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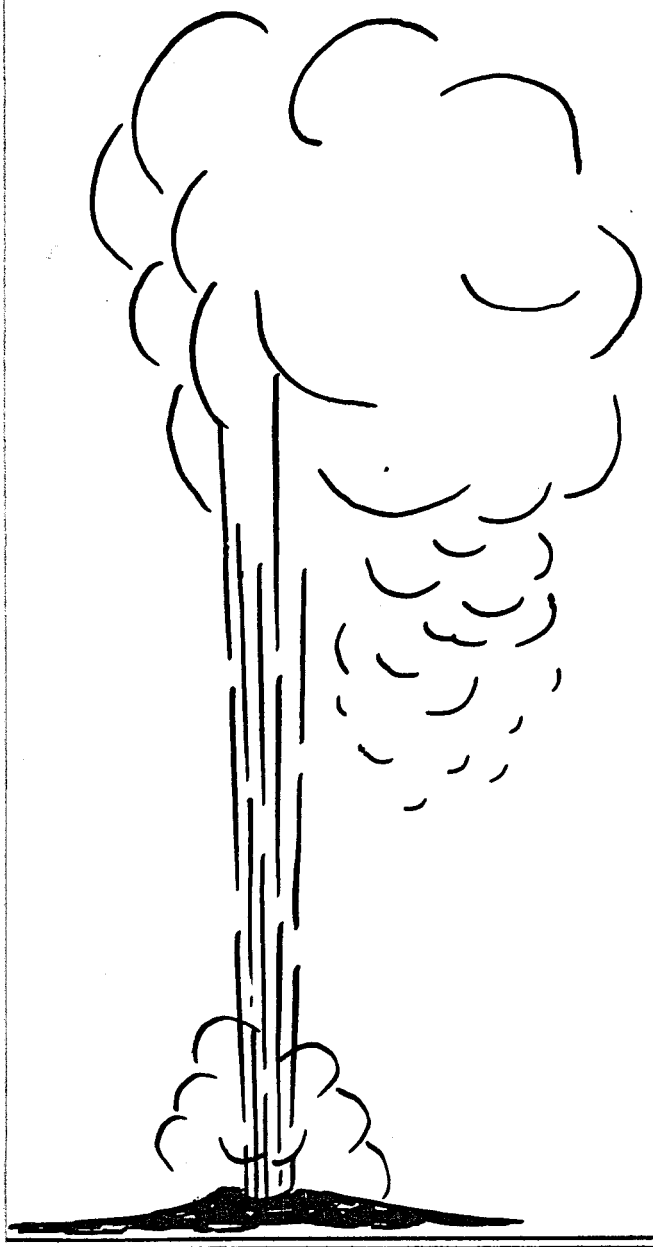

STATISTICAL CHARACTERIZATION OF THE FEDERAL GEOTHERMAL LEASING AND PERMITTING PROGRAM

Final Report, April 18, 1978—January 31, 1979

By
Gene V. Beeland
Judith A. Ludington
Estelle Schumann

January 1979

Work Performed Under Contract No. ET-78-C-01-3114

WAPORA, Inc.
Chevy Chase, Maryland

U. S. DEPARTMENT OF ENERGY
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ABSTRACT

This report documents the ineffectiveness thus far in the Federal geothermal leasing program. Leases have been issued on only 18 percent of non-competitive applications on land under BLM jurisdiction and two percent of applied-for National Forest land. It has taken an average of about two years to get a lease, although the time lapses involved are extremely erratic, and many applications have been pending since January 1974, the first month applications were accepted. Some gradual improvement in BLM performance was demonstrated, however.

Only about 250 competitive leases have been issued on the 50 percent of BLM KGRA acreage and the two percent of KGRA acreage in National Forests which has been offered. The U.S. Geological Survey postlease permitting performance is also non-uniform in timeframes required for approvals. To some extent, this has resulted from stated lessee priority.

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SECTION I

INTRODUCTION

This report characterizes the implementation of the Geothermal Steam Act of 1970 (P.L. 91-581) as of June 1, 1978. It thus describes the performance of the Federal geothermal leasing and post-lease permitting program during its first four and one-half years of operation since regulations authorizing leasing for geothermal development on Federal lands became effective on January 1, 1974.

The statistical description of the program contained herein was used as the basis for the recommendations of the Interagency Geothermal Streamlining Task Force, created to recommend remedial changes in the system to the Interagency Geothermal Coordinating Council. The IGCC is a body established by the Geothermal Energy Research, Development, and Demonstration Act of 1974 (P.L. 93-410) to provide overall leadership to and coordination of the Nation's efforts to utilize this still largely untapped energy resource.

The Council was, in effect, directed by the President in his comprehensive energy message to Congress of April 1977 to effectuate streamlining of the geothermal programs of the Bureau of Land Management (BLM) and the U.S. Geological Survey (GS) in the Department of the Interior and the Forest Service (FS) in the Department of Agriculture. The Task Force was subsequently designated as a working group comprised of personnel of these involved agencies, as well as the Department of Energy, to support the Council in its assignment. The report of the Task Force was submitted to the Council in January 1979.

WAPORA, Inc., was contracted by the Department of Energy, Division of Geothermal Energy, to assist the Task Force and to perform other tasks designed to develop the characterization of the Federal geothermal program summarized in this report. A more comprehensive draft report relating the data analysis to specific preliminary recommendations of the Task Force was presented to the Chairman on November 2, 1978. An interim report detailing only the computer analysis of the non-competitive leasing program was filed on December 2, 1978 and made a part of the final Task Force report.

The purpose of this final contractor report is to summarize in one source volume, available to the public through the National Technical Information Service (NTIS), all of the information developed on all aspects of the Federal program including:

- non-competitive leasing
- competitive leasing
- post-lease permitting
- environmental review

Thus, those who have access to the Task Force report will find duplication between the two. However, all analyses and discussions of the data in this report are the work of WAPORA and do not necessarily reflect the views of the Task Force.

Readers who are not conversant with the various steps involved in the Federal program and the roles of the several implementing agencies are referred to a companion DOE report entitled Geothermal Development on Federal Lands - The Impediments and Potential Solutions. The report, dated January 1978, describes and illustrates the program graphically and is available from NTIS under Accession No. TID-28270. To place the contents of this report in context, however, a brief description of the major program elements is presented here.

Non-competitive applications for geothermal leases may be filed on lands which are not within a known geothermal resource area (KGRA). The first qualified applicant to file for non-KGRA acreage is entitled to a lease upon payment of $1 per acre annual rental and a minimal service charge, subject to rejection of his application for various specified reasons.

Geothermal leases for lands within KGRA's, however, can be obtained only through competitive bidding at bids sometimes ranging up to several hundred dollars per acre. KGRA acreage erroneously included in a non-competitive application will result in rejection of the application, in whole or in part, as the case may be.

The Geothermal Steam Act defines a KGRA as:

> "an area in which the geology, nearby discoveries, competitive interests, or other indicia would, in the opinion of the Secretary (of the Interior), engender a belief in men who are experienced in the subject matter that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose."

The Geological Survey is directed to use specified geologic and technical "evidence" to determine whether the geology of an area is such that it should be designated as a KGRA; an actual discovery is not required. Thirty of the current 107 KGRA's were formed solely on the basis of such evidence.

Forty-seven KGRA's were designated entirely on the basis of "competitive interest," a term which derives from the above definition of a KGRA. The term, as defined in the BLM leasing regulations (43 CFR, 3200.0-5(k)(3)), actually means "competitive overlap" in that the entire acreage covered by a non-competitive lease application is designated a KGRA if at least one-half of the lands are also covered by another application filed during the same 30-day period. Competitive overlap accounts for virtually all KGRA designation today and probably will continue to do so until use technologies are perfected for lower temperature resources.

There is still a third category of 30 KGRA's which embrace both geologic criteria and competitive overlap acreage. In some cases, these resulted from expansion of a geologic criteria KGRA to adjoining acreage through competitive overlap applications. In other instances, overlap applications have spurred geologic investigations which resulted in the designation of adjacent lands as geologic KGRA.

The decision of the land management agencies (BLM and FS) to lease specific land for geothermal development is predicated on the results of an environmental review. This procedure is mandated by the National Environmental Policy Act of 1969 (NEPA)(P.L. 91-190). In the case of competitive leasing, environmental review is completed before a lease sale is held. In some instances, the review may result in the decision not to offer certain acreage for sale because of its environmental sensitivity, or, alternatively, stipulations, or special conditions, applying to all leases issued in the area may be developed. In any event, once a sale is held, leases are awarded to the highest qualified bidders, and their award is not contingent upon further environmental review.

The issuance of non-competitive leases, on the other hand, depends on whether or not the applied-for lands have been subjected to environmental review. If they have not, lease issuance will be delayed until a review permits the same kinds of decisions required in competitive bidding, i.e.,

- lease the lands unconditionally
- no lease
- lease conditionally

This element of the program is a major focus of this report.

Environmental review also plays a large role in post-lease operations. A plan of operation (POO) must be submitted to GS for approval for all activities on leases other than surface exploration and shallow temperature gradient holes which are not covered by a previous plan of operation. GS in turn conducts a site-specific environmental analysis (EA) on each succeeding plan. While the level of detail in the EA may vary depending on the nature of the operation and the depth of wells involved, the sensitivity of the area, and other appropriate considerations, some measure of consideration is required.

SECTION II

CONCLUSIONS

The study upon which this report is based demonstrates that the lapse of three years between passage of the Geothermal Steam Act and promulgation of the regulations* was only the first of many delays in the program. "Hang-ups" were shown to occur throughout the non-competitive, competitive, and post-lease processes.

These delays are, of course, much more frequent and the effects considerably more pronounced in the pre-lease stage because of the relative numbers involved--i.e., over 6000 non-competitive applications have been filed as opposed to 40 plans of operation for post-lease exploratory and development activities which included deep test wells. The pre-lease delays have resulted in:

- leases issued on only 18 percent of applications for land under BLM jurisdiction with an average time lapse of nearly two years before a lease is issued
- Forest Service approval of only two percent of the applications involving National Forest land with an average wait of over two years
- many applications still pending from as far back as January 1974, the first month in which applications were received
- applications backlogged in BLM District Offices and Forest Service custody for over four years
- generally erratic, non-uniform performance in time lapse for various required actions
- postponement of many leasing decisions until well into the 1980's or beyond
- issuance of only about 250 competitive leases

The GS post-lease permitting program is similarly non-uniform in performance, but significant delays do not occur regularly. Due to the low level of activity so far, the timeframe of plan of operation approval and drilling permit issuance is frequently geared to the level of priority expressed by the operator.

* Title 43, CFR, Group 3200 and 30 CFR, Parts 270 and 271.

The one encouraging note disclosed by the data analysis is that the BLM performance is gradually improving. Better performance is demonstrated both in percentage of leases issued and the timeframe required for issuance.

SECTION III

STUDY METHODS USED

Study methods used were tailored to the nature and scope of the data available on each of the major program elements--the non-competitive leasing process, competitive lease sales, post-lease approvals and permitting, and environmental review. The data base establishing the non-competitive record was the only one of sufficient scope to warrant computer analysis. The information on the other system components was handled manually by WAPORA, although the GS computerized data on competitive leasing* were used as a basis for analysis of that element.

The non-competitive data were supplied by the various involved BLM State Offices and Forest Service Regional Offices responsible for that agency's consultation on applications involving lands under Forest Service jurisdiction. The states covered include:

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

The purpose of the data collection, sponsored by the Streamlining Task Force, was to identify and quantify the sources of delay in the Federal geothermal non-competitive leasing process. Two types of information were assembled to support this objective. They include statistical data on:

- the movement of non-competitive applications through the leasing process
- the status of the environmental review process

The first of these data bases consists of the date on which the initial action in the process, lease application, occurred, and the dates of completion of each subsequent action. This approach 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 investigated are itemized in Table 1. These steps formed the basis of the first portion of a uniform data sheet supplied to all appropriate BLM and Forest Service offices in the states listed in Section I.

*Bidding History of the Competitive Geothermal Lease Sales on Federal Land, U.S. Geological Survey, Menlo Park, California.

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.

Complete data--information on all non-competitive lease applications filed--were requested from most offices. However, due to the large number of applications filed in five offices, a selection of only one in ten applications was requested. These offices include BLM and the Forest Service in Idaho, and BLM in Nevada, New Mexico, and Utah.

A second sheet of the data format was designed to gather information on size and land ownership of study areas designated to be covered by one environmental analysis record (EAR) or environmental impact statement (EIS); acreage already reviewed, acreage under review, and acreage yet to be reviewed; and the effect of special studies such as those required by the Wilderness Act of 1964 (P.L. 88-577). This kind of information is expected to be complete from all reporting offices.

COMPUTER ANALYSIS OF LEASING PROCESS TIMEFRAMES

As the data files were received at WAPORA, they were examined for consistency with the uniform format. Where misinterpretations were apparent, corrections were requested, and, if necessary, the data file was returned for revision.

Further discrepancies and errors in the data were isolated by the computer. Coding or keypunch errors were corrected by checking against the BLM/FS submission; remaining errors in the data submitted were referred to the appropriate office where the information was checked against the Serial Register page. The Serial Register is the BLM filing system where applications are first logged in and assigned the serial number which they maintain throughout their journey through the process.

In one instance, it was necessary to develop a data file for a Forest Service office which maintained that its files were not organized for easy access and that staff was not available to collect the information. WAPORA personnel and a Task Force member utilized a GS computer printout of pre-lease history,* BLM information on study areas, and National Forest maps to develop the data base. It was possible in this case because of relatively little movement of applications beyond the initial step in the process.

Even though BLM is the leasing agency in that it receives all applications and issues all leases, the statistical data relating to applications falling solely within BLM jurisdiction were handled separately from those involving Forest Service land. This is in accordance with the customary recordkeeping practice in both BLM and GS. Thus, all discussions and tabulations will be divided between "BLM applications" and "FS applications," expressions which are in effect misnomers, but which provide an easy means of distinction.

*U.S. 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.

The applications involving Forest Service land were initially entered into the computer twice. This duplication was necessary since information is needed from both BLM as the leasing agency and the Forest Service as the consulting agency in order to develop a complete record on Forest Service applications. In fact, it is only the time lapse between transmittal of the application by the BLM State Office to the Forest Service and its return that the Forest Service effect on the system is clearly identified. Although the Forest Service may influence the length of time involved in stipulation review, that influence can be inferred only on the basis that it is a Forest Service application.

The duplication was eventually eliminated by sorting the file by state and Serial Register number to identify duplications and combine the records. Where Forest Service data disagreed with the BLM data, the Forest Service data were preferred. In most cases, the discrepancies appeared to result from clerical error or a time lag in BLM recording of a Forest Service action. None of the discrepancies was particularly significant and would not affect the general outcome of the analysis.

The determination of time intervals was relatively straightforward. The dates on which the milestones occurred were converted to the number of days elapsed from December 31, 1969. The converted "dates" were then subtracted from one another and divided by seven to determine the interval to weeks. A partial week is rounded.

In order to identify the applications which were still pending at the end of the data collection period (approximately June 1, 1978) and to determine at which step they had stopped and for how long they were pending in that status, it was first determined whether there was a final dispositon of the application. Final disposition included total withdrawal, total rejection, or lease issuance. The dates given were then checked in reverse order until the last occurring milestone was located. The "pending" actions thus indicate how long an application has been waiting for the next milestone to occur.

In some cases, intermediate dates were not given. For instance, some records showed only application and lease issuance dates. Others showed two non-consecutive milestones occurring but did not show the intermediate date. There was no way to recover useful data for the intermediate intervals so they could not be analyzed. Because of this situation, and because only partial data were collected from some offices, the number of applications shown in both the tables and histograms do not represent the actual number of applications which have gone through any particular step in the process.

This situation is not critical in the statistical analysis since "all" data have not been provided for any office. The "universe" which this study is designed to characterize includes all applications which have been filed and all which will be filed in the future and, in that sense, the data collected are samples drawn from the universe for each office. It is therefore important to remember that the results for the offices which provided all data are not necessarily better or more reliable than for the offices which provided partial data.

In order to support this assertion, a set of statistical tests were performed to determine whether the data collected were sufficient to make reasonable estimates of the true means of program performance. These tests were designed to determine confidence levels for all of the means for each state and agency and each step in the leasing process.

Confidence intervals are based on: 1) the standard deviation of the data: 2) the number of data points; and 3) the probability interval selected. For this set of tests, a probability interval of 80 percent was selected which means that the probability is 80 percent that the true mean for any step is within the defined interval. The statistic Student's t--a function of the number of samples minus one, the degree of freedom, and the chosen probability interval--was used in the confidence interval calculations. For an 80 percent confidence interval, the t statistic is between 1.372 and 1.282 for degrees of freedom between 10 and infinity. The formula for calculating the confidence interval is:

$$\text{True Mean} = \text{Calculated Mean} \pm t \ \frac{\text{std dev}}{n}$$

In this formula, t is a function of n--the number of samples--as described above. The standard deviation is equal to the square root of the sum of the squares of the difference between the sample values and the mean value of all the samples divided by the degree of freedom. The standard deviation should remain constant regardless of the sample size if the sampling is truly random. Since the t value varies very little over a wide range and the standard deviation is relatively fixed, the only variable is n. By increasing n, the confidence interval can be narrowed. However, the confidence interval varies as the square root of n. Therefore, doubling the sample size narrows the confidence interval by a factor of about 0.707.

The tests showed that the confidence interval of the data used in this report is about ± 10 percent of the average. It is felt that this is sufficient accuracy to serve the purposes of this analysis.

The 1-in-10 data did, however, inhibit "mini" studies within the data. The primary effect was that activities in those five offices could not be presented in comparisons where absolute numbers were involved--leases issued, rejected, or withdrawn--since actual numbers were not known. It is not possible to derive them by multiplication since random selection did not select out a proportionate balance of all actions in all cases. In the overall statistical results, the chance of over- or under-emergence of one action in one instance is counterbalanced by the same chance for over- or under-distribution of another action. But, the use of absolute numbers developed from this size sample was prohibited. This effect was especially pronounced at the study area, or micro, level as opposed to the entire state.

SECTION IV

QUANTIFICATION OF DELAYS IN THE GEOTHERMAL NON-COMPETITIVE LEASING PROGRAM

This section confirms that long delays occur in the leasing process between the filing of a non-competitive application and the final disposition of it, and that overall performance is erratic and non-uniform. In addition, the data quantify and rank the delays occurring at each stage of the process and illustrate the effect of withdrawals on the system.

Performance at each stage is measured in several ways. The first major 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 is "In Process" and "Still Pending."

The next breakdown is by average and median times in process or pending. "Average," as used in the tables, means the result derived by dividing the total number of weeks all applications represented in the tabulation were in process, or have been pending, by the number of applications. "Median" means the mid-point between an equal number of longer and shorter timeframes.

Performance is also measured by the percent of total applications which have reached the specified stage and have been acted upon, as well as the percent of those which have reached the stage and are still pending there.

All of the above measurements are put into perspective by the number of applications analyzed. These figures are shown in the last column of all the tables as separate composite totals for BLM and the Forest Service and totals by state and agency. It is to be remembered that 100 percent of the total applications filed were not analyzed, as discussed previously, because 1) only partial data were obtained from five offices, and 2) gaps in data resulted in computer rejection of some records. The five offices are asterisked throughout the tabulations.

Even within the total data analyzed, the "percent" columns do not necessarily add to 100 percent. The most common reason for this is the large number of withdrawals which occur prior to the various process steps analysed. Another reason is that a large number of applications have been rejected before they were transmitted from the BLM State Office to the BLM District Office or the Forest Service, the second step shown in Table 1. Thus, for example, only 49 percent of the total BLM applications analyzed are shown as transmitted, but when withdrawals and

rejections which occurred ahead of this action are taken into account, 100 percent will be approximated.

SOURCES OF DELAY

Table 2, which is a summary of overall or composite BLM and Forest Service performance at all stages in the non-competitive leasing process, shows that the major critical delay in the process is generally, although not in all states, encountered during the period when the BLM District Office and/or the Forest Service is considering the application. This is Step 3 as described in Table 1.

Not only do the actual average and median timeframes in process at this stage--60 and 81 weeks and 55 and 48 weeks for BLM and FS respectively--greatly exceed the significant lags elsewhere in the process, but the "still pending" numbers are of greater significance. More BLM applications are still pending than have been acted upon--22 percent to 16 percent respectively--and the percentage of FS applications which has not completed Step 3 is six times the percentage which has been processed through.

It must be remembered that these pending percentages could be considerably higher if large numbers of applications had not been withdrawn shortly after they were filed and did not remain in the system. For example, in California, 99 applications, or 28 percent of the 357 BLM applications filed in January, 1974, the first month of the leasing program under the Geothermal Steam Act of 1970, were withdrawn within a year, many of them within six months or less. Fifty-six, or 34 percent, of the California Forest Service applications filed the same month were similarly withdrawn during the same period. The effect of withdrawal is discussed in more detail below.

The finding that the greatest significant delay arises at the BLM District Office/Forest Service consideration stage was not unexpected. As described in Table 1, it is at this point that 1) the application is subjected to environmental review if the acreage involved is not already covered by a review considered to be adequately up-to-date; 2) decisions are made as to whether the land should be leased and, if so, under what conditions; and 3) special stipulations are formulated if they are needed. (Special stipulations are limitations attached to leases to provide for special treatment of all or some portion of the land--to protect an endangered species, for example.) These considerations constitute the "heart" of the leasing process. The timeframes involved in pre-lease environmental review are the subject of a subsequent section of this report.

Table 2 shows that the next greatest overall source of delay of major significance is the time lapse which occurs between Steps 1 and 2--i.e., the date of application and transmittal by the BLM State Office to the appropriate BLM District Office or to the Forest Service, although again this is not true in all states.

TABLE 2

COMPOSITE SUMMARY OF STEP-BY-STEP DELAYS IN GEOTHERMAL PROGRAM

(See Table 1 for explanation of steps.)

Time Lapse	Average No. of Weeks				Median No. of Weeks				Percent of Total Applications*			
	In Process		Still Pending		In Process		Still Pending		Acted Upon		Still Pending	
	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS
Between Steps 1 and 2	36	24	109	126	9	2	45	131	44	73	5	4
In Step 3	60	81	105	159	55	48	90	181	16	7	22	42
Between Steps 3 and 4	18	20	112	49	11	13	122	35	11	2	1	4
In Step 5	4	5	73	8	3	3	51	8	12	1	<1	< 1
Between Steps 5 and 6	12	9	29	180	10	4	22	180	10	1	1	< 1
Between Steps 6 and 7:												
Lease Issuance	5	18	110	176	4	3	47	170	13	2	<1	< 8
Rejection	117	29			117	29			<1	< 1		

*Total BLM applications = 1560
Total FS applications = 1743

The variations indicated between transmittal of BLM and Forest Service applications are probably anomalies in the data since no reason was established to explain a difference. Nor can any one specific reason be advanced for average delays of 24 to 36 weeks before the application is sent on its way. Interaction between manpower availability and priority in its use may often be the major factor. Apathy or other less-than-constructive attitudes are known to influence activity at this stage in isolated instances.

The percentage of applications which are still pending in the BLM State Offices which have never been transmitted is quite small--four to five percent--but they have been "hung up" in this status for many months. A potential reason is that the land involved is subject to negotiation for withdrawal for other Federal or state purposes, which, if they prevail, would preclude development of the resource under the Geothermal Steam Act. In other cases, the acreage lies in special study areas such as those for determining wilderness priorities and these applications may be held in status quo for extended periods.

The next most significant delay in the leasing program is encountered after the District/Forest Service returns the application to the BLM State Office and that office transmits the application to GS for stipulation review. This dormant period is significantly larger--an average of four to five months--than the time generally required for the review itself, which in the large majority of cases occurs in about one month.

The timeframe between stipulation review and clearlisting--Steps 5 and 6 in Table 1--shown in the tabulations in this analysis includes the time utilized by BLM in preparing the lease, mailing it to the applicant for signature, returning to BLM, and, finally, clearlisting by GS. Thus, the time element for clearlisting alone, which involves only a quick check of appropriate maps to determine whether any of the acreage covered by the lease is on KGRA land, is somewhat obscured.

The timeframe between clearlisting and lease issuance when BLM and FS applications are considered together--and there is no reason to suggest that leases for Forest Service lands would take longer as the data suggest--adds an average of about three months to the entire process. The average and median lag between clearlisting and rejection of applications at this later point--presumably because the clearlisting procedure showed KGRA lands involved--is the longest of all. However, since it involves less than one percent of all applications, it was not considered significant.

The following discussions of the characteristics of the program by agency and by state follow a step-by-step progression through the process, as outlined in Table 1, in contrast to the above discussion in which the steps were considered in descending order of magnitude or significance of delay.

TIME LAPSE BETWEEN DATE OF APPLICATION AND TRANSMITTAL TO BLM DISTRICT/FOREST SERVICE

The time lag between the date of application and transmittal to the District/Forest Service is shown in Table 3 to be considerable in most states, and, as noted above, represents the second greatest overall source of delay. However, the Oregon BLM State Office has demonstrated that processing and transmitting applications can be accomplished consistently within one week. In Figures 1 and 2, which show the distribution of time lapses occurring in that office at this stage of the process, all of the transmittals shown as taking place within the first 10 weeks actually occurred within one week, and less than one percent of the applications submitted were awaiting action beyond that timeframe.

This performance represents one of the few examples of uniformity in a generally erratic pattern as illustrated by the California BLM State Office performance in transmitting applications shown in Figure 3. Periods for transmittal range from 10 weeks for five applications up to 190 weeks for two applications, although it is the many peaks in between which illustrate non-uniformity most clearly.

Table 3 shows that only six percent of the California BLM applications are still pending without transmittal for an average of 86 weeks and a median of 35 weeks. However, six applications have been held at this point for up to 240 weeks as shown in Figure 3. Of the two percent of California FS applications still pending, the average time lapse is 36 weeks and the median is 13 weeks, although the maximum goes up to 190 weeks.

Non-uniformity is also observed in the transmittal of applications to the Forest Service in Idaho as illustrated in Figure 4. Although long delays of up to 50, 60, and 70 weeks have occurred, the system there does not appear quite so erratic as in California.

In order to clarify the composite information given in Table 3, Figures 5 and 6 were prepared to illustrate why the median time lapses are shorter than the averages. A total of 360 BLM applications were sent to the Districts within the first ten-week interval, and 851 FS applications were dispatched to the Forest Service within the same timeframe. These fast processing times skew the median to nine and two weeks for BLM and FS applications, respectively, as compared to averages of 36 and 24 weeks. Figures 5 and 6 also show that applications still pending at the state offices are not usually clumped, which could indicate a similar processing problem, but are evenly distributed between 10 and 240 weeks for BLM applications, and 10 and 250 weeks for FS applications.

TIME LAPSE FOR BLM DISTRICT OFFICE/FOREST SERVICE CONSIDERATION OF APPLICATION

Table 4 and Figures 7 and 8 show that in the overall, composite record, Forest Service processing time at this critical stage in the leasing process is on the average considerably longer than BLM District

TABLE 3

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

Agency	Av. No. of Weeks		Median No. of Weeks		Percent of Total Applications		Total Applications
Composite	In Process	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	
BLM	36	109	9	45	44	5	1560
FS	24	126	2	131	73	4	1743
Arizona							
BLM	17	--	14	--	53	0	58
FS	13	--	5	--	82	0	68
California							
BLM	87	86	92	35	33	6	615
FS	105	36	246	13	38	2	410
Colorado							
BLM	11	227	9	224	35	4	127
FS	11	--	10	--	100	0	38
Idaho							
BLM*	35	97	36	27	43	18	106
FS*	41	131	48	131	42	17	255
Montana							
BLM	15	231	15	231	41	6	34
FS	14	--	16	--	62	0	53
Nevada**							
New Mexico							
BLM*	56	213	48	170	81	4	70
FS	145	--	107	--	79	0	34
Washington & Oregon							
BLM	1	224	1	224	94	<1	269
FS	1	--	1	--	98	0	739
Utah							
BLM*	32	179	20	127	52	3	54
FS	26	211	14	228	16	28	99
Wyoming							
BLM	18	--	4	--	18	0	93
FS	6	--	6	--	98	0	38

* 1 in 10 data.

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

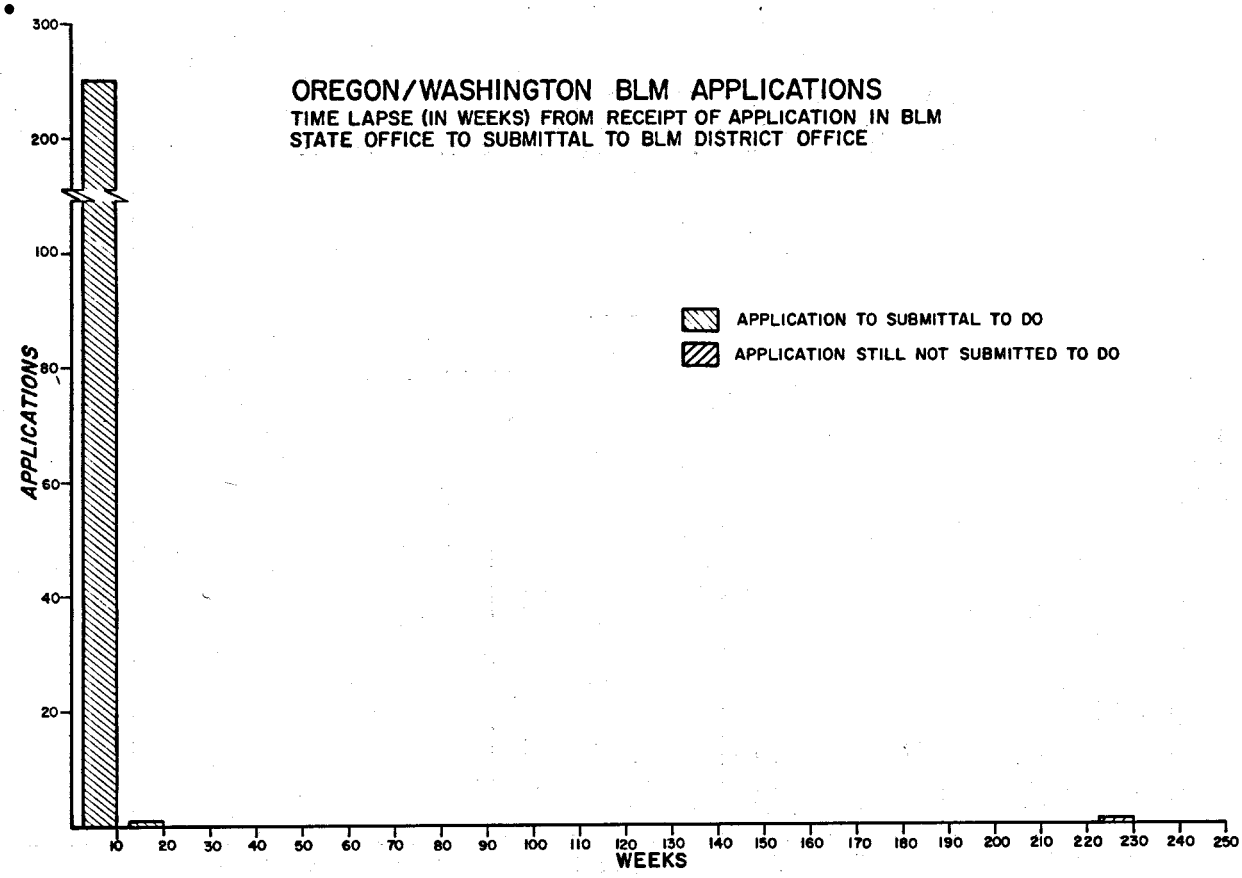

FIGURE 1

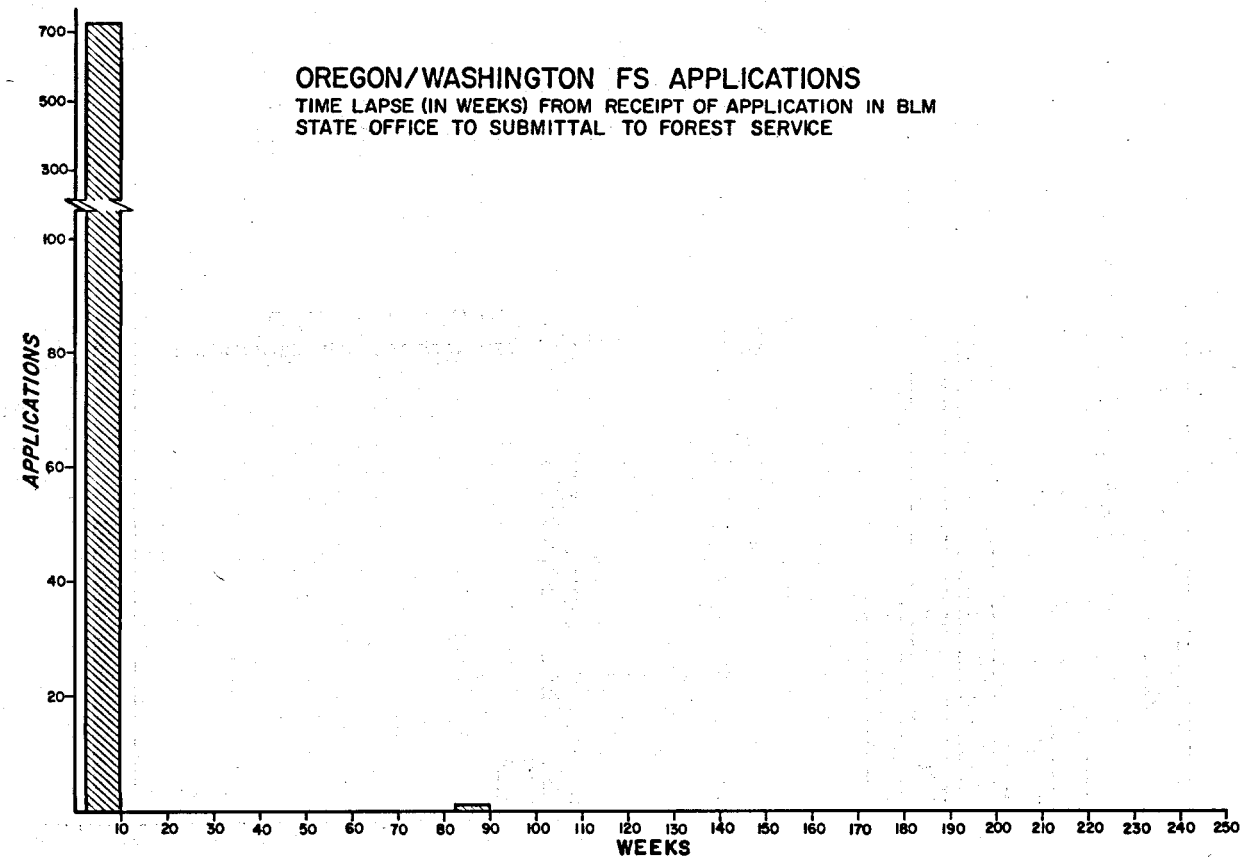

FIGURE 2

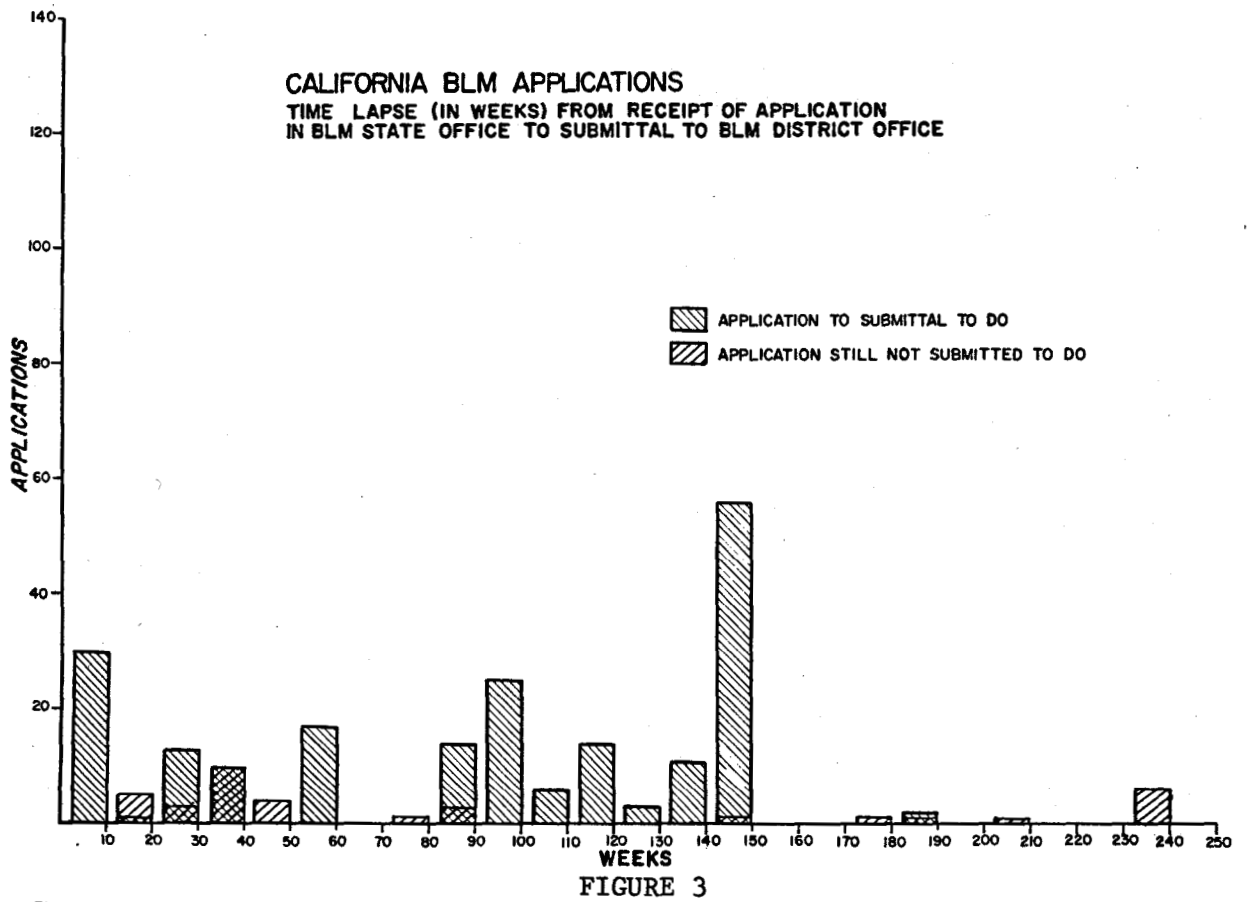

FIGURE 3

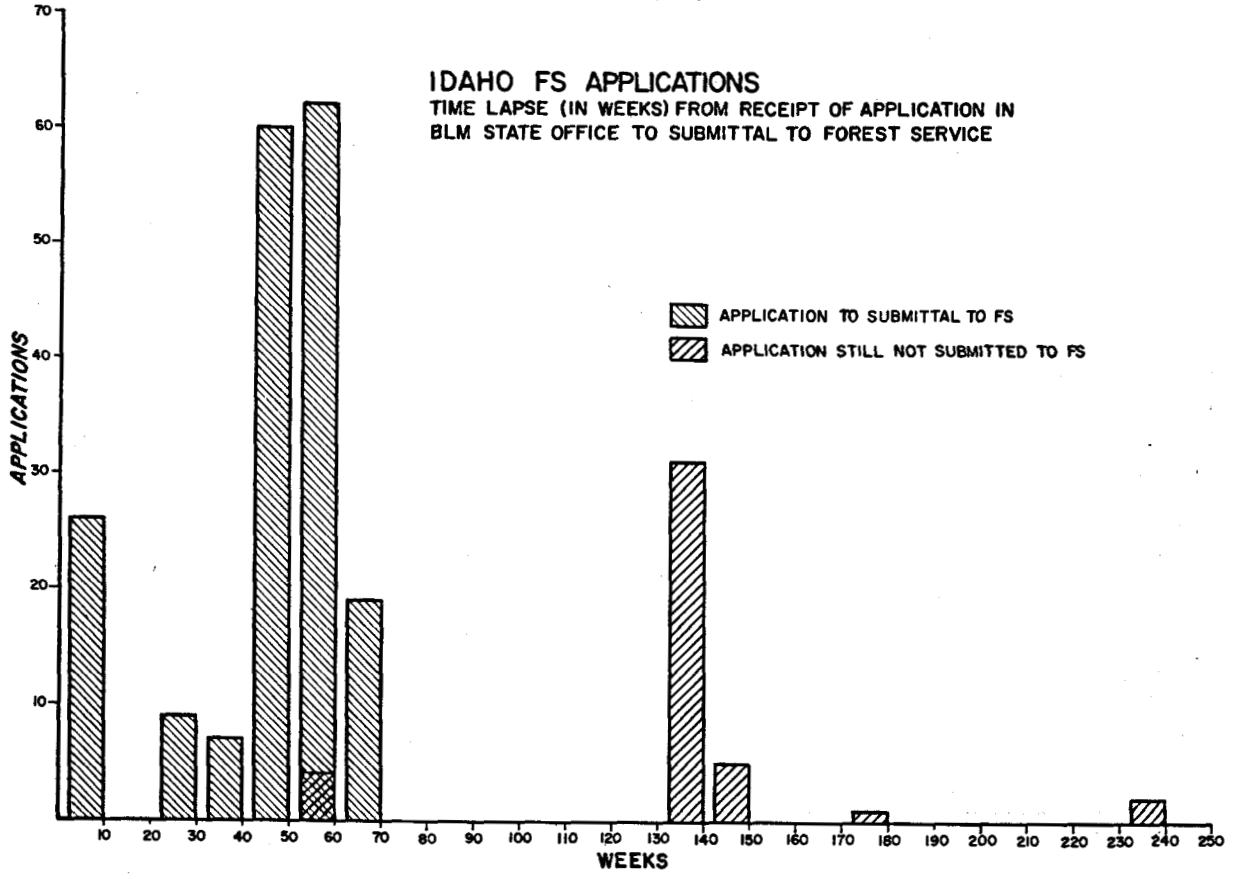

FIGURE 4

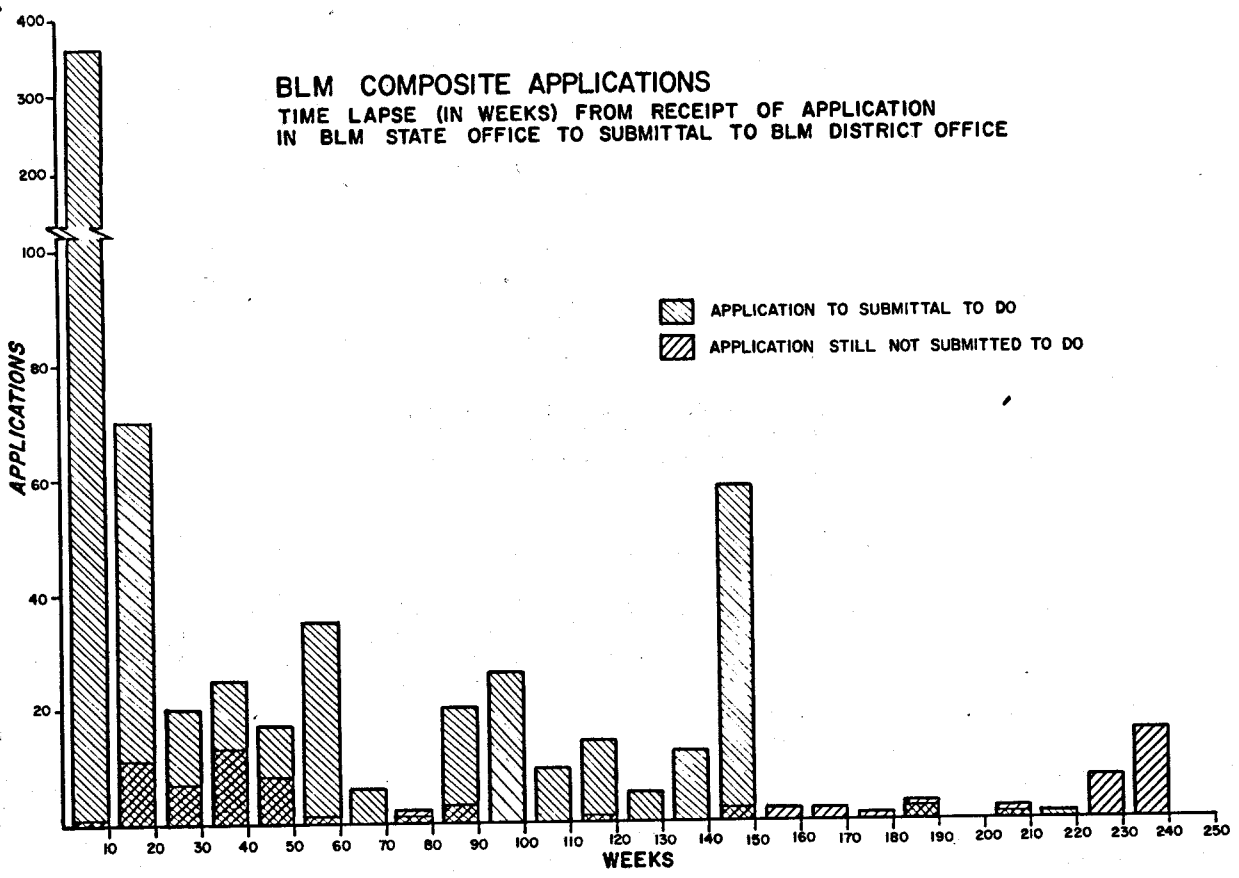

FIGURE 5

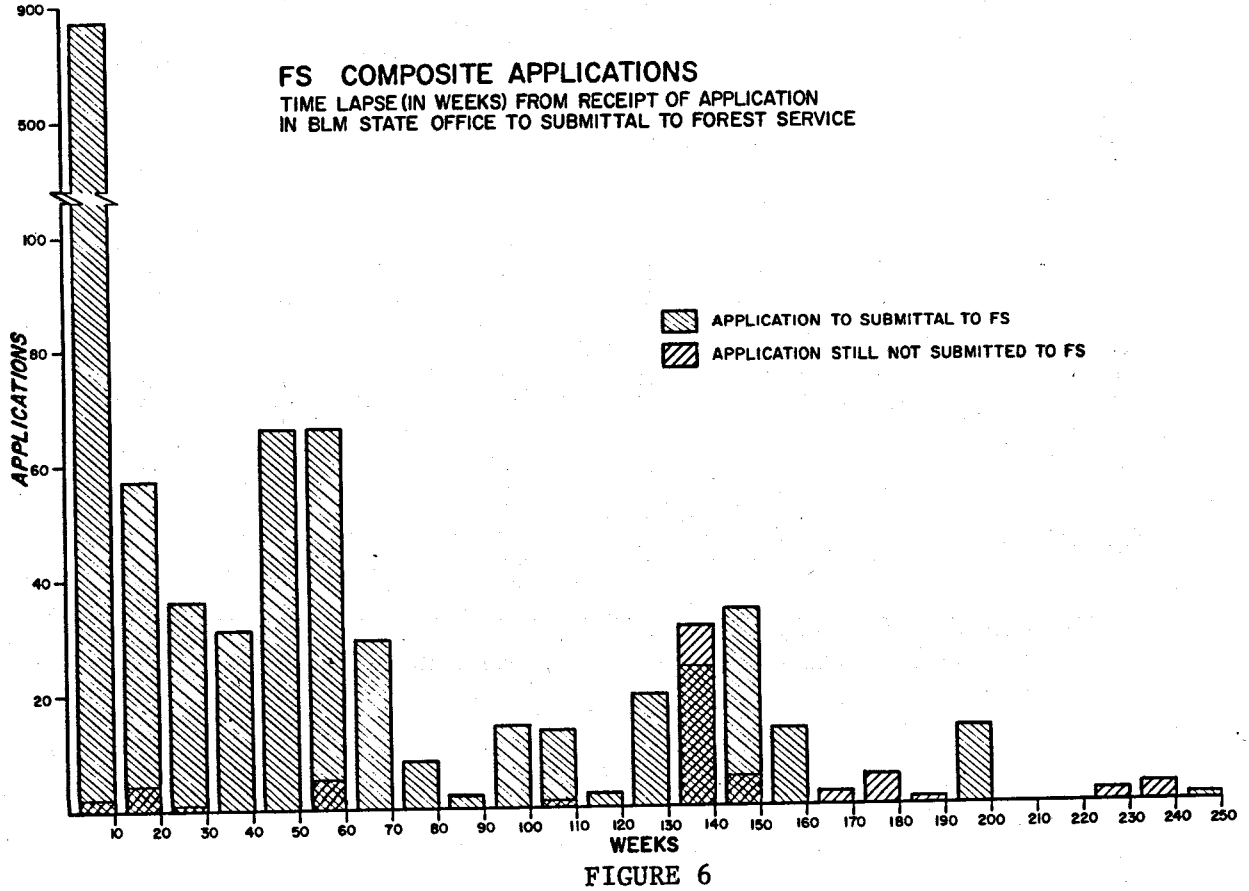

FIGURE 6

TABLE 4

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

Agency	Average No. of Weeks		Median No. of Weeks		Percent of Total Application		Total Applications
Composite	In Process	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	
BLM	60	105	55	90	16	22	1560
FS	81	159	48	181	7	42	1743
Arizona							
BLM	49	95	53	59	7	33	58
FS	53	81	53	35	1	81	68
California							
BLM	43	81	43	88	<1	32	615
FS	81	56	81	88	<1	12	410
Colorado							
BLM	60	166	57	166	21	1	127
FS	92	210	61	211	32	50	38
Idaho							
BLM*	45	54	32	48	24	16	106
FS*	--	161	--	179	0	65	255
Montana							
BLM	82	--	94	--	21	0	34
FS	--	212	--	212	0	4	53
Nevada **							
New Mexico							
BLM*	32	49	37	15	73	7	70
FS	16	144	13	144	47	29	34
Washington & Oregon							
BLM	81	171	82	178	43	35	269
FS	127	181	99	227	7	54	739
Utah							
BLM*	26	76	11	61	44	7	54
FS	32	119	19	100	11	5	99
Wyoming							
BLM	--	84	--	84	0	8	93
FS	58	135	33	125	23	50	38

* 1 in 10 data.

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

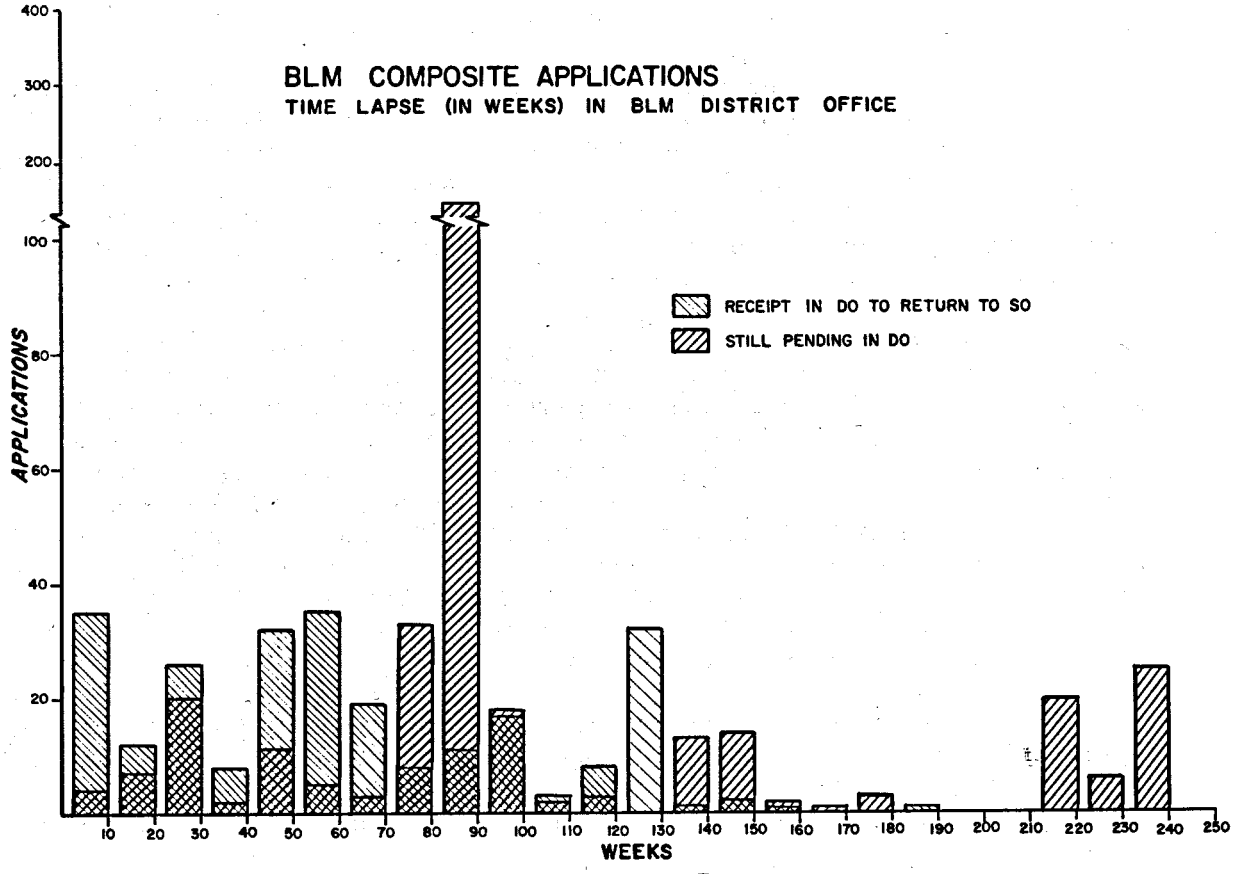

FIGURE 7

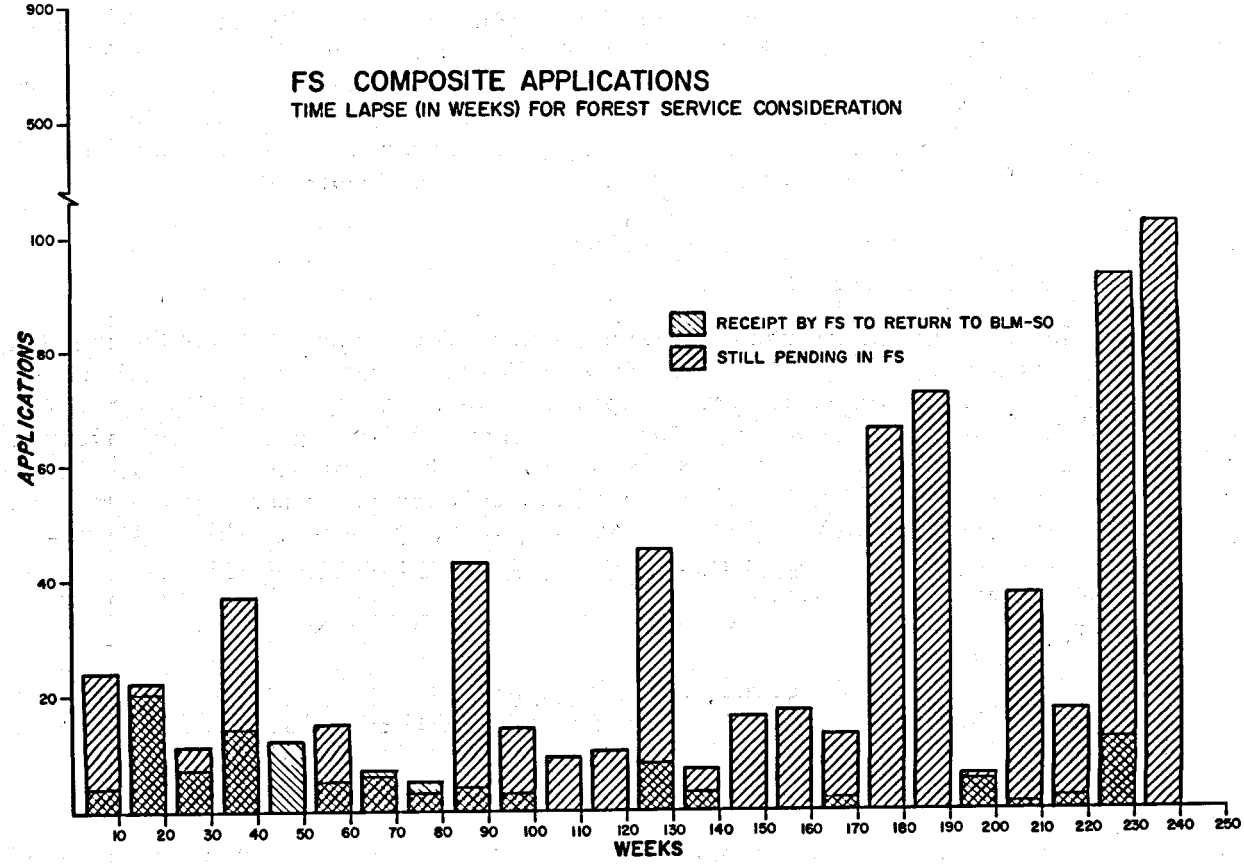

FIGURE 8

Office performance, although the difference is less acute in the median. However, the most significant overall performance difference is in percent of applications still pending--42 percent for the Forest Service as opposed to 22 percent for BLM. This means that nearly half of the Forest Service applications filed have never progressed beyond this stage of the process, which is especially high in light of the fact that over 30 percent of the applications filed have been withdrawn.

The percentage of Forest Service applications pending at this stage in some states is even higher than the composite. In Idaho, for example, the data indicate that 65 percent of the FS applications filed are still "hung up" in Forest Service consideration, with 54 percent of Oregon/Washington applications and 50 percent in Wyoming in the same status. While the California Forest Service shows only 12 percent still pending, it must be remembered that only 38 percent of total applications filed were ever transmitted to the Forest Service, due to withdrawals and rejections in the BLM State Office, and that in fact only one California Forest Service application has ever emerged from its custody, taking 81 weeks to do so.

BLM performance in California, illustrated in Figure 9, is not appreciably different. Only one application out of 200 sent to the District Office has returned to the State Office, taking 43 weeks. The other 199 applications have been pending at the District for an average of 81 weeks.

Figure 10 illustrates that large numbers of Oregon/Washington Forest Service applications have been pending at this stage for more than 200 weeks and Table 4 indicates an average pending time for all applications of 181 weeks. The Oregon BLM District Office record, shown in Figure 11, also indicates pending times in excess of 200 weeks, although the number in this category, 18 percent, is less than the 37 percent of Forest Service applications shown in Figure 10.

TIME LAPSE IN BLM STATE OFFICE PRIOR TO GS STIPULATION REVIEW

The time which elapses between return of the application to the BLM State Office from the District/Forest Service and its submittal to GS for stipulation review is not as appreciable as that involved in the two foregoing steps. However, Table 5 shows that an average overall turn-around time does add 18-20 weeks to the entire process. This period is essentially "dead" time since this is not commonly a decision point in the process. It is not a point, however, where there is widespread hang-up since only a few of the applications returned to the BLM State Office are still pending there. This factor is illustrated in Figures 12 and 13.

Figure 13 also serves to underscore the large number of Forest Service applications which have never reached this point in the process.

TIME LAPSE FOR STIPULATION REVIEW

In view of the importance of this step to the timely processing of

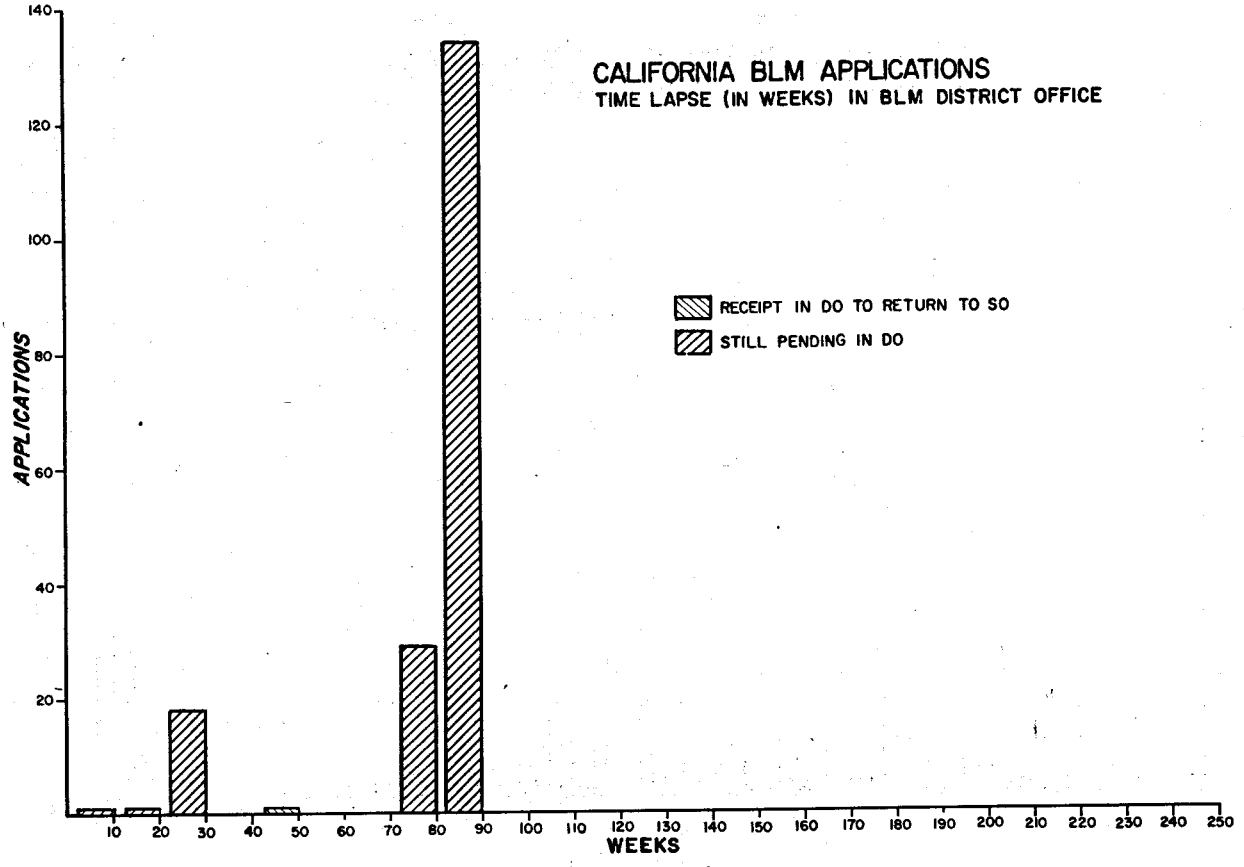

FIGURE 9

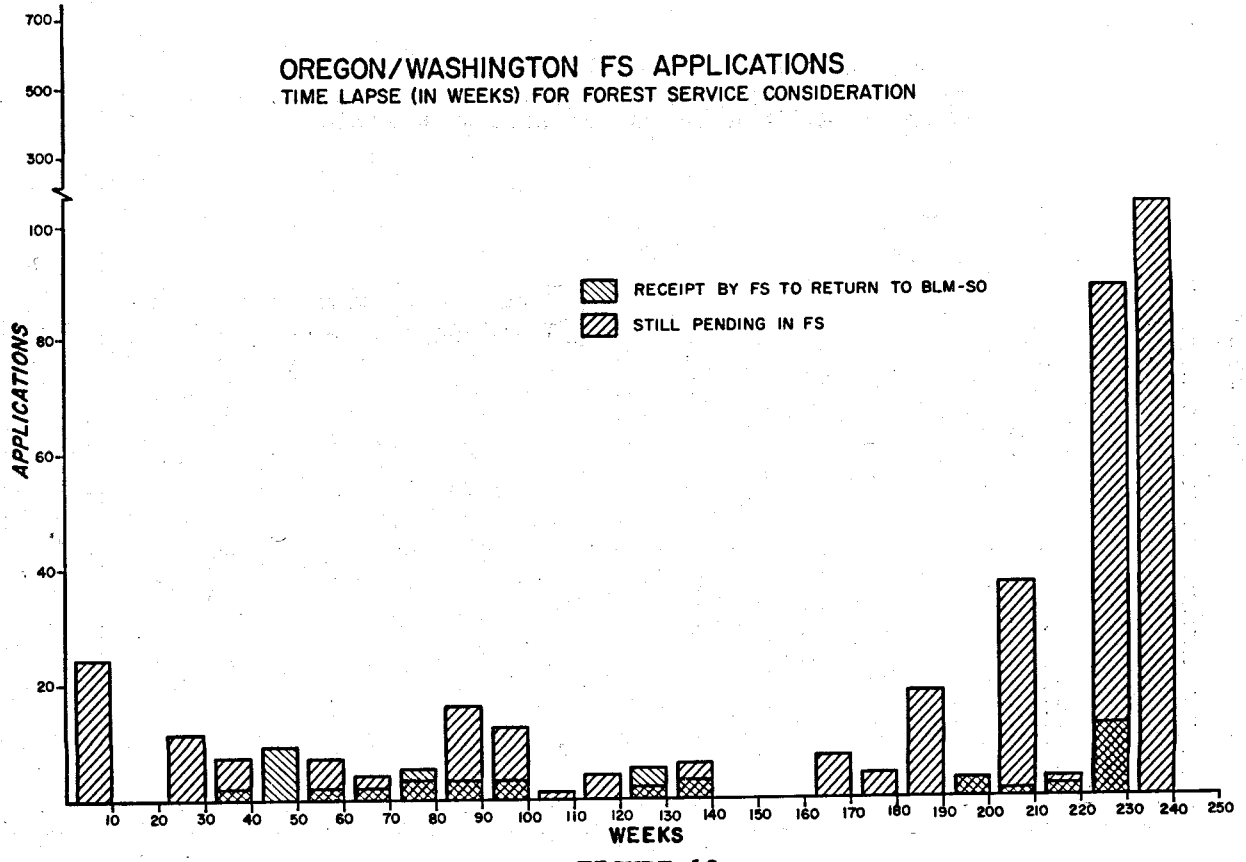

FIGURE 10

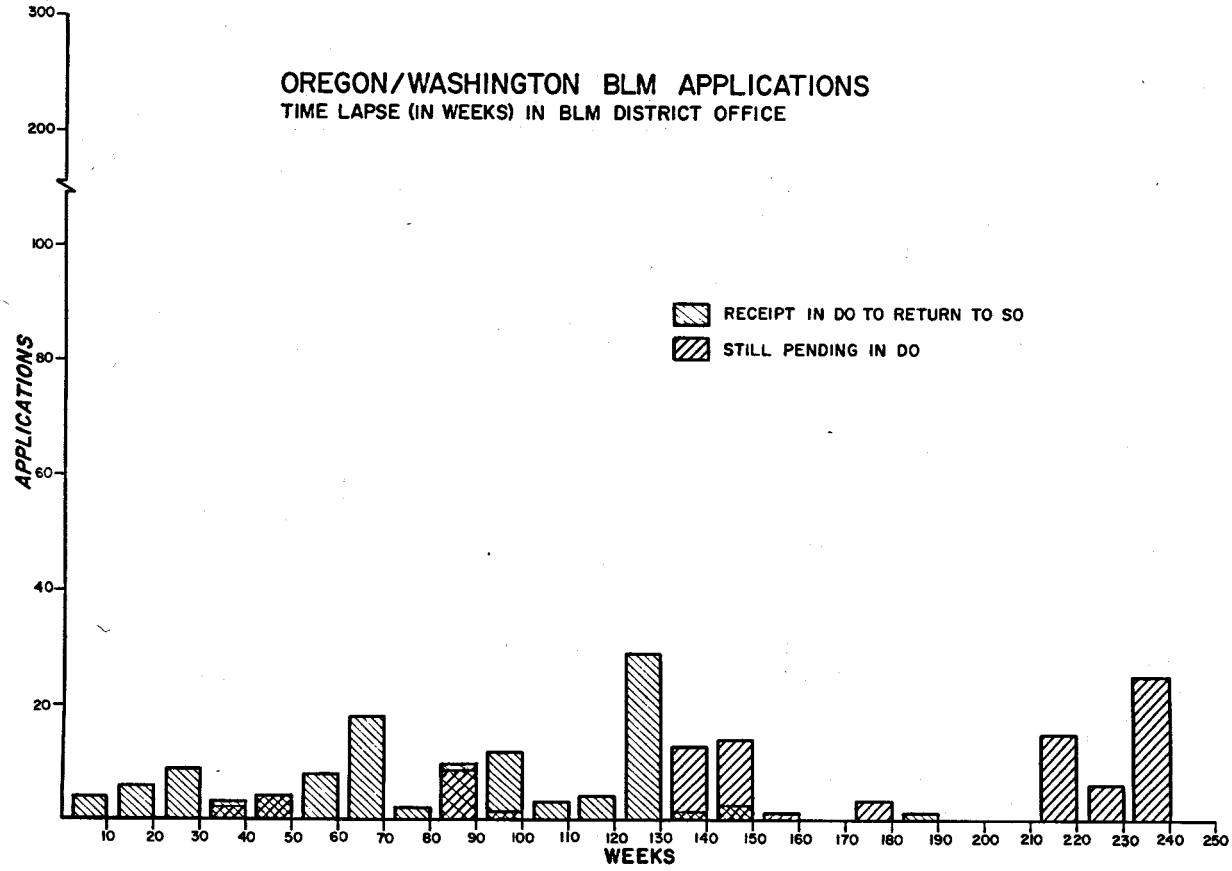

FIGURE 11

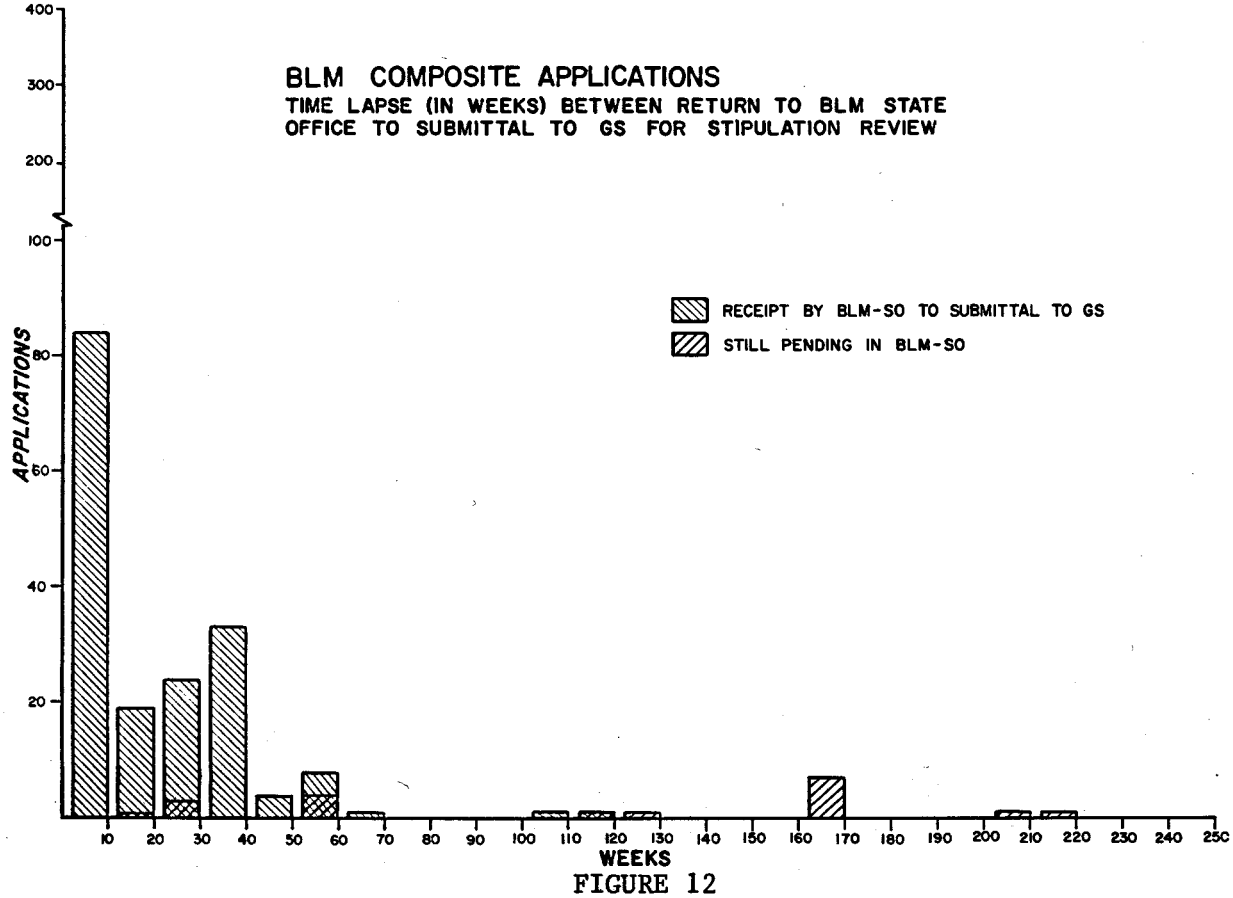

FIGURE 12

TABLE 5

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

Agency	Average No. of Weeks In Process	Average No. of Weeks Still Pending	Median No. of Weeks In Process	Median No. of Weeks Still Pending	Percent of Total Applications Acted Upon	Percent of Total Applications Still Pending	Total Applications
Composite							
BLM	18	112	11	122	11	1	1560
FS	20	49	13	35	2	4	1743
Arizona							
BLM	7	--	5	--	5	0	58
FS	9	--	9	--	1	0	68
California							
BLM	--	--	--	--	0	0	615
FS	--	--	--	--	0	0	410
Colorado							
BLM	9	176	4	164	14	6	127
FS	9	144	10	160	11	21	38
Idaho							
BLM*	22	94	26	18	11	2	106
FS*	--	28	--	28	0	1	255
Montana							
BLM	14	--	16	--	21	0	34
FS	--	--	--	--	--	0	53
Nevada**							
New Mexico							
BLM*	13	65	3	28	67	7	70
FS	--	21	--	25	0	47	34
Oregon & Washington							
BLM	26	83	31	51	29	2	269
FS	22	34	13	35	2	3	739
Utah							
BLM*	13	56	6	48	24	4	54
FS	1	57	1	57	1	8	99
Wyoming							
BLM	--	--	--	--	0	0	93
FS	41	--	37	--	11	0	38

* 1 in 10 data.
** Nevada data omitted on this step because of procedural differences.

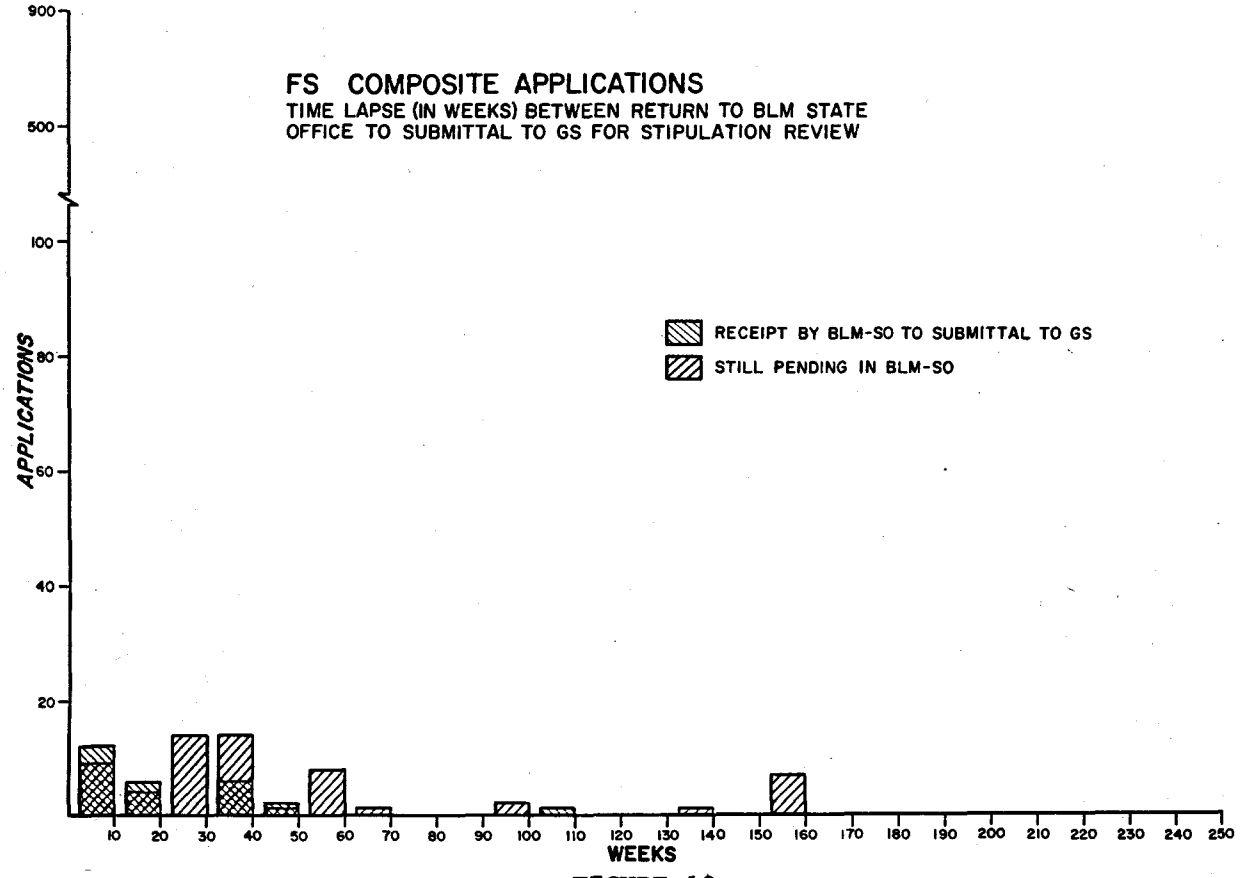

FIGURE 13

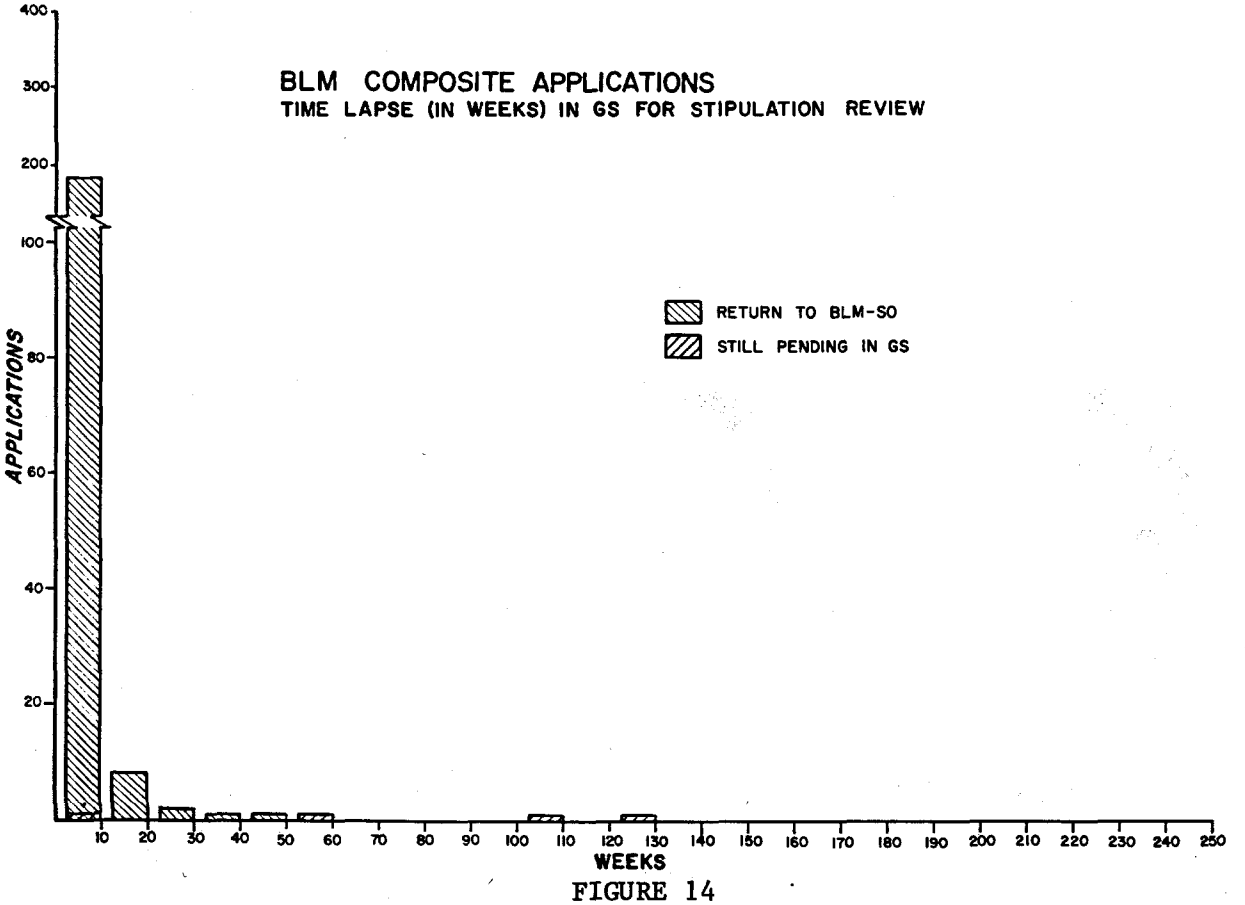

FIGURE 14

non-competitive applications, it is especially interesting to observe that it is most frequently handled in a very expeditious manner. Table 6 shows an average turn-around time of four to five weeks and, equally importantly, less than one percent sent to GS are still pending there as illustrated in Figures 14 and 15. This relative handful of applications apparently represents situations where agreement between the surface management agency and GS has been very difficult to reach in cases where more extreme environmental sensitivity of the applied-for acreage is involved.

It will be noted that as the leasing process proceeds, smaller and smaller numbers of applications are involved in each succeeding step. The hang-ups in previous steps take their toll, and, as noted above, withdrawals and rejections all throughout the process continue to reduce the number.

TIME LAPSE BETWEEN STIPULATION REVIEW AND CLEARLISTING

Since the BLM State Office is responsible for forwarding all applications to GS for clearlisting, it cannot be explained why the data in Table 7 show some variation in timeframes for clearlisting between BLM and FS applications, as is true at other steps discussed above. Some consideration was given to combining the two sets of data at these points, but it was decided to retain the separate format and let the data stand as they were submitted.

In any event, since the timeframes shown in Table 7 also include BLM preparation of the lease and mailing to the applicant for signature and return, the delay in this program element does not appear particularly significant. However, it should be noted that clearlisting itself involves less than half a man-day so that any time measured in weeks attributable to this step is dead in-out time, and is not spent in the function itself.

This step is not a major point of hang-up since virtually all applications submitted for clearlisting have cleared this step as shown in Table 7 and Figures 16 and 17. The figures show that the actual numbers of applications still pending at this point are insignificant.

TIME LAPSE BETWEEN CLEARLISTING AND FINAL DISPOSITION OF THE APPLICATION

Again, it is not understood why variations in time lag occur between the handling of BLM and FS applications since BLM issues or formally rejects all leases. However, the data set forth in Table 8 are accurate representations of the information submitted.

When clearlisting results in lease issuance, the overall composite time lapse is five to 18 weeks. This step involves administrative handling only since all decisions have been made.

Some offices show better performance than the composite average in lease issuance. The Arizona BLM State Office has issued all leases within one week; Utah reports one to four weeks; and in Wyoming two

TABLE 6

TIME LAPSE (IN WEEKS) FOR GS STIPULATION REVIEW
(See Step 5, Table 1)

Agency	Average No. of Weeks		Median No. of Weeks		Percent of Total Applications		Total Applications
	In Process	Still Pending	In Process	Still Pending	Acted Upon	Still Pending	
Composite							
BLM	4	73	3	51	12	<1	1560
FS	5	8	3	8	1	<1	1743
Arizona							
BLM	2	--	1	--	5	0	58
FS	1	--	1	--	1	0	68
California							
BLM	--	--	--	--	0	0	615
FS	--	--	--	--	0	0	410
Colorado							
BLM	3	--	4	--	13	0	127
FS	4	8	4	8	0	5	38
Idaho							
BLM*	4	51	3	51	10	1	106
FS*	--	--	--	--	0	0	255
Montana							
BLM	4	--	4	--	21	0	34
FS	--	--	--	--	0	0	53
Nevada**							
New Mexico							
BLM*	3	--	4	--	67	0	70
FS	--	--	--	--	0	0	34
Oregon & Washington							
BLM	5	117	3	106	37	1	269
FS	5	--	3	--	2	0	739
Utah							
BLM*	2	8	2	8	22	2	54
FS	2	--	2	--	1	0	99
Wyoming							
BLM	--	--	--	--	0	0	93
FS	7	--	7	--	11	0	38

* 1 in 10 data.
**Nevada data omitted on this step because of procedural differences.

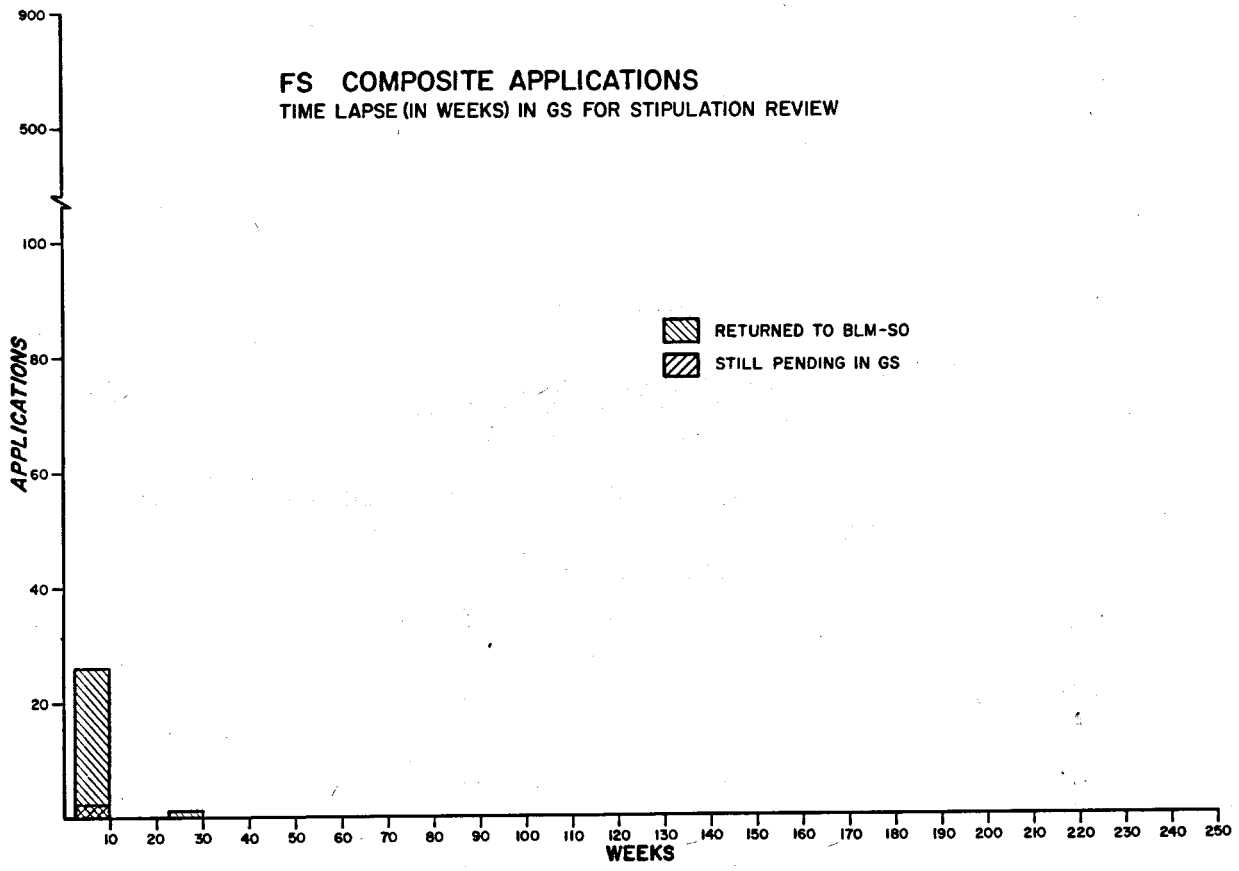

FIGURE 15

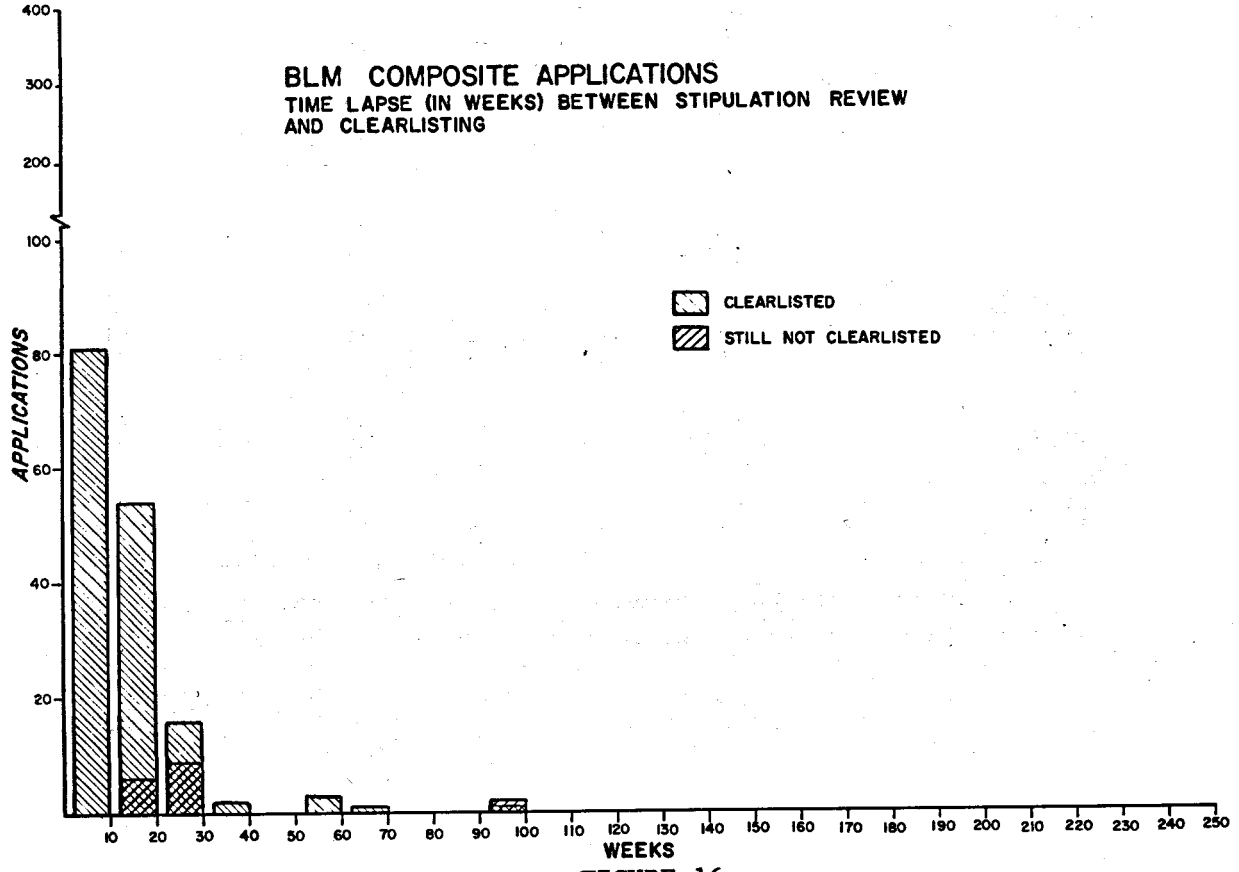

FIGURE 16

TABLE 7

TIME LAPSE (IN WEEKS) BETWEEN STIPULATION REVIEW AND CLEARLISTING
(See Step 6, Table 1)

Agency	Av. No. of Weeks		Median No. of Weeks		Percent of Total Applications		Total Applications
Composite							
BLM	12	29	10	22	10	1	1560
FS	9	180	4	180	1	<1	1743
Arizona							
BLM	1	--	1	--	3	0	58
FS	1	--	1	--	1	0	68
California							
BLM	--	--	--	--	0	0	615
FS	--	--	--	--	0	0	410
Colorado							
BLM	9	--	13	--	9	0	127
FS	1	--	1	--	11	0	38
Idaho							
BLM*	16	15	8	15	9	1	106
FS*	--	--	--	--	0	0	255
Montana							
BLM	21	--	21	--	3	0	34
FS	--	180	--	180	0	2	53
Nevada**							
New Mexico							
BLM*	10	97	14	97	57	3	70
FS	--	--	--	--	0	0	34
Oregon & Washington							
BLM	13	20	11	22	31	5	269
FS	11	34	4	35	2	3	739
Utah							
BLM*	5	--	2	--	20	0	54
FS	23	--	23	--	1	0	99
Wyoming							
BLM	--	--	--	--	0	0	93
FS	15	--	14	--	11	0	38

* 1 in 10 data.
**Nevada data omitted on this step because of procedural differences.

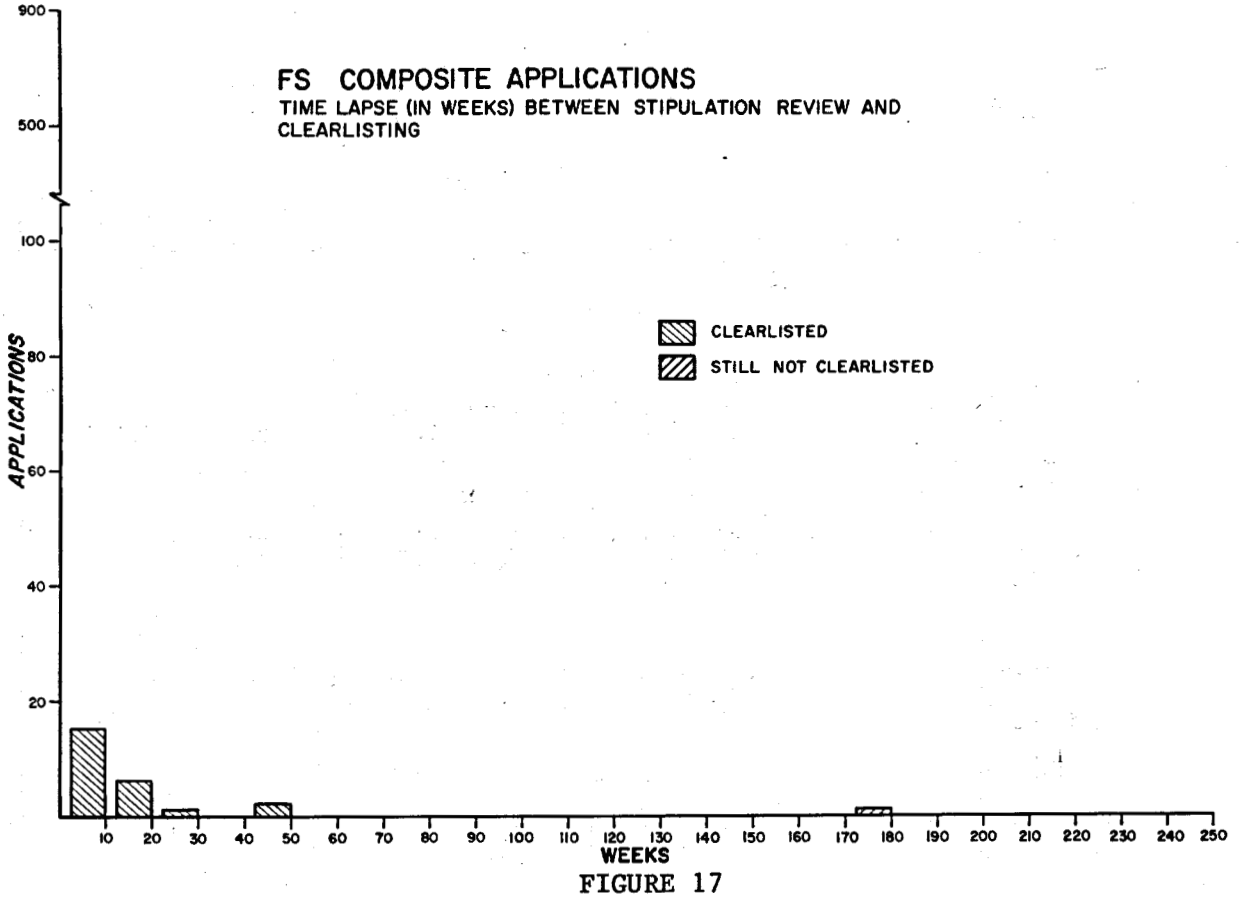

FIGURE 17

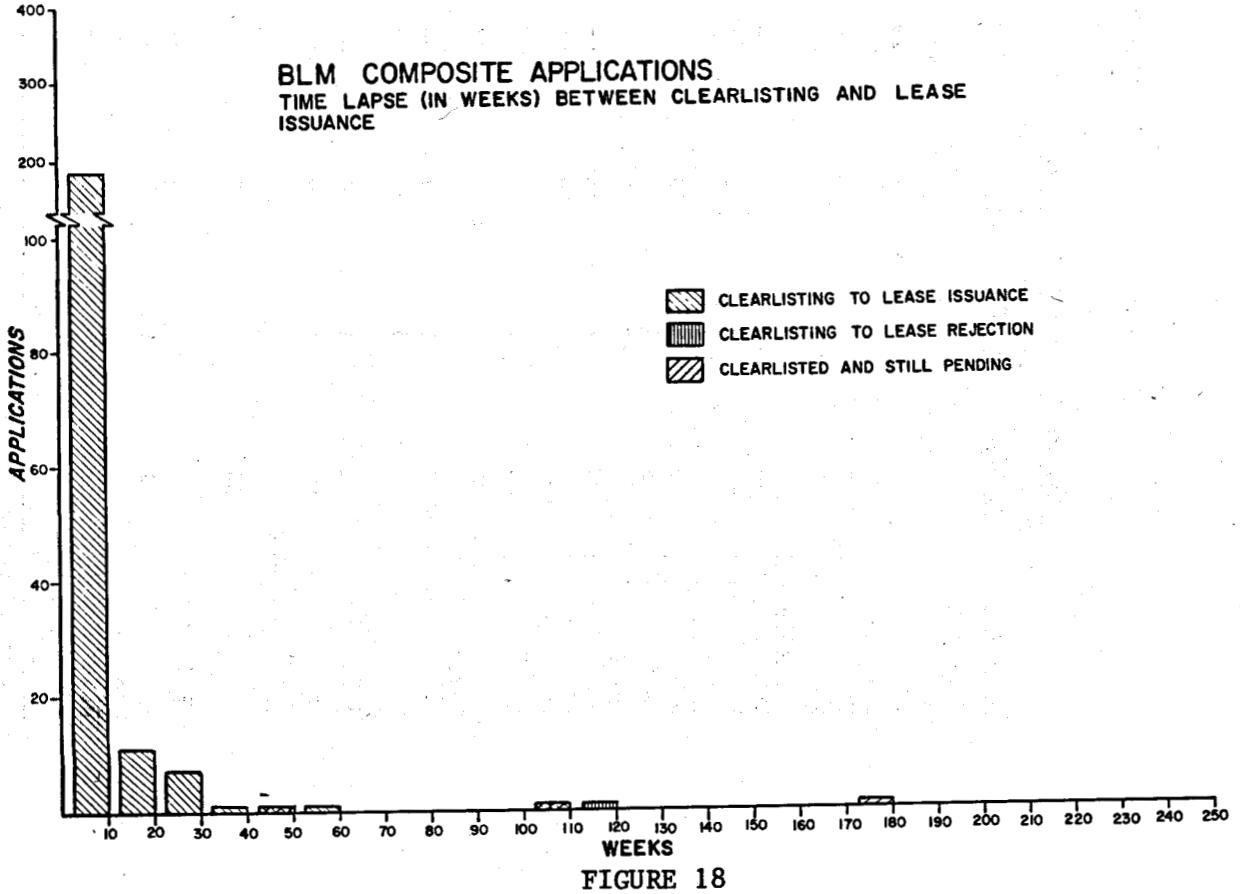

FIGURE 18

TABLE 8

TIME LAPSE (IN WEEKS) BETWEEN CLEARLISTING AND LEASE ISSUANCE/REJECTION
(See Step 7, Table 1)

AGENCY	CLEARLIST TO LEASE ISSUANCE			CLEARLIST TO REJECTION			CLEARLISTED AND STILL PENDING			Total Appls.
	Average # of Wks.	Median # of Wks.	% of Total Appls.	Average # of Wks.	Median # of Wks.	% of Total Appls.	Average # of Wks.	Median # of Wks.	% of Total Appls.	
Composite										
BLM	5	4	13	117	117	<1	110	47	<1	1560
FS	18	3	2	29	29	<1	176	170	8	1743
Arizona										
BLM	1	1	3	--	--	0	--	--	0	58
FS	1	1	1	--	--	0	--	--	0	68
California										
BLM	--	--	0	--	--	0	--	--	0	615
FS	--	--	0	29	29	<1	177	170	25	410
Colorado										
BLM	2	2	13	--	--	0	--	--	0	127
FS	5	5	11	--	--	0	--	--	0	38
Idaho										
BLM*	7	7	13	--	--	0	47	47	1	106
FS*	--	--	0	--	--	0	--	--	0	255
Montana										
BLM	--	--	0	117	117	3	180	180	3	34
FS	--	--	0	--	--	0	183	180	25	53
Nevada										
BLM*	5	5	33	--	--	0	172	172	1	143
FS	9	3	44	--	--	0	118	86	33	9
New Mexico										
BLM*	4	3	30	--	--	0	--	--	0	70
FS	--	--	0	--	--	0	--	--	0	34
Oregon & Wash.										
BLM	6	3	33	--	--	0	103	103	<1	269
FS	34	6	2	--	--	0	174	173	2	739
Utah										
BLM*	4	3	39	--	--	0	--	--	0	54
FS	1	1	3	--	--	0	--	--	0	99
Wyoming										
BLM	--	--	0	--	--	0	--	--	0	93
FS	2	1	11	--	--	0	--	--	0	38

* 1 in 10 data.

weeks is average. However, among these states the number of leases issued is significant only in Utah and the number handled by the others is minimal.

The average composite timeframe from clearlisting to lease for Forest Service applictions is pushed up significantly by the 34 weeks reported for Forest Service applications in Oregon and Washington. This is somewhat of an artificial elevation since only 14 applications are involved, one of which took an unusually long 106 weeks for lease issuance.

The composite timeframes for clearlisting to lease issuance are graphed in Figures 18 and 19 which also show the timeframes from clearlisting to rejection.

In one case when clearlisting divulged that the lease could not be issued, the BLM State Office in California waited for 29 weeks before rejecting an FS application, and in Montana, 117 weeks elapsed before rejection of a BLM application. State Offices have also had relatively large percentages of applictions clearlisted by GS on which they have taken no final action. Twenty-five percent of the California FS applications (or 101 applications) have been pending a median of 177 weeks since clearlisting. A total of 28 percent of all applications submitted in Montana (or 14 applications) have been pending in this status a median of 180 weeks. Only three Nevada FS applications have been awaiting final action for a 118-week median after clearlisting, but this is 33 percent of the nine applications submitted.

TIME LAPSE FROM DATE OF APPLICATION TO FINAL DISPOSITION

The above discussions illustrate how each step in the leasing process contributes to the total processing time. This discussion looks at the total time lapse from date of application to final disposition of it--lease issuance, rejection, or withdrawal by the applicant. These timeframes are shown in Table 9 which amply demonstrates the long delays in obtaining a lease, receiving notification of rejection, the frequency of inaction on applications, and the general non-uniformity of the system. The table also suggests the effect of withdrawals.

The average period for obtaining a lease on lands under BLM jurisdiction is 97 weeks, or slightly less than two years, with leases issued on only 18 percent of applications, and 30 percent still pending. The average wait for a lease on Forest Service land is 111 weeks, or nearly two years and two months, with leases issued on two percent of applications, and 56 percent still pending. The frequency distribution of the timeframes for BLM leases is shown in Figure 20 and that for Forest Service leases is illustrated in Figure 21.

BLM performance on non-competitive lease issuance in California is demonstrated in Figure 22, and BLM and Forest Service leasing performance in Oregon/Washington are compared in Figures 23 and 24. In the other offices where a significant number of applications have been filed, BLM has issued leases on 36 percent of applications in Nevada, 60 percent in New Mexico, and 48 percent in Utah. Only 10 percent of BLM

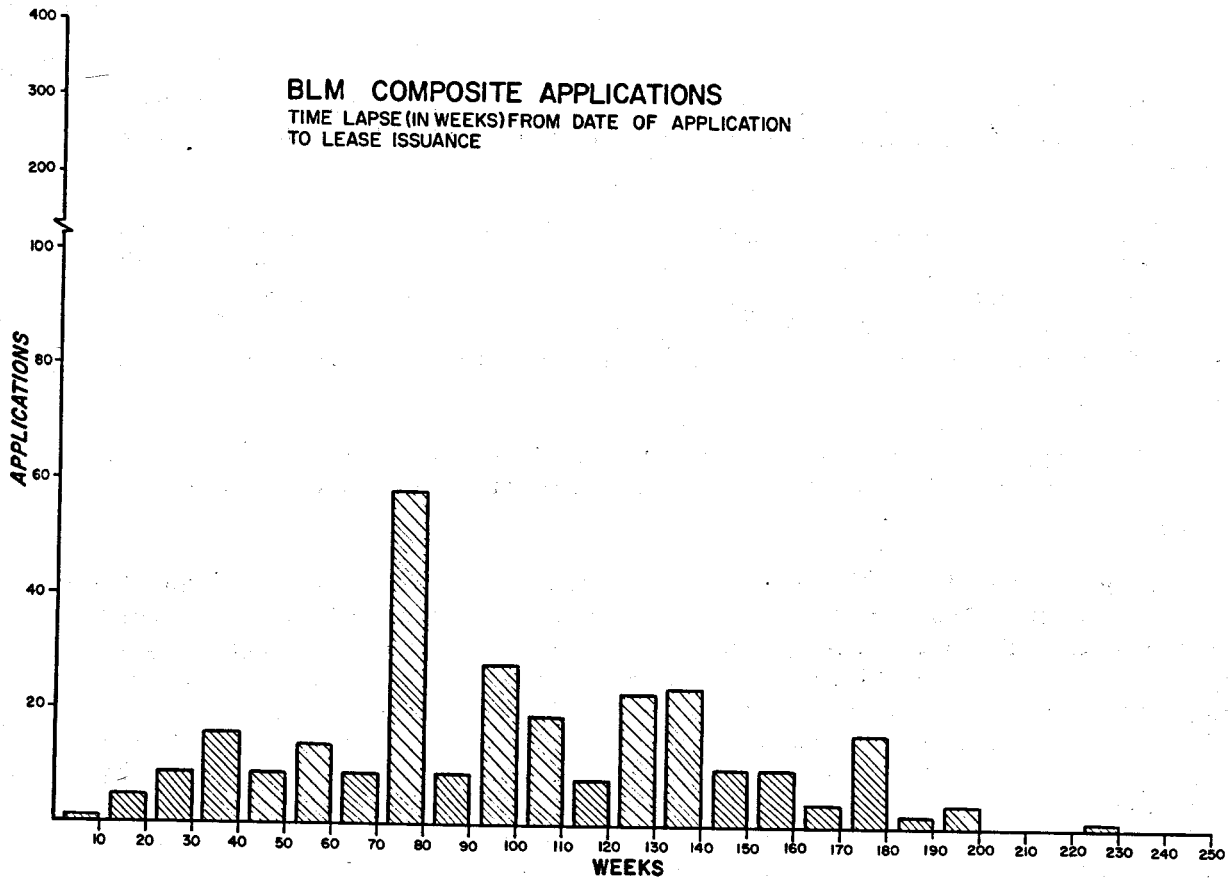

FIGURE 19

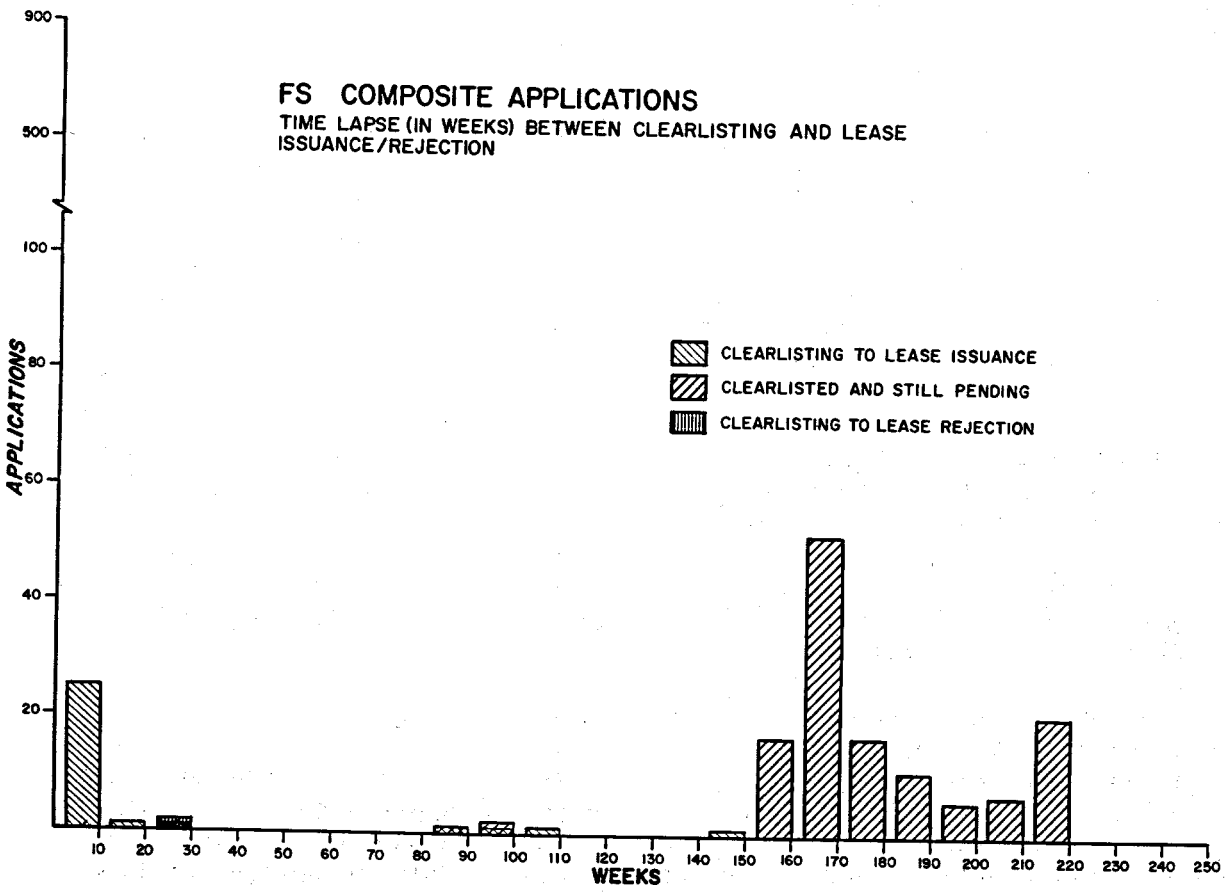

FIGURE 20

TABLE 9

TIME LAPSE (IN WEEKS) FROM DATE OF APPLICATION TO WITHDRAWAL OF APPLICATION, LEASE ISSUANCE, OR TO LEASE REJECTION

AGENCY	APPLICATION TO WITHDRAWAL			APPLICATION TO LEASE ISSUANCE			APPLICATION TO REJECTION			% OF TOTAL APPLS. PENDING	TOTAL APPLS.
	Average # of Wks.	Median # of Wks.	% of Total Appls.	Average # of Wks.	Median # of Wks.	% of Total Appls.	Average # of Wks.	Median # of Wks.	% of Total Appls.		
Composite											
BLM	54	51	35	97	94	18	40	21	16	30	1560
FS	62	50	32	111	97	2	35	21	9	56	1743
Arizona											
BLM	69	76	17	77	74	5	18	20	47	33	58
FS	12	12	7	79	79	1	27	27	10	81	68
California											
BLM	53	52	39	111	91	2	39	22	23	38	615
FS	54	48	52	--	--	0	36	21	11	39	410
Colorado											
BLM	56	5	57	96	96	22	37	16	5	10	127
FS	110	104	11	94	92	13	--	--	0	76	38
Idaho											
BLM*	49	39	30	98	91	16	52	42	15	39	106
FS*	75	50	16	145	100	1	44	4	1	83	255
Montana											
BLM	118	107	24	134	134	18	14	4	50	9	34
FS	99	128	38	--	--	0	7	4	40	31	53
Nevada											
BLM*	48	47	41	63	60	36	41	25	13	10	143
FS	--	--	0	92	74	56	--	--	0	44	9
New Mexico											
BLM*	153	145	10	94	74	60	119	122	10	21	70
FS	9	9	21	28	28	3	--	--	0	76	34
Oregon & Wash.											
BLM	108	110	16	118	123	36	93	70	5	44	269
FS	68	51	30	128	140	2	45	22	9	60	739
Utah											
BLM*	38	36	13	85	75	48	25	15	24	17	54
FS	73	79	40	97	84	6	34	14	3	41	99
Wyoming											
BLM	14	6	92	--	--	0	--	--	0	8	93
FS	19	5	34[a]	124	109	11	75	40	18	50	38

* 1 in 10 data.

[a] Includes 5 applications which were totally rejected then withdrawn 3 weeks later.

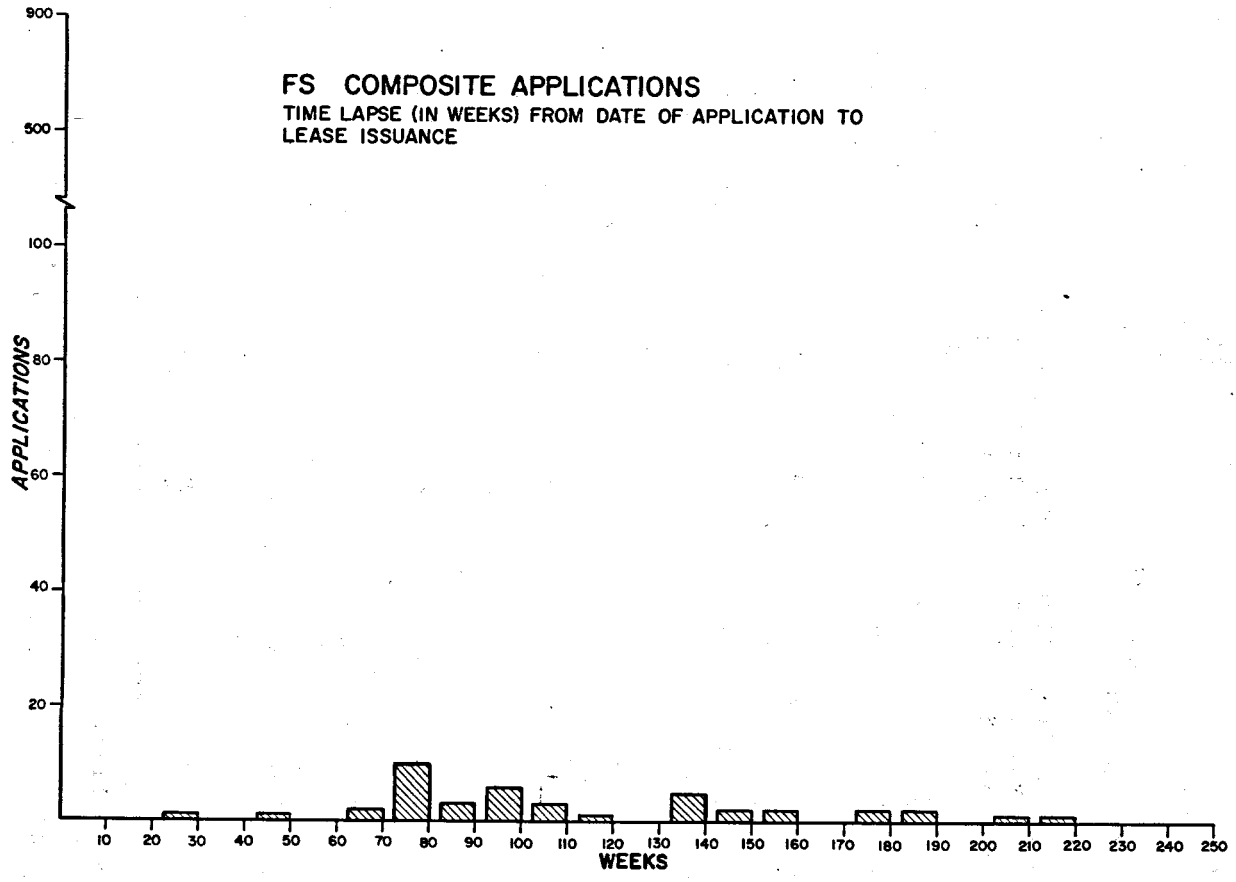

FIGURE 21

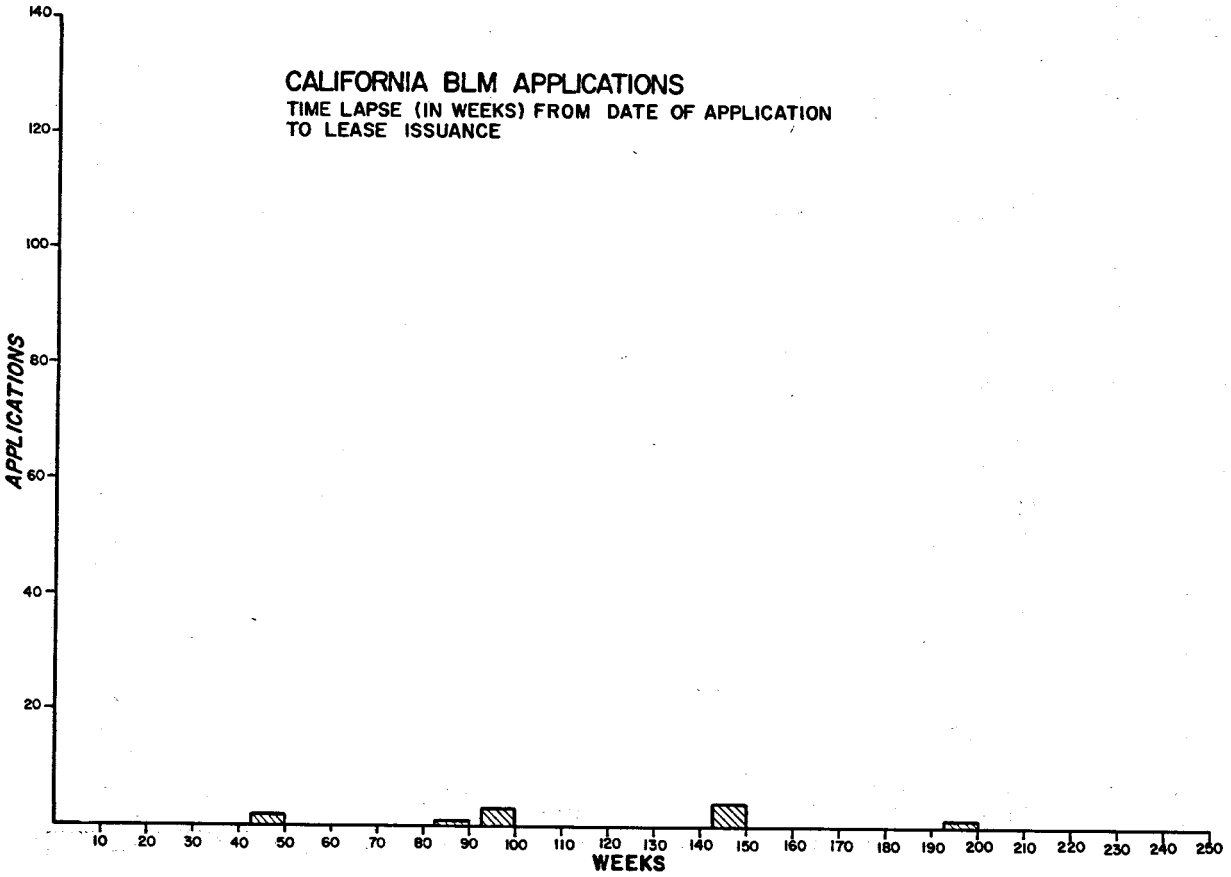

FIGURE 22

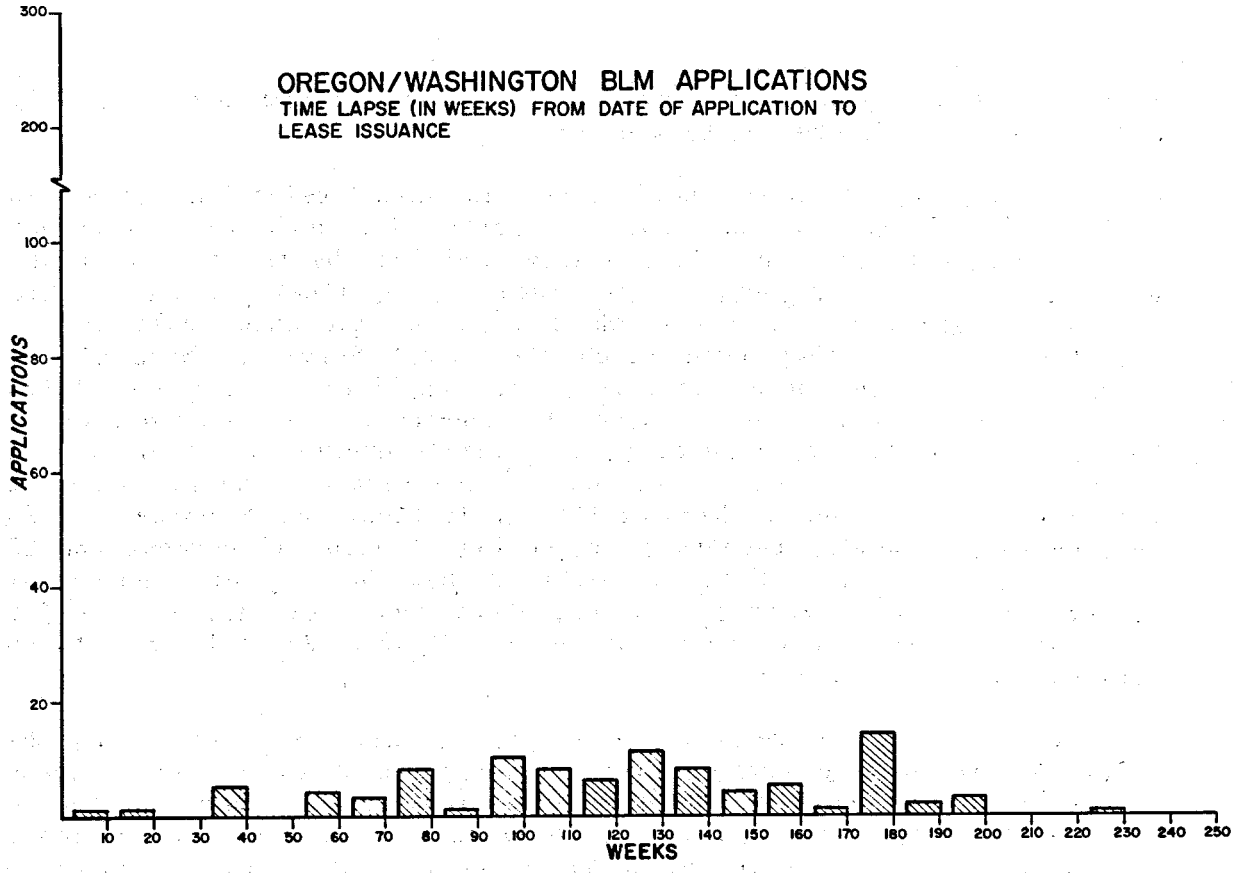

FIGURE 23

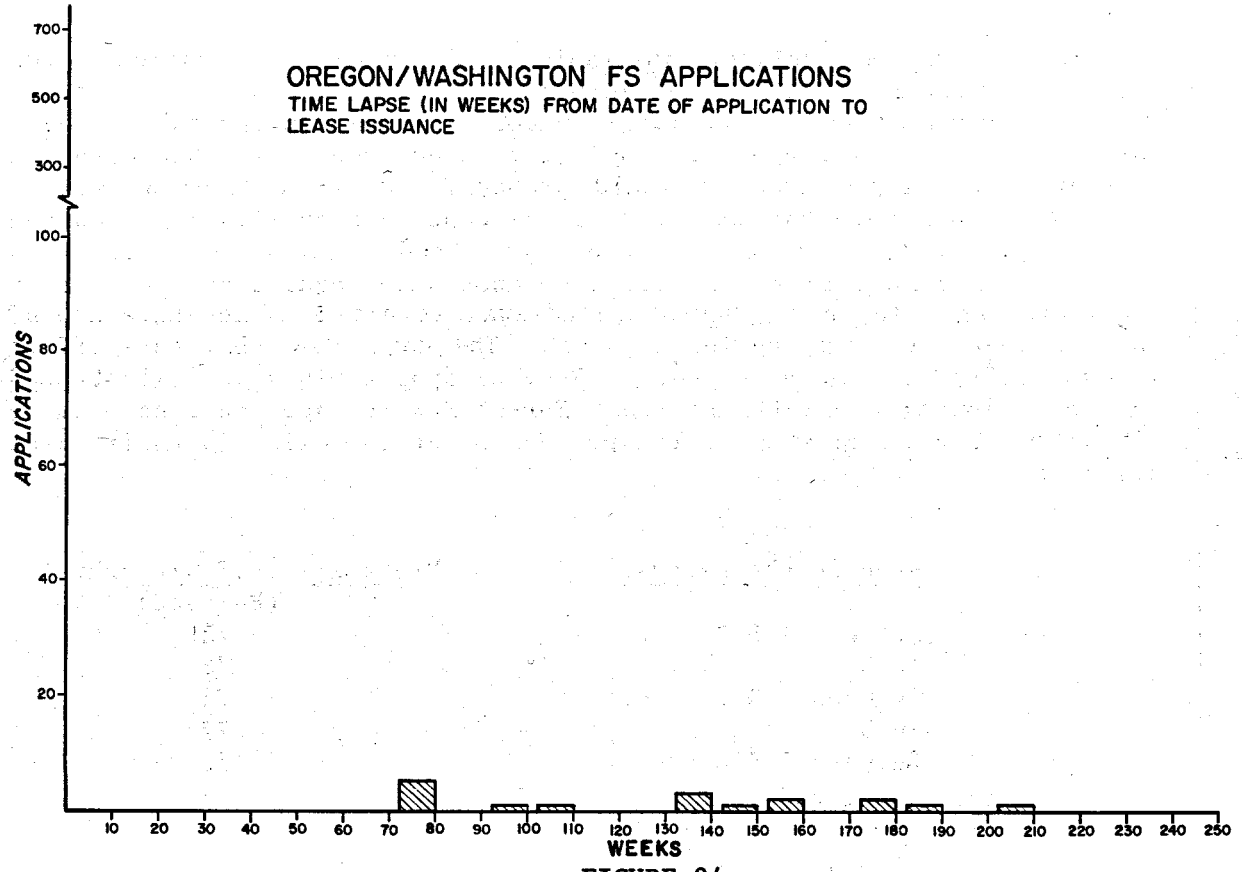

FIGURE 24

applications are pending in Nevada, 21 percent in New Mexico, and 17 percent in Utah, all below the average.

The overall composite performance in lease rejection, shown in Table 9 and Figures 25 and 26, is similar for both BLM and Forest Service applications. This is probably explained by the fact that the BLM State Office rejects those incoming applications which are improperly executed, the reason which accounts for about half of all rejections, before they even reach the Forest Service. Most of the remaining rejections occur because 1) the applicant erroneously files for KGRA land which is not subject to non-competitive leasing; or 2) because the application results in competitive overlap and formation of a new KGRA, as discussed in Section I. The former situation accounts for rejection of about a third of BLM applications and 20 percent of FS applications; overlap results in rejection of about 10 percent and 23 percent respectively. It can be expected that the very small number of rejections for environmental reasons, about seven percent, account for some of the long timeframes shown in Figures 25 and 26 between application and rejection.

Overall, BLM has rejected 16 percent of all applications and the Forest Service nine percent, taking an average of 35 to 40 weeks respectively to do so. However, the Forest Service figure may be expected to rise as decisions are made on the 56 percent of pending applications. The highest percentages of rejections shown in Table 9 have taken place in Arizona and Montana where the total numbers of applications are very small.

The withdrawal columns in Table 9 describe a situation which appears to have a two-fold, contradictory effect on the data. First, as discussed previously, if such large numbers of applications had not been removed from the system by the applicants, the record of achievement in percentage of lease issuance would probably not be as high as it is, i.e., BLM would have had to act on 35 percent more applications and the Forest Service 32 percent. On the other hand, many of the withdrawn applications stayed in the system long enough to require some degree of consideration. Their subsequent withdrawal resulted in negative use of the manpower and time applied to them. The data show that this effect is especially pronounced in Forest Service applications, as illustrated in the following probabilities that Forest Service applications will be withdrawn at a given step in the process or at some time in their later history:

Step in the Process*	Probability of Withdrawal (Percent)
Between 1 & 2	72
In 3	76
Between 3 & 4	74
In 5	77
Between 5 & 6	76
Between 6 & 7	77

*See Table 1.

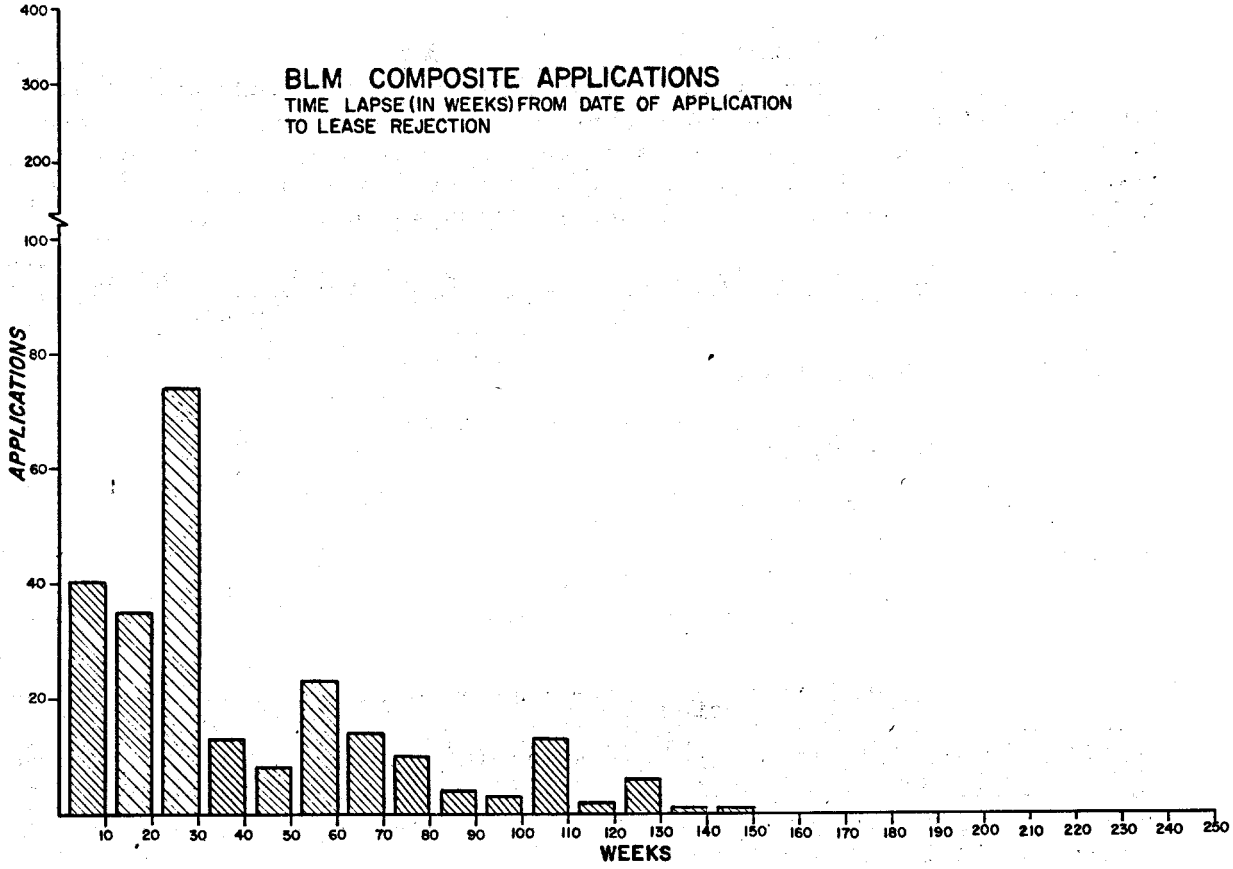

FIGURE 25

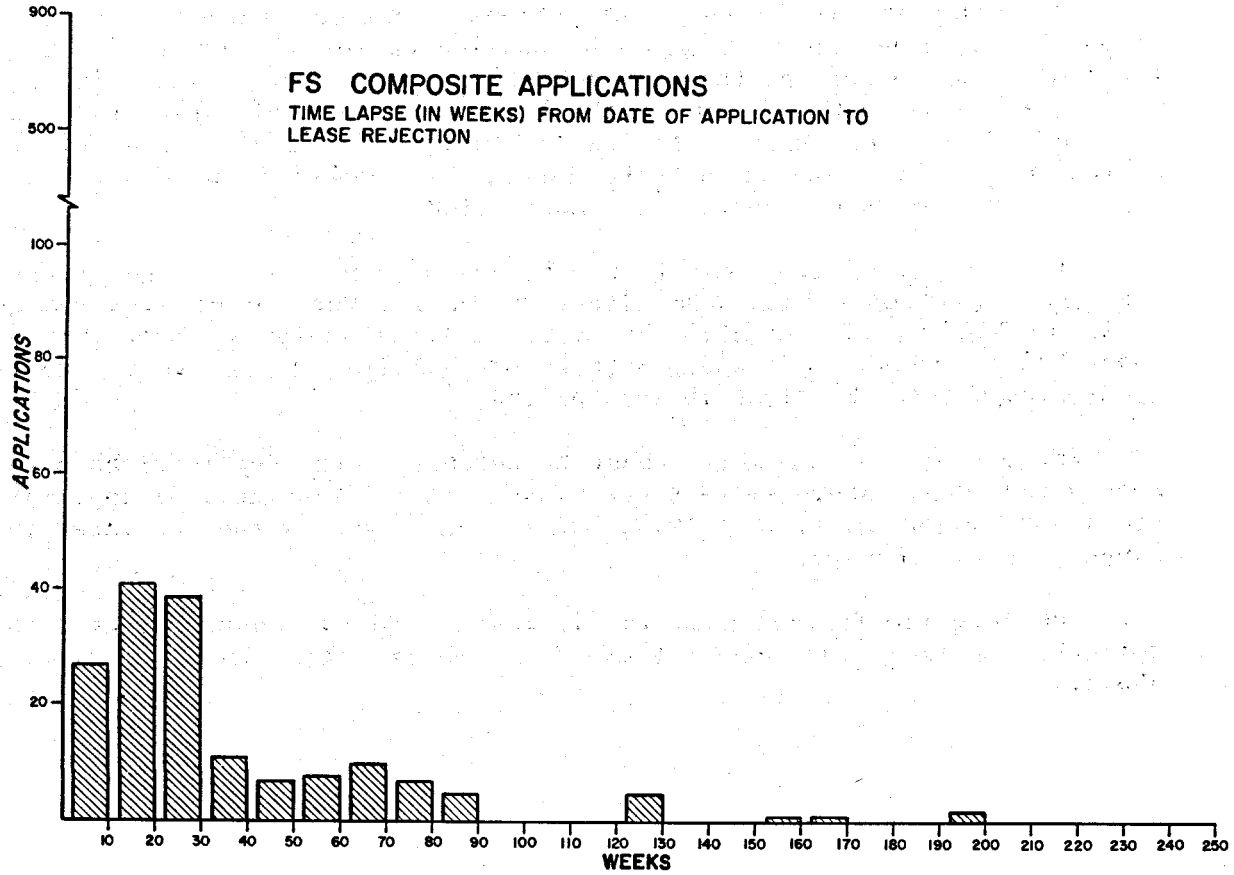

FIGURE 26

It can be seen that this constant high rate of withdrawal throughout the system would tend to hinder orderly processing. On the other hand, the assumption that an application would become less and less likely to be withdrawn as it moved further through the system was determined to be correct for BLM applications as follows:

Step in the Process*	Probability of Withdrawal (Percent)
Between 1 & 2	50
In 3	23
Between 3 & 4	6
In 5	3
Between 5 & 6	2
Between 6 & 7	2

*See Table 1.

It is suspected that the large number of Forest Service applications which have been withdrawn subsequent to clearlisting reflect applicant dissatisfaction with the stipulations which would be attached to the lease if he accepted it. These stipulations are known to be quite stringent in some instances, up to no surface occupancy in evnivornmentally sensitive areas.

In addition to such restrictions applied through special stipulations, other reasons given by applicants for withdrawal include the limitation on acreage that can be held under geothermal lease in any one state; decreased interest in the land as a result of exploration on the applied-for land under a Notice of Intent (NOI) exploration permit and/or on nearby state or private lands; long delay in processing of applications; or purely speculative motivation.

It is expected that the last category accounts to a large extent for the applictions that are withdrawn in the very brief timeframes shown in Figures 27 and 28. In fact, separate analysis shows that a substantial number of applications are withdrawn in very short timeframes within the first 10-week period.

For example, in Wyoming, about 68 percent of the applications have been withdrawn in approximately one month. In one instance, 57 applications were filed in January 1978, all of which were withdrawn later in January or in February.

The long timeframes shown in Figures 27 and 28 can be expected to reflect, in most instances, the other reasons for withdrawal given above.

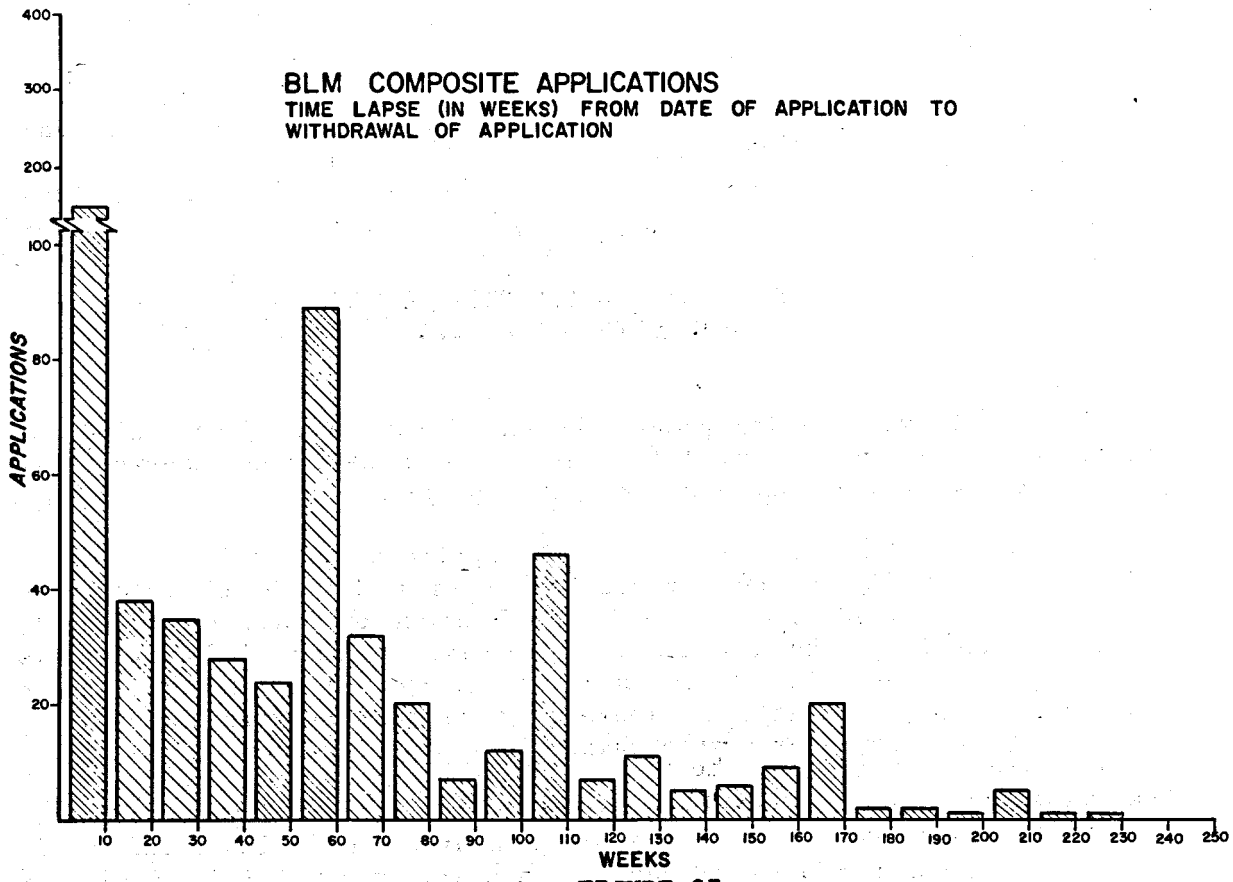

FIGURE 27

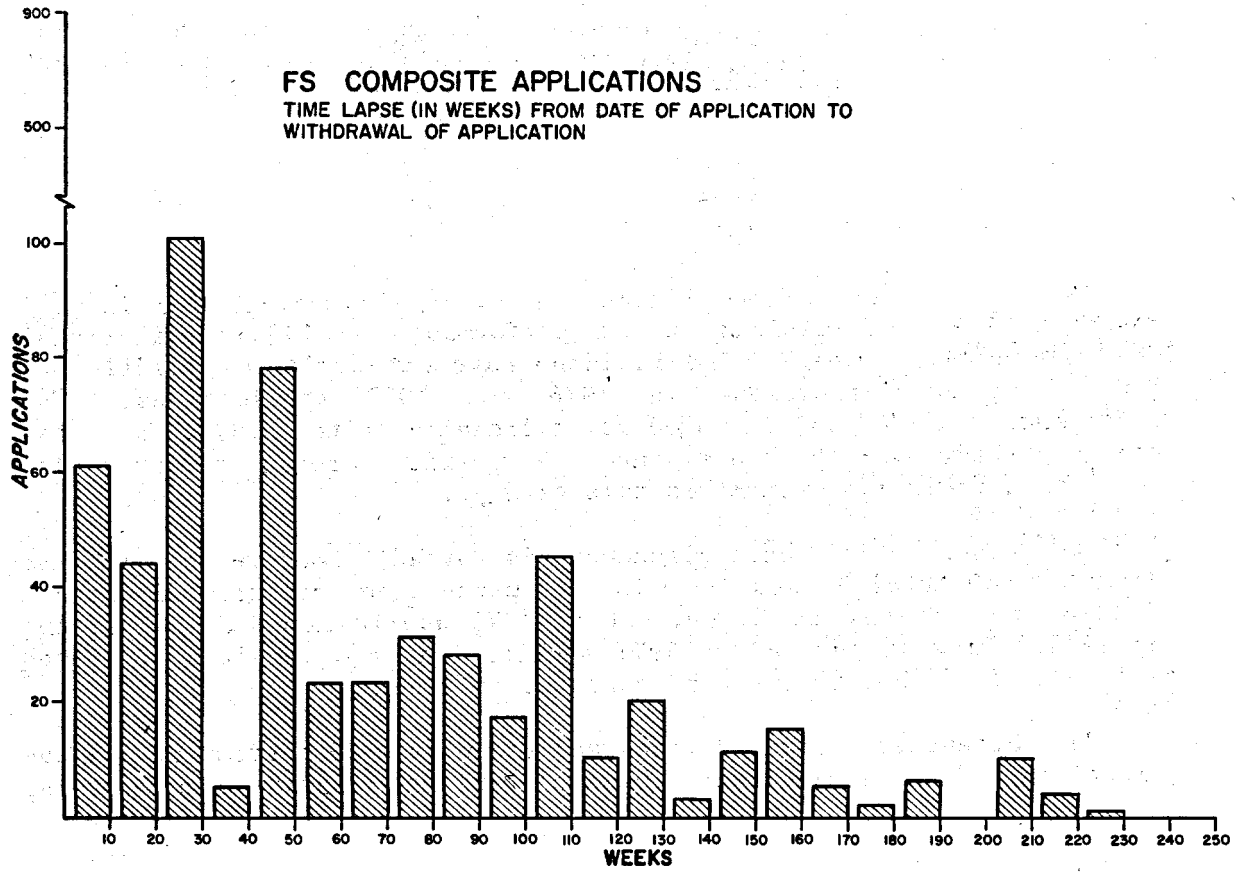

FIGURE 28

SECTION V

ANALYSIS OF BLM NON-COMPETITIVE LEASING PERFORMANCE SINCE 1974

The geothermal leasing program began with a surge of over 2000 applications filed in January 1974. The numbers have been considerably less in the years since and much more evenly spread.

The statistical information on all applications available in the U.S. Geological Survey non-competitive leasing data base, referenced earlier, was utilized to evaluate BLM performance by year, as of June 1, 1978, in handling the applications received. This information is summarized in Table 10. Since only two percent of all Forest Service applications have resulted in leases, there are insufficient data by which to measure any appreciable change in its performance.

Table 10 shows gradual improvement in the two primary measurements of BLM performance. Perhaps the major achievement illustrated is in average timeframe for lease issuance. When all involved BLM offices are considered together average improvement can be seen as follows:

Year of Application	Months to lease
1974	23
1975	16
1976	11
1977	8

BLM in Colorado nearly halved its average timeframe for issuing leases on 1974 applications in its performance on 1975 applications. The leasing timeframes of BLM in Idaho have not declined steadily but show a marked improvement in 1976 and 1977 applications. The performance in Nevada improved significantly after 1974, and has remained steady over the years since. New Mexico, Oregon, and Utah also show considerable improvement in this category.

The other major accomplishment is steady improvement in the percentage of total leases issued. The percentage rose from 21 percent of 1974 applications to 31 percent of 1975 applications to 36 percent for 1976. Only 14 percent of 1977 applications had resulted in leases by June 1, 1978, but this can be expected to rise.

The percentage record in Idaho has risen from 30 percent of '74 applications to 77 percent of '76 applications. Nevada shows steady

TABLE 10

BLM PERFORMANCE BY YEAR

State	1974 Appls. Filed	1974 Leases Issued	1974 %	1974 Timeframes (mos.) Range	1974 Timeframes (mos.) Av.	1975 Appls. Filed	1975 Leases Issued	1975 %	1975 Timeframes (mos.) Range	1975 Timeframes (mos.) Av.	1976 Appls. Filed	1976 Leases Issued	1976 %	1976 Timeframes (mos.) Range	1976 Timeframes (mos.) Av.	1977 Appls. Filed	1977 Leases Issued	1977 %	1977 Timeframes (mos.) Range	1977 Timeframes (mos.) 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

growth in this category, although the percentage has dropped in New Mexico, Oregon, and Utah from their previous best records.

Another way to evaluate more recent performance is to look at the elapsed time since still-pending non-competitive lease applications were filed. In this context, Table 11 presents the total numbers of pending applications on an age scale of five months or less up to 36 months or more. The table shows that applications which have been pending the longest account for by far the largest number of applications--in both BLM and the Forest Service--which still have not reached final disposition.

However, BLM and Forest Service spokesmen have maintained that the initial surge of applications filed in January 1974 would account for this situation to a major degree--i.e., that such a large number all at once swamped the new leasing program to such an extent that it has never completely recovered and caught up with the backlog. Table 12, prepared from the above referenced GS data, shows that whether or not it is reasonable for many applications to be dormant for four and one-half years, the applications filed in January 1974 do, in most cases, account for a large bulk of the total pending applications. Many of the applications have been partially rejected, withdrawn, or suspended, but in each case some acreage is still pending for final disposition. Many have seen no action at all.

In the California BLM state office, for example, 77 of the 177 applications which have been pending more than three years, or 43 percent, are January 1974 applications. The fact that it is not a higher percentage is due largely to the withdrawal of 139 of the 359 January '74 applications and the rejection of 135. Only eight leases have been issued on these applications.

Of the 123 California Forest Service applications pending more than three years, 48, or 39 percent, were filed in January '74. Again, 100 withdrawals and 19 rejections have been responsible for the "pending" performance. No leases have been issued on the 167 January '74 applications.

In Idaho, 23 of the 62 BLM applications pending for three years or longer, or 37 percent, were filed in January '74. The 126 applications filed in that month have been more equally disposed of through rejection, withdrawal, and leasing as shown in Table 12 than was the case in California.

Idaho Forest Service records indicate that 57 of its 214 applications pending three years or more, or 27 percent, are attributable to January 1974 applications. Withdrawals and rejections are largely responsible for the disposition of the 136 filed during that month since only one lease has resulted.

TABLE 11

AGE OF NON-COMPETITIVE LEASE APPLICATIONS STILL PENDING (as of 4/78)

State	5 mo. or less		6-11 mos.		12-17 mos.		18-23 mos.		24-35 mos.		36 months or more		Totals	
	BLM	USFS	BLM	USFS	BLM	USFS	BLM	USFS	BLM	USFS	BLM	USFS	BLM	USFS
Arizona	3	0	2	27	11	0	0	0	2	26	7	1	25	54
Colorado	0	0	0	0	0	0	0	0	0	0	9	27	9	27
California	11	10	16	17	42	0	9	3	27	18	177	123	282	171
Idaho	44	1	46	17	1	0	9	1	27	52	62	143	189	214
Montana	0	0	0	0	0	0	0	0	0	0	2	12	2	12
Nevada	35	1	18	0	3	0	4	0	17	1	197	8	274	10
New Mexico	23	6	11	5	24	0	0	0	8	3	144	28	210	42
Oregon	10	17	10	7	13	25	10	17	40	28	144	424	227	518
Utah	16	1	22	1	23	9	11	6	9	3	135	41	216	61
Washington	0	20	0	0	0	0	0	0	8	16	0	3	8	39
Total	142	56	125	74	117	34	43	27	138	147	877	810	1442	1148

TABLE 12

STATUS OF NON-COMPETITIVE GEOTHERMAL APPLICATIONS
(FILED IN JANUARY 1974)

	Total Filed		Rejected		Withdrawn		Leased		Pending	
	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS
Arizona	17	1	2	0	8	0	2	1	5	0
California	359	167	135	19	139	100	8	0	77	48
Colorado	45	19	12	0	2	3	22	0	9	16
Idaho	126	136	23	45	47	33	33	1	23	57
Montana	29	26	13	10	9	11	6	0	1	5
Nevada	433	5	157	2	117	1	139	0	20	2
New Mexico	233	44	27	11	82	9	56	0	68	24
Oregon*	279	325	140	50	23	45	28	0	88	230
Utah	186	13	4	0	9	0	75	3	98	10
TOTAL	1707	736	513	137	436	202	369	5	389	392

* Includes Washington applications.

Nearly half of the oldest applications in the New Mexico BLM State Office go back to January 1974. This performance has been achieved to a large extent because over a third of the 233 applications filed in that month were withdrawn, although 27 have been rejected and 56 leases have resulted.

January 1974 applications account for nearly all of the New Mexico Forest Service oldest applications. Although the total numbers--24 of 28--are relatively insignificant, the strong influence of the original influx is evident.

Over half of the applications pending three years or more in the Oregon BLM state office, Forest Service regional office covering Oregon and Washington, and in the Utah BLM state office are attributable to January 1974 applications.

The one exception appears to be the Nevada BLM office whose records show that only 10 January '74 applications remain, accounting for only 10 percent of the total of 197 pending three years or more. Thus, the office which received the greatest number of applications in January '74, 433, has almost worked its way through them, but due to the large numbers filed in that state in the remainder of 1974 and 1975, as shown in Table 10, it still has the greatest backlog of applications pending three years or more.

SECTION VI

ANALYSIS OF THE POTENTIAL IMPACT OF MANDATORY TIME LIMITS ON AGENCY ACTIONS

A computer program was undertaken to assess the potential domino effects on the geothermal leasing program if mandatory time limits were placed on each succeeding agency action in the leasing process. Under the existing regulations, time limits are imposed only on the issuance of pre- and post-lease Notice of Intent exploratory permits which must be issued within 30 days.

Rather than "borrow" time limits from other types of regulations or to apply what could be considered arbitrary timeframes, it was decided to determine the effects potentially achievable if BLM and the Forest Service met their exemplary performance on all applications. In recognition that peak performance in issuing a lease--six weeks in composite BLM performance and seven weeks for the Forest Service--is unlikely to be sustained consistently, the best 25 percentile and 50 percentile performances were selected.

The analysis consisted of several steps. First, the actual minimum timeframes for each step in 25 and 50 percent of the available records were determined as follows:

Step*	BLM (In Weeks)		FS (In Weeks)	
	25%	50%	25%	50%
Between 1 & 2	2	9	1	2
In 3	30	55	25	48
Between 3 & 4	4	11	5	13
In 5	2	3	2	3
Between 5 & 6	5	10	1	4
Between 6 & 7	2	4	1	3
Totals	45	92	35	73

*See Table 1.

These timeframes compare with the current average of 97 weeks for BLM applications and 111 weeks for Forest Service applications.

The second step was to estimate the probable final disposition--lease issuance, rejection, or withdrawal--of still pending applications. The data on applications on which action has been completed were used to determine the probability for each type of action. The probabilities vary at each point in the leasing process as shown in Table 13.

TABLE 13

PROBABILITIES FOR FINAL DISPOSITION OF
NON-COMPETITIVE APPLICATIONS AT EACH STEP IN THE LEASING PROCESS
(Percentage)

Step	Lease Issued		Rejection		Withdrawal	
	BLM	FS	BLM	FS	BLM	FS
On Date of Application	26	6	24	22	50	72
Submittal to District/ Forest	72	8	4	16	23	76
Upon Completion of District/ Forest Consideration	92	20	2	6	6	74
Pending in BLM State Office Prior to Stipulation Review	96	22	1	2	3	77
Upon Completion of Stipulation Review	97	22	1	2	2	76
After Clearlisting	98	22	0	1	2	77

It is to be remembered that the probabilities of being withdrawn or rejected are not necessarily the probabilities of withdrawal or rejection during the step. They are the overall probabilities that an application reaching a step will be withdrawn or rejected during the step or at some future time, as noted in Section IV in connection with withdrawals.

The third step in the analysis was to determine the applications upon which action would have been completed assuming compliance with the above timeframes. This was accomplished by identifying the step at which each uncompleted application is pending and the date it entered that point in the process. The above timeframes were then added for each remaining step to be completed. If the calculated completion date fell before June 1, 1978, action on the application was considered to be complete; if not, it was assumed to be still pending.

Next, the calculated completed actions were distributed according to the determined probability of final action and added to the totals of actual disposition. Thus, the probable number of applications resulting in lease issuance, rejection, and withdrawal was derived.

The results are shown in Table 14. In terms of BLM performance, the table shows that if the best 25 percent effort had been met consistently, twice as many leases could have been issued by June 1, 1978, and the number pending could have been reduced from 30 percent to five percent. Lease issuance would also have almost doubled in the 50 percentile performance and the pending category would have been reduced to nine percent.

However, the table illustrates the effect of very prolonged timeframes which have elapsed on large numbers of BLM applications before final action is taken. Even at the best 25 percent BLM performance, it would still take nearly a year to get a lease, and, under a 50-percentile system, nearly two years, only a slight reduction in current average performance.

Poor performance in actual lease issuance in the Forest Serivce applications, in combination with the projected number of withdrawals, limits the calculated lease issuance performance to only eight percent in both the 25 and 50 percentile columns. However, the number of applications still awaiting final action would have been reduced from 56 percent to four percent and eight percent respectively. While Forest Service timeframes are somewhat shorter at about nine and 18 months respectively, the benefit would only accrue to the eight percent of applicants who received a lease.

It can be seen that in order to process and issue the numbers of leases which will be necessary to support a viable geothermal industry, performance superior to today's best will be needed.

TABLE 14

CALCULATED POTENTIAL PERFORMANCE IN THE NON-COMPETITIVE GEOTHERMAL LEASING SYSTEM BASED ON EXISTING EXEMPLARY 25 AND 50 PERCENTILE PERFORMANCE

Percent of Applications Resulting In*	Actual Performance		Calculated Performance Based on Best 25% Performance		Calculated Performance Based on Best 50% Performance	
	BLM	FS	BLM	FS	BLM	FS
Lease Issuance	18	2	36	8	33	8
Rejection	16	9	18	17	18	16
Withdrawal	35	32	44	71	40	68
No Final Action	30	56	5	4	9	8

*Percentages are rounded.

SECTION VII

ANALYSIS OF COMPETITIVE LEASING

Even though the potential productivity of KGRA's has yet to be proven in most areas, it would be reasonable to expect the rate of competitive leasing to be well ahead of non-competitive because of the higher promise of lands inherent in designation as a KGRA. Just the reverse situation is true, however, as illustrated by the relative status as of June 1, 1978, as follows:

Non-Competitive	
Leases Issued	Acres
1092	1,863,841

Competitive	
Leases Issued	Acres
253	465,391

One reason for the relatively smaller acreage leased competitively is that, according to BLM data, BLM has only offered about half of the acreage theoretically available for leasing in the KGRA's under its jurisdiction, and the Forest Service has approved sales on only two percent of the available National Forest lands. These figures and the status by state are shown in Table 15. In California, which contains the largest amount of available BLM land and the second largest Forest Service holding, only 25 percent of the BLM acreage has been offered and none of the Forest Service acreage.

Industry maintains that another deterrent to competitive leasing is the low level of interest in those lands which have been offered. Specifically it contends that neither the most attractive tracts of KGRA acreage nor all contiguous tracts are being offered for sale. The latter is important from a competitive standpoint and induces reluctance to bid on isolated tracts. Such a show of interest would tend to divulge proprietary knowledge on the part of the bidder and to push up the bid price for the adjacent choice parcels if they are ever offered for sale. The initial bidder would then risk losing the opportunity to assemble a developable parcel of land.

Table 16, which is a summary of competitive lease sales derived from the GS data, supports this viewpoint in that it shows that bids have been received on less than half the tracts offered. In addition, the table indicates that when total bids are compared with the number of tracts bid, it is evident that interest centered only on specific acreage, rather than the total offered.

TABLE 15

STATUS OF LEASE SALES ON KGRA's

	Total Federal Acreage		Theoretically Available for Leasing		Acres Offered		Acres Bid On		Acres Accepted		Federal Acres Remaining for Lease	
	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS	BLM	FS
Arizona	3,240	0	3,240	0	780	0	0	0	0	0	3,240	0
California	387,374	394,582	353,054	394,582	90,167	0	40,235	0	39,449	0	313,605	394,582
Colorado	19,045	1,780	11,271	1,513	11,271	0	5,036	0	5,036	0	6,235	1,513
Idaho	103,500	42,500	52,500	40,500	48,500	0	32,000	0	32,000	0	20,500	40,500
Montana	8,861	29,170	8,861	29,170	320	1,280	0	0	0	0	8,861	29,170
Nevada	326,802	4,160	326,802	4,160	201,988	2,560	148,163	0	145,682	0	181,120	4,160
New Mexico	190,320	1,316,004	190,320	1,224,004	101,693	29,375	62,482	18,050	62,480	18,050	127,838	1,205,954
Oregon	198,495	62,125	198,495	61,605	155,910	0	68,873	0	63,911	0	129,210	61,605
Utah	83,215	15,572	83,215	15,572	78,966	10,852	77,277	10,852	77,277	10,852	7,138	4,719
Washington	0	19,001	0	13,187	0	0	0	0	0	0	0	13,187
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	1,320,852	1,884,894	1,227,758	1,784,293	689,595	44,067	434,066	28,902	425,837	28,902	797,747	1,755,390

Source: Bureau of Land Management

TABLE 16

SUMMARY OF COMPETITIVE GEOTHERMAL LEASE SALES
as of June 1978

State	No. of KGRA Lease Sales	Offered		Received Bids		Total Bids	Accepted Bids	
		Acres	Tracts	Acres	Tracts		Acres	Tracts
Arizona	1	780	1	0	0	0	0	0
California	7	39,448	30	40,234	30	77	39,448	28
Colorado	7	17,507	13	5,037	3	3	5,036	3
Idaho	9	48,630	32	31,889	16	30	31,889	16
Montana	1	1,608	1	0	0	0	0	0
Nevada	34	368,353	197	153,144	76	107	152,583	75
New Mexico	11	115,235	77	78,241	47	79	78,241	47
Oregon	13	191,324	128	83,153	44	76	68,874	38
Utah	15	128,083	67	89,320	46	94	89,320	46
TOTAL	98	910,968	546	481,018	262	465	465,391	253

Source: U.S. Geolgoical 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.

Appendixes A, B, and C, which break down the leasing history by type of KGRA--competitive interest, geologic, and the "both" category as described in Section I--show further that 30 percent of all sales have produced no bids. In other cases, two or three sales have been required to generate even one bid on the parcel or parcels offered.

Table 17, which summarizes Appendices A, B, and C, shows that only 13 percent of the geologic criteria acreage--theoretically the most desirable--has been offered with bids received on only 51 percent of that offered. As a result, considerably less acreage has been leased in this category than in the other two, although it embraces more acreage--nearly four times as much as the competitive interest category alone.

Table 17 also shows that 38 percent of the sales of competitive interest acreage produced no bids as compared to 31 percent and 16 percent in the other two categories respectively. This information demonstrates that even those applicants whose applications engendered the creation of the KGRA lost interest in the acreage in the competitive bid situation in over one-third of the sales in the competitive overlap category. On the other hand, the remaining sales in this category have yielded bids on 75 percent of the acreage offered, indicating a high degree of interest in a relatively small amount of acreage.

Considerably more acreage has been leased in the "both" category--acreage bid is almost tantamount to acreage leased since very few bids are rejected--even though only 20 percent of it has been offered. Bids have been received on 61 percent of the offered acreage, a value which suggests that the failure to offer larger amounts of land in this category may have exerted a repressive effect on leasing in this category.

The dollar value of bids is equalized in the competitive interest category and the "both" category to a large extent by removing the influence of Cove Fort-Sulphurdale in the one and The Geysers in the other, leaving the geologic criteria KGRA as the highest earner in bonus bids. However, U.S. Treasury earnings through competitive geothermal leasing is shown by Table 17 to be negligible in any category.

TABLE 17

SUMMARY OF LEASE SALE ACTIVITY BY TYPE OF KGRA

Type of KGRA	Competitive Interest	Geologic Criteria	Geologic Criteria + Competitive Interest
No.	47	30	30
Total Sales	39	16	43
Sales without Bids	15	5	7
Total Acreage in KGRA	384,537	1,519,332	1,464,935
Total Acreage Offered	171,794	192,774	416,905
Percent Offered	45	13	20
Total Acreage Bid	129,563	97,706	255,562
Percent Bid	75	51	61
Average Acreage of KGRA's	8,182	50,644	48,821
Average Acreage Bid	7,197	10,856	12,170
Average Bid $/acre	12 (5)[a]	21	32 (10)[b]
Average High Bid $/acre	21 (14)[a]	30	50 (15)[b]
Average Total $/KGRA	278,882 (102,703)[a]	304,730	521,401 (142,419)[b]

[a] Without Cove Fort-Sulphurdale

[b] Without The Geysers

Source: U.S. 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

SECTION VI

STATUS OF PRE-LEASE EAR/EIS PREPARATION

A study area in the context of this discussion is geothermal prospect acreage--KGRA and/or non-competitive lands--which is now or can be expected to be covered by one EAR or EIS. BLM to date has not found it necessary to prepare an EIS on individual leases or lease sales because of the existence of DOI's programmatic environmental impact statement on the entire geothermal leasing program (Office of the Secretary, Final Environmental Impact Statement for the Geothermal Leasing Program, Department of the Interior, 1973). In effect, the EAR has in each case served as a Negative Declaration under NEPA, although the EAR's often do not state a specific decision as to whether or not an EIS is necessary. The Forest Service on the other hand frequently goes directly to an EIS without first preparing an EAR.

A study of 50 EAR's/EIS's on geothermal development prepared by the various offices subject to this report has disclosed that the only apparent difference between the EAR and EIS documents themselves is in the name. With few exceptions, the format and content of both types of documents are quite similar. The only significant point of departure appeared to be the stated or implied belief in some EAR's that it was not the decision-making document. The implication is not clear since in no case of this sort was a recommendation made for preparation of an EIS. The EIS, regardless of its derivation, is subject to public hearing and other formalities which are not required of the EAR.

Table 18 assembles data provided on the EAR/EIS status of the study areas. It will be noted that there is a considerable range in acreage covered by individual EAR's/EIS's, in elapsed time spent in EAR/EIS preparation, in total costs, and in cost per acre. It can also be seen that timeframes and dollar expenditures do not correlate well with each other or in relationship to acreage covered. Table 19 was thus prepared to break down the time and cost involved on a per-acre basis. While these numbers become so small when exceedingly large acreages are involved that they are less meaningful than when smaller parcels are covered by the study, they provide the only means for direct comparison.

The table shows that dollar expenditures range from $8.28 per acre for the ongoing Coso EIS in California to less than one cent per acre for many EAR's in Nevada and elsewhere. The average cost is $ .63 per acre.

The above-mentioned study of EAR/EIS documents showed that the reviews in the higher cost range--up to more than $5 per acre over a median cost of less than $1 per acre of those studied--are not significantly more comprehensive in analysis of potential environmental, socioeconomic, or land use impacts or in identifying sensitive lands within the study area. However, studies at the low end of the cost scale (with study areas in the millions of acres and costs of less than

TABLE 18

STATUS OF ENVIRONMENTAL ANALYSIS IN THE GEOTHERMAL LEASING PROGRAM

ST.	STUDY AREA	OWNERSHIP	TOTAL ACREAGE	EAR PREPARATION Time Lapse Mos.[a]	From	To	TOTAL COST	$/ACRE COST	SPECIAL STUDY AREA Acres	Type*	Completion Date
AZ	Gila Box	BLM/FS/NF	30,400	57	7/75	(4/80)	(170,000)	(5.59)	30,000	W	(10/78)
	San Jose Wash	BLM	20,360	4	1/75	4/75	3,000	.15	0		
	Vulture Mine	BLM	690	4	7/76	10/76	--	--	0		
	" "		89,280	2	4/78	5/78	6,000	.07	25,000	R	--
	Flagstaff	NF/FS/BLM	427,000	--	--	(4/82)	(75,000)	(.17)	--	--	--
	Roskruge Mts.	--	--	--	--	--	--	--	--	--	--
	Unnamed	--	--	--	--	--	--	--	--	--	--
	Burro Creek	BLM	12,623	21	10/77	(6/79)	(10,000)	(.79)	0		
	San Bernardino	BLM	3,000	5	4/78	(8/78)	(6,000)	(2.00)	0		
CA[b]	Honey Lake	BLM/NF	58,880	30	4/76	(9/78)	(47,000)	(.80)	--	W	In EAR
	Upper Pit R.	NF/FS/BLM	188,160	24	5/75	4/77	60,000	.32	--	--	--
	Surprise-Warner Valleys	BLM/NF	241,920	17	7/24	10/75	7,300	.03	--	--	--
	Surprise Valley Suppl.	FS/BLM		Not scheduled					--	--	--
	Lassen	FS/NF	104,493	--	--	(12/79)	--	--	--	--	--
	Beckwourth	BLM/FS	13,120	24	7/77	(7/79)	--	--	--	--	--
	Hayden Hill	FS/BLM	68,780	Not scheduled FS tabled BLM prep. plan for EAR							
	Glass Mt.	FS/NF	6,898,939			(11/80) (10/81)[c]	--	--	--	--	--
	Medicine Lake	FS/NF	289,280	Incl. in Glass Mt.							
	Lovelady Rge.	BLM/FS/NF	6,879	Not scheduled							
	Geysers	NF/BLM	163,428	Used Vol II, DOI generic EIS					--	--	--
									--	--	--
	Geysers/ Calistoga	NF	4,128		1974	12/74[d]	--	--	--	--	--
	Geysers, Calistoga Expansion	NF/BLM/FS	211,131	13	6/74	6/75	26,000	.12	--	--	--
	Middle Mt.[e]	FS/BLM/NF	41,245	Not scheduled					--	--	--
	Indian Valley	BLM/NF	48,128	Not scheduled					--	--	--
				Anticipate Rejection					--	--	--
	Big Foot Mt.[e]	BLM/NF	24,218	Not scheduled					--	--	--
	Cow Mt.[e]	BLM/Ind.	42,900	Not scheduled					--	--	--
	Little Horse Mt.[e]	FS	1,188	Not scheduled					--	--	--
	Knoxville	BLM/NF	33,000	18	9/77	(2/79)	--	--	--	--	--
	Witter Spring	BLM	39,680	18	11/75	(7/76)	--	--	--	--	--
	Saline Valley	BLM/NF	22,150	Not scheduled					--	--	--
	Bodie	BLM/NF	47,425	--	(1981) LUP	(1982) EIS	--	--	--	--	--
	Lake Crowley (Long Valley)	BLM/FS/NF	63,525	--	1/76		--	--	--	--	--
	Owens Lake	BLM/NF	20,725	Dropped because apps. withdrawn					--	--	--
	Tecopa	BLM	24,950	Not scheduled					--	--	--

* W = wilderness; R = RARE II: RR = roadless review; MFP = BLM Management Framework Plan; LMP = FS land management plan.

[a]Months include the entire month of start and finish since actual dates are usually unknown. [b]No study area data received from California Forest Service Office. [c]Non-competitive west of KGRA in Forest Service accelerated planning; EAR 11/80. Glass Mt. KGRA and periphery, 10/81. [d]Draft - no final necessary. [e]Will probably never be evaluated because of lack of interest/resource.

Table 18 - Cont'd.

ST.	STUDY AREA	OWNERSHIP	TOTAL ACREAGE	EAR PREPARATION Time Lapse Mos.[a]	From	To	TOTAL COST	$/ACRE COST	SPECIAL STUDY AREA Acres	Type*	Completion Date
	Mono-Long Valley	FS/BLM/NF	460,256	30	6/78	(11/80)[f]		--	--	--	--
	Coso	BLM/FS	80,640	26	(8/78)	(9/80)	667,661	8.28	--	--	--
	Sespe	FS/NF	7,040	EAR tabled near Condor area					--	--	--
	Randsburg	BLM	64,640	8	11/75	6/76[g]	135,000	1.25	0	--	--
	Spangler	BLM/NF	8,320						0	--	--
	Searle Lake	BLM	35,000						0	--	--
	Suppl. N. Salton Sea	BLM/NF	43,520	13	11/77	(11/78)	--	--	0		
	Yuha	NF/BLM	14,720	11	(10/78)	(10/79)	(40,000)	(2.71)	640	--	--
	Anza	BLM/NF	15,360	Tabled because appls. withdrawn					--	--	--
	Glamis	BR/NF	25,505	Not scheduled					--	--	--
	East Mesa	BR/NF	77,000	11	(10/78)	(10/79)	(100,000)	(1.05)	--	--	--
	Dunes	BLM	7,680	Not scheduled					--	--	--
	Big Valley	FS/NF	7,680	Not scheduled					--	--	--
	Timbered Crater	FS/BLM/NF	70,408	Not scheduled					--	--	--
	Ford Dry Lake	BLM/NF	7,687	Not scheduled[e]					--	--	--
	Bristol-Amboy	BLM/NF	69,120	Prep. plan FY 79					--	--	--
	Westmoreland	--	--	--			--	--	--	--	--
	Eagle Lake	No map available	No map available	--			--	--	--	--	--
	Cady Mt.	BLM	46,080	--			--	--	--	--	--
	Bend	No map available	No map available	--			--	--	--	--	--
	South Salton Sea	NF/BLM	92,160	--			--	--	--	--	--
CO[h]	Waunita H.S. PVA	FS	8,269	--	--	--	--	--	--	--	--
	Ouray-Ridgeway PVA	FS	3,345	--	--	--	--	--	--	--	--
	Steamboat Springs	FS	7,596	--	--	--	5,000	.66	--	--	--
	Dunton Rico PVA	FS	3,202	6	4/77	9/77	5,000	1.51	1,520	R	--
	Mineral H.S.-Valley View	FS	8,428	15	6/76	9/77	5,000	.59	--	--	--
	Wagonwheel Gap PVA	FS	--	12	7/76	6/77	5,000	--	--	--	--
	Cottonwood Mt.	FS	--	--	--	--	--	--	--	--	--
	Princeton	FS	--	--	--	--	--	--	--	--	--
ID[i]	Bruneau-Grandview - Mt. Home	BLM/NF	271,600	2	4/75	6/75	4,000	.01	143,000	RR	(7/84)
	Crane Creek	BLM/NF	25,500	5	3/76	7/76	5,000	.40	15,000	RR	(7/83)
	Amended		--	2	1/78	2/78	5,000	--	--	--	--
	Boise Front	BLM	485	2	5/77	6/77	2,000	4.12	0		
	Parma Area	BLM	8,700	2	(7/81)	(9/81)	(5,000)	(.57)	0		
	Cassia Co.	BLM/NF	482,400	5	2/75	6/75	20,000	.04	62,000	RR	Indef.
	Liddy H.S.	BLM	1,246	20	7/75	2/77	5,000	4.01	0		
	Amended		1,209	6	(2/79)	(7/79)	(1,500)	(1.24)			
	Heise H.S.	BLM	13,000	21	(10/78)	(6/80)	(45,000)	(3.46)	0		
	Mud Lake	BLM/NF	11,500	9	(10/81)	(6/82)	(10,000)	(.87)	0		
	Freedom	BLM/FS	5,400	24	7/75	6/77	5,000	.92	0		

[f] Included in Forest Service accelerated planning. Leasing decision 1/79. [g] Leasing of KGRA and surrounding NCL deferred. [h] No study area data received from Colorado BLM State Office. [i] 10% data from BLM and FS in Idaho and BLM in Nevada, New Mexico, and Utah.

Table 18 - Cont'd.

ST.	STUDY AREA	OWNERSHIP	TOTAL ACREAGE	EAR PREPARATION Time Lapse Mos.[a]	From	To	TOTAL COST	$/ACRE COST	SPECIAL STUDY AREA Acres	Type*	Completion Date
	Crater of the Moon	FS/BLM	70,000	12	(10/79)	(9/80)	(25,000)	(.36)	5,000	RR	(7/80)
	Big Southern Butte	BLM	25,000	12	(10/80)	(9/81)	(25,000)	(1.00)	0		
	Oneida Narrows	NF/BLM	19,000	6	(4/85)	(9/85)	(15,000)	(.79)	0		
	Twin Lakes	BLM/NF	10,000	7	(10/84)	(4/85)	(15,000)	(1.50)	0		
	Sulphur-Wood Canyon	FS/BLM/NF	10,000	9	(1/82)	(9/82)	(5,000)	(.50)	0		
	Grays Lake West	BLM/NF	14,000	7	(1/84)	(6/84)	(10,000)	(.71)	0		
	Grays Lake	NF/BLM	50,000	36	1/76	(12/78)	(5,000)	(.10)	0		
	Blackfoot Reservoir	NF/BLM	140,000	18	(10/82)	(3/84)	(100,000)	(.71)	0		
	Sharkey H.S.	BLM	7,500	5	(4/79)	(8/79)	(6,000)	(.80)	200	RR	Indef.
	Magic	BLM/NF	50,000	10	12/76	9/77	5,000	.10	36,000	RR	Indef.
	Crater of the Moon (Carey)	BLM	30,000	5	(8/80)	(1/81)	(5,000)	(.17)	15,000	RR	Indef.
	Clover Creek	BLM	30,000	3	2/75	4/75	3,000	.10	0		
	Warm Lake (Vulcan H.S.)	FS	3,878	--	--	(/79)	--	--	3,878	W	(12/77)
	Caribou Area[j]	FS/NF	1,204,600	17	4/77	(3/78)	(10,000)	(<.01)	28,340	W	Not Sch.
	Island Park	FS/BLM/NF	530,000	26	1/77	(2/79)	(273,000)	(.47)	76,270	R	(12/78)
	Grandjean	FS	13,894	No EAR planned - no pending applications							
	Idaho City	BLM	--	"	"	"	"	"			
MT	Barkells H.S. & Biltmore H.S.	BLM	10,576	--	--	5/75	--	--	--	--	--
	Hunter H.S.	BLM/NF	50,000	10	4/75	1/76	--	--	0		
	Chico H.S.	BLM/FS	(No study because applications withdrawn)						--	--	--
	Corwin H.S.	FS/NF	39,394	19	(3/79)	(9/80)	(6,800)	(.17)	9,600	W	--
	Island Park	FS/NF	41,000	24	5/77	(4/79)	(10,200)	(.25)	4,000	R	(1/79)
	Spokane Hills	BLM	2,240	--	--	4/76	--	--	0		
	Marysville	FS/BLM/NF	86,328	42	1/75	6/78	136,000	1.60	0		
	Boulder H.S.	FS/BLM/NF	81,920	17	5/75	9/76	26,800	.33	2,000	RR	(1/79)
NV[k]	Jakes Valley - Sunnyside	BLM/FS/NF	1,042,366	13	4/75	4/76	22,500	.02	0		
	Stateline	BLM/FS/NF	3,847,711	37	5/73	5/76	22,500	<.01	57,240	W	(10/79)
	Brady Hazen	BLM/NF	128,600	6	2/74	7/74	22,500	.17	0		
	Cherry Creek	BLM/FS/NF	2,149,900	25	6/74	6/76	22,500	.01	66,400	W	(10/79)
	Baker	FS/NF	1,591,800	18	10/76	3/78	22,500	<.01	7,040	W	(10/79)
	Esmerelda	BLM/FS/NF	3,105,160	4	10/74	1/75	22,500	<.01	640	W	(10/79)
	Elko	BLM/FS/NF	10,850,902	11	8/74	6/75	33,000	<.01	1,650	W	(10/79)
	Shoshone	BLM/FS/NF	2,677,800	6	7/74	12/74	18,000	<.01	0		
	Ft. Churchill-Clan Alpine	BLM/NF	3,320,000	10	7/74	4/75	22,500	<.01	0		
	Buffalo Hill	BLM/NF	1,457,000	12	7/74	6/75	22,500	.01	43,720[m]	W	(10/79)
	Pinenut-Walker	BLM/NF/FS	1,481,000	13	7/74	7/75	22,500	.01	0		
	Tonopah	BLM/FS/NF	3,907,149	9	11/74	7/75	18,000	<.01	9,000	W	(10/79)
	Pyramid	NF/BLM/FS	927,196	14	7/74	8/75	22,500	.02	0		
	Mina	BLM/FS/NF	1,314,400	17	7/74	11/75	22,500	.01	0		
	Eureka	BLM/FS/NF	2,109,193	11	3/75	1/76	18,000	<.01	9,000	W	(10/79)
	Fairview	BLM/NF	2,250,000	18	11/74	4/76	18,000	<.01	0		
	Caliente-Virgin Valley	BLM/NF	6,709,280	12	9/75	8/76	22,500	<.01	13,200	W	(10/79)
	Winnemucca	BLM/NF/FS	6,666,406	12	2/75	1/76	22,500	<.01	43,720	W	(10/79)
NM[k]	Kilbourne Hole	BLM/NF	880,640	8	10/74	5/75	17,000	.02	626,676	RR	(1991)
	Lightning Dock	BLM/NF	971,520	4	10/75	1/76	18,500	.02	395,640	RR	(1991)
	San Ysidro, Santa Ana Mesa	BLM/NF	277,284	8	12/75	7/76	54,000	.19	133,000	RR	(1991)
	Baca Location	FS/NF	496,950	25	1/75	1/77	30,000	.06	44,290	RR	(1979)
	Socorro-Socorro Peak	BLM/NF	624,814	10	8/76	5/77	22,600	.04	223,280	RR	(1991)
	Radium Springs	BLM/NF	1,816,320	8	7/76	2/77	22,000	.01	759,534	RR	(1991)
	Silver City	BLM/NF	1,629,910	5	10/77	2/78	22,600	.01	212,951	RR	(1991)

[j] See Wyoming. [k] A large part of the Black Rock Desert area is being considered for the National Park System as the Emigrant Trail.

Table 18 - Cont'd.

ST.	STUDY AREA	OWNERSHIP	TOTAL ACREAGE	EAR PREPARATION Time Lapse Mos.[a]	From	To	TOTAL COST	$/ACRE COST	SPECIAL STUDY AREA Acres	Type*	Completion Date
	Gila Lower Frisco	FS/NF	855,256	22	11/76	(8/78)	(27,000)	(.03)	35,493	U	(1992)
	Ojo Caliente	BLM/FS/NF	170,240	10	11/77	(8/78)	(21,000)	(.12)	25,000	RR	(1991)
OR & WA	Warner Valley (incl. Crump Geyser[l])	BLM/NF	405,000	12	5/74	4/75	11,900	.03	0		
	Klamath	BLM/NF	650,000	10	4/75	1/76	17,000	.03	0		
	Summer Lake	BLM/NF	167,000	9	11/75	7/76	13,600	.08	119,640	RR	(7/81)
	Goose Lake Valley	FS/BLM/NF	4,210	6	(9/78	2/79)	8,500	2.02	0		
	Glass Butte	BLM/NF	130,000	26	7/74	8/76	15,300	.12	130,000	RR	(9/79)
	Glass Butte Supp.	BLM	--	4	9/77	12/77	1,700	--	63,730	RR	(9/80)
	Vale	BLM/NF	65,217	9	11/74	7/75	11,900	.18			
	Addition								1,320	RR	(9/80)
	Vale KGRA	BLM/NF	8,940	10	7/73	4/74	11,900	1.33	82,040	RR	(9/80)
	Bully Creek	BLM/NF	106,575	12	3/75	2/76	10,200	.09	366,406	RR	(9/80)
	Cow Creek	BLM/NF	366,406	20	3/75	10/76	15,300	.04	1,038,000	RR	(9/80)
	Oregon Canyon	BLM/NF	1,038,000	5	4/77	8/77	8,500	<.01	1,890,500	RR	(9/80)
	No. Malheur	BLM/NF	2,300,000	13	4/77	4/78	8,500	<.01	186,000	RR	(9/82)
	Alvord	BLM/NF	200,000	8	7/74	2/75	34,600	.18	200,000	MFP/RR	
	Burns Butte	BLM/NF	71,959	14	1/76	2/77	10,200	.14	ndeter.data	MFP/RR	
	So. Pueblo	BLM/NF	14,273	6	1/78	6/78	6,800	.48	11,000	W	(9/82)
	Mt. Hood	FS	158,000	2	9/77	10/77	--	--	8,880	R	(12/78)
	Lava 8-Mile White R.	FS	38,000	3	(9/78)	(11/78)	--	--	39,490	LMP	(12/80)
	Bull Run	FS	101,400	4	(10/78)	(1/79)	--	--	101,400	LMP	(9/78)
	Timber Line Lodge	FS	589	4	3/77	6/74	--	--	0		
	Clackamas	FS	334,000	5	(9/78)	(1/79)	--	--	8,100	R	(12/78)
	Green Spirit (WA)	FS/NF	80,000	17	2/78	(6/79)	--	--	90,800	LMP	(6/79)
	Gifford Pinchot EIS[m] incl. Wild, Cougar, Upper Cispus (WA)	FS	300,000	46	6/75	(3/79)	--	--	14,080 76,070 32,000	W R LMP	(No Date) (1/79) (9/78)
	Indian Heaven incl. White Panther	FS	60,000	20	2/78	(9/79)	--	--	0		
	Mt. Baker/ Snoqualmie (WA)	FS	24,000	19	(7/78)	(1/80)	--	--			
	Okanogan (WA)	FS	(all applications withdrawn so no EAR/EIS planned at this time)								
	Fremont	FS	55,000	37	6/75	7/78	--	--	7,964 320 40	RR LMP LMP	1/79 12/66 5/78
	Breitenbush[n]	FS/NF	47,283	42	6/74	1/78	70,000	.68	0		
	West Breitenbush[n]	FS	12,807	12	(7/78)	(6/79)	(15,000)	(1.17)	0		
	Belknap-Foley	FS/NF	103,000	18	11/77	(4/79)	(45,000)	(.44)	0		
	McCredie	FS	25,000	22	11/77	(8/79)	(30,000)	(1.20)	5,700	R	12/78
	Sisters	FS	48,000	9	5/78	(1/79)	--	--	22,880 36,699	R LMP	1/79 12/78
	Fort Rock	FS	570,000	67	1/75	(1/80)	--	--	3,080 321,500	R LMP	1/79 12/78
	Cauldera	FS/NF	80,000	19	(1/79)	(7/80)	--	--	14,530 67,995	R LMP	1/79 12/78

[l] Includes reoffer. [m] Leasing decision to be based upon LMP EIS only; no separate geothermal environmental study. [n] Willamette and Willamette West NF's.

Table 18 - Cont'd.

ST.	STUDY AREA	OWNERSHIP	TOTAL ACREAGE	EAR PREPARATION Time Lapse Mos.[a]	From	To	TOTAL COST	$/ACRE COST	SPECIAL STUDY AREA Acres	Type*	Completion Date
UT[k]	Thermo H.S.	BLM/NF	96,000	6	12/74	5/75	12,000	.12	0		
	Roosevelt H.S.	BLM/NF	48,000	7	1/74	6/74	20,000	.42	0		
	Escalante	BLM/NF	330,000	5	6/74	10/74	12,000	.04	0		
	New Castle	BLM/NF	80,000	5	2/77	6/77	12,000	.12	0		
	Minersville	BLM/NF	425,000	16	1/76	4/77	15,000	.03	0		
	Sevier Lake	BLM/NF	3,050,000	5	1/76	4/76	20,000	<.01	NA		
	Monroe Joseph	BLM/FS	27,400	7	9/74	3/75	10,000	.36	NA		
	Cove Fort - Sulphurdale	BLM/FS	79,071	6	8/74	1/75	30,000	.38	NA		
	Juab Co.		1,343,066	6	2/77	7/77	20,000	.01			
	Tintic Mts.	BLM	80,000	3	(11/77)	(5/78)	(12,000)	(.15)			
	Beaver/Fillmore	FS	630,000	12	(3/77)	(8/78)	(14,000)	(.02)			
	Pine Valley	FS	50,000	6	(9/77)	(2/78)	(34,000)	(.68)			
	Markagunt Plateau	FS	120,000		7/75	--	(10,000)	(.08)			
	Enterprise P.U.	FS	23,669	3	5/76	8/76	(5,000)				
				0	8/76	8/76	(1,000)	(.67)			
				12	9/77	9/78	(10,000)				
WY	Bridger Teton	FS/BLM/NF	42,817	6	(6/78)	(11/78)	4,500	(.10)	42,086	W	1/79
	Rock Springs	BLM/FS/NF	39,926	--	--	--	--	--	0		
	Bridger N.F.	FS/BLM/NF	110,455	--	--	--	--	--	0		
	Teton N.F.	FS	20,367	--	--	--	--	--	0		
	Targhee	FS	128,843	--	--	--	--	--	0		
	Rock Springs/ Caribou	FS/BLM/NF	7,447	10	1/75	10/75	3,900	.52	0		
	W-53554 thru W-53561	--	20,147	--	--	--	--	--	0		

TABLE 19

COMPARISON OF TIME/DOLLAR EXPENDITURES
IN EAR PREPARATION BY STATE

	Hours/Acre			$/Acre		
	BLM	FS	BLM/FS[a]	BLM	FS	BLM/FS[a]
Arizona			(1.35)			(5.59)
	.14			.15		
	4.17			--		
	.02			.07		
			--			(.17)
	(1.20)			(.79)		
	(1.20)			(2.00)		
California[b]	.37			.80		
			.09			.32
	.05			.03		
			(1.31)			--
			.04			.12
	.32			--		
			(.04)			--
			(.23)			8.28
	.05			1.25		
	.21			--		
	.53			2.71		
	.10[c]			1.05[c]		
Colorado		--			.66	
		1.35			1.56	
		1.28			.59	
Idaho	<.01			.01		
	.14			.40		
	--			.39		
	2.97			4.12		
	(.16)			(.57)		
	<.01			--		
	11.56			4.01		
	(3.57)			(1.24)		
	(1.16)			(3.46)		
	(.56)					
			3.20			.92
			(.12)			(.36)
	(.34)			(1.00)		
	(.23)			(.79)		
	(.50)			(1.50)		

[a]BLM/FS refers only to joint ownership of study area acreage. The data do not always disclose whether EAR preparation is joint or separate.

[b]California FS furnished no study area data.

[c]Bureau of Reclamation.

TABLE 19 - Cont'd.

	Hours/Acre			$/Acre		
	BLM	FS	BLM/FS[a]	BLM	FS	BLM/FS[a]
			(.65)			(.50)
	(.36)			(.71)		
	(.52)			(.10)		
	(.09)			(.71)		
	(.48)			(.80)		
	.02			.10		
	(.12)			(.17)		
	(.07)			.10		
		.01			<.01	
	(.03)			(.47)		
Montana	.14			--		
		(.34)			(.17)	
		(.42)			(.25)	
			.35			1.60
			.15			.33
Nevada			<.01			.02
			<.01			<.01
	.03			17		
			<.01			.01
		<.01			.01	
			<.01			<.01
			<.01			<.01
			<.01			<.01
	<.01			<.01		
	<.01					.01
			<.01			.01
			<.01			.01
			.01			.02
			<.01			.01
			<.01			<.01
	<.01			<.01		
	<.01			<.01		
			<.01			<.01
New Mexico	<.01			.02		
	<.01			.02		
	.02			.19		
		<.01			.06	
	.01			.04		
	<.01			.01		
	<.01			.01		
		.01			.03	
			.04			.12
Oregon/ Washington	.02			.03		
	.01			.03		
	.03			.08		
			(1.00)			(2.02)
	.01			.12		
	.09			.18		
	.80			1.33		
	.08			.09		
	.04			.04		
	<.01			<.01		

TABLE 19 - Cont'd.

	Hours/Acre			$/Acre		
	BLM	FS	BLM/FS[a]	BLM	FS	BLM/FS[a]
	<.01			<.01		
	.02			.18		
			.14			.14
	.30			.48		
		<.01			--	
		.05			--	
		(.02)			--	
		4.89			--	
		(.01)			--	
		(.15)			--	
		(.11)			--	
		(.24)			--	
		(.57)			--	
		.48			--	
		.64			--	
		.67			(1.17)	
		(.12)			(.44)	
		(.63)			(1.20)	
		(.14)			--	
		(.08)			--	
		(.17)			--	
Utah		.04		.12		
		.10		.42		
		.01		.04		
		.04		.15		
	.03			.03		
	<.01			<.01		
			.18			.36
			.05			.38
Wyoming			.10			.10
			.96			.52

$ .01 per acre) lacked much in area specific considerations. The most expensive EAR/EIS documents are identified in Table 20, which shows that this factor is not controlled by amount of acreage, elapsed time, or agency.

The range in time element, reduced to a unit of hours, is from less than .01 hour to 11.56 hours. The average hourly expenditure is .37 hour.

The range of total elapsed time in EAR/EIS preparation by state is shown in Table 21. The average of total elapsed time by state is shown in Table 22. The EAR/EIS study showed that, in the documents analyzed, long study periods of up to 44 months did not produce a better product than studies prepared in 10-12 months. Major flaws in many of the EAR's--failure to explain technical material sufficiently for layman comprehension; the absence of concise summaries and conclusions to support decision-making; and poor logic--were not a function of time or cost.

Table 23 summarizes the number of reviews completed, in process, scheduled, and designated but not scheduled. A great many in the last category lie in California and it is expected that several of them will never be subjected to review because of poor geothermal potential and a low level of interest. In other cases, studies were tabled and have not been rescheduled where applications were withdrawn.

Table 18 shows that a number of the environmental reviews are not scheduled for completion until the mid-1980's, although the large majority, if they adhere to schedule, will be completed by 1980. Some of the roadless review studies, BLM studies on wilderness priorities, are not scheduled to be completed until 1991. Leasing is not precluded in these lands until they are formally placed in the National Wilderness System by Congress, if they are selected for that purpose, but consideration of non-competitive leasing applications in these areas could be delayed.

TABLE 20

MOST COSTLY EAR'S IN DOLLARS/ACRE
WITH ELAPSED TIME, ACREAGE, AND
OWNERSHIP RELATIONSHIPS

	Elapsed Time-Mos.	Cost $/acre	Acreage Covered	Ownership
Gila Box, AZ	57	5.59	30,400	BLM/FS
San Bernardino, AZ	5	2.00	3,000	BLM
Coso, CA	26	8.28	80,640	BLM/FS
Dunton Rico PVA, CO	6	1.56	3,202	FS
Boise Front, ID	2	4.12	485	BLM
Liddy H.S., ID	20	4.01	1,246	BLM
Liddy H.S. Amended	6	1.24	1,209	BLM
Heise H.S., CO	21	3.46	13,000	BLM
Big Southern Butte, ID	12	1.00	25,000	BLM
Twin Lakes, ID	7	1.50	10,000	BLM
Marysville, MT	42	1.60	86,328	FS/BLM
Goose Lake Valley, OR	6	2.02	4,210	FS/BLM
Vale KGRA, OR	10	1.33	8,940	BLM
Breitenbush, OR	42	1.48	47,283	BLM/FS
West Breitenbush, OR	12	1.17	12,807	FS
McCredie, OR	22	1.20	25,000	FS

TABLE 21

RANGE OF TOTAL ELASPED TIMEFRAMES
FOR EAR/EIS PREPARATION BY STATE
AND AGENCY IN MONTHS

	BLM	FS	BLM/FS[a]
Arizona	2-21	--	57[b]
California*	8-30	24[b]	13-30
Colorado*	2-36	17[b]	9-26
Montana	10[b]	19-24	17-42
Nevada	6-18	18[b]	4-37
New Mexico	4-10	22-25	10[b]
Oregon and Washington	5-26	2-67	6[b]
Utah	5-16	--	6-7
Wyoming	-	--	6-10

[a]Joint ownership. It is not known in every case whether the EAR was a joint or separate undertaking.

[b]Only one in this category reported.

* No California Forest Service data and no Colorado BLM data.

TABLE 22

AVERAGE OF TOTAL ELAPSED TIMEFRAMES
FOR EAR/EIS PREPARATION BY STATE
AND AGENCY IN MONTHS
(rounded)

	BLM	FS	BLM/FS[a]
Arizona	7	--	57[b]
California*	16	24[b]	23
Colorado*	--	11	--
Idaho	9	17[b]	18
Montana	10[b]	21	29
Nevada	12	18[b]	14
New Mexico	7	23	10[b]
Oregon and Washington	11	20	6[b]
Utah	7	--	6
Wyoming	--	--	8

[a]Joint ownership. It is not known in every case whether the EAR was a joint or separate undertaking.

[b]Only one in this category reported.

* No California Forest Service data and no Colorado BLM data.

TABLE 23

CURRENT STATUS OF GEOTHERMAL EAR's/EIS's

	COMPLETED			IN PROCESS			SCHEDULED			DESIGNATED BUT NOT SCHEDULED		
	BLM	FS	BLM/FS	BLM	FS	BLM/FS	BLM	FS	BLM/FS	BLM	FS	BLM/FS
Arizona	3			2		1			1			
California[a]	3		3	6[b]		2	2			11	4	5
Colorado[c]		3										
Idaho	7		1	1	2	1	11		2	1	1	
Montana	3		2		1			1				1
Nevada	5	1	12									
New Mexico	6	1			1	1			1			
Oregon & Washington	13	4	1		8			5			1	
Utah	7	3	2		1							
Wyoming			1						1			

[a] There are no maps available for three study areas in California, so ownership cannot be identified. No studies scheduled.

[b] One is Bureau of Reclamation.

[c] No data provided on five FS study areas.

SECTION VII

ANALYSIS OF GEOLOGICAL SURVEY PERFORMANCE IN POST-LEASE ACTIVITIES

As noted earlier, the lessee must submit to GS a plan of operation (POO) for the first activity on the leased land--other than surface exploration and shallow temperature gradient holes which only require a Notice of Intent exploratory permit--and each subsequent activity not covered by a previous plan of operation. In addition, a permit is required for all wells drilled pursuant to an approved POO.

The permit is essentially an approval of the safety and other engineering features of the well whereas approval of the plan of operation takes into account much broader considerations, including the environmental impact of the whole operation. Thus, GS undertakes an environmental review--called an environmental analysis, or EA--on each plan.

The basic difference in intent between these documents and the pre-lease EAR is that the latter covers the entire leasehold--or, as discussed in Section VI, in most instances a much larger surrounding area--and the EA is intended to be specific to the site of operations. However, a review of several series of EA's shows that in actual practice this is not always the case. In fact, the following statement is made in many EA's:

> "Although the EA is addressed specifically to operations within the lease(s), the consideration of environmental impacts and mitigating measures is not confined to the area within the lease boundaries."

For exploratory wells, and others as deemed necessary, a joint on-site inspection is held by GS, BLM (and/or Forest Service), the Fish and Wildlife Service, and, usually, the operator. In some cases the Geothermal Environmental Advisory Panel (GEAP) reviews and comments on the EA.

An analysis of the GS records on individual POO and permit approvals, shown in Table 24, indicates that while some key delays have occurred in EA preparation--and, as a result, in approvals--really significant delays do not occur regularly or with frequency. It is again, as in the pre-lease program, the non-uniformity in performance which at times impedes orderly, efficient, and economic lessee planning and operations.

Table 24 shows the record on the first 40 plans of operation for exploration submitted which include deep test wells. This is the significant category since NOI permits for shallow temperature gradient

TABLE 24

U. S. GEOLOGICAL SURVEY
PERFORMANCE IN APPROVING EXPLORATION PLANS OF OPERATION AND DEEP-WELL DRILLING PERMITS

	No. of Wells	Received	EAR Completed	Time Lapse (in mos)	No. of APDs	Received	Approved	Time Lapse (in mos)
East Mesa KGRA	4	9/25/75	1/28/76	4	4	11/22/75	not exec.	
						11/20/75	2/13/76	3
						11/20/75	4/29/76	5
						11/20/75	not. exec.	
	4	4/4/77	6/17/77	4.5	4	4/1/77	4/14/78	13.5[a]
						4/1/77	4/14/78	13.5[a]
						4/1/77	4/14/78	13.5[a]
						4/1/77	4/14/78	13.5[a]
	18	7/9/75	9/11/75	2[b]	4	12/1/75	12/8/75	0.25
						10/20/75	10/28/75	0.25
						10/31/77	11/23/77	1
						8/15/75	9/12/75	1
	9	9/22/75	12/5/75	2.5	4	5/28/78	6/23/78	0.75
						5/11/77	6/23/77	1
						5/23/77	6/19/77	0.5
						3/30/77	5/3/77	1
	8	6/10/77	1/13/78	7	1	8/22/77	in process (plan changed)	

[a] Because operator was in no hurry, GS gave low priority to APD approval.
[b] GEAP and/or public meeting involved.

TABLE 24 - Cont'd.

	No. of Wells	Received	EAR Completed	Time Lapse (in mos)	No. of APDs	Received	Approved	Time Lapse (in mos)
Geysers/ Calistoga KGRA	2	8/14/74	8/26/74	0.5[b]	2	9/3/74 9/3/74	9/6/74 9/6/74	0.10 0.10
	1	7/23/75	7/28/75	0.20	1	7/23/75	7/31/75	0.25
	1	8/22/75	10/8/75	1.5	1	8/22/75	12/8/75	11.5
	1	1/26/76	1/30/76	0.15	1	1/30/76	1/30/76	0
	1	4/1/76	7/22/76	4	1	4/1/76	8/12/76	4.5
	2 multiple[c]	12/14/76	5/9/77	5	2	6/9/77 12/14/77	7/21/77 12/20/77	1.5 0.25
	1	8/12/74	8/26/74	0.5[b]	1	8/12/74	9/6/74	1
	multiple[c]	8/8/74	4/4/75	8	1	4/9/75	4/14/75	<0.25
	1	5/15/75	7/8/75	2[b]	1	6/13/75	7/8/75	0.75
	1	6/7/75	7/18/75	1	1	6/19/75	7/8/75	0.5
	1	7/16/75	9/11/75	2	1	9/7/75	10/1/75	0.75
	2	9/7/76	2/25/77	7	1	1/18/77	12/2/77	11.5

[c] Several wells at one site--rule of thumb estimate is 4 per site.

TABLE 24 - Cont'd.

	No. of Wells	Received	Completed	Time Lapse (in mos)	No. of APDs	Received	Approved	Time Lapse (in mos)
Mono/Long Valley KGRA	1	9/9/75	9/15/75	0.20	1	3/3/76	4/9/76	1
	3	10/24/75	2/11/76	3.5[b]	0	--	--	
Fish Lake Valley (N/C)	4	7/21/75	11/13/75	4	1	8/15/75	1/16/76	5
Rye Patch KGRA	6	2/24/78	in progress					
Soda Lake	3	5/25/76	12/29/76	7[b]	1	7/17/77	11/11/77	4
	2	5/25/76	12/27/76	7[b]	0	--	--	
Beowawe KGRA	6	9/1/76	6/28/77	10[b]	Dropped because unable to form a unit			
Brady-Hazen KGRA	6	5/2/77	8/25/77	4[b]	0	--	--	
	6	8/1/77	11/3/77	3	0	--	--	
Dixie Valley KGRA	11	5/17/78	in progress	-[b]				
Roosevelt HS KGRA	4	12/6/76	1/8/75	1.5[b]	4	1/24/75	1/24/75	0
						1/24/75	1/24/75	0
						1/24/75	1/24/75	0
						1/24/75	1/24/75	0
	1	3/28/75	4/4/75	0.20	1	3/17/75	4/14/75	1
	1	6/4/75	6/13/75	0.30	1	5/28/75	7/15/75	6.5

TABLE 24 - Cont'd.

	No. of Wells	Received	Completed	Time Lapse (in mos)	No. of APDs	Received	Approved	Time Lapse (in mos)
Roosevelt HS KGRA	16	1/5/76	6/25/76	6	6	8/5/76	8/10/76	<0.25
						4/13/78	5/22/78	1
						5/25/76	7/9/76	6.5
						1/10/77	1/19/77	0.25
						1/10/77	1/19/77	0.25
						1/10/77	1/19/77	0.25
	6	9/28/76	4/7/77	5	1	4/13/78	5/22/78	1
	1	9/12/75	9/12/76	same day	1	9/12/75	10/1/75	0.5
	3	5/27/77	8/17/77	2.5	1	9/13/77	10/17/77	1
Cove Fort-Sulphurdale (N/C)	31	9/14/76	7/6/77	10[b]	2	11/11/77	12/21/77	1
						2/7/77	10/18/77	9.75
	3	9/21/77	12/21/77	3	0	--	--	
Thermo HS KGRA	6	5/31/77	9/23/77	4	1	8/15/77	9/28/77	1.25
Clakamas Co. (N/C)	1	1/26/78	in progress	-[b]	0	--	--	
Castle Creek (N/C)	6	2/2/78			Operator lost interest because of poor showing nearby			

holes require only brief environmental analysis and are usually issued within a month. There have been insufficient plans of development, injection, utilization, and production filed to establish a record.

In summary, the time lapse for completion of EA's on exploration POO's ranges from the same day the POO was filed in one case up to 10 months. The average time lapse is 3.5 months, and the median is three months. Formal written approval of the POO appears to follow routinely within a day or at most a week.

Perhaps the most intersting disclosure of the data is that neither of two factors have exerted the expected degree of influence. First, it had been assumed that the EA's on the first exploratory POO's in an area would take longer than subsequent ones in the same area, and, second, that approval of a POO involving multiple well sites might be a more lengthy process than for POO's involving only a single site. Table 25 shows that neither is always the case.

The first POO for deep drilling in the East Mesa KGRA, for example, covered 18 well sites and was approved in two months. The most recent POO in the same area covered eight well sites, and the EA was seven months in preparation. The latter may be explained by the fact that the plan itself was changed. An examination of both EA's involved did not reveal any significantly increased effort on the latter. In The Geysers/ Calistoga KGRA, the first POO was for multiple wells and took eight months, as might be expected, but one of the most recent covering only two wells still took seven months. In Roosevelt Hot Springs KGRA, the other area subject to more than one or two exploratory POO's, the first approval, involving only one well, was achieved in 1975 in less than a week. In 1976, it took six months for 16 wells, and in 1977 two and one-half months for three wells.

Review of several series of EA's on succeeding lessee activities on the same lease or leases does not disclose the reasons for this erratic pattern. In fact, there is little consistency in the anticipated pattern of the EA's themselves--i.e., decreasing effort with each analysis is the same area.

However, it can be seen that the material in the initial EA is generally used repeatedly in subsequent ones. It is not clear why this material is retyped, or cut-and-pasted, as the case may be, in so many of the succeeding documents. Even the clerical effort involved in assembling the document and in making the lengthy distribution copies is time consuming. It is believed that reference to the previously published material, presentation of any new information developed, the impact summary and impact evaluation matrix, along with the necessary appended material, would meet the requirements of NEPA.

The effect of GEAP involvement on timeframes of EA preparation is difficult to assess on the basis of the limited data available since the timeframes where it participated range from about two weeks to 10 months. The EA was subsequently completed anywhere from one day after receipt of GEAP comment to three months after, although one month's delay is more common.

TABLE 25

U. S. GEOLOGICAL SURVEY
RECORD ON ENVIRONMENTAL ANALYSIS OF
EXPLORATION PLANS OF OPERATION IN
THE THREE MOST ACTIVE
GEOTHERMAL AREAS

Area	Date Plan of Operation Filed	Number of Wells Involved	Time Lapse for EA (in mos.)
East Mesa	7/75	18	2
	9/75	9	2.5
	9/75	4	4
	4/77	4	4.5
	6/77	8	7
Geysers/Calistoga	8/74	multiple	8
	8/74	1	0.5
	5/75	1	2
	6/75	1	1
	7/75	1	2
	7/75	1	0.2
	8/75	1	1.5
	1/76	1	0.15
	4/76	1	4
	9/76	2	7
	12/76	multiple	5
Roosevelt Hot Springs	3/75	1	0.20
	6/75	1	0.30
	9/75	1	same day
	1/76	16	6
	9/76	6	5
	12/76	4	1.5
	5/77	3	2.5

The record on approval of actual well permit applications (APD's) is similarly non-uniform. The longest period is over 13 months for four permits, but in this case, according to the Geothermal Supervisor's office, the applicant was in no hurry and the applications were given very low priority. If these applications are included in the tabulation, the median approval time is one month and the average is nearly three months. If they are excluded, the average is a little less than two months, and, because of the number of approvals in one month, the median remains at one month. The shortest time for approval is again the date of application in five cases.

In any assessment of the GS program, it must be remembered that its performance has frequently been determined by the operator's intentions. In some instances, when the applicant indicated a desire for speedy approvals, more effort was brought to bear and faster action was achieved. In others, low priority has been given to applications when it was known the applicant would not utilize the approval immediately in any event.

APPENDIX A

SALES ON COMPETITIVE INTEREST KGRA's

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
ARIZONA										
Clifton	3,700	1	1	780	0	0	0	0	0	0
Gillard H.S.	920									
CALIFORNIA										
Beckwourth Peak	2,558									
Bodie	640									
Ford Dry Lake	7,687									
Knoxville	14,702									
Little Horse Mt.	1,196									
Lovelady Ridge	6,239									
Randsburg	12,880									
Saline Valley	3,200									
Witter Springs	18,162									
COLORADO										
Alamosa Co.	6,761	2	2	3,561	0	0	0	0	0	0
Mineral H.S.	5,765	2	3	3,524	1	2,484	1	3	3	7,877
Poncha	3,200	1	1	916	1	916	1	2	2	1,951
Valley View H.S.	5,099	2	2	3,271	1	1,636	1	2	2	3,749
IDAHO										
Bruneau	5,120	1	2	2,600	2	2,600	2	2	2	5,538
Island Park	28,539									
Mountain Home	9,520	3	3	5,102	3	5,102	3	5	5	26,023
Vulcan	3,836									

Appendix A -- Cont'd.

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
NEVADA										
Baltazar	5,617	1	3	5,537	3	5,537	3	4	4	21,515
Colado	640	2	1	640	1	640	1	8	8	5,107
Fly Ranch N.E.	7,680									
Gerlach N.E.	7,971									
H.S. Point	8,549	1	4	5,981	2	4,701	4	29	51	240,984
Rye Patch	801	1	1	801	1	801	2	29	40	32,361
Salt Wells Basin	19,323	1	8	18,577	0	0	0	0	0	0
Silver Peak	5,117	1	2	4,924	1	2,547	1	5	5	13,471
Soldier Meadow	5,986									
Trego	7,013									
NEW MEXICO										
Gila H.S.	3,202									
Kilbourne Hole	25,134	2	12	24,277	12	18,476	13	9	16	368,046
Lightning Dock	23,552	3	7	13,371	7	13,371	10	4	3	52,300
Lower Frisco H.S.	5,760									
San Ysidro	1,915	2	1	1,275	0	0	0	0	0	0
Radium Springs	9,813	1	5	5,367	4	3,622	11	12	18	54,985
OREGON										
Belknap-Foley H.S.	5,066									
Burns Butte	640	1	1	640	0	0	0	0	0	0
McCredie H.S.	3,659									
WASHINGTON										
Kennedy H.S.	3,311									
Indian Heaven	2,547									

Appendix A -- Cont'd,

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
UTAH										
Cove Ft.-Sulp.	24,874	3	12	23,900	12	23,900	15	71	136	3,171,223
Lund	3,840	2	2	3,360	2	3,360	<2	<2	2	5,947
Navajo Lake	2,522									
Newcastle	2,635	1	1	1,830	1	1,830	2	19	35	64,729
Roosevelt H.S.	29,791	2	13	24,591	13	24,591	30	12	36	879,773
Thermo	26,019	3	10	16,969	8	13,449	18	4	5	64,388
Meadow-Hatton	1,927									

Source: U.S. 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

APPENDIX B

SALES ON GEOLOGIC CRITERIA KGRA's

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
ALASKA										
Geyser Spring Basin	20,960									
Okmok Caldera	44,800									
Pilgrim Springs	22,400									
CALIFORNIA										
Brawley	28,886									
Dunes	7,680									
E. Mesa	38,365	2	14	30,168	6	11,770	6	52	52	661,504
Glamis	25,505									
Heber	58,568									
Lassen	78,642									
Mono-Long Valley	460,256	1	7	13,714	3	5,483	10	63	118	632,818
Salton Sea	95,824									
Sespe H.S.	7,034									
Wendell-Amadie	17,932									
IDAHO										
Yellowstone	14,164									
MONTANA										
Boulder H.S.	6,343	1	1	1,608	0	0	0	0	0	0
Yellowstone	12,763									
NEVADA										
Darraugh H.S.	8,363	2	3	5,803	0	0	0	0	0	0
Elko H.S.	8,960									

*Reoffers are not counted as additional tracts -- i.e., a tract is counted only once.

Appendix B -- Cont'd.

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
Kyle H.S.	2,561	1	1	2,400	1	2,400	1	3	3	8,114
Moana H.S.	5,120									
Monte Neva	10,302	1	4	7,547	0	0	0	0	0	0
Steamboat Springs	8,911	1	1	1,548	1	1,548	3	21	32	50,000
Stillwater-Soda Lake	225,260	2	21	47,157	6	13,259	7			
Wabuska	11,520	1	3	5,640	3	5,640	3	9	9	59,151
NEW MEXICO										
Baca, Loc. I	162,761	2	17	29,375	16	25,625	25	24	31	1,005,954
Socorro Peak	89,716	1	18	32,813	9	16,980	17	16	19	275,411
OREGON										
Carey H.S.	7,579									
Lakeview	12,165									
Mount Hood	8,671									
UTAH										
Crater Sp.	17,321	1	6	15,001	6	15,001	7	3	3	49,620

Source: U.S. 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

APPENDIX C

SALES ON KGRA's CONTAINING BOTH GEOLOGIC CRITERIA AND COMPETITIVE INTEREST ACREAGE

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
CALIFORNIA										
Coso H.S.	106,713									
Geysers-Calistoga	374,910(GC) 1,120(CI)	3	15	11,692	16*	12,397*	55	472	752	8,101,039
Glass Mt.	33,287									
Lake City-Surprise Valley	72,940	1	16	34,591	5	10,584	6	11	13	134,532
IDAHO										
Castle Creek	79,722	2	9	20,924	9	18,364	23	5	8	162,080
Crane Creek	4,342	1	1	1,381	1	1,381	1	17	17	23,857
Raft River	30,209	2	10	11,915	1	4,427	1	2	2	4,427
MONTANA										
Corwin Sp.	20,349									
Marysville	19,200									
NEVADA										
Beowawe	33,224	2	8	16,530	6	13,766	13	29	48	696,272
Brady-Hazen	98,508	4	27	54,304	20	37,684	23**	9	10	386,221
Dixie Valley	36,348	2	17	37,472	14	30,491	24	12	11	379,355
Double H.S.	29,326									
Fly Ranch	20,759	3	7	14,479	4	8,751	5	4	5	41,297
Gerlach	25,326	1	11	22,565	4	8,494	5	15	15	130,031

* Bids on 2 tracts rejected and bid again; 1 tract not bid
** 1 bid rejected

Appendix C -- Cont'd.

KGRA	Total Acreage	No. of Sales	No. of Tracts Offered	Acreage	No. of Tracts Bid	Acreage	Total Bids	Average Bid-$/ Acre	Average High Bid-$/ Acre	Total $
Leach H.S.	12,846	1	5	12,246	5	12,246	5	4	4	49,037
Pinto H.S.	8,015	1	4	7,975	0	0	0	0	0	0
Ruby Valley	5,743	1	2	3,059	1	2,419	4	35	101	244,988
San Emidio Desert	7,678	2	3	5,231	1	1,612	1	10	10	16,720
Warm Springs	3,812	1	1	1,312	1	1,312	1	9	9	11,282
Wilson H.S.	1,294	1	1	1,294	1	1,294	1	4	4	4,776
OREGON										
Alvord	175,835	3	44	90,379	20	45,464	44*	7	8	179,603
Breitenbush H.S.	13,445									
Crump Geyser	85,653	2	18	35,974	7	14,343	7	4	4	63,153
Klamath Falls	50,300	2	15	4,954	6	1,907	6	8	8	17,350
Newburg Crater	31,284									
Vale H.S.	22,998	3	7	13,920	7	13,920	15	11	11	170,746
Summer Lake H.S.	13,631	2	4	7,521	4	7,521	4	2.5	2.5	20,026
WASHINGTON										
Mt. St. Helens	29,754									
UTAH										
Monroe-Joseph	16,364	3	4	7,187	4	7,187	6	10	13	112,639

* Six bids rejected.

Source: U.S. 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

* U.S. GOVERNMENT PRINTING OFFICE: 1979-640-079-1307