
Phillips Petroleum Co.

Other Applicants

Chevron USA, Inc.
U.S. Geothermal Corp.
Steam Corp. of America

Application

To Lease-Mos.
Min. Av. Max.
7 15.5 30

NOI's

COMPETITIVE LEASING ACTIVITY

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage
23,900*	12*	23,900	12	1	2,560	11	21,340

*Reoffered acreage counted only once.

Competitive Lessees

American Geological Enterprises, Inc.
Forminco, Inc. (assignment by Union Oil Co.)
Hunt Family

Other Bidders

Earth Power Corp.
Mountain States Resources Corp.
Phillips Petroleum Co.
Amex Expl., Inc.
Getty Oil Co.
Supron Energy Corp.
Aminoil USA, Inc.

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

GS Designation: Canna Hot Springs

Study Area: Mount Baker-Snoqualmie

BIM District/Forest: Snoqualmie National Forest

State: Washington

EAR STATUS: Estimated completion 1/80.
(Excluded Kennedy Hot Springs KCRA for which no specific plans for environmental study have been made).

ACREAGE

Total	KGRA	NC	BIM	FS	Non-Fed.
approx. 24,000	0	sic 48,212	0	24,000	0

NON-COMPETITIVE LEASING ACTIVITY

# Appls. Filed	Total Appl. Acreage	# Appls. Withdrawn	Acreage Withdrawn	# Appls. Rejected	Acreage Rejected	# Leases Issued	Acreage Leased	# Appls. Pending	Acreage Pending	# Leases Relinq/Term.	Term. Acreage	# Existing Leases	Acreage Under Lease
20	48,211	PARTIAL: 0 TOTAL: 9	21,903	PARTIAL: 0 TOTAL: 1	2,533	0	0	10	23,775	0	0	0	0

Reasons for Rejection
Not given

Non-Competitive Lessees

Other Applicants

Chevron USA, Inc.
Union Oil Co. of Calif.
Phillips Petroleum Co.
Delta Funds, Inc.
Individuals

Application
To Lease-Mos.
Min. Av. Max.

NOI's

COMPETITIVE LEASING ACTIVITY : NONE - NO KGRA ACREAGE

Offered		Bid		Relinq./Term.		Existing Leases	
Acreage	Tracts	Acreage	Tracts	No.	Acreage	No.	Acreage

Competitive Lessees

Other Bidders

POST-LEASE ACTIVITY

NOI's	Plans of Operation	Plans of Development	Plans of Injection	Plans of Production	Drilling Permits

ACTIVITY ON STATE/PRIVATE LAND

Leases		Drilling Permits	
#	Acreage	Shallow	Deep

APPENDIX E

List of Mandatory Class I PSD Areas
(Federal Register, November 3, 1977)National Parks Over 6,000 Acres

<u>State</u>	<u>Park</u>
Alaska	Mount McKinley
Arizona	Grand Canyon Petrified Forest
California	Kings Canyon Lassen Volcanic Redwood Sequoia Yosemite
Colorado	Mesa Verde Rocky Mountain
Florida	Everglades
Hawaii	Haleakala Hawaii Volcanoes
Idaho	Yellowstone (Wyoming)
Kentucky	Mammoth Cave
Maine	Acadia
Michigan	Isle Royale
Minnesota	Voyageurs
Montana	Glacier Yellowstone (Wyoming)
New Mexico	Carlsbad Caverns
North Carolina	Great Smoky Mountains
Oregon	Crater Lake
South Dakota	Wind Cave
Tennessee	Great Smoky Mountains

<u>State</u>	<u>Park</u>
Texas	Big Bend Guadalupe Mountains
Utah	Arches Bryce Canyon Canyonlands Capitol Reef Zion
Virgin Islands	Virgin Islands
Virginia	Shenandoah
Washington	Mount Ranier North Cascades Olympic
Wyoming	Grand Teton Yellowstone

National Wilderness Areas Over 5,000 Acres

Alabama	Sipsey
Alaska	Bering Sea Simenof Tuxedni
Arizona	Chiricahua National Monument Chiricahua Galiuro Mazatzal Mt. Baldy Pine Mountain Saguaro Sierra Ancha Superstition Sycamore Canyon
Arkansas	Caney Creek Upper Buffalo
California	Aqua Tibia Caribou Cucamonga Desolation Dome Land Emigrant Hoover Joshua Tree

<u>State</u>	<u>Park</u>
California (cont'd.)	John Muir Kaiser Lava Beds Marble Mountain Minarets Monkelumme Pinnacles Point Reyes San Gabriel San Geronio San Jacinto San Rafael South Warner Thousand Lakes Ventana Yolla-Bolly-Middle Eel
Colorado	Black Canyon of the Gunnison Eagles Nest Flat Tops Great Sand Dunes La Garita Maroon Bells - Snowmass Mt. Zirkel Rawah Weminuche West Elk
Florida	Bradwell Bay Chassahowitzka Saint Marks
Georgia	Cohutta Okefenokee Wolf Island
Idaho	Craters of the Moon Hells Canyon (Oregon) Sawtooth Selway- Bitterroot (Montana)
Louisiana	Breton
Maine	Moosehorn
Michigan	Seney
Minnesota	Boundary Waters - Canoe Area
Missouri	Hercules - Glades Mingo

<u>State</u>	<u>Park</u>
Montana	Anaconda - Pintlar Bob Marshall Cabinet Mountains Gates of the Mountain Medicine Lake Mission Mountains Red Rock Lakes Scapegoat Selway-Bitterroot - U.L. Bend
Nevada	Jarbridge
New Hampshire	Great Gult Presidential Range - Dry River
New Jersey	Briganteen
New Mexico	Bandelier Basque del Apache Gila Pecos Salt Creek San Pedro Parks Wheeler Peak White Mountain
North Carolina	Joyce Kilmer - Slickrock Linville Gorge Shining Rock Swanquarter
North Dakota	Lostwood
Oklahoma	Wichita Mountains
Oregon	Diamond Peak Eagle Cap Gearhart Mountain Kalmiopsis Mountain Lakes Mount Hood Mount Jefferson Mount Washington Strawberry Mountain Three Sisters
South Carolina	Cape Romain
South Dakota	Badlands

<u>State</u>	<u>Park</u>
Tennessee	Joyce Kilmer - Slickrock (N.C.)
Vermont	Lye Brook
Virginia	James River Face
Washington	Alpine Lakes
	Glacier Peak
	Goat Rocks
	Mount Adams
	Pasayten
West Virginia	Dolly Sods
	Otter Creek
Wisconsin	Rainbow Lake
Wyoming	Bridges
	Fitzpatrick
	North Absoroka
	Teton
	Washaki

International Parks

New Brunswick, Canada	Roosevelt-Campobello
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National Memorial Parks

North Dakota	Theodore Roosevelt
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National Monuments (NM), National Preserves, and Primitive Areas (PA)
Recommended for Redesignation to Class I PSD Areas

State	Area	Federal	Gross
AZ	Canyon de Chelly NM	0	83,840.00
AZ	Chiricahua NM	10,645.90	10,648.25
AZ	Organ Pipe Cactus MD	329,199.10	330,688.86
AZ	Paiute PA	35,092.00	35,092.00
AZ	Paria Canyon PA	27,515.00	26,515.00
AZ	Saguaro NM	79,863.46	83,576.07
AZ	Sunset Crater NM	3,040.00	3,040.00
AZ	Wupatki NM	35,353.24	35,253.24
CA	Channel Islands NM	18,384.97	18,388.07
CA	Chemise Mountain PA	3,941.00	3,941.00
CA	Joshua Tree NM	547,789.59	559,959.79
CA	Lava Beds NM	46,821.33	46,821.33
CA	Muir Woods NM	514.32	553.55
CA	Pinnacles NM	14,177.77	16,215.67
CA,NV	Death Valley NM	2,048.948.10	1,067,795.06
CO	Black Canyon of the Gunnison NM	13,363.14	13,672.13
CO	Colorado NM	19,744.67	20,444.67
CO	Great Sand Dunes NM	36,426.16	36,826.50
CO	Powderhorn PA	40,400.00	40,400.00
CO, UT	Dinosaur NM	203,629.17	211,053.45
ID	Craters of the Moon NM	53,535.05	53,545.05
MT	Beartrap Canyon PA	2,861.00	2,861.00
MT	Centennial PA	24,166.00	24,168.00
MT	Humbug Spires PA	7,041.00	7,041.00
NM	Bandolier NM	29,661.20	36,971.20
NM	Capulin Mountain NM	775.38	775.38
NM	Chaco Canyon NM	20,990.27	21,510.32
NM	El Morro NM	1,039.92	1,278.72
NM	Gila Cliffs Dwelling NM	533.13	533.13
NM	White Sands NM	144,751.77	145,334.76
OR	John Day Fossil Beds NM	2,035.00	14,402.00
UT	Cedar Breaks NM	6,154.60	6,154.60
UT	Dark Canyon PA	57,248.00	57,248.00
UT	Grand Gulch PA	24,080.00	24,080.00
UT	Natural Bridges NM	160.00	160.00
WY	Devils Tower NM	1,345.91	1,346.91
WY	Fossil Butte NM	7,417.64	8,178.00
WY	Scab Creek PA	6,680.00	6,680.00

APPENDIX F

NEW MEXICO

F-1

(Under Notice of Intent Permits)

3S, 2W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 3
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned: 1
Abandoned:	Shut-In: 2
Shut-In:	

21S, 1W

Geophysical Work:	14	Deep Temp.
Shallow Temp.		Active:
Active:		Proposed: 2
Proposed:		Not Drilled:
Not Drilled: 2		Plugged &
Plugged &		Abandoned:
Abandoned: 8		Shut-In:
Shut-In:		

4S, 1W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled: 1
Not Drilled: 1	Plugged &
Plugged &	Abandoned:
Abandoned: 2	Shut-In:
Shut-In:	

26S, 2W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 5
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In: 2
Shut-In:	

19S, 1W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In: 1
Shut-In:	

26S, 1W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 4
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In:
Shut-In: 1	

20S, 1E

Geophysical Work:	2	Deep Temp.
Shallow Temp.		Active:
Active:		Proposed:
Proposed:		Not Drilled:
Not Drilled:		Plugged &
Plugged &		Abandoned:
Abandoned:		Shut-In:
Shut-In:		

26S, 2W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 5
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In:
Shut-In: 9	

27S, 1W

Geophysical Work: 12	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled:
Not Drilled: 1	Plugged &
Plugged &	Abandoned:
Abandoned: 11	Shut-In:
Shut-In:	

29S, 2W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 10
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In:
Shut-In: 2	

27S, 2W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 12
Proposed: 4	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In: 5 4
Shut-In: 4	

29S, 1W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 11
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In: 6
Shut-In: 5	

28S, 1W

Geophysical Work: 6	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed: 1	Not Drilled:
Not Drilled: 5	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In:
Shut-In:	

25S, 19W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 14
Proposed:	Not Drilled:
Not Drilled: 1	Plugged &
Plugged &	Abandoned:
Abandoned: 3	Shut-In: 52
Shut-In:	

28S, 2W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 2
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In: 1
Shut-In:	

25S, 20W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 1
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In:
Shut-In:	

Appendix F--continued

26S, 20W

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed: 3
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In:
Shut-In:	

21N, 5E

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled:
Not Drilled: 1	Plugged &
Plugged &	Abandoned:
Abandoned: 4	Shut-In:
Shut-In:	

18N, 3E

Geophysical Work: 3	Deep Temp.
Shallow Temp.	Active:
Active: 7	Proposed:
Proposed: 15	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned:	Shut-In: 1
Shut-In: 8	

21N, 4E

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled:
Not Drilled: 1	Plugged &
Plugged &	Abandoned:
Abandoned: 6	Shut-In:
Shut-In:	

18N, 4E

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled:
Not Drilled: 2	Plugged &
Plugged &	Abandoned:
Abandoned: 7	Shut-In:
Shut-In:	

21N, 3E

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed:	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned: 2	Shut-In:
Shut-In:	

(Under APD Drilling Permit)

20N, 3E

Geophysical Work:	Deep Temp.
Shallow Temp.	Active:
Active:	Proposed:
Proposed: 19	Not Drilled:
Not Drilled:	Plugged &
Plugged &	Abandoned:
Abandoned: 1	Shut-In:
Shut-In:	

20S, 1W

Test Wells
Proposed: 1

APPENDIX G
INFORMATION AS PREPARED FOR MAPPING

NEW MEXICO
G-1

(Item for Legend: Due to filing variation, information on all rejected and withdrawn non-competitive lease applications is not available, and data are thus incomplete.)

1S, 1W
4 NC Appls.
2 Pre-Lease NOI's

4S, 2W
5 NC Appls.
1 Pre-Lease NOI

14S, 5W
2 NC Leases

1S, 1E
3 NC Appls.

4S, 1W
6 NC Appls.
2 C Leases
1 Pre-Lease NOI
5 Post-Lease NOI's

15S, 5W
1 NC Lease

2S, 1E
1 NC Appl.

4S, 1E
1 NC Appl.

12S, 13W
3 NC Appls.

2S, 1W
5 NC Appls.
4 Pre-Lease NOI's

5S, 1W
2 NC Appls.

13S, 13W
4 NC Appls.

2S, 2W
9 NC Appls.
10 C Tracts
4 C Leases
1 Pre-Lease NOI

5S, 2W
1 NC Appl.
1 Pre-Lease NOI

13S, 14W
2 NC Appls.

3S, 1W
5 C Leases
1 Pre-Lease NOI

12S, 4W
2 NC Appls.
2 Pre-Lease NOI's

15S, 17W
3 NC Appls.

3S, 2W
2 NC Appls.
2 C Leases
1 Pre-Lease NOI
6 Post-Lease NOI's

13S, 4W
2 NC Appls.
1 Pre-Lease NOI

17S, 1W
1 Pre-Lease NOI

3S, 3W
3 NC Appls.

13S, 5W
5 NC Appls.

20S, 10W
1 NC Appl.
1 Pre-Lease NOI

14S, 4W
1 NC Appl.

20S, 11W
2 NC Appls.
1 Pre-Lease NOI

19S, 1W
1 NC Lease
1 Pre-Lease NOI
1 Post-Lease NOI

19S, 2W
2 NC Appls.
3 NC Leases

20S, 2W
1 NC Appl.

20S, 1W
2 NC Appls.
5 NC Leases
4 Pre-Lease NOI's
1 Post-Lease NOI
1 APD Permit

20S, 1E
2 NC Leases
3 Pre-Lease NOI's
1 Post-Lease NOI

21S, 2E
1 NC Appl.
1 Post-Lease NOI

21S, 1W
3 NC Leases
9 C Leases
5 Pre-Lease NOI's
21 Post-Lease NOI's

21S, 1E
3 NC Appls.
3 NC Leases
2 Pre-Lease NOI's

22S, 1E
2 NC Appls.

22S, 1W
1 NC Appl.
1 Pre-Lease NOI

22S, 7W
2 Pre-Lease NOI's

25S, 1E
2 NC Appls.
3 NC Leases

26S, 1W
3 NC Leases
1 Pre-Lease NOI

26S, 2W
7 NC Leases
19 Post-Lease NOI's

26S, 1E
1 NC Lease

27S, 1E
1 NC Appl.
2 NC Leases

27S, 2E
1 Pre-Lease NOI

27S, 1W
2 C Tracts
7 C Leases
2 Pre-Lease NOI's
21 Post-Lease NOI's

27S, 2W
1 NC Lease
25 Post-Lease NOI's

28S, 1E
3 NC Appls.
1 Pre-Lease NOI

28S, 1W
4 NC Appls.
3 C Leases
3 Pre-Lease NOI's
12 Post-Lease NOI's

28S, 2W
7 NC Leases
6 Post-Lease NOI's

29S, 4W
1 Pre-Lease NOI

29S, 2W
1 NC Lease
3 Pre-Lease NOI's
12 Post-Lease NOI's

29S, 1W
2 NC Appls.
3 NC Leases
22 Post-Lease NOI's

28S, 18W
1 Pre-Lease NOI

28S, 19W
4 Pre-Lease NOI's

NEW MEXICO

G-3

28S, 20W

1 Pre-Lease NOI

27S, 18W

1 Pre-Lease NOI

27S, 19W

1 Pre-Lease NOI

27S, 20W

2 NC Leases

3 Pre-Lease NOI's

26S, 21W

1 Pre-Lease NOI

26S, 20W

3 NC Appl's.

1 NC Lease

26S, 19W

2 NC Appl's.

3 NC Leases

2 Pre-Lease NOI's

26S, 18W

1 Pre-Lease NOI

25S, 19W

1 NC Appl.

3 NC Leases

4 C Leases

4 Pre-Lease NOI's

21 Post-Lease NOI's

25S, 20W

1 NC Appl.

2 NC Leases

1 C Lease

24S, 19W

1 NC Appl.

1 NC Lease

3 C Leases

2 Pre-Lease NOI's

24S, 20W

1 C Lease

29S, 1W

2 NC Appl's.

3 NC Leases

29S, 2W

1 NC Lease

31S, 1W

4 Post-Lease NOI's

8N, 11W

1 Pre-Lease NOI

8N, 3W

1 NC Appl.

7N, 3W

1 NC Appl.

6N, 2W

1 NC Appl.

6N, 3W

1 NC Appl.

11N, 2E

2 Pre-Lease NOI's

13N, 1E

1 NC Lease

14N, 4E

3 NC Appl's.

2 Pre-Lease NOI's

15N, 4E

4 NC Appl's.

15N, 3E

1 NC Appl.

15N, 1E

4 NC Appl's.

2 NC Leases

1 C Tract

2 Pre-Lease NOI's

16N, 2E

1 NC Appl.

17N, 2E

2 NC Appl's.

17N, 3E

5 NC Appl's.

18N, 2E
8 NC Appls.

18N, 3E
2 NC Appls.
4 C Leases
34 Post-Lease NOI's

18N, 4E
2 NC Appls.
2 C Leases
9 Post-Lease NOI's

19N, 2E
4 NC Appls.

19N, 3E
1 C Lease

20N, 2E
1 NC Appl.

20N, 3E
1 C Lease
26 Post-Lease NOI's

21N, 3E
4 NC Appls.
2 C Tracts
4 C Leases
2 Post-Lease NOI's

21N, 4E
5 NC Appls.
2 C Leases
7 Post-Lease NOI's

21N, 5E
2 NC Appls.
1 C Lease
5 Post-Lease NOI's

25N, 8E
3 NC Appls.

15N, 3W
2 NC Appls.
1 NC Lease

15N, 4W
1 NC Lease

15N, 5W
1 NC Lease

14N, 5W
1 NC Lease

APPENDIX H

STATUS OF STUDY AREA INFORMATION

Arizona

Areas identified in Table 3 not shown on map:

San Jose Wash - according to BLM source, no EA was performed in this area.

Roskrige Mountains - all applications were withdrawn and no study was conducted.

Unnamed - same as above.

CaliforniaSouth Half

No map was found of Westmoreland.

North Half

Eagle Lake is described by BLM as a potential study area therefore has been left off the map.

The current terminology for areas in The Geysers vicinity is: Geysers Peak, Five Tract Mineral Reserve, Pilot Knob, Three Peaks/Swartz Canyon, Butts Canyon, Pieta Creek, and Adobe Creek Areas. It is to be remembered that the Department of the Interior programmatic EIS was used to cover the earliest leasing in this area.

Colorado

Boundaries are not determined for Waunita Hot Springs, Ouray/Ridgeway, and Steamboat Springs.

Idaho

No information was received on:

Parma
Mud Lake
Freedom
Big Southern Butte
Oneida Narrows
Twin Lakes
Sulphur-Wood Canyon
Grays Lake West
Grays Lake
Black Foot Reservoir

Idaho--Continued

Sharkey H.S.
Clove Creek
Grandjean
Idaho City

Soda Springs study area includes Caribou (from previous data) and Bear Lake.

Montana

Boundaries for the following areas were received after mapping was completed. They will be added when the maps are updated.

Hunter Hot Springs
Barkells & Biltmore
Spokane Hills
Marysville
Boulder Hot Springs

No information was provided on Corwin Hot Springs; all applications in Chico Hot Springs were withdrawn and no study was conducted.

Nevada

To clarify differences in nomenclature between information reported in 1978 and current usage, the following notations are made:

Shoshone, Tonopah, and part of Eureka are now called the Battle Mountain District. The balance of Eureka consists of Railroad Valley and Little Smokey Hot Creek in current usage. Fort Churchill-Clan Alpine corresponds with Stillwater.

Oregon

No information was received on the following areas:

Goose Lake Valley
Mt. Hood
Lava 8-Mile White River
Bull Run
Timber Line Lodge
Clackamas
Indian Heaven (including White Panther)
Fremont
Breitenush
West Breitenbush
McCredie
Sisters
Fort Rock
Cauldera

Utah

No information was received on the Tintic Mountains, Beaver-Fillmore, Markagunt Plateau, Enterprise Planning Unit, and Juab Co. study areas. The latter may be the same as Crater Hot Springs which is on the map.

Washington

Information needed on Green Spirit, Mt. Baker/Snoqualmie, and Okanogan study areas.

Wyoming

There was difficulty in finding sources of information and in sorting out terminology used. Continued efforts will be made to clarify this situation when the maps are updated.