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DEROCS

A COMPUTER PROGRAM TO SIMULATE OFFSHORE OIL AND NATURAL GAS DEVELOPMENT SCENARIOS AND ONSHORE SERVICE BASE REQUIREMENTS

by

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ABSTRACT

The FORTRAN IV (H) computer program, DEROCS, constructs Outer Continental Shelf (OCS) resource development scenarios and quantifies the requirements for and impacts of the operation of the onshore service bases necessary to support offshore oil and gas operations. The acronym DEROCS stands for "Development of Energy Resources of the Outer Continental Shelf." The user may specify the number, timing, and amounts of offshore oil and natural gas finds, onshore service base locations, and multiplier relationships between offshore development activities and onshore land, supply, labor and facility requirements. The program determines schedules of platform installation, development drilling, production from platforms, and well workover, and calculates on a yearly basis the requirements for and impacts of the operation of the onshore service bases demanded by offshore activities. We present two examples of program application.

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INTRODUCTION

Purpose

The DEROCS computer program was developed to provide public officials in coastal areas with a means to estimate: 1) the timing and magnitude of offshore activities required to discover and produce commercial quantities of oil and natural gas; and 2) the requirements for and impacts of operations of the onshore service bases demanded by offshore activity. The DEROCS program is based upon the method developed by the New England River Basins Commission (NERBC) in their RALI - sponsored project draft interim report, "Development and Application of a Methodology for Siting Onshore Facilities Associated with OCS Development" (1976a). In understanding the development procedures of industry, NERBC received significant technical assistance from the American Petroleum Institute and the Offshore Operators Committee. The two groups critiqued NERBC's draft interim report (1976a) and offered suggestions which have strengthened the oil and natural gas resource development method. In their report, NERBC devised two oil and natural gas resource scenarios applicable to New England, a "high find" of 2.4×10^9 barrels of oil and 12.5×10^{12} cubic feet of gas, and a "no find" of no commercially recoverable reserves. NERBC, based upon the two scenarios, then assessed the requirements and impacts of their onshore service base operations.

The method developed by NERBC for the structuring of oil and natural gas development scenarios and the assessment of requirements for and impacts of onshore service base operations is transferable to all regions potentially subject to offshore oil and gas development. A computer program was developed which automates this method because:

1. The two NERBC scenarios were applicable to only the Georges Bank region offshore of the New England coast. The DEROCS computer program can be used to structure oil and natural gas development scenarios in any OCS region.

2. A manual method of calculating oil and natural gas resource scenarios and their facility implications is extremely time consuming and precludes investigating the implications of a range of estimates of offshore oil and natural gas development. An automated capability for oil and natural gas development scenarios permits the rapid generation of a range of levels of oil and natural gas finds, from a no find through moderate, to large development estimates. This capability permits a full assessment of the effects of the full range of oil and natural gas development possibilities.

3. Any method of devising oil and natural gas development scenarios and assessing their potential onshore impacts necessarily must contain uncertainty. In addition, differences of opinion exist concerning the values and timing of development assumptions and impact multipliers. The DEROCS program has been formulated to enable the program user to alter development assumptions as desired. For example, the user may

wish to, and can, alter the values concerning the 1) type, amount, and timing of oil and natural gas finds; 2) requirements, productivity, and longevity of platforms; and 3) requirements and impacts of service base facility operations, in terms of both type and magnitude.

The DEROCS computer program is our first attempt at a program that produces automated oil and natural gas development scenarios. Later versions of the DEROCS program will have easier requirements for user input and a more sophisticated treatment of offshore operations. The DEROCS program at present has the capability to generate OCS oil and natural gas development scenarios and quantify the impacts of onshore service bases. Future versions of DEROCS are being considered which will have the ability to quantify the requirements and impacts of many of the onshore facilities required to support offshore energy development, including natural gas processing plants, pipe coating yards, pipelines, and their landfalls.

NERBC has published two reports (1976c, d) since the computer programming on DEROCS was completed. One of these reports, "Estimates for New England" (1976c), develops three scenarios; high, low, and medium finds. The method used in that report for quantifying the offshore scenarios is the same as presented in DEROCS. The onshore portion of the oil and natural gas development scenarios as described in the most recent NERBC report has changed in two ways. This report describes the timing, types and numbers of all onshore facilities required by each level of offshore development. Many of the multiplier equations for calculating service base impacts have been changed also. They are no

longer of the linear or step function nature which is compatible with the DEROCS program. As a consequence, the user may wish to employ DEROCS for the development of an offshore scenario and calculate manually some of the requirements for and impacts of onshore service base siting.

Computer Program Availability

The computer program embodying the DEROCS model is currently operating on the USGS IBM 370/155[1/] computer in Reston, Virginia and the Interior Department IBM 360/65 computer in Washington, D.C. The FORTRAN IV (H) source code is given in this report, which should be sufficient to allow most persons to create their own model, and to run it on computers which utilize a similar compiler. For additional information on the program and its use, contact the RALI Program Office, Mail Stop 750, USGS National Center, Reston, Virginia, 22092.

1/ The use of brand names in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

GENERAL DESCRIPTION

The DEROCS program is a computer model which constructs OCS oil and natural gas resource development scenarios and quantifies the requirements for and impacts of onshore service bases necessary to support offshore oil and gas operations.

The program user supplies assumed levels of exploratory activity and amounts of hydrocarbons to be extracted over a given time interval from specified geographical areas. From this and other input quantities, the program calculates the number of platforms required to extract the hydrocarbons, their installation schedule and, consequently, requirements for an impacts of onshore service bases which are proportional to the number of exploratory rigs and production platforms in operation.

The offshore operations which require onshore support are divided into the following phases: 1) exploratory drilling; 2) platform installation; 3) development drilling; 4) oil and natural gas production; and 5) well workover. Chapters 2 and 3 of NERBC's report (1976a) describe the offshore and onshore activities associated with these development phases. The five phases above occur, to a great extent, concurrently during the productive life of a hydrocarbon reservoir. Oil and natural gas may be discovered during continued exploration, creating demand for additional offshore and onshore facilities and support at different periods throughout the lifetime of a region.

"The siting of service bases, which serve as the logistical link between onshore and offshore, is the first decision involving onshore facilities associated with OCS development" (NERBC, 1976a). Service bases support offshore facilities such as exploratory and development drilling rigs and production platforms during each phase of oil and natural gas development.

In general, a service base provides loading and dock space for the service vessels, a helicopter pad, center for communications between base and offshore facilities, storage and warehouse space for supplies such as mud chemicals, cement, down-hole equipment and tools, line pipe and casing, drill pipe, equipment for transferring supplies onto service vessels and helicoptors, and office space (NERBC, 1976b).

Service bases are either owned by an oil company directly engaged in offshore operations or by a service company which provides the supplies and services which are purchased by the oil company acting as a tenant. Oil companies will establish or lease service base facilities on a temporary basis during the early period of exploration in a region. If commercially recoverable reserves are discovered, the company will make a decision on the location of permanent bases.

Each offshore operation, or phase of development, demands certain onshore service base support activities and produces a corresponding onshore operating requirement or impact. For example, the exploratory phase of development requires a certain number of supply boats or onshore employees to service offshore drilling rigs. The DEROCS program allows

a user to quantify such requirements and input them to the program. These are generally expressed as some given requirement, or impact, per operating rig (or production platform). Using these requirement and impact multipliers, the program calculates the impacts for all phases of development.

The program can also be operated in a "NOFIND" mode which assumes no discovery of commercially recoverable hydrocarbon sources. In this mode of operation, the program calculates various economic effects due to unsuccessful exploration.

The computer program is not a simulation model in the probabilistic sense. Such a model would sample randomly certain parameters from input probability density functions in an effort to reflect uncertainties in some of the unknown quantities, for example, in the quantity of recoverable hydrocarbon sources. Thus, instead of the user assigning values to uncertain quantities, he would input probability density functions describing a range of plausible values the unknown quantities might assume. The computer would select the values it needs at random from the appropriate probability density functions.

In the DEROCS program, the assignment of values is the responsibility of the user. The DEROCS program can be regarded as a simulation model where the user, instead of the computer, selects values for all the unknown parameters. For this reason, the model is deterministic in nature.

METHODS AND ASSUMPTIONS FOR CONSTRUCTING AN OFFSHORE OIL AND NATURAL GAS DEVELOPMENT SCENARIO

This section describes the methodology from which the DEROCS program has been derived. By following it, the user can assemble the information required to run the computer program. It is not necessary, however, to subscribe to the method or assumptions developed in this section in order to make a program run. DEROCS requires input data which can be derived by the user by the method presented here and in several other ways.

Figure 1 is a flow chart which describes the method upon which DEROCS is based. Each of the operational steps of the method, as shown by the flow chart, are explained below.

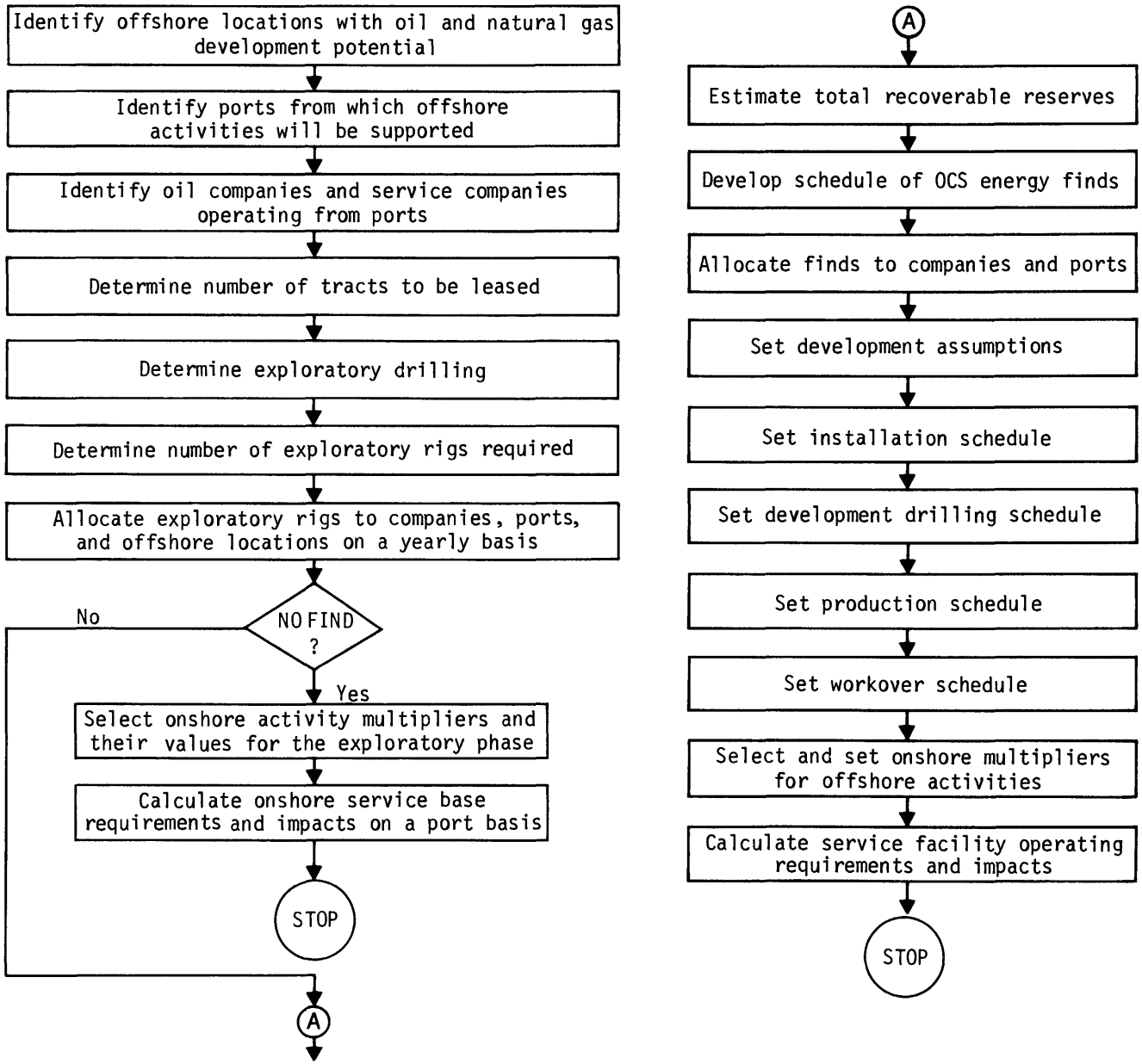

Figure 1.-- Flow chart of the methodology

Operational Steps

Identify Offshore Locations with Energy Development Potential

First, obtain a map of the area of interest, such as figure 2, which portrays a segment of the OCS and its adjacent coastline. The user identifies locations on the OCS which have been assessed as having development potential. These locations can be identified from several sources, such as the Council on Environmental Quality (CEQ) study (1974), the call areas identified by the Bureau of Land Management (BLM), or blocks of leasing tracts which are to be or have been subject to sale.

No calculations are made in DEROCS which are dependent upon offshore locations. Identifying offshore areas provides a frame of reference between those offshore areas in which energy exploration and development will occur and ports which may contain onshore support facilities. These offshore locations should be given identification numbers. Note that each port and each company operating out of each port is identified with a separate series of alphabetical designations.

Identify Ports from which Offshore Activities will be Supported

Ports in which service bases may be located should be identified. There are several criteria for selection of a port to serve as a service base; these include distance from offshore locations to be explored or

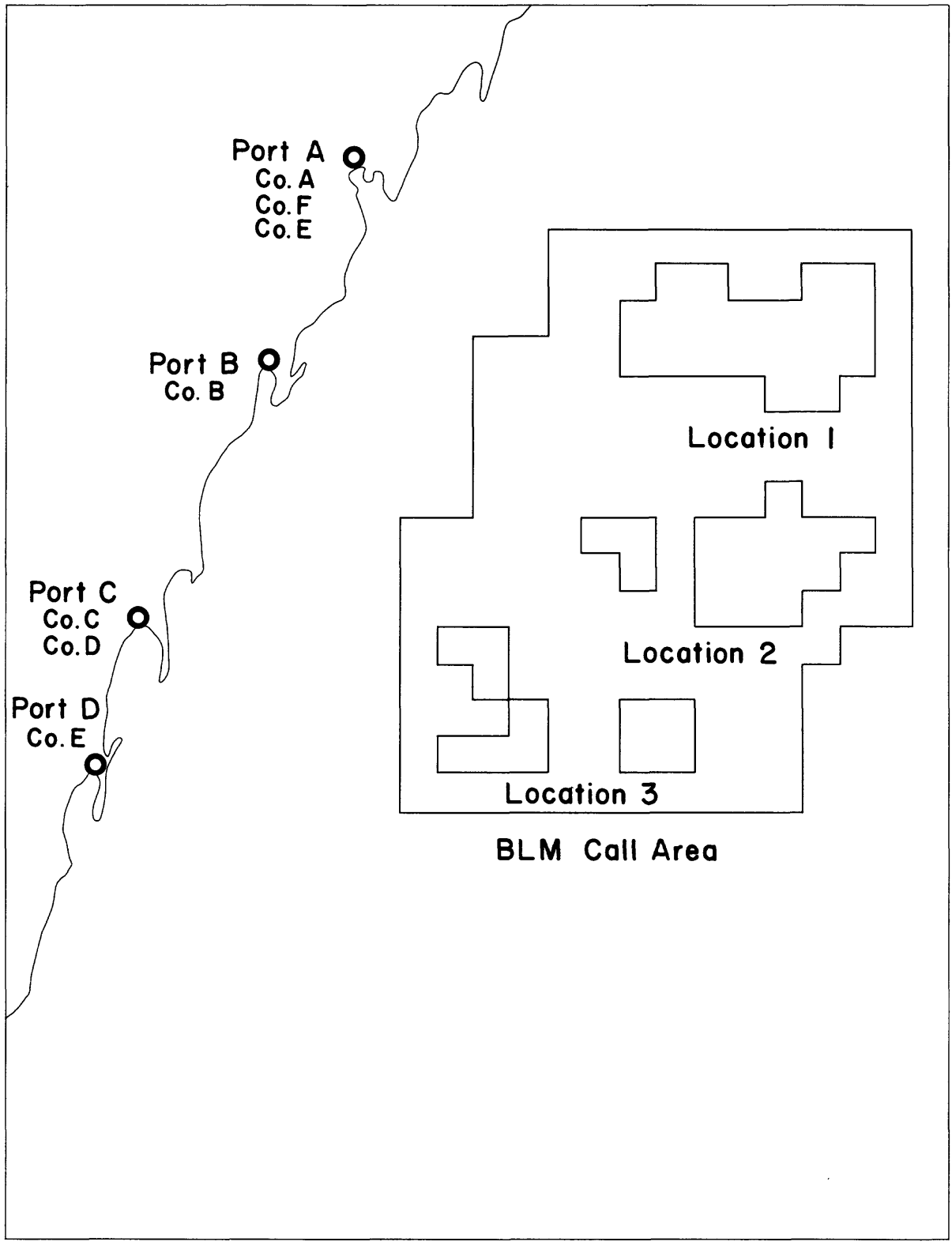

Figure 2.-- Map of coastal areas with hypothetical OCS oil and natural gas development potential and onshore service base locations.

developed, good transportation access, availability of sufficient berth space and acreage to carry out servicing operations, presence of repair equipment, and other criteria detailed in the NERBC report (1976d). The ports should be given identifying symbols as indicated by the example in figure 2.

Identify Oil Companies and Service Companies Operating from Ports

Hypothetical oil companies or service companies should be assigned to operate service bases in each port. Service companies will often open service bases in frontier OCS areas and provide support activities to the oil companies on lease arrangement. Alternatively, oil companies may themselves establish service facilities to support their offshore activities. The oil and service companies in each port should be given identifying designations.

Determine Number of Tracts to be Leased

Determining the number of tracts to be leased enables reasonable estimates of exploratory activity to be made. The DEROCS model can assess the requirements for and impacts of the service bases of one or several lease sales. Our method assumes that the user is interested in the implications of the development of an entire sedimentary basin by means of several lease sales. Users interested only in the effects of one lease sale can enter the procedure below at the appropriate point. We estimate exploratory activity by:

1) Determining the total offshore area subject to leasing.-- The total area may be derived from several sources; the CEQ study's (1974) locations, or the BLM's call area for nominations for a particular sale. The number of leasing tracts within this call area is found by dividing the area, in square miles by nine. (Each tract is nine square mile)

2) Estimating the number of tracts actually to be offered from this total.-- The user determines whether he is interested in a single sale or in the total number of tracts to be offered in an entire basin. The number of tracts to be offered in a specific sale may have already been announced by BLM. If not, the number to be offered in lease sales is estimated.

3) Estimating the number of lease sales and percentages of total tracts being offered at each lease sale.--A number of lease sales for a region is hypothesized. The total tracts to be offered calculated in 2 above is distributed to each lease sale.

4) Estimating percent of tracts leased per sale.-- Not all tracts offered are ultimately leased.

To give an example of this procedure, we use the values of the assumptions that have been developed by the American Petroleum Institute (API) and the Offshore Operators Committee for the Georges Bank area. The estimates are based on historical events in the Gulf of Mexico. The total four CEQ circle-region of potential leasing encompasses 7,856 square miles or 872 tracts. The proportion of tracts offered for leasing is 0.56, giving 488 tracts subject to lease sale.

The number of lease sales is estimated at three and the proportion of tracts offered at each lease sale to total tracts is given as 0.42, 0.33, and 0.25, respectively. The 488 tracts subject to lease sale will be distributed as 205, 161, and 122 tracts over the three lease sales.

The proportion of tracts actually leased per sale is 0.7, 0.5, and 0.4, giving the number of tracts leased per sale as 144, 81, and 49, or 274 total.

Our procedure estimates the total number of tracts leased, from which exploratory drilling schedules can be derived.

Historical data can be used to structure the number of tracts expected to be leased. Appendix 1 presents historical data concerning OCS lease sales from 1954 to 1976, including the number of tracts offered and number actually leased.

Determine Exploratory Drilling

The amount of exploration performed on leased tracts is dependent on many factors, including areal distribution and thickness of oil and natural gas reservoirs, and success in discovering commercially recoverable reserves. The possible levels of exploration activity are described below.

1) No find situation.--This situation occurs when no commercially recoverable reserves are discovered. The exploratory phase is reduced to several years and is the only offshore activity demanding service base support. The experience of the Missippi, Alabama, and Florida (MAFLA)

1974 sale in the eastern Gulf of Mexico serves as a prototype for this situation. In MAFLA, 87 tracts were leased and 17 exploratory wells were drilled.

The exploratory activity for the no find situation would be calculated as 1/5 of all tracts sold being drilled, or 55 of the total 274 leases sold.

2) Find situation.--In a find situation exploration is extensive and an average of two exploratory wells would be drilled per leased tract. As above, if 274 tracts are to be leased, then 548 exploratory wells will be drilled.

Determine Number of Exploratory Rigs Required

Once the total number of tracts has been determined, then an estimate of the total exploratory rig activities can be made. Determine the number of exploratory wells which an exploratory rig can drill in a year. This number is divided into the total number of exploratory wells.

Our sample runs of DEROCS assume that a mobile exploratory drilling rig can drill four wells of 15,000 foot (4,572 meter) depth a year. In the no find case, 14 exploratory rig-years would be required to drill 55 wells, while in the find case 137 exploratory rig-years would be required to drill 548 wells.

Allocate Exploratory Rigs to Companies, Ports, and Offshore Locations on a Yearly Basis

The total number of exploratory rig-years are assigned to oil companies operating from ports on a yearly basis, as shown by Figure 3.

This schedule is developed as follows:

1) Determine an OCS exploratory rig drilling schedule by allocating exploratory rigs on a yearly basis;
2) Allocate the exploratory rig activity of each year to the companies engaged in OCS activity.

The DEROCS program has certain limitations concerning the total number of exploratory years and number of offshore locations which a company can explore in a given year. Refer to the "Documentation" section for this information.

If no find

If a no find situation is to be modelled, the user supplies information only for the next two boxes of the flow chart. The find situation omits these steps and continues on to "Estimate total recoverable reserves."

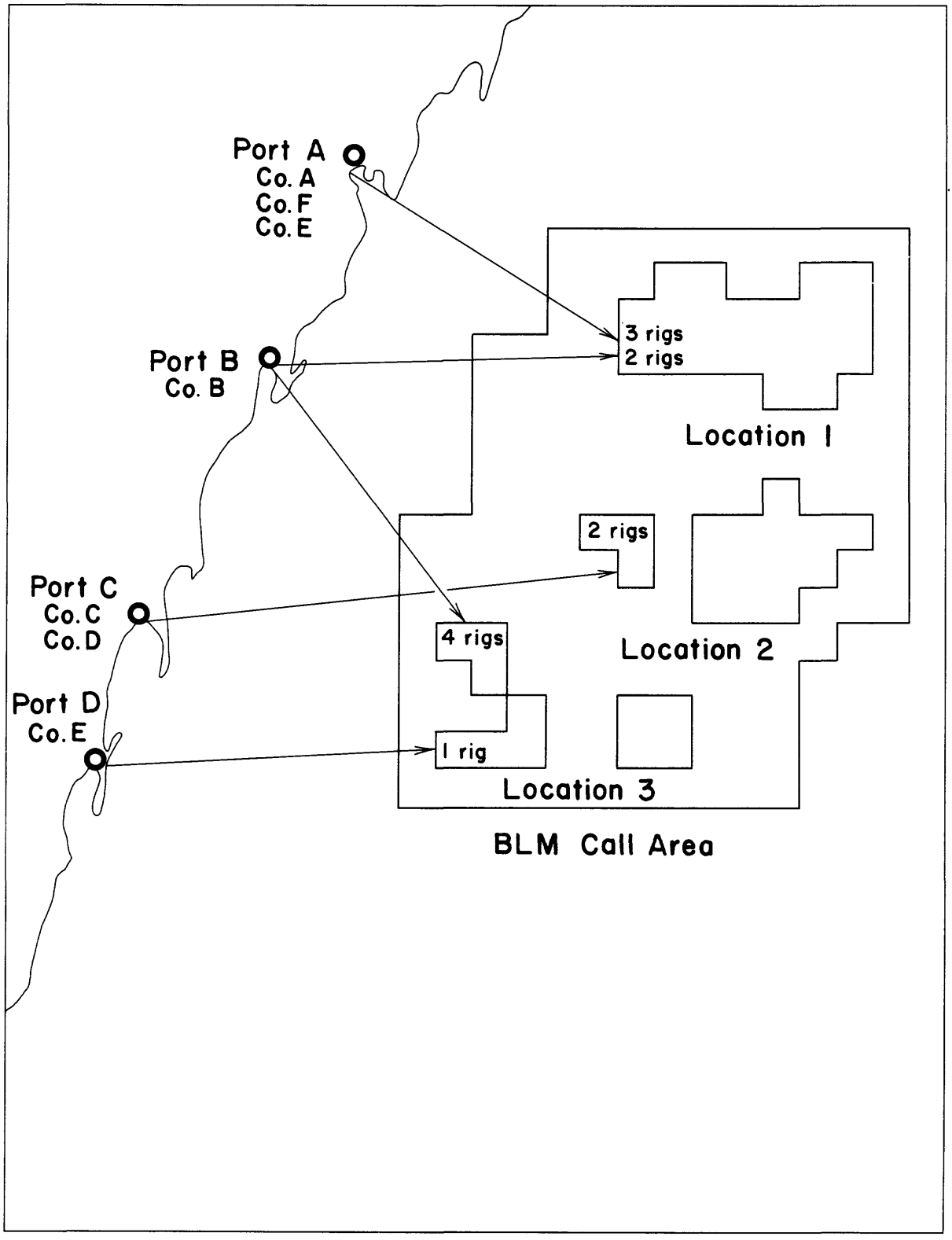

Figure 3.-- Map showing logistics of exploratory drilling for one year.

Select Onshore Activity Multipliers and their Values for the Exploratory Phase

The no find scenario only estimates the requirements for and impacts of onshore service bases of the exploratory phase. The program user selects and quantifies the onshore requirements or impacts demanded by each unit of offshore activity. The sample program run used the following ten multipliers: 1) land use; 2) water; 3) supply boats; 4) berth space; 5) helicopters; 6) employment (helicopter); 7) employment (supply boat); 8) onshore support; 9) local employment; and 10) total wages.

Calculate Onshore Service Base Requirements and Impacts on a Port Basis

The last step of the no find model determines on a yearly basis the onshore service demands and impacts required by offshore exploratory development. The formula in the documentation of the FIND model takes the product of the level of offshore exploratory rig activity and the onshore activity multiplier.

The remainder of the flow chart explains the method for the find scenario.

Estimate Total Recoverable Reserves

The estimate for the total recoverable reserves of oil and natural gas may cover those tracts in a specific lease sale or the development of the oil and natural gas resources of an entire basin or call area. This step estimates both oil and associated and unassociated natural gas.

The Geological Survey (Miller and others, 1975) has published estimates of offshore oil and natural gas reserves for entire sedimentary basins. The Geological Survey has developed estimates for specific lease sales for use by the BLM in sale specific environmental impact statements.

The sample find situation uses the latest estimate (1975) by the Geological Survey for the Georges Bank sedimentary basin of 2.4 billion barrels of oil and 12.5 trillion cubic feet of natural gas.

Develop Schedule of OCS Energy Finds

The estimate of total recoverable reserves for a region is divided into a series of OCS energy finds. Information provided for each find includes: 1) year of discovery (first lease sale is year "0"); 2) type of find - oil and associated natural gas or unassociated natural gas; 3) magnitude of find in barrels of oil and/or cubic feet of natural gas; 4) offshore location identifier; and 5) water depth of find.

Categories 1-4 are used in program calculations; category 5 is not directly used in calculations. Figure 4 provides a spatial description of OCS energy finds for a hypothetical case.

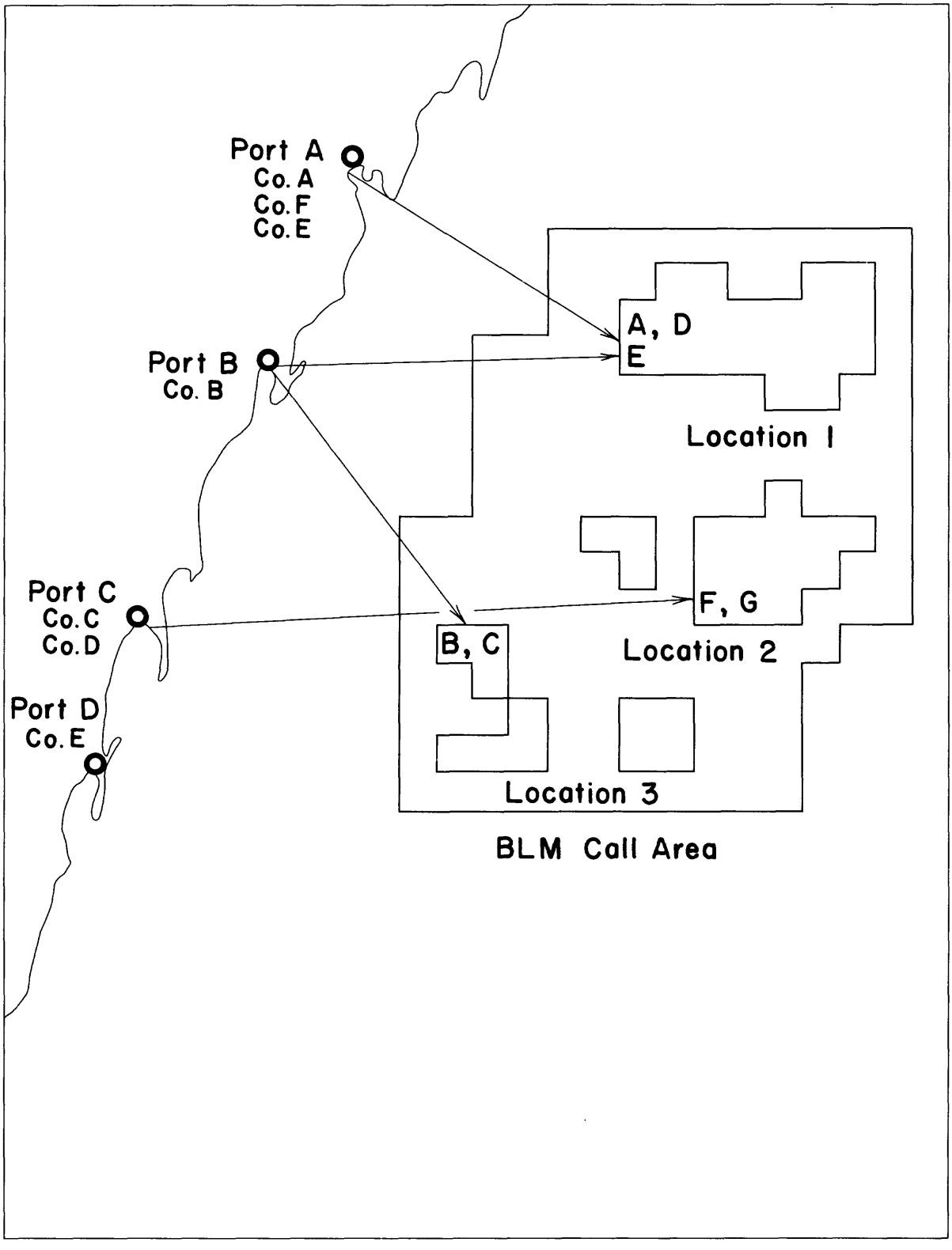

Figure 4.-- Map showing hypothetical OCS oil and natural gas finds and service base locations within ports.

It is assumed that associated natural gas occurs in a ratio of 1,000 cubic feet of natural gas to one barrel of oil.

Allocate Finds to Companies and Ports

Each find is assigned to an oil company or companies operating in a port so that the requirements for and impacts of service bases can be determined. Figure 4 illustrates individual finds supported by service bases located in ports.

Set Development Assumptions

This section establishes the number of production platforms required to extract the oil and natural gas. Accurate estimations of the number of platforms required to produce a given level of oil and natural gas requires detailed information concerning the areal extent and depth of the containing reservoir and the number of lessees owning tracts within a reservoir. If a reservoir is areally large and encompasses several tracts owned by several companies, unitization might be required by the oil and gas supervisor, which would reduce the number of platforms that would be installed. An areally smaller reservoir would be less likely to be developed by more than one company, and perhaps fewer platforms would be required to develop the oil and natural gas resources.

Given these uncertainties, the number of platforms required to extract the oil and natural gas can be estimated as follows:

1) Estimate productivity.--Well productivity is the amount of oil and/or natural gas produced by a well over its productive lifetime. In already developed OCS areas such as the Gulf of Mexico, most offshore wells have productive limits between about one million and three million barrels of oil. If the productive life of an oil well is assumed to be 15 years, then the average yearly production rate is 182 to 547 barrels per day per well. This is an average rate; the initial production rate of an oil well may be around 1,000 to 1,500 barrels per day and decline exponentially over its productive lifetime.

Average oil well productivity for the sample find scenario is taken as 438 barrels per day. It is assumed that 1,000 cubic feet of associated natural gas are produced with each barrel of oil, indicating a daily well average of 438,000 cubic feet of natural gas.

Unassociated natural gas wells are assumed to have ten year productive lifetimes and an average well productivity of 7.282 million cubic feet of natural gas per day.

2) Determine number of wells per platform.--The number of wells per platform has varied historically between 1 and 36. Fewer wells per platform are used to extract resources from reservoirs which are areally large, while a greater number of wells per platform extract resources from thick but areally small reservoirs.

The sample find run uses an average of twenty productive wells per platform.

3) Determine number of platforms required per find.--Once well productivity and number of wells per platform have been determined, then the number of platforms required to recover OCS oil and natural gas resources can be calculated by the formula given in the documentation of the FIND model.

Set Installation Schedule

Once a find has been made, time must be set aside for the design, order, and construction of the production platforms required to extract the energy reserves.

The sample find run assumes that platforms are designed, ordered, and constructed in the two years following a find, and are installed in the third year. The requirements for and impacts of the operation of the onshore service bases for platform installation occur in the third year after a find.

The method provides for a period of time between the year of platform installation and the beginning of development drilling.

The DEROCS program considers the possibility that a large number of orders for platforms may exceed the capacity of platform construction firms, consequently delaying installation of some platforms.

Set Development Drilling Schedule

Platform installation is followed by development drilling. The length of time of development drilling from platforms is influenced by the number of drilling rigs operating and the number of wells they can drill a year.

The sample run assumes that two development drilling rigs will operate on each platform. The rigs can each drill four production wells a year. Development drilling will take three years. Eighty percent of the development wells, or 20 out of 24 per platform, will be productive.

Set Production Schedule

Production is set to begin the year after development drilling has ended. Production extends for the lifetime of the oil and associated and unassociated natural gas wells. The yearly rates of production are calculated from the production schedule.

Set Workover Schedule

Well workover usually occurs midway through the lifetime of production wells. It is a process which increases well productivity and extends well lifetime and is dependent upon:

1) When in the lifetime of a platform workover will occur. It may differ for the two types of platforms.
2) How many wells will be worked over per year. This affects the magnitude and duration of onshore demand for the workover period.

The sample find run assumed that workover occurs after the fifth and seventh years of production for oil and unassociated natural gas platforms, respectively, and that seven gas and four oil wells per platform will be worked over per year, or until all wells have been worked over.

Select and Set Onshore Multipliers for Offshore Activities

The requirements for an onshore service base to support offshore oil and natural gas development activities are identified and given values. Each onshore multiplier, such as land use, is given a value for per unit activities during each phase of offshore development: exploration, platform installation, development drilling, production, and workover. The sample program uses the following activities (multipliers): 1) land use; 2) water; 3) supply boats; 4) berth space; 5) helicopters; 6) employment (helicopter); 7) employment (supply boat); 8) onshore support; 9) local employment; and 10) total wages. Combined with the five phases of offshore development, there are consequently 50 multipliers to be estimated for input to the program.

Users supply the multipliers of interest and their values based on instructions for input in the FIND model documentation section.

Calculate Requirements for and Impacts of Service Facility Operations

Requirements for and impacts ofervice facility operations are calculated as the product of the amount of offshore activity occuring in each phase of OCS development and the appropriate multiplier for that phase. This is the same calculation, as that for exploration, except that it is extended into each phase of OCS development.

General Program Structure

DEROCS is a FORTRAN IV program consisting of approximately 1500 source statements. The program is driven from a single 20 card executive calling program shown below.

```
      COMMON/MISC/IDRUN
      CALL SETUP
      GO TO (10,20),IDRUN
10    CONTINUE
C     INPUT -NOFIND- EXPLORATORY DATA.
      CALL INPUT1
C     PERFORM -NOFIND- CALCULATIONS.
      CALL MODEL1
C     OUTPUT RESULTS OF THE -NOFIND- SCENARIO.
      CALL OTPUT1
      STOP
20    CONTINUE
C     INPUT DATA FOR THE -FIND- SCENARIO.
      CALL INPUT2
C     PERFORM -FIND- CALCULATIONS.
      CALL MODEL2
C     OUTPUT RESULTS OF THE -FIND- SCENARIO.
      CALL OTPUT2
      STOP
      END
```

Besides this executive routine, DEROCS contains a nonexecutable BLOCK DATA ROUTINE, 15 subroutines, and one function subprogram. With the exception of the function subprogram, data is always passed between subprograms via labeled COMMON statements. Table 1 contains the names and a brief description of the purpose of each routine in the order in which they occur in the program. The complete DEROCS program is included in Appendix 2.

Table 1.--DEROCS program elements

Name of Routine	Type	Purpose
SETUP	Subr.	Reads the first data card identifying the type of run (FIND or NOFIND).
BLOCK DATA	Non-exec.	Used for data which seldom change; defines the unit number for the card reader and printer, and many constants used by the program.
INPUT1	Subr.	This subroutine is called only if the run is a NOFIND scenario. It reads all data associated with the NOFIND run.
MODEL1	Subr.	Performs the NOFIND calculations (determines the requirements and impacts if the run is a NOFIND scenario.)
OTPUT1	Subr.	Calls subroutines which print the input and the NOFIND results.
INPUT2	Subr.	This subroutine is called only if the run is a FIND scenario. It reads all data associated with the FIND run.
MODEL2	Subr.	Performs the FIND calculations (determines the requirements and

Table 1.--DEROCS program elements (continued)

		impacts if the run is a FIND scenario).
OTPUT2	Subr.	Calls subroutines which print the input and the FIND results.
RIGACT	Subr.	Prints the total number of rigs operating for each year of exploration (Called from OTPUT1 and OTPUT2).
FORM4D	Subr.	Prints the distribution of exploratory rig activity for the NOFIND scenario by port and offshore location. (called from OTPUT1).
MULTAB	Subr.	Prints the requirement and impact multipliers for the NOFIND and FIND scenarios. (called from OTPUT1 and OTPUT2).
FORM4A	Subr.	Prints the input information on finds; year of find, associated companies, type of find, size of find, offshore location and water depth. (called from OTPUT2).
FORM4C	Subr.	Prints calculated platform activity, by find and year. This includes: the total number of platforms being

Table 1.--DEROCS program elements (continued)

		installed, the total number of wells being drilled, and the total number of wells producing. (called from OTPUT2).
FORM4J	Subr.	Prints the total activity for each port in each year. This table is a combination of input information and calculated results. The table includes exploratory rigs operating by offshore location, year of each find, and all platform activity including workover. (called from OTPUT2).
FORM4E	Subr.	Prints the requirement/impacts for the FIND or NOFIND scenario by port and year. (called from OTPUT1 and OTPUT2).
PRATES	Subr.	Calculates and prints the production rates for oil, unassociated natural gas, and associated natural gas by year. (called from OTPUT2).
CONV	Function	Converts an integer to its equivalent alphanumeric representation for printing with a "A" format.

How to run the NOFIND Model

The NOFIND mode of operation of DEROCS allows a user to determine the impacts of unsuccessful exploration. Of the two models of operation available in the program, this mode is the simplest to use. The user adds information only for an exploration phase of development. Essentially, the NOFIND model is a "subset" of the FIND model--in effect, it is a FIND run without calculations of the impact of platform installation, development, production, and workover.

A simplified flow chart of the NOFIND model appears as figure 5. The input data required to perform a NOFIND run are described in figure 6 and table 2. A sample NOFIND output appears in Appendix 3. Each step of the input procedure is described as follows: 1) identified in relation to its position in figure 6; 2) description of the information being input; 3) presentation of the format required for data input; and 4) presentation of an example from table 2.

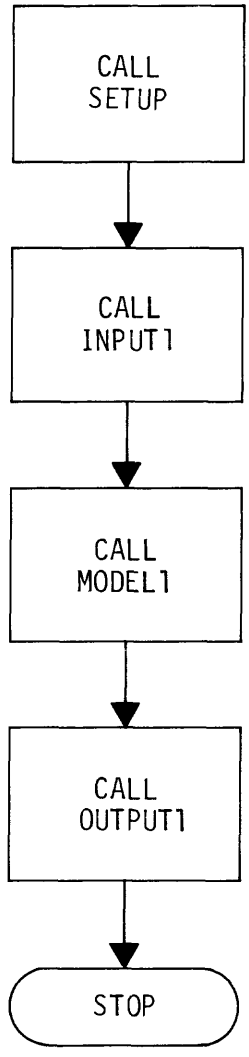

Figure 5.-- Flow chart of the NOFIND model.

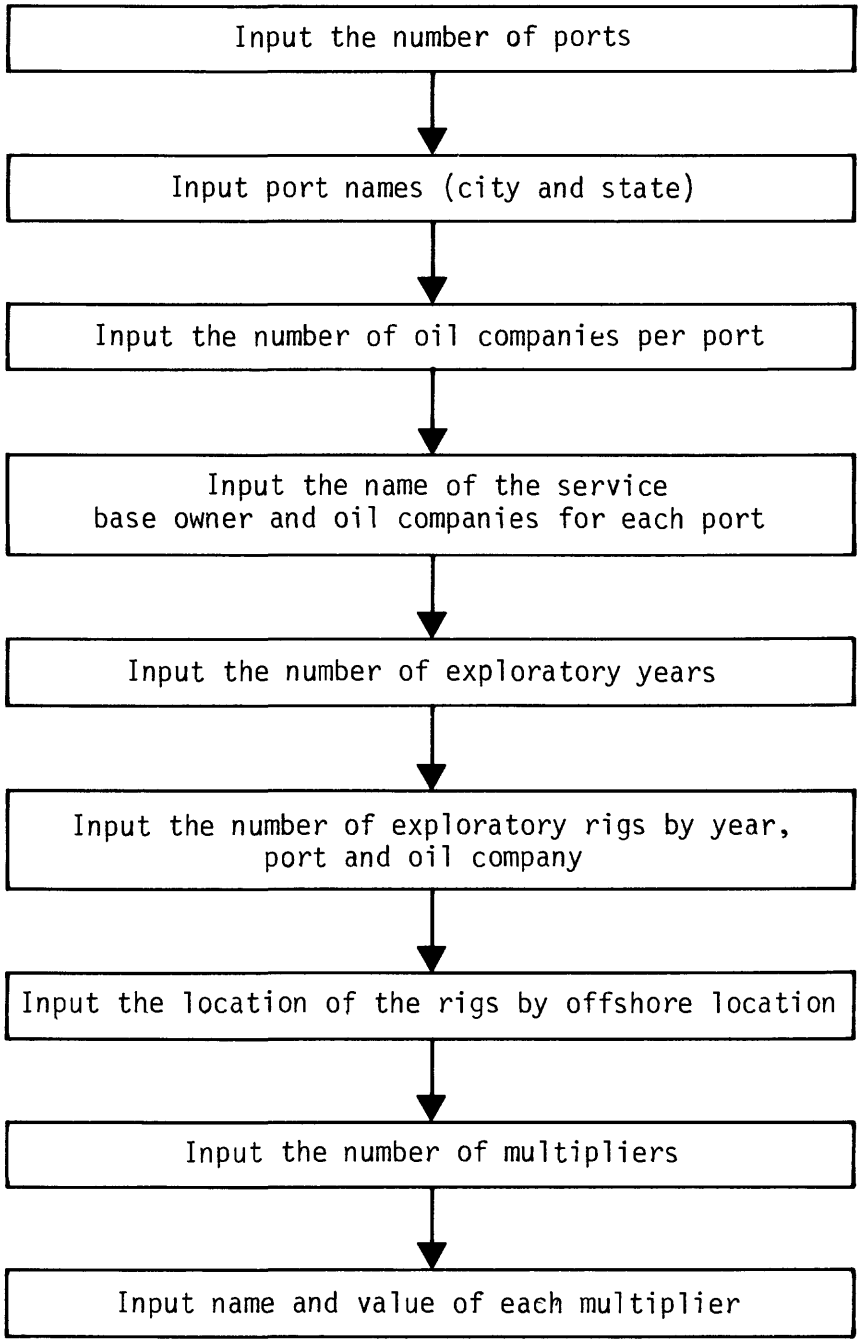

Figure 6.-- Flow chart of subroutine INPUT1

Table 2.--Card images used in the sample NOFIND run

CARD NUMBER	COMPUTER CARD COLUMN 1	11	21	51
1/ 1	NOFIND			TYPE OF RUN
2	2			NUMBER OF PORTS
3	PORT A	ST A		PORT NAME (CITY AND STATE)
4	PORT B	ST B		PORT NAME (CITY AND STATE)
5	2 3			NUMBER OF OIL CO.'S/PORT
6	CORP A	CO. X		PORT OWNER AND OIL CO. NAME
7		CO. Y		PORT OWNER AND OIL CO. NAME
8	CORP B	CO. X		PORT OWNER AND OIL CO. NAME
9		CO. Y		PORT OWNER AND OIL CO. NAME
10		CO. Z		PORT OWNER AND OIL CO. NAME
11	5			NUMBER OF EXPLORATORY YEARS
12	6 6 4 4 0			RIGS (PORT A,CO. X)
13	4 0 3 3 0			RIGS (PORT A,CO. Y)
14	0 2 2 0 0			RIGS (PORT B,CO. X)
15	1 1 1 0 0			RIGS (PORT B,CO. Y)
16	2 0 0 0 0			RIGS (PORT B,CO. Z)
17	2 2 3 3			LOC (PORT A,CO. X)
18	2 3 3			LOC (PORT A,CO. Y)
19	4 4			LOC (PORT B,CO. X)
20	4 4 4			LOC (PORT B,CO. Y)
21	4			LOC (PORT B,CO. Z)
22	10			NUMBER OF MULTIPLIERS
23	LAND USE (ACRES)			
24	4.0			
25	WATER (X 100,000 GAL)			
26	52.			
27	SUPPLY BOATS			
28	3.0			
29	NO. OF BERTHS			
30	1.0			
31	HELICOPTERS			
32	1.0			
33	EMPLOYMENT (/HELICOPTER)			
34	3.0			
35	EMPLOYMENT (/SUPPLY BOAT)			
36	11.			
37	ON-SHORE SUPPORT			
38	5.0			
39	LOCAL EMP (PERCENT OF TOTAL EMP)			
40	80.			
41	WAGES X 1000 DOLLARS (/PERSON)			
42	17.			

1/ Card number is an identification number used for reference in program documentation. It is not to be punched on a computer card.

Input Data for the NOFIND Scenario

As the initial step in operating DEROCS, the subroutine SETUP reads the first data card which identifies the run as a FIND or NOFIND scenario. To get a NOFIND run, NOFIND is punched on the first data card beginning in column 1 (see Card 1 of table 2). After execution of SETUP, the remaining NOFIND input data is read using INPUT1.

Input the Number of Ports

The number of ports is input with an I2 format into the integer variable name NUMLOC (number of locations). The NOFIND scenario allows a maximum of 10 ports. Care must be taken when punching the data. For example, if three ports are desired, the number three must be punched in column two of the data card. Putting it in column 1 would assign the number 30 to NUMLOC. Since no error processing has been coded, execution of the program resulting from erroneous values is unpredictable. Usually, such errors cause enough havoc to warn the user that "something is wrong". Inputing any data to DEROCS would be aided by the use of special card input forms to assure that the data conforms to the input format statements. Card 2 of table 2 has a 2 in column 2 of the punch card, indicating 2 ports in this sample NOFIND run.

Input Port Names (City and State)

Next the port names are read one name to a card. Each port name comprises a city and a state; the city is punched into the first 12 columns, the state into the next four (see Cards 3 and 4 of table 2). Exploration on the OCS is being supported from two ports; Port A in State A and Port B in State B.

Input the Number of Oil Companies/Port

The next card contains the number of oil companies per port and is read from one card for all ports (10I2 format). Again, care must be taken in aligning this data in the proper card columns. Dimension statements in the current version of the program restrict the maximum number to eight oil companies per port. These limitions could be changed by increasing the integer values in the appropriate dimension statements. In some cases, minor changes in coding may be required where a specific number was used in a DO loop. In other cases, it may be necessary to change a format statement. Card 5 of table 2 has a 2 in column 2, and a 3 in column 4, signifying that Ports A and B have 2 and 3 oil companies associated with it, respectively.

Input the Name of the Service Base Owner and Oil Companies for each Port

Each port must have at least one oil company associated with it, as exploratory rigs are assigned by year, port, and oil company. It is not required that each port have a service base company associated with it and this data field can be left blank. The program reads a card for each occurrence of an oil company even if a particular oil company is operating from more than one port. The oil companies operating out of each port should be ordered in the port by port sequence established previously. For example, the service facilities in Port A are owned by corporation A, and two oil companies (X and Y) operate from it. Port B has corporation B as service base owner and companies X, Y, and Z using its facilities. The format for this input is (2A4,2X2a4), but only the first six characters of each eight-character alphanumeric field are printed-out in the output routines. Cards 6-10 of table 2 contain this input data. The name of the service company, if used, is punched in the first 8 columns of the card, followed by that of the oil company serviced in columns 11 through 18. Thus, Port A is associated with oil companies X and Y, and service corporation A, while Port B is associated with oil companies X, Y, and Z and service company B.

Input the Number of Exploration Years

The number of exploratory years, (NUMAYR, number of active years) is read by using a I2 format. In the initial version of DEROCS, NUMAYR was limited to five years for the NOFIND scenario. Later versions extended the limit to 30 years. However, subroutine FORM4D was never modified and must, therefore, be by-passed if NUMAYR is greater than five years. This can be done by pulling the CALL to FORM4D in the subroutine OUTPUT1. The 5 in column 2 of card 11 in table 2 indicates an exploration phase lasting 5 years.

Input the Number of Exploratory Rigs by Year, Port, and Oil Company

In general the requirements and impacts calculated by the program are proportional to the number of exploratory rigs being serviced from each port. To determine impacts on a port by port basis, the distribution of rigs by port must be known. A separate card is prepared for each oil company operating during each year of exploration, for each company in each port as illustrated by cards 12 through 16. Each card represents an oil company's exploration over a five-year period. Card 12 has 6, 6, 4, 4, and 0 exploratory rigs operating in years 1 through 5, respectively. Care should be taken to place the number of rigs in the correct column of the 5I2 format.

Input the Location of the Rigs by Offshore Location

Exploratory rigs also are associated with an offshore location. The offshore locations are not used in calculating impacts, but they are printed out by the subroutine FORM4D. These print-out circles simply define the offshore locations of the rigs. The year's rig activity must be assigned to one location. In the example, table 2 cards 17 through 21 present the data on the location of exploratory activity. The input format is 5I2. Note that cards 17 through 21 identify the locations of exploration which had been input by cards 12 through 16, respectively. Cards 12 through 16 present the exploratory rig activity for each oil company over 5 years, while cards 17 through 21 present the corresponding location of each year of exploration for each company.

Input the Number of Multipliers

A multiplier is used to express the onshore resources which must be committed to servicing each operating rig or platform, or the onshore impacts generated by such service. Up to 15 multipliers are allowed. This number is read with an I2 format into NOMULT (no. of multipliers). Card 22 of table 2 contains a 10 in the first two columns, signifying that 10 multipliers will be used.

Input Name and Value of each Multiplier

The name and value for each multiplier is read with a card containing the name (8A4) and a second card containing the value (F7.2,I2). The particular format used for the second card allows the multiplier to be defined by two methods. In the first method, one value is punched into the F7.2 field. This value is interpreted as a linear multiplier on a per rig (or platform, or well) basis. In the second method, the second field on the card is also used in expressing the multiplier as a step function for a range of exploratory rigs. For a multiplier expressed as:

```
card column 1
↓
4.0bbbb12
```

(where "b" signifies a blank space on the card) the program would calculate an impact value of 4.0 if the number of rigs was between 1 to 12; 8.0 if the rigs numbered 13 to 24; and 12.0 if the rigs numbered 25 to 36; etc. If the number of rigs is zero, the calculated requirement or impact is zero. This form of input was used only in the FIND example. The impact equals the input multiplier value for the first increment of the range (e.g., 1 to 12); it equals double this value for the second increment (13 to 24), three times this value for the third increment (25 to 36), and so forth.

These multiplier values are the "normal" form of expressing the multipliers. Multipliers are expressed on a per rig basis (or per range of rigs); and in the same manner in the FIND scenario. Expressing certain kinds of multipliers in a second manner complicates the normal input procedure. Some of the multipliers are functions of other multipliers rather than being simply functions of the number of rigs or platforms in operation. For example, "employment" is better expressed as a function of particular multipliers (number of supply boats, helicopters, onshore support), rather than as a function of the number of rigs in operation. To incorporate those multipliers which are functions of other multipliers, a "patch" was inserted in the coding rather than modifying the model. These patches are discussed in "Program Modifications" and are easily identified in the coding because their source statements always begin in column 15. The patches in the coding can be pulled from the program without disrupting the program's normal operation. When patches are included in the coding the user must input certain multipliers in a set order relative to the other multipliers.

In table 1, cards 23 through 42 contain the input information on the multiplier names and their values. The multiplier names are punched in the first 32 columns of the card. The card with the name of each multiplier is followed by a card with the value of the multiplier as either a step-function or a direct multiple of exploratory rig activity. In the F7.2 format, the value of the multiplier will be read with four

places to the left of the decimal point and two places to its right. In table 1, cards 23 and 24 indicate that the amount of land-use in acres on a per rig basis is 4.0, that value appears in the first 3 columns of card 24.

Subroutine MODEL1

The NOFIND model (subroutine MODEL1) is a simple algorithm for summing the requirements and impacts over all oil companies within each port. In the FIND scenario, sums are carried out over all phases of activity. Mathematically, this can be expressed as:

$$\text{NREQIM(year,port,multiplier)} = \sum_{\text{NDXCOM}=1}^{\text{NOCORP}} \text{NUMRIG(year,port,ndxcom)} \times \text{RIMULT(multiplier,1)} \qquad (1)$$

where NREQIM is the output array containing the calculated requirements and impacts, NUMRIG is the distribution of rigs, RIMULT is the multiplier array for exploration, and NOCORP is the number of oil companies operating from each port. This algorithm is modified slightly in MODEL1. Nonintegral results are rounded upward before summation. If one company's operations within a port require 2.6 helicopters, this number would be rounded upwards to 3 before including it with the requirements for other companies in a given port, assuming individual companies do not share resources.

The remainder of the NOFIND model consists of calls to the appropriate output routines. These calls exist in subroutine OUTPUT1 along with minor coding for interfacing with some of the routines. The output generated by these routines for a sample NOFIND run is included in Appendix 3.

How to run the FIND Model

The FIND mode of operation of DEROCS expands the NOFIND model beyond the exploratory phase of OCS development into the platform installation, development drilling, oil and natural gas production, and well workover phases of activity. The over-all onshore facility requirements and their impacts reflected in the multipliers are extended to these additional phases of activity. The primary working premise for the FIND model is the same as the NOFIND case; the requirements and impacts of onshore service bases can be related to the number of rigs and/or platforms in operation in each stage of OCS development. In this version of DEROCS, the relationship between the number of platforms and impacts is linear.

The program structure for the FIND model is similar to the NOFIND case, as is displayed in the flow chart of the FIND model in figure 7.

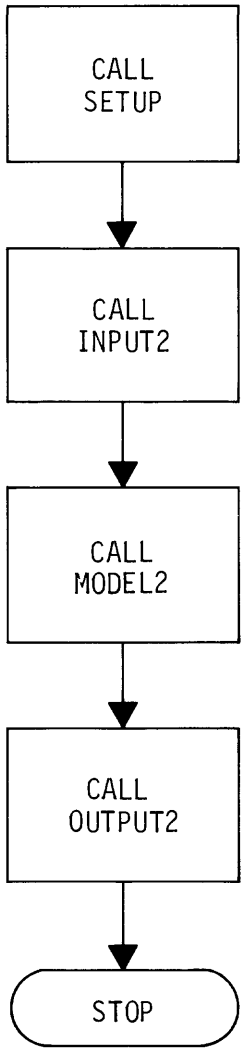

Figure 7.-- Flow chart of the FIND model

Input Data for the FIND Scenario

The input of data for the FIND scenario is shown in figure 8 and supplemented by the sample FIND scenario run, in Appendix 4. Table 3 contains the card input structure for the sample FIND scenario run. Again, the subroutine SETUP reads the first data card and identifies the type of scenario. To initiate a FIND run, FIND is punched into the first data card beginning in column 1. The remaining input for the FIND scenario is read in by subroutine INPUT2. In table 3, card 1 contains FIND punched in the first 4 card columns.

The input information in the first 4 blocks of table 3 is the same preliminary data required in a NOFIND run (cf. table 2), and the input specifications have the same restrictions. We order data setup for the remainder of the FIND scenario in the same manner as in the NOFIND run.

The example in Appendix 4 establishes 4 Ports from which exploratory activity occurs (card 2), identified as Ports A, B, C, and D (cards 3-6). The number of oil companies operating from these ports are 3, 1, 2, and 1, respectively (card 7). Companies A, F, and E operate out of Port A, company B operates out of Port B, companies C and D operate out of Port C, and company E operates out of Port D (cards 8-14). We set up the remainder of the FIND scenario in the same manner as the NOFIND run.

Input the Number of Exploratory Years

Exploration can occur in the FIND scenario to a maximum of 30 years. The example developed in Appendix 4 and illustrated by the first 2 columns of card 15 in table 3 has a total exploration phase of 22

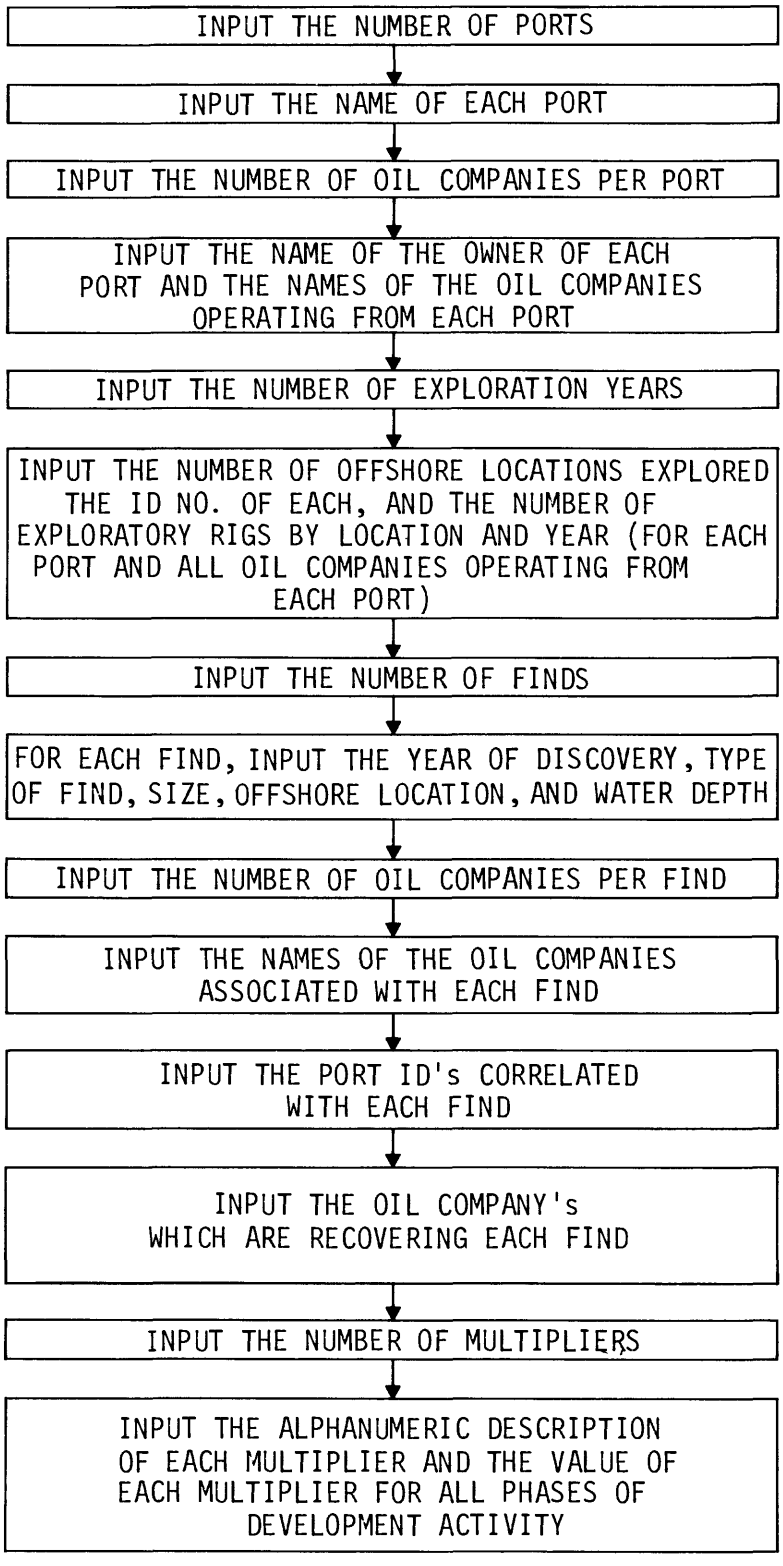

Figure 8.-- Flow chart of subroutine INPUT2

Table 3.-- Card images used in sample FIND run

CARD NUMBER	COMPUTER CARD COLUMN 1	11	21	31	41	51
1/ 1	FIND					TYPE OF RUN
2	4					NO. OF PORTS (NUMLOC)
3	PORT A	ST A				PORT NAME (CIT AND STATE)
4	PORT B	ST B				PORT NAME (CITY AND STATE)
5	PORT C	ST C				PORT NAME (CITY AND STATE)
6	PORT D	ST D				PORT NAME (CITY AND STATE)
7	3 1 2 1					NO. OF OIL CO./PORT.
8		CO. A				PORT OWNER (BLANK), OIL CO.
9		CO. F				PORT OWNER (BLANK), OIL CO.
10		CO. E				PORT OWNER (BLANK), OIL CO.
11		CO. B				PORT OWNER (BLANK), OIL CO.
12		CO. C				PORT OWNER (BLANK), OIL CO.
13		CO. D				PORT OWNER (BLANK), OIL CO.
14		CO. E				PORT OWNER (BLANK), OIL CO.
15	22					NO. OF EXP. YRS (NUMAYR).
16	3					NO. LOC.PORT A,CO.A
17	1 2 3					LOCS
18	0 1 2 2 1	1 0 1 1				PORT A,CO.A,LOC 1
19	0 0 0 0 0	0 1 1 0 0	1 1 1 0			PORT A,CO. A,LOC 2
20	0 0 0 0 2	2 1 0 1 1	1 0 0 0 0	0 0 1		PORT A,CO.A,LOC 3
21	2					NO.LOC.PORT A,CO.F
22	1 2					LOCS
23	0 1 1 1 0					PORT A,CO.F,LOC 1
24	0 0 0 1 1	0 1				PORT A,CO.F,LOC 2
25	3					NO.LOC,PORT A.CO.E
26	1 2 3					LOCS
27	0 0 0 0 0	0 0 0 0 0	0 1 1			PORT A,CO.E,LOC 1
28	0 0 0 0 0	2 2 1 1 1	1 1 0 1 0	0 0 0 0 1		PORT A,CO.E,LOC 2
29	0 0 0 0 0	1 1 1 1 2	1 0 0 0 1	0 1		PORT A,CO.E,LOC 3
30	2					NO.LOC,PORT B,CO.B
31	1 2					LOCS
32	0 2 2 2 1	1 1 1 0 0	0 1 0 1 0	1 0 1		PORT B,CO.B,LOC 1
33	0 0 0 0 0	1 1 2 2 2	2 1 1 0 1			PORT B,CO.B,LOC 2
34	2					NO.LOC,PORT C,CO.C
35	1 3					LOCS
36	0 1 1 2 1	1 1 1 2 1	2 2 1 1 1	1 0 0 1 0	0 1	PORT C,CO. C,LOC 1
37	0 0 0 0 1	1 1 1 1 1	1 0 1 0			PORT C,CO.C,LOC 3
38	2					NO.LOC,PORT C,CO.D
39	1 3					LOCS
40	0 1 2 2 2	1 1 1 0 0	1 1 0 1 0	1 1		PORT C,CO.D,LOC 1
41	0 0 0 0 0	1 1 2 2 2	0 0 1 0 0	0 0 0 0 0	1	PORT C,CO. D,LOC 3
42	1					NO.LOC,PORT D,CO.E
43	2					LOCS
44	0 1 1 1 2					PORT D,CO.E,LOC 2
45	18					NO. OF FINDS.

1/ Card number is an identification number used for reference in program documentation. It is not to be punched on a computer card.

Table 3.-- Card images used in sample FIND run (continued)

CARD NUMBER	COMPUTER CARD COLUMN					
	1	11	21	31	41	51
46	2OIL FIND	9.6000E+07	9.6000E+10	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
47	2GAS FIND		5.3200E+11	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
48	3OIL FIND	1.4400E+08	1.4400E+11	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
49	3GAS FIND		5.3200E+11	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
50	4OIL FIND	2.8800E+08	2.8800E+11	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
51	4GAS FIND		1.0640E+12	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
52	5OIL FIND	3.3600E+08	3.3600E+11	2	240.	YR,TYPE,SIZE,LOC,DEPTH.
53	5GAS FIND		1.5960E+12	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
54	6OIL FIND	3.3600E+08	3.3600E+11	3	120.	YR,TYPE,SIZE,LOC,DEPTH.
55	6GAS FIND		1.5960E+12	2	240.	YR,TYPE,SIZE,LOC,DEPTH.
56	7OIL FIND	3.3600E+08	3.3600E+11	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
57	7GAS FIND		1.5960E+12	2	240.	YR,TYPE,SIZE,LOC,DEPTH.
58	8OIL FIND	3.3600E+08	3.3600E+11	2	240.	YR,TYPE,SIZE,LOC,DEPTH.
59	8GAS FIND		1.5960E+12	3	120.	YR,TYPE,SIZE,LOC,DEPTH.
60	9OIL FIND	2.8800E+08	2.8800E+11	3	120.	YR,TYPE,SIZE,LOC,DEPTH.
61	9GAS FIND		1.0640E+12	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
62	10OIL FIND	2.4000E+08	2.4000E+11	1	360.	YR,TYPE,SIZE,LOC,DEPTH.
63	10GAS FIND		5.3200E+11	3	120.	YR,TYPE,SIZE,LOC,DEPTH.
64	1 1 1 1 1	1 1 1 2 1	2 1 2 1 1	1 1 1		NO. OF COMPANIES/FIND.
65	CO. D					FIND A
66	CO. B					FIND B
67	CO. A					FIND C
68	CO. C					FIND D
69	CO. D					FIND E
70	CO. C					FIND F
71	CO. E					FIND G
72	CO. B					FIND H
73	CO. A					FIND I
74	CO. C					FIND I
75	CO. E					FIND J
76	CO. A					FIND K
77	CO. D					FIND K
78	CO. E					FIND L
79	CO. A					FIND M
80	CO. B					FIND M
81	CO. D					FIND N
82	CO. E					FIND O
83	CO. C					FIND P
84	CO. C					FIND Q
85	CO. D					FIND R

Table 3.-- Card images used in sample FIND run (continued)

CARD NUMBER	COMPUTER CARD COLUMN 1	11	21	31	41	51
86	3					IDFNDL,FIND A,PORT C
87	2					IDFNDL,FIND B,PORT B
88	1					IDFNDL,FIND C,PORT A
89	3					IDFNDL,FIND D,PORT C
90	3					IDFNDL,FIND E,PORT C
91	3					IDFNDL,FIND F,PORT C
92	1 4					IDFNDL,FIND G,PORTS A,D
93	2					IDFNDL,FIND H,PORT B
94	1 3					IDFNDL,FIND I,PORTS A,C
95	1					IDFNDL,FIND J,PORT A
96	1 3					IDFNDL,FIND K,PORTS A,C
97	1					IDFNDL,FIND L,PORT A
98	1 2					IDFNDL,FIND M,PORTS A,B
99	3					IDFNDL,FIND N,PORT C
100	1					IDFNDL,FIND O,PORT A
101	3					IDFNDL,FIND P,PORT C
102	3					IDFNDL,FIND Q,PORT C
103	3					IDFNDL,FIND R,PORT C
104	2					IDCBFL,A,PORT C,CO. D
105	1					IDCBFL,B,PORT B,CO. B
106	1					IDCBFL,C,PORT A,CO. A
107	1					IDCBFL,D,PORT C,CO. C
108	2					IDCBFL,E,PORT C,CO. D
109	1					IDCBFL,F,PORT C,CO. C
110	3					IDCBFL,G,PORT A,CO. E
111	-1					IDCBFL,G,PORT D,CO. E
112	1					IDCBFL,H,PORT B,CO. B
113	1					IDCBFL,I,PORT A,CO. A
114	1					IDCBFL,I,PORT C,CO. C
115	3					IDCBFL,J,PORT A,CO. E
116	1					IDCBFL,K,PORT A,CO. A
117	2					IDCBFL,K,PORT C,CO. D
118	3					IDCBFL,L,PORT A,CO. E
119	1					IDCBFL,M,PORT A,CO. A
120	1					IDCBFL,M,PORT B,CO. B
121	2					IDCBFL,N,PORT C,CO. D
122	3					IDCBFL,O,PORT A,CO. E
123	1					IDCBFL,P,PORT C,CO. C
124	1					IDCBFL,Q,PORT C,CO. C
125	2					IDCBFL,R,PORT C,CO. D

Table 3.-- Card images used in sample FIND run (continued)

CARD NUMBER	COMPUTER CARD COLUMN 1	11	21	31	41	51
126	10					NO. OF MULTIPLIERS.
127	LAND USE (ACRES)					
128	4.0	5.0 4	7.0	1.5	0.07	LAND USE
129	WATER (X 100,000 GAL)					
130	52.	0.0	82.	0.0	5.2	WATER (10**5)
131	SUPPLY BOATS					
132	3.0	1.0 4	4.0	0.4	0.17	SUPPLY BOATS
133	NO. OF BERTHS					
134	1.0	1.0 4	1.5	1.0 5	0.33 6	BERTHS
135	HELICOPTERS					
136	1.0	1.0 4	3.0 2	1.0	0.0	HELICOPTERS
137	EMPLOYMENT (/HELICOPTER)					
138	3.0	3.0	3.0	3.0	3.0	
139	EMPLOYMENT (/SUPPLY BOAT)					
140	11.	11.	11.	11.	11.	
141	ON-SHORE SUPPORT					
142	5.0	1.0	9.0	3.0	0.2	ON-SHORE SUPPORT
143	LOCAL EMP	(PERCENT OF TOTAL EMP)				
144	80.	80.	80.	80.	80.	LOCAL EMP
145	WAGES X 1000 DOLLARS	(/PERSON)				
146	17.	17.	17.	17.	17.	

years. This does not imply that each company must conduct exploratory activity for the full 22-year period, but only that the total length of exploratory activity for the OCS region extends for 22 years.

Input the number of offshore locations explored, the identification number of each, and the number of exploratory rigs active per year in each location (for each oil company in each port)

The input data on the allocation of exploration rigs is read in the same order as the input of the port names and oil companies. The input data for rig allocation is ordered as follows:

1) input the total number of offshore locations explored by a given company from a given port (one card);
2) identify the offshore locations by number (one card);
3) input the number of rigs by year for each offshore location (the number of cards must equal the number of locations explored).

It is possible to input a zero for the number of offshore locations explored. In that case, the data cards identifying the locations and the number of rigs must be omitted. However, a slight error exists in the output table "Activity By Port" (Appendix 4) when a company is <u>not</u> operating exploratory rigs. In some cases, the company name may be omitted from the table. A zero number of locations would be required if a user wants a company to participate in platform activity only.

As distinct from the NOFIND situation, an oil company can operate exploratory rigs in more than one offshore location in a given year. Cards 16-44 contain this information. As an example, consider the input for Port A, company A, contained on cards 16-20. A 3 punched in column 2 on card 16 specifies that company A is conducting explorations in offshore locations 1, 2, and 3, noted in columns 2, 4, and 6, respectively, of Card 17. Card 18 presents the information for company A's explorations in location 1. The number of rigs operating during each year of exploration in that location is input in the proper card column in an I2 format, right justified. Cards 19 and 20 contain company A's exploratory activity in locations 2 and 3, respectively. Cards 21-24 present the input data for Port A, company F, and additional cards are prepared similiarly until all the exploratory activity for all ports and companies has been input.

Input the Number of Finds

Up to 20 finds are allowed in the current version of the program. In table 2, the 18 in the first 2 columns of card 45, indicates that the sample FIND run contains a total of 18 finds.

For each Find, Input the Year of Discovery, Type Size, Location, and Water Depth

After the number of finds has been determined, the description for each find is read, one find to a card. Cards 46-63 describe the required input information for the 18 finds of the sample FIND run.

Cards 46 and 47 constitute an example of how to input the information on finds. The year that the find occurs after a lease sale appears right justified in the first 2 card columns. The type of find, oil and associated natural gas, or unassociated natural gas, is specified in columns 3-10. Card 46 specifies a find of oil and associated natural gas and card 47 contains the information for a find of unassociated natural gas. Columns 11-20 specify the volume of oil in barrels, while columns 21-30 contain the quantity of natural gas in cubic feet. In our example, the discovery specified in card 46, made in year 2 after a lease sale, is a find of 96 million barrels of oil and 96 billion cubic feet of associated natural gas. Columns 31 and 32 contain the offshore location of the find, right justified. Columns 41-44 describe the water depth in feet of the find. Water depth may be stated as zero as it is not used in any of the computations of the requirements or impacts of service bases.

Input the Number of Oil Companies/Find

The next data card specifies the number of oil companies associated with the development of each find. The number of companies associated with each find is input in an I2 format, right justified, on card 64. On card 64, find A and I are associated with one and two oil companies, respectively.

Input the Names of the Oil Companies Associated with each Find

The names of the oil companies associated with each find are read in, one to a card, as illustrated by cards 65-85 of table 3.

Input the Port Identifier Correlated with each Find

This data communicates to the program which ports will service the recovery of each find. Each port has an identifying number representing the order in which it was originally input; Port A is identified with 1, Port B with 2, etc. These numbers correlate particular ports to each find as illustrated by cards 86-103 of table 3. The data is punched on the cards in an I2 format, right justified, one card for each find.

On card 92 company E's first find, G, discovered by an exploration rig operating out of Port D, is referred to Port A, the source of all service functions for the post-exploration phases of company E's operations, and Port D, from which only exploration was carried out. Company E explored from Port D, but, after a find the company moved all its OCS

operations to Port A. The input data contained on card 92 and on card 111 of the next block of data are required to communicate this to the computer. Card 94 contains the port references for find I, which will be serviced from Port A by company A, and Port C by company C.

Input the Oil Company's ID's which are Recovering each Find

This input data is used to correlate each find with a maximum of 5 oil companies, and defines which companies will process each find. Each oil company has an identifying number representing its order within a port. Care must be exercised when identifying the companies via these numbers. In the sample FIND run, in Port A, Company A has identifier 1, Company F has identifier 2, and Company E has identifier 3. In Port D, however, company E has identifier 1.

In table 3, cards 104-125 contain this input information which identifies the company in each Port handling each find. The 2 in column 2 of card 104 signifies that find A, which is serviced from Port C (card 86), is developed by Company D (number 2) of that Port.

The -1 in the first two card columns of card 111 communicates to the program that Find G, made by Company E, originally developed from Ports A and D (card 92) is being developed only from Port A (card 110).

Input the Number of Multipliers

This is the same input required for the NOFIND situation, where the number of multipliers must be specified. In table 3, card 126 has a 10 punched in the first 2 columns of the card, to indicate that 10 multipliers will be used in the FIND run.

Input the Alphanumeric Description and Value of each Multiplier for all Phases of Development Activity

Multiplier information input for the FIND situation is similar to that for the NOFIND, with several exceptions. As in the NOFIND, each multiplier is input by the use of 2 cards. The first card contains the title of the multiplier, while the second card contains the values of the multiplier. Cards 127-146 of table 3 contain the multiplier information. Cards 127 and 128 illustrate multiplier input. Card 127 contains the title of the multiplier, "LAND USE (ACRES)" in the first 32 columns. Card 128 contains the values of the multiplier for each of the 5 phases of OCS development; exploration, platform installation, development drilling, production, and workover. The NOFIND contained only the multipliers for the exploration phase of activity. Card 128 then has the 5 values of the land use multipliers arranged in the sequence above in an F7.2, I2 format. As explained earlier, multiplier values can be input as either linear relations or as step functions. On card 128, the values of the land use multipliers for exploration (per exploratory rig), development drilling (per 2 drilling rigs per platform), produc-

tion (per platform) and workover (per well) are 4.0, 7.0, 1.5, and 0.07 acres, respectively. The land use in acres for platform installation, which occupies the second position on the data card, is set as a step function of five acres for each group of four platforms being installed by a company.

This is the normal form of multiplier input to the computer model when the multipliers are to be expressed as functions of rig or platform activity. When the value of a multiplier is some function of the value of another multiplier, then a special procedure (described in the section "Program Modifications") applies to the following multipliers in the FIND model: supply boats, employment (/helicopter), employment (/supply boat), onshore support, local employment, and wages. The multiplier information is the final data input for the FIND scenario. The FIND multiplier data is a extension of the corresponding NOFIND multipliers into the remaining phases of activity: platform installation, development drilling, production, and workover.

Input in BLOCK DATA Routine

Additional input must be supplied in the BLOCK DATA routine. The BLOCK DATA program contains data which change infrequently. Several numerical assumptions are made in the model (for example, the number of wells per platform) and the program must be able to change these assumptions easily. A description of all assumptions in the BLOCK DATA routine is given in Appendix 5. The BLOCK DATA items also are described in the following section.

Mathematical Operations in INPUT2 and MODEL2

To determine the requirements for and impacts of service bases on a yearly basis, the type and intensity of OCS development supported from each port must be known. This requires schedules for each phase of OCS activity, so that the level of exploration, installation, development, production and workover activity being supported from each port in each year can be determined. The exploration schedule has been input to the program via cards. The program, using the information provided by the schedule of oil and natural gas finds, establishes the development activities for the remaining phases of OCS activity.

The FIND scenario is more complex than the NOFIND scenario because platforms must be distributed among companies and ports before calculations of service base requirements and impacts can be carried out. The model determines how many platforms are required to extract the recoverable hydrocarbons of each find.

Calculate Number of Platforms Per Find

For a find of unassociated natural gas, the number of platforms is given by:

$$N(i) = Q(i)/(365\ P_g\ N_w\ R_g) \qquad (2)$$

where $N(i)$ is the number of platforms for find i,

$Q(i)$ = the size of the unasscoiated gas find i in cubic feet,

P_g = productive life of the platform in years,

N_w = the number of wells per platform,

and R_g = the unassociated gas recovery rate in cf/well/day.

The FORTRAN statement in MODEL2 which performs this calculation is:

```
C     GAS FIND
210   PFPERF(NDXFND)=SIZFND(2,NDXFND)/(365*NPROYR(1)*NWPERP*GASREC)   (3)
```

In this statement,

PFPERF(NDXFND) corresponds to N(i),

SIZFND(2,NDXFND) corresponds to Q(i),

NPROYR(1) is the productive lifetime of a platform,

NWPERP corresponds to N_w, and

GASREC is the recovery rate for unassociated natural gas.

The values of NPROYR, NWPERP, and GASREC are defined in the BLOCK DATA routine. In the sample FIND run in Appendix 4, NPROYR (number of productive years) is 10 for a gas platform, NWPERP (number of wells per platform) equals 20, GASREC (the recovery rate for unassociated natural gas is 7.282 million cubic feet/well/day.

As an example, use find B of 0.532 trillion cubic feet of natural gas, made by company B in Port B in equation 2:

$$N(i) = \frac{.532 \times 10^{12}}{365 \times 10 \times 20 \times 7.282 \times 10^{6}} \qquad (4)$$

$$= 1,$$

where;

$Q(i) = .532 \times 10^{12}$ cf

$P_g = 10$ years

$N_w = 20$ wells/platform

$R_g = 7.282 \times 10^{6}$ cf/well/day

For a find of oil and associated natural gas, a similar FORTRAN statement in MODEL2 determines the number of platforms/find:

```
C    OIL AND GAS FIND.
215  PFERF(NDXFND)=SIZFND(1,NDXFND)/(365*NPROYR(2)*NWPERP*OILREC)
```

In this statement,

SIZFND(1,NDXFND) is the quantity of commercially recoverable oil in barrels (for find NDXFND), NPROYR(2) is the productive lifetime of oil and associated natural gas platforms in years, and OILREC is the oil recovery rate in barrels/well/day.

As an example, take find I of .3360 billion barrels of oil and 0.336 billion cubic feet of natural gas, to be produced by companies A and C and serviced from Ports A and C, respectively. The number of platforms required to extract this resource is found by:

$$N(i) = \frac{.3360 \times 10^9}{365 \times 15 \times 20 \times 438} \qquad (5)$$

$$= 7,$$

where:

$Q(i)$ = size of the oil find = $.3360 \times 10^9$ bbls,

P_O = productive life of an oil and associated natural gas platform = 15 years,

N_W = number of producing wells/platform = 20,

R_O = daily recovery rate of oil = 438 bbls/well/day.

Distribute Platforms to Companies

After the model has calculated the number of platforms required to develop each find, it distributes them to each company and port involved with providing the services necessary for platform installation, development drilling, energy production and well workover. The program allocates platforms among companies in as equal a manner as possible. Find I requires 7 platforms to produce the oil and natural gas. Two companies, A and C, produce the resources; they receive 4 and 3 platforms, respectively.

Develop Installation Schedule

An installation schedule is established after the platforms have been distributed to companies and ports. The installation schedule indicates the post-find interval required to design, order, construct, and install platforms on the OCS. BLOCK DATA item NCONYR, controls the required number of years. In the sample FIND run of the program, NCONYR has been set to 3. Therefore, platforms are installed in the third year after a find. The procedure is followed unless the user decides to restrict the total number of platforms that can be constructed and installed in a given year. The BLOCK DATA item MAXPPY controls the maximum number of platforms that can be installed in a given year. A sudden demand for platforms exceeding the capability of industry to provide them may create a backlog situation. In the sample, MAXPPY has a value of 15. If more than 15 platforms are scheduled to be installed

in a given year, the program will distribute the first 15 platforms as equally as possible to all companies and then defer installing the remainder until the next year.

The program calculates the requirements and impacts of service bases which support platform installation for the year in which installation occurs.

Determine the Development Drilling Schedule

The next phase of OCS activity is drilling development wells from each platform. In appendix 5, BLOCK DATA item NYRBDD, controls the number of years before development drilling begins, which is delayed until platform installation is completed. In the sample run NYRBDD has the value of 1, representing a year of delay between platform installation and the beginning of development drilling.

The number of years of development drilling is set by giving a value to the BLOCK DATA item NDEVYR. In the example run the requirements and impacts of the development drilling phase of a platforms life will be calculated over 3 years; NDEVYR has a value of 3. This is done on a platform by platform basis as required.

NWPERP of the BLOCK DATA routine controls the number of productive wells per platform. In the sample FIND run NWPERP has a value of 20.

Calculate Platform Production Schedule

Oil and natural gas production on a platform begins the year after development drilling ceases from that platform. BLOCK DATA item NPROYR controls the number of productive years for platforms with wells producing oil and natural gas. The first NPROYR entry determines the productive lifetime of oil and associated natural gas wells; the second entry determines the lifetime of wells producing unassociated natural gas. In the sample run, NPROYR has values of 15 and 10 years, respectively, for these wells.

Calculate Schedule for Well Workover

Workover occurs approximately midway through the productive life of a platform. BLOCK DATA item NYRBWO controls the number of years that a well can operate prior to workover. In the sample FIND run the NYRBWO values are 5 and 7 years for wells producing unassociated natural gas and wells producing oil and associated natural gas, respectively; workover begins 6 and 8 years after the onset of production from well. NWPYPP of the BLOCK DATA routine gives the values for the number of wells worked over per year at a platform. For the sample run, the values of NWPYPP for unassociated natural gas wells and for oil and associated natural gas wells are 7 and 4, respectively. With this value of NWPYPP for unassociated natural gas wells, 7 wells are worked over each year in the first two years, 6 wells are worked over in the third and final

year, which completes all 20 producing wells of each platform. To complete workover for each oil and associated natural gas platform, 4 wells are worked over each year for 5 years.

Calculation of Service Base Requirements and Impacts for each Port

The algorithm for calculating the requirements for and impacts of the service bases in the FIND model is similar to that in the NOFIND model and is represented as:

$$\text{NREQIM(year,port,multiplier)} = \sum_{\text{MDXCPM}=1}^{\text{NOCORP}} \sum_{\text{NDXACT}=1}^{5} \begin{bmatrix} \text{NUMRIG} \\ \text{NPTFMI} \\ \text{NPTFMD} \\ \text{NPTFMP} \\ \text{WORKOVER} \end{bmatrix} \times \text{RIMULT(MULTIPLIER, NDXACT)} \quad (6)$$

Where

NREQIM = the output array containing the service base requirements and impacts for each port, each year, and each multiplier,

NOCORP = number of oil companies operating out of the port,

NDXACT = phase of OCS onshore support activity for which requirements and impacts are being calculated,

NUMRIG = number of exploratory rigs,

NPTFMI = number of platforms being installed,

NPTFMD = number of platforms undergoing development drilling,

NPTFMP = number of producing platforms,

WORKOVER = number of wells being worked over,

RIMULT = array of multiplier values for each phase of OCS activity.

NUMRIG is used when NDXACT = 1,

NPTFMI is used when NDXACT = 2,

NPTFMD is used when NDXACT = 3,

NPTFMP is used when NDXACT = 4,

and WORKOVER is used when NDXACT = 5,

In our version of the program, the "patches" which apply to certain multipliers can modify this algorithm.

Calculate Production Rate

Production rates are calculated on a daily basis for oil, associated natural gas, unassociated natural gas, and total natural gas. The production rate for oil in a given year is determined by:

$$PRATEO = NOOPLT \times NWPERP \times OILREC \qquad (7)$$

where;

PRATEO = daily production rate of oil in barrels for a given year,

NOOPLT = number of oil and associated natural gas producing platforms operating in that year,

NWPERP = number of producing wells per platform,

OILREC = recovery rate of oil in bbls/well/day.

The value of the associated natural gas production is determined by:

$$PRTEAG = (NOOPLT \times NWPERP \times OILREC \times 10^3/10^9) \quad (8)$$

where;

PRTEAG = daily production rate of associated natural gas in billion cubic feet/day for a given year.

The production rate for unassociated natural gas on a daily basis is calculated by the equation:

$$PRTEUG = NOUGPF \times NWPERP \times GASREC/10^9 \quad (9)$$

where;

PRTEUG = daily production rate of natural gas in billion cubic feet for a given year,

NOUGPF = number of unassociated natural gas platforms in operation in that year,

GASREC = average daily production rate of a natural gas well:

The remainder of the FIND model (OTPUT2) involves interface coding for various output routines, principally to set-up the output table "Activity by Port." This table has special requirements not directly derived from the schedule arrays. For example, exploratory rigs are designated as "temporary" (TMP) or "permanent" (PRM). These designations were not included as input information and therefore were determined in OUTPUT2. In this case, exploratory rigs for a given oil company were assumed to be temporary until the year after the earliest find for that company. Examples of the tables generated by the output routines are given for the sample FIND run in Appendix 4.

Program Output

DEROCS produced tables which summarize both the data which has been input to the run and those which describe the results of the operation of the program for the sample NOFIND and FIND runs which are reproduced in Appendices 3 and 4, respectively.

Exploratory Rig Activity

This table describes total exploratory activity on the OCS during each year. The years of activity are numbered as occuring after a lease sale has been held. This is a summary of the information which has been input by the user on a company by company basis.

High Find Scenario - Timing and Location of Finds

This table summarizes information which the user has input concerning each find: name of find; year of find after lease sale; name of oil company involved in the find; type of find (oil or natural gas); size of find in barrels of oil or cubic feet of natural gas; identifier of find offshore location and water depth.

Requirement/Impact Factors

This table contains the multiplier names and values for calculations of requirements for or impacts of service base operations. This information is supplied by the user. The table presents the value and units of measure of each multiplier for each phase of OCS development. The multipliers for exploratory drilling are measured on a per rig basis, those for platform installation are per platform; development drilling is per two drilling rigs operating per platform, production is on a per platform basis and workover is per well worked over.

The number to the right of the slash of each multiplier indicates whether the miltiplier is a linear or step function. A value of one in this position indicates that the multiplier is calculated as a linear function of offshore activity. A value greater than one indicates that the multiplier is calculated as a step function of the level of offshore activity. For example, the category of supply boats in the installation phase is given as 1.00/4; one supply boat is required for every set of four platforms being installed. Thus, one supply boat is required if from one to four platforms are being installed, two supply boats are required if from five to eight platforms are to be installed, and so on.

The interpretation of the data in the table is made more complicated when dealing with a multiplier for which a "Patch" has been developed. The multipliers for Employment(/Helicopter) and Employment (/Supply Boat) are expressed as a function of the calculated number of required helicopters and supply boats.

Platform Activity

This table contains the timing of platform installation, development drilling, and production for each find. The table was compiled from the input information on the timing and magnitude of each find, the program operations which determine the number of platforms required to produce the oil and natural gas, and the assumptions concerning the schedule of installation, drilling, and production which were input in the BLOCK DATA routine.

Activity by Port

This table shows the offshore activity which is being supported by onshore service base facilities in each port. Within each port the activities of each company are compiled on a yearly basis. This table lists the company involved and whether the service base is temporary (TMP) or permanent (PRM). The program designates TMP or PRM as follows: exploration prior to a find proceeds from temporary service bases; after a find, a decision is made in the next year as to where to establish a permanent service base from which to support the installation, development, production, and workover phases. The table presents, on a yearly basis, the following information on offshore activities: offshore location of exploration; the location of each offshore find; and the platform activities of installation, development, production, and workover.

The program calculates these activities by using the following input information: exploratory rig activity on a company by company basis; the schedule of finds; and the assignment of which finds are to be processed by which companies. Based on this information and using the assumptions contained in the BLOCK DATA routine, the program produces the table.

FIND Scenario Service Activity

This table contains the requirements for and impacts of the yearly operations of the service base on a port by port basis. Equation 6, which multiplies the level of offshore activity by the appropriate multiplier, generates the entries in this table.

Production Rates

This table contains information on daily oil and natural gas production rates for each year of OCS activity. Rates are given for oil, unassociated natural gas, associated natural gas, and total natural gas. These production rates are calculated from information supplied to equations 7, 8, and 9.

Modifications to Program Operations

The patches used in this version of DEROCS always begin in card column 15. They can be pulled from the program without disrupting the normal program operation. If they are pulled, the user must supply his own values for the service base activties, requirements, or impacts in which he is interested.

When the patches are included in the coding, the number of multipliers must be equal to or greater than ten. The following multipliers must be included in the relative input order shown:

Description	Relative Position
SUPPLY BOATS	3
HELICOPTERS	5
EMPLOYMENT (/HELICOPTER)	6
EMPLOYMENT (/SUPPLY BOAT)	7
ONSHORE SUPPORT	8
LOCAL EMP (PERCENT OF TOTAL EMP)	9
WAGES X 1000 DOLLARS (/PERSON)	10

Patches appear in the above multipliers in certain phases of OCS activities. When they occur, the multiplier value for that phase of activity must be input as a linear function only. They must not be read as impacts for some range of rigs (or platforms), except for helicopters and onshore support. In other words, most of the above multipliers can only be read with the F7.2 portion of the input format statement. In the NOFIND scenario, supply boats, helicopters, and onshore support can

be read with the normal option (as a linear or step function). The numerical values of the above multipliers are read in as a function of one or more of the other multipliers.

In our program, patches occur in the following subroutines: MODEL1, MODEL2, MULTAB, and FORM4E.

Supply Boats

The multiplier for supply boats is a normal multiplier calculation for all phases of activity except workover. Either a linear function or step function value may be input for any phase except workover.

For workover the number of supply boats is calculated as:

$$R_{sb/wo} = M_{sb/wo} \times R_{/wo}$$

where;

$R_{sb/wo}$ = number of supply boats required for workover,

$M_{sb/wo}$ = number of supply boats required for each well worked over,

$R_{/wo}$ = number of wells being worked over,

Next, the integer value of $R_{sb/wo}$ is derived and compared to $R_{sb/wo}$. If they are equal and the integer value is less than two the integer is set equal to two and this new value is added to the requirement array for supply boats. If the integer is greater than two, it is added to the array of supply boat requirements for the other phases of activity.

If the integer value of $R_{sb/wo}$ is not equal to $R_{sb/wo}$, a numeral one is added to it. If the integer is greater than two, it is immediately added to the existing array of service base requirements. If the integer is less than two then it is set equal to two and then added to the array.

The supply boat multiplier is a required multiplier whenever the multiplier for employment (/supply boat) is included in a run.

Helicopters

The helicopter requirement is not handled by a patch; it can therefore be input as a linear or step function. However, the helicopter multiplier is required whenever employment (/helicopter) is included in a run.

Employment (/Helicopter)

The impact calculated by this multiplier is a function of the requirements and impacts calculated by the helicopter multiplier. Specifically, the employment (/helicopter) requirements can be written:

$$R_{emp/h} = M_{emp/h} R_h \qquad (11)$$

where $R_{emp/h}$ = total employment for helicopter activities,

$M_{emp/h}$ = the multiplier for employment (/helicopter), (i.e., number of employees/helicopter),

and R_h = number of helicopters required.

The multiplier "Employment (/Helicopter)" must be input as a linear function.

This calculation is carried out for each phase of activity and the requirements and impacts are "rounded" by company before being added to the output array, NREQIM.

Employment (/Supply Boat)

The impacts calculated by this multiplier are a function of the requirements calculated by the supply boats multiplier. The value for employment (/supply boat) can be represented by:

$$R_{emp/sb} = M_{emp/sb} R_{sb} \qquad (12)$$

where $R_{emp/sb}$ = total employment for supply boat activities required,

$M_{emp/sb}$ = the multiplier for employment (/supply boat), (i.e., number of employees/supply boat),

and R_{sb} = the number of supply boats required.

This requirement is calculated for each phase of activity and the requirements are rounded by company before being accumulated in the output array, NREQIM.

Onshore Support

The onshore support requirements are not handled by a patch. They can be input as either a linear or step function. However, the onshore support multiplier is required whenever either of the following multipliers is included in a run:

LOCAL EMP (PERCENT OF TOTAL EMP)

WAGES X 1,000 DOLLARS (/PERSON)

Local Emp (percent of Total Emp)

Local employment is calculated from the sum of the following: employment/helicopter, employment/supply boat, and onshore support. Local employment is determined by:

$$R_{le} = (M_{le}100.) \times (R_{emp/h} + R_{emp/sb} + R_{os}) \qquad (13)$$

where R_{le} = the total local employment required,

M_{le} = the local employment multiplier (expressed as a percent of the total employment),

$R_{emp/h}$ = the total number of employees required for helicopter activities,

$R_{emp/sb}$ = the total number of employees required for supply boat activities,

and R_{os} = total number of employees required for onshore support.

This requirement is calculated for all phases of activity. Roundoff calculations are performed on a company by company basis before the results are accumulated in the output array, NTEQIM.

Wages x 1,000 Dollars (/Person)

Wages are calculated from the sum of the employment by helicopter, supply boats, and onshore support.

Wages can be expressed as:

$$R_w = M_w (R_{emp/h} + R_{emp/sb} + R_{os}) \qquad (14)$$

where R_w = total wages to be paid,

M_w = the wages multiplier expressed in units of 1,000 dollars/person,

$R_{emp/h}$ = the total employment required for helicopter activities,

$R_{emp/sb}$ = the total employment required for supply boat activities,

and R_{os} = total employment required for onshore support.

Wages are calculated for all phases of activity. Round-off calculations are performed on a company by company basis before the results are accumulated in the output array, NREQIM.

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APPENDICES

Appendix 1: Outer Continental Shelf Oil and Natural Gas Lease Sales

This appendix presents the date of sale, State offshore of which the sale is held, number of tracts and acres offered, and number of tracts and acres sold, for each oil and natural gas lease sale in the Federal OCS. The data has been taken from Harris, Piper, and McFarlane (1976, 1920).

Date	State	Offered		Leased	
		Tracts	Acres	Tracts	Acres
10/13/54	LA	199	748,000	90	394,721
11/09/54	TX	38	111,788	19	67,149
07/12/55	TX	39	216,000	27	149,760
07/12/55	LA	171	458,095	94	252,807
02/26/59	FL	80	458,000	23	132,480
08/11/59	LA	38	81,813	19	38,820
02/26/60	TX	97	437,760	48	240,480
02/26/60	LA	288	1,173,223	99	464,046
03/13/62	LA	401	1,808,276	206	951,811
03/16/62	TX	30	90,720	10	28,800
03/16/62	LA	380	1,780,265	195	927,746
10/09/62	LA	19	33,855	9	16,178
05/14/63	CA	129	669,777	57	312,945
04/28/64	LA	28	34,028	23	32,673
10/01/64	OR	149	836,134	74	425,433
10/01/64	WA	47	253,940	27	155,420
03/29/66	LA	18	35,993	17	35,056
10/18/66	LA	52	227,898	24	104,717
12/15/66	CA	1	1,995	1	1,995
06/13/67	LA	206	971,489	158	744,456
02/06/68	CA	110	540,609	71	363,181

Date	State	Offered		Leased	
		Tracts	Acres	Tracts	Acres
05/21/68	TX	169	728,551	110	541,304
11/19/68	LA	26	46,824	16	29,682
01/14/69	LA	38	96,389	20	48,505
12/16/69	LA	27	93,764	16	60,153
07/21/70	LA	34	73,360	19	44,642
12/15/70	LA	127	593,485	119	553,898
11/04/71	LA	18	55,872	11	37,222
09/12/72	LA	78	366,682	62	290,321
12/19/72	LA	132	604,029	116	535,874
6/19/73	LA	5	25,000	4	20,000
06/19/73	TX	124	672,643	96	527,173
12/20/73	AL	44	248,636	13	74,106
12/20/73	FL	85	489,600	62	357,120
12/20/73	LA	9	27,221	6	19,611
12/20/73	MS	9	51,840	6	34,560
03/28/74	LA	206	930,918	91	421,218
05/29/74	TX	245	1,355,678	102	565,112
07/30/74	LA	115	508,173	9	46,988
07/30/74	TX	143	790,566	10	53,253
10/16/74	LA	297	1,421,546	144	675,587
02/04/75	TX	515	2,870,344	113	626,585
05/28/75	LA	247	1,153,772	77	355,102
05/28/75	TX	36	192,660	9	51,840

Date	State	Offered		Leased	
		Tracts	Acres	Tracts	Acres
07/29/75	LA	160	762,456	43	206,701
07/29/75	TX	185	1,010,502	23	129,600
12/11/75	CA	231	1,257,593	56	310,049

Appendix 2

The Complete Requirement/Impacts Program (DEROCS)

H A S P J O B L O G

```
$17.31.11 JOB 9706 --          -- BEGINNING EXEC - INIT 5 - CLASS B
$17.33.57 JOB 9706 ENDED  005197L


---- HASP-II JOB STATISTICS ----


    1,683 CARDS READ


    5,210 SYSOUT PRINT RECORDS


        0 SYSOUT PUNCH RECORDS


     2.76MINUTES ELAPSED   TIME
```

```
//         JOB (          ,B200,,6),'SMITH',MSGLEVEL=1,                    J 9 706
//    CLASS=B
//STEP   EXEC FORTHCLG,REGION.GO=400K
***FORTHCLG      FORTRAN (H) COMPILE, LINK-EDIT AND GO                     P1330010
XXFORTHCLG PROC ULIB='SYS1.FORTLIB',UU=,UVOL=          USER LIB           P3080020
XXFORT     EXEC PGM=IEKAA00,REGION=200K                                   P3299100
XXSYSPRINT DD   SYSOUT=A            PROGRAM LISTING & DIAGNOSTICS         P1330110
XXSYSPUNCH DD   SYSOUT=B            OBJECT DECK OUTPUT                    P1330120
XXSYSLIN   DD   DSN=&&LOADSET,UNIT=SYSDK,SPACE=(400,(250,100),,,ROUND),   P1330130
XX            DISP=(,PASS),DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)           P2038140
XXSYSUT1   DD   DSN=&&SYSUT1,UNIT=SYSDK,SPACE=(1050,(60,60))             P2094150
XXSYSUT2   DD   DSN=&&SYSUT2,UNIT=SYSDK,SPACE=(1024,(20,10))             P2094160
//FORT.SYSIN  DD *
IEF236I ALLOC. FOR VG7242ES FORT      STEP
IEF237I 4A4   ALLOCATED TO SYSPRINT
IEF237I 483   ALLOCATED TO SYSPUNCH
IEF237I 491   ALLOCATED TO SYSLIN
IEF237I 481   ALLOCATED TO SYSUT1
IEF237I 491   ALLOCATED TO SYSUT2
IEF237I 5E2   ALLOCATED TO SYSIN
IEF142I - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS77032.T154345.RV007.INIT.LOADSET          PASSED
IEF285I   VOL SER NOS= SYS312.
IEF285I   SYS77032.T154345.RV007.INIT.UT1              KEPT
IEF285I   VOL SER NOS= SYS313.
IEF285I   SYS77032.T154345.RV007.INIT.UT2              KEPT
IEF285I   VOL SER NOS= SYS312.
IEF373I STEP /FORT    / START 77032.1731
IEF374I STEP /FORT    / STOP  77032.1733 CPU   0MIN 33.96SEC MAIN 198K LCS   0K
CCD006I STEP /FORT    / I/O IN DD SEQ: 4A4   172/483      /591   245/481     /
CCD006I STEP /FORT    / I/O IN DD SEQ: 591      /5E2    85/
CCD001I STEP /FORT    / CORE RESERVED  200K; ACCESSES: DISK     502/ TAPE        / DRUM
XXLKED     EXEC PGM=IEWLF880,PARM='LET,LIST,MAP',COND=(5,LT,FORT),       P1330200
XX           REGION=97K                                                  P2216210
XXSYSPRINT DD   SYSOUT=A                    LINKAGE EDITOR MESSAGES      P1330220
XXSYSLIB   DD   DSN=&ULIB,DISP=SHR,UNIT=&UU,VOL=SER=&UVOL                P3080230
IEF653I SUBSTITUTION JCL - DSN=SYS1.FORTLIB,DISP=SHR,UNIT=,VOL=SER=
XX         DD   DSN=SYS1.FORTLIB,DISP=SHR     FORTRAN LIBRARY           P3080235
XX         DD   DSN=XTENT.LIB,DISP=SHR        ADDITIONAL LIBRARY        P1330240
***SEE SYSNOTES, VOLUME 6,NO.10 REGARDING SSP.LIB2                       P3212250
XXSYSLIN   DD   DSN=&&LOADSET,DISP=(OLD,DELETE)                          P1330260
XX         DD   DDNAME=SYSIN                  ADDITIONAL INPUTS         P1330265
XXSYSLMOD  DD   DSN=&&GOSET(MAIN),UNIT=SYSDK,DISP=(,PASS),               P1330270
XX            SPACE=(1024,(80,20,1),RLSE)                               P1330275
XXSYSUT1   DD   DSN=&&SYSUT1,UNIT=(SYSDK,SEP=(SYSLIN,SYSLMOD)),         P1330280
XX            SPACE=(1024,(200,30))                                     P1330285
IEF236I ALLOC. FOR VG7242ES LKED      STEP
IEF237I 4A4   ALLOCATED TO SYSPRINT
IEF237I 177   ALLOCATED TO SYSLIB
IEF237I 177   ALLOCATED TO
IEF237I 334   ALLOCATED TO
IEF237I 491   ALLOCATED TO SYSLIN
IEF237I 491   ALLOCATED TO SYSLMOD
IEF237I 481   ALLOCATED TO SYSUT1
IEF142I - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS1.FORTLIB                                 KEPT
IEF285I   VOL SER NOS= SYS301.
IEF285I   SYS1.FORTLIB                                 KEPT
IEF285I   VOL SER NOS= SYS301.
IEF285I   XTENT.LIB                                    KEPT
IEF285I   VOL SER NOS= SYS008.
```

```
IEF285I   SYS77032.T154345.RV007.INIT.LOADSET          KEPT
IEF285I   VOL SER NOS= SYS312.
IEF285I   SYS77032.T154358.RV000.VG7242ES.GOSET        PASSED
IEF285I   VOL SER NOS= SYS312.
IEF285I   SYS77032.T154345.RV007.INIT.UT1              KEPT
IEF285I   VOL SER NOS= SYS313.
IEF373I STEP /LKED    / START 77032.1733
IEF374I STEP /LKED    / STOP  77032.1733 CPU    0MIN 02.42SEC MAIN  96K LCS    0K
CCD006I STEP /LKED    / I/O IN DD SEQ: 4A4      2/577     57/577      /334      /
CCD006I STEP /LKED    / I/O IN DD SEQ: 491    246/000       /491    58/481    66/
CCD001I STEP /LKED    / CORE RESERVED   98K: ACCESSES: DISK     429/ TAPE        / DRUM
XXGO      EXEC PGM=*.LKED.SYSLMOD,COND=((5,LT,FORT),(5,LT,LKED)),      P1330300
XX          REGION=84K                                                  P1330310
XXFT05F001 DD   DDNAME=SYSIN                FORTRAN CARD INPUT          P1330320
XXFT06F001 DD   SYSOUT=A                    PRINTED OUTPUT              P1330330
XXFT07F001 DD   SYSOUT=B                    PUNCHED CARD OUTPUT         P1330340
//GO.SYSIN  DD *
//
IEF236I ALLOC. FOR VG7242ES GO       STEP
IEF237I 491   ALLOCATED TO PGM=*.DD
IEF237I 5E2   ALLOCATED TO FT05F001
IEF237I 4A4   ALLOCATED TO FT06F001
IEF237I 4B3   ALLOCATED TO FT07F001
IEF142I - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS77032.T154358.RV000.VG7242ES.GOSET        PASSED
IEF285I   VOL SER NOS= SYS312.
IEF373I STEP /GO      / START 77032.1733
IEF374I STEP /GO      / STOP  77032.1733 CPU    0MIN 15.39SEC MAIN 336K LCS    0K
CCD006I STEP /GO      / I/O IN DD SEQ: 591      /5E2     9/4A4    68/4B3      /
CCD001I STEP /GO      / CORE RESERVED  400K: ACCESSES: DISK      77/ TAPE        / DRUM
IEF285I   SYS77032.T154345.RV007.INIT.LOADSET          KEPT
IEF285I   VOL SER NOS= SYS312.
IEF285I   SYS77032.T154358.RV000.VG7242ES.GOSET        DELETED
IEF285I   VOL SER NOS= SYS312.
IEF375I  JOB /VG7242ES/ START 77032.1731
IEF376I  JOB /VG7242ES/ STOP  77032.1733 CPU    0MIN 51.77SEC
CCD007A  JOB /VG7242ES/ BASIC CHRG: FIXED    CPU    DSK-IO  TPE-IO DRM-IO     TOTAL
                                    3.00     6.32     3.69                    13.02
CCD007B  JOB /VG7242ES/ CORE CHRG: EXCESS(+756K) UNUSED(+104K)  NOHASP       TOTAL
                                                    5.72                     5.72
CCD002I  JOB /VG7242ES/ TOTAL CHARGE RECORDED =      $18.74
CCD003I  JOB /VG7242ES/ US GEOLOGICAL SURVEY RE2 OS REL 218 TIME = 17.33.56 DATE = 02/01/77
```

THE 155S ARE TO BE REPLACED BY A NEW,POSSIBLE INCOMPATIBLE,COMPUTER. THE WINNING VENDOR MUST CONVERT & CHECK ALL PROGRAMS DESCRIBED IN THE RFP. QUESTIONNAIRES ARE BEING SENT TO EVERY PERSON RESPONSIBLE FOR PROGRAMS IN CCD'S PROGRAM MASTER FILE; RESPONSES WILL BE INCLUDED IN THE RFP. YOU WILL CONVERT ALL OMISSIONS. CALL 7251 (RESTON) IF MORE FORMS ARE NEEDED.

```
      COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                         SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
                C
                C
                C  PROGRAM DEROCS        ENERGY RESOURCES ON THE OCS
                C  RESOURCE AND LAND INVESTIGATIONS PROGRAM
                C  US GEOLOGICAL SURVEY
                C  RESTON, VA  22092
                C  (703)  860-6717
                C
                C
ISN 0002                COMMON/MISC/IDRUN                                       2
ISN 0003                CALL SETUP                                              3
ISN 0004                GO TO (10,20),IDRUN                                     4
ISN 0005          10    CONTINUE                                                5
                  C     INPUT -NOFIND- EXPLORATORY DATA.                        6
ISN 0006                CALL INPUT1                                             7
                  C     PERFORM -NOFIND- CALCULATIONS.                          8
ISN 0007                CALL MODEL1                                             9
                  C     OUTPUT RESULTS OF THE -NOFIND- SCENARIO.               10
ISN 0008                CALL OTPUT1                                            11
ISN 0009                STOP                                                   12
ISN 0010          20    CONTINUE                                               13
                  C     INPUT DATA FOR THE -FIND- SCENARIO.                    14
ISN 0011                CALL INPUT2                                            15
                  C     PERFORM -FIND- CALCULATIONS.                           16
ISN 0012                CALL MODEL2                                            17
                  C     OUTPUT RESULTS OF THE -FIND- SCENARIO.                 18
ISN 0013                CALL OTPUT2                                            19
ISN 0014                STOP                                                   20
ISN 0015                END                                                    21
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
IDRUN	F C	I*4	000000	SETUP	SF XF	R*4	000000	IBCOM#	XF	R*4	000000	INPUT1	SF XF	I*4	000000
INPUT2	SF XF	I*4	000000	MODEL1	SF XF	I*4	000000	MODEL2	SF XF	I*4	000000	OTPUT1	SF XF	R*4	000000
OTPUT2	SF XF	R*4	000000												

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * MISC* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDRUN	I*4	000000									

```
    LABEL    ADDR                LABEL    ADDR                LABEL    ADDR                LABEL    ADDR
       10  000DDA                   20  00010C

*OPTIONS IN EFFECT*       NAME=   MAIN,OPT=00,LINECNT=54,SIZE=0000K,
*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
*STATISTICS*      SOURCE STATEMENTS =       14 ,PROGRAM SIZE =       350
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                    61K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=00000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            BLOCK DATA                                                    22
ISN 0003            INTEGER RUNIT,PUNIT                                           23
ISN 0004            COMMON/IO/RUNIT,PUNIT                                         24
ISN 0005            COMMON/ASSUMP/NCONYR,NDEVYR,NPROYR(2),NWPERP,NYRBWO(2),NWPYPP(2),  25
                   XOILREC,GASREC,MAXPPY,NYRBDD                                   26
ISN 0006            DATA RUNIT,PUNIT/5,6/                                         27
ISN 0007            DATA NCONYR,NDEVYR/3,3/                                       28
ISN 0008            DATA NPROYR/10,15/                                            29
ISN 0009            DATA NWPERP/20/                                               30
ISN 0010            DATA NYRBWO/5,7/                                              31
ISN 0011            DATA NWPYPP/7,4/                                              32
ISN 0012            DATA OILREC,GASREC/438.,7.282E06/                             33
ISN 0013            DATA MAXPPY/15/                                               34
ISN 0014            DATA NYRBDD/1/                                                35
ISN 0015            END                                                           36
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
PUNIT	C	I*4	N.R.	RJNIT	C	I*4	N.R.	GASREC	C	R*4	N.R.	MAXPPY	C	I*4	N.R.
NCONYR	C	I*4	N.R.	NDEVYR	C	I*4	N.R.	NPROYR	C	I*4	N.R.	NWPERP	C	I*4	N.R.
NWPYPP	C	I*4	N.R.	NYRBDD	C	I*4	N.R.	NYRBWO	C	I*4	N.R.	OILREC	C	R*4	N.R.

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RJNIT	I*4	N.R.	PUNIT	I*4	N.R.						

NAME OF COMMON BLOCK *ASSUMP* SIZE OF BLOCK 000034 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NCONYR	I*4	N.R.	NDEVYR	I*4	N.R.	NPROYR	I*4	N.R.	NWPERP	I*4	N.R.
NYRBWO	I*4	N.R.	NWPYPP	I*4	N.R.	OILREC	R*4	N.R.	GASREC	R*4	N.R.
MAXPPY	I*4	N.R.	NYRBDD	I*4	N.R.						

OPTIONS IN EFFECT NAME= MAIN,OPT=00,LINECNT=54,SIZE=0000K,

OPTIONS IN EFFECT SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

STATISTICS SOURCE STATEMENTS = 14 ,PROGRAM SIZE = 8

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 61K BYTES OF CORE NOT USED

```
      COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                         SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE SETUP                                          37
ISN 0003            INTEGER RUNIT,PUNIT                                       38
ISN 0004            COMMON/IO/RUNIT,PUNIT                                     39
ISN 0005            COMMON/MISC/IDRUN                                         40
ISN 0006            DATA FIND/'FIND'/                                         41
                C   INPUT TYPE OF RUN (FIND OR NOFIND).                       42
ISN 0007            READ(RUNIT,1010) TYPE                                     43
ISN 0008      1010  FORMAT(A4)                                                44
ISN 0009            IDRUN=2                                                   45
ISN 0010            IF(TYPE .NE. FIND) IDRUN=1                                46
                C   OUTPUT TYPE OF RUN.                                       47
ISN 0012            WRITE(PUNIT,2000)                                         48
ISN 0013      2000  FORMAT(1H1)                                               49
ISN 0014            GO TO (10,20),IDRUN                                       50
ISN 0015      10    WRITE(PUNIT,2010)                                         51
ISN 0016      2010  FORMAT(//,1X,'THIS RUN ASSUMES A -NOFIND- CONDITION.')    52
ISN 0017            GO TO 25                                                  53
ISN 0018      20    WRITE(PUNIT,2020)                                         54
ISN 0019      2020  FORMAT(//,1X,'THIS RUN ASSUMES A -FIND- CONDITION.')      55
ISN 0020      25    CONTINUE                                                  56
ISN 0021            RETURN                                                    57
ISN 0022            END                                                       58
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
FIND		R*4	0000F0	TYPE S		R*4	0000F4	IDRUN	SF C	I*4	000000	PUNIT	F C	I*4	000004
RUNIT	F C	I*4	000000	SETUP		R*4	0000F8	IBCOM#	F XF	R*4	000000				

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	000000	PUNIT	I*4	000004						

NAME OF COMMON BLOCK * MISC* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDRUN	I*4	000000									

```
   10  00019A      20  000186      25  0001CC
*OPTIONS IN EFFECT*      NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
*OPTIONS IN EFFECT*      SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
*STATISTICS*     SOURCE STATEMENTS =      21 ,PROGRAM SIZE =      498
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                          61K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE INPUT1                                          59
ISN 0003            INTEGER RUNIT,PUNIT                                        60
ISN 0004            INTEGER*2 NEXRIG                                           61
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      62
ISN 0006            COMMON/MISC/IDRUN                                          63
ISN 0007            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),         64
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                         65
ISN 0008            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                     66
ISN 0009            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),  67
                   XREQIMP(15,5),NREQIM(40,10,15)                              68
ISN 0010            COMMON/LOCALE/CITYST(10,4),PORTNM(3),STATNM                69
ISN 0011            COMMON/TAB4D/BSNAME(4,80),OWNRCO(2,80),                    70
                   XOILCOM(2,80),LOCRIG(80,5)                                  71
                C     INPUT NUMBER OF LOCATIONS.                               72
ISN 0012            READ(RUNIT,1010) NUMLOC                                    73
ISN 0013      1010  FORMAT(I2)                                                 74
                C     INPUT LOCATION NAMES.                                    75
ISN 0014            DO 50 NDXLOC=1,NUMLOC                                      76
ISN 0015            READ(RUNIT,1020) (CITYST(NDXLOC,J),J=1,4)                  77
ISN 0016      1020  FORMAT(4A4)                                                78
ISN 0017      50    CONTINUE                                                   79
                C     INPUT NUMBER OF OIL COMPANIES/LOCATION.                  80
ISN 0018            READ(RUNIT,1050) NUMCOM                                    81
ISN 0019      1050  FORMAT(10I2)                                               82
ISN 0020            NTOTOC=0                                                   83
ISN 0021            DO 60 NDXLOC=1,NUMLOC                                      84
ISN 0022            NTOTOC=NTOTOC+NUMCOM(NDXLOC)                               85
ISN 0023      60    CONTINUE                                                   86
                C     INPUT NAMES OF OWNERS AND OIL COMPANIES.                 87
                C     (BLANK FIELDS WILL SOMETIMES BE REQUIRED IN THIS INPUT)  88
ISN 0024            DO 65 NDXTOC=1,NTOTOC                                      89
ISN 0025            READ(RUNIT,1060) (OWNRCO(J,NDXTOC),J=1,2),                 90
                   X(OILCOM(K,NDXTOC),K=1,2)                                   91
ISN 0026      1060  FORMAT(2A4,2X,2A4)                                         92
ISN 0027      65    CONTINUE                                                   93
                C     INPUT NUMBER OF ACTIVE YEARS.                            94
ISN 0028            READ(RUNIT,1010) NUMAYR                                    95
                C     ALLOCATE EXPLORATORY RIGS BY YEAR, LOCATION, AND COMP.   96
ISN 0029            DO 100 NDXLOC=1,NUMLOC                                     97
ISN 0030            NCCORP=NUMCOM(NDXLOC)                                      98
ISN 0031            DO 90 NDXCOM=1,NOCORP                                      99
ISN 0032            READ(RUNIT,1065) (NUMRIG(NDXYRS,NDXLOC,NDXCOM),NDXYRS=1,NUMAYR)  100
ISN 0033      1065  FORMAT(30I2)                                               101
ISN 0034      90    CONTINUE                                                   102
ISN 0035      100   CONTINUE                                                   103
                C     INPUT THE LOCATION OF THE RIGS BY CEQ CIRCLE.            104
ISN 0036            DO 110 NDXTOC=1,NTOTOC                                     105
ISN 0037            READ(RUNIT,1065) (LOCRIG(NDXTOC,NDXYRS),NDXYRS=1,NUMAYR)  106
ISN 0038      110   CONTINUE                                                   107
                C     INPUT NUMBER OF MULTIPLIERS.                             108
```

```
ISN 0039            READ(RUNIT,1010) NOMULT                                  109
                C   INPUT DESCRIPTION AND VALUE OF EACH MULTIPLIER.          110
ISN 0040            DO 120 NDXMUL=1,NOMULT                                   111
ISN 0041            READ(RUNIT,1090) (DESMUL(J,NDXMUL),J=1,8)                112
ISN 0042      1090  FORMAT(8A4)                                              113
ISN 0043            READ(RUNIT,1095) RIMULT(NDXMUL,1),NTERVL(NDXMUL,1)       114
ISN 0044      1095  FORMAT(F7.2,I2)                                          115
ISN 0045      120   CONTINUE                                                 116
ISN 0046            RETURN                                                   117
ISN 0047            END                                                      118
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
J	F	I*4	0000E8	K	F	I*4	0000EC	IDRUN	C	I*4	N.R.	PUNIT	C	I*4	N.R.
RUNIT	F C	I*4	000000	BSNAME	C	R*4	N.R.	CITYST S	C	R*4	000000	DESMUL S	C	R*4	000004
IBCOM#	F XF	I*4	000000	IDXCEQ	C	I*4	N.R.	INPUT1		I*4	0000F0	LOCRIG S	C	I*4	000A00
NDXCOM	SF	I*4	0000F4	NDXLOC	SF	I*4	0000F8	NDXMUL	SF	I*4	0000FC	NDXTOC	SF	I*4	000100
NDXYRS	F	I*4	000104	NEXCEQ	C	I*4	N.R.	NEXRIG	C	I*2	N.R.	NOCORP	SF	I*4	000108
NOMULT	SF C	I*4	000000	NREQIM	C	I*4	N.R.	NTERVL S	C	I*4	000310	NTOTOC	SF C	I*4	00002C
NUMAYR	SF C	I*4	000000	NUMCOM	SF C	I*4	000004	NUMLOC	SF C	I*4	000000	NUMRIG S	C	I*4	000D44
OILCOM	S C	R*4	000780	OWNRCO	S C	R*4	000500	PORTNM	C	R*4	N.R.	REQIMP	C	R*4	N.R.
RIMULT	S C	R*4	0001E4	STATNM	C	R*4	N.R.								

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	000000	PUNIT	I*4	N.R.						

NAME OF COMMON BLOCK * MISC* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDRUN	I*4	N.R.									

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 010204 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	000D44									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	00002C			

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	000000	DESMUL	R*4	000004	RIMULT	R*4	0001E4	NTERVL	I*4	000310
REQIMP	R*4	N.R.	NREQIM	I*4	N.R.						

NAME OF COMMON BLOCK *LOCALE* SIZE OF BLOCK 000080 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
CITYST	R*4	000000	PORTNM	R*4	N.R.	STATNM	R*4	N.R.			

NAME OF COMMON BLOCK * TAB4D* SIZE OF BLOCK 001040 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
BSNAME	R*4	N.R.	OWNRCO	R*4	000500	OILCOM	R*4	000780	LOCRIG	I*4	000A00

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
50	000240	60	0002A8	65	000368	90	000434
100	00044A	110	0004C8	120	00059C		

```
*OPTIONS IN EFFECT*      NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*      SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*     SOURCE STATEMENTS =      46 ,PROGRAM SIZE =     1500

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  49K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE MODEL1                                          119
ISN 0003            INTEGER*2 NEXRIG                                           120
ISN 0004            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),         121
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                         122
ISN 0005            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                     123
ISN 0006            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),124
                   XREQIMP(15,5),NREQIM(40,10,15)                              125
                C   ZERO-OUT THE NREQIM ARRAY.                                 126
ISN 0007            DO 50 NDXYRS=1,40                                          127
ISN 0008            DO 48 NDXLOC=1,NUMLOC                                      128
ISN 0009            DO 46 NDXMUL=1,NOMULT                                      129
ISN 0010            NREQIM(NDXYRS,NDXLOC,NDXMUL)=0                             130
ISN 0011        46  CONTINUE                                                   131
ISN 0012        48  CONTINUE                                                   132
ISN 0013        50  CONTINUE                                                   133
                C   DETERMINE REQ/IMPACTS FOR EXPLORATORY ACTIVITY.           134
ISN 0014            DO 100 NDXLOC=1,NUMLOC                                     135
ISN 0015            NOCORP=NUMCOM(NDXLOC)                                      136
ISN 0016            DO 90 NDXYRS=1,NUMAYR                                      137
ISN 0017            DO 80 NDXCOM=1,NOCORP                                      138
ISN 0018            NORIGS=NUMRIG(NDXYRS,NDXLOC,NDXCOM)                        139
ISN 0019            IF(NORIGS .EQ. 0) GO TO 80                                 140
ISN 0021            DO 85 NDXMUL=1,NOMULT                                      141
ISN 0022            MULFAC=NORIGS                                              142
ISN 0023                  GO TO (600,600,600,600,600,500,525,600,550,          143
                   X        560,600,600,600,600,600),NDXMUL                    144
ISN 0024        500       REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)*REQIMP(5,1)       145
ISN 0025                  NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 146
                   X        (REQIMP(NDXMUL,1)+0.5)                             147
ISN 0026                  GO TO 85                                           148
ISN 0027        525       REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)*REQIMP(3,1)      149
ISN 0028                  NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 150
                   X        (REQIMP(NDXMUL,1)+0.5)                             151
ISN 0029                  GO TO 85                                           152
ISN 0030        550       REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)/100.*            153
                   X        (REQIMP(6,1)+REQIMP(7,1)+REQIMP(8,1))              154
ISN 0031                  NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 155
                   X        (REQIMP(NDXMUL,1)+0.5)                             156
ISN 0032                  GO TO 85                                           157
ISN 0033        560       REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)*                 158
                   X        (REQIMP(6,1)+REQIMP(7,1)+REQIMP(8,1))              159
ISN 0034                  NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 160
                   X        (REQIMP(NDXMUL,1)+0.5)                             161
ISN 0035                  GO TO 85                                           162
ISN 0036        600       CONTINUE                                           163
ISN 0037            IF(NTERVL(NDXMUL,1) .EQ. 0) GO TO 84                       164
ISN 0039            MULFAC=MULFAC/NTERVL(NDXMUL,1)                             165
ISN 0040            IF(NORIGS-MULFAC*NTERVL(NDXMUL,1) .NE. 0) MULFAC=MULFAC+1  166
ISN 0042        84  REQIMP(NDXMUL,1)=MULFAC*RIMULT(NDXMUL,1)                   167
ISN 0043            NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 168
```

```
                    X(REQIMP(NDXMUL,1)+0.5)
ISN 0044      85     CCNTINUE
ISN 0045      80     CONTINUF
ISN 0046      90     CCNTINUE
ISN 0047     100     CCNTINUF
ISN 0048             RETURN
ISN 0049             END
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
DESMUL	C	R*4	N.R.	IDXCEQ	C	I*4	N.R.	MODEL1		I*4	000114	MULFAC	SF	I*4	000118
NDXCOM	SF	I*4	00011C	NDXLOC	SF	I*4	000120	NDXMUL	SF	I*4	000124	NDXYRS	SF	I*4	000128
NEXCEQ	C	I*4	N.R.	NEXRIG	C	I*2	N.R.	NOCORP	SF	I*4	00012C	NOMULT	F C	I*4	000000
NORIGS	SF	I*4	000130	NREQIM	SF C	I*4	000568	NTERVL	F C	I*4	000310	NTOTOC	C	I*4	N.R.
NUMAYR	F C	I*4	000000	NUMCOM	F C	I*4	000004	NUMLOC	F C	I*4	000000	NUMRIG	F C	I*4	000044
REQIMP	SF C	R*4	00043C	RIMULT	F C	R*4	0001E4								

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	000044									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	000000	DESMUL	R*4	N.R.	RIMULT	R*4	0001E4	NTERVL	I*4	000310
REQIMP	R*4	00043C	NREQIM	I*4	000568						

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
46	000216	48	000230	50	00024A	500	0002F4
525	0003F0	550	0004EC	560	000604	600	000718
94	000774	85	000890	80	0008AA	90	0008C0
100	0008DA						

OPTIONS IN EFFECT NAME= MAIN,OPT=00,LINECNT=54,SIZE=0000K,

OPTIONS IN EFFECT SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

STATISTICS SOURCE STATEMENTS = 48 ,PROGRAM SIZE = 2330

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 49K BYTES OF CORE NOT USED

```
          COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                                   SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE OTPUT1                                                    176
ISN 0003            INTEGER TOTEMP,TOTWAG                                                177
ISN 0004            INTEGER*2 NEXRIG                                                     178
ISN 0005            COMMON/MISC/IDRUN                                                    179
ISN 0006            COMMON/TAB4E/IDPORT                                                  180
ISN 0007            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),                   181
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                                   182
ISN 0008            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                               183
ISN 0009            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),         184
                   XREQIMP(15,5),NREQIM(40,10,15)                                        185
ISN 0010            COMMON/LOCALE/CITYST(10,4),PORTNM(3),STATNM                          186
ISN 0011            COMMON/TAB4D/BSNAME(4,80),OWNRCD(2,80),                              187
                   XOILCOM(2,80),LOCRIG(80,5)                                            188
ISN 0012            CALL RIGACT                                                          189
ISN 0013            NDXTOC=0                                                             190
ISN 0014            DO 50 NDXLOC=1,NUMLOC                                                191
ISN 0015            NCCORP=NUMCOM(NDXLOC)                                                192
ISN 0016            DO 40 NDXCOM=1,NOCORP                                                193
ISN 0017            NDXTOC=NDXTOC+1                                                      194
ISN 0018            DO 30 NDXDIM=1,4                                                     195
ISN 0019            BSNAME(NDXDIM,NDXTOC)=CITYST(NDXLOC,NDXDIM)                          196
ISN 0020      30    CONTINUE                                                             197
ISN 0021      40    CONTINUE                                                             198
ISN 0022      50    CONTINUE                                                             199
ISN 0023            CALL FORM4D                                                          200
ISN 0024            CALL MULTAB                                                          201
ISN 0025            DO 100 NDXLOC=1,NUMLOC                                               202
ISN 0026            PORTNM(1)=CITYST(NDXLOC,1)                                           203
ISN 0027            PORTNM(2)=CITYST(NDXLOC,2)                                           204
ISN 0028            PORTNM(3)=CITYST(NDXLOC,3)                                           205
ISN 0029            STATNM=CITYST(NDXLOC,4)                                              206
ISN 0030            IDPORT=NDXLOC                                                        207
ISN 0031            CALL FORM4E                                                          208
ISN 0032     100    CONTINUE                                                             209
ISN 0033            RETURN                                                               210
ISN 0034            END                                                                  211
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
IDRUN	C	I*4	N.R.	BSNAME S	C	R*4	000000	CITYST F	C	R*4	000000	DESMUL	C	R*4	N.R.
FORM4D SF	XF	R*4	000000	FORM4E SF	XF	R*4	000000	IDPORT S	C	I*4	000000	IDXCEQ	C	I*4	N.R.
LOCRIG	C	I*4	N.R.	MULTAB SF	XF	I*4	000000	NDXCOM SF		I*4	0000BC	NDXDIM SF		I*4	000CC0
NDXLOC SF		I*4	0000C4	NDXTOC SF		I*4	0000C8	NEXCEQ	C	I*4	N.R.	NEXRIG	C	I*2	N.R.
NOCORP SF		I*4	0000CC	NOMULT	C	I*4	N.R.	NREQIM	C	I*4	N.R.	NTERVL	C	I*4	N.R.
NTOTOC	C	I*4	N.R.	NUMAYR	C	I*4	N.R.	NUMCOM F	C	I*4	000004	NUMLOC F	C	I*4	000000
NUMRIG	C	I*4	N.R.	OILCOM	C	R*4	N.R.	OTPUT1		R*4	000000	OWNRCO	C	R*4	N.R.
PORTNM S	C	R*4	0000A0	REQIMP	C	R*4	N.R.	RIGACT SF	XF	R*4	000000	RIMULT	C	R*4	N.R.
STATNM S	C	R*4	0000AC	TOTEMP		I*4	N.R.	TOTWAG		I*4	N.R.				

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * MISC* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDRUN	I*4	N.R.									

NAME OF COMMON BLOCK * TAB4E* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDPORT	I*4	000000									

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	N.R.	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	N.R.									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	N.R.	DESMUL	R*4	N.R.	RIMULT	R*4	N.R.	NTERVL	I*4	N.R.
REQIMP	R*4	N.R.	NREQIM	I*4	N.R.						

NAME OF COMMON BLOCK *LOCALE* SIZE OF BLOCK 0000B0 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
CITYST	R*4	000000	PORTNM	R*4	0000A0	STATNM	R*4	0000AC			

NAME OF COMMON BLOCK * TAB4D* SIZE OF BLOCK 001040 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
HSNAME	R*4	000000	OWNRCO	R*4	N.R.	OILCOM	R*4	N.R.	LOCRIG	I*4	N.R.

```
   LABEL    ADDR              LABEL    ADDR              LABEL    ADDR              LABEL    ADDR          PAGE 004
      30  00013A                 40  0001F0                 50  000206                100  00029C
*OPTIONS IN EFFECT*      NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
*OPTIONS IN EFFECT*      SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
*STATISTICS*     SOURCE STATEMENTS =      33 ,PROGRAM SIZE =      732
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                  57K BYTES OF CORE NOT USED
```

```
      COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                         SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE INPUT2                                          212
ISN 0003            INTEGER RUNIT,PUNIT                                        213
ISN 0004            INTEGER*2 NEXRIG                                           214
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      215
ISN 0006            COMMON/ASSUMP/NCONYR,NDEVYR,NPRDYR(2),NWPERP,NYRBWO(2),NWPYPP(2),  216
                   XOILREC,GASREC,MAXPPY,NYRBOD                                217
ISN 0007            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),         218
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                         219
ISN 0008            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                     220
ISN 0009            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),  221
                   XREQIMP(15,5),NREQIM(40,10,15)                              222
ISN 0010            COMMON/LOCALE/CITYST(10,4),PORTNM(3),STATNM                223
ISN 0011            COMMON/TAB4D/BSNAME(4,80),OWNRCO(2,80),                    224
                   XOILCOM(2,80),LOCRIG(80,5)                                  225
ISN 0012            COMMON/FNDATA/NFINDS,IYRFND(50),TYPFND(2,50),              226
                   XSIZFND(2,50),LOCFND(50),DEPFND(50),KEYTYP(50),             227
                   XNUMCPF(20),FNDCOM(2,5,20),IDFNDL(20,6),IDCBFL(20,6,5),     228
                   XNUMCRE(20),ASGRER(50)                                      229
ISN 0013            DIMENSION ANTEST(3)                                        230
ISN 0014            DATA ANTEST/'GAS.','GAS ',' GAS'/                          231
              C     INPUT NUMBER OF LOCATIONS.                                 232
ISN 0015            READ(RUNIT,1010) NUMLOC                                    233
ISN 0016      1010  FORMAT(I2)                                                 234
              C     INPUT LOCATION NAMES.                                      235
ISN 0017            DO 50 NDXLOC=1,NUMLOC                                      236
ISN 0018            READ(RUNIT,1020) (CITYST(NDXLOC,J),J=1,4)                  237
ISN 0019      1020  FORMAT(4A4)                                                238
ISN 0020      50    CONTINUE                                                   239
              C     INPUT NUMBER OF OIL COMPANIES/LOCATION.                    240
ISN 0021            READ(RUNIT,1050) NUMCOM                                    241
ISN 0022      1050  FORMAT(10I2)                                               242
ISN 0023            NTOTOC=0                                                   243
ISN 0024            DO 60 NDXLOC=1,NUMLOC                                      244
ISN 0025            NTOTOC=NTOTOC+NUMCOM(NDXLOC)                               245
ISN 0026      60    CONTINUE                                                   246
              C     INPUT NAMES OF OWNERS AND OIL COMPANIES.                   247
              C     (BLANK FIELDS WILL SOMETIMES BE REQUIRED IN THIS INPUT)    248
ISN 0027            DO 65 NDXTOC=1,NTOTOC                                      249
ISN 0028            READ(RUNIT,1060) (OWNRCO(J,NDXTOC),J=1,2),                 250
                   X(OILCOM(K,NDXTOC),K=1,2)                                   251
ISN 0029      1060  FORMAT(2A4,2X,2A4)                                         252
ISN 0030      65    CONTINUE                                                   253
              C     INPUT NUMBER OF ACTIVE YEARS.                              254
ISN 0031            READ(RUNIT,1010) NUMAYR                                    255
ISN 0032            DO 74 NDXYRS=1,NUMAYR                                      256
ISN 0033            DO 72 NDXLOC=1,10                                          257
ISN 0034            DO 70 NDXCOM=1,8                                           258
ISN 0035            NUMRIG(NDXYRS,NDXLOC,NDXCOM)=0                             259
ISN 0036            DO 69 NDXCEQ=1,11                                          260
ISN 0037            NEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ)=0                      261
```

```
ISN 0038      69    CONTINUE                                                    262
ISN 0039      70    CONTINUE                                                    263
ISN 0040      72    CONTINUE                                                    264
ISN 0041      74    CONTINUE                                                    265
              C     ALLOCATE EXPLORATORY RIGS BY YEAR,PORT,OIL CO., AND CEQ.    266
ISN 0042            DO 100 NDXLOC=1,NUMLOC                                      267
ISN 0043            NCCORP=NUMCOM(NDXLOC)                                       268
ISN 0044            DO 90 NDXCOM=1,NOCORP                                       269
ISN 0045            READ(RUNIT,1000) NEXCEQ(NDXLOC,NDXCOM)                      270
ISN 0046            IF(NEXCEQ(NDXLOC,NDXCOM) .EQ. 0) GO TO 90                   271
ISN 0048            READ(RUNIT,1062) (IDXCEQ(NDXLOC,NDXCOM,NDXDIM),NDXDIM=1,11) 272
ISN 0049      1062  FORMAT(11I2)                                                273
ISN 0050            NUMCEQ=NEXCEQ(NDXLOC,NDXCOM)                                274
ISN 0051            DO 80 NDXEXC=1,NUMCEQ                                       275
ISN 0052            NDXCEQ=IDXCEQ(NDXLOC,NDXCOM,NDXEXC)                         276
ISN 0053            READ(RUNIT,1065) (NEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ),      277
                   XNDXYRS=1,NUMAYR)                                            278
ISN 0054      1065  FORMAT(30I2)                                                279
ISN 0055            DO 78 NDXYRS=1,NUMAYR                                       280
ISN 0056            NUMRIG(NDXYRS,NDXLOC,NDXCOM)=NUMRIG(NDXYRS,NDXLOC,NDXCOM)+  281
                   XNEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ)                         282
ISN 0057      78    CONTINUE                                                    283
ISN 0058      80    CONTINUE                                                    284
ISN 0059      90    CONTINUE                                                    285
ISN 0060      100   CONTINUE                                                    286
              C     INPUT THE NUMBER OF FINDS.                                  287
ISN 0061            READ(RUNIT,1000) NFINDS                                     288
ISN 0062      1000  FORMAT(I2)                                                  289
              C     INPUT YR. OF FIND,TYPE,SIZE,CEQ CIRCLE, AND                 290
              C     WATER DEPTH.                                                291
ISN 0063            READ(RUNIT,1005) (IYRFND(NDXFND),TYPFND(1,NDXFND),          292
                   XTYPFND(2,NDXFND),SIZFND(1,NDXFND),SIZFND(2,NDXFND),        293
                   XLCCFND(NDXFND),DEPFND(NDXFND),NDXFND=1,NFINDS)             294
ISN 0064      1005  FORMAT(I2,2A4,2E10.4,I2,8X,F5.0)                           295
              C     KEYTYP=1 IMPLIES GAS, =2 IMPLIES OIL AND GAS.               296
ISN 0065            DO 15 NDXFND=1,NFINDS                                       297
ISN 0066            KEYTYP(NDXFND)=1                                            298
ISN 0067            DO 14 NDXDIM=1,3                                            299
ISN 0068            IF(TYPFND(1,NDXFND) .EQ. ANTEST(NDXDIM)) GO TO 15           300
ISN 0070      14    CONTINUE                                                    301
ISN 0071            KEYTYP(NDXFND)=2                                            302
ISN 0072      15    CONTINUE                                                    303
              C     INPUT THE NUMBER OF COMPANIES/FIND.                         304
ISN 0073            READ(RUNIT,1006) NUMCPF                                     305
ISN 0074      1006  FORMAT(20I2)                                                306
              C     INPUT NAMES OF COMPANIES ASSOCIATED WITH EA. FIND.          307
ISN 0075            DO 25 NDXFND=1,NFINDS                                       308
ISN 0076            IF(NUMCPF(NDXFND) .EQ. 0) GO TO 25                          309
ISN 0078            MAXCPF=NUMCPF(NDXFND)                                       310
ISN 0079            DO 20 NDXCOM=1,MAXCPF                                       311
ISN 0080            READ(RUNIT,1008) (FNDCOM(NDXDIM,NDXCOM,NDXFND),NDXDIM=1,2)  312
ISN 0081      1008  FORMAT(2A4)                                                 313
```

```
ISN 0082      20    CONTINUE                                                      314
ISN 0083      25    CONTINUE                                                      315
              C     EACH FIND CAN BE CORRELATED WITH UP TO                        316
              C     6 DIFFERENT PORTS.  INPUT THESE CORRELATIONS.                 317
ISN 0084            DO 30 NDXFND=1,NFINDS                                         318
ISN 0085            READ(RUNIT,1009) (IDFNDL(NDXFND,NDXDIM),NDXDIM=1,6)           319
ISN 0086      1009  FORMAT(6I2)                                                   320
ISN 0087      30    CONTINUE                                                      321
              C     IDENTIFY OIL CO. ASSOCIATED WITH PLATFORMS INITIATED          322
              C     BY FIND AND PORT.                                             323
ISN 0088            DO 45 NDXFND=1,NFINDS                                         324
ISN 0089            NUMDIV=0                                                      325
ISN 0090            DO 40 NDXDIM=1,6                                              326
ISN 0091            IF(IDFNDL(NDXFND,NDXDIM) .EQ. 0) GO TO 40                     327
ISN 0093            NDXLOC=IDFNDL(NDXFND,NDXDIM)                                  328
ISN 0094            READ(RUNIT,1112) (IDCBFL(NDXFND,NDXLOC,NDXCOM),NDXCOM=1,5)    329
ISN 0095      1112  FORMAT(5I2)                                                   330
ISN 0096            DO 35 NDXDM2=1,5                                              331
ISN 0097            IF(IDCBFL(NDXFND,NDXLOC,NDXDM2) .EQ. 0) GO TO 40              332
              C*****************************************************************  333
              C        THIS CONDITIONAL BRANCH HAS BEEN ADDED TO EXCLUDE COUNTING  334
              C       A COMPANY THAT HAS MOVED FROM ONE PORT TO ANOTHER AS TWO     335
              C       COMPANIES.                                                   336
              C           MODIFICATION MADE BY E. DREYER, D. T. I.                 337
              C                    JULY 22, 1976                                   338
              C*****************************************************************  339
ISN 0099            IF(IDCBFL(NDXFND,NDXLOC,NDXDM2) .LT. 0) GO TO40               340
              C*****************************************************************  341
ISN 0101      35    NUMDIV=NUMDIV+1                                               342
ISN 0102      40    CONTINUE                                                      343
ISN 0103            NUMCRE(NDXFND)=NUMDIV                                         344
ISN 0104      45    CONTINUE                                                      345
              C     INPUT NUMBER OF MULTIPLIERS.                                  346
ISN 0105            READ(RUNIT,1010) NOMULT                                       347
              C     INPUT THE DESCRIPTION AND VALUES OF THE MULTIPLIERS.          348
ISN 0106            DO 150 NDXMUL=1,NOMULT                                        349
ISN 0107            READ(RUNIT,1090) (DESMUL(NDXDIM,NDXMUL),NDXDIM=1,8)           350
ISN 0108      1090  FORMAT(8A4)                                                   351
ISN 0109            READ(RUNIT,2010) (RIMULT(NDXMUL,NDXACT),NTERVL(NDXMUL,NDXACT),  352
                   XNDXACT=1,5)                                                   353
ISN 0110      2010  FORMAT(5(F7.2,I2,1X))                                         354
ISN 0111      150   CONTINUE                                                      355
ISN 0112            RETURN                                                        356
ISN 0113            END                                                           357
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
J	F	I*4	000144	K	F	I*4	000148	PUNIT	C	I*4	N.R.	RUNIT	F C	I*4	000000
ANTEST		R*4	00018C	ASGREP	C	R*4	N.R.	BSNAME	C	R*4	N.R.	CITYST	S C	R*4	000000
DEPEND	S C	R*4	0004B4	DESMUL	S C	R*4	000004	ENDCOM	S C	R*4	000594	GASREC	C	R*4	N.R.
IBCOM#	F XF	R*4	000000	IDCBFL	S C	I*4	000B94	IDENDL	SF C	I*4	000984	IDXCEQ	SF C	I*4	000144
INPUT2		I*4	000140	IYREND	S C	I*4	000004	KEYTYP	S C	I*4	00057C	LOCEND	S C	I*4	0003EC
LOCRIG	C	I*4	N.R.	MAXCPF	SF	I*4	000150	MAXPPY	C	I*4	N.R.	NCONYR	C	I*4	N.R.
NDEVYR	C	I*4	N.R.	NDXACT	F	I*4	000154	NDXCEQ	SF	I*4	000158	NDXCOM	SF	I*4	00015C
NDXDIM	SF	I*4	000160	NDXDM2	SF	I*4	000164	NDXEXC	SF	I*4	000168	NDXEND	SF	I*4	00016C
NDXLOC	SF	I*4	000170	NDXMUL	SF	I*4	000174	NDXTOC	SF	I*4	000178	NDXYRS	SF	I*4	00017C
NEXCEQ	SF C	I*4	000004	NEXRIG	SF C	I*2	000F04	NFINDS	SF C	I*4	C00000	NOCORP	SF	I*4	000180
NOMULT	SF C	I*4	000000	NPROYR	C	I*4	N.R.	NREQIM	C	I*4	N.R.	NTERVL	S C	I*4	000310
NTOTOC	SF C	I*4	00002C	NUMAYR	SF C	I*4	000000	NUMCEQ	SF	I*4	000184	NUMCOM	SF C	I*4	000004
NUMCPF	SF C	I*4	000644	NUMCRE	S C	I*4	0014F4	NUMDIV	SF	I*4	000188	NUMLOC	SF C	I*4	000000
NUMRIG	SF C	I*4	00DD44	NWPERP	C	I*4	N.R.	NWPYPP	C	I*4	N.R.	NYRBDD	C	I*4	N.R.
NYRBWO	C	I*4	N.R.	OILCOM	S C	R*4	000780	OILREC	C	R*4	N.R.	OWNRCO	S C	R*4	000500
PORTNM	C	R*4	N.R.	REQIMP	C	R*4	N.R.	RIMULT	S C	R*4	0001E4	SIZEND	S C	R*4	00025C
STATNM	C	R*4	N.R.	TYPEND	S C	R*4	000C0								

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	000000	PUNIT	I*4	N.R.						

NAME OF COMMON BLOCK *ASSUMP* SIZE OF BLOCK 000034 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NCONYR	I*4	N.R.	NDEVYR	I*4	N.R.	NPROYR	I*4	N.R.	NWPERP	I*4	N.R.
NYRBWO	I*4	N.R.	NWPYPP	I*4	N.R.	OILREC	R*4	N.R.	GASREC	R*4	N.R.
MAXPPY	I*4	N.R.	NYRBDD	I*4	N.R.						

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	000004	IDXCEQ	I*4	000144	NEXRIG	I*2	000F04
NUMRIG	I*4	00DD44									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	00002C			

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NIMULT	I*4	000000	DESMUL	R*4	000004	RIMULT	R*4	0001E4	NTERVL	I*4	000310
REQIMP	R*4	N.R.	NREQIM	I*4	N.R.						

NAME OF COMMON BLOCK *LOCALE* SIZE OF BLOCK 000080 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
CITYST	R*4	000000	PORTNM	R*4	N.R.	STATNM	R*4	N.R.			

NAME OF COMMON BLOCK * TAB4D* SIZE OF BLOCK 001040 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
BSNAME	R*4	N.R.	OWNRCD	R*4	000500	OILCOM	R*4	000780	LOCRIG	I*4	N.R.

NAME OF COMMON BLOCK *FNDATA* SIZE OF BLOCK 00160C HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NFINDS	I*4	000000	IYRFND	I*4	000004	TYPFND	R*4	0000CC	SIZFND	R*4	00025C
LOCFND	I*4	0003EC	DEPFND	R*4	000484	KEYTYP	I*4	00057C	NUMCPF	I*4	000644
ENDCOM	R*4	000694	IDFNDL	I*4	0009B4	IDCRFL	I*4	000B94	NUMCRE	I*4	0014F4
ASGRFR	R*4	N.R.									

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
50	0003A0	60	000408	65	0004C8	69	0005A0
70	000536	72	0005CC	74	0005E2	78	000880
80	00089A	90	0008B0	100	0008C6	14	0009F0
15	000A1A	20	000AF8	25	000B0E	30	000B88
35	000CF0	40	000D12	45	000D3C	150	000E52

OPTIONS IN EFFECT NAME= MAIN,OPT=00,LINECNT=54,SIZE=0000K,

OPTIONS IN EFFECT SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

STATISTICS SOURCE STATEMENTS = 112 ,PROGRAM SIZE = 3730

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 37K BYTES OF CORE NOT USED

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          COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                             SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002                SUBROUTINE MODEL2                                       358
ISN 0003                INTEGER*2 NPTFMI,NPTFMD,NPTFMP,NUMIYR                   359
ISN 0004                INTEGER*2 NEXRIG                                        360
ISN 0005                DIMENSION NDWORK(40)                                    361
ISN 0006                COMMON/ASSUMP/NCONYR,NDEVYR,NPROYR(2),NWPERP,NYRBWO(2),NWPYPP(2),  362
                       XOILREC,GASREC,MAXPPY,NYRBDD                             363
ISN 0007                COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),      364
                       XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                      365
ISN 0008                COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                  366
ISN 0009                COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),  367
                       XREQIMP(15,5),NREQIM(40,10,15)                           368
ISN 0010                COMMON/FNDATA/NFINDS,IYRFND(50),TYPFND(2,50),           369
                       XSIZFND(2,50),LOCFND(50),DEPFND(50),KEYTYP(50),          370
                       XNUMCPF(20),FNDCOM(2,5,20),IDFNDL(20,6),IDCBFL(20,6,5),  371
                       XNUMCRE(20),ASGRER(50)                                   372
ISN 0011                COMMON/PFDATA/NPTFMI(6,5,20,40),NPTFMD(6,5,20,40),      373
                       XNPTFMP(6,5,20,40),NUMIYR(6,5,20),PFPERF(50)             374
                C       ZERO-OUT NPTFMI,NPTFMD,NPTFMP.                          375
ISN 0012                DO 120 I=1,6                                            376
ISN 0013                DO 119 J=1,5                                            377
ISN 0014                DO 118 K=1,20                                           378
ISN 0015                DO 117 L=1,40                                           379
ISN 0016                NPTFMI(I,J,K,L)=0                                       380
ISN 0017                NPTFMD(I,J,K,L)=0                                       381
ISN 0018                NPTFMP(I,J,K,L)=0                                       382
ISN 0019        117     CONTINUE                                                383
ISN 0020        118     CONTINUE                                                384
ISN 0021        119     CONTINUE                                                385
ISN 0022        120     CONTINUE                                                386
                C       DETERMINE THE NUMBER OF PLATFORMS/FIND.                 387
ISN 0023                DO 225 NDXFND=1,NFINDS                                  388
ISN 0024                KEYTPE=KEYTYP(NDXFND)                                   389
ISN 0025                GO TO (210,215),KEYTPE                                  390
                C       GAS FIND.                                               391
ISN 0026        210     PFPERF(NDXFND)=SIZFND(2,NDXFND)/(365*NPROYR(1)*NWPERP*GASREC)  392
ISN 0027                GO TO 225                                               393
                C       OIL AND GAS FIND.                                       394
ISN 0028        215     PFPERF(NDXFND)=SIZFND(1,NDXFND)/(365*NPROYR(2)*NWPERP*OILREC)  395
                C       CALCULATE THE ASSOCIATED GAS RECOVERY RATE (IN CU FT/WELL/DAY).  396
ISN 0029                ASGRER(NDXFND)=SIZFND(2,NDXFND)/                        397
                       X(NWPERP*PFPERF(NDXFND)*365*NPROYR(2))                   398
ISN 0030        225     CONTINUE                                                399
                C       COMPUTE PLATFORMS INITIATED FOR EACH FIND AND FOR EACH YEAR AFTER  400
                C       THE FIND.  USE THE NPTFMD ARRAY AS A TEMPORARY TABLE FOR  401
                C       THIS INPUT.                                             402
ISN 0031                DO 140 NDXFND=1,NFINDS                                  403
ISN 0032                IF(NUMCPF(NDXFND) .EQ. 0) GO TO 140                     404
ISN 0034                DO 110 NDXDIM=1,6                                       405
ISN 0035                IF(IDFNDL(NDXFND,NDXDIM) .EQ. 0) GO TO 140              406
ISN 0037                NDXLOC=IDFNDL(NDXFND,NDXDIM)                            407
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ISN 0038            DO 108 NDXDM2=1,5                                                408
ISN 0039            IF(IDCBFL(NDXFND,NDXLOC,NDXDM2) .EQ. 0) GO TO 110                409
ISN 0041            NDXCOM=IDCBFL(NDXFND,NDXLOC,NDXDM2)                              410
ISN 0042            IF(NDXCOM .LT. 0) GO TO 108                                      411
ISN 0044            NPFDIS=PFPERF(NDXFND)/NUMCRE(NDXFND)+0.5                         412
ISN 0045            NUMCRE(NDXFND)=NUMCRE(NDXFND)-1                                  413
ISN 0046            PFPERF(NDXFND)=PFPERF(NDXFND)-NPFDIS                             414
ISN 0047            DO 106 NDXYRS=1,20                                               415
ISN 0048            IF(NPFDIS .GT. MAXPPY) GO TO 104                                 416
ISN 0050            NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)=NPFDIS                       417
ISN 0051            GO TO 108                                                        418
ISN 0052      104   NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)=MAXPPY                       419
ISN 0053      106   NPFDIS=NPFDIS-MAXPPY                                             420
ISN 0054      108   CONTINUE                                                         421
ISN 0055      110   CONTINUE                                                         422
ISN 0056      140   CONTINUE                                                         423
              C     USING THE YR. OF EA. FIND AND THE NO. OF CONSTRUCTION YRS. ASSUMED,  424
              C     CALCULATE THE PLATFORM INSTALLATION SCHEDULE.                    425
ISN 0057            DO 145 NDXFND=1,NFINDS                                           426
ISN 0058            DO 139 NDXLOC=1,6                                                427
ISN 0059            DO 138 NDXCOM=1,5                                                428
ISN 0060            NCOUNT=0                                                         429
ISN 0061            IF(NPTFMD(NDXLOC,NDXCOM,NDXFND,1) .EQ. 0) GO TO 138              430
ISN 0063            NDXIYR=IYRFND(NDXFND)+NCONYR                                     431
ISN 0064            DO 142 NDXYRS=1,20                                               432
ISN 0065            IF(NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS) .EQ. 0) GO TO 138         433
ISN 0067            NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXIYR)=                             434
                   XNPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)                              435
ISN 0068            NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)=0                            436
ISN 0069            NCOUNT=NCOUNT+1                                                  437
ISN 0070            NDXIYR=NDXIYR+1                                                  438
ISN 0071      142   CONTINUE                                                         439
ISN 0072      138   NUMIYR(NDXLOC,NDXCOM,NDXFND)=NCOUNT                              440
ISN 0073      139   CONTINUE                                                         441
ISN 0074      145   CONTINUE                                                         442
              C     NOW CALCULATE THE PLATFORM DRILLING SCHEDULE.                    443
ISN 0075            DO 149 NDXFND=1,NFINDS                                           444
ISN 0076            DO 135 NDXLOC=1,6                                                445
ISN 0077            DO 134 NDXCOM=1,5                                                446
ISN 0078            IF(NUMIYR(NDXLOC,NDXCOM,NDXFND) .EQ. 0) GO TO 134                447
ISN 0080            NUMYRS=NUMIYR(NDXLOC,NDXCOM,NDXFND)                              448
ISN 0081            NDXIYR=IYRFND(NDXFND)+NCONYR                                     449
ISN 0082            DO 148 NDUMMY=1,NUMYRS                                           450
ISN 0083            NDXDYR=NDXIYR+NYRBDD                                             451
ISN 0084            NSUM=NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXIYR)                         452
ISN 0085            DO 146 J=1,NDEVYR                                                453
ISN 0086            NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXDYR)=                             454
                   XNPTFMD(NDXLOC,NDXCOM,NDXFND,NDXDYR)+NSUM                         455
ISN 0087      146   NDXDYR=NDXDYR+1                                                  456
ISN 0088      148   NDXIYR=NDXIYR+1                                                  457
ISN 0089      134   CONTINUE                                                         458
ISN 0090      135   CONTINUE                                                         459
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ISN 0091      149   CONTINUE                                                460
                    C     NOW CALCULATE THE PLATFORM PRODUCTION SCHEDULE.   461
ISN 0092            DO 170 NDXFND=1,NFINDS                                  462
ISN 0093            DO 125 NDXLOC=1,6                                       463
ISN 0094            DO 124 NDXCOM=1,5                                       464
ISN 0095            NDXIYR=IYRFND(NDXFND)+NCONYR                            465
ISN 0096            IF(NPTEMI(NDXLOC,NDXCOM,NDXFND,NDXIYR) .EQ. 0) GO TO 124 466
ISN 0098            NDXPYR=NDXIYR+NYRBDO+NDEVYR                             467
ISN 0099            NDXPSV=NDXPYR                                           468
ISN 0100            NSUM=0                                                  469
ISN 0101      150   NPTEMP(NDXLOC,NDXCOM,NDXFND,NDXPYR)=                    470
                   XNSUM+NPTEMI(NDXLOC,NDXCOM,NDXFND,NDXIYR)                471
ISN 0102            NSUM=NPTEMP(NDXLOC,NDXCOM,NDXFND,NDXPYR)                472
ISN 0103            NDXPYR=NDXPYR+1                                         473
ISN 0104            NDXIYR=NDXIYR+1                                         474
ISN 0105            IF(NPTEMI(NDXLOC,NDXCOM,NDXFND,NDXIYR)  .NE. 0) GO TO 150 475
ISN 0107            NSTART=NDXPYR                                           476
ISN 0108            NDXTYP=KEYTYP(NDXFND)                                   477
ISN 0109            NSTOP=NDXPSV+NPROYR(NDXTYP)-1                           478
ISN 0110            DO 160 NDXPYR=NSTART,NSTOP                              479
ISN 0111      160   NPTEMP(NDXLOC,NDXCOM,NDXFND,NDXPYR)=                    480
                   XNPTEMP(NDXLOC,NDXCOM,NDXFND,NDXPYR-1)                   481
ISN 0112            NTEST=NSTART-NDXPSV-1                                   482
ISN 0113            IF(NTEST .EQ. 0) GO TO 124                              483
ISN 0115            NSTART=NSTOP+1                                          484
ISN 0116            NSTOP=NSTART+NTEST-1                                    485
ISN 0117            J=NDXPSV                                                486
ISN 0118            DO 165 NDXPYR=NSTART,NSTOP                              487
ISN 0119            NPTEMP(NDXLOC,NDXCOM,NDXFND,NDXPYR)=                    488
                   XNSUM-NPTEMP(NDXLOC,NDXCOM,NDXFND,J)                     489
ISN 0120      165   J=J+1                                                   490
ISN 0121      124   CONTINUE                                                491
ISN 0122      125   CONTINUE                                                492
ISN 0123      170   CONTINUE                                                493
                    C     ZERO-OUT THE NREQIM ARRAY.                        494
ISN 0124            DO 178 NDXYRS=1,40                                      495
ISN 0125            DO 176 NDXLOC=1,NUMLOC                                  496
ISN 0126            DO 174 NDXMUL=1,NOMULT                                  497
ISN 0127            NREQIM(NDXYRS,NDXLOC,NDXMUL)=0                          498
ISN 0128      174   CONTINUE                                                499
ISN 0129      176   CONTINUE                                                500
ISN 0130      178   CONTINUE                                                501
                    C     DETERMINE REQ/IMPACTS FOR EXPLORATORY ACTIVITY.   502
ISN 0131            DO 200 NDXLOC=1,NUMLOC                                  503
ISN 0132            NOCORP=NUMCOM(NDXLOC)                                   504
ISN 0133            DO 190 NDXYRS=1,NUMAYR                                  505
ISN 0134            DO 180 NDXCOM=1,NOCORP                                  506
ISN 0135            NORIGS=NUMRIG(NDXYRS,NDXLOC,NDXCOM)                     507
ISN 0136            IF(NORIGS .EQ. 0) GO TO 180                             508
ISN 0138            DO 185 NDXMUL=1,NOMULT                                  509
ISN 0139            MULFAC=NORIGS                                           510
ISN 0140                  GO TO (600,600,600,600,600,500,525,600,550,       511
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                     X          550,600,600,600,600,600),NDXMUL                                  512
ISN 0141      500               REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)*REQIMP(5,1)                    513
ISN 0142                        NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       514
                     X          (REQIMP(NDXMUL,1)+0.5)                                           515
ISN 0143                        GO TO 185                                                        516
ISN 0144      525               REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)*REQIMP(3,1)                    517
ISN 0145                        NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       518
                     X          (REQIMP(NDXMUL,1)+0.5)                                           519
ISN 0146                        GO TO 185                                                        520
ISN 0147      550               REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)/100.*                          521
                     X          (REQIMP(6,1)+REQIMP(7,1)+REQIMP(8,1))                            522
ISN 0148                        NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       523
                     X          (REQIMP(NDXMUL,1)+0.5)                                           524
ISN 0149                        GO TO 185                                                        525
ISN 0150      560               REQIMP(NDXMUL,1)=RIMULT(NDXMUL,1)*                               526
                     X          (REQIMP(6,1)+REQIMP(7,1)+REQIMP(8,1))                            527
ISN 0151                        NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       528
                     X          (REQIMP(NDXMUL,1)+0.5)                                           529
ISN 0152                        GO TO 185                                                        530
ISN 0153      600               CONTINUE                                                         531
ISN 0154                       IF(NTERVL(NDXMUL,1) .EQ. 0) GO TO 184                             532
ISN 0156                       MULFAC=MULFAC/NTERVL(NDXMUL,1)                                    533
ISN 0157                       IF(NORIGS-MULFAC*NTERVL(NDXMUL,1) .NE. 0) MULFAC=MULFAC+1         534
ISN 0159      184              REQIMP(NDXMUL,1)=MULFAC*RIMULT(NDXMUL,1)                          535
ISN 0160                       NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+        536
                              X(REQIMP(NDXMUL,1)+0.5)                                           537
ISN 0161      185              CONTINUE                                                          538
ISN 0162      180              CONTINUE                                                          539
ISN 0163      190              CONTINUE                                                          540
ISN 0164      200              CONTINUE                                                          541
                               C     DETERMINE REQ/IMPACTS FOR PLATFORM INSTALLATION, DEVELOPMENT,  542
                               C     AND PRODUCTION.                                           543
ISN 0165                       DO 400 NDXYRS=1,40                                                544
ISN 0166                       DO 300 NDXLOC=1,NUMLOC                                            545
ISN 0167                       NCORP=NUMCOM(NDXLOC)                                              546
ISN 0168                       DO 290 NDXCOM=1,NOCORP                                            547
ISN 0169                       NPLTFI=0                                                          548
ISN 0170                       NPLTFD=0                                                          549
ISN 0171                       NPLTFP=0                                                          550
ISN 0172                       DO 280 NDXFND=1,NFINDS                                            551
ISN 0173                       NPLTFI=NPLTFI+NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXYRS)                 552
ISN 0174                       NPLTFD=NPLTFD+NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)                 553
ISN 0175      280              NPLTFP=NPLTFP+NPTFMP(NDXLOC,NDXCOM,NDXFND,NDXYRS)                 554
ISN 0176                       DO 295 NDXMUL=1,NOMULT                                            555
ISN 0177                       IF(NPLTFI .EQ. 0) GO TO 296                                       556
ISN 0179                       MULFAC=NPLTFI                                                     557
ISN 0180                                GO TO (700,700,700,700,700,501,526,700,551,              558
                     X          561,700,700,700,700,700),NDXMUL                                  559
ISN 0181      501               REQIMP(NDXMUL,2)=RIMULT(NDXMUL,2)*REQIMP(5,2)                    560
ISN 0182                        NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       561
                     X          (REQIMP(NDXMUL,2)+0.5)                                           562
ISN 0183                        GO TO 296                                                        563
```

```
ISN 0184      526             REQIMP(NDXMUL,2)=RIMULT(NDXMUL,2)*REQIMP(3,2)                    564
ISN 0185                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       565
                    X         (REQIMP(NDXMUL,2)+0.5)                                           566
ISN 0186                      GO TO 296                                                        567
ISN 0187      551             REQIMP(NDXMUL,2)=RIMULT(NDXMUL,2)/100.*                          568
                    X         (REQIMP(6,2)+REQIMP(7,2)+REQIMP(8,2))                            569
ISN 0188                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       570
                    X         (REQIMP(NDXMUL,2)+0.5)                                           571
ISN 0189                      GO TO 296                                                        572
ISN 0190      561             REQIMP(NDXMUL,2)=RIMULT(NDXMUL,2)*                               573
                    X         (REQIMP(6,2)+REQIMP(7,2)+REQIMP(8,2))                            574
ISN 0191                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       575
                    X         (REQIMP(NDXMUL,2)+0.5)                                           576
ISN 0192                      GO TO 296                                                        577
ISN 0193      700             CONTINUE                                                         578
ISN 0194                     IF(NTERVL(NDXMUL,2) .EQ. 0) GO TO 291                             579
ISN 0196                     MULFAC=MULFAC/NTERVL(NDXMUL,2)                                    580
ISN 0197                     IF(NPLTFI-MULFAC*NTERVL(NDXMUL,2) .NE. 0) MULFAC=MULFAC+1         581
ISN 0199      291            REQIMP(NDXMUL,2)=MULFAC*RIMULT(NDXMUL,2)                          582
ISN 0200                     NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+        583
                    X(REQIMP(NDXMUL,2)+0.5)                                                   584
ISN 0201      296            IF(NPLTFD .EQ. 0) GO TO 297                                       585
ISN 0203                     MULFAC=NPLTFD                                                     586
ISN 0204                      GO TO (800,800,800,800,800,502,527,800,552,                      587
                    X         562,800,800,800,800,800),NDXMUL                                  588
ISN 0205      502             REQIMP(NDXMUL,3)=RIMULT(NDXMUL,3)*REQIMP(5,3)                    589
ISN 0206                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       590
                    X         (REQIMP(NDXMUL,3)+0.5)                                           591
ISN 0207                      GO TO 297                                                        592
ISN 0208      527             REQIMP(NDXMUL,3)=RIMULT(NDXMUL,3)*REQIMP(3,3)                    593
ISN 0209                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       594
                    X         (REQIMP(NDXMUL,3)+0.5)                                           595
ISN 0210                      GO TO 297                                                        596
ISN 0211      552             REQIMP(NDXMUL,3)=RIMULT(NDXMUL,3)/100.*                          597
                    X         (REQIMP(6,3)+REQIMP(7,3)+REQIMP(8,3))                            598
ISN 0212                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       599
                    X         (REQIMP(NDXMUL,3)+0.5)                                           600
ISN 0213                      GO TO 297                                                        601
ISN 0214      562             REQIMP(NDXMUL,3)=RIMULT(NDXMUL,3)*                               602
                    X         (REQIMP(6,3)+REQIMP(7,3)+REQIMP(8,3))                            603
ISN 0215                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+       604
                    X         (REQIMP(NDXMUL,3)+0.5)                                           605
ISN 0216                      GO TO 297                                                        606
ISN 0217      800             CONTINUE                                                         607
ISN 0218                     IF(NTERVL(NDXMUL,3) .EQ. 0) GO TO 292                             608
ISN 0220                     MULFAC=MULFAC/NTERVL(NDXMUL,3)                                    609
ISN 0221                     IF(NPLTFD-MULFAC*NTERVL(NDXMUL,3) .NE. 0) MULFAC=MULFAC+1         610
ISN 0223      292            REQIMP(NDXMUL,3)=MULFAC*RIMULT(NDXMUL,3)                          611
ISN 0224                     NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+        612
                    X(REQIMP(NDXMUL,3)+0.5)                                                   613
ISN 0225      297            IF(NPLTFP .EQ. 0) GO TO 295                                       614
ISN 0227                     MULFAC=NPLTFP                                                     615
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ISN 0228                GO TO (900,900,900,900,900,503,528,900,553,
             X          563,900,900,900,900,900),NDXMUL
           C            GO TO (900,900,950,900,900,503,528,900,553,
           C X          563,900,900,900,900,900),NDXMUL
           C*****************************************************************
           C       THE FOLLOWING CODE, WHICH HAS BEEN LEFT IN THE PROGRAM
           C     AS COMMENTS, HAS BEEN MOVED TO THE WORK-OVER ROUTINE.
           C         MODIFICATION MADE BY E. DREYER, D. T. I.
           C                   JULY 22, 1976
           C*****************************************************************
           C 950        REQIMP(NDXMUL,4)=MULFAC*RIMULT(NDXMUL,4)
           C            NINTGR=REQIMP(NDXMUL,4)
           C            COMPAR=NINTGR
           C            IF(COMPAR .EQ. REQIMP(NDXMUL,4)) GO TO 952
           C            NINTGR=NINTGR+1
           C 952        IF(NINTGR .LT. 2) NINTGR=2
           C            NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+
           C X          NINTGR
           C            GO TO 295
ISN 0229   503          REQIMP(NDXMUL,4)=RIMULT(NDXMUL,4)*REQIMP(5,4)
ISN 0230                NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+
             X          (REQIMP(NDXMUL,4)+0.5)
ISN 0231                GO TO 295
ISN 0232   528          REQIMP(NDXMUL,4)=RIMULT(NDXMUL,4)*REQIMP(3,4)
ISN 0233                NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+
             X          (REQIMP(NDXMUL,4)+0.5)
ISN 0234                GO TO 295
ISN 0235   553          REQIMP(NDXMUL,4)=RIMULT(NDXMUL,4)/100.*
             X          (REQIMP(6,4)+REQIMP(7,4)+REQIMP(8,4))
ISN 0236                NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+
             X          (REQIMP(NDXMUL,4)+0.5)
ISN 0237                GO TO 295
ISN 0238   563          REQIMP(NDXMUL,4)=RIMULT(NDXMUL,4)*
             X          (REQIMP(6,4)+REQIMP(7,4)+REQIMP(8,4))
ISN 0239                NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+
             X          (REQIMP(NDXMUL,4)+0.5)
ISN 0240                GO TO 295
ISN 0241   900          CONTINUE
ISN 0242          IF(NTERVL(NDXMUL,4) .EQ. 0) GO TO 293
ISN 0244          MULFAC=MULFAC/NTERVL(NDXMUL,4)
ISN 0245          IF(NPLTFP-MULFAC*NTERVL(NDXMUL,4) .NE. 0) MULFAC=MULFAC+1
ISN 0247   293    REQIMP(NDXMUL,4)=MULFAC*RIMULT(NDXMUL,4)
ISN 0248          NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+
                 X(REQIMP(NDXMUL,4)+0.5)
ISN 0249   295    CONTINUE
ISN 0250   290    CONTINUE
ISN 0251   300    CONTINUE
ISN 0252   400    CONTINUE
           C      DETERMINE REQ/IMPACTS FOR WORKOVER.
ISN 0253          DO 475 NDXLOC=1,NUMLOC
ISN 0254          NOCORP=NUMCOM(NDXLOC)
ISN 0255          DO 440 NDXCOM=1,NOCORP
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ISN 0256            DO 405 NDXYRS=1,40                                          668
ISN 0257      405   NOWORK(NDXYRS)=0                                            669
ISN 0258            DO 430 NDXEND=1,NFINDS                                      670
ISN 0259            NDXTYP=KEYTYP(NDXEND)                                       671
ISN 0260            DO 425 NDXFMI=1,40                                          672
ISN 0261            IF(NPTFMI(NDXLOC,NDXCOM,NDXEND,NDXFMI) .EQ. 0) GO TO 425    673
ISN 0263            NPLTFI=NPTFMI(NDXLOC,NDXCOM,NDXEND,NDXFMI)                  674
ISN 0264            NWELLS=NWPERP*NPLTFI                                        675
ISN 0265            NWWOPY=NWPYPP(NDXTYP)*NPLTFI                                676
ISN 0266            NSTART=NDXFMI+NYRBDO+NDEVYR+NYRBWO(NDXTYP)                  677
ISN 0267            NTOTWO=0                                                    678
ISN 0268            DO 420 NDXYRS=NSTART,40                                     679
ISN 0269            NOWORK(NDXYRS)=NOWORK(NDXYRS)+NWWOPY                        680
ISN 0270            NTOTWO=NTOTWO+NWWOPY                                        681
ISN 0271            IF(NTOTWO .LT. NWELLS) GO TO 420                            682
ISN 0273            NOWORK(NDXYRS)=NOWORK(NDXYRS)-(NTOTWO-NWELLS)               683
ISN 0274            GO TO 425                                                   684
ISN 0275      420   CONTINUE                                                    685
ISN 0276      425   CONTINUE                                                    686
ISN 0277      430   CONTINUE                                                    687
ISN 0278            DO 460 NDXYRS=1,40                                          688
ISN 0279            IF(NOWORK(NDXYRS) .EQ. 0) GO TO 460                         689
ISN 0281            DO 450 NDXMUL=1,NOMULT                                      690
ISN 0282            MULFAC=NOWORK(NDXYRS)                                       691
ISN 0283                    GO TO (1000,1000, 950,1000,1000,504,529,1000,554,   692
                   X        564,1000,1000,1000,1000,1000),NDXMUL                693
                   C        GO TO (1000,1000,1000,1000,1000,504,529,1000,554,   694
                   C    X   564,1000,1000,1000,1000,1000),NDXMUL                695
                   C*************************************************************** 696
                   C        THE CODE REMOVED FROM THE WORK-OVER ROUTINE HAS BEEN INSERTED 697
                   C      HERE.                                                    698
                   C          MODIFICATION MADE BY E. DREYER, D. T. I.           699
                   C                JULY 22, 1976                                700
                   C*************************************************************** 701
ISN 0284      950           REQIMP(NDXMUL,5)=MULFAC*RIMULT(NDXMUL,5)              702
ISN 0285                    NINTGR=REQIMP(NDXMUL,5)                               703
ISN 0286                    COMPAR=NINTGR                                         704
ISN 0287                    IF(COMPAR .EQ. REQIMP(NDXMUL,5)) GO TO 952            705
ISN 0289                    NINTGR=NINTGR+1                                       706
ISN 0290      952           IF(NINTGR .LT. 2) NINTGR=2                            707
ISN 0292                    NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 708
                   X        NINTGR                                                709
ISN 0293                    GO TO 450                                             710
                   C*************************************************************** 711
ISN 0294      504           REQIMP(NDXMUL,5)=RIMULT(NDXMUL,5)*REQIMP(5,5)         712
ISN 0295                    NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 713
                   X        (REQIMP(NDXMUL,5)+0.5)                                714
ISN 0296                    GO TO 450                                             715
ISN 0297      529           REQIMP(NDXMUL,5)=RIMULT(NDXMUL,5)*REQIMP(3,5)         716
ISN 0298                    NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+ 717
                   X        (REQIMP(NDXMUL,5)+0.5)                                718
ISN 0299                    GO TO 450                                             719
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ISN 0300      554              REQIMP(NDXMUL,5)=RIMULT(NDXMUL,5)/100.*                                720
                         X     (REQIMP(6,5)+REQIMP(7,5)+REQIMP(8,5))                                  721
ISN 0301                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+             722
                         X     (REQIMP(NDXMUL,5)+0.5)                                                 723
ISN 0302                      GO TO 450                                                              724
ISN 0303      564             REQIMP(NDXMUL,5)=RIMULT(NDXMUL,5)*                                     725
                         X     (REQIMP(6,5)+REQIMP(7,5)+REQIMP(8,5))                                  726
ISN 0304                      NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+             727
                         X     (REQIMP(NDXMUL,5)+0.5)                                                 728
ISN 0305                      GO TO 450                                                              729
ISN 0306      1000            CONTINUE                                                               730
ISN 0307                    IF(NTERVL(NDXMUL,5) .EQ. 0) GO TO 445                                    731
ISN 0309                    MULFAC=MULFAC/NTERVL(NDXMUL,5)                                           732
ISN 0310                    IF(NOWDRK(NDXYRS)-MULFAC*NTERVL(NDXMUL,5) .NE. 0) MULFAC=MULFAC+1        733
ISN 0312      445           REQIMP(NDXMUL,5)=MULFAC*RIMULT(NDXMUL,5)                                 734
ISN 0313                    NREQIM(NDXYRS,NDXLOC,NDXMUL)=NREQIM(NDXYRS,NDXLOC,NDXMUL)+               735
                           X(REQIMP(NDXMUL,5)+0.5)                                                   736
ISN 0314      450           CONTINUE                                                                 737
ISN 0315      460           CONTINUE                                                                 738
ISN 0316      440           CONTINUE                                                                 739
ISN 0317      475           CONTINUE                                                                 740
ISN 0318                    RETURN                                                                   741
ISN 0319                    END                                                                      742
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	SF	I*4	00023C	J	SF	I*4	000240	K	SF	I*4	000244	L	SF	I*4	000248
NSUM	SF	I*4	00024C	NSTOP	SF	I*4	000250	NTEST	SF	I*4	000254	ASGRER	S C	R*4	001544
COMPAR	S	R*4	000258	DEPEND	C	R*4	N.R.	DESMUL	C	R*4	N.R.	ENDCOM	C	R*4	N.R.
GASREC	F C	R*4	000028	IDCBEL	F C	I*4	000B94	IDENDL	F C	I*4	0009B4	IDXCEQ	C	I*4	N.R.
IYREND	F C	I*4	000004	KEYTPE	SF	I*4	000250	KEYTYP	F C	I*4	00057C	LOCEND	C	I*4	N.R.
MAXPPY	F C	I*4	00002C	MODEL2		I*4	000260	MULFAC	SF	I*4	000264	NCONYR	F C	I*4	000000
NCOUNT	SF	I*4	000268	NDEVYR	F C	I*4	000004	NDUMMY	SF	I*4	00026C	NDXCOM	SF	I*4	000270
NDXDIM	SF	I*4	000274	NDXDM2	SF	I*4	000278	NDXDYR	SF	I*4	00027C	NDXFMI	SF	I*4	000280
NDXEND	SF	I*4	000284	NDXIYR	SF	I*4	000288	NDXLOC	SF	I*4	00028C	NDXMUL	SF	I*4	000290
NDXPSV	SF	I*4	000294	NDXPYR	SF	I*4	000298	NDXTYP	SF	I*4	00029C	NDXYRS	SF	I*4	0002A0
NEXCEQ	C	I*4	N.R.	NEXRIG	C	I*2	N.R.	NFINDS	F C	I*4	000000	NINTGR	SF	I*4	0002A4
NOCORP	SF	I*4	0002A8	NOMULT	F C	I*4	000000	NORIGS	SF	I*4	0002AC	NOWORK	SF	I*4	0002D4
NPFDIS	SF	I*4	000280	NPLTFD	SF	I*4	000284	NPLTFI	SF	I*4	000288	NPLTFP	SF	I*4	00028C
NPROYR	F C	I*4	000008	NPTFMD	SF C	I*2	008880	NPTFMI	SF C	I*2	000000	NPTFMP	SF C	I*2	017700
NREQIM	SF C	I*4	000568	NSTART	SF	I*4	0002C0	NTERVL	F C	I*4	000310	NTOTOC	C	I*4	N.R.
NTOTWO	SF	I*4	0002C4	NUMAYR	F C	I*4	000000	NUMCOM	F C	I*4	000004	NUMCPF	C	I*4	000644
NUMCRE	SF C	I*4	0014F4	NUMIYR	SF C	I*2	023280	NUMLOC	F C	I*4	000000	NUMRIG	F C	I*4	000D44
NUMYRS	SF	I*4	0002C8	NWELLS	SF	I*4	0002CC	NWPERP	F C	I*4	000010	NWPYPP	F C	I*4	00001C
NWWORY	SF	I*4	0002D0	NYRBDD	F C	I*4	000030	NYRBWO	F C	I*4	000014	OILREC	F C	R*4	000024
PERERE	SF C	R*4	023730	REQIMP	SF C	R*4	00043C	RIMULT	F C	R*4	0001E4	SIZEND	F C	R*4	00025C
TYPEND	C	R*4	N.R.												

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK *ASSUMP* SIZE OF BLOCK 000034 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NCONYR	I*4	000000	NDEVYR	I*4	000004	NPROYR	I*4	000008	NWPERP	I*4	000010
NYRBWO	I*4	000014	NWPYPP	I*4	00001C	OILREC	R*4	000024	GASREC	R*4	000028
MAXPPY	I*4	00002C	NYRBDD	I*4	000030						

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	000D44									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	000000	DESMUL	R*4	N.R.	RIMULT	R*4	0001E4	NTERVL	I*4	000310

REQIMP	R*4	000430	NREQIM	I*4	000568

NAME OF COMMON BLOCK *FNDATA* SIZE OF BLOCK 00160C HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NFINDS	I*4	000000	IYRFND	I*4	000004	TYPFND	R*4	N.R.	SIZFND	R*4	00025C
LOCFND	I*4	N.R.	DEPFND	R*4	N.R.	KEYTYP	I*4	00057C	NUMCPF	I*4	000644
FNDCOM	R*4	N.R.	IDFNDL	I*4	0009B4	IDCBFL	I*4	000B94	NUMCRE	I*4	0014F4
ASGPER	R*4	001544									

NAME OF COMMON BLOCK *PFDATA* SIZE OF BLOCK 0237F8 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NPTFMI	I*2	000000	NPTFMD	I*2	008B80	NPTFMP	I*2	017700	NUMIYR	I*2	023280
PFPERF	R*4	023730									

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
117	000752	118	000768	119	00077E	120	000794
210	00079E	215	000856	225	00097C	104	000BEC
106	000C36	108	000C5C	110	000C72	140	000C88
142	000E52	138	000E68	139	000EB4	145	000ECA
146	001078	148	00109E	134	0010C0	135	0010D6
149	0010EC	150	001144	160	001314	155	00147C
124	00149E	125	0014B4	170	0014CA	174	001532
176	00154C	178	001566	500	001610	525	00170C
550	001808	560	001920	600	001A34	184	001A90
185	001BAC	180	001BC6	190	001BDC	200	001BF6
280	001CE8	501	001D82	526	001E7E	551	001F7A
561	002092	700	0021A6	291	002202	296	00231E
502	00234C	527	002448	552	002544	562	00265C
800	002770	292	0027CC	297	0028E8	503	002916
528	002A12	553	002B0E	563	002C26	900	002D3A
293	002D96	295	002EB2	290	002ECC	300	002EE2
400	002EFC	405	002F3E	420	0030E0	425	0030F6
430	00310C	950	003174	952	003244	504	0032CA
529	0033C6	554	0034C2	564	0035DA	1000	0036EE
445	00375A	450	003876	460	003890	440	0038A6
475	0038BC						

OPTIONS IN EFFECT NAME= MAIN,OPT=00,LINECNT=54,SIZE=0000K,

OPTIONS IN EFFECT SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

STATISTICS SOURCE STATEMENTS = 318 ,PROGRAM SIZE = 14588

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ******

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        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE OTPUT2                                              743
ISN 0003            INTEGER*2 ACTIVT,SERTYP,LOCCEQ,YRSALE                          744
ISN 0004            INTEGER*2 NPTFMI,NPTFMD,NPTFMP,NUMIYR                          745
ISN 0005            INTEGER*2 NEXRIG                                               746
ISN 0006            INTEGER SAVEND                                                 747
ISN 0007            DIMENSION SAVEND(50)                                           748
ISN 0008            COMMON/ASSUMP/NCONYR,NDEVYR,NPROYR(2),NWPERP,NYRBWO(2),NWPYPP(2),  749
                   XOILREC,GASREC,MAXPPY,NYRBDD                                    750
ISN 0009            COMMON/LOCALE/CITYST(10,4),PORTNM(3),STATNM                    751
ISN 0010            COMMON/TAB4E/IDPORT                                            752
ISN 0011            COMMON/TAB4J/SERCOM(100,2),OILCO(100,2),SERTYP(100),           753
                   XACTIVT(100),LOCCEQ(100),YRSALE(40,100)                         754
ISN 0012            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),             755
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                             756
ISN 0013            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                         757
ISN 0014            COMMON/TAB4D/BSNAME(4,80),OWNRCO(2,80),                        758
                   XOILCOM(2,80),LOCRIG(80,5)                                      759
ISN 0015            COMMON/FNDATA/NFINDS,IYRFND(50),TYPFND(2,50),                  760
                   XSIZFND(2,50),LOCFND(50),DEPFND(50),KEYTYP(50),                 761
                   XNUMCPF(20),FNDCOM(2,5,20),IDFNDL(20,6),IDCBFL(20,6,5),         762
                   XNUMCRE(20),ASGRER(50)                                          763
ISN 0016            COMMON/PFDATA/NPTFMI(6,5,20,40),NPTFMO(6,5,20,40),             764
                   XNPTFMP(6,5,20,40),NUMIYR(6,5,20),PFPERF(50)                    765
ISN 0017            CALL RIGACT                                                    766
ISN 0018            CALL FORM4A                                                    767
ISN 0019            CALL MULTA8                                                    768
ISN 0020            CALL FORM4C                                                    769
ISN 0021            NDXOCO=0                                                       770
ISN 0022            DO 200 NDXLOC=1,NUMLOC                                         771
ISN 0023            DO 10 NDXDIM=1,100                                             772
ISN 0024            SERTYP(NDXDIM)=0                                               773
ISN 0025            ACTIVT(NDXDIM)=0                                               774
ISN 0026            LOCCEQ(NDXDIM)=0                                               775
ISN 0027            DO 5 NDXDM2=1,40                                               776
ISN 0028       5    YRSALE(NDXDM2,NDXDIM)=0                                        777
ISN 0029      10    CONTINUE                                                       778
ISN 0030            NDX=0                                                          779
ISN 0031            PORTNM(1)=CITYST(NDXLOC,1)                                     780
ISN 0032            PORTNM(2)=CITYST(NDXLOC,2)                                     781
ISN 0033            PORTNM(3)=CITYST(NDXLOC,3)                                     782
ISN 0034            NOCORP=NUMCOM(NDXLOC)                                          783
ISN 0035            DO 100 NDXCOM=1,NOCORP                                         784
ISN 0036            NDXOCO=NDXOCO+1                                                785
                    C  TEST FOR FINDS.                                             786
ISN 0037            NSUM=0                                                         787
ISN 0038            DO 30 NDXFND=1,NFINDS                                          788
ISN 0039            DO 28 NDXDIM=1,6                                               789
ISN 0040            NTEST=IDFNDL(NDXFND,NDXDIM)                                    790
ISN 0041            IF(NTEST .EQ. 0) GO TO 30                                      791
ISN 0043            IF(NTEST .NE. NDXLOC) GO TO 28                                 792
```

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ISN 0045            DO 24 NDXDM2=1,5                                                793
ISN 0046            NTEST2=IDCBFL(NDXFND,NDXLOC,NDXDM2)                             794
ISN 0047            IF(NTEST2 .LT. 0) NTEST2=-NTEST2                                795
ISN 0049            IF(NTEST2 .EQ. 0) GO TO 28                                      796
ISN 0051            IF(NTEST2 .NE. NDXCOM) GO TO 24                                 797
                C   AT THIS POINT, A FIND CAN BE IDENTIFIED FOR NDXLOC, NDXCOM.      798
ISN 0053            NSUM=NSUM+1                                                     799
ISN 0054            SAVFND(NSUM)=NDXFND                                             800
ISN 0055        24  CONTINUE                                                        801
ISN 0056        28  CONTINUE                                                        802
ISN 0057        30  CONTINUE                                                        803
                C   ORDER FINDS BY YR.                                             804
ISN 0058            IF(NSUM .LE. 1) GO TO 36                                        805
ISN 0060        32  NDXFIN=SAVFND(1)                                               806
ISN 0061            MINFYR=IYRFND(NDXFIN)                                           807
ISN 0062            DO 34 NDXSUM=2,NSUM                                             808
ISN 0063            NDXFIN=SAVFND(NDXSUM)                                           809
ISN 0064            IF(MINFYR .LE. IYRFND(NDXFIN)) GO TO 34                         810
ISN 0066            NSVFND=SAVFND(NDXSUM-1)                                         811
ISN 0067            SAVFND(NDXSUM-1)=SAVFND(NDXSUM)                                 812
ISN 0068            SAVFND(NDXSUM)=NSVFND                                           813
ISN 0069            GO TO 32                                                        814
ISN 0070        34  MINFYR=IYRFND(NDXFIN)                                           815
ISN 0071        36  CONTINUE                                                        816
ISN 0072            NUMCEQ=NEXCEQ(NDXLOC,NDXCOM)                                    817
ISN 0073            IF(NUMCEQ .EQ. 0) GO TO 38                                      818
ISN 0075            MINFYR=NUMAYR                                                   819
ISN 0076            IF(NSUM .EQ. 0) GO TO 29                                        820
ISN 0078            NDXFND=SAVFND(1)                                                821
ISN 0079            MINFYR=IYRFND(NDXFND)                                           822
                C   SET-UP TEMPORARY RIGS.                                         823
ISN 0080        29  DO 37 NDXEXC=1,NUMCEQ                                         824
ISN 0081            NDXCEQ=IDXCEQ(NDXLOC,NDXCOM,NDXEXC)                             825
ISN 0082            DO 35 NDXYRS=1,MINFYR                                           826
ISN 0083            IF(NEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ) .NE. 0) GO TO 33         827
ISN 0085        35  CONTINUE                                                        828
ISN 0086            GO TO 37                                                        829
ISN 0087        33  NDX=NDX+1                                                       830
ISN 0088            SERCOM(NDX,1)=OWNRCO(1,NDXOCO)                                  831
ISN 0089            SERCOM(NDX,2)=OWNRCO(2,NDXOCO)                                  832
ISN 0090            OILCO(NDX,1)=OILCOM(1,NDXOCO)                                   833
ISN 0091            OILCO(NDX,2)=OILCOM(2,NDXOCO)                                   834
ISN 0092            SERTYP(NDX)=1                                                   835
ISN 0093            ACTIVT(NDX)=1                                                   836
ISN 0094            LOCCEQ(NDX)=NDXCEQ                                              837
ISN 0095            DO 31 NDXYRS=1,MINFYR                                           838
ISN 0096        31  YRSALE(NDXYRS,NDX)=NEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ)         839
ISN 0097        37  CONTINUE                                                        840
ISN 0098            IF(NSUM .EQ. 0) GO TO 100                                       841
                C   SET-UP PERMANENT RIGS.                                         842
ISN 0100            DO 27 NDXEXC=1,NUMCEQ                                           843
ISN 0101            NDXCEQ=IDXCEQ(NDXLOC,NDXCOM,NDXEXC)                             844
```

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ISN 0102            NSTART=MINFYR+1                                                  845
ISN 0103            DO 25 NDXYRS=NSTART,NUMAYR                                       846
ISN 0104            IF(NEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ) .NE. 0) GO TO 23          847
ISN 0106      25    CONTINUE                                                         848
ISN 0107            GO TO 27                                                         849
ISN 0108      23    NDX=NDX+1                                                        850
ISN 0109            SERCOM(NDX,1)=OWNRCO(1,NDXOCO)                                   851
ISN 0110            SERCOM(NDX,2)=OWNRCO(2,NDXOCO)                                   852
ISN 0111            OILCO(NDX,1)=OILCOM(1,NDXOCO)                                    853
ISN 0112            OILCO(NDX,2)=OILCOM(2,NDXOCO)                                    854
ISN 0113            SERTYP(NDX)=2                                                    855
ISN 0114            ACTIVT(NDX)=1                                                    856
ISN 0115            LOCCEQ(NDX)=NDXCEQ                                               857
ISN 0116            DO 21 NDXYRS=NSTART,NUMAYR                                       858
ISN 0117      21    YRSALE(NDXYRS,NDX)=NEXRIG(NDXYRS,NDXLOC,NDXCOM,NDXCEQ)           859
ISN 0118      27    CONTINUE                                                         860
ISN 0119      38    IF(NSUM .EQ. 0) GO TO 100                                        861
              C     SET-UP FOR FINDS MADE, IF ANY.                                   862
              C     A FIND IS NOT NECESSARILY FOLLOWED BY PLATFORM ACTIVITY.         863
              C     FINDS TO BE PRINTED ARE IN THE SAVFND ARRAY.                     864
ISN 0121            DO 50 NDXSAV=1,NSUM                                              865
ISN 0122            NDXFND=SAVFND(NDXSAV)                                            866
ISN 0123            NDXTYP=KEYTYP(NDXFND)                                            867
ISN 0124            NDX=NDX+1                                                        868
ISN 0125            ACTIVT(NDX)=6                                                    869
ISN 0126            IYRFIN=IYRFND(NDXFND)                                            870
ISN 0127            YRSALE(IYRFIN,NDX)=NDXFND                                        871
ISN 0128            LOCCEQ(NDX)=LOCFND(NDXFND)                                       872
ISN 0129            SERCOM(NDX,1)=OWNRCO(1,NDXOCO)                                   873
ISN 0130            SERCOM(NDX,2)=OWNRCO(2,NDXOCO)                                   874
ISN 0131            OILCO(NDX,1)=OILCOM(1,NDXOCO)                                    875
ISN 0132            OILCO(NDX,2)=OILCOM(2,NDXOCO)                                    876
ISN 0133            SERTYP(NDX)=2                                                    877
ISN 0134            IF(NUMIYR(NDXLOC,NDXCOM,NDXFND) .EQ. 0) GO TO 50                 878
              C     SET-UP PLATFORM ACTIVITY.                                        879
ISN 0136            JACT=2                                                           880
ISN 0137            NSTART=NDX+1                                                     881
ISN 0138            NSTOP=NDX+3                                                      882
ISN 0139            DO 45 J=NSTART,NSTOP                                             883
ISN 0140            ACTIVT(J)=JACT                                                   884
ISN 0141            SERTYP(J)=2                                                      885
ISN 0142            LOCCEQ(J)=LOCFND(NDXFND)                                         886
ISN 0143            DO 40 NDXDIM=1,2                                                 887
ISN 0144            SERCOM(J,NDXDIM)=OWNRCO(NDXDIM,NDXOCO)                           888
ISN 0145      40    OILCO(J,NDXDIM)=OILCOM(NDXDIM,NDXOCO)                            889
ISN 0146      45    JACT=JACT+1                                                      890
ISN 0147            NDXI=NDX+1                                                       891
ISN 0148            NDXD=NDX+2                                                       892
ISN 0149            NDXP=NDX+3                                                       893
ISN 0150            DO 48 NDXYRS=1,40                                                894
ISN 0151            YRSALE(NDXYRS,NDXI)=NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXYRS)          895
ISN 0152            YRSALE(NDXYRS,NDXD)=NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)          896
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ISN 0153      48    YRSALE(NDXYRS,NDXP)=NPTFMP(NDXLOC,NDXCOM,NDXFND,NDXYRS)                897
ISN 0154            NDX=NDX+3                                                              898
                C   SET-UP WORKOVER FOR THIS FIND.                                        899
ISN 0155            NDX=NDX+1                                                              900
ISN 0156            ACTIVT(NDX)=5                                                          901
ISN 0157            LCCCEQ(NDX)=LOCFND(NDXFND)                                             902
ISN 0158            SERCOM(NDX,1)=OWNRCO(1,NDXOCO)                                         903
ISN 0159            SERCOM(NDX,2)=OWNRCO(2,NDXOCO)                                         904
ISN 0160            OILCO(NDX,1)=OILCOM(1,NDXOCO)                                          905
ISN 0161            OILCO(NDX,2)=OILCOM(2,NDXOCO)                                          906
ISN 0162            SERTYP(NDX)=2                                                          907
ISN 0163            DO 62 NDXFMI=1,40                                                      908
ISN 0164            IF(NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXFMI) .EQ. 0) GO TO 62                909
ISN 0166            NPLTFI=NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXFMI)                             910
ISN 0167            NWELLS=NWPERP*NPLTFI                                                   911
ISN 0168            NWWOPY=NWPYPP(NDXTYP)*NPLTFI                                           912
ISN 0169            NSTART=NDXFMI+NYR8DD+NDEVYR+NYR8WO(NDXTYP)                             913
ISN 0170            NTOTWO=0                                                               914
ISN 0171            DO 60 NDXYRS=NSTART,40                                                 915
ISN 0172            YRSALE(NDXYRS,NDX)=YRSALE(NDXYRS,NDX)+NWWOPY                           916
ISN 0173            NTOTWO=NTOTWO+NWWOPY                                                   917
ISN 0174            IF(NTOTWO .LT. NWELLS) GO TO 60                                        918
ISN 0176            YRSALE(NDXYRS,NDX)=YRSALE(NDXYRS,NDX)-(NTOTWO-NWELLS)                  919
ISN 0177            GO TO 62                                                               920
ISN 0178      60    CONTINUE                                                               921
ISN 0179      62    CONTINUE                                                               922
ISN 0180      50    CONTINUE                                                               923
ISN 0181      100   CONTINUE                                                               924
ISN 0182            NDX=NDX+1                                                              925
ISN 0183            ACTIVT(NDX)=99                                                         926
ISN 0184            CALL FORM4J                                                            927
ISN 0185      200   CONTINUE                                                               928
                C   BEGIN INTERFACE FOR TABLE 4E.                                        929
ISN 0186            DO 500 NDXLOC=1,NUMLOC                                                 930
ISN 0187            PORTNM(1)=CITYST(NDXLOC,1)                                             931
ISN 0188            PORTNM(2)=CITYST(NDXLOC,2)                                             932
ISN 0189            PORTNM(3)=CITYST(NDXLOC,3)                                             933
ISN 0190            STATNM=CITYST(NDXLOC,4)                                                934
ISN 0191            IDPORT=NDXLOC                                                          935
ISN 0192            CALL FORM4E                                                            936
ISN 0193      500   CONTINUE                                                               937
ISN 0194            CALL PRATES                                                            938
ISN 0195            RETURN                                                                 939
ISN 0196            END                                                                    940
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NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
J	SF	I*4	0000D0	NDX	SF	I*4	0000D4	JACT	SF	I*4	0000D8	NDXD	SF	I*4	0000DC
NDXI	SF	I*4	0000E0	NDXP	SF	I*4	0000E4	NSUM	SF	I*4	0000E8	NSTOP	SF	I*4	0000EC
NTEST	S	I*4	0000F0	OILCO	S C	R*4	000320	ACTIVT	S C	I*2	000708	ASGRER	C	R*4	N.R.
BSNAME	C	R*4	N.R.	CITYST	F C	R*4	000000	DEPEND	C	R*4	N.R.	ENDCOM	C	R*4	N.R.
FORM4A	SF XF	R*4	000000	FORM4C	SF XF	R*4	000000	FORM4E	SF XF	R*4	000000	FORM4J	SF XF	R*4	000000
GASREC	C	R*4	N.R.	IDCBFL	F C	I*4	000894	IDFNDL	F C	I*4	000984	IDPORT	S C	I*4	000000
IDXCEQ	F C	I*4	000144	IYRFIN	SF	I*4	0000F4	IYREND	F C	I*4	000004	KEYTYP	F C	I*4	000570
LOCCEQ	S C	I*2	0007D0	LOCEND	F C	I*4	0003EC	LOCRIG	C	I*4	N.R.	MAXPPY	C	I*4	N.R.
MINEYR	SF	I*4	0000F8	MULTAB	SF XF	I*4	000000	NCONYR	C	I*4	N.R.	NDEVYR	F C	I*4	000004
NDXCEQ	SF	I*4	0000FC	NDXCOM	SF	I*4	000100	NDXDIM	SF	I*4	000104	NDXDM2	SF	I*4	000108
NDXEXC	SF	I*4	00010C	NDXFIN	SF	I*4	000110	NDXFMI	SF	I*4	000114	NDXEND	SF	I*4	000118
NDXLOC	SF	I*4	00011C	NDXOCO	SF	I*4	000120	NDXSAV	SF	I*4	000124	NDXSUM	SF	I*4	000128
NDXTYP	SF	I*4	00012C	NDXYRS	SF	I*4	000130	NEXCEQ	F C	I*4	000004	NEXRIG	F C	I*2	000F04
NFINDS	F C	I*4	000000	NOCORP	SF	I*4	000134	NPLTFI	SF	I*4	000138	NPROYR	C	I*4	N.R.
NPTFMD	F C	I*2	008880	NPTFMI	F C	I*2	000000	NPTFMP	F C	I*2	017700	NSTART	SF	I*4	00013C
NSVFND	SF	I*4	000140	NTEST2	SF	I*4	000144	NTOTOC	C	I*4	N.R.	NTOTWO	SF	I*4	000148
NUMAYR	F C	I*4	000000	NUMCEQ	SF	I*4	00014C	NUMCOM	F C	I*4	000004	NUMCPF	C	I*4	N.R.
NUMCRE	C	I*4	N.R.	NUMIYR	C	I*2	023280	NUMLOC	F C	I*4	000000	NUMRIG	C	I*4	N.R.
NWELLS	SF	I*4	000150	NWPERP	F C	I*4	000010	NWPYPP	F C	I*4	00001C	NWWOPY	SF	I*4	000154
NYRBDD	F C	I*4	000030	NYRBWO	F C	I*4	000014	OILCOM	F C	R*4	000780	OILREC	C	R*4	N.R.
OTPUT2		R*4	000158	OWNRCO	F C	R*4	000500	PFPERF	C	R*4	N.R.	PORTNM	S C	R*4	0000A0
PRATES	SF XF	R*4	000000	RIGACT	SF XF	R*4	000000	SAVFND	SF	I*4	00015C	SERCOM	S C	R*4	000000
SFRTYP	S C	I*2	000640	SIZEND	C	R*4	N.R.	STATNM	S C	R*4	0000AC	TYPFND	C	R*4	N.R.
YRSALE	SF C	I*2	000898												

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***** COMMON INFORMATION *****

NAME OF COMMON BLOCK *ASSUMP* SIZE OF BLOCK 000034 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NCONYR	I*4	N.R.	NDEVYR	I*4	000004	NPROYR	I*4	N.R.	NWPERP	I*4	000010
NYRBWO	I*4	000014	NWPYPP	I*4	00001C	OILREC	R*4	N.R.	GASREC	R*4	N.R.
MAXPPY	I*4	N.R.	NYRBDD	I*4	000030						

NAME OF COMMON BLOCK *LOCALE* SIZE OF BLOCK 000080 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
CITYST	R*4	000000	PORTNM	R*4	0000A0	STATNM	R*4	0000AC			

NAME OF COMMON BLOCK * TAB4E* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDPORT	I*4	000000									

NAME OF COMMON BLOCK * TAB4J* SIZE OF BLOCK 0027D8 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
SERCOM	R*4	000000	OILCO	R*4	000320	SERTYP	I*2	000640	ACTIVT	I*2	000708
LOCCEQ	I*2	0007D0	YRSALE	I*2	00089B						

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	000004	IDXCEQ	I*4	000144	NEXRIG	I*2	000F04
NUMRIG	I*4	N.R.									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

NAME OF COMMON BLOCK * TAB4D* SIZE OF BLOCK 001040 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
BSNAME	R*4	N.R.	OWNRCO	R*4	000500	OILCOM	R*4	000780	LOCRIG	I*4	N.R.

NAME OF COMMON BLOCK *FNDATA* SIZE OF BLOCK 00160C HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NFINDS	I*4	000000	IYRFND	I*4	000004	TYPFND	R*4	N.R.	SIZFND	R*4	N.R.
LOCFND	I*4	0003EC	DEPFND	R*4	N.R.	KEYTYP	I*4	00057C	NUMCPF	I*4	N.R.
FNDCOM	R*4	N.R.	IDFNDL	I*4	0009B4	IDCBFL	I*4	000B94	NUMCRE	I*4	N.R.
ASGRER	R*4	N.R.									

NAME OF COMMON BLOCK *PFDATA* SIZE OF BLOCK 0237F8 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NPTFMI	I*2	000000	NPTFMD	I*2	008B80	NPTFMP	I*2	017700	NUMIYR	I*2	023280
PFPERF	R*4	N.R.									

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
5	000428	10	000464	24	000586	28	0005CC
30	0005E2	32	00060A	34	00069A	36	0006C4
29	000724	35	000784	33	0007D0	31	000880
37	000930	25	0009EA	23	000A0A	21	000AEA
27	000B6E	38	000B84	40	000DE6	45	000E46
48	000F68	60	001292	62	0012A8	50	0012BE
100	0012D4	200	001314	500	001392		

OPTIONS IN EFFECT NAME= MAIN,OPT=00,LINECNT=54,SIZE=0000K,

OPTIONS IN EFFECT SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

STATISTICS SOURCE STATEMENTS = 195 ,PROGRAM SIZE = 5086

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 29K BYTES OF CORE NOT USED

```
      COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                         SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE RIGACT                                          941
ISN 0003            INTEGER RUNIT,PUNIT                                        942
ISN 0004            INTEGER*2 NEXRIG                                           943
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      944
ISN 0006            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),         945
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                         946
ISN 0007            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                     947
ISN 0008            DIMENSION LSUMRG(30)                                       948
ISN 0009            WRITE(PUNIT,1000)                                          949
ISN 0010      1000  FORMAT(1H1,//,18X,'EXPLORATORY RIG ACTIVITY')              950
ISN 0011            DO 100 NDXYRS=1,NUMAYR                                     951
ISN 0012            LSUM=0                                                     952
ISN 0013            DO 90 NDXLOC=1,NUMLOC                                      953
ISN 0014            NOCORP=NUMCOM(NDXLOC)                                      954
ISN 0015            DO 80 NDXCOM=1,NOCORP                                      955
ISN 0016      80    LSUM=LSUM+NUMRIG(NDXYRS,NDXLOC,NDXCOM)                     956
ISN 0017      90    CONTINUE                                                   957
ISN 0018            LSUMRG(NDXYRS)=LSUM                                        958
ISN 0019      100   CONTINUE                                                   959
ISN 0020            JJ=15                                                      960
ISN 0021            IF(NUMAYR .LT. 15) JJ=NUMAYR                               961
ISN 0023            WRITE(PUNIT,1010) (J,J=1,JJ)                               962
ISN 0024      1010  FORMAT(///,1X,'SCENARIO YR',3X,15(1X,I2))                  963
ISN 0025            WRITE(PUNIT,1020) (LSUMRG(J),J=1,JJ)                       964
ISN 0026      1020  FORMAT(/,1X,'RIGS OPERATING',15(1X,I2))                    965
ISN 0027            IF(NUMAYR .LE. 15) RETURN                                  966
ISN 0029            WRITE(PUNIT,1010) (J,J=16,NUMAYR)                          967
ISN 0030            WRITE(PUNIT,1020) (LSUMRG(J),J=16,NUMAYR)                  968
ISN 0031            RETURN                                                     969
ISN 0032            END                                                        970
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
J	F	I*4	000104	JJ	SF	I*4	000108	LSUM	SF	I*4	00010C	PUNIT	F C	I*4	000004
RUNIT	C	I*4	N.R.	IBCOM#	F XF	I*4	000000	IDXCEQ	C	I*4	N.R.	LSUMRG	SF	I*4	000124
NDXCOM	SF	I*4	000110	NDXLOC	SF	I*4	000114	NDXYRS	SF	I*4	000118	NEXCEQ	C	I*4	N.R.
NEXRIG	C	I*2	N.R.	NOCORP	SF	I*4	00011C	NTOTOC	C	I*4	N.R.	NUMAYR	F C	I*4	000000
NUMCOM	F C	I*4	000004	NUMLOC	F C	I*4	000000	NUMRIG	F C	I*4	000044	RIGACT		I*4	000120

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	000044									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

```
    LABEL    ADDR                LABEL    ADDR                LABEL    ADDR                LABEL    ADDR          PAGE 003
       80  00025C                   90  0002AC                  100  0002D6
*OPTIONS IN EFFECT*       NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
*STATISTICS*      SOURCE STATEMENTS =       31 ,PROGRAM SIZE =      1112
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                  57K BYTES OF CORE NOT USED
```

```
      COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                         SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE FORM4D                                          971
                C   **** THIS PROGRAM PRODUCE TABLE IV D                       972
ISN 0003            INTEGER RUNIT,PUNIT                                        973
ISN 0004            INTEGER*2 NEXRIG                                           974
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      975
ISN 0006            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),         976
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                         977
ISN 0007            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                     978
ISN 0008            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5), 979
                   XREQIMP(15,5),NREQIM(40,10,15)                              980
ISN 0009            COMMON/TAB4D/BSNAME(4,80),OWNRCO(2,80),                    981
                   XOILCOM(2,80),LOCRIG(80,5)                                  982
ISN 0010              INTEGER  TOTRIG                                          983
ISN 0011              DIMENSION   TOTRIG(30)                                   984
ISN 0012              DIMENSION   PORTSV(4)                                    985
ISN 0013              DATA BLANK/'    '/                                       986
ISN 0014            K6=PUNIT                                                   987
ISN 0015              DO 50  I=1,30                                            988
ISN 0016     50       TOTRIG(I)=0                                              989
ISN 0017              WRITE(K6,1000)                                           990
ISN 0018     1000     FORMAT('1')                                              991
ISN 0019              WRITE(K6,1002)                                           992
ISN 0020              WRITE(K6,1003)                                           993
ISN 0021     1002     FORMAT('0',T11,'DISTRIBUTION OF',                        994
                    1  T27,'EXPLORATORY RIG ACTIVITY')                        995
ISN 0022     1003     FORMAT('0',T22,'NO FIND SCENARIO')                       996
ISN 0023              WRITE(K6,1010)                                           997
ISN 0024     1010       FORMAT('  ',T35,'YEAR AFTER LEASE SALE')               998
ISN 0025            WRITE(K6,1020) (K,K=1,NUMAYR)                              999
ISN 0026     1020       FORMAT('0',T33,5(2X,I2,2X))                           1000
ISN 0027              WRITE(K6,1030)                                          1001
ISN 0028     1030     FORMAT(' ',T3,'SERVICE BASE',T19,'SER',T26,'OIL',       1002
                    1   T32,5('  N  L'))                                      1003
ISN 0029              WRITE(K6,1040)                                          1004
ISN 0030     1040       FORMAT(' ',T19,'BASE',T32,5('  U  O'))                1005
ISN 0031              WRITE(K6,1050)                                          1006
ISN 0032     1050      FORMAT(' ',T5,'LOCATION',T19,'OWNR',T26,'CO.',T32,      1007
                    1 5('  M  C'))                                            1008
ISN 0033              WRITE(K6,1060)                                          1009
ISN 0034     1060     FORMAT(' ',T32,5('  RIGS'))                            1010
ISN 0035     1070      FORMAT('0')                                            1011
ISN 0036              WRITE(K6,1070)                                          1012
ISN 0037            J=0                                                       1013
ISN 0038            DO 260 NDXLOC=1,NUMLOC                                    1014
ISN 0039            NOCORP=NUMCOM(NDXLOC)                                     1015
ISN 0040            DO 250 NDXCOM=1,NOCORP                                    1016
ISN 0041            J=J+1                                                     1017
ISN 0042              IF (J.EQ.1) GO TO 300                                   1018
ISN 0044               DO 150  K=1,4                                          1019
ISN 0045              IF(BSNAME(K,J).NE.  PORTSV(K)) GO TO 300                1020
```

```
ISN 0047      150         CONTINUE                                                    1021
ISN 0048                 GO TO 180                                                   1022
ISN 0049      300       DO 160 K=1,4                                                1023
ISN 0050      160        FORTSV(K)= BSNAME(K,J)                                     1024
ISN 0051                  GO TO 190                                                  1025
              C                                                                     1026
              C                                                                     1027
              C     BLANK PORT NAME                                                 1028
              C                                                                     1029
ISN 0052      180         DO 185   K=1,4                                           1030
ISN 0053      185        BSNAME(K,J)=BLANK                                          1031
ISN 0054      190          WRITE(K6,2000) (BSNAME(K,J),K=1,4),                      1032
                     1   (OWNRCO(K,J),K=1,2),(OILCOM(K,J),K=1,2),                  1033
                    X(NUMRIG(K,NDXLOC,NDXCOM),LOCRIG(J,K),K=1,NUMAYR)               1034
ISN 0055      2000       FORMAT(' ',4A4,2(X,A4,A2),10I3)                          1035
ISN 0056                 DO 165 K=1,NUMAYR                                          1036
ISN 0057      165        TOTRIG(K)=TOTRIG(K)+NUMRIG(K,NDXLOC,NDXCOM)              1037
ISN 0058      250          CONTINUE                                                 1038
ISN 0059      260        CONTINUE                                                   1039
ISN 0060      500        WRITE(K6,2100) (TOTRIG(K),K=1,NUMAYR)                    1040
ISN 0061      2100        FORMAT('0',T4,'TOTAL ',T32,5(I3,3X))                    1041
ISN 0062                  RETURN                                                    1042
ISN 0063                  END                                                       1043
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	SF	I*4	0001F0	J	SF	I*4	000200	K	SF	I*4	000204	K6	SF	I*4	000208
BLANK	F	R*4	00020C	PUNIT	F C	I*4	000004	RUNIT	C	I*4	N.R.	BSNAME	SF C	R*4	000000
DESMUL	C	R*4	N.R.	FORM4D		R*4	000210	IBCOM#	F XF	I*4	C00000	IDXCEQ	C	I*4	N.R.
LOCRIG	F C	I*4	000A00	NDXCOM	SF	I*4	000214	NDXLOC	SF	I*4	000218	NEXCEQ	C	I*4	N.R.
NEXRIG	C	I*2	N.R.	NOCORP	SF	I*4	00021C	NOMULT	C	I*4	N.R.	NREQIM	C	I*4	N.R.
NTERVL	C	I*4	N.R.	NTOTOC	C	I*4	N.R.	NUMAYR	F C	I*4	000000	NUMCOM	F C	I*4	000004
NUMLOC	F C	I*4	000000	NUMRIG	F C	I*4	00DD44	OILCOM	F C	R*4	000780	OWNRCD	F C	R*4	000500
PORTSV	S	R*4	000220	REQIMP	C	R*4	N.R.	RIMULT	C	R*4	N.R.	TOTRIG	SF	I*4	000230

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 0102C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	00DD44									

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	N.R.	DESMUL	R*4	N.R.	RIMULT	R*4	N.R.	NTERVL	I*4	N.R.
REQIMP	R*4	N.R.	NREQIM	I*4	N.R.						

NAME OF COMMON BLOCK * TAB4D* SIZE OF BLOCK 001040 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
BSNAME	R*4	000000	OWNRCD	R*4	000500	OILCOM	R*4	000780	LOCRIG	I*4	000A00

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
50	000360	150	00050E	300	00052A	160	000532
180	000584	185	00058C	190	0005C8	165	00072E
250	0007A2	260	000788	500	000702		

```
*OPTIONS IN EFFECT*       NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*      SOURCE STATEMENTS =       62 ,PROGRAM SIZE =      2112

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  49K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE MULTAB                                          1044
ISN 0003            INTEGER RUNIT,PUNIT                                        1045
ISN 0004            DIMENSION NTEROT(5)                                        1046
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      1047
ISN 0006            COMMON/MISC/IDRUN                                          1048
ISN 0007            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),  1049
                   XREQIMP(15,5),NREQIM(40,10,15)                              1050
ISN 0008            WRITE(PUNIT,1000)                                          1051
ISN 0009      1000  FORMAT(1H1)                                                1052
ISN 0010            WRITE(PUNIT,1010)                                          1053
ISN 0011      1010  FORMAT(/,16X,'REQUIREMENT/IMPACT FACTORS')                 1054
ISN 0012            GO TO (20,100),IDRUN                                       1055
                C   OUTPUT THE MULTIPLIERS FOR THE -NOFIND- SCENARIO.          1056
ISN 0013      20    WRITE(PUNIT,1012)                                          1057
ISN 0014      1012  FORMAT(/,2X,'MULTIPLIER',26X,'EXPLORATORY',/,2X,           1058
                   X'DESCRIPTION',25X,'DRILLING',/,38X,'(/RIG)',/)             1059
ISN 0015            DO 30 NDXMUL=1,NOMULT                                      1060
ISN 0016            NTEROT(1)=NTERVL(NDXMUL,1)                                 1061
ISN 0017            IF(NTEROT(1) .EQ. 0) NTEROT(1)=1                           1062
ISN 0019            WRITE(PUNIT,1020) (DESMUL(NDXDIM,NDXMUL),NDXDIM=1,8),      1063
                   XRIMULT(NDXMUL,1),NTEROT(1)                                 1064
ISN 0020      1020  FORMAT(/,2X,8A4,6X,F7.2,'/',I2)                           1065
ISN 0021      30    CONTINUE                                                   1066
ISN 0022            GO TO 500                                                  1067
                C   OUTPUT THE MULTIPLIERS FOR THE -FIND- SCENARIO.           1068
ISN 0023      100   WRITE(PUNIT,1030)                                          1069
ISN 0024      1030  FORMAT(/,1X,'MULTI-',1X,'EXP.',7X,'PLATFORM',3X,'DEV.',    1070
                   X7X,'PROD.',6X,'WORKOVER',/,1X,'PLIERS',1X,'DRILLING',3X,   1071
                   X'INSTALL.',3X,'DRILLING',/,8X,'(/RIG)',5X,'(/PLAT.)',3X,   1072
                   X'(/2 RIGS',3X,'(/PLAT.)',3X,'(/WELL)',/,30X,'PER PLAT.)',/)  1073
ISN 0025            DO 130 NDXMUL=1,NOMULT                                     1074
ISN 0026            DO 120 NDXACT=1,5                                          1075
ISN 0027            NTEROT(NDXACT)=NTERVL(NDXMUL,NDXACT)                       1076
ISN 0028            IF(NTEROT(NDXACT) .EQ. 0) NTEROT(NDXACT)=1                 1077
ISN 0030      120   CONTINUE                                                   1078
ISN 0031            WRITE(PUNIT,1040) (DESMUL(NDXDIM,NDXMUL),NDXDIM=1,8)       1079
ISN 0032      1040  FORMAT(/,1X,8A4)                                           1080
ISN 0033                  IF(NDXMUL .NE. 9) GO TO 800                          1081
ISN 0035                  WRITE(PUNIT,2000) (RIMULT(NDXMUL,NDXACT),NDXACT=1,5)  1082
ISN 0036      2000        FORMAT(5X,5(1X,F7.2,3X))                             1083
ISN 0037                  GO TO 130                                            1084
ISN 0038      800         CONTINUE                                             1085
ISN 0039            WRITE(PUNIT,1050) (RIMULT(NDXMUL,NDXACT),NTEROT(NDXACT),   1086
                   XNDXACT=1,5)                                                1087
ISN 0040      1050  FORMAT(5X,5(1X,F7.2,'/',I2))                              1088
ISN 0041      130   CONTINUE                                                   1089
ISN 0042      500   RETURN                                                     1090
ISN 0043            END                                                        1091
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
IDRUN	F C	I*4	000000	PUNIT	F C	I*4	000004	RUNIT	C	I*4	N.R.	DESMUL	F C	R*4	000304
IBCOM#	F XF	I*4	000000	MULTAB		I*4	000204	NDXACT	SF	I*4	000208	NDXDIM	F	I*4	00020C
NDXMUL	SF	I*4	000210	NOMULT	F C	I*4	000000	NREQIM	C	I*4	N.R.	NTERDT	SF	I*4	000214
NTERVL	F C	I*4	000310	REQIMP	C	R*4	N.R.	RIMULT	F C	R*4	0001E4				

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK * MISC* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDRUN	I*4	000000									

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	000000	DESMUL	R*4	000004	RIMULT	R*4	0001E4	NTERVL	I*4	000310
REQIMP	R*4	N.R.	NREQIM	I*4	N.R.						

```
   20  0002F2          30  0003AC         100  0003CC         120  00044A
  800  000526         130  000590         500  0005AA
```

```
*OPTIONS IN EFFECT*      NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*      SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*     SOURCE STATEMENTS =      42 ,PROGRAM SIZE =     1488

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                          57K BYTES OF CORE NOT USED
```

```
      COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                         SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NDXREF
ISN 0002            SUBROUTINE FORM4A                                          1092
ISN 0003            INTEGER RUNIT,PUNIT                                        1093
ISN 0004            COMMON/IO/RUNIT,PUNIT                                      1094
ISN 0005            COMMON/FNDATA/NFINDS,IYRFND(50),TYPFND(2,50),              1095
                   XSIZFND(2,50),LOCFND(50),DEPFND(50),KEYTYP(50),             1096
                   XNUMCPF(20),FNDCOM(2,5,20),IDFNDL(20,6),IDCBFL(20,6,5),     1097
                   XNUMCRE(20),ASGRER(50)                                      1098
               C    EQUIVALENCE (FNDCOM(1,1,1),CONAM(1,1))                     1099
ISN 0006            EQUIVALENCE (NUMCPF(1),NUMOCO(1))                          1100
ISN 0007            DIMENSION  DISP(2,2)                                       1101
ISN 0008            DIMENSION SUNIT(2)                                         1102
ISN 0009             DIMENSION  FINSIG(50)                                     1103
ISN 0010            DIMENSION NUMOCO(20),CONAM(5,20)                           1104
ISN 0011             REAL*8  CONAM,BLANK2                                      1105
ISN 0012            REAL*8 SUNIT,UNITOT                                        1106
ISN 0013      1010     FORMAT('0',T8,'HIGH FIND',                              1107
                     1  T18,'SCENARIO-TIMING AND LOCATION OF FINDS')           1108
ISN 0014            DATA SUNIT/'BARRELS ',' CU.FT. '/                          1109
ISN 0015             DATA   BLANK2/'        '/                                 1110
ISN 0016             DATA       DISP/'  GA','S   ','OIL ','&GAS'/              1111
ISN 0017            DATA FINSIG/'A   ','B   ','C   ','D   ','E   ','F   ','G   ',  1112
                    1   'H   ','I   ','J   ','K   ','L   ',                    1113
                    2   'M   ','N   ','O   ','P   ','Q   ','R   ',             1114
                    3   'S   ','T   ','U   ','V   ','W   '/                    1115
                   C*********************************************************** 1116
                   C       THE FOLLOWING MODIFICATION WAS MADE TO ELIMINATE THE 1117
                   C       BOUNDARY ALIGNMENT PROBLEM CAUSED BY THE EQUIVALENCING 1118
                   C       OF THE REAL*8 VARIABLE 'CONAM' WITH THE REAL*4 COMMON BLOCK 1119
                   C       VARIABLE 'FNDCOM'.                                  1120
                   C       MODIFICATION MADE BY: ERNEST DREYER ,DATA TECHNOLOGY INDUSTRIES 1121
                   C       DATE OF MODIFICATION:  NOV. 11, 1976                1122
ISN 0018            DIMENSION  FDCOM(2,5,20)                                   1123
ISN 0019            EQUIVALENCE (FDCOM(1,1,1),CONAM(1,1))                      1124
ISN 0020            DO 1015 II=1,2                                             1125
ISN 0021            DO 1015 JJ=1,5                                             1126
ISN 0022            DO 1015 KK=1,20                                            1127
ISN 0023     1015 FDCOM(II,JJ,KK) = FNDCOM(II,JJ,KK)                           1128
                   C*********************************************************** 1129
ISN 0024             K6=PUNIT                                                  1130
ISN 0025              WRITE(K6,1001)                                           1131
ISN 0026      1001    FORMAT('1')                                              1132
ISN 0027              WRITE(K6,1010)                                           1133
ISN 0028              WRITE(K6,1020)                                           1134
ISN 0029      1020    FORMAT('0')                                              1135
ISN 0030      1030    FORMAT('0',T7,'YEAR AFTER',T20,'CO.',T27,'TYPE OF',      1136
                     1 T37,'SIZE OF',T49,'LOC.',T56,'WATER'/                   1137
                     2 ' ', T7,'LEASE SALE',T19,'NAME',T29,'FIND',T39,'FIND',  1138
                     3   T56,'DEPTH')                                          1139
ISN 0031              WRITE(K6,1030)                                           1140
ISN 0032              WRITE(K6,1020)                                           1141
```

```
ISN 0033            DO 100 I=1,NFINDS                                          1142
ISN 0034      1040  FORMAT('0',T2,'FIND ',A2,T11,I2,T17,A8,T26,2A4,T36,        1143
                   1  E10.4,T50,I2,T56,I4/' ',T17,A8,T38,A8)                   1144
ISN 0035            TYPFD1= DISP(1,KEYTYP(I))                                  1145
ISN 0036            TYPFD2= DISP(2,KEYTYP(I))                                  1146
ISN 0037            IDEPTH=DEPFND(I)                                           1147
ISN 0038            IF(NUMOCD(I).LE.1) CONAM(2,I)=BLANK2                       1148
ISN 0040            FNDSIZ=SIZFND(1,I)                                         1149
ISN 0041            IF(KEYTYP(I).EQ.1) FNDSIZ=SIZFND(2,I)                      1150
ISN 0043           UNITOT=SUNIT(1)                                             1151
ISN 0044           IF(KEYTYP(I).EQ. 1) UNITOT=SUNIT(2)                         1152
ISN 0046            WRITE(K6,1040) FINSIG(I),IYRFND(I),CONAM(1,I),TYPFD1,TYPFD2,1153
                   2       FNDSIZ     ,LOCFND(I),IDEPTH,CONAM(2,I),UNITOT     1154
ISN 0047            IF(NUMOCD(I).LE.2.AND.KEYTYP(I).EQ.1)GO TO 90              1155
ISN 0049            IF(NUMOCD(I).LE.2) CONAM(3,I)=BLANK2                       1156
ISN 0051            IF(NUMOCD(I).LE.3) CONAM(4,I)=BLANK2                       1157
ISN 0053            IF(KEYTYP(I).EQ.2) GO TO 80                                1158
ISN 0055            WRITE(K6,1060) CONAM(3,I)      ,CONAM(4,I)                 1159
ISN 0056            GO TO 90                                                   1160
ISN 0057         80 WRITE(K6,1050) CONAM(3,I),SIZFND(2,I),CONAM(4,I)           1161
ISN 0058      90    IF(NUMOCD(I).GE.5) WRITE(K6,1070) CONAM(5,I)               1162
ISN 0060      1050  FORMAT(' ',T17,A8,T36,E10.4/' ',T17,A8,T38,     'CU.FT.')  1163
ISN 0061      1060  FORMAT(' ',T17,A8/' ',T17,A8)                              1164
ISN 0062      1070  FORMAT(' ',T17,A8)                                         1165
ISN 0063      100   CONTINUE                                                   1166
ISN 0064            RETURN                                                     1167
ISN 0065            END                                                        1168
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	SF	I*4	0001E0	II	SF	I*4	0001E4	JJ	SF	I*4	0001E8	KK	SF	I*4	0001EC
K6	SF	I*4	0001F0	DISP	F	R*4	000218	CONAM	SF E	R*8	C00300	FDCOM	S E	R*4	000300
PUNIT	F C	I*4	000004	RUNIT	C	I*4	N.R.	SUNIT	F	R*8	0002F0	ASGRER	C	R*4	N.R.
BLANK2	F	R*8	000208	DEPFND	F C	R*4	000434	FINSIG	F	R*4	000228	FNDCOM	F C	R*4	000694
FNDSIZ	SF	R*4	0001F4	FORM4A		R*4	0001F8	IBCOM#	F XF	R*4	000000	IDCBFL	C	I*4	N.R.
IDEPTH	SF	I*4	0001FC	IDFNDL	C	I*4	N.R.	IYRFND	F C	I*4	000004	KEYTYP	F C	I*4	00057C
LOCFND	F C	I*4	0003EC	NFINDS	F C	I*4	000000	NUMCPF	CE	I*4	000644	NUMCRE	C	I*4	N.R.
NUMOCO	CE	I*4	000644	SIZFND	F C	R*4	00025C	TYPFD1	SF	R*4	000200	TYPFD2	SF	R*4	000204
TYPFND	C	R*4	N.R.	UNITOT	SF	R*8	000210								

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK *FNDATA* SIZE OF BLOCK 00160C HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NFINDS	I*4	000000	IYRFND	I*4	000004	TYPFND	R*4	N.R.	SIZFND	R*4	00025C
LOCFND	I*4	0003EC	DEPFND	R*4	0004B4	KEYTYP	I*4	00057C	NUMCPF	I*4	000644
FNDCOM	R*4	000694	IDFNDL	I*4	N.R.	IDCBFL	I*4	N.R.	NUMCRE	I*4	N.R.
ASGRER	R*4	N.R.									

EQUIVALENCED VARIABLES WITHIN THIS COMMON BLOCK

VARIABLE	OFFSET	VARIABLE	OFFSET	VARIABLE	OFFSET	VARIABLE	OFFSET
NUMOCO	000644						

1015 0006C8 80 000A46 90 000A90 100 000AD0

```
*OPTIONS IN EFFECT*       NAME=   MAIN,OPT=00,LINECNT=54,SIZE=0000K,
*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
*STATISTICS*      SOURCE STATEMENTS =       64 ,PROGRAM SIZE =      2832
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                  53K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE FORM4C                                          1169
                    C                                                          1170
                    C****** THIS PROGRAM CREATES THE TABLE IV-C                 1171
                    C                                                          1172
                    C       DEFINITIONS.                                       1173
                    C     PRCC....THE NUMBER OF PLATFORMS PRODUCING            1174
                    C     DRILL.. THE NUMBER OF PLATFORMS DRILLING             1175
                    C     INSTAL.. THE NUMBER OF PLATFORMS INSTALLED           1176
                    C     LOC   THE LOCATION OF THE PLATFORM                   1177
ISN 0003             INTEGER*2 NPTFMI,NPTFMD,NPTFMP,NUMIYR                     1178
ISN 0004             INTEGER*2 INSTAL(50,50),DRILL(50,50),PROD(50,50)          1179
ISN 0005             INTEGER RUNIT,PUNIT                                       1180
ISN 0006             COMMON/IO/RUNIT,PUNIT                                     1181
ISN 0007             COMMON/FNDATA/NFINDS,IYRFND(50),TYPFND(2,50),             1182
                    XSIZFND(2,50),LOCFND(50),DEPFND(50),KEYTYP(50),            1183
                    XNUMCPF(20),FNDCOM(2,5,20),IDFNDL(20,6),IDCBFL(20,6,5),    1184
                    XNUMCRE(20),ASGRER(50)                                     1185
ISN 0008             COMMON/PFDATA/NPTFMI(6,5,20,40),NPTFMD(6,5,20,40),        1186
                    XNPTFMP(6,5,20,40),NUMIYR(6,5,20),PFPERF(50)               1187
ISN 0009               DIMENSION  WORD(40),ALPHA(26)                           1188
ISN 0010               DATA ALPHA/'A   ','B   ','C   ','D   ','E   ','F   ',   1189
                    X'G   ','H   ','I   ','J   ','K   ','L   ',               1190
                    X'M   ','N   ','O   ','P   ','Q   ','R   ',               1191
                    X'S   ','T   ','U   ','V   ','W   ','X   ',               1192
                    X'Y   ','Z   '/                                            1193
                    C     C   INITIALISE                                       1194
ISN 0011             DO 70 NDXFND=1,NFINDS                                     1195
ISN 0012             DO 60 NDXYRS=1,40                                         1196
ISN 0013             NSUMI=0                                                   1197
ISN 0014             NSUMD=0                                                   1198
ISN 0015             NSUMP=0                                                   1199
ISN 0016             DO 50 NDXLOC=1,6                                          1200
ISN 0017             DO 40 NDXCOM=1,5                                          1201
ISN 0018             NSUMI=NSUMI+NPTFMI(NDXLOC,NDXCOM,NDXFND,NDXYRS)           1202
ISN 0019             NSUMD=NSUMD+NPTFMD(NDXLOC,NDXCOM,NDXFND,NDXYRS)           1203
ISN 0020      40     NSUMP=NSUMP+NPTFMP(NDXLOC,NDXCOM,NDXFND,NDXYRS)           1204
ISN 0021      50     CONTINUE                                                  1205
ISN 0022             INSTAL(NDXYRS,NDXFND)=NSUMI                               1206
ISN 0023             DRILL(NDXYRS,NDXFND)=NSUMD                                1207
ISN 0024      60     PROD(NDXYRS,NDXFND)=NSUMP                                 1208
ISN 0025      70     CONTINUE                                                  1209
ISN 0026             I1=1                                                      1210
ISN 0027             I2=10                                                     1211
ISN 0028             K6=PUNIT                                                  1212
ISN 0029      100    CONTINUE                                                  1213
ISN 0030             WRITE(K6,101)                                             1214
ISN 0031      101    FORMAT( '1')                                              1215
ISN 0032      120    FORMAT('0',T23,'PLATFORM ACTIVITY')                       1216
ISN 0033      130    FORMAT('0',T23,'HIGH FIND SCENARIO')                      1217
ISN 0034      140    FORMAT('0',T3,'FIND',T10,'ACTIVITY',T24,'LOC.',           1218
```

```
                     1  T34,'YEAR AFTER FIRST LEASE SALE')                    1219
ISN 0035      150      FORMAT(' ',T23,'CEQ CIR.',T32,10I3)                    1220
ISN 0036               WRITE(K6,120)                                          1221
ISN 0037               WRITE(K6,130)                                          1222
ISN 0038               WRITE(K6,140)                                          1223
ISN 0039               WRITE(K6,150)(I,I=I1,I2)                               1224
ISN 0040               WRITE(K6,160)                                          1225
ISN 0041      160      FORMAT('0')                                            1226
ISN 0042               DO 300 K=1,NFINDS                                      1227
ISN 0043               DO 200  I=I1,I2                                        1228
ISN 0044      200      WORD(I)=CONV(INSTAL(I,K))                              1229
ISN 0045               WRITE(K6,170) (WORD(J),J=I1,I2)                        1230
ISN 0046      170      FORMAT('0',T9,'PLATFM INST.',T32,10A3)                 1231
ISN 0047               DO 210  I=I1,I2                                        1232
ISN 0048      210      WORD(I)=CONV(DRILL (I,K))                              1233
ISN 0049              WRITE(K6,180) ALPHA(K),LOCFND(K),(WORD(I),I=I1,I2)      1234
ISN 0050      180      FORMAT(' ',T4,A1,T9,'PLATFM DRIL.',T25,I2,T32,10A3)    1235
ISN 0051               DO 220  I=I1,I2                                        1236
ISN 0052      220      WORD(I)=CONV(PROD  (I,K))                              1237
ISN 0053               WRITE(K6,190) (WORD(J),J=I1,I2)                        1238
ISN 0054      190      FORMAT(' ',T9,'PLATFM PROD.',T32,10A3)                 1239
ISN 0055      300      CONTINUE                                               1240
ISN 0056               IF(I2.GE.40) GO TO 500                                 1241
ISN 0058               I2=I2+10                                               1242
ISN 0059               I1=I1+10                                               1243
ISN 0060                 GO TO 100                                            1244
ISN 0061      500       RETURN                                                1245
ISN 0062               END                                                    1246
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	SFA	I*4	00019C	J	F	I*4	0001A0	K	SFA	I*4	C00144	I1	SF	I*4	0001A8
I2	SF	I*4	0001AC	K6	SF	I*4	000180	CONV	F XF	R*4	000000	PROD	SFA	I*2	0001D4
WORD	SF	R*4	003C74	ALPHA	F	R*4	003D14	DRILL	SFA	I*2	00155E	NSUMD	SF	I*4	0001B4
NSUMI	SF	I*4	000188	NSUMP	SF	I*4	0001BC	PUNIT	F C	I*4	000004	RUNIT	C	I*4	N.R.
ASGRER	C	R*4	N.R.	DEPFND	C	R*4	N.R.	FNDCOM	C	R*4	N.R.	FORM4C		R*4	0001C0
IBCOM#	F XF	I*4	000000	IDCBFL	C	I*4	N.R.	IDFNDL	C	I*4	N.R.	INSTAL	SFA	I*2	0028E6
IYRFND	C	I*4	N.R.	KEYTYP	C	I*4	N.R.	LOCFND	F C	I*4	0003EC	NDXCOM	SF	I*4	0001C4
NDXFND	SF	I*4	0001CB	NDXLOC	SF	I*4	0001CC	NDXYRS	SF	I*4	0001D0	NFINDS	F C	I*4	000000
NPTFMD	F C	I*2	008880	NPTFMI	F C	I*2	000000	NPTFMP	F C	I*2	017700	NUMCPF	C	I*4	N.R.
NUMCRE	C	I*4	N.R.	NUMIYR	C	I*2	N.R.	PFPERF	C	R*4	N.R.	SIZFND	C	R*4	N.R.
TYPFND	C	R*4	N.R.												

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK *FNDATA* SIZE OF BLOCK 00160C HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NFINDS	I*4	000000	IYRFND	I*4	N.R.	TYPFND	R*4	N.R.	SIZFND	R*4	N.R.
LOCFND	I*4	0003EC	DEPFND	R*4	N.R.	KEYTYP	I*4	N.R.	NUMCPF	I*4	N.R.
FNDCOM	R*4	N.R.	IDFNDL	I*4	N.R.	IDCBFL	I*4	N.R.	NUMCRE	I*4	N.R.
ASGRER	R*4	N.R.									

NAME OF COMMON BLOCK *PFDATA* SIZE OF BLOCK 0237F8 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NPTFMI	I*2	000000	NPTFMD	I*2	008880	NPTFMP	I*2	017700	NUMIYR	I*2	N.R.
PFPERF	R*4	N.R.									

40	003F08	50	003F68	60	003FCA	70	004002
100	004038	200	0040E8	210	0041A6	220	00428A
300	00433A	500	004380				

```
*OPTIONS IN EFFECT*      NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*      SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*     SOURCE STATEMENTS =      61 ,PROGRAM SIZE =     17322

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  49K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
 ISN 0002           SUBROUTINE FORM4J                                          1247
              C***  THIS PROGRAM CREATES TABLE 4J ACTIVITY PORT BY PORT.        1248
              C      ACTIVT....TYPE OF ACTIVITY                                1249
              C      LOCCEQ... LOCATION                                        1250
              C      SERTYP=1  FOR TEMPORARY                                   1251
              C             2  FOR PERMANENT                                   1252
              C                                                               1253
              C      ACTIVT=1   FOR EXPLORATORY  RIGS                          1254
              C      ACTIVT=2   FOR  PLATFORM INSTALLED                        1255
              C      ACTIVT=3  FOR  PLATFORM DRILLING                          1256
              C      ACTIVT=4  FOR  PLATFORM  PRODUCING                        1257
              C      ACTIVT=5, FOR WELLS WORKED OVER                           1258
              C      ACTIVT=6  FOR 'FIND-MADE'.                                1259
              C  NOTE FOR ACTIVT=6 ZERO OUT ALL THE YEARS AFTER SALE           1260
              C           EXCEPT THE YEAR FIND-MADE WHICH IS SET=1 FOR FIND A  1261
              C                                               2 FOR FIND B ETC.1262
              C                                                               1263
              C       ACTIVT SET =99  FOR END OF INPUT DATA                   1264
              C                                                               1265
              C      ALL DATA IN THE COMMON AREA SHOULD BE INITIALIZED         1266
              C        AND SET =0                                             1267
              C         BEFORE STORING ANY INPUT DATA.                        1268
 ISN 0003          INTEGER RUNIT,PUNIT                                        1269
 ISN 0004          COMMON/IO/RUNIT,PUNIT                                      1270
 ISN 0005           INTEGER*2  ACTIVT,SERTYP,LOCCEQ ,YRSALE,ITYPE             1271
 ISN 0006          COMMON/LOCALE/CITYST(10,4),PORTNM(3),STATNM                1272
 ISN 0007          COMMON/TAB4J/SERCOM(100,2),OILCO(100,2),SERTYP(100),       1273
                  XACTIVT(100),LOCCEQ(100),YRSALE(40,100)                    1274
 ISN 0008           LOGICAL  FIRST                                            1275
 ISN 0009          DIMENSION STYPE(2),ALPHA(26),FINDNM(40),CONVRT(50),ACTINM(3,2,6),1276
                  XSERSAV(2),OILSAV(2)                                       1277
 ISN 0010           DATA ALPHA/'A   ','B   ','C   ','D   ','E   ','F   ','G   ',1278
                  1   'H   ','I   ','J   ','K   ','L   ',                   1279
                  2   'M   ','N   ','O   ','P   ','Q   ','R   ',            1280
                  3   'S   ','T   ','U   ','V   ','W   '/                   1281
 ISN 0011           DATA STYPE/ 'TMP ','PRM'/                                 1282
 ISN 0012           DATA  ACTINM/'EXP.',' RIG','S   ', '    ','    ','    ',1283
                  1   'PLAT','FORM','S   ',                                  1284
                  2  'INST','ALLE','D   ', 'PLAT','FORM','S   ','DRIL',     1285
                  2  'LING','    ','PLAT','FORM', 'S   ',                    1286
                  3  'PROD', 'UCIN', 'G   ', 'WELL', 'S   ', '    ',        1287
                  4  'WORK','ED  ', '    ', 'OVER', '    ','    ',          1288
                  5  'FIND', ' MAD','E   ' /                                 1289
              C      SERCOM ...NAME OF SERVICE COMPANIES                      1290
              C      CILCOM .. NAME OF OIL COMPANIES                          1291
              C      SERTYP...SERVICE TYPE                                    1292
 ISN 0013          K6=PUNIT                                                   1293
 ISN 0014           I1=1                                                      1294
 ISN 0015           I2=10                                                     1295
 ISN 0016     1005  FORMAT('1')                                              1296
```

```
ISN 0017            FIRST=.TRUE.                                                    1297
ISN 0018              DATA BLANK/'    '/                                            1298
ISN 0019      10      WRITE (K6,1005)                                               1299
ISN 0020              WRITE( K6,1010) (PORTNM(I),I=1,3)                             1300
ISN 0021      1010   FORMAT(1HO,'ACTIVITY BY PORT',/,19X,3A4)                       1301
ISN 0022              WRITE(K6,1050)                                                1302
ISN 0023      1050   FORMAT(1H )                                                    1303
ISN 0024              WRITE(K6,1020)                                                1304
ISN 0025      1020    FORMAT('0SERVICE',T11,'OIL',T16,'SERV',T29,'LOC',            1305
                     2   T33,'YEAR AFTER FIRST LEASE SALE')                       1306
ISN 0026              WRITE(K6,1030) (I,I=I1,I2)                                    1307
ISN 0027      1030    FORMAT(' ',T3,'BASE',T11,'CO.',T16,'BASE',T21,'ACTIVITY',    1308
                    1  T32,10I3)                                                  1309
ISN 0028              WRITE(K6,1040)                                                1310
ISN 0029      1040    FORMAT(' ',T4,'CO.',T10,'INVOL.',T16,'TYPE',T29,'CEQ')       1311
              C       SUBSTITUTE A LETTER FOR FIND                                  1312
ISN 0030      1080    FORMAT(' ',T19,'-FIND MADE-',T30,I2,10(2X,A1))                1313
ISN 0031              DO 100 I=1,500                                                1314
ISN 0032              IF(ACTIVT(I).EQ.99)   GO TO 500                               1315
ISN 0034              IF(FIRST) GO TO 160                                           1316
ISN 0036             IF(SERCOM(I,1).NE.SERSAV(1).OR. SERCOM(I,2).NE.SERSAV(2))GO TO 160  1317
ISN 0038             IF(OILCO(I,1).NE.OILSAV(1).OR. OILCO(I,2).NE.OILSAV(2))GO TO 160    1318
              C                                                                     1319
              C       BLANK SERVICE NAME                                            1320
              C                                                                     1321
ISN 0040              DO 150  J=1,2                                                 1322
ISN 0041              SERCOM(I,J)=BLANK                                             1323
ISN 0042      150       OILCO(I,J)=BLANK                                            1324
ISN 0043              GO TO 165                                                     1325
ISN 0044      160    DO 162 NDXDIM=1,2                                              1326
ISN 0045              SERSAV(NDXDIM)=SERCOM(I,NDXDIM)                               1327
ISN 0046      162     OILSAV(NDXDIM)=OILCO(I,NDXDIM)                              1328
ISN 0047              FIRST=.FALSE.                                                 1329
ISN 0048              ITYPE=SERTYP(I)                                               1330
ISN 0049              TYPE=STYPE(ITYPE)                                             1331
ISN 0050              GO TO 175                                                     1332
ISN 0051      165     IF(ITYPE.NE.SERTYP (I)) GO TO 152                             1333
              C       BLANK THE SERVICE TYPE                                        1334
ISN 0053              TYPE=BLANK                                                    1335
ISN 0054              GO TO 175                                                     1336
ISN 0055      152     ITYPE=SERTYP(I)                                               1337
ISN 0056              TYPE=STYPE(ITYPE)                                             1338
ISN 0057      175     IF(ACTIVT(I).EQ.6) GO TO 170                                  1339
ISN 0059              DO 155    J=I1,I2                                             1340
ISN 0060      155     CONVRT(J)=CONV(YRSALE(J,I))                                   1341
ISN 0061              K1=ACTIVT(I-1)                                                1342
ISN 0062              K=ACTIVT(I)                                                   1343
ISN 0063              IF(K.EQ.2.AND.K1.NE.2)WRITE(K6,1050)                          1344
ISN 0065              IF(K.EQ.5.AND.K1.NE.5)WRITE(K6,1050)                          1345
ISN 0067              WRITE(K6,1070) (SERCOM(I,J),J=1,2),(OILCO(I,J),J=1,2),        1346
                    1   TYPE              ,(ACTINM(J,1,K),J=1,3),                 1347
                    2     LOCCEQ(I),(CONVRT(J),J=I1,I2)                           1348
```

```
ISN 0068              GO TO (167,169,169,169,169,100),K                          1349
ISN 0069      1070    FORMAT(' ',2(A4,A2,X),A3,X,2A4,A1,I3,10A3)                 1350
ISN 0070      169     WRITE(K6,1090)(ACTINM(J,2,K),J=1,3)                        1351
ISN 0071      1090    FORMAT(' ',T20,2A4,A1)                                     1352
ISN 0072              IF(K.EQ.5) WRITE(K6,1100)                                  1353
ISN 0074      167     WRITE(K6,1190)                                             1354
ISN 0075      1190    FORMAT('+',T17,'_____________________________________________')  1355
ISN 0076      1100      FORMAT(' ',T20,'OVER')                                   1356
ISN 0077            K2=ACTIVT(I+1)                                               1357
ISN 0078            IF(K .EQ. 5 .AND. K2 .NE. 5) WRITE(K6,1050)                  1358
ISN 0080              GO TO 100                                                  1359
ISN 0081      170     DO 180 J=I1,I2                                             1360
ISN 0082              FINDNM(J)=BLANK                                            1361
ISN 0083              IF(YRSALE(J,I).NE.0) FINDNM(J)= ALPHA(YRSALE(J,I))         1362
ISN 0085      180     CONTINUE                                                   1363
ISN 0086              WRITE(K6,1080) LOCCEQ(I),(FINDNM(J),J=I1,I2)               1364
ISN 0087      100     CONTINUE                                                   1365
ISN 0088       500    CONTINUE                                                   1366
ISN 0089              IF (I1.GE.31) GO TO 600                                    1367
ISN 0091              I1=I1+10                                                   1368
ISN 0092              I2=I2+10                                                   1369
ISN 0093              GO TO 10                                                   1370
ISN 0094      600     RETURN                                                     1371
ISN 0095            END                                                          1372
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	SFA	I*4	000220	J	SFA	I*4	000224	K	SF	I*4	000228	I1	SF	I*4	00022C
I2	SF	I*4	000230	K1	S	I*4	000234	K2	S	I*4	000238	K6	SF	I*4	00023C
CONV	F XF	R*4	000000	TYPE	SF	R*4	000240	ALPHA	F	R*4	000254	BLANK	F	R*4	000244
FIRST	S	L*4	000248	ITYPE	SF	I*2	00021C	OILCO	SF C	R*4	000320	PUNIT	F C	I*4	000004
RUNIT	C	I*4	N.R.	STYPE	F	R*4	0002BC	ACTINM	F	R*4	0002C4	ACTIVT	F C	I*2	000708
CITYST	C	R*4	N.R.	CONVRT	SF	R*4	000354	FINDNM	SF	R*4	00041C	FORM4J		R*4	00024C
IBCOM#	F XF	I*4	000000	LOCCEQ	F C	I*2	0007D0	NDXDIM	SF	I*4	000250	DILSAV	S	R*4	0004BC
PORTNM	F C	R*4	0000A0	SERCOM	SF C	R*4	000000	SERSAV	S	R*4	0004C4	SERTYP	F C	I*2	000640
STATNM	C	R*4	N.R.	YRSALE	FA C	I*2	000898								

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK *LOCALE* SIZE OF BLOCK 0000B0 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
CITYST	R*4	N.R.	PORTNM	R*4	0000A0	STATNM	R*4	N.R.			

NAME OF COMMON BLOCK * TAB4J* SIZE OF BLOCK 002708 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
SERCOM	R*4	000000	OILCO	R*4	000320	SERTYP	I*2	000640	ACTIVT	I*2	000708
LOCCEQ	I*2	0007D0	YRSALE	I*2	000898						

LABEL	ADDR	LABEL	ADDR	LABEL	ADDR	LABEL	ADDR
10	000608	150	0007C2	160	000804	162	000842
165	00088E	152	0008E6	175	000908	155	00092A
169	000B54	167	000BCC	170	000C2A	180	000CAC
100	000D1A	500	000D30	600	000D5C		


```
*OPTIONS IN EFFECT*       NAME=   MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*      SOURCE STATEMENTS =       94 ,PROGRAM SIZE =      3458

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  49K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE FORM4E                                          1373
ISN 0003            INTEGER RUNIT,PUNIT                                        1374
ISN 0004            INTEGER*2 NEXRIG                                           1375
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      1376
ISN 0006            COMMON/MISC/IDRUN                                          1377
ISN 0007            COMMON/LOCALE/CITYST(10,4),PORTNM(3),STATNM                1378
ISN 0008            COMMON/TABLE/IDPORT                                        1379
ISN 0009            COMMON/EXDATA/NUMAYR,NEXCEQ(10,8),IDXCEQ(10,8,11),         1380
                   XNEXRIG(30,10,8,11),NUMRIG(30,10,8)                         1381
ISN 0010            COMMON/RIDATA/NOMULT,DESMUL(8,15),RIMULT(15,5),NTERVL(15,5),1382
                   XREQIMP(15,5),NREQIM(40,10,15)                              1383
ISN 0011                    DIMENSION EPATCH(8)                                1384
ISN 0012                    DIMENSION WPATCH(8)                                1385
ISN 0013                    DATA EPATCH/'LOCA','L EM','PLOY','MENT',           1386
                  X         '    ','    ','    ','    '/                      1387
ISN 0014                    DATA WPATCH/'WAGE','S ( ','X 10','0,00','0 DO','LLAR',1388
                  X         'S)  ','    '/                                     1389
ISN 0015                    DO 5 J=1,8                                         1390
ISN 0016                    DESMUL(J,9)=EPATCH(J)                              1391
ISN 0017    5               DESMUL(J,10)=WPATCH(J)                             1392
ISN 0018            NYEAR=NUMAYR                                               1393
ISN 0019            IF(IDRUN .EQ. 2) NYEAR=40                                  1394
ISN 0021                    DO 25 NDXYRS=1,NYEAR                               1395
ISN 0022                    SUM=NREQIM(NDXYRS,IDPORT,10)                       1396
ISN 0023                    SUM=SUM/100.+0.5                                   1397
ISN 0024    25              NREQIM(NDXYRS,IDPORT,10)=SUM                       1398
ISN 0025            K6=PUNIT                                                   1399
ISN 0026              I2=10                                                    1400
ISN 0027              I1=1                                                     1401
ISN 0028    100     CONTINUE                                                   1402
ISN 0029              WRITE(K6,1000)                                           1403
ISN 0030            GO TO (50,70),IDRUN                                        1404
ISN 0031    50      WRITE(K6,1010)                                             1405
ISN 0032            GO TO 80                                                   1406
ISN 0033    1010  FORMAT(1H0,10X,'-NOFIND- SCENARIO-SERVICE ACTIVITY')         1407
ISN 0034    70      WRITE(K6,1015)                                             1408
ISN 0035    80      CONTINUE                                                   1409
ISN 0036    1015  FORMAT(1H0,9X,'-FIND- SCENARIO-SERVICE ACTIVITY')           1410
ISN 0037              WRITE(K6,1020)   (PORTNM(J),J=1,3),STATNM                1411
ISN 0038    1000    FORMAT('1')                                                1412
ISN 0039    1020      FORMAT('0',17X,3A4,3X,A4)                                1413
ISN 0040              WRITE(K6,1040)                                           1414
ISN 0041    1040    FORMAT(1H0,25X,21HYEAR AFTER LEASE SALE  )                 1415
ISN 0042              WRITE(K6,1050) (I,I=I1,I2)                               1416
ISN 0043    1050  FORMAT(1H0,9X,10(1X,I4))                                     1417
ISN 0044            DO 300 I=1,NOMULT                                          1418
ISN 0045    1060  FORMAT(1H0,8A4,/10X,10I5)                                    1419
ISN 0046            WRITE(K6,1060) (DESMUL(J,I),J=1,8),(NREQIM(J,IDPORT,I),J=I1,I2)  1420
ISN 0047    300     CONTINUE                                                   1421
ISN 0048              IF(I2.GE.NYEAR)GO TO 500                                 1422
```

```
ISN 0050              I1=I1+10                                    1423
ISN 0051              I2=I2+10                                    1424
ISN 0052              GO TO 100                                   1425
ISN 0053        500   RETURN                                      1426
ISN 0054              END                                         1427
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	SF	I*4	000180	J	SF	I*4	000184	I1	SF	I*4	000188	I2	SF	I*4	00018C
K6	SF	I*4	000190	SUM	SF	R*4	000194	IDRUN	F C	I*4	000000	NYEAR	SF	I*4	000198
PUNIT	F C	I*4	000004	RUNIT	C	I*4	N.R.	CITYST	C	R*4	N.R.	DESMUL	SF C	R*4	000004
EPATCH	F	R*4	0001A4	FORM4E		R*4	00019C	IBCOM#	F XF	I*4	000000	IDPORT	F C	I*4	000000
IDXCEQ	C	I*4	N.R.	NDXYRS	SF	I*4	0001A0	NEXCEQ	C	I*4	N.R.	NEXRIG	C	I*2	N.R.
NOMULT	F C	I*4	000000	NREQIM	SF C	I*4	000568	NTERVL	C	I*4	N.R.	NUMAYR	F C	I*4	000000
NUMRIG	C	I*4	N.R.	PORTNM	F C	R*4	0000A0	REQIMP	C	R*4	N.R.	RIMULT	C	R*4	N.R.
STATNM	F C	R*4	0000AC	WPATCH	F	R*4	0001C4								

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK * MISC* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDRUN	I*4	000000									

NAME OF COMMON BLOCK *LOCALE* SIZE OF BLOCK 0000B0 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
CITYST	R*4	N.R.	PORTNM	R*4	0000A0	STATNM	R*4	0000AC			

NAME OF COMMON BLOCK * TAB4E* SIZE OF BLOCK 000004 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
IDPORT	I*4	000000									

NAME OF COMMON BLOCK *EXDATA* SIZE OF BLOCK 01D2C4 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMAYR	I*4	000000	NEXCEQ	I*4	N.R.	IDXCEQ	I*4	N.R.	NEXRIG	I*2	N.R.
NUMRIG	I*4	N.R.									

NAME OF COMMON BLOCK *RIDATA* SIZE OF BLOCK 006328 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NOMULT	I*4	000000	DESMUL	R*4	000004	RIMULT	R*4	N.R.	NTERVL	I*4	N.R.
REQIMP	R*4	N.R.	NREQIM	I*4	000568						

```
    LABEL    ADDR                LABEL    ADDR                LABEL    ADDR                LABEL    ADDR          PAGE 004

        5   0002AC                  25   000374                 100   0003F0                 50   000422
       70   00043E                  80   000454                 300   0005B0                500   0005F6

*OPTIONS IN EFFECT*       NAME=   MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*      SOURCE STATEMENTS =       53 ,PROGRAM SIZE =      1564

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  57K BYTES OF CORE NOT USED
```

```
        COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                           SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002            SUBROUTINE PRATES                                          1428
ISN 0003            INTEGER RUNIT,PUNIT                                        1429
ISN 0004            INTEGER*2 NPTFMI,NPTFMD,NPTFMP,NUMIYR                      1430
ISN 0005            COMMON/IO/RUNIT,PUNIT                                      1431
ISN 0006            COMMON/ASSUMP/NCONYR,NDEVYR,NPROYR(2),NWPERP,NYRBWO(2),NWPYPP(2),  1432
                   XOILREC,GASREC,MAXPPY,NYRBDD                                1433
ISN 0007            COMMON/BSDATA/NUMLOC,NUMCOM(10),NTOTOC                     1434
ISN 0008            COMMON/FNDATA/NFINDS,IYRFND(50),TYPFND(2,50),              1435
                   XSIZFND(2,50),LOCFND(50),DEPFND(50),KEYTYP(50),             1436
                   XNUMCPF(20),FNDCOM(2,5,20),IDFNDL(20,6),IDCBFL(20,6,5),     1437
                   XNUMCRE(20),ASGRER(50)                                      1438
ISN 0009            COMMON/PFDATA/NPTFMI(6,5,20,40),NPTFMD(6,5,20,40),         1439
                   XNPTFMP(6,5,20,40),NUMIYR(6,5,20),PFPERF(50)                1440
ISN 0010            WRITE(PUNIT,1000)                                          1441
ISN 0011      1000  FORMAT(1H1,///,22X,'PRODUCTION RATES',///,                  1442
                   X1X,'YR.',3X,'OIL',11X,'UNASSOC. GAS',1X,'ASSOC. GAS',3X,   1443
                   X'TOTAL GAS',/,1X,'AFTER',1X,'(BARRELS/DAY)',1X,'(BILLIONS',4X,  1444
                   X'(BILLIONS',4X,'(BILLIONS',/,1X,'LEASE',15X,'CU FT/DAY)',3X,  1445
                   X'CU FT/DAY)',3X,'CU FT/DAY)',/)                            1446
ISN 0012            DO 100 NDXYRS=1,40                                         1447
ISN 0013            NOOPLT=0                                                   1448
ISN 0014            NOUGPF=0                                                   1449
ISN 0015            PRATEO=0.0                                                 1450
ISN 0016            PRTEUG=0.0                                                 1451
ISN 0017            PRTEAG=0.0                                                 1452
ISN 0018            TOTGPR=0.0                                                 1453
ISN 0019            DO 90 NDXLOC=1,NUMLOC                                      1454
ISN 0020            NOCORP=NUMCOM(NDXLOC)                                      1455
ISN 0021            DO 80 NDXCOM=1,NOCORP                                      1456
ISN 0022            DO 70 NDXFND=1,NFINDS                                      1457
ISN 0023            KEYTPE=KEYTYP(NDXFND)                                      1458
ISN 0024            GO TO (50,60),KEYTPE                                       1459
                C   GAS FIND.                                                  1460
ISN 0025      50    NOUGPF=NOUGPF+NPTFMP(NDXLOC,NDXCOM,NDXFND,NDXYRS)          1461
ISN 0026            GO TO 70                                                   1462
                C   OIL AND ASSOCIATED GAS.                                   1463
ISN 0027      60    NOOPLT=NOOPLT+NPTFMP(NDXLOC,NDXCOM,NDXFND,NDXYRS)          1464
ISN 0028            PRTEAG=PRTEAG+ASGRER(NDXFND)*NPTFMP(NDXLOC,NDXCOM,NDXFND,NDXYRS),  1465
ISN 0029      70    CONTINUE                                                   1466
ISN 0030      80    CONTINUE                                                   1467
ISN 0031      90    CONTINUE                                                   1468
ISN 0032            PRATEO=NOOPLT*NWPERP*OILREC                                1469
ISN 0033            PRTEUG=NOUGPF*NWPERP*GASREC/(1.E+09)                       1470
ISN 0034            PRTEAG=NWPERP*PRTEAG/(1.E+09)                              1471
ISN 0035            TOTGPR=PRTEUG+PRTEAG                                       1472
ISN 0036            WRITE(PUNIT,1020) NDXYRS,PRATEO,PRTEUG,PRTEAG,TOTGPR       1473
ISN 0037      1020  FORMAT(3X,I2,2X,F10.0,3(4X,F9.6))                          1474
ISN 0038      100   CONTINUE                                                   1475
ISN 0039            RETURN                                                     1476
ISN 0040            END                                                        1477
```

/ PRATES / SIZE OF PROGRAM 000570 HEXADECIMAL BYTES

NAME	TAG		TYPE	ADD.	NAME	TAG		TYPE	ADD.	NAME	TAG		TYPE	ADD.	NAME	TAG		TYPE	ADD.
PUNIT	F	C	I*4	000004	RUNIT		C	I*4	N.R.	ASGRER	F	C	R*4	001544	DEPFND		C	R*4	N.R.
FNDCOM		C	R*4	N.R.	GASREC	F	C	R*4	000028	IBCOM#	F	XF	I*4	000000	IDCBFL		C	I*4	N.R.
IDFNDL		C	I*4	N.R.	IYRFND		C	I*4	N.R.	KEYTPE	SF		I*4	0001A0	KEYTYP	F	C	I*4	00057C
LOCFND		C	I*4	N.R.	MAXPPY		C	I*4	N.R.	NCONYR		C	I*4	N.R.	NDEVYR		C	I*4	N.R.
NDXCOM	SF		I*4	0001A4	NDXFND	SF		I*4	0001A8	NDXLOC	SF		I*4	0001AC	NDXYRS	SF		I*4	0001B0
NFINDS	F	C	I*4	000000	NOCORP	SF		I*4	0001B4	NOOPLT	SF		I*4	0001B8	NOUSPF	SF		I*4	0001BC
NPROYR		C	I*4	N.R.	NPTFMD		C	I*2	N.R.	NPTFMI		C	I*2	N.R.	NPTFMP	F	C	I*2	017700
NTOTOC		C	I*4	N.R.	NUMCOM	F	C	I*4	000004	NUMCPF		C	I*4	N.R.	NUMCRE		C	I*4	N.R.
NUMIYR		C	I*2	N.R.	NUMLOC	F	C	I*4	000000	NWPERP	F	C	I*4	000010	NWPYPP		C	I*4	N.R.
NYRBDD		C	I*4	N.R.	NYRBWO		C	I*4	N.R.	OILREC	F	C	R*4	000024	PFPERF		C	R*4	N.R.
PRATES	SF		R*4	0001C0	PRATES			R*4	0001C4	PRTEAG	SF		R*4	0001C8	PRTEUG	SF		R*4	0001CC
SIZFND		C	R*4	N.R.	TOTGPR	SF		R*4	0001D0	TYPFND		C	R*4	N.R.					

***** COMMON INFORMATION *****

NAME OF COMMON BLOCK * IO* SIZE OF BLOCK 000008 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
RUNIT	I*4	N.R.	PUNIT	I*4	000004						

NAME OF COMMON BLOCK *ASSUMP* SIZE OF BLOCK 000034 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NCONYR	I*4	N.R.	NDEVYR	I*4	N.R.	NPROYR	I*4	N.R.	NWPERP	I*4	000010
NYRBWO	I*4	N.R.	NWPYPP	I*4	N.R.	OILREC	R*4	000024	GASREC	R*4	000028
MAXPPY	I*4	N.R.	NYRBDD	I*4	N.R.						

NAME OF COMMON BLOCK *BSDATA* SIZE OF BLOCK 000030 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NUMLOC	I*4	000000	NUMCOM	I*4	000004	NTOTOC	I*4	N.R.			

NAME OF COMMON BLOCK *FNDATA* SIZE OF BLOCK 00160C HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NFINDS	I*4	000000	IYRFND	I*4	N.R.	TYPFND	R*4	N.R.	SIZFND	R*4	N.R.
LOCFND	I*4	N.R.	DEPFND	R*4	N.R.	KEYTYP	I*4	00057C	NUMCPF	I*4	N.R.
FNDCOM	R*4	N.R.	IDFNDL	I*4	N.R.	IDCBFL	I*4	N.R.	NUMCRE	I*4	N.R.
ASGRER	R*4	001544									

NAME OF COMMON BLOCK *PFDATA* SIZE OF BLOCK 0237F8 HEXADECIMAL BYTES

VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.	VAR. NAME	TYPE	REL. ADDR.
NPTFMI	I*2	N.R.	NPTFMD	I*2	N.R.	NPTFMP	I*2	017700	NUMIYR	I*2	N.R.

PFPERF R*4 N.R.

```
    LABEL    ADDR                LABEL    ADDR                LABEL    ADDR                LABEL    ADDR          PAGE 004

       50  0002D8                  60  000328                  70  0003FA                  80  000414
       90  00042A                 100  000534

*OPTIONS IN EFFECT*       NAME=   MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*      SOURCE STATEMENTS =       39 ,PROGRAM SIZE =      1392

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  57K BYTES OF CORE NOT USED
```

```
          COMPILER OPTIONS - NAME=  MAIN,OPT=00,LINECNT=54,SIZE=0000K,
                             SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF
ISN 0002                FUNCTION CONV(I)                                          1478
ISN 0003                 INTEGER*2  I                                             1479
ISN 0004                 DIMENSION   RWORD1(50),RWORD2(50)                        1480
ISN 0005                 DATA  BLANK/'    '/                                      1481
ISN 0006                   DATA MINUS,PLUS/'----','++++'/                         1482
ISN 0007                 DATA RWORD1/'  1 ','  2 ','  3 ','  4 ','  5 ',         1483
                        1 '  6 ','  7 ','  8 ','  9 ',' 10 ',                     1484
                        2   ' 11 ',' 12 ',' 13 ',' 14 ',' 15 ',                  1485
                        3   ' 16 ',' 17 ',' 18 ',' 19 ',' 20 ',                  1486
                        4   ' 21 ',' 22 ',' 23 ',' 24 ',' 25 ',                  1487
                        5   ' 26 ',' 27 ',' 28 ',' 29 ',' 30 ',                  1488
                        6   ' 31 ',' 32 ',' 33 ',' 34 ',' 35 ',                  1489
                        7   ' 36 ',' 37 ',' 38 ',' 39 ',' 40 ',                  1490
                        8   ' 41 ',' 42 ',' 43 ',' 44 ',' 45 ',                  1491
                        9   ' 46 ',' 47 ',' 48 ',' 49 ',' 50 '/                  1492
ISN 0008                  DATA  RWORD2/                                          1493
                        8   ' 51 ',' 52 ',' 53 ',' 54 ',' 55 ',                  1494
                        8   ' 56 ',' 57 ',' 58 ',' 59 ',' 60 ',                  1495
                        A   ' 61 ',' 62 ',' 63 ',' 64 ',' 65 ',                  1496
                        D   ' 66 ',' 67 ',' 68 ',' 69 ',' 70 ',                  1497
                        C   ' 71 ',' 72 ',' 73 ',' 74 ',' 75 ',                  1498
                        F   ' 76 ',' 77 ',' 78 ',' 79 ',' 80 ',                  1499
                        E   ' 81 ',' 82 ',' 83 ',' 84 ',' 85 ',                  1500
                        H   ' 86 ',' 87 ',' 88 ',' 89 ',' 90 ',                  1501
                        G   ' 91 ',' 92 ',' 93 ',' 94 ',' 95 ',                  1502
                        J   ' 96 ',' 97 ',' 98 ',' 99 ','100 '/                  1503
ISN 0009                   IF(I.LT.0) GO TO 17                                    1504
ISN 0011                   IF( I.EQ.0)GO TO 10                                    1505
ISN 0013                  IF(I.GT.50.AND.I.LE.100) GO TO 15                       1506
ISN 0015                   IF(I.GT.100) GO TO 13                                  1507
ISN 0017                   CONV=RWORD1(I)                                         1508
ISN 0018                   GO TO 20                                               1509
ISN 0019      15           J=I-50                                                 1510
ISN 0020                   CONV=RWORD2(J)                                         1511
ISN 0021                   GO TO 20                                               1512
ISN 0022      10          CONV=BLANK                                              1513
ISN 0023                   GO TO 20                                               1514
ISN 0024      13           CONV=PLUS                                              1515
ISN 0025                   GO TO 20                                               1516
ISN 0026      17           CONV=MINUS                                             1517
ISN 0027      20           RETURN                                                 1518
ISN 0028                   END                                                    1519
```

NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.	NAME	TAG	TYPE	ADD.
I	F	I*2	000094	J	SF	I*4	000098	CONV	S	R*4	00009C	PLUS	F	R*4	0000A0
BLANK	F	R*4	0000A4	MINUS	F	I*4	0000A8	RWORD1	F	R*4	0000AC	RWORD2	F	R*4	000174

```
    LABEL    ADDR                LABEL    ADDR                LABEL    ADDR                LABEL    ADDR          PAGE 003

       15  0002CC                   10  0002EC                   13  0002FA                   17  000308
       20  000336

*OPTIONS IN EFFECT*       NAME=   MAIN,OPT=00,LINECNT=54,SIZE=0000K,

*OPTIONS IN EFFECT*       SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,NOXREF

*STATISTICS*      SOURCE STATEMENTS =       27 ,PROGRAM SIZE =       876

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                        57K BYTES OF CORE NOT USED

*STATISTICS*  NO  DIAGNOSTICS THIS STEP
```

F88-LEVEL LINKAGE EDITOR OPTIONS SPECIFIED LET,LIST,MAP
DEFAULT OPTION(S) USED - SIZE=(90112,36864)

MODULE MAP

CONTROL SECTION NAME	ORIGIN	LENGTH
MAIN	00	15E
IO	160	8
ASSUMP	168	34
SETUP	1A0	1F2
INPUT1	398	5DC
MODEL1	978	91A
OTPUT1	1298	2DC
INPUT2	1578	E92
MODEL2	2410	38FC
OTPUT2	5D10	13DE
RIGACT	70F0	458
FORM4D	7548	840
MULTAB	7D88	5D0
FORM4A	8358	B10
FORM4C	8E68	43AA
FORM4J	D218	D82
FORM4E	DFA0	61C
PRATES	E5C0	570
CONV	EB30	36C
IHCECOMH*	EEA0	F61
IHCCOMH2*	FE08	65D
IHCFCVTH*	10468	1185
IHCEFNTH*	11620	542
IHCEFIOS*	11B68	F28
IHCFIOS2*	12A90	52E
IHCUOPT *	12FC0	328
IHCERRM *	132E8	5DC
IHCUATBL*	138C8	638
IHCETRCH*	13F00	28E
MISC	14190	4
TAB4E	14198	4
EXDATA	141A0	102C4
BSDATA	24468	30
RIDATA	24498	6328
LOCALE	2A7C0	B0
TA84D	2A870	1040

ENTRY NAME	LOCATION	NAME	LOCATION	NAME	LOCATION	NAME	LOCATION
IBCOM#	EEA0	FDIOCS#	EF5C	INTSWTCH	FDE6		
SEQDASD	10180						
ADCON#	10468	FCVAOUTP	10512	FCVLOUTP	105A2	FCVZOUTP	106FA
FCVIOUTP	10AAE	FCVEOUTP	10FB0	FCVCOUTP	111CA	INT6SWCH	11483
ARITH#	11620	ADJSWTCH	119BC				
FIOCS#	11B68	FIOCSBEP	11B6E				
ERRMON	132E8	IHCERRE	13300				
IHCTRCH	13F00	ERRTRA	13F08				

```
   NAME     ORIGIN  LENGTH              NAME   LOCATION     NAME   LOCATION     NAME   LOCATION     NAME   LOCATION

 PFDATA      28880   237F8
 TAB4J       4F0A8    27D8
 FNDATA      51880    160C


 ENTRY ADDRESS         00
 TOTAL LENGTH       52E90

****MAIN       DOES NOT EXIST BUT HAS BEEN ADDED TO DATA SET
```

Appendix 3

NOFIND Sample Run Results

THIS RUN ASSUMES A -NOFIND- CONDITION.

EXPLORATORY RIG ACTIVITY

SCENARIO YR	1	2	3	4	5
RIGS OPERATING	13	9	10	7	6

DISTRIBUTION OF EXPLORATORY RIG ACTIVITY

NO FIND SCENARIO

YEAR AFTER LEASE SALE

SERVICE BASE LOCATION	SER BASE OWNR	OIL CO.	1 N U M RIGS	1 L O C RIGS	2 N U M RIGS	2 L O C RIGS	3 N U M RIGS	3 L O C RIGS	4 N U M RIGS	4 L O C RIGS	5 N U M RIGS	5 L O C RIGS
PORT A	ST A	CORP A CO. X	6	2	6	2	4	3	4	3	0	0
		CO. Y	4	2	0	0	3	3	3	3	0	0
PORT B	ST B	CORP B CO. X	0	0	2	4	2	4	0	0	0	0
		CO. Y	1	4	1	4	1	4	0	0	0	0
		CO. Z	2	4	0	0	0	0	0	0	0	0
TOTAL			13		9		10		7		0	

REQUIREMENT/IMPACT FACTORS

MULTIPLIER DESCRIPTION	EXPLORATORY DRILLING (/RIG)
LAND USE (ACRES)	4.00/ 1
WATER (X 100,000 GAL)	52.00/ 1
SUPPLY BOATS	3.00/ 1
NO. OF BERTHS	1.00/ 1
HELICOPTERS	1.00/ 1
EMPLOYMENT (/HELICOPTER)	3.00/ 1
EMPLOYMENT (/SUPPLY BOAT)	11.00/ 1
ON-SHORE SUPPORT	5.00/ 1
LOCAL EMP (PERCENT OF TOTAL EMP)	80.00/ 1
WAGES X 1000 DOLLARS (/PERSON)	17.00/ 1

-NLFIND- SCENARIO-SERVICE ACTIVITY

PORT A ST A

YEAR AFTER LEASE SALE

	1	2	3	4	5	6	7	8	9	10
LAND USE (ACRES)	40	24	28	28	0	0	0	0	0	0
WATER (X 100,000 GAL)	520	312	364	364	0	0	0	0	0	0
SUPPLY BOATS	30	18	21	21	0	0	0	0	0	0
NO. OF BERTHS	10	6	7	7	0	0	0	0	0	0
HELICOPTERS	10	6	7	7	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	30	18	21	21	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	330	198	231	231	0	0	0	0	0	0
ON-SHORE SUPPORT	50	30	35	35	0	0	0	0	0	0
LOCAL EMPLOYMENT	328	197	229	229	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	70	42	49	49	0	0	0	0	0	0

-NOFIND- SCENARIO-SERVICE ACTIVITY

PORT B ST E

YEAR AFTER LEASE SALE

	1	2	3	4	5	6	7	8	9	10
LAND USE (ACRES)	12	12	12	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	156	156	156	0	0	0	0	0	0	0
SUPPLY BOATS	9	9	9	0	0	0	0	0	0	0
NO. OF BERTHS	3	3	3	0	0	0	0	0	0	0
HELICOPTERS	3	3	3	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	9	9	9	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	99	99	99	0	0	0	0	0	0	0
ON-SHORE SUPPORT	15	15	15	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	99	99	99	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	21	21	21	0	0	0	0	0	0	0

Appendix 4

FIND Sample Run Results

THIS RUN ASSUMES A -FIND- CONDITION.

EXPLORATORY RIG ACTIVITY

SCENARIO YR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RIGS OPERATING	0	7	9	11	11	12	12	12	11	10	10	8	6	4	3

SCENARIO YR	16	17	18	19	20	21	22
RIGS OPERATING	3	2	2	1	1	1	1

HIGH FIND SCENARIO-TIMING AND LOCATION OF FINDS

	YEAR AFTER LEASE SALE	CO. NAME	TYPE OF FIND	SIZE OF FIND	LOC.	WATER DEPTH
FIND A	2	CO. D	OIL &GAS	0.9600E 08 BARRELS 0.9600E 11 CU.FT.	1	360
FIND B	2	CO. B	GAS	0.5320E 12 CU.FT.	1	360
FIND C	3	CO. A	OIL &GAS	0.1440E 09 BARRELS 0.1440E 12 CU.FT.	1	360
FIND D	3	CO. C	GAS	0.5320E 12 CU.FT.	1	360
FIND E	4	CO. D	OIL &GAS	0.2880E 09 BARRELS 0.2880E 12 CU.FT.	1	360
FIND F	4	CO. C	GAS	0.1064E 13 CU.FT.	1	360
FIND G	5	CO. E	OIL &GAS	0.3360E 09 BARRELS 0.3360E 12 CU.FT.	2	240
FIND H	5	CO. B	GAS	0.1596E 13 CU.FT.	1	360
FIND I	6	CO. A CO. C	OIL &GAS	0.3360E 09 BARRELS 0.3360E 12 CU.FT.	3	120
FIND J	6	CO. E	GAS	0.1596E 13 CU.FT.	2	240
FIND K	7	CO. A CO. D	OIL &GAS	0.3360E 09 BARRELS 0.3360E 12 CU.FT.	1	360
FIND L	7	CO. E	GAS	0.1596E 13 CU.FT.	2	240
FIND M	8	CO. A CO. B	OIL &GAS	0.3360E 09 BARRELS	2	240

				0.3360E 12 CU.FT.		
FIND N	8	CO. D	GAS	0.1596E 13 CU.FT.	3	120
FIND O	9	CO. E	OIL &GAS	0.2880E 09 BARRELS 0.2880E 12 CU.FT.	3	120
FIND P	9	CO. C	GAS	0.1064E 13 CU.FT.	1	360
FIND Q	10	CO. C	OIL &GAS	0.2400E 09 BARRELS 0.2400E 12 CU.FT.	1	360
FIND R	10	CO. D	GAS	0.5320E 12 CU.FT.	3	120

REQUIREMENT/IMPACT FACTORS

MULTIPLIERS	EXP. DRILLING (/RIG)	PLATFORM INSTALL. (/PLAT.)	DEV. DRILLING (/2 RIGS PER PLAT.)	PROD. (/PLAT.)	WORKOVER (/WELL)
LAND USE (ACRES)					
	4.00/ 1	5.00/ 4	7.00/ 1	1.50/ 1	0.07/ 1
WATER (X 100,000 GAL)					
	52.00/ 1	0.0 / 1	82.00/ 1	0.0 / 1	5.20/ 1
SUPPLY BOATS					
	3.00/ 1	1.00/ 4	4.00/ 1	0.40/ 1	0.17/ 1
NO. OF BERTHS					
	1.00/ 1	1.00/ 4	1.50/ 1	1.00/ 5	0.33/ 6
HELICOPTERS					
	1.00/ 1	1.00/ 4	3.00/ 2	1.00/ 1	0.0 / 1
EMPLOYMENT (/HELICOPTER)					
	3.00/ 1	3.00/ 1	3.00/ 1	3.00/ 1	3.00/ 1
EMPLOYMENT (/SUPPLY BOAT)					
	11.00/ 1	11.00/ 1	11.00/ 1	11.00/ 1	11.00/ 1
ON-SHORE SUPPORT					
	5.00/ 1	1.00/ 1	9.00/ 1	3.00/ 1	0.20/ 1
LOCAL EMP (PERCENT OF TOTAL EMP)					
	80.00	80.00	80.00	80.00	80.00
WAGES X 1000 DOLLARS (/PERSON)					
	17.00/ 1	17.00/ 1	17.00/ 1	17.00/ 1	17.00/ 1

PLATFORM ACTIVITY

HIGH FIND SCENARIO

FIND	ACTIVITY	LOC. CEC	LOC. CIR.	YEAR AFTER FIRST LEASE SALE 1	2	3	4	5	6	7	8	9	10
A	PLATFM INST.							2					
	PLATFM DRIL.		1						2	2	2		
	PLATFM PROD.											2	2
B	PLATFM INST.							1					
	PLATFM DRIL.		1						1	1	1		
	PLATFM PROD.											1	1
C	PLATFM INST.								3				
	PLATFM DRIL.		1							3	3	3	
	PLATFM PROD.												3
D	PLATFM INST.								1				
	PLATFM DRIL.		1							1	1	1	
	PLATFM PROD.												1
E	PLATFM INST.									6			
	PLATFM DRIL.		1								6	6	6
	PLATFM PROD.												
F	PLATFM INST.									2			
	PLATFM DRIL.		1								2	2	2
	PLATFM PROD.												
G	PLATFM INST.										7		
	PLATFM DRIL.		2									7	7
	PLATFM PROD.												
H	PLATFM INST.										3		
	PLATFM DRIL.		1									3	3
	PLATFM PROD.												
I	PLATFM INST.											7	
	PLATFM DRIL.		3										7
	PLATFM PROD.												
J	PLATFM INST.											3	
	PLATFM DRIL.		2										3
	PLATFM PROD.												
K	PLATFM INST.												7
	PLATFM DRIL.		1										
	PLATFM PROD.												
L	PLATFM INST.												3
	PLATFM DRIL.		2										
	PLATFM PROD.												
M	PLATFM INST.												
	PLATFM DRIL.		2										

```
        PLATFM PROD.

        PLATFM INST.
N       PLATFM DRIL.      3
        PLATFM PROD.

        PLATFM INST.
O       PLATFM DRIL.      3
        PLATFM PROD.

        PLATFM INST.
P       PLATFM DRIL.      1
        PLATFM PROD.

        PLATFM INST.
Q       PLATFM DRIL.      1
        PLATFM PROD.

        PLATFM INST.
R       PLATFM DRIL.      3
        PLATFM PROD.
```

PLATFORM ACTIVITY

HIGH FIND SCENARIO

FIND	ACTIVITY	LOC. CEQ CIR.	YEAR AFTER FIRST LEASE SALE 11	12	13	14	15	16	17	18	19	20
A	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		2	2	2	2	2	2	2	2	2	2
B	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		1	1	1	1	1	1	1	1		
C	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		3	3	3	3	3	3	3	3	3	3
D	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		1	1	1	1	1	1	1	1	1	
E	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PRDD.		6	6	6	6	6	6	6	6	6	6
F	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		2	2	2	2	2	2	2	2	2	2
G	PLATFM INST.											
	PLATFM DRIL.	2	7									
	PLATFM PROD.			7	7	7	7	7	7	7	7	7
H	PLATFM INST.											
	PLATFM DRIL.	1	3									
	PLATFM PROD.			3	3	3	3	3	3	3	3	3
I	PLATFM INST.											
	PLATFM DRIL.	3	7	7								
	PLATFM PROD.				7	7	7	7	7	7	7	7
J	PLATFM INST.											
	PLATFM DRIL.	2	3	3								
	PLATFM PROD.				3	3	3	3	3	3	3	3
K	PLATFM INST.											
	PLATFM DRIL.	1	7	7	7							
	PLATFM PROD.					7	7	7	7	7	7	7
L	PLATFM INST.											
	PLATFM DRIL.	2	3	3	3							
	PLATFM PROD.					3	3	3	3	3	3	3
M	PLATFM INST.		7									
	PLATFM DRIL.	2		7	7	7						

	PLATFM PROD.						7	7	7	7	7	7
	PLATFM INST.		3									
N	PLATFM DRIL.	3		3	3	3						
	PLATFM PROD.						3	3	3	3	3	3
	PLATFM INST.			6								
O	PLATFM DRIL.	3			6	6	6					
	PLATFM PROD.							6	6	6	6	6
	PLATFM INST.			2								
P	PLATFM DRIL.	1			2	2	2					
	PLATFM PROD.							2	2	2	2	2
	PLATFM INST.				5							
Q	PLATFM DRIL.	1				5	5	5				
	PLATFM PROD.								5	5	5	5
	PLATFM INST.				1							
R	PLATFM DRIL.	3				1	1	1				
	PLATFM PROD.								1	1	1	1

PLATFORM ACTIVITY

HIGH FIND SCENARIO

FIND	ACTIVITY	LOC. CEQ CIR.	YEAR AFTER FIRST LEASE SALE 21	22	23	24	25	26	27	28	29	30
A	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		2	2	2							
B	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.											
C	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		3	3	3	3						
D	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.											
E	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		6	6	6	6	6					
F	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.											
G	PLATFM INST.											
	PLATFM DRIL.	2										
	PLATFM PROD.		7	7	7	7	7	7				
H	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		3									
I	PLATFM INST.											
	PLATFM DRIL.	3										
	PLATFM PROD.		7	7	7	7	7	7	7			
J	PLATFM INST.											
	PLATFM DRIL.	2										
	PLATFM PROD.		3	3								
K	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		7	7	7	7	7	7	7	7		
L	PLATFM INST.											
	PLATFM DRIL.	2										
	PLATFM PROD.		3	3	3							
M	PLATFM INST.											
	PLATFM DRIL.	2										

	PLATFM PROD.		7	7	7	7	7	7	7	7	7	
N	PLATFM INST.											
	PLATFM DRIL.	3										
	PLATFM PROD.		3	3	3	3						
O	PLATFM INST.											
	PLATFM DRIL.	3										
	PLATFM PROD.		6	6	6	6	6	6	6	6	6	6
P	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		2	2	2	2	2					
Q	PLATFM INST.											
	PLATFM DRIL.	1										
	PLATFM PROD.		5	5	5	5	5	5	5	5	5	5
R	PLATFM INST.											
	PLATFM DRIL.	3										
	PLATFM PROD.		1	1	1	1	1	1				

PLATFORM ACTIVITY

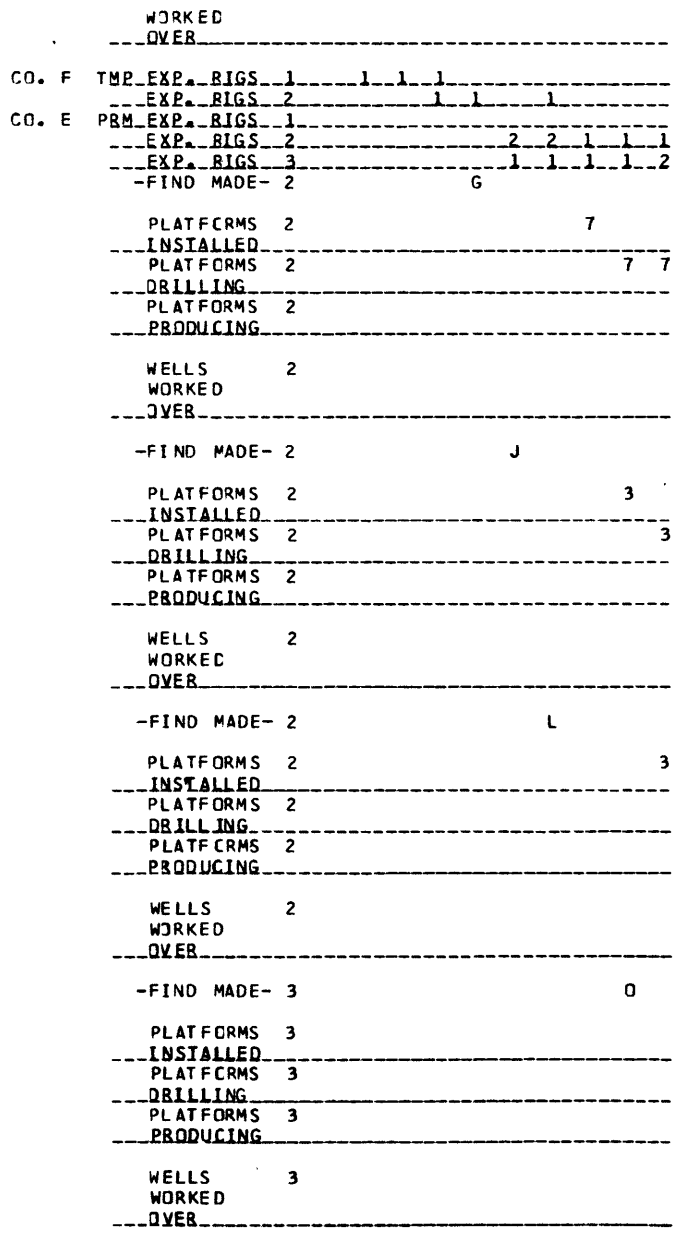
HIGH FIND SCENARIO

FIND	ACTIVITY	LOC. CEQ CIR.	YEAR AFTER FIRST LEASE SALE 31 32 33 34 35 36 37 38 39 40
A	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
B	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
C	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
D	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
E	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
F	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
G	PLATFM INST. PLATFM DRIL. PLATFM PROD.	2	
H	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
I	PLATFM INST. PLATFM DRIL. PLATFM PROD.	3	
J	PLATFM INST. PLATFM DRIL. PLATFM PROD.	2	
K	PLATFM INST. PLATFM DRIL. PLATFM PROD.	1	
L	PLATFM INST. PLATFM DRIL. PLATFM PROD.	2	
M	PLATFM INST. PLATFM DRIL.	2	

	PLATFM PROD.		
	PLATFM INST.		
N	PLATFM DRIL.	3	
	PLATFM PROD.		
	PLATFM INST.		
O	PLATFM DRIL.	3	
	PLATFM PROD.		
	PLATFM INST.		
P	PLATFM DRIL.	1	
	PLATFM PROD.		
	PLATFM INST.		
Q	PLATFM DRIL.	1	
	PLATFM PROD.		5
	PLATFM INST.		
R	PLATFM DRIL.	3	
	PLATFM PROD.		

ACTIVITY BY PORT
PORT A

SERVICE BASE CO.	OIL CO. INVOL. CO. A	SERV BASE ACTIVITY TYPE CEQ	LOC	YEAR AFTER FIRST LEASE SALE 1 2 3 4 5 6 7 8 9 10
		TYP EXP. RIGS	1	1 2
		PBM EXP. RIGS	1	2 1 1 1 1
		EXP. RIGS	2	1 1
		EXP. RIGS	3	2 2 1 1 1
		-FIND MADE-	1	C
		PLATFORMS INSTALLED	1	3
		PLATFORMS DRILLING	1	3 3 3
		PLATFORMS PRODUCING	1	3
		WELLS WORKED OVER	1	
		-FIND MADE-	3	I
		PLATFORMS INSTALLED	3	4
		PLATFORMS DRILLING	3	4
		PLATFORMS PRODUCING	3	
		WELLS WORKED OVER	3	
		-FIND MADE-	1	K
		PLATFORMS INSTALLED	1	4
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	2	M
		PLATFORMS INSTALLED	2	
		PLATFORMS DRILLING	2	
		PLATFORMS PRODUCING	2	
		WELLS	2	


WORKED OVER
CO. F TMP EXP. RIGS 1 1 1 1
EXP. RIGS 2 1 1 1
CO. E PRM EXP. RIGS 1
EXP. RIGS 2 2 2 1 1 1
EXP. RIGS 3 1 1 1 1 2
-FIND MADE- 2 G
PLATFORMS INSTALLED 2 7
PLATFORMS DRILLING 2 7 7
PLATFORMS PRODUCING 2
WELLS WORKED OVER 2
-FIND MADE- 2 J
PLATFORMS INSTALLED 2 3
PLATFORMS DRILLING 2 3
PLATFORMS PRODUCING 2
WELLS WORKED OVER 2
-FIND MADE- 2 L
PLATFORMS INSTALLED 2 3
PLATFORMS DRILLING 2
PLATFORMS PRODUCING 2
WELLS WORKED OVER 2
-FIND MADE- 3 O
PLATFORMS INSTALLED 3
PLATFORMS DRILLING 3
PLATFORMS PRODUCING 3
WELLS WORKED OVER 3

ACTIVITY BY PORT
PORT A

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEO	YEAR AFTER FIRST LEASE SALE 11	12	13	14	15	16	17	18	19	20
	CO. A	TMP EXP. RIGS	1										
		PRM EXP. RIGS	1										
		EXP. RIGS	2	1	1	1							
		EXP. RIGS	3	1							1		
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1										
		PLATFORMS DRILLING	1										
		PLATFORMS PRODUCING	1	3	3	3	3	3	3	3	3	3	3
		WELLS WORKED OVER	1							12	12	12	12
		-FIND MADE-	3										
		PLATFORMS INSTALLED	3										
		PLATFORMS DRILLING	3	4	4								
		PLATFORMS PRODUCING	3			4	4	4	4	4	4	4	4
		WELLS WORKED OVER	3										16
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1										
		PLATFORMS DRILLING	1	4	4	4							
		PLATFORMS PRODUCING	1				4	4	4	4	4	4	4
		WELLS WORKED OVER	1										
		-FIND MADE-	2										
		PLATFORMS INSTALLED	2	4									
		PLATFORMS DRILLING	2		4	4	4						
		PLATFORMS PRODUCING	2					4	4	4	4	4	4
		WELLS	2										

WORKED OVER											
CO. F TMP EXP. RIGS	1										
TMP EXP. RIGS	2										
CO. E PRM EXP. RIGS	1		1	1							
PRM EXP. RIGS	2	1	1		1						1
EXP. RIGS	3	1				1		1			
-FIND MADE-	2										
PLATFORMS INSTALLED	2										
PLATFORMS DRILLING	2	7									
PLATFCRMS PRODUCING	2		7	7	7	7	7	7	7	7	7
WELLS WORKED OVER	2									28	28
-FIND MADE-	2										
PLATFCRMS INSTALLED	2										
PLATFCRMS DRILLING	2	3	3								
PLATFCRMS PRODUCING	2			3	3	3	3	3	3	3	3
WELLS WORKED OVER	2								21	21	18
-FIND MADE-	2										
PLATFCRMS INSTALLED	2										
PLATFCRMS DRILLING	2	3	3	3							
PLATFORMS PRODUCING	2				3	3	3	3	3	3	3
WELLS WORKED OVER	2									21	21
-FIND MADE-	3										
PLATFORMS INSTALLED	3		6								
PLATFORMS DRILLING	3			6	6	6					
PLATFORMS PRODUCING	3						6	6	6	6	6
WELLS WORKED OVER	3										

ACTIVITY BY PORT
PORT A

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE CEQ	LOC YEAR AFTER FIRST LEASE SALE 21 22 23 24 25 26 27 28 29 30
	CO. A	TMP EXP. RIGS 1	
		PRM EXP. RIGS 1	
		EXP. RIGS 2	
		EXP. RIGS 3	
		-FIND MADE- 1	
		PLATFORMS 1	
		INSTALLED	
		PLATFORMS 1	
		DRILLING	
		PLATFORMS 1 3 3 3 3	
		PRODUCING	
		WELLS 1 12	
		WORKED OVER	
		-FIND MADE- 3	
		PLATFORMS 3	
		INSTALLED	
		PLATFORMS 3	
		DRILLING	
		PLATFORMS 3 4 4 4 4 4 4 4	
		PRODUCING	
		WELLS 3 16 16 16 16	
		WORKED OVER	
		-FIND MADE- 1	
		PLATFORMS 1	
		INSTALLED	
		PLATFORMS 1	
		DRILLING	
		PLATFORMS 1 4 4 4 4 4 4 4 4	
		PRODUCING	
		WELLS 1 16 16 16 16 16	
		WORKED OVER	
		-FIND MADE- 2	
		PLATFORMS 2	
		INSTALLED	
		PLATFORMS 2	
		DRILLING	
		PLATFORMS 2 4 4 4 4 4 4 4 4 4	
		PRODUCING	
		WELLS 2 16 16 16 16 16	

```
              WORKED
           ---OVER-----------------------------------

CO. F  TMP EXP. RIGS  1------------------------------
       TMP EXP. RIGS  2------------------------------
CO. E  PRM EXP. RIGS  1------------------------------
       PRM EXP. RIGS  2------------------------------
           ---EXP. RIGS  3---------------------------
             -FIND MADE- 2

              PLATFORMS  2
           ---INSTALLED------------------------------
              PLATFORMS  2
           ---DRILLING-------------------------------
              PLATFORMS  2  7  7  7  7  7  7
           ---PRODUCING------------------------------

              WELLS      2 28 28 28
              WORKED
           ---OVER-----------------------------------

             -FIND MADE- 2

              PLATFORMS  2
           ---INSTALLED------------------------------
              PLATFORMS  2
           ---DRILLING-------------------------------
              PLATFORMS  2  3  3
           ---PRODUCING------------------------------

              WELLS      2
              WORKED
           ---OVER-----------------------------------

             -FIND MADE- 2

              PLATFORMS  2
           ---INSTALLED------------------------------
              PLATFORMS  2
           ---DRILLING-------------------------------
              PLATFORMS  2  3  3  3
           ---PRODUCING------------------------------

              WELLS      2 18
              WORKED
           ---OVER-----------------------------------

             -FIND MADE- 3

              PLATFORMS  3
           ---INSTALLED------------------------------
              PLATFORMS  3
           ---DRILLING-------------------------------
              PLATFORMS  3  6  6  6  6  6  6  6  6  6  6
           ---PRODUCING------------------------------

              WELLS      3          24 24 24 24 24
              WORKED
           ---OVER-----------------------------------
```

ACTIVITY BY PORT
PORT A

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 31 32 33 34 35 36 37 38 39 40
	CO. A	TMP EXP. RIGS	1	
		PRM EXP. RIGS	1	
		EXP. RIGS	2	
		EXP. RIGS	3	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	3	
		PLATFORMS INSTALLED	3	
		PLATFORMS DRILLING	3	
		PLATFORMS PRODUCING	3	
		WELLS WORKED OVER	3	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	2	
		PLATFORMS INSTALLED	2	
		PLATFORMS DRILLING	2	
		PLATFORMS PRODUCING	2	
		WELLS	2	

```
    WORKED
 ---OVER---------------------------------
CO. F  TMP EXP. RIGS  1------------------
       TMP EXP. RIGS  2------------------
CO. E  PRM EXP. RIGS  1------------------
       PRM EXP. RIGS  2------------------
 ---EXP. RIGS  3-------------------------
   -FIND MADE- 2

    PLATFORMS  2
 ---INSTALLED----------------------------
    PLATFORMS  2
 ---DRILLING-----------------------------
    PLATFORMS  2
 ---PRODUCING----------------------------

    WELLS      2
    WORKED
 ---OVER---------------------------------

   -FIND MADE- 2

    PLATFORMS  2
 ---INSTALLED----------------------------
    PLATFORMS  2
 ---DRILLING-----------------------------
    PLATFORMS  2
 ---PRODUCING----------------------------

    WELLS      2
    WORKED
 ---OVER---------------------------------

   -FIND MADE- 2

    PLATFORMS  2
 ---INSTALLED----------------------------
    PLATFORMS  2
 ---DRILLING-----------------------------
    PLATFORMS  2
 ---PRODUCING----------------------------

    WELLS      2
    WORKED
 ---OVER---------------------------------

   -FIND MADE- 3

    PLATFORMS  3
 ---INSTALLED----------------------------
    PLATFORMS  3
 ---DRILLING-----------------------------
    PLATFORMS  3
 ---PRODUCING----------------------------

    WELLS      3
    WORKED
 ---OVER---------------------------------
```

ACTIVITY BY PORT
PORT B

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE CO.	ACTIVITY	LOC	YEAR AFTER FIRST LEASE SALE 1	2	3	4	5	6	7	8	9	10
		TYPE		CEQ										
	CO. B	TMP	EXP. RIGS	1	1	2								
		PRM	EXP. RIGS	1			2	2	1	1	1	1		
			EXP. RIGS	2						1	1	2	2	2
			-FIND MADE-	1		B								
			PLATFORMS INSTALLED	1					1					
			PLATFORMS DRILLING	1						1	1	1		
			PLATFORMS PRODUCING	1									1	1
			WELLS WORKED OVER	1										
			-FIND MADE-	1					H					
			PLATFORMS INSTALLED	1								3		
			PLATFORMS DRILLING	1									3	3
			PLATFORMS PRODUCING	1										
			WELLS WORKED OVER	1										
			-FIND MADE-	2								M		
			PLATFORMS INSTALLED	2										
			PLATFORMS DRILLING	2										
			PLATFORMS PRODUCING	2										
			WELLS WORKED OVER	2										

ACTIVITY BY PORT
PORT 8

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 11	12	13	14	15	16	17	18	19	20
		TMP EXP. RIGS	1										
		PRM EXP. RIGS	1	1		1		1		1		1	
		EXP. RIGS	2	2	1	1		1					
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1										
		PLATFORMS DRILLING	1										
		PLATFORMS PRODUCING	1	1	1	1	1	1	1	1	1		
		WELLS WORKED OVER	1				7	7	6				
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1										
		PLATFORMS DRILLING	1	3									
		PLATFORMS PRODUCING	1		3	3	3	3	3	3	3	3	3
		WELLS WORKED OVER	1							21	21	18	
		-FIND MADE-	2										
		PLATFORMS INSTALLED	2	3									
		PLATFORMS DRILLING	2		3	3	3						
		PLATFORMS PRODUCING	2					3	3	3	3	3	3
		WELLS WORKED OVER	2										

ACTIVITY BY PORT
PORT B

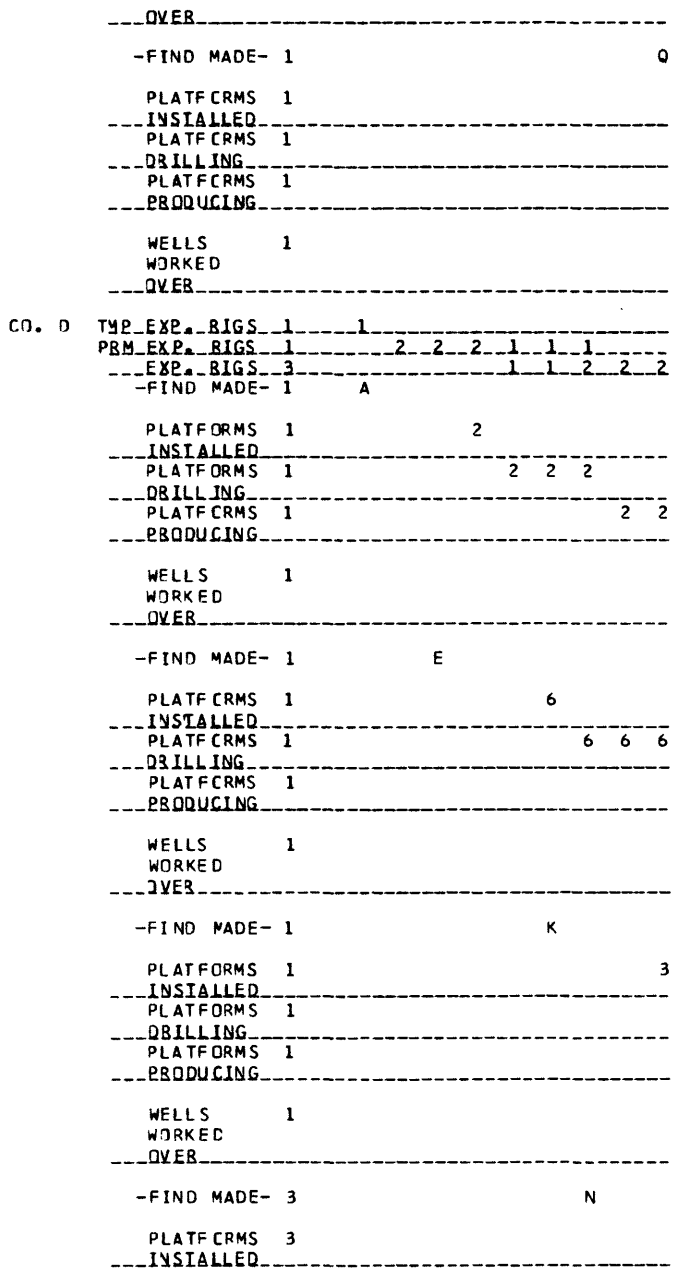
SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 21 22 23 24 25 26 27 28 29 30
		TMP EXP. RIGS	1	
		P&M EXP. RIGS	1	
		EXP. RIGS	2	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1 3	
		WELLS WORKED OVER	1	
		-FIND MADE-	2	
		PLATFORMS INSTALLED	2	
		PLATFORMS DRILLING	2	
		PLATFORMS PRODUCING	2 3 3 3 3 3 3 3 3 3	
		WELLS WORKED OVER	2	12 12 12 12 12

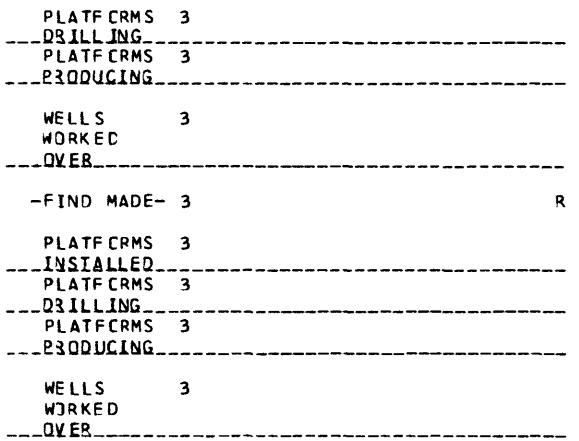
ACTIVITY BY PORT
PORT B

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC	YEAR AFTER FIRST LEASE SALE 31 32 33 34 35 36 37 38 39 40
		TMP EXP. RIGS	1	
		PRM EXP. RIGS	1	
		EXP. RIGS	2	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	2	
		PLATFORMS INSTALLED	2	
		PLATFORMS DRILLING	2	
		PLATFORMS PRODUCING	2	
		WELLS WORKED OVER	2	

ACTIVITY BY PORT
PORT C

SERVICE BASE CO.	OIL CO. INVOL. CO.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 1 2 3 4 5 6 7 8 9 10
	C	TMP EXP. RIGS	1	1 1
		P3M EXP. RIGS	1	2 1 1 1 1 2 1
		EXP. RIGS	3	1 1 1 1 1 1
		-FIND MADE-	1	D
		PLATFORMS INSTALLED	1	1
		PLATFORMS DRILLING	1	1 1 1
		PLATFORMS PRODUCING	1	1
		WELLS WORKED OVER	1	
		-FIND MADE-	1	F
		PLATFORMS INSTALLED	1	2
		PLATFORMS DRILLING	1	2 2 2
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	3	I
		PLATFORMS INSTALLED	3	3
		PLATFORMS DRILLING	3	3
		PLATFORMS PRODUCING	3	
		WELLS WORKED OVER	3	
		-FIND MADE-	1	P
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED	1	

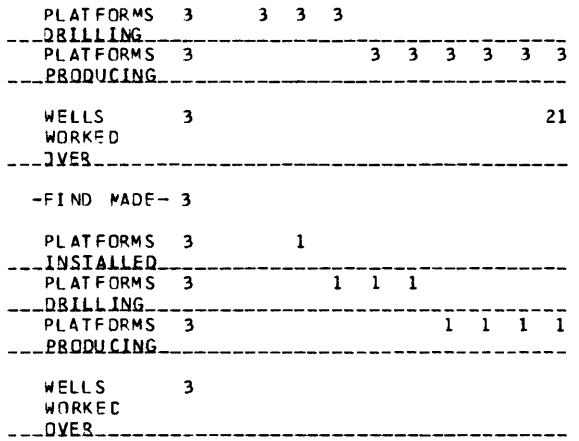

OVER
-FIND MADE- 1 Q
PLATFORMS 1
INSTALLED
PLATFORMS 1
DRILLING
PLATFORMS 1
PRODUCING
WELLS 1
WORKED
OVER
CO. D TYP EXP. RIGS 1 1
PRM EXP. RIGS 1 2 2 2 1 1 1
EXP. RIGS 3 1 1 2 2 2
-FIND MADE- 1 A
PLATFORMS 1 2
INSTALLED
PLATFORMS 1 2 2 2
DRILLING
PLATFORMS 1 2 2
PRODUCING
WELLS 1
WORKED
OVER
-FIND MADE- 1 E
PLATFORMS 1 6
INSTALLED
PLATFORMS 1 6 6 6
DRILLING
PLATFORMS 1
PRODUCING
WELLS 1
WORKED
OVER
-FIND MADE- 1 K
PLATFORMS 1 3
INSTALLED
PLATFORMS 1
DRILLING
PLATFORMS 1
PRODUCING
WELLS 1
WORKED
OVER
-FIND MADE- 3 N
PLATFORMS 3
INSTALLED


PLATFORMS 3
DRILLING
PLATFORMS 3
PRODUCING
WELLS 3
WORKED
OVER
-FIND MADE- 3
R
PLATFORMS 3
INSTALLED
PLATFORMS 3
DRILLING
PLATFORMS 3
PRODUCING
WELLS 3
WORKED
OVER

ACTIVITY BY PORT
PORT C

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEO	YEAR AFTER FIRST LEASE SALE 11	12	13	14	15	16	17	18	19	20
	CO. C	TMP EXP. RIGS	1										
		PRM EXP. RIGS	1	2	2	1	1	1	1				1
		EXP. RIGS	3	1			1						
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1										
		PLATFORMS DRILLING	1										
		PLATFORMS PRODUCING	1	1	1	1	1	1	1	1	1	1	
		WELLS WORKED OVER	1					7	7	6			
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1										
		PLATFORMS DRILLING	1										
		PLATFORMS PRODUCING	1	2	2	2	2	2	2	2	2	2	2
		WELLS WORKED OVER	1						14	14	12		
		-FIND MADE-	3										
		PLATFORMS INSTALLED	3										
		PLATFORMS DRILLING	3	3	3								
		PLATFORMS PRODUCING	3			3	3	3	3	3	3	3	3
		WELLS WORKED OVER	3										12
		-FIND MADE-	1										
		PLATFORMS INSTALLED	1		2								
		PLATFORMS DRILLING	1			2	2	2					
		PLATFORMS PRODUCING	1						2	2	2	2	2
		WELLS WORKED	1										

	OVER											
	-FIND MADE-	1										
	PLATFORMS INSTALLED	1			5							
	PLATFORMS DRILLING	1				5	5	5				
	PLATFORMS PRODUCING	1							5	5	5	5
	WELLS WORKED OVER	1										
CO. D	TMP EXP. RIGS	1										
	PRM EXP. RIGS	1	1	1		1		1	1			
	EXP. RIGS	3			1							
	-FIND MADE-	1										
	PLATFORMS INSTALLED	1										
	PLATFORMS DRILLING	1										
	PLATFORMS PRODUCING	1	2	2	2	2	2	2	2	2	2	2
	WELLS WORKED OVER	1						8	8	8	8	8
	-FIND MADE-	1										
	PLATFORMS INSTALLED	1										
	PLATFORMS DRILLING	1										
	PLATFORMS PRODUCING	1	6	6	6	6	6	6	6	6	6	6
	WELLS WORKED OVER	1								24	24	24
	-FIND MADE-	1										
	PLATFORMS INSTALLED	1										
	PLATFORMS DRILLING	1	3	3	3							
	PLATFORMS PRODUCING	1				3	3	3	3	3	3	3
	WELLS WORKED OVER	1										
	-FIND MADE-	3										
	PLATFORMS INSTALLED	3	3									


PLATFORMS DRILLING 3 3 3 3
PLATFORMS PRODUCING 3 3 3 3 3 3 3
WELLS WORKED OVER 3 21
-FIND MADE- 3
PLATFORMS INSTALLED 3 1
PLATFORMS DRILLING 3 1 1 1
PLATFORMS PRODUCING 3 1 1 1 1
WELLS WORKED OVER 3

ACTIVITY BY PORT
PORT C

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY	LOC TYPE	YEAR AFTER FIRST LEASE SALE 21 22 23 24 25 26 27 28 29 30
	CO. C	TMP EXP. RIGS	CEQ	1
		PRM EXP. RIGS		1 1
		EXP. RIGS		3
		-FIND MADE-		1
		PLATFORMS INSTALLED		1
		PLATFORMS DRILLING		1
		PLATFORMS PRODUCING		1
		WELLS WORKED OVER		1
		-FIND MADE-		1
		PLATFORMS INSTALLED		1
		PLATFORMS DRILLING		1
		PLATFORMS PRODUCING		1
		WELLS WORKED OVER		1
		-FIND MADE-		3
		PLATFORMS INSTALLED		3
		PLATFORMS DRILLING		3
		PLATFORMS PRODUCING		3 3 3 3 3 3 3 3
		WELLS WORKED OVER		3 12 12 12 12
		-FIND MADE-		1
		PLATFORMS INSTALLED		1
		PLATFORMS DRILLING		1
		PLATFORMS PRODUCING		1 2 2 2 2 2
		WELLS WORKED		1 14 14 12

```
---OVER------------------------------------------------

   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED-------------------------------------------
    PLATFORMS  1
---DRILLING--------------------------------------------
    PLATFORMS  1  5  5  5  5  5  5  5  5  5  5
---PRODUCING-------------------------------------------

    WELLS      1              20 20 20 20 20
    WORKED
---OVER------------------------------------------------

CO. D  TMP EXP. RIGS  1
       PRM EXP. RIGS  1
---EXP. RIGS  3  1-------------------------------------
   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED-------------------------------------------
    PLATFORMS  1
---DRILLING--------------------------------------------
    PLATFORMS  1  2  2  2
---PRODUCING-------------------------------------------

    WELLS      1
    WORKED
---OVER------------------------------------------------

   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED-------------------------------------------
    PLATFORMS  1
---DRILLING--------------------------------------------
    PLATFORMS  1  6  6  6  6  6
---PRODUCING-------------------------------------------

    WELLS      1 24 24
    WORKED
---OVER------------------------------------------------

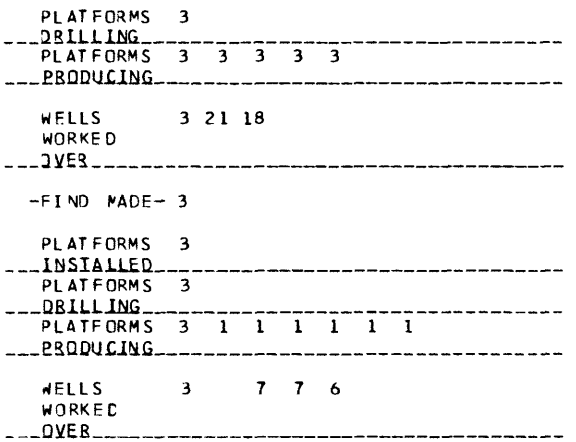
   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED-------------------------------------------
    PLATFORMS  1
---DRILLING--------------------------------------------
    PLATFORMS  1  3  3  3  3  3  3  3  3
---PRODUCING-------------------------------------------

    WELLS      1 12 12 12 12 12
    WORKED
---OVER------------------------------------------------

   -FIND MADE- 3

    PLATFORMS  3
---INSTALLED-------------------------------------------
```


PLATFORMS 3
DRILLING
PLATFORMS 3 3 3 3 3
PRODUCING
WELLS 3 21 18
WORKED
OVER
-FIND MADE- 3
PLATFORMS 3
INSTALLED
PLATFORMS 3
DRILLING
PLATFORMS 3 1 1 1 1 1 1
PRODUCING
WELLS 3 7 7 6
WORKED
OVER

ACTIVITY BY PORT
PORT C

SERVICE BASE CO.	OIL CO. INVOL. CO. C	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 31 32 33 34 35 36 37 38 39 40
		TMP EXP. RIGS	1	
		P3M EXP. RIGS	1	
		EXP. RIGS	3	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED OVER	1	
		-FIND MADE-	3	
		PLATFORMS INSTALLED	3	
		PLATFORMS DRILLING	3	
		PLATFORMS PRODUCING	3	
		WELLS WORKED OVER	3	
		-FIND MADE-	1	
		PLATFORMS INSTALLED	1	
		PLATFORMS DRILLING	1	
		PLATFORMS PRODUCING	1	
		WELLS WORKED	1	

```
---OVER-----------------------------------------

   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED------------------------------------
    PLATFORMS  1
---DRILLING-------------------------------------
    PLATFORMS  1  5
---PRODUCING------------------------------------

    WELLS      1
    WORKED
---OVER-----------------------------------------

CO. D  TMP EXP. RIGS  1-------------------------
       PRM EXP. RIGS  1-------------------------
    ---EXP. RIGS  3-----------------------------
   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED------------------------------------
    PLATFORMS  1
---DRILLING-------------------------------------
    PLATFORMS  1
---PRODUCING------------------------------------

    WELLS      1
    WORKED
---OVER-----------------------------------------

   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED------------------------------------
    PLATFORMS  1
---DRILLING-------------------------------------
    PLATFORMS  1
---PRODUCING------------------------------------

    WELLS      1
    WORKED
---OVER-----------------------------------------

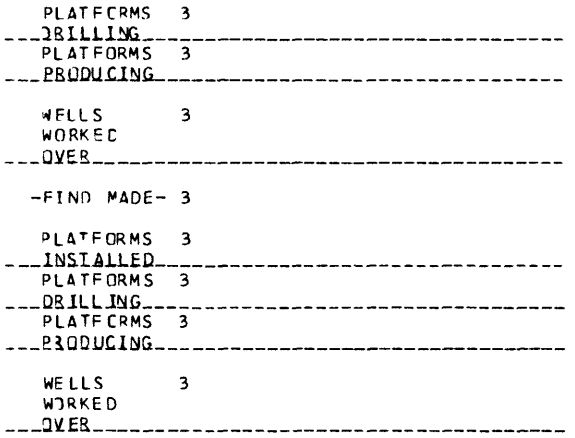
   -FIND MADE- 1

    PLATFORMS  1
---INSTALLED------------------------------------
    PLATFORMS  1
---DRILLING-------------------------------------
    PLATFORMS  1
---PRODUCING------------------------------------

    WELLS      1
    WORKED
---OVER-----------------------------------------

   -FIND MADE- 3

    PLATFORMS  3
---INSTALLED------------------------------------
```


PLATFORMS 3
DRILLING
PLATFORMS 3
PRODUCING
WELLS 3
WORKED
OVER
-FIND MADE- 3
PLATFORMS 3
INSTALLED
PLATFORMS 3
DRILLING
PLATFORMS 3
PRODUCING
WELLS 3
WORKED
OVER

ACTIVITY BY PORT
PORT D

SERVICE BASE CO.	OIL CO. INVOL. CO.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 1 2 3 4 5 6 7 8 9 10
	E	TMP_EXP. -FIND	BIGS MADE-	2 1 1 1 2 2 G

ACTIVITY BY PORT
PORT D

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 11 12 13 14 15 16 17 18 19 20
		TMP_EXP._RIGS	2	
		-FIND MADE-	2	

ACTIVITY BY PORT
PORT C

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE TYPE	ACTIVITY	LOC CEQ	YEAR AFTER FIRST LEASE SALE 21 22 23 24 25 26 27 28 29 30
		TMP	EXP. RIGS	2	
		-FIND	MADE-	2	

ACTIVITY BY PORT
PORT C

SERVICE BASE CO.	OIL CO. INVOL.	SERV BASE ACTIVITY TYPE	LOC CEQ	YEAR AFTER FIRST LEASE SALE 31 32 33 34 35 36 37 38 39 40
		TMP_EXP._BIGS__2		
		-FIND MADE- 2		

-FIND- SCENARIO-SERVICE ACTIVITY

PORT A ST A

YEAR AFTER LEASE SALE

	1	2	3	4	5	6	7	8	9	10
LAND USE (ACRES)	0	8	12	16	16	29	45	47	96	129
WATER (X 100,000 GAL)	0	104	156	208	208	312	558	454	1028	1356
SUPPLY BOATS	0	6	9	12	12	19	30	26	54	71
NO. OF BERTHS	0	2	3	4	4	7	11	11	22	28
HELICOPTERS	0	2	3	4	4	7	12	12	24	30
EMPLOYMENT (/HELICOPTER)	0	6	9	12	12	21	36	36	72	90
EMPLOYMENT (/SUPPLY BOAT)	0	66	99	132	132	209	330	286	594	783
ON-SHORE SUPPORT	0	10	15	20	20	33	57	54	117	162
LOCAL EMPLOYMENT	0	66	99	132	131	210	339	302	628	828
WAGES (X 100,000 DOLLARS)	0	14	21	28	28	45	72	64	133	176

-FIND- SCENARIC-SERVICE ACTIVITY

PORT A ST A

YEAR AFTER LEASE SALE

	11	12	13	14	15	16	17	18	19	20
LAND USE (ACRES)	173	164	153	111	89	52	57	58	58	63
WATER (X 100,000 GAL)	1930	1632	1498	872	544	0	114	223	426	546
SUPPLY BOATS	98	87	81	52	38	14	20	24	29	34
NO. OF BERTHS	38	35	32	22	16	7	9	10	12	14
HELICOPTERS	41	42	46	40	38	34	35	35	34	35
EMPLOYMENT (/HELICOPTER)	123	126	138	120	114	102	105	105	102	105
EMPLOYMENT (/SUPPLY BOAT)	1080	957	889	578	420	150	205	244	303	360
ON-SHORE SUPPORT	222	213	214	167	143	102	109	113	118	126
LOCAL EMPLOYMENT	1141	1037	993	693	542	283	336	371	419	473
WAGES (X 100,000 DOLLARS)	242	220	211	147	115	60	71	79	89	101

-FIND- SCENARIO-SERVICE ACTIVITY

PORT A ST A

YEAR AFTER LEASE SALE

	21	22	23	24	25	26	27	28	29	30
LAND USE (ACRES)	58	57	54	48	42	41	29	21	15	9
WATER (X 100,000 GAL)	468	396	520	375	291	208	125	0	0	0
SUPPLY BOATS	30	28	30	25	21	18	12	5	4	2
NO. OF BERTHS	13	12	13	10	9	8	6	4	3	2
HELICOPTERS	34	34	31	28	25	25	18	14	10	6
EMPLOYMENT (/HELICOPTER)	102	102	93	84	75	75	54	42	30	18
EMPLOYMENT (/SUPPLY BOAT)	318	292	323	258	215	185	124	61	44	26
ON-SHORE SUPPORT	120	118	113	99	86	83	59	42	30	18
LOCAL EMPLOYMENT	432	408	423	352	301	274	190	117	83	50
WAGES (X 100,000 DOLLARS)	92	87	90	75	64	58	40	25	18	11

-FIND- SCENARIC-SERVICE ACTIVITY

PORT A ST A

YEAR AFTER LEASE SALE

	31	32	33	34	35	36	37	38	39	40
LAND USE (ACRES)	0	0	0	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	0	0	0	0	0	0	0	0	0	0
SUPPLY BOATS	0	0	0	0	0	0	0	0	0	0
NO. OF BERTHS	0	0	0	0	0	0	0	0	0	0
HELICOPTERS	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	0	0	0	0	0	0	0	0	0	0
ON-SHORE SUPPORT	0	0	0	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	0	0	0	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	0	0	0	0	0	0	0	0	0	0

-FIND- SCENARIO-SERVICE ACTIVITY

PORT B ST B

YEAR AFTER LEASE SALE

	1	2	3	4	5	6	7	8	9	10
LAND USE (ACRES)	0	8	8	8	9	15	15	24	31	31
WATER (X 100,000 GAL)	0	104	104	104	52	186	186	238	350	350
SUPPLY BOATS	0	6	6	6	4	10	10	14	18	18
NO. OF BERTHS	0	2	2	2	2	4	4	6	8	8
HELICOPTERS	0	2	2	2	2	5	5	7	9	9
EMPLOYMENT (/HELICOPTER)	0	6	6	6	6	15	15	21	27	27
EMPLOYMENT (/SUPPLY BOAT)	0	66	66	66	44	110	110	154	202	202
ON-SHORE SUPPORT	0	10	10	10	6	19	19	27	40	40
LOCAL EMPLOYMENT	0	66	66	66	45	116	116	162	216	216
WAGES (X 100,000 DOLLARS)	0	14	14	14	10	24	24	34	46	46

-FIND- SCENARIC-SERVICE ACTIVITY

PORT B ST B

YEAR AFTER LEASE SALE

	11	12	13	14	15	16	17	18	19	20
LAND USE (ACRES)	36	35	31	31	15	15	12	16	10	9
WATER (X 100,000 GAL)	350	350	298	334	88	83	109	161	94	0
SUPPLY BOATS	19	20	17	19	8	8	7	10	6	2
NO. OF BERTHS	9	8	7	8	4	3	3	4	3	2
HELICOPTERS	10	12	11	11	8	8	7	8	6	6
EMPLOYMENT (/HELICOPTER)	30	36	33	33	24	24	21	24	18	18
EMPLOYMENT (/SUPPLY BOAT)	213	216	183	196	77	75	70	103	60	26
ON-SHORE SUPPORT	43	49	44	45	27	27	25	30	22	18
LOCAL EMPLOYMENT	230	241	208	220	103	101	93	126	80	50
WAGES (X 100,000 DOLLARS)	49	51	44	47	22	21	20	27	17	11

-FIND- SCENARIO-SERVICE ACTIVITY

PORT B ST B

YEAR AFTER LEASE SALE

	21	22	23	24	25	26	27	28	29	30
LAND USE (ACRES)	9	6	6	6	6	6	5	5	5	0
WATER (X 100,000 GAL)	0	62	62	62	62	62	0	0	0	0
SUPPLY BOATS	2	4	4	4	4	4	1	1	1	0
NO. OF BERTHS	2	2	2	2	2	2	1	1	1	0
HELICOPTERS	6	3	3	3	3	3	3	3	3	0
EMPLOYMENT (/HELICOPTER)	18	9	9	9	9	9	9	9	9	0
EMPLOYMENT (/SUPPLY BOAT)	26	35	35	35	35	35	13	13	13	0
ON-SHORE SUPPORT	18	11	11	11	11	11	9	9	9	0
LOCAL EMPLOYMENT	50	45	45	45	45	45	25	25	25	0
WAGES (X 100,000 DOLLARS)	11	10	10	10	10	10	5	5	5	0

-FIND- SCENARIO-SERVICE ACTIVITY

PORT B ST B

YEAR AFTER LEASE SALE

	31	32	33	34	35	36	37	38	39	40
LAND USE (ACRES)	0	0	0	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	0	0	0	0	0	0	0	0	0	0
SUPPLY BOATS	0	0	0	0	0	0	0	0	0	0
NO. OF BERTHS	0	0	0	0	0	0	0	0	0	0
HELICOPTERS	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	0	0	0	0	0	0	0	0	0	0
ON-SHORE SUPPORT	0	0	0	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	0	0	0	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	0	0	0	0	0	0	0	0	0	0

-FIND- SCENARIC-SERVICE ACTIVITY

PORT C ST C

YEAR AFTER LEASE SALE

	1	2	3	4	5	6	7	8	9	10
LAND USE (ACRES)	0	8	12	16	21	35	52	97	91	103
WATER (X 100,000 GAL)	0	104	156	208	208	372	454	1162	998	1110
SUPPLY BOATS	0	6	9	12	13	21	27	59	53	58
NO. OF BERTHS	0	2	3	4	5	8	12	22	21	24
HELICOPTERS	0	2	3	4	5	8	13	23	23	26
EMPLOYMENT (/HELICOPTER)	0	6	9	12	15	24	39	69	69	78
EMPLOYMENT (/SUPPLY BOAT)	0	66	99	132	143	231	297	649	581	640
ON-SHORE SUPPORT	0	10	15	20	22	39	55	124	115	131
LOCAL EMPLOYMENT	0	66	99	132	145	236	314	674	613	681
WAGES (X 100,000 DOLLARS)	0	14	21	28	31	50	66	143	130	144

-FIND- SCENARIO-SERVICE ACTIVITY

PORT C ST C

YEAR AFTER LEASE SALE

	11	12	13	14	15	16	17	18	19	20
LAND USE (ACRES)	80	97	104	111	90	85	49	46	49	46
WATER (X 100,000 GAL)	700	894	812	1006	744	747	198	228	218	338
SUPPLY BOATS	41	50	49	56	45	45	20	20	20	24
NO. OF BERTHS	18	21	22	24	20	19	9	9	9	10
HELICOPTERS	28	30	32	37	36	36	29	28	29	27
EMPLOYMENT (/HELICOPTER)	84	90	96	111	108	108	87	84	87	81
EMPLOYMENT (/SUPPLY BOAT)	455	554	545	624	486	481	208	205	216	240
ON-SHORE SUPPORT	110	131	135	160	138	136	95	92	95	94
LOCAL EMPLOYMENT	521	622	622	718	587	581	312	306	319	333
WAGES (X 100,000 DOLLARS)	110	132	132	152	125	123	66	65	68	71

-FIND- SCENARIC-SERVICE ACTIVITY

PORT C ST C

YEAR AFTER LEASE SALE

	21	22	23	24	25	26	27	28	29	30
LAND USE (ACRES)	48	48	41	38	32	19	18	14	8	8
WATER (X 100,000 GAL)	483	504	224	260	166	104	104	104	0	0
SUPPLY BOATS	28	29	19	19	15	9	8	7	2	2
NO. OF BERTHS	11	12	7	8	6	4	4	3	1	1
HELICOPTERS	26	26	25	23	20	12	11	8	5	5
EMPLOYMENT (/HELICOPTER)	78	78	75	69	60	36	33	24	15	15
EMPLOYMENT (/SUPPLY BOAT)	299	306	191	195	147	90	85	72	22	22
ON-SHORE SUPPORT	96	97	84	79	66	40	37	28	15	15
LOCAL EMPLOYMENT	378	385	279	274	219	133	125	100	42	42
WAGES (X 100,000 DOLLARS)	80	82	59	58	47	28	26	21	9	9

-FIND- SCENARIO-SERVICE ACTIVITY

PORT C ST C

YEAR AFTER LEASE SALE

	31	32	33	34	35	36	37	38	39	40
LAND USE (ACRES)	8	0	0	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	0	0	0	0	0	0	0	0	0	0
SUPPLY BOATS	2	0	0	0	0	0	0	0	0	0
NO. OF BERTHS	1	0	0	0	0	0	0	0	0	0
HELICOPTERS	5	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	15	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	22	0	0	0	0	0	0	0	0	0
ON-SHORE SUPPORT	15	0	0	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	42	0	0	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	9	0	0	0	0	0	0	0	0	0

-FIND- SCENARIO-SERVICE ACTIVITY

PORT D ST D

YEAR AFTER LEASE SALE

	1	2	3	4	5	6	7	8	9	10
LAND USE (ACRES)	0	4	4	4	8	0	0	0	0	0
WATER (X 100,000 GAL)	0	52	52	52	104	0	0	0	0	0
SUPPLY BOATS	0	3	3	3	6	0	0	0	0	0
NO. OF BERTHS	0	1	1	1	2	0	0	0	0	0
HELICOPTERS	0	1	1	1	2	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	0	3	3	3	6	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	0	33	33	33	66	0	0	0	0	0
ON-SHORE SUPPORT	0	5	5	5	10	0	0	0	0	0
LOCAL EMPLOYMENT	0	33	33	33	66	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	0	7	7	7	14	0	0	0	0	0

-FIND- SCENARIC-SERVICE ACTIVITY

PORT D ST D

YEAR AFTER LEASE SALE

	11	12	13	14	15	16	17	18	19	20
LAND USE (ACRES)	0	0	0	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	0	0	C	0	0	0	0	0	0	0
SUPPLY BOATS	0	0	C	0	0	0	0	0	0	0
NO. OF BERTHS	0	0	0	0	0	0	0	0	0	0
HELICOPTERS	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	0	0	C	0	0	0	0	0	0	0
ON-SHORE SUPPORT	0	0	0	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	0	0	0	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	0	0	C	0	0	0	0	0	0	0

-FIND- SCENARIO-SERVICE ACTIVITY

PORT D ST D

YEAR AFTER LEASE SALE

	21	22	23	24	25	26	27	28	29	30
LAND USE (ACRES)	0	0	C	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	0	0	0	0	0	0	0	0	0	0
SUPPLY BOATS	0	0	0	0	0	0	0	0	0	0
NO. OF BERTHS	0	0	0	0	0	0	0	0	0	0
HELICOPTERS	0	0	C	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	0	0	0	0	0	0	0	0	0	0
ON-SHORE SUPPORT	0	0	C	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	0	0	C	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	0	0	0	0	0	0	0	0	0	0

-FIND- SCENARIO-SERVICE ACTIVITY

PORT D ST D

YEAR AFTER LEASE SALE

	31	32	33	34	35	36	37	38	39	40
LAND USE (ACRES)	0	0	0	0	0	0	0	0	0	0
WATER (X 100,000 GAL)	0	0	0	0	0	0	0	0	0	0
SUPPLY BOATS	0	0	0	0	0	0	0	0	0	0
NO. OF BERTHS	0	0	0	0	0	0	0	0	0	0
HELICOPTERS	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/HELICOPTER)	0	0	0	0	0	0	0	0	0	0
EMPLOYMENT (/SUPPLY BOAT)	0	0	0	0	0	0	0	0	0	0
ON-SHORE SUPPORT	0	0	0	0	0	0	0	0	0	0
LOCAL EMPLOYMENT	0	0	0	0	0	0	0	0	0	0
WAGES (X 100,000 DOLLARS)	0	0	0	0	0	0	0	0	0	0

PRODUCTION RATES

YR. AFTER LEASE	OIL (BARRELS/DAY)	UNASSOC. GAS (BILLIONS CU FT/DAY)	ASSOC. GAS (BILLIONS CU FT/DAY)	TOTAL GAS (BILLIONS CU FT/DAY)
1	0.	0.0	0.0	0.0
2	0.	0.0	0.0	0.0
3	0.	0.0	0.0	0.0
4	0.	0.0	0.0	0.0
5	0.	0.0	0.0	0.0
6	0.	0.0	0.0	0.0
7	0.	0.0	0.0	0.0
8	0.	0.0	0.0	0.0
9	17520.	0.145640	0.017520	0.163160
10	43800.	0.291280	0.043800	0.335080
11	96360.	0.582560	0.096360	0.678920
12	157680.	1.019480	0.157680	1.177159
13	219000.	1.456399	0.219000	1.675399
14	280320.	1.893319	0.280320	2.173638
15	341640.	2.330239	0.341640	2.671879
16	394200.	2.621519	0.394200	3.015718
17	438000.	2.767159	0.437999	3.205158
18	438000.	2.767159	0.437999	3.205158
19	438000.	2.621519	0.437999	3.059518
20	438000.	2.475880	0.437999	2.913878
21	438000.	2.184599	0.437999	2.622598
22	438000.	1.747680	0.437999	2.185678
23	438000.	1.310760	0.437999	1.748758
24	420480.	0.873840	0.420479	1.294318
25	394200.	0.436920	0.394200	0.831119
26	341640.	0.145640	0.341640	0.487280
27	280320.	0.0	0.280320	0.280320
28	219000.	0.0	0.219000	0.219000
29	157680.	0.0	0.157680	0.157680
30	96360.	0.0	0.096360	0.096360
31	43800.	0.0	0.043800	0.043800
32	0.	0.0	0.0	0.0
33	0.	0.0	0.0	0.0
34	0.	0.0	0.0	0.0
35	0.	0.0	0.0	0.0
36	0.	0.0	0.0	0.0
37	0.	0.0	0.0	0.0
38	0.	0.0	0.0	0.0
39	0.	0.0	0.0	0.0
40	0.	0.0	0.0	0.0

Appendix 5: Definitions of BLOCK DATA Elements

VARIABLE NAME	DESCRIPTION
NCONYR	(Number of construction years) NCONYR is the number of years required for constructing a platform after a FIND is made.
NDEVYR	(Number of development years) NDEVYR is the number of years of development drilling required before a platform becomes productive. It is used most frequently in the model to determine when a platform becomes productive, e.g., if a find is made in the 5th year after a lease sale, the earliest year after lease that a platform can be productive would be given by: (5 + NCONYR+NYRBDD+NDEVYR)
NPROYR	(Number of productive years) NPROYR(1) is the productive lifetime of an unassociated gas well in years. NPROYR(2) is the productive lifetime of an oil and associated natural gas well in years.
NWPERP	(Number of wells per platform)

VARIABLE NAME	DESCRIPTION
NYRBWO	(Number of years before workover) NYRBWO(1) is the number of years an unassociated natural gas well can be operating before workover begins. NYRBWO(2) is the corresponding variable for an oil and associated natural gas well.
NWPYPP	(Number of wells worked over per year per platform NWPYPP(1) is the number of unassociated natural gas wells that can be worked over per year per platform. NWPYPP(2) is the corresponding variable for an oil and associated natural gas platform.
OILREC	(Oil recovery rate in barrels/well/day)
GASREC	(Natural gas recovery rate in cu. ft/well/day) This is the recovery rate for an unassociated natural gas find. Recovery rates for associated natural gas finds are calculated in MODEL2 and used in the subroutine PRATES.
MAXPPY	(Maximum number of platforms per year that can be installed) This variable controls the rate at which platforms can be placed after a find is made.

VARIABLE NAME	DESCRIPTION
NYRBDD	(Number of years before development drilling begins) This variable allows a delay time to be inserted in the calculation of the platform drilling schedule. It also places a time lag into the production and workover schedules.

Appendix 6: Definitions of and Restrictions on Variables

The variables defined below appear in all labeled COMMON statements; the latter are listed alphabetically. The name of each variable follows the normal FORTRAN convention as regards type (Floating point or Fixed point) and length (Integer 4 or Real*4) unless otherwise stated.

1. COMMON/ASSUMP/NCONYR, NDEVYR, NPROYR(2), NWPERP, NYRBWO(2), NWPYPP(2), OILREC, GASREC, MAXPPY, NYRBDD

   (See Appendix 5; this information is in the BLOCK DATA routine.)

2. COMMON/BSDATA/NUMLOC, NUMCOM (10), NTOTOC

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
NUMLOC	(Number of locations) This variable contains the number of ports. It is read-in by INPUT1 or INPUT2. The value of NUMLOC must not exceed 10.
NUMCOM	(Number of companies) This variable array is read-in and contains the number of oil companies for each port. NUMCOM(1) contains the number of oil companies operating out of port 1, NUMCOM(2) the number operating out of port 2, etc. No entry into NUMCOM may exceed 8.
NTOTOC	(Number of total oil companies) This variable is the sum of the entries in the

NUMCOM array. It is calculated in subroutines INPUT1 and INPUT2.

3. COMMON/EXDATA/NUMAYR, NEXCEQ(10,8), IDXCEQ(10,8,11) NEXRIG(30,10,8,11), NUMRIG(30,10,8)

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
NUMAYR	(Number of active years) This variable is read-in and represents the total number of years over which exploration occurs. In the NOFIND scenario, NUMAYR must not exceed 5; however, with the slight program modification discussed in the Documentation section, this variable can be extended to 30. In the FIND scenario, NUMAYR can be as large as 30.
NEXCEQ	(Number of exploratory CEQ circles) This variable array is read-in and only occurs in the FIND scenario. It contains the number of offshore locations explored for each oil company within each port. The limit of entries in this array is 11.
IDXCEQ	(Identification of exploratory CEQ circles) This variable array is read-in and only occurs in the FIND scenario. It identifies which offshore locations are explored (i.e., where each company

within each port places exploratory rigs). No company can explore more than 11 locations, so no ID number can exceed 11.

NEXRIG — (Number of exploratory rigs)

Note: This variable is an INTEGER*2 array.

It is read-in and occurs only in the FIND scenario. It allocates exploratory rigs by year, port, oil company, and location ID. The format field for the array limits any entry to 99.

NUMRIG — (Number of rigs)

This variable array is read-in for the NOFIND scenario and calculated from the NEXRIG array for the FIND scenario. It allocates exploratory rigs by year, port, and oil company. The format field for the array limits any entry to 99.

4. COMMON/FINDATA/NFINDS, IYRFND(50), TYPFND(2,50), SIZFND(2,50), LOCFND(50), DEPFND(50), KEYTYP(50), NUMCPF(20), FNDCOM(2,5,20), IDFNDL(20,6), IDCBFL(20,6,5), NUMCRE(20), ASGRER(50)

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
NFINDS	(Number of finds) This variable is read-in and occurs only in the FIND scenario. It contains the number of finds.

Our version of the requirement/impacts program is limited to 20 finds.

IYRFND (Year of the find)

This array is read-in and occurs only in the FIND scenario. It contains the year of discovery for each find. No entry in this array should exceed 40.

TYPFND (Type of find)

This is an alphanumeric array, read-in for the FIND scenario only. It contains literal data which identifies each find as an 'OIL FIND' or 'GAS FIND' (see Chapter. III).

SIZFND (Size of find)

This array contains the quantity of hydrocarbons for each find. The unit for oil is barrels, and cu.ft. for gas. No computational limit exists on the quantities used, but unreasonably large values may cause errors in output format overflow. Too small a value for a find could result in no platforms being initiated for the find.

LOCFND (Location of the find)

This array is read-in for the FIND scenario. It gives the CEQ ID number for each find. No location ID number can exceed CEQ ID.

DEPFND (Depth of the Find)

This array is read-in for the FIND scenario and gives the water depth for each find. No input restrictions exist for DEPFND.

KEYTYP (Key type)

This array is calculated for each find. A value of 1, indicates a natural gas find; value of 2, an oil and associated natural gas find is indicated. KEYTYP is used primarily as a subscript.

NUMCPF (Number of Companies Per Find)

This array is read-in for the FIND scenario. It gives the number of oil companies associated with each find. No more than 5 different companies can be correlated with a find.

FNDCOM (Find Company)

This array is used to store the names of the companies associated with each find. Each company name can be expressed by up to 8 alphanumeric characters.

IDFNDL (Identify Finds by location)

This array is read-in and is used to correlate each find with a maximum of 6 ports. A detailed description of the input procedure for IDFNDL is given in Chap. III.

IDCBFL — (Identify companies by find and location)

This array is read-in and is used to correlate each find with a maximum of 5 oil companies. A detailed description of the input procedure for IDCBFL is given in Chap. III.

NUMCRE — (Number of Companies remaining)

This variable array is calculated in INPUT2. It is employed in MODEL2 in the algorithm where platforms are distributed among those companies correlated with finds.

ASGRER — (Associated gas recovery rate)

This array is calculated for the FIND scenario in subroutine MODEL2 and determines the associated natural gas production rate. The array is used to output the total natural gas production rate in subroutine PRATES.

5. COMMON/IO/RUNIT, PUNIT

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
RUNIT	(Read unit) This variable defines the unit number for the card reader. Its value is entered in BLOCK DATA.

PUNIT	(Print unit) This variable defines the unit number for the printer. Its value is entered in BLOCK DATA.

6. COMMON/LOCALE/CITYST(10,4), PORTNM(3), STATNM

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
CITYST	(City and State) This alphanumeric array is used in both the NOFIND and FIND scenarios to store the name of each port and its corresponding state. The port name and state are read into a 16 character field; the first 12 characters being reserved for the port and the next 4 for the state.
PORTNM	(Port name) This alphanumeric array is used in the subroutine OTUPTI to place a port name in subroutine FORM4E. It is also used in subroutine OTPUT2 for interfacing with subroutines FORM4E and FORM4-J.
STATNM	(State name) This alphanumeric variable is used to interface a state name with the subroutines FORM4E and FORM4J (cf. PORTNM).

7. COMMON/MISC/IDRUN

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
IDRUN	(Identification of run) This variable is calculated in the subroutine SETUP and set to 1 if a NOFIND run is indicated and to 2 for a FIND run.

8. COMMON/PFDATA/NPTFMI(6,5,20,40),
NPTFMD(6,5,20,40),
NPTFMP(6,5,20,40),
NUMIYR(6,5,20), PFPERF(50)

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
NPTFMI	(Number of platforms installed) This variable is an INTEGER*2 array. It is calculated in the FIND scenario. NPTFMI contains the number of platforms installed by port, oil company, and find, for 40 years after the first lease sale.
NPTFMD	(Number of platforms drilling) This variable is an INTEGER*2 array. It is calculated in the FIND scenario. NPTFMD contains the number of platforms undergoing development drilling by port, oil company, and find, for 40 years after the first lease/sale.

NPTFMP (Number of platforms producing)

This variable is an INTEGER*2 array. It is calculated in the FIND scenario. NPTFMP contains the number of platforms producing hydrocarbons by port, oil company, and find, for 40 years after the first lease sale.

NUMIYR (Number of Installation years)

This variable is an INTEGER*2 array. NUMIYR is calculated in subroutine MODEL2 of the FIND scenario. It contains the number of many non-zero entries in the NPTFMI array for a given port, oil company, and find.

PFPERF (Platforms per Find)

This array is calculated in Subroutine MODEL2 of the FIND scenario. It contains the number of platforms required to extract hydrocarbons for each find. The number of platforms contained in PEPERF for a given find are distributed uniformly among the oil companies and ports correlated with the find.

9. COMMON/RIDATA/NOMULT, DESMUL(8,15), RIMULT(15,5), NTERVL(15,5), REQIMP(15,5), NREQIM(40,10,15)

VARIABLE NAME	DEFINITION/RESTRICTIONS
NOMULT	(No. of Multipliers) This variable is read-in and contains the number of multipliers for the NOFIND and FIND scenarios. The number of multipliers cannot exceed 15.
DESMUL	(Description of the multipliers) This array is read-in and gives an alphanumeric description of each multiplier. The description is limited to 32 characters for each multiplier.
RIMULT	(Requirement/Impacts multipliers) This array is read-in and contains the multipliers. in the NOFIND scenario, multipliers for the exploratory phase only are read; in the FIND scenario, they are read-in for all phases of activity (see documentation for a detailed description of this input step).
NTERVL	(Interval on multipliers) This array is read-in along with each multiplier. When a non-zero interval is read, the corresponding multiplier is interpreted as an impact over a range of rigs for platforms (see documentation for a detailed description of this input step).

REQIMP (Requirement/impacts)

This array is calculated in MODEL1 and MODEL2. It stores intermediate requirement/impacts results which contribute to the total impacts for given year, port, and multiplier. These intermediate results are rounded-off in calculations for each company and added to the accumulative requirement/impacts array NREQIM.

NREQIM (Accumulative Requirement/impacts)

This array is calculated in MODEL1 and MODEL2. It contains the requirement/impacts by year, port, and multiplier. NREQIM are the final requirement/impacts results that are passed to subroutine FORM4E.

10. COMMON/TAB4D/BSNAME(4,80), OWNRCO(2,80), OILCOM(2,80), LOCRIG(80,5)

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
BSNAME	(Base name) This alphanumeric array is calculated in subroutine OTPUT1 and is used for interfacing the CITYST array with subroutine FORM4D. BSNAME is set up with the 16 character port and state name for each oil company in each port.

OWNRCO (Owner company)

This alphanumeric array is read-in for both the NOFIND and the FIND scenarios. It contains the name of the service base owner in an 8 character field for each occurrence of an oil company in each port (see documentation regarding restrictions on this variable array).

OILCOM (Oil company)

This alphanumeric array is read-in for both the NOFIND and FIND scenarios. It contains the name of each oil company operating from each port in an 8 character field (see documentation regarding restrictions on this variable array).

LOCRIG (Location of the rigs)

This array is read-in for the NOFIND scenario only. It is used to assign an offshore location ID number by year, for each occurrence of an oil company in each port. This array is used only in the output subroutine FORM4D; hence, any location ID number is valid up to 999.

11. COMMON/TAB4E/IDPORT

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
IDPORT	(Identification of a port)

This variable is set to NDXLOC (index on loca-

tion) for interfacing a port ID to subroutine FORM4E.

12. COMMON/TAB4J/SERCOM(100,2), OILCO(100,2),
SERTYP(100), ACTIVT(100),
LOCCEQ(100), YRSALE(40,100)

VARIABLE NAME	DESCRIPTION/RESTRICTIONS
SERCOM	(Service Company) This alphanumeric array interfaces the owner company (OWNRCO) to subroutine FORM4J for the FIND scenario.
OILCO	(Oil Company) This alphanumeric array interfaces an oil company (OILCOM) to subroutine FORM4J for the FIND scenario.
SERTYP	(Service Type) This variable is an INTEGER*2 array. This variable is set to 1 or 2 if the line of output for subroutine FORM4J is intended to be labeled temporary (TMP) or permanent (PRM), respectively.
ACTIVT	(Activity Type) This variable is an INTEGER*2 array. This variable is set to 1 through 6 (or 99) depending

on the type of output for each line printed by subroutine FORM4J (see comment cards in the listing of subroutine FORM4J).

LOCCEQ — (Location by CEQ ID)

This variable is an INTEGER*2 array. This array assigns an offshore location ID to each line of output for subroutine FORM4J.

YRSALE — (Year after the lease sale)

This variable is an INTEGER*2 array. This array is used in the FIND scenario to interface rig and platform activity (number/year by find, for each oil company) with subroutine FORM4J.