

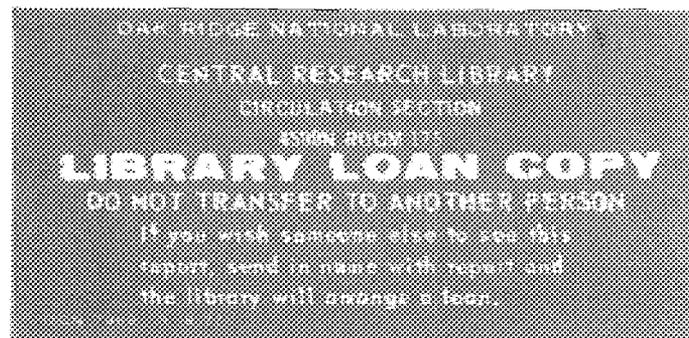
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**OAK RIDGE  
NATIONAL  
LABORATORY**

**MARTIN MARIETTA**

**Triennial Frames Update  
for the  
Petroleum Supply Division  
Energy Information Administration**

Don Alvic	Jack Thorpe
Heidi Brenner	Tykey Truett
Deborah Flanagan	Tommy Wright
Gloria Long	



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DEPARTMENT OF ENERGY

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Energy Division

TRIENNIAL FRAMES UPDATE  
FOR THE  
PETROLEUM SUPPLY DIVISION  
ENERGY INFORMATION ADMINISTRATION

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November 30, 1988

Prepared for the  
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Energy Information Administration  
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## ACRONYMS

Automatic Data Processing	ADP
American National Standard Code for Information Interchange	ASCII
Applied Management Sciences	AMS
Disk Operating System	DOS
Energy Information Administration	EIA
Federal Energy Regulatory Commission	FERC
Kilobytes	KB
Megabytes	MB
Nonrespondent Contact Record	NCR
Oak Ridge National Laboratory	ORNL
Office of Statistical Standards	OSS
Petroleum Allocation District	PAD
Personal Computer	PC
Petroleum Supply Division	PSD
Petroleum Supply Reporting System	PSRS
Respondent Contact Record	RCR
Statistical Analysis System	SAS



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## ABSTRACT

The quality maintenance activities for the Petroleum Supply Division's (PSD's) triennial frames update are concentrated in three distinct tasks: (1) a statistical comparison and evaluation of PSD and non-PSD petroleum supply data, (2) identification of potential new respondents to PSD surveys, and (3) verification of the eligibility of the respondents to participate in PSD's data collection programs. The triennial frames update complements ongoing PSD efforts to ensure the highest possible quality of the petroleum supply information published by PSD. This report documents the three principal thrusts of the tasking. In addition to reporting the statistical evaluation of the PSD frames data, it describes the data processing procedures, both manual and automated, used in the triennial frames update. The major purpose of this document is to provide guidance for conducting this survey during future triennial updates.

Task 1 indicated that differences exist between PSD and non-PSD estimates for motor gasoline, distillate fuel, and residual fuel usage. Thus, an update of the PSD frames (EIA-810, EIA-811, EIA-812, EIA-813, EIA-816, EIA-817, and EIA-820) was recommended. Task 2 resulted in identification of 1117 potential new respondents for the PSD frames. Task 3 verified the eligibility of 103 new respondents. Of this number, 77 firms were identified from the mail survey responses, and 26 were identified from telephone contacts.



## 1. INTRODUCTION

### 1.1 BACKGROUND

The Petroleum Supply Division (PSD) in the Office of Oil and Gas at the Energy Information Administration (EIA) is responsible for the collection and publication of crude oil and petroleum product supply statistics. To accomplish its goals, PSD operates the Petroleum Supply Reporting System (PSRS), which includes one annual, eight monthly, and six weekly surveys. The listing of all facilities that are required to complete a survey is called the "frame" for that survey. The PSRS frames contain suppliers and transporters that report to EIA the amounts of petroleum products that they handle. PSD performs maintenance procedures to review and update the survey frames. These updates are performed monthly, annually, and triennially. This project concerns the triennial update activities, which provide a comprehensive evaluation and update of selected PSD survey frames.

The selected surveys for the PSD triennial update are as follows:

- EIA-810, "Monthly Refinery Report,"
- EIA-811, "Monthly Bulk Terminal Report,"
- EIA-812, "Monthly Product Pipeline Report,"
- EIA-813, "Monthly Crude Oil Report,"
- EIA-816, "Monthly Natural Gas Liquids Report," and
- EIA-817, "Monthly Tanker and Barge Movement Report."

In addition to updating the frames for these six surveys, Oak Ridge National Laboratory (ORNL) also contacted respondents on the EIA-820 frame ("Annual Refinery Report") that were coded as inactive refineries to verify their inactive status.

To update the selected survey frames (i.e., EIA-810, EIA-811, EIA-812, EIA-813, EIA-816, EIA-817, and EIA-820), ORNL used the EIA-825 survey form. The EIA-825 survey consists of Schedules A-E, which are appropriate for specific respondent categories. Table 1.1 lists the EIA survey frames that are being updated and provides a description of the respondent category for each frame. Table 1.1 also shows the appropriate EIA-825 survey schedule used in the updating process for each PSD survey frame. Schedule D was not needed.

### 1.2 SCOPE

The scope of this project extended to three distinct tasks. First, the EIA PSD frames were statistically compared with non-PSD petroleum supply data and evaluated. Second, after an exhaustive review of sources of petroleum supply data, a list of potential new respondents for each of the EIA PSD surveys noted above was prepared. Third, after editing and verification, these lists of potential respondents were reduced to final lists of eligible new respondents.

The major purpose of this report is to serve as a guidebook for the next triennial update process. Its contents include all activities from the initial statistical study through production of the final list of new respondents. It also includes recommendations for conducting the EIA-825 survey in the future.

Table 1.1. EIA survey identification

PSD survey	Respondent category	Respondent types	EIA-825 schedule <sup>a</sup>
EIA-810	Petroleum processors	Refiners, blenders	E
EIA-811	Storers	Bulk terminals, underground reservoirs	A
EIA-812	Petroleum pipelines	Petroleum pipelines	B
EIA-813	Crude oil producers, pipelines, storers	Crude oil producers, operators, pipelines, and storage facilities; underground reservoirs	B
EIA-816	Gas producers	Natural gas processing plants	E
EIA-817	Transporters	Tankers, barges	C
EIA-820	Inactive refineries	Refiners	E

<sup>a</sup>Specific EIA-825 schedule titles are as follows:

- A = Terminal Operator Identification Survey,
- B = Pipeline Operator Identification Survey,
- C = Tanker and Barge Operator Identification Survey, and
- E = Processing Facility Operator Identification Survey.

### 1.3 OVERVIEW

In the fall of 1987, ORNL conducted a statistical study of PSD and non-PSD petroleum supply data. The study compared results of the data collection efforts of the EIA PSD surveys that collect data on petroleum supplies with efforts of other agencies and groups collecting the same type of data. This study is summarized in Chap. 2 and is included in its entirety as Appendix B. A recommendation of the study was to continue with the EIA-825 survey update activities.

Both manual and automated data processing procedures were used in conducting the EIA-825 survey. This report contains a description of the step-by-step processing of the survey (Chap. 3). Computer programs were written to aid the processing of the survey. Sample programs are included in Appendix C. Copies of all menu and data entry screens used during this update are included in Appendix D.

Sources that listed potential respondents to the survey were identified. The sources used in arriving at an initial unreduced listing of possible respondents to the survey are described in Appendix F. This description of the contents of these sources and evaluation of their use in this survey should be helpful during the next update.

After the potential respondent lists were compiled (Appendix E) and approved by EIA, the EIA-825 survey was administered (either through the mail or by telephone) by ORNL to each potential new respondent to establish eligibility for the PSD survey. Copies of the EIA-825 survey schedules

and supplemental information that was sent to potential respondents are contained in Appendix A. Appendix G describes in greater detail the types of firms that should be reporting on each of the EIA PSD surveys.

On receipt of the completed forms, ORNL edited each form to verify its completeness and compliance with instructions. Appendix H contains itemized instructions for editing the returned survey forms.

The final listing of eligible new respondents is included in Appendix E. Diskettes containing the eligible new respondents list and a copy of the complete database were provided to the EIA PSD.

Aids for program maintenance of the software developed during this triennial survey are described (Chap. 4). Results of the survey are summarized in Chap. 5, and several recommendations are proposed for inclusion in the next survey update.

## REFERENCES

1. Petroleum Supply Division, Office of Oil and Gas, Energy Information Administration, U.S. Department of Energy. Frames Maintenance Manual. Washington, D.C., July 1987.
2. Applied Management Sciences, Inc. PSD Triennial Frames Update Final Report. ORNL/Sub/85-28676/4 (Revised), Oak Ridge National Laboratory, Oak Ridge, Tennessee, January 1986.
3. Jack Thorpe and P. E. Mihlmester, Applied Management Sciences, Inc. Data Continuity Report. ORNL/Sub/85-28676/7, Oak Ridge National Laboratory, Oak Ridge, Tennessee, January 1986.

## 2. COMPARISON OF PSD AND NON-PSD PETROLEUM SUPPLY DATA

One of the three primary tasks of this project (see Sect. 1.2) is to conduct an examination of the completeness of the PSD survey frames for reporting petroleum supplies.<sup>1</sup> A complete copy of the report of this assessment is included as Appendix B.

The PSD survey frames list suppliers and transporters that report to EIA the amounts of petroleum products that they handle. On the basis of these reports, EIA publishes annual, monthly, and weekly estimates of the supply of petroleum products to consumers in the United States. The completeness of the frames listings has a direct effect on the quality of the published estimates.

This statistical examination compared the national-level estimates provided by PSD of total product supplied with estimates provided from other agencies. Comparisons were made on three types of domestic fuels: motor gasoline, distillate fuel, and residual fuel. The following sources were used for comparison:

<u>Fuel</u>	<u>Sources for comparative estimates</u>
motor gasoline	EIA, Petroleum Marketing Division American Petroleum Institute Federal Highway Administration Internal Revenue Service Environmental Protection Agency
distillate fuel	EIA, Petroleum Marketing Division American Petroleum Institute
residual fuel	EIA, Petroleum Marketing Division American Petroleum Institute

Differences exist between the PSD estimates of total product supplied and estimates provided by the other sources. In some cases, these differences are unacceptable. The greatest differences occur between the PSD estimates and those of the EIA Petroleum Marketing Division. The PSD estimates tend to be lower than the comparative estimates for each of the three fuels studied.

In general, the PSD estimates were closest to those of the American Petroleum Institute. One possible explanation for this closeness is that both the American Petroleum Institute and the PSD collect data on the basis of fuel custody (i.e., stored fuel). Other data are collected on fuel sales, which may explain some of the differences. It is also possible that the differences exist because one or more of the frames (either those of PSD or of the other sources) has deteriorated and needs to be updated. Other explanations are also possible.

This study concluded that further investigation is needed to provide reasons for the unacceptable differences. In view of the differences observed in some of the estimates during 1985 and 1986, the EIA-825 survey update should be implemented as planned.

---

<sup>1</sup>The current study extends and updates comparable work performed for 1979 through 1984.



### 3. SURVEY OPERATIONS

The operations described in this chapter document the final two tasks of this project: (1) preparation of the potential respondents listing, which included an exhaustive review of possible sources for potential respondents and preparation of computer files and printouts; and (2) preparation of the eligible respondents listing, which included procedures for data collection, verification, quality control, and reporting for every firm named on the potential respondents listing.

#### 3.1 OVERVIEW

The survey update operations were both automated and manual. An overview of system procedures is shown in Fig. 3.1. The processes labeled "source listing," "frame listing," and "Master File" are explained in detail in Sect. 3.2. The processes labeled "mail list" and "mail procedures" are discussed in Sect. 3.3.1; similarly, the telephone processes are discussed in Sect. 3.3.2. A discussion of data quality control procedures for determining the completeness of a respondent's file and of data verification procedures is given in Sect. 3.4.

Computer programs, more fully described in Chap. 4, were developed to accomplish two functions: data input and data manipulation. All logs were maintained using a set of computer files instead of manual logs. Printed output was generated from the computer files. The manual Respondent Contact Record (RCR) was used to record every telephone contact with respondents, and a manila file folder was prepared for each potential respondent. The computer programs and files, the file folders, and all supporting records will be made available to the EIA PSD at the conclusion of the project.

#### 3.2 PREPARATION OF POTENTIAL RESPONDENTS LIST

##### 3.2.1 Overview of the Data-Handling Procedures

Various published industry sources were examined to compile a comprehensive listing of potential respondents. Names of companies that should possibly be reporting to EIA on one or more of the surveys being updated were extracted from these sources. Company names from these sources were compared to the respondent names in the EIA frame listings using computer merge routines. The merging allowed the identification of those companies that were common to both.

Basically, those companies that were in the source lists but not in EIA's frame list formed the potential respondent list. As much as possible, the comparison of source lists and frame lists was done on a microcomputer because the information could be tracked and mistakes could easily be recognized. However, because of the complexity of ownership patterns in the oil and natural gas industry, cross-referencing of potential respondents to parent companies was done manually.

The following sections contain the procedures used to derive the potential respondent lists. Figure 3.2 displays these data-handling procedures. This figure provides additional detail for the first three boxes of Fig. 3.1.

# OVERVIEW OF SYSTEM PROCEDURES

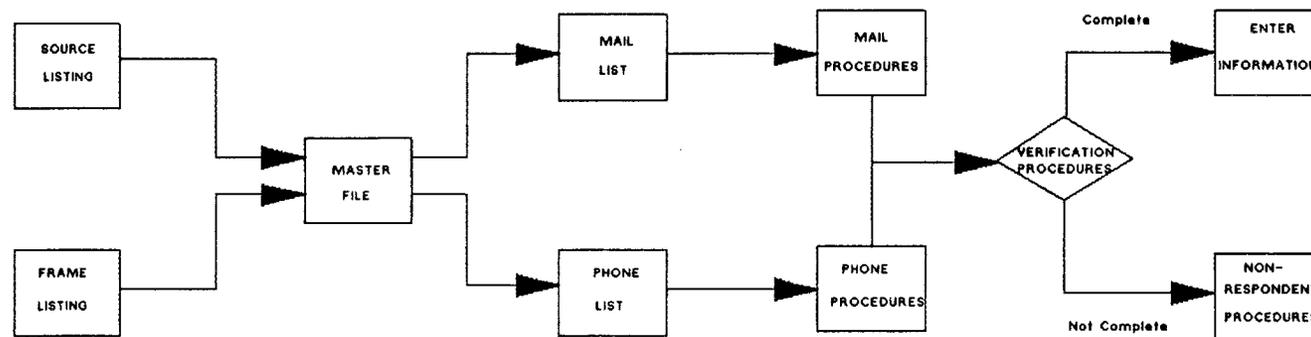


Fig. 3.1. An overview of system procedures

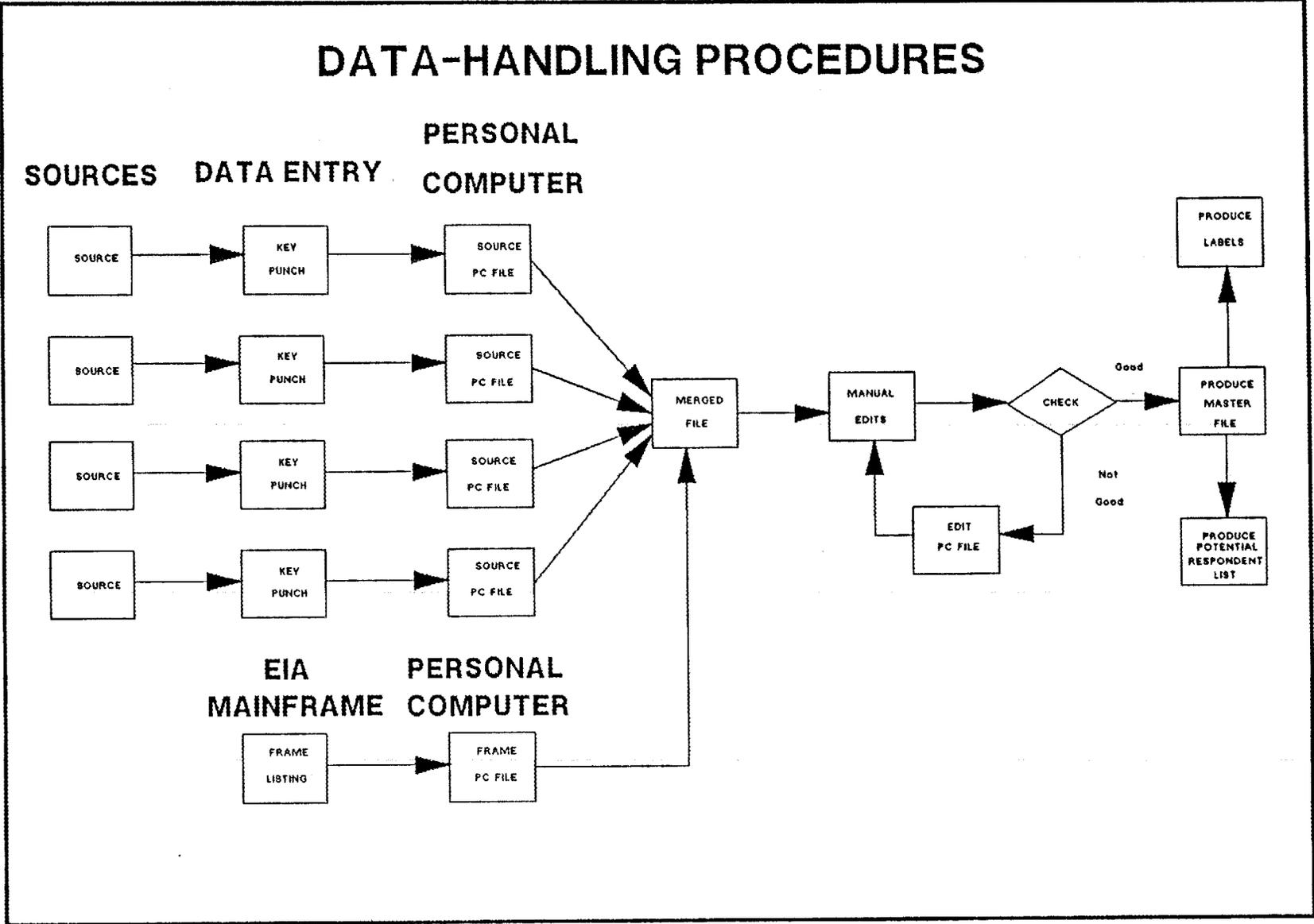


Fig. 3.2. Data-handling procedures for production of the potential respondent lists

### 3.2.2 Creating the Data Files

#### 3.2.2.1 Source Files

The initial list of sources used in the study was compiled from the previous triennial survey done by Applied Management Sciences, Inc. (AMS). Sources that AMS said were the most helpful in identifying potential respondents, as well as those that were suggested by AMS as good, but for one reason or another were not available for the last triennial survey, were ordered and examined. A Source Logbook was developed to keep track of all of the sources that were used. Figure 3.3 shows a blank page from this logbook. A different page was used for each source. Descriptions and evaluations of all sources examined for this survey are given in Appendix F. Not all sources examined were appropriate for every survey, and some sources that were examined were not used. The final list of sources used in this study are shown in Table 3.1.

Table 3.1. Sources used in frame update procedures

Source	Frame
Federal Energy Regulatory Commission Annual Report of Oil Pipeline Companies (FERC Form 6)	EIA-812
Gulf Coast Oil Directory	EIA-812, -813
Hydrocarbon Processing Magazine Construction Boxscore	EIA-816
ILTA Directory of Bulk Liquid Terminals and Storage Facilities	EIA-811
Inland River Guide	EIA-811
Midwest Oil Register - Directory of Oil Refineries	EIA-810, -816
Midwest Oil Register - Directory of Pipe Line Companies and Pipe Line Contractors	EIA-812, -813
NGL Supply Yearbook	EIA-816
Oil and Gas Journal Annual Gas Processing Report	EIA-816
Petroleum Marketers Handbook, 1987	EIA-811
Pipeline Magazine	EIA-812, -813
Pipeline Magazine - Annual Directory Issue	EIA-812, -813
Port Series Reports (U.S. Coast Guard)	EIA-811
Stalsby's Petroleum Terminal Encyclopedia	EIA-810, -811
Oil and Gas Journal, Worldwide Construction Report	EIA-810, -813, -816
Worldwide Refining and Gas Processing Directory	EIA-810

Using the criteria given in Appendix G, new potential respondents for the six surveys were identified from the sources listed in Table 3.1. Summarized, these criteria are as follows:

EIA-810 - All operators of petroleum refineries and blending plants located in the 50 states, District of Columbia, Puerto Rico, Virgin Islands, Hawaiian Foreign Trade Zone, and Guam.

EIA-811 - Bulk terminals located in all 50 states, District of Columbia, Puerto Rico, and the Virgin Islands.

SOURCE LOGBOOK

Source Name:

Year Used:

Section(s) Used:

Format:

Information Used from Source:

Information Needed from Source:

Automated/Not Automated:

Additional Comments:

Fig. 3.3. Sample page from the Source Logbook

EIA-812 - Companies involved in carrying petroleum products in the 50 states and the District of Columbia (including interstate, intrastate, and intercompany pipelines).

EIA-813 - Companies carrying or storing crude oil. This includes gathering and trunk pipeline companies, crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

EIA-816 - Companies that have facilities that are natural gas processing plants and/or fractionators.

EIA-817 - Companies renting towing and barges that are used by companies having custody of crude oil or petroleum products that are transported between Petroleum Allocation Districts (PADs).

Data entry personnel entered respondent information from the sources into ASCII files. If available from the source, the information that was entered included the site name and address, corporate name and address, contact person and telephone number, and the type of process conducted at the site. Table 3.2 lists the names of the data elements as used in the Statistical Analysis System (SAS)<sup>2</sup> and their descriptions. Some of the sources contained all of this information; others did not. The data were transferred to floppy disks for use on the microcomputer.

Table 3.2. Source data elements

SAS data element name	Description
srclst	Source code, for record keeping
srcnum	Unique identifier for the listing
name1	Name (this is a site name, if it is given; otherwise the company name)
name2	Name (this is the company name, if the first name is a site)
address1	Address of the site
address2	Address of the company
city	City of the site
state	State of the site
zip	Postal ZIP code of the site
phone	Phone number of a contact
contact	Name of contact person
type	Type of process

The ASCII files were read into SAS data files on the microcomputer. Appendix C.1 contains an example of the code used to convert the ASCII files to SAS data files. This program also converted some names into the common abbreviation used in EIA's frame listing. Use of the abbreviations was necessary for consistency in comparing source files and frame files.

<sup>2</sup>SAS Institute Inc., Box 8000, Cary, NC, 27511-8000.

### 3.2.2.2 Frame Files

Frame files are available on EIA's mainframe computer. These files were read by the mainframe version of SAS, and the relevant data were converted to Extended Binary-Coded Demical Interchange Code (EBCDIC) files using SAS. These EBCDIC files were downloaded to the microcomputer using CROSSTALK, a communication package.<sup>3</sup> Once the files were on the microcomputer, they were read into SAS formats. If the SAS Micro-Tool-Host link had been available at the time, they would have been read directly. A sample program for converting these files to SAS is given in Appendix C.2.

### 3.2.2.3 First Merge of Frame Files and Source Files

The data compiled from the various sources for each survey were merged with the EIA frames data. The term "merging" in SAS has a very specific meaning. Merging means to join records of separate data files together in a common data file if specified data elements are identical on the separate files. The records that match contain all the data elements from the separate files. In the case of a non-match, the record is included, but data elements on the other files are left blank, if character, or are missing, if numeric.

SAS merge procedures were used instead of the EIA merge program because of the ability of SAS to merge several files together simultaneously. The SAS merge procedures keep track of the file from which the information was obtained. ORNL obtained EIA's approval prior to using these procedures.

The appropriate source files were merged to the frame file in one program and at one time. The merge was done by name, address, city, and state. This means that not only did the names have to match for the records to join, but the address, city, and state also had to be identical for a join to occur. An example of the merge program is given in Appendix C.3.

A first pass of the merge procedures revealed that the coded information had to be edited to adjust for typing errors, non-standard abbreviations, or incomplete information. The original sources were re-checked during the editing procedures in attempts to obtain better matching.

A variable was created during the merging that allowed ORNL personnel to identify the source of the record. If the source listing was also on the frame, the listing was flagged on the data file. The frame listings were also marked. These records were to be removed at a later time, but were retained in the file to help in the identification of subsidiaries or companies that changed names.

The merged file was called the "First Cut Potential File." An ASCII file of the First Cut Potential File was produced along with a hard copy. The ASCII file was used for editing with the word processor. The information on the hard copy was sorted by name so that similarities between names could be noted and checked manually for possible duplication. The listing was also sorted by company address. This listing provided useful insights into tracking the company relationships.

Backup records of all merge procedures were kept in notebooks that will be available to EIA on completion of the project. The files are also available on floppy disk along with the programs that created the merge files.

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<sup>3</sup>Microstuf, Inc., 1000 Holcomb Woods Parkway, Suite 440, Roswell, GA 30076.

#### 3.2.2.4 Manual Reduction of Merged Frame and Source Lists.

After the computerized merge procedures were completed, the hard copy lists were checked manually. Additional duplicates were noted in this manual edit that were not detected in the computer merge because of labeling inconsistencies with corporate and subsidiary names.

After the files were edited on the hard copy, the corrections were made on the ASCII file. The changes from the hard copy were made using a word processor on the microcomputer. Any general microcomputer word processor could have been used. Norton Editor<sup>4</sup> was used for most of the editing because it is easy to use, needs few key strokes per operation, and can be accessed easily from any directory. WordPerfect<sup>5</sup> was also used in some cases, especially when the file was too long to read into the Norton Editor or when specific character changes were needed. Several iterations of the computer-to-manual reduction process were made. A hard copy of the edited file was made for repeated manual checks. The hard copies of the reduced listings were kept in notebooks that will be made available to EIA at the conclusion of the project.

#### 3.2.2.5 Draft Potential Respondents List

For each of the six surveys, ORNL produced a list of potential respondents. Each potential respondent was assigned an alphanumeric source identification code to initiate a computerized audit trail of potential respondents to PSRS surveys. A copy of the list of potential respondents for each survey was sent to the EIA PSD for review and approval. After this check, the list was considered complete for this phase of the project.

#### 3.2.3 Identification of Telephone Survey Participants

To minimize respondent burden, EIA PSD recommended that ORNL administer survey schedules by telephone to potential respondents who were already reporting to one or more of the six subject PSRS surveys. Thus, potential respondents who were identified as reporting on at least one other PSRS survey were read out of the Master File into a separate file. This file served as the basis for the respondent list for telephone survey administration.

Respondents in four other categories were also contacted by telephone rather than mail:

- 1 Refineries on the EIA-820 frame that were listed as inactive and that became inactive between January 1, 1984, and December 31, 1986.
- 2 Bulk terminals owned by firms reporting on the EIA-811 frame that were located in states for which the company was not currently reporting.
- 3 Refineries that were listed on the Master File and that were identified as facilities belonging to companies responding to the EIA-810 survey.
- 4 Natural gas liquids processing plants that were listed on the Master File as potential respondents and that were identified as facilities belonging to companies currently responding to the EIA-816.

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<sup>4</sup>Peter Norton, 2210 Wilshire Blvd., No. 186, Santa Monica, CA 90403.

<sup>5</sup>WordPerfect Corporation, 288 West Center Street, Orem, UT 84057.

Respondents in the first category (inactive refineries) were identified by ORNL staff through a review of the EIA-820 survey frame. A list of all respondents to the EIA-820 frame coded as inactive was prepared. This list was treated as a source for the EIA-825 frame and was merged into the telephone survey file. Each respondent on the list was assigned an identification code associating it with this source list for tracking purposes. Schedule E was administered to respondents in this category.

Respondents in the second category were compiled with the assistance of the EIA-811 Survey Manager. A list of all current EIA-811 respondents was compiled, along with a list of states for which each company reported. This list was then matched with the Master File, and a listing of facilities located in unreported states was obtained. In this effort it was assumed that if a respondent reported in a particular state, then the respondent was reporting for all of its facilities located within the state. Schedule A was administered by telephone to respondents in this category.

Respondents in the third category were identified by company names and addresses in the Master File with the current EIA-810 survey frame and noting facilities belonging to refinery companies that were currently reporting. Each site was contacted by telephone and administered schedule E. The name and address of the site was entered on the Master File.

Respondents in the fourth category were identified by comparing names and addresses on the EIA-825 Master File with the current EIA-816 survey frame and noting facilities belonging to natural gas processing companies that were currently reporting. Codes were added to the EIA-825 Master File to show the association between these facilities and the parent company that may report for them. The parent company was contacted by telephone and administered schedule E to determine the eligibility of the facility identified as a potential respondent. The name and address of these parent companies and facilities was read into the file created for the respondent list for telephone contact. The entire respondent list for telephone contact was printed in alphabetical order.

#### 3.2.4 Producing the Master File

After completing the merging and reducing procedures, ORNL divided the records into two data files, referred to collectively as the Master File. One data file contained names of potential respondents to whom EIA-825 survey forms were mailed. The other contained names of potential respondents who were phoned. The criteria for determining if a company belonged on the telephone file are discussed in Sect. 3.2.3. Potential respondents on the Master File that were not listed on the telephone survey served as the respondent list for the survey form mail-out.

The two files were formed by manually marking a copy of the potential respondent list to indicate whether the respondent was to receive a mailed copy of the EIA-825 survey form or a telephone call. An additional field for this indicator was added to the Master File, and the two files were created. Throughout the rest of the procedures, the two files were kept separate (though they will be referred to together as the Master File in this document).

The two data files were used to print the mailing list and telephone contact list, mailing labels, and other identification labels. No manual logs were necessary because all information previously kept in manual logs was logged daily to the computerized Master File.

### 3.2.5 Producing Labels

A program was written in dBASE III Plus<sup>6</sup> that produced mailing labels. One mailing label was produced for each potential respondent who was to receive a mailed EIA-825 form. In addition, a label was produced for each form mailed to the potential respondent. These additional labels were placed on the back of each form so that the forms could easily be identified. The other label was placed on the manila file folder for that company. This was done to cross reference the returned EIA-825 form.

Labels were also generated for those companies that were to receive phone calls. One label was placed on the form being used by the team member making the telephone call, and another label was placed on the respective folder.

Folders were physical files that were alphabetized separately for mail and telephone surveys. All information received from and about the company was kept in the appropriate folder. Thus, the folders could conceivably contain copies of survey forms mailed to or discussed on the phone with the potential respondent, correspondence, RCRs, and nonrespondent/noncompliance forms. These folders were provided to EIA at the conclusion of the survey activities.

## 3.3 SURVEY FORM ADMINISTRATION

After ORNL developed a list of potential respondents for each of the six surveys, the EIA PSD approved the lists with some changes. The ORNL-developed, automated lists included the company name and address, corporate name (if different) and address, and the source of the company name and address. Additional information was entered as it became known. The list of potential respondents became the file of records from which the final list of respondents for each survey was compiled. Identification numbers were assigned to each potential respondent on the file as requested by EIA, but the exact name and address was the mechanism used to track records. Potential respondents were assigned to either the mail survey or the telephone survey (Sect. 3.2.3). An overview of the processing procedures for the mail and telephone surveys is shown in Fig. 3.4.

### 3.3.1 Mail Survey

The administration of the mail survey included both manual and automated procedures, described in the following sections. The mail sequence is shown in Fig. 3.5.

#### 3.3.1.1 Mailing Forms

Following Office of Management and Budget clearance, the EIA-825 standard instructions and schedules A, B, C, and E were mailed to potential respondents. The survey schedules apply to the types of facilities as shown in Table 1.1.

Mailing labels, generated from the Master File, were attached to each survey schedule, to the mailing envelope, and to the file folder to facilitate processing.

Below the name and address, the mailing labels included a code. This six-character code indicated which of the six surveys were mailed to the respondent. A circle indicated that the form was not sent, and an "m" indicated that the form had been sent. In the code, the forms were represented in

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<sup>6</sup>Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319.

# OVERVIEW OF PROCESSING PROCEDURES

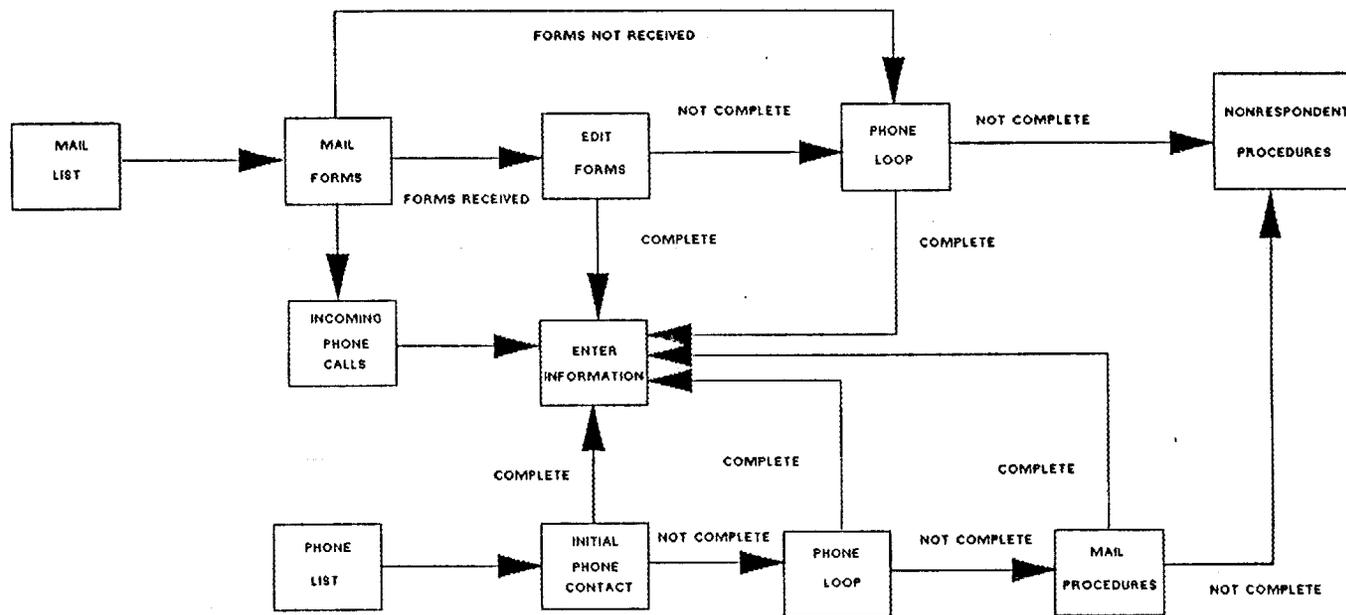


Fig. 3.4. An overview of processing procedures that follow production of the potential respondent lists

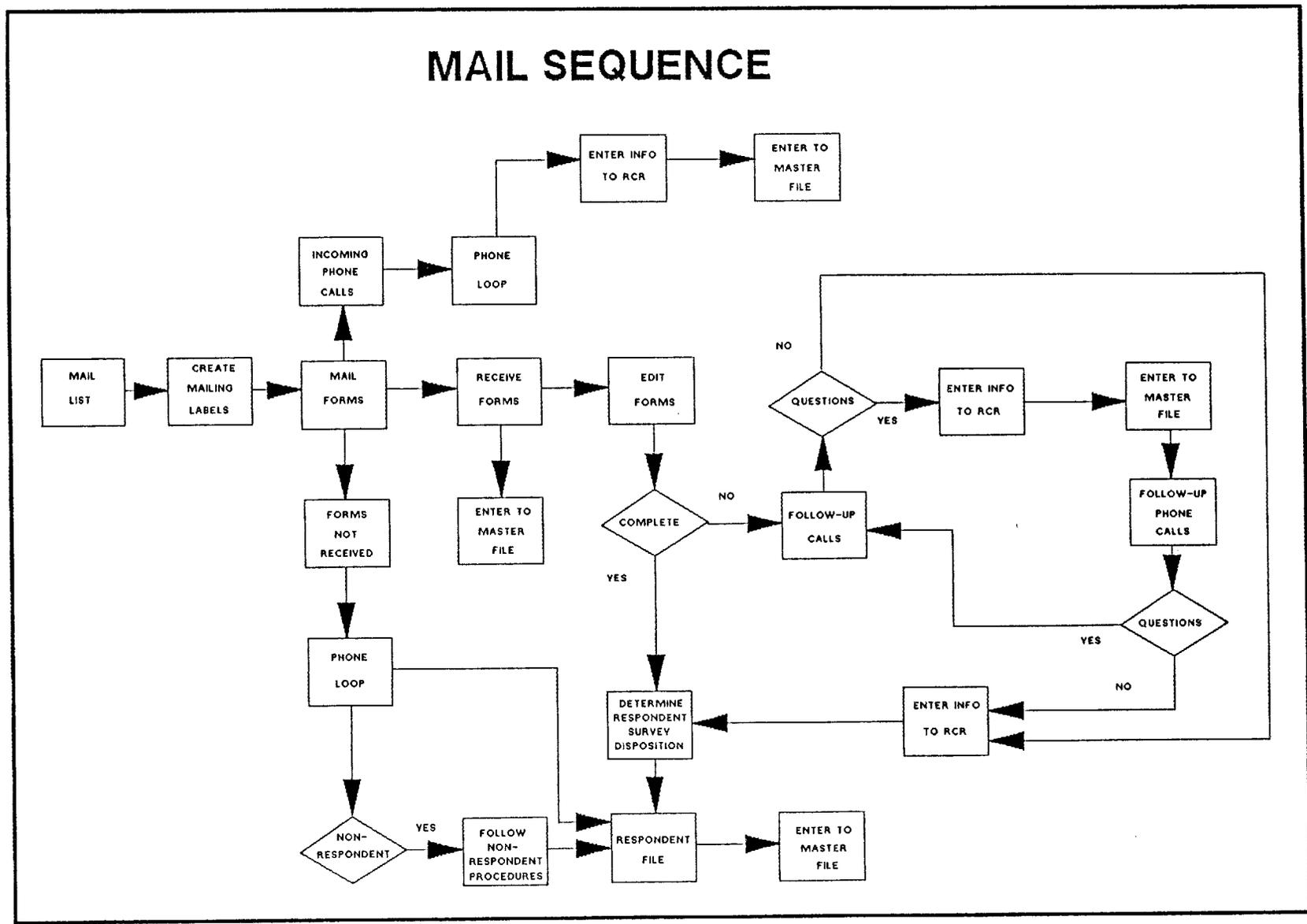


Fig. 3.5. Mail survey sequence of activities

this order: 810, 811, 812, 813, 816, and 817. In reality 812 and 813 were mailed the same form, that is, the B schedule. The D schedule was not used.

The forms were mailed in large envelopes supplied by the Department of Energy. Preaddressed return envelopes were included. Materials mailed to potential respondents included a cover letter from the Department of Energy, instructions, definitions, and the appropriate schedule for the potential respondent (Appendixes A.1-A.4).

#### 3.3.1.2 Question Resolution

Because a large percentage of respondents to the EIA-825 survey are expected to be first-time respondents to EIA surveys, a substantial number of questions concerning completion of the survey schedules were anticipated. To expedite survey form submission and processing and to improve the quality of data initially reported, a point of contact for responding to and resolving respondents' questions was designated. Ms. Deborah Flanagan of ORNL was identified in the cover letter to the EIA-825 survey form as the point of contact.

Queries were answered by ORNL, and both the request and the response were documented on the RCR. Data acquired during these conversations were entered to the Master File if appropriate. Corrections for names and addresses or corporate affiliations were documented on an RCR. These corrections were added to the Master File, but the original data were not overwritten. Because of the use of the folder labels as a standard identification, the "New Name" became a new entry in the data base (Sect. 4.4).

#### 3.3.1.3 Forms Receipt

Forms received were logged daily to the Master File. The original form and a copy were filed in the respondent file. The copy of the survey form was used for the editing process (Sect. 3.4.2). If the forms were incomplete, they were routed for additional verification (Sect. 3.4.3). If the forms were complete, they were assigned a disposition (Sect. 3.4.4). At the end of June, companies with unresolved issues were classified as nonrespondents (Sect. 3.4.5).

All original forms, edited forms, correspondence, and RCRs were filed for each individual company in the manual file folder for that company. All status information was logged daily into the computerized Master File.

#### 3.3.1.4 Data Entry

The purpose of the data entry screen (Fig. 3.6) was to enter information needed to complete the mail survey file for a potential respondent. After the survey form had been manually edited for disposition, the information was entered into the Master File using this screen. To see a complete sequence of menu and data entry screens, see Appendix D.

To access the data entry screen, the survey staff person requested the category "Mailed Forms" on the opening menu screen. From a list of all mail survey participants, the staff member then selected the respondent for whom data were to be entered. On the "Select Company" screen, the staff member could move among the records using the PAGE UP and PAGE DOWN keys, pressing ENTER to select a company. Alternatively, if the exact name of the company were known, it could be typed and selected. When the data entry screen appeared, identifying data for the selected respondent were displayed. All pertinent new information was typed in, and the individuals responsible for the data entry added their initials to the record. To exit the screen, the survey staff

person pressed the PAGE DOWN key and was required to respond to the question, "Do you want to save this entry (Y/N)?"

In Fig. 3.6, the shaded areas are data entry fields. The arrow keys move the cursor from one field to the next on this screen. Data could be entered at any time; that is, no fields were compulsory.

### 3.3.2 Telephone Survey

The administration of the telephone survey included both manual and automated procedures, described in the following sections. The telephone sequence is shown in Fig. 3.7.

#### 3.3.2.1 Creating Respondent Files and Labels

The set of potential respondents to be contacted by telephone was determined as described in Sect. 3.2.3, and the telephone survey data file was created as described in Sect. 3.2.4. A folder was prepared for each respondent on the list for telephone-administered surveys. As had been done for the mail survey, file folder labels were generated with a code at the bottom of the label to identify the survey(s) sent to the respondent.

It was hoped that one phone call could gather the information for all surveys for a particular respondent. Many potential respondents refused to answer the survey over the phone, however, and requested that survey forms be sent to them. In these cases, mailing labels were created in the same manner as for the mail survey.

The folder contained copies of the survey schedules administered to the respondent, all RCRs, and any correspondence exchanged. If the respondent could not be reached by the cut-off date for telephone contact, the company was classified as a nonrespondent, and documentation of this status was also placed in the file folder and entered into the Master File.

#### 3.3.2.2 Initial Phone Contact

Each respondent was contacted by telephone in order to ask the necessary questions, and all information was written on an RCR (Fig. 3.8). This form was used to document all types of client telephone contact (except nonresponse follow-up) and included question resolution and data verification. The RCR was then filed in the respondent file. In addition, the information was entered into the Master File.

If there were additional questions after the initial phone contact, the questions were first written onto the RCR and then the call was logged to the Master File. Follow-up phone calls were made to answer questions, and the dates and appropriate remarks were entered into the Master File.

#### 3.3.2.3 Determine Survey Disposition

The information from the telephone call was transferred from the RCR onto the appropriate schedule of the EIA-825 survey form for each telephone call made. This form was edited (Sect. 3.4.2). If incomplete, the folder was routed for additional verification (Sect. 3.4.3). If complete, the respondent survey disposition was determined (Sect. 3.4.4). At the end of June, companies with unresolved issues were classified as nonrespondents (Sect. 3.4.5).

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

[REDACTED]

Address:

MARYSVILLE

MI

EIA ID:

Frames:

F816

Sources: HPI

Date Received: 03/18/88 Date Edited: 04/13/88 Editor: EMC

Incoming Calls Process

First Call: / /88

Last Call: / /88

Complete?:

Verification Process

Noncompliance Process

Verify Needed (Y/N)?: N

Person Contacted:

Date Calls Completed: / /88

Phone Number:

Date of First Contact: / /88

Date of First Contact: / /88

Date of Last Contact: / /88

Date of Last Contact: / /88

Person Contacted:

Phone Survey Completed:

Verify Completed?:

Noncompliance Needed:

Date Noncompliance Mailed: / /88

Survey Disposition: N816

Remarks: W: 2558 DUSHA HWY, MARYSVILLE, MI 48848

Fig. 3.6. Mail survey data entry screen

# TELEPHONE SEQUENCE

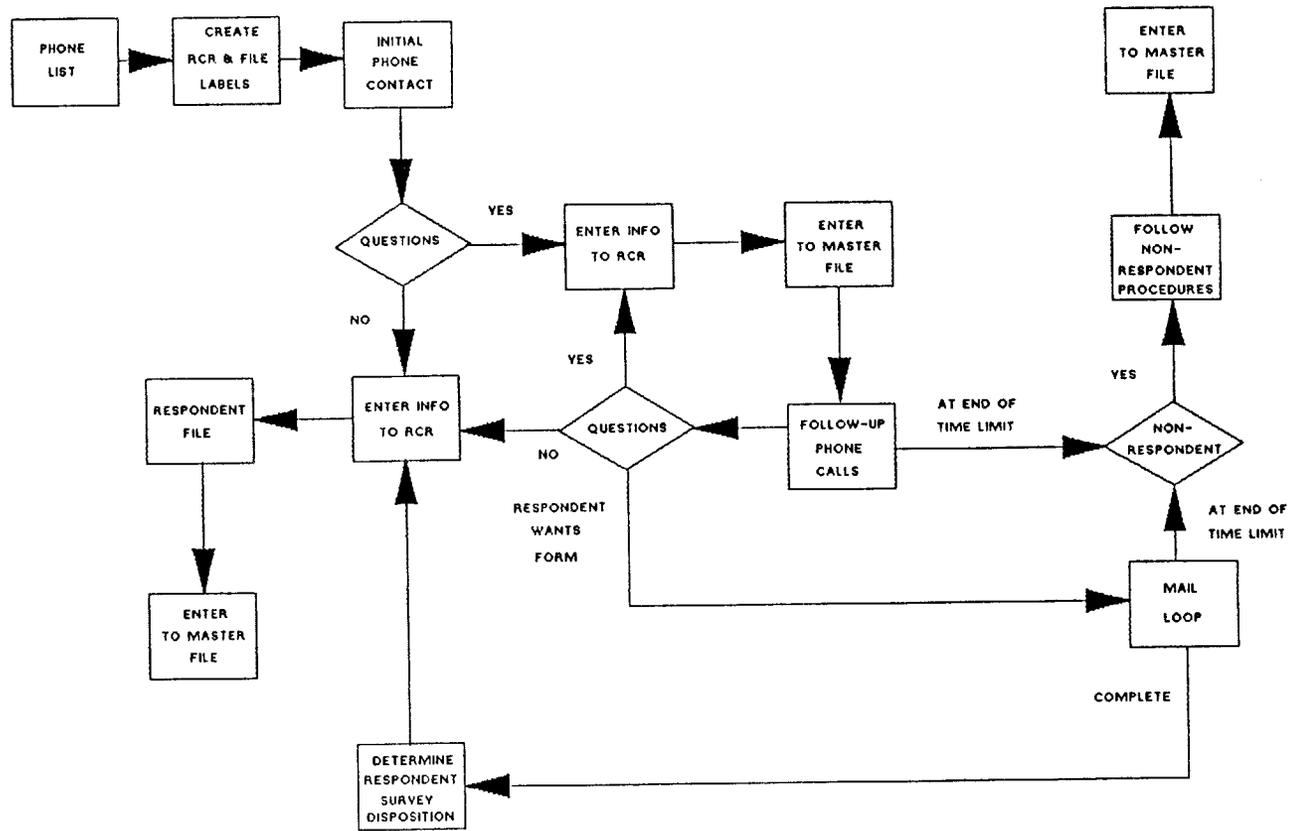


Fig. 3.7. Telephone survey sequence of activities



### 3.3.2.4 Data Entry Screens

The computer screen for logging telephone surveys information is shown in Fig. 3.9. After contact had been established and the RCR had been completed, the information was entered into the computer using this screen. (To see a complete sequence of menu and data entry screens, see Appendix D.)

To access the data entry screen, the survey staff person requested the category "Telephone Survey" on the opening menu screen. The respondent for whom data were to be entered was selected from a list of all telephone survey participants. On the "Select Company" screen, the staff person could move among the records using the PAGE UP and PAGE DOWN keys, pressing ENTER to select a company. Alternatively, if the exact name of the company were known, it could be typed and selected. When the data entry screen appeared, it displayed identifying data for the selected respondent. All new information was typed in, and the individual responsible for the data entry added his/her initials to the record.

In Fig. 3.9, the shaded areas are data entry fields. The arrow keys moved the cursor from one field to another. The data could be entered at any time; that is, no fields were compulsory. The date of contact was noted along with the contact person. If all information regarding the particular survey was received, the "Completed (Y/N)" field was marked with a "Y"; otherwise, it was marked with an "N." The survey staff member's initials were entered, as were any remarks. The "Remarks" field could contain name and/or ownership changes, address changes, or the comment "See RCR" if the remark were too long to be entered into the Remarks field. If the survey were complete, then the "Survey Disposition" field would be completed with the disposition. To exit the screen, the staff member pressed the PAGE DOWN key and was required to respond to the questions, "Do you want to enter another calls form (Y/N)?" and "Do you want to save this entry (Y/N)?"

In many cases respondents did not want to answer survey information over the telephone. These potential respondents were included in a follow-up survey computer file, which was a subset of the telephone survey file. Each respondent was then mailed the appropriate form or forms, definitions, etc. The same procedures as described in Sect. 3.3.1 were followed for gathering information.

Although two additional screens were developed for entering follow-up information received for the telephone survey, these screens were not used. Instead, the telephone survey data entry screen discussed above was used for entering all telephone survey data. (These additional screens, though not used during this survey update, are included in the complete sequence of screens shown in Appendix D.)

## 3.4 DATA QUALITY CONTROL

### 3.4.1 Introduction

A major objective of the EIA-825 survey was to identify eligible new respondents to the PSRS monthly surveys being reviewed in the PSD triennial frames update. Accurate determination of potential respondents' eligibility depended on the completeness and consistency of the information they provided on the EIA-825 survey schedules. This section describes the plan for data quality control that ensured accurate determination of respondent eligibility. Data quality control was exercised through systematic classification and verification of survey responses in three major survey processing steps: manual edit, data verification, and respondent coding and tracking.

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

Address: PO BOX 102  
DALLAS TX 75244  
EIA ID:  
Frames: F812  
Sources: Form 6  
Person Contacted: TOM LAMPE  
Date of First Contact: 4/25/88  
Date of Last Contact: 4/25/88  
Completed? (Y/N): Y  
Caller: BW  
Non-Respondent? (Y/N):  
Compliance Form Written? (Y/N):  
Move to Follow-up Survey?(Y/N):  
Remarks: SEE FORM ATTACHED, BASIN DRILLING COMPANY.  
Survey Disposition: F812

Fig. 3.9. Telephone survey data entry screen

### 3.4.2 Manual Edit

The EIA-825 survey forms received as direct submissions or in response to follow-up contact by ORNL were reviewed and classified in a manual edit procedure. The editor reviewed respondent information contained in the file folders, one of which was associated with each company.

Survey forms were edited to establish the completeness and consistency of data provided. Editing focused on four aspects of each submission.

- o Identifying Information. The name and address on the survey form was checked against the mailing label produced from the Master File. Corrections to the addresses on the mailing label were noted in the manual files. Forms with corrections to identifying information were referred for data verification.
- o Completeness of Responses. Each line of the survey schedule was reviewed for completeness of response. Missing information was noted and referred for data verification.
- o Internal Consistency of Responses. Many of the questions on the EIA-825 survey schedules are interdependent. For example, on Schedule A, firms who respond "no" to question 1a should not record an answer to questions 1b, 2a, or 2b. On Schedule B, firms that answer "no" to question 4a should not respond to questions 4b and 4c. All survey forms were reviewed for inconsistencies of this type. If necessary, forms were referred for data verification.
- o Location of Responses. Instructions on the EIA-825 survey schedules specify that the respondent should provide written information that fully describes such items as the firm's operating capacity, location, or corporate affiliation. The instructions specify not only the category of information but its location and order on the schedule. For example, on schedule B, question 2, respondents are instructed to indicate in the space provided which facilities are reported for, by type and location. The answer should be written in the blank lines provided on the survey schedule in this order: facility type, city, state. To prevent misinterpretation of responses, those forms with information improperly entered or with ambiguous responses were referred for data verification.

Specific instructions for editing each question on each survey schedule were prepared and used as a standard for conducting the manual edit. These instructions are included as Appendix H.

Survey forms that conformed to the instructions were considered "complete." Complete forms were classified according to their eligibility, and a disposition code indicating this classification was entered into the Master File (Sect. 3.4.4).

Survey forms that did not conform to the instructions (Appendix H) were marked. All marks indicating that corrections were required were made in red ink. Data verification procedures are described in Sect. 3.4.3.

### 3.4.3 Data Verification

Data verification was required for survey responses falling into the following categories.

- o Firms not answering questions essential to the determination of a respondent's eligibility for the subject surveys.

- o Firms indicating that all or some facilities were self-reported if these facilities were not found in the subject survey's name and address file.
- o Firms indicating that all operated facilities were reported by another firm but not providing name and address of that firm.
- o Jointly owned firms uncertain if any of the co-owners were reporting or which, if any, would file future reports.
- o Parent companies indicating that both themselves and their subsidiaries report.
- o Firms related to a current respondent on the subject surveys but indicating that they were not covered by the reports.
- o Responses, usually in letter or note form, failing to establish whether the respondent operated an eligible facility.
- o Conflicting responses filed by the same firm or related firms.
- o Firms reporting quantitative data that appeared to be in error or that were unreasonable -- e.g., a firm reporting on schedule A (Terminal Operator Identification Survey) that the total stocks held were more than the total storage capacity.
- o Responses to questions that should not be responded to.
- o Responses that provided more than one response where only one response was desired.

Data verification generally required a telephone call to the respondent contact person listed on the returned survey form. All information was entered on an RCR, and the date of the telephone call was logged to the Master File. Until the final cut-off in late June, as many phone calls as necessary were made to follow-up in order to provide a disposition for each survey form.

If telephone contact could not be accomplished, that situation was noted on an RCR. A letter was mailed out, requesting resolution of conflicts and specifying a time period within which the answer was required.

When information was received, the survey form was again reviewed. If the form was found to be complete and valid, the form was classified accordingly. If the manual edit revealed that not all problems were resolved, the unresolved items were noted and the folder was held awaiting further resolution. This iterative process continued until all of the conflicts were resolved or until a stage was reached beyond which further resolution was not possible.

In late June, attempts to clarify outstanding problems ceased. At that time, all firms without a final disposition were considered nonrespondents (Sect. 3.4.5).

#### 3.4.4 Coding and Tracking

To facilitate automated tracking of the final disposition of all survey forms submitted, a coding system was used to designate eligibility classification. The respondent disposition was determined, if possible, at the time of editing. Survey forms were dispositioned according to the following categories:

<u>Category</u>	<u>Code</u>
Inactive	I
Not eligible to respond	N
Eligible to respond	Y
Unable to locate	U
Already responding	R

These codes were written in red ink in a small box, outlined in red ink, in the upper right-hand corner of the first page of each survey form, at the completion of the manual edit or verification procedures. The code "I" implies that, although the company (or site) had been listed as a potential respondent, the company was actually inactive. The code "N" identified a company that was not eligible to respond to the particular survey being investigated. The code "Y" indicated that the company was verified as a new respondent to the survey in question. The code "U" implied that, although the company or site had been cited in one of the sources as belonging on the survey, the company or an appropriate contact could not be located through any other source, including state energy agencies. The code "R" indicated that the company was indeed eligible to report but was already reporting on the survey in question (perhaps through a parent or subsidiary).

Information on nonrespondent status was collected according to the procedures discussed in Sect. 3.4.5. Coding for nonrespondent was entered in an additional column of the Master File. This code was added last of all, because attempts were made until June 30, 1988, to classify every potential respondent. Forms for which complete information was obtained during nonrespondent follow-up were classified in terms of eligibility.

When the forms were considered complete, ORNL personnel entered the disposition for each survey form for each respondent into the Master File. This action provides feedback for subsequent updates of the six subject PSRS surveys and allows tracking of the final disposition of each potential respondent. This coding completed the computerized audit trail for potential respondents to the six subject PSRS surveys.

In June, a final spot check to compare the manual file folders against the automated data files uncovered some errors, which were subsequently corrected. On July 1, 1988, the Master File was considered complete, and a final list of eligible new respondents was printed and delivered to the EIA PSD (Appendix E). Diskettes of these files were also provided.

The primary mechanism for tracking respondent status in the survey processing system is automated and consists of the Master File. Entries into the Master File consisted of a mix of symbols, dates, and verbal descriptors.

Entries were used to document potential respondent eligibility to report on one of the six subject surveys or to indicate the status of a survey. Information concerning respondent name and address changes were coded into the Master Files in a special area. The "Old Name" was maintained for an audit trail (Chap. 4).

#### 3.4.5 Nonresponse and Nonrespondents

After one month, respondents who had not returned the mail survey forms were called to try to obtain the information over the phone. Some companies had never received or had misplaced the survey forms. Many companies did not want to provide information over the telephone until they had received the information package and could see that this was a valid, legal survey. It was important to have a contact person to send these forms to. Many forms had to be re-sent because

no one at the receiving company had been delegated as responsible. Companies who wanted forms sent to them again were sent forms as long as there was enough time. Otherwise, the information was collected by telephone.

Telephone contact was the primary technique used to elicit completion of survey forms or to verify reporting status of respondents whose submissions were not logged into the Master File by June 1, 1988. On June 1, a list of all respondents whose submissions had not been received, or who had not been reached by telephone, were printed from the Master File. A final attempt was made to contact these firms by phone.

All responses by company representatives were documented. If a respondent's status could be determined over the phone, then this information was recorded on the standard RCR. Attempts to contact nonrespondents by telephone were made until all nonrespondents had been reached and their status determined, or until June 30, 1988. On that date all companies from whom information had not been received by mail or telephone were coded as nonrespondents. A sample of the Noncompliance Contact Record (NCR) is shown in Fig. 3.10. The survey staff person who conducted the nonresponse follow-up completed the NCR. On the NCR, the staff person documented all details of the conversation with a company representative who explicitly refused to answer questions or to return the survey form. The NCR was filed with other records in the respondent's manila folder. In the Master File, the respondent's record was coded as nonrespondent.

### 3.5 PREPARATION OF ELIGIBLE RESPONDENTS LIST

Because data on the participants in this survey were contained in a computerized file, reviews of the completeness of the data were frequent. By the end of June, the editing and verification processes had supplied most firms with a disposition. On July 1, 1988, the completed list of eligible new respondents to the EIA PSD surveys was delivered to the PSD for review by individual survey managers and the PSD frames coordinator. EIA specified a file format for the eligible new respondents list. This format is shown in Table 3.3.

An explanation of the entries in Table 3.3 is not necessary because the explanation is given under the heading "Comments." It should be noted that Columns 9-10 were not used by ORNL but were left blank for use by EIA. Also, an extra data field, not requested by EIA, was added by ORNL. This is the entry for Contact Person, information which ORNL found to be very valuable.

ENERGY INFORMATION ADMINISTRATION  
OFFICE OF OIL AND GAS  
NONCOMPLIANCE CONTACT RECORD (NCR)

EIA PROGRAM \_\_\_\_\_ EIA CONTROL NUMBER \_\_\_\_\_

FIRM NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

CONTACT PERSON/TITLE \_\_\_\_\_ TELEPHONE NUMBER \_\_\_\_\_

DATE OF CONTACT \_\_\_\_\_

CONTACT RECORD

-----

On \_\_\_\_\_  
(date)

\_\_\_\_\_ spoke with  
(DOE representative)

\_\_\_\_\_ representing  
(company representative)

\_\_\_\_\_ about the  
(firm)

company's \_\_\_\_\_  
(form designation)

reports for \_\_\_\_\_  
(periods in question)

Items discussed included the responsibility to  
file \_\_\_\_\_ by \_\_\_\_\_  
(weekly, monthly, quarterly, etc.) (due date)

The reports in question were promised by \_\_\_\_\_  
(date)

Other items addressed included:

CONTACTOR'S SIGNATURE \_\_\_\_\_

\_\_\_\_\_

Fig. 3.10. Sample Noncompliance Contact Record

Table 3.3. File format for EIA eligible new respondents list

Name	Columns	A/N <sup>a</sup>	Comments
Source List	1-2	A	Two Letter Code Corresponding to Main Source List
Source Number	3-8	N	Six-Digit Number Assigned Sequentially by List
Indicator Codes	9-10	A	Indicator Codes (%-*) Internal Use Only
Name 1	11-40	A	Name of Company
Name 2	41-70	A	Corporate or Secondary Name
Address 1	71-85	A	Mailing Address (If Different from Street Address)
Address 2	86-115	A	Street Address
City	116-132	A	City or County Name
State	133-134	A	Two-Letter State Abbreviation
Zip Code	135-139	N	Five-Digit Zip Code
Phone No.	140-149	N	Ten-Digit Phone Number
Additional	150-155	A	Two-Letter Codes Corresponding to the Sources Respondent Appeared on in Addition to Columns 1-2
EIA Survey	156-161	N	Last Digit of EIA Survey Currently Reporting on (EIA-810 = 0, EIA-811 = 1, etc.)
Eligibility Code	163	A	Verified Eligibility for Survey (Y - yes, N No, U - Unknown, etc.)
Contact Person	164-200	A	Name of Person Contacted or Person Who Sent in the Form

<sup>a</sup>A = character; N = numeric.



## 4. PROGRAM MAINTENANCE

### 4.1 GENERAL INFORMATION

#### 4.1.1 Overview

Because of the great amount of data to be compared, ORNL decided to incorporate automatic data processing (ADP) procedures into the survey effort. The software to be maintained consists of programs written in two languages: Statistical Analysis System (SAS) and dBASE III Plus. A total of 107 SAS and dBASE III Plus programs was used during the effort.

#### 4.1.2 Software Environment

The software is used to manipulate the information gathered during the triennial updating of the EIA-825 survey. The goal of the data manipulation is to arrive at a list of eligible new respondents. Most of the programs were developed to assist the researchers with the manual processes in the manipulation of the raw data. The actual decisions as to whether firms were placed on the potential respondent list were made outside the ADP environment. The ADP support was only for data management. Computer data files were cross-checked with manual files for accuracy. Hard copies were provided to personnel making decisions.

After the data were manipulated and potential respondents were identified by the researchers, a software system was developed to track mail and telephone respondent verification processes. Newly implemented for this 1988 updating process, this software was developed by ORNL for the EIA PSD. The software will be retained by the EIA PSD for use in the 1991 updating process, if desired.

#### 4.1.3 Hardware Environment

The software is run on an IBM personal computer (PC) with an additional 386 motherboard. However, the software can be run on any PC machine provided SAS and dBASE III Plus are resident. Storage requirements on the PC are large; the programs and data used in the analysis take about 12 megabytes (MB) of storage. SAS requires approximately 20 MB but dBASE III Plus only requires 530 kilobytes (KB). An 80-MB Winchester disk plus two removable eight-inch Bernoulli disks satisfied the storage problems.

### 4.2 SOFTWARE DESCRIPTIONS

#### 4.2.1 Software Libraries

Each type of program and data file was given an identifying extension. Raw data, those from the sources or downloaded from EIA's computer, were given an extension of ".ASC" or ".DAT." If the raw data were specific to a particular form, the form number (e.g., EIA-812) would appear somewhere in the file name (e.g., 812.ASC). If the raw data were sources, the name of the source, or a recognizable mnemonic, would be used. There are 36 ".ASC" and 43 ".DAT" files accounting for about 4.2 MB. Intermediate SAS files (extension ".SSD") require about 6.8 MB.

SAS or dBASE III Plus program files were identified by the extension ".PRG." The file name indicated the source, form, or procedure that was being manipulated. There are approximately 90 ".PRG" files used for data manipulation.

A data entry system for use on the Master Files was also developed for this project. This system, written in dBASE III Plus, used 17 files and required 53 KB of storage. A separate record exists for each potential respondent.

#### 4.2.2 Inventory of Data Files

Two dBASE III Plus data files exist that store data on potential respondents. One file contains the telephone survey and the other the mail survey. Together, these two files are considered the Master File. The mail survey has 506 records and occupies 226 KB. The phone survey has 517 records occupying 225 KB.

#### 4.2.3 Integrated Flow to Link Software Modules

Figure 4.1 is a flow diagram that shows linkages of the modules that were used to enter data for the phone and mail surveys.

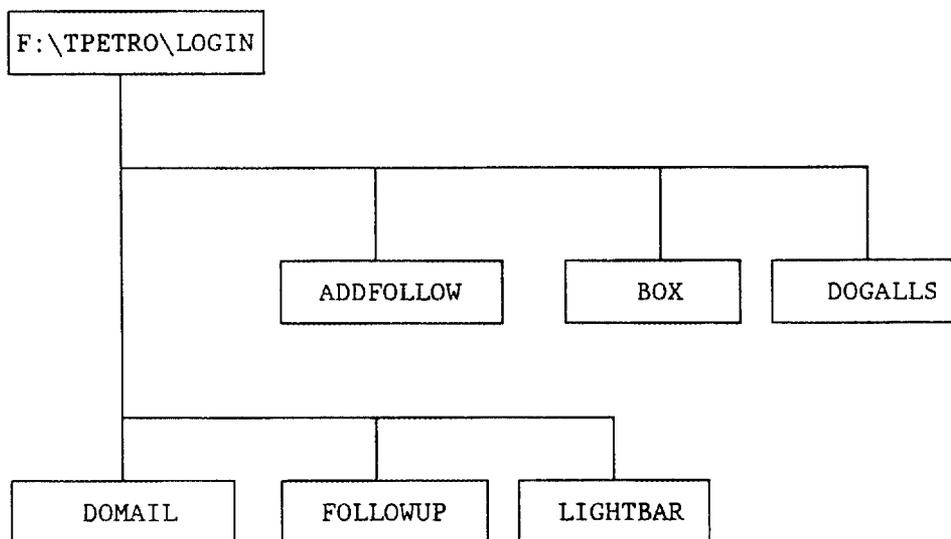


Fig. 4.1. Linkages of the modules used in data entry for the EIA-825 survey.

#### 4.2.4 General Approach to File Security Measures

The main measure taken to protect the programs and data contained in this system is that of limited access by research staff personnel. Both the programs and data files were routinely backed-up to an 8-inch removable 20-MB Bernoulli using the Bernoulli utilities. The raw data, the telephone RCRs, and the mailed-in survey forms also acted as a back-up system.

When the program and data files are delivered to the EIA PSD, measures will be taken by the EIA PSD to protect the integrity of the data bases.

#### 4.2.5 Approach to Verification Procedures Using Test Data

Because the programs developed for this project did not require any algorithm or, indeed, any type of calculations, no standard test procedures were used. Most of the programs only changed fields or allowed data entry. In some cases, the programs would merge data. In these cases, the merge process would be verified by the ORNL project manager. The human decision process regarding a plant's or a company's disposition on a form would have caught any irregularities that may have been caused by computer data manipulation. The programs were developed on a "prototype" basis; that is, if a module in the program satisfied the program's requirements, it was used.

### 4.3 SYSTEM FUNCTIONS

#### 4.3.1 Overview

Programs were developed for use with the respondent data. First, individuals responsible for collecting the data used the input screens to enter data into the data bases; second, the programs allowed the data to be examined, counted, and printed out in various formats.

The dBASE III Plus potential respondent data bases were manipulated in SAS. SAS provides a series of statistical packages that have been time tested. The dBASE data were converted to SAS data sets using PROC DBF. Data counts and other calculations made for the monthly reports and other reports used standard SAS routines--PROC TABULATE and PROC FREQ.

#### 4.3.2 Input

The data were entered via custom-developed screens in dBASE III Plus programming language and dBASE utilities. They are described in Sect. 3.3. Appendix D presents the complete sequence of menu and data entry screens developed and used during this updating process.

#### 4.3.3 Processing

Error-handling procedures were part of the SAS package and dBASE III Plus language. Other procedures were done in the programming language of the two packages. No outside linkages were established.

#### 4.3.4 Interfaces

The interfaces between the two systems are direct. Part of the SAS system is a utility to read and translate dBASE data bases to SAS data sets. The procedure is called PROC DBF. The conversion

from SAS files to dBASE data bases can occur using this same utility or by reading the SAS file out into ASCII files via the PUT statement in SAS. The ASCII files would then be read into dBASE files using APPEND.

#### 4.3.5 Output

The data output was via PROC PRINT facilities in SAS.

#### 4.3.6 Run Description

All processing was done in the PC environment. Therefore, standard DOS procedures, as well as the protocol of the software packages, were used.

#### 4.3.7 File Names

Program files were named with a ".PRG" extension, following dBASE protocol. Even SAS program files used this protocol, although use of ".SAS" as an extension would follow SAS protocol. dBASE files were named with ".DBF" extension, following dBASE protocol, and ASCII files were given an extension of ".ASC." File names were descriptive of the process. Files were dated according to standard DOS procedures.

### 4.4 DATA BASES

Two dBASE data files were created that collectively were referred to as the Master File. One data file contained the potential respondents for the mail survey, and the other contained the potential respondents for the telephone survey. After the Master File was created by merging source and frame data and was validated by researchers, the identifiers were not changed. Information about the disposition and status of these potential respondents were added to the data bases, but the raw data, the name, address, and source code information remained untouched. If there was a name or address change, these changes were written to a new field. The original data elements for name, address, and source code were not over-written, as these fields provided the link to the manual files.

### 4.5 MAINTENANCE PROCEDURES

#### 4.5.1 Configuration Management

Because the software has been developed during the processing of the EIA-825 survey and as an aid in conducting the survey, there is no existing plan for configuration management.

#### 4.5.2 Programming Conventions

No formal programming conventions were mandated for this effort. The dBASE and SAS programming languages are structured languages. The lead programmer followed the standard conventions of structured programming and the programming conventions of either SAS or dBASE.

#### 4.5.3 Programs Maintenance

Any maintenance procedures for the programs developed for this survey must be established and documented by EIA PSD. It is recommended that the programs be maintained on floppy diskettes with back-up copies and that standard operating procedures be in place to ensure that the diskettes are not lost or damaged.

#### 4.5.4 Documentation

The documentation for this software is contained in this volume. It will be updated every three years, if needed.



## 5. SUMMARY AND RECOMMENDATIONS

### 5.1 RESULTS

#### 5.1.1 Results of Task 1

The statistical comparison of PSD estimates for motor gasoline, distillate fuel, and residual fuel with comparable estimates from other sources indicated that differences exist. In some cases, according to a simple test based on the maximum ratio, the differences were unacceptable. Further investigation was recommended to provide reasons for the unacceptable differences. In view of the differences observed in some of the estimates during 1985 and 1986, an update of the PSD frames was recommended.

#### 5.1.2 Results of Task 2

After a search of appropriate sources, lists of potential respondents were compiled. These lists were merged for all sources and were compared with the EIA frame listing. If a respondent for a particular survey was already listed on the EIA frame listing, the respondent was deleted from the potential respondents listing for that survey. These reduced lists for each survey were supplied to the EIA PSD for approval (Appendix E).

A list of 1023 distinct firms was compiled. Because some of these firms were potential respondents for more than one survey, returns for a total of 1117 forms were required. The number of potential respondents, by survey, is as follows:

<u>Survey No.</u>	<u>Number of potential respondents</u>
EIA-810	83
EIA-811	411
EIA-812	97
EIA-813	82
EIA-816	308
EIA-817	<u>136</u>
Total	1117

In addition, 36 firms on the EIA-820 survey were contacted to verify their status as inactive sites. Thus, a total of 1153 forms was required.

#### 5.1.3 Results of Task 3

On July 1, 1988, a hard-copy printout of EIA eligible new respondents and an abbreviated listing of all survey participants were provided to EIA. Appendix E contains the list of eligible new respondents in the format desired by EIA. Along with the listings, ORNL also provided two standard DOS 360-KB diskettes to EIA. One diskette contained the computer file of the eligible new respondents; the other contained the complete data file for all survey participants.

A total of 1153 records of forms to process are contained in the Master File. The Master File contains a data file for the mail survey and a data file for the telephone survey. Of these 1153

records, 103 firms were determined by ORNL to be eligible new respondents. Table 5.1 lists the sources from which the new respondents were identified and the number of new respondents from each source.

Table 5.1. Best sources for identifying new respondents

Source title	Number of new respondents
Gulf Coast Oil Directory	2
ILTA Directory of Bulk Liquid Terminals	1
Inland Rivers Guide	4
Midwest Oil Register	9
LPG Almanac, NGL Supply Yearbook	12
Oil and Gas Journal, OG&J 400 Issue	1
Oil and Gas Journal, Worldwide Construction	1
Pipeline Magazine, January 1987 Issue	6
Petroleum Marketers' Handbook	19
Port Series Reports (U.S. Coast Guard)	10
Stalsby's Petroleum Terminal Encyclopedia	12
Worldwide Refining and Gas Processing Directory	3

In addition, twelve firms suggested by EIA PSD staff or identified through means other than the published sources were verified as new respondents. Because some of the new respondents were listed in more than one source, the total citations add up to more than 103.

For the mail survey, forms were mailed to 506 firms. Because several firms were mailed multiple surveys, there were 576 mailed forms to process. (In addition, some firms responded to surveys that were not requested, which resulted in a total of 578 responses.) There were only 15 forms of the mail survey that were not returned. Thus, the results of the mail survey are based on a disposition rate of 97%.

Table 5.2 and Table 5.3 provide summary data on the completion rate and distribution of responses for the mail survey.

Table 5.2. Mail survey response rate

Survey	Total forms to process	Number completed	Number of nonrespondents
EIA-810	24	24	0
EIA-811	225	220	5
EIA-812	86	84	2
EIA-813	67	67	0
EIA-816	150	142	8
EIA-817	24	24	0
Totals	576	561	15

Table 5.3. Mail survey distribution of responses

Survey	Dispositions <sup>a</sup>				
	Y	N	R	I	U
EIA-810	1	14	1	1	7
EIA-811	41	109	16	2	55
EIA-812	9	60	6	2	12
EIA-813	13	42	9	1	11
EIA-816	12	62	32	3	33
EIA-817	<u>1</u>	<u>15</u>	<u>0</u>	<u>1</u>	<u>0</u>
Totals	77	302	64	10	125

<sup>a</sup>Explanation of Codes: "Y" means "yes--qualifies for inclusion in the survey"; "N" means "no--does not qualify for inclusion in the survey"; "R" means "already responding"; "I" means "inactive site or company"; and "U" means "unknown--could not find this firm."

For the telephone survey, forms were processed for a total of 517 firms. Because some firms were potential respondents to multiple forms, a total of 577 forms were processed. (During the phone conversations, some companies volunteered additional information, which resulted in a total of 593 forms being "completed.") Only 38 forms remained unclassified at the end of the project for the telephone survey. Thus, the disposition rate was almost 93% for the 577 forms originally identified for contacting.

Table 5.4 and Table 5.5 provide summary data on the completion rate and distribution of responses for the telephone survey.

Table 5.4. Telephone survey response rate

Survey	Total forms to process	Number completed	Number of nonrespondents
EIA-810	59	53	6
EIA-811	186	172	14
EIA-812	11	10	1
EIA-813	15	13	2
EIA-816	158	147	11
EIA-817	112	108	4
EIA-820	<u>36<sup>a</sup></u>	<u>36</u>	<u>0</u>
Totals	577	539	38

<sup>a</sup>36 companies (67 sites) were contacted.

Table 5.5. Telephone survey distribution of responses

Survey	Dispositions <sup>a</sup>				
	Y	N	R	I	U
EIA-810	1	40	23	0	2
EIA-811	10	94	69	3	7
EIA-812	3	7	3	0	1
EIA-813	0	9	6	0	3
EIA-816	6	72	59	2	19
EIA-817	6	97	9	0	6
EIA-820	<u>0</u>	<u>6</u>	<u>1</u>	<u>20</u>	<u>9</u>
Totals	26	325	170	25	47

<sup>a</sup>Explanation of Codes: "Y" means "yes--qualifies for inclusion in the survey"; "N" means "no--does not qualify for inclusion in the survey"; "R" means "already responding"; "I" means "inactive site or company"; and "U" means "unknown--could not find this firm."

Companies/sites were classified as unknown for one of several reasons: a change of company ownership for which a new contact could not be made; a company that had gone out of business since publication of the source in which it had been cited; or a company for whom a correct phone number could not be obtained.

During the previous triennial update completed in 1985, the EIA-825 survey form was mailed to 1170 contacts. A telephone list contained names of 197 potential respondents. A 79% response rate for the mail survey yielded 96 new respondents. A 76% completion rate for the telephone survey yielded 11 additional respondents. In comparison, during this triennial update, only about half as many forms were mailed out, but twice as many firms were identified for inclusion on the telephone survey. Approximately the same number of eligible new respondents were identified by the two update procedures. The recent update process identified 77 new respondents through the mail survey, which had a 97% response rate. The telephone survey identified 26 new respondents and had a 93% response rate for the firms originally identified for calls.

Table 5.6 summarizes the total dispositions for both mail and telephone surveys.

Table 5.6. Summary of results of dispositions  
(for both mail and telephone surveys)

Survey	Dispositions <sup>a</sup>				
	Y	N	R	I	U
EIA-810	2	54	24	1	9
EIA-811	51	203	85	5	62
EIA-812	12	67	9	2	13
EIA-813	13	51	15	1	14
EIA-816	18	134	91	5	52
EIA-817	7	112	9	1	13
EIA-820	<u>0</u>	<u>6</u>	<u>1</u>	<u>20</u>	<u>9</u>
Totals	103	627	234	35	172

<sup>a</sup>Explanation of Codes: "Y" means "yes--qualifies for inclusion in the survey"; "N" means "no--does not qualify for inclusion in the survey"; "R" means "already responding"; "I" means "inactive site or company"; and "U" means "unknown--could not find this firm."

## 5.2 RECOMMENDATIONS FOR FUTURE EIA-825 SURVEY UPDATES

### 5.2.1 Team Composition

The project team assigned to the project should remain constant because knowledge of procedures is critical. Training should be administered to all team members. All personnel should be instructed to follow the same procedures for documenting information obtained from respondents. It should also be established that the personnel are fully aware of the information they should obtain from the respondents via telephone procedures and are comfortable with the procedures that they are required to use. Personnel should be fully aware of what the project requires and should be committed to doing the job with enthusiasm, pride, and courtesy. Once personnel are assigned to this project, their time should be devoted solely to this project until it is completed. Personnel should be familiar with all sources, lists, frames, and company or respondent information. They should know to whom to refer uncooperative respondents or respondents with especially difficult questions.

All team personnel should be located in the same area. This is important because communication between personnel working on this project is essential. Hard copies of file folders, reference material, and other necessary information should be readily available for quick access in one location. Telephone availability is crucial so questions can be answered quickly. Computer records must be easily accessible so they can be checked frequently for accuracy against other records or personnel responsible for handling that particular entry, if a question arises.

### 5.2.2 General Procedures

In the future, the EIA-825 survey form should be mailed to all potential respondents. The mailing procedures require less of the survey team's time than do the telephone procedures. The telephone survey was conducted to reduce the response burden of those firms already responding to one or more PSD surveys. The schedules on the revised EIA-825 survey form are short and quite easy to complete. Because the form is so simple to understand, it is actually easier for the respondent to complete this form and return it in the prepaid envelope than it is to respond to the request for

information over the telephone. Many respondents who were called also requested mailed forms. Follow-up calls had to be made to remind respondents of the deadline several times. The response rate was slightly better to the mail survey than to the telephone survey. Thus, it is suggested that all forms be mailed initially and that the calling procedure be used only as a follow-up.

The sources used in the update need to be reevaluated. For example, the Port Series Reports and the LPG Almanac, NGL Supply Yearbook are difficult and time-consuming to use. The LPG Almanac requires additional research on potential respondents because it only gives counties rather than complete addresses. It is important to use the same designations for locations that the State Energy Commissions use. That is, county maps are not appropriate. It is important to note that the Midwest Oil Register will not be publishing directories after 1988. Since these were among the best sources, their loss will be significant.

There needs to be a checklist on the EIA-825 form to note why a company or site is not eligible. Conditions such as "company sold" or "company inactive" could be on the checklist, and a remarks area could provide room for a better explanation (e.g., "company does not qualify because ...").

### 5.2.3 Site Name vs. Company Name

Although the EIA-825 survey form is fairly simple to complete, some minor revisions are recommended. It is not clear on the EIA-825 survey form for the EIA-810 and EIA-816 surveys that we are looking for sites and that the form must be completed for each site. This problem should be corrected before the next update process.

For those surveys for which the site is important, sites should be listed individually on separate mailing labels. Sites that have no known address should be addressed to the corporate office with the name of the site noted as a reference. This would ensure that all information for the sites would be clearly noted and would create less confusion with returned forms. Corporate offices should be contacted only as a last resort when needed information cannot be obtained or when sites refer the survey staff member to this office.

### 5.2.4 Automated Procedures

Information entered into the computer should be coded in the same format for both mail and call surveys. If there continue to be both call and mail surveys, then there should be a code to distinguish between the two data files; otherwise, all fields should be the same and the input screens should be very similar if not the same.

The respondent (i.e., company) name should have both an abbreviated format (to match that of the EIA frame file) and a nonabbreviated form. There were several problems encountered while trying to use only the abbreviated format. When trying to obtain proper telephone numbers or addresses for respondents, deriving the correct name from only an abbreviation was difficult even with a guide to EIA standard abbreviations. Being able to supply the telephone operator or the State Energy Boards with the correct name meant quicker access of needed information and less confusion. The solution to this problem may be adding a new field in the Master File with additional spaces in its field length. Computer storage is not a problem using the procedures that were used during this update, and the field width could be very large. Thus, both the abbreviated field used for match and merge processes and the field with the full name will be part of the data base. Another solution is that the EIA PSD could discontinue using abbreviations on the name field. Standard abbreviations on addresses are not as much a problem and could be continued.

All fields of the Master File structure should be reviewed for need and for field length.

The most difficult problem addressed in the initial portion of this survey update was identification of parent-subsidiary relationships. A field might be added to the EIA frame file that would identify these relationships.

### 5.3 EVALUATION OF STATISTICAL IMPACT

After ORNL supplied the EIA PSD with its final listing of eligible respondents, PSD began a further investigation of each possible new frame member. On the basis of past updates, it is expected that only about one-third of the list of eligible new respondents will eventually be added to the survey frames. The final results will not be available until the end of December 1988. These results will be made available by EIA PSD in early 1989.

The ultimate purpose of this tasking is an improvement in the quality of data collected and published by EIA. The addition of new respondents must be accompanied by an examination of data continuity. Availability of consistent data over an extended period of time is highly valued by most data users. Significant additions to survey frames may disrupt the continuity of time series data and impact data users. The issue of data continuity and an analysis of the impact of this triennial update on data users for the PSD surveys will be addressed by the PSD after pertinent data have been collected and analyzed.



**APPENDIX A**  
**SURVEY MATERIALS**

APPENDIX A.1. SURVEY FORMS FOR EIA-825, SCHEDULES A-E

APPENDIX A.2. COVER LETTER FOR THE MAIL SURVEY PACKET

APPENDIX A.3. INSTRUCTIONS SENT WITH THE MAIL SURVEY PACKET

APPENDIX A.4. DEFINITIONS OF PETROLEUM PRODUCTS AND OTHER TERMS



Energy Information Administration  
**U.S. DEPARTMENT OF ENERGY**  
Petroleum Supply Reporting System  
**TERMINAL OPERATOR IDENTIFICATION SURVEY**

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This report is mandatory under Public Law 93-275. Failure to comply may result in criminal fines, civil penalties, and other sanctions as provided by law. For the provisions concerning the confidentiality of information submitted on this form, see Section VI of the instructions.

---

1a. Does your firm or any parent or subsidiary of your firm operate storage facilities with total capacity in excess of 1,000 barrels dedicated to crude oil storage in the 50 States and/or the District of Columbia?

Yes       No... Skip to 3

1b. Does your firm or any other firm presently report the stocks held at these storage facilities on the Form EIA-813, "Monthly Crude Oil Report?" (Mark "X" in the appropriate space.)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)

Data are not reported for operated facilities.

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2a. Enter the volume of total crude oil stocks held at terminal facilities operated by your firm on January 31, 1988. If your firm operates terminal facilities in more than one State, report the volumes held in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels      \_\_\_\_\_ State

<b>CERTIFICATION:</b> I certify that the information provided herein and appended hereto is true and accurate to the best of my knowledge.	
Name (please print) _____	Title _____
Signature _____	Date _____
<small>Title 18, U.S.C. 1001 makes it a crime for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious or fraudulent statements as to any matter within its jurisdiction.</small>	

2b. Enter the volume of total crude oil storage capacity at facilities operated by your firm on January 31, 1988. If your firm operates terminal facilities in more than one State, report the crude oil storage capacity in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ State

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DEFINITION

**Bulk terminal** means a *facility* which is primarily used for storage and/or marketing of petroleum products (excluding storage facilities required by military and other end-users of these products), and which (1) has a total bulk storage capacity of 50,000 barrels or more, or (2) receives its petroleum products by tanker, barge, or pipeline, regardless of terminal size. Bulk terminal facilities associated with product pipelines are included.

3a. Does your firm or a parent or subsidiary of your firm operate any bulk terminals in the 50 States, the District of Columbia, Puerto Rico, and/or the Virgin Islands according to the above definition of "bulk terminal?"

\_\_\_\_\_ Yes \_\_\_\_\_ No... Skip to 5

3b. Does your firm or any other firm presently report the stocks held in these terminals on the Form EIA-811, "Monthly Bulk Terminal Report?" (Mark "X" in the appropriate box.)

- \_\_\_\_\_ All operated facilities are reported for by own firm.
- \_\_\_\_\_ All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below).
- \_\_\_\_\_ Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)
- \_\_\_\_\_ Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)
- \_\_\_\_\_ Data are not reported for operated facilities.

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4a. Enter the volume of total petroleum product **stocks** held at bulk terminal facilities operated by your firm on January 31, 1988. If your firm operates terminal facilities in more than one State, report the volumes held in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ State

4b. Enter the volume of total petroleum product storage **capacity** at bulk terminal facilities operated by your firm on January 31, 1988. If your firm operates terminal facilities in more than one State, report the product storage capacity in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ State

5a. Does your firm conduct any kind of blending operation at, or in conjunction with, bulk terminals?

\_\_\_\_\_ Yes \_\_\_\_\_ No... Skip to 6

5b. What type of blending operations does your firm perform?

- On-site blending.
- In-transit blending.
- Remote blending at retail site.
- Other... (Elaborate in the space provided below).

5c. List the petroleum components used by your firm in blending operations. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ (specify component)                      \_\_\_\_\_ (specify component)                      \_\_\_\_\_ (specify component)

6. Complete Name of Your Firm

\_\_\_\_\_

7. Complete Address of Your Firm

\_\_\_\_\_  
\_\_\_\_\_

8. Name of Contact Person for Additional Information about Your Firm

\_\_\_\_\_

9. Telephone No. (     ) \_\_\_\_\_

If you would be filing any required EIA reports for related firms, or if a related firm may be filing for you, answer 10, 11, or 12 below, as applicable. Otherwise, complete the certification and signature block on page 1 of this schedule.

10. If your firm is the parent of other firms operating petroleum refineries, natural gas liquid processing plants, crude oil or petroleum product storage facilities, crude oil or petroleum product pipelines, or tankers or barges, provide the names, addresses, and telephone numbers of these subsidiaries. Indicate if the parent firm (P) or subsidiary firm (S) would file any required reports. Indicate if the subsidiary operates crude oil (C) or petroleum product (P) storage facilities.

Subsidiary Name	Address	Telephone No. (Incl. area code)	Who Will Report? (P or S)	Type of Storage Facility (C or P)
(1)	_____	_____	_____	_____
(2)	_____	_____	_____	_____
(3)	_____	_____	_____	_____
(4)	_____	_____	_____	_____
(5)	_____	_____	_____	_____

11. If your firm is a subsidiary company and would not be filing any required reports for itself, provide the name, address, and telephone number of the parent company that would file required reports.

Name \_\_\_\_\_ Telephone No. ( ) - \_\_\_\_\_

Address \_\_\_\_\_

12. If your firm would be reporting for any other company holdings, provide their names, addresses, and telephone numbers.

<u>Firm Name</u>	<u>Address</u>	<u>Telephone No.</u>
(1)	_____	( ) - _____
(2)	_____	( ) - _____
(3)	_____	( ) - _____

Complete the certification and signature block on page 1 of this schedule.

**Energy Information Administration**  
**U.S. DEPARTMENT OF ENERGY**  
**Petroleum Supply Reporting System**  
**PIPELINE OPERATOR IDENTIFICATION SURVEY**

---

This report is mandatory under Public Law 93-275. Failure to comply may result in criminal fines, civil penalties, and other sanctions as provided by law. For the provisions concerning the confidentiality of information submitted on this form, see Section VI of the instructions.

---

1. Does your firm or a parent or subsidiary of your firm operate a non-military pipeline or pipelines moving crude oil and/or petroleum products (including NGLs) in the 50 States and/or the District of Columbia? (Mark "X" in the appropriate space.)

Yes, crude oil pipeline(s) only. (Answer 2, then skip to 5 and answer all pertinent questions.)

Yes, petroleum product pipeline(s) only. (Skip to 3 and answer all pertinent questions.)

Yes, both crude oil and petroleum product pipeline(s). (Answer 2 and all other pertinent questions.)

No (Skip to 5 and answer all pertinent questions.)

2. Does your firm or any other firm presently report crude oil stocks held in operated pipeline(s), working tanks, tank farms, and terminals on the Form EIA-813, "Monthly Crude Oil Report?" (Mark "X" in the appropriate space.)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)

Data are not reported for operated facilities.

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**CERTIFICATION:** I certify that the information provided herein and appended hereto is true and accurate to the best of my knowledge.

Name (please print) \_\_\_\_\_ Title \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Title 18, U.S.C. 1001 makes it a crime for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious or fraudulent statements as to any matter within its jurisdiction.

3. Does your firm or any other firm presently report the petroleum product stocks held in the operated product pipeline(s) and its (their) working tanks on the Form EIA-812, "Monthly Product Pipeline Report?" (Mark "X" in the appropriate space.)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)

Data are not reported for operated facilities.

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4a.

#### DEFINITION

**Bulk terminal** means a *facility* which is primarily used for storage and/or marketing of petroleum products (excluding storage facilities required by military and other end-users of these products), and which (1) has a total bulk storage capacity of 50,000 barrels or more, or (2) receives its petroleum products by tanker, barge or pipeline, regardless of terminal size. Bulk terminal facilities associated with product pipelines are included.

Does your firm or a parent or subsidiary of your firm operate any bulk terminals in the 50 States, the District of Columbia, Puerto Rico, and/or the Virgin Islands according to the above definition of "bulk terminal?"

Yes  No... Skip to 5

4b. Does your firm or any other firm presently report the stocks held in these terminals on the Form EIA-811, "Monthly Bulk Terminal Report?" (Mark "X" in the appropriate space.)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)

Data are not reported for operated facilities.

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- 4c. Enter the volume of total petroleum product stocks held at bulk terminal facilities operated by your firm on January 31, 1988. If your firm operates terminal facilities in more than one State, report the volumes held in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ State

- 4d. Enter the volume of total petroleum product storage capacity at bulk terminal facilities operated by your firm on January 31, 1988. If your firm operates terminal facilities in more than one State, report the product storage capacity in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ State

5. Complete Name of Your Firm

\_\_\_\_\_

6. Complete Address of Your Firm

\_\_\_\_\_

\_\_\_\_\_

7. Name of Contact Person for Additional Information about Your Firm

\_\_\_\_\_

8. Telephone No. ( ) - \_\_\_\_\_

If you would be filing any required EIA reports for related firms, or if a related firm may be filing for you, answer 9, 10, or 11 below, as applicable. Otherwise, complete the certification and signature block on page 1 of this schedule.

9. If your firm is the parent of other firms operating petroleum refineries, natural gas liquid processing plants, crude oil or petroleum product storage facilities, crude oil or petroleum product pipelines, or tankers or barges, provide the names, addresses, and telephone numbers of these subsidiaries. Indicate if the parent firm (P) or subsidiary firm (S) would file any required reports. Indicate if the subsidiary operates crude oil (C) or petroleum product (P) storage facilities.

Subsidiary Name	Address	Telephone No. (Incl. area code)	Who Will Report? (P or S)	Type of Storage Facility (C or P)
(1) _____	_____	_____	_____	_____
(2) _____	_____	_____	_____	_____
(3) _____	_____	_____	_____	_____
(4) _____	_____	_____	_____	_____
(5) _____	_____	_____	_____	_____

10. If your firm is a subsidiary company and would not be filing any required reports for itself, provide the name, address, and telephone number of the parent company that would file required reports.

Name \_\_\_\_\_ Telephone No. ( ) - \_\_\_\_\_

Address \_\_\_\_\_

11. If your firm would be reporting for any other company holdings, provide their names, addresses, and telephone numbers.

<u>Firm Name</u>	<u>Address</u>	<u>Telephone No.</u>
(1)		( ) -
(2)		( ) -
(3)		( ) -

Complete the certification and signature block on page 1 of this schedule.



3. Enter the average monthly volume of crude oil and/or petroleum products transported by your firm during 1987. (Specify volumes of crude oil and each type of product transported separately. Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ barrels  
 (crude oil) (specify product)

4. Does (do) any firm(s) currently operate tankers or tank barges that are leased or chartered from your firm and that are suitable for moving crude oil or petroleum products?

\_\_\_\_\_ Yes... (Provide the names and addresses of such firms in the space below.)  
 \_\_\_\_\_ No

Firm Name Address

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

5. Complete Name of Your Firm

\_\_\_\_\_

6. Complete Address of Your Firm

\_\_\_\_\_

\_\_\_\_\_

7. Name of Contact Person for Additional Information about Your Firm

\_\_\_\_\_

8. Telephone No. ( ) - \_\_\_\_\_

If you would be filing any required EIA reports for related firms, or if a related firm may be filing for you, answer 9, 10, or 11 below, as applicable. Otherwise, complete the certification and signature block on page 1 of this schedule.

9. If your firm is the parent of other firms operating petroleum refineries, natural gas liquid processing plants, crude oil or petroleum product storage facilities, crude oil or petroleum product pipelines, or tankers and barges, provide the names, addresses, and telephone numbers of these subsidiaries. Indicate if the parent firm (P) or subsidiary firm (S) would file any required reports. Indicate if the subsidiary operates crude oil (C) or petroleum products (P) storage facilities.

Subsidiary Name	Address	Telephone No. (Incl. area code)	Who Will Report? (P or S)	Type of Storage Facility (C or P)
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- (1) \_\_\_\_\_
- (2) \_\_\_\_\_

(3)

(4)

10. If your firm is a subsidiary company and would not be filing any required reports for itself, provide the name, address, and telephone number of the parent company that would file required reports.

Name \_\_\_\_\_ Telephone No. (    )    - \_\_\_\_\_

Address \_\_\_\_\_

11. If your firm would be reporting for any other company holdings, provide their names, addresses, and telephone numbers.

<u>Firm Name</u>	<u>Address</u>	<u>Telephone No.</u>
(1)	_____	(    )    - _____
(2)	_____	(    )    - _____
(3)	_____	(    )    - _____

Complete the certification and signature block on page 1 of this schedule.



Energy Information Administration  
**U.S. DEPARTMENT OF ENERGY**  
Petroleum Supply Reporting System  
**CRUDE OIL WELL OPERATOR'S STORAGE IDENTIFICATION SURVEY**

This report is mandatory under Public Law 93-275. Failure to comply may result in criminal fines, civil penalties, and other sanctions as provided by law. For the provisions concerning the confidentiality of information submitted on this form, see Section VI of the instructions.

1. Does your firm or any parent or subsidiary of your firm operate crude oil storage facilities with total capacity in excess of 1,000 barrels in the 50 States and/or the District of Columbia?

Yes  No... Skip to 3

2a. Does your firm or any other firm presently report the stocks held at these storage facilities on the Form EIA-813, "Monthly Crude Oil Report?" (Mark "X" in the appropriate space)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for own firm(s). (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.

Data are not reported for operated facilities.

2b. Enter crude oil stock levels held at facilities operated by your firm on January 31, 1988. If your firm operates storage facilities in more than one State, report the volumes held in each State separately. (Continue your response on attached sheets if necessary.)

\_\_\_\_\_ barrels \_\_\_\_\_ barrels \_\_\_\_\_ State  
(lease stocks) (pipeline/tank farm stocks)

2c. Enter the total capacity of crude oil storage at facilities operated by your firm on January 31, 1988. If your firm operates storage facilities in more than one State, report the crude oil storage capacity in each State separately.

\_\_\_\_\_ barrels \_\_\_\_\_ barrels \_\_\_\_\_ State  
(lease stocks) (pipeline/tank farm stocks)

**CERTIFICATION:** I certify that the information provided herein and appended hereto is true and accurate to the best of my knowledge.

Name (please print) \_\_\_\_\_ Title \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Title 18, U.S.C. 1001 makes it a crime for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious or fraudulent statements as to any matter within its jurisdiction.

3. Complete Name of Your Firm

\_\_\_\_\_

4. Complete Address of Your Firm

\_\_\_\_\_

\_\_\_\_\_

5. Name and Contact Person for Additional Information about Your Firm

\_\_\_\_\_

6. Telephone No. ( ) - \_\_\_\_\_

If you would be filing any required EIA reports for related firms, or if a related firm may be filing for you, answer 7, 8, or 9 below, as applicable. Otherwise, complete the certification and signature block on page 1 of this schedule.

7. If your firm is the parent of other firms operating petroleum refineries, natural gas liquid processing plants, crude oil or petroleum product storage facilities, crude oil or petroleum product pipelines, or tankers or barges, provide the names, addresses, and telephone numbers of these subsidiaries. Indicate if the parent firm (P) or subsidiary firm (S) would file any required reports. Indicate if the subsidiary operates crude oil (C) or petroleum product (P) storage facilities.

<u>Subsidiary Name</u>	<u>Address</u>	<u>Telephone No. (Incl. area code)</u>	<u>Who Will Report? (P or S)</u>	<u>Type of Storage Facility (C or P)</u>
(1) _____	_____	_____	_____	_____
(2) _____	_____	_____	_____	_____
(3) _____	_____	_____	_____	_____
(4) _____	_____	_____	_____	_____
(5) _____	_____	_____	_____	_____

8. If your firm is a subsidiary company and would not be filing any required reports for itself, provide the name, address, and telephone number of the parent company that would file required reports.

Name \_\_\_\_\_ Telephone No. ( ) - \_\_\_\_\_

Address \_\_\_\_\_

9. If your firm would be reporting for any other company holdings, provide their names, addresses, and telephone numbers.

<u>Firm Name</u>	<u>Address</u>	<u>Telephone No.</u>
(1) _____	_____	( ) - _____
(2) _____	_____	( ) - _____
(3) _____	_____	( ) - _____

Complete the certification and signature block on page 1 of this schedule.

Energy Information Administration  
U.S. DEPARTMENT OF ENERGY  
Petroleum Supply Reporting System  
PROCESSING FACILITY OPERATOR IDENTIFICATION SURVEY

This report is mandatory under Public Law 93-275. Failure to comply may result in criminal fines, civil penalties, and other sanctions as provided by law. For the provisions concerning the confidentiality of information submitted on this form, see Section VI of the instructions.

DEFINITION

A petroleum refinery is defined as a complex installation of equipment designed to manufacture finished petroleum products from crude oil and other liquid hydrocarbons. Facilities designed to produce petrochemicals are excluded.

- 1a. Does your firm or any parent or subsidiary of your firm operate petroleum refining facilities and/or plants that produce finished motor gasoline through the mechanical blending of liquids in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and/or Guam?

Yes       No... Skip to 2

- 1b. Does your firm or any firm presently report data on the petroleum supply operations taking place at these processing facilities on the Form EIA-810, "Monthly Refinery Report?" (Mark "X" in the appropriate space.)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)

Data are not reported for operated facilities.

**CERTIFICATION:** I certify that the information provided herein and appended hereto is true and accurate to the best of my knowledge.

Name (please print) \_\_\_\_\_ Title \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Title 18, U.S.C. 1001 makes it a crime for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious or fraudulent statements as to any matter within its jurisdiction.

2a. Does your firm or a parent or subsidiary of your firm operate facilities that extract liquid hydrocarbons from a natural gas stream (natural gas processing plant) and/or separate a liquid hydrocarbon stream into its component products (fractionation) that is located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and/or Guam?

Yes  No... Skip to 3

2b. Does your firm or any other firm presently report data on the extraction or separation activities taking place at these facilities on the Form EIA-816, "Monthly Natural Gas Liquids Report?" (Mark "X" in the appropriate space.)

All operated facilities are reported for by own firm.

All operated facilities are reported for by another firm(s). (Provide the name and address of the reporting firm(s) and its relation to your firm in the space provided below.)

Some operated facilities are reported for by own firm. (Indicate in the space provided below which facilities are reported for, by type and location. Also provide a list of any facilities (by type and location) for which data are not reported.)

Some operated facilities are reported for by another firm(s). (Indicate in the space provided below which facilities are reported for, by type and location, and provide the name and address of the reporting firm(s). Also provide a list of any facilities, by type and location, for which data are not reported.)

Data are not reported for operated facilities.

3. Complete Name of Your Firm

4. Complete Address of Your Firm

5. Name of Contact Person for Additional Information about Your Firm

6. Telephone No. ( ) -

If you would be filing any required EIA reports for related firms, or if a related firm may be filing for you, answer 7, 8, or 9 below, as applicable. Otherwise, complete the certification and signature block on page 1 of this schedule.

7. If your firm is the parent of other firms operating petroleum refineries, natural gas liquid processing plants, crude oil or petroleum product storage facilities, crude oil or petroleum product pipelines, or tankers or barges, provide the names, addresses, and telephone numbers of these subsidiaries. Indicate if the parent firm (P) or subsidiary firm (S) would file any required reports. Indicate if the subsidiary operates crude oil (C) or petroleum products (P) storage facilities.

Subsidiary Name	Address	Telephone No (Incl. area code)	Who Will Report? (P or S)	Type of Storage Facility (C or P)
(1)				
(2)				

(3) \_\_\_\_\_

(4) \_\_\_\_\_

(5) \_\_\_\_\_

8. If your firm is a subsidiary company and would not be filing any required reports for itself, provide the name, address, and telephone number of the parent company that would file required reports.

Name \_\_\_\_\_ Telephone No. ( ) - \_\_\_\_\_

Address \_\_\_\_\_

9. If your firm would be reporting for any other company holdings, provide their names, addresses, and telephone numbers.

<u>Firm Name</u>	<u>Address</u>	<u>Telephone No.</u>
(1)		( ) - _____
(2)		( ) - _____
(3)		( ) - _____

Complete the certification and signature blocks on page 1 of this schedule.





Department of Energy  
Washington, DC 20585

MAR 07 1988

Dear Respondent:

The Energy Information Administration (EIA) of the U.S. Department of Energy must periodically take action to update data survey frames which underlie its Petroleum Supply Data Reporting System. Each EIA petroleum supply data survey is linked to a survey frame which identifies all known petroleum facility operators that meet the criteria for responding to that data survey. Ideally, each survey frame should identify all respondents needed to obtain complete data on a particular aspect of U.S. Petroleum Supply. However, the U.S. business environment is very dynamic and new operations continually emerge as many existing operations terminate activity and others merge, thus distorting respondent identities.

To effectively combat frame deterioration, it is necessary to periodically conduct an exhaustive research effort to supplement smaller-scale, ongoing frames maintenance activities. To that end, the EIA has designed Form EIA-825 "Petroleum Facility Operator Identification Survey" as an aid in expanding available information on potential respondents identified through literature research. It seeks specific respondent information that will permit the EIA to identify petroleum facility operators that meet reporting criteria of its data surveys, but who do not presently participate in the EIA data program.

Response to the EIA-825 identification survey is required by law. Specific statutory authorities are cited in the instructions. Questions you may have about uses and possible disclosure of the information you report and about sanctions for failure to report are also answered in the instructions.

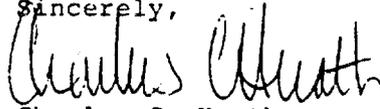
To minimize burden on respondents, each firm will receive only the portions (schedules) of Form EIA-825 deemed appropriate to the respondent's type of petroleum supply activity. Every firm that receives Form EIA-825 must complete and return all schedules that it receives.



The form should be submitted within 30 days after receipt. Form EIA-825 must be submitted only one time. However, respondents may be contacted subsequent to submission to clarify information or for additional information if the response is incomplete. A self-addressed return envelope is enclosed for your convenience.

Please direct any questions you may have regarding this data collection effort to Ms. Deborah M. Flanagan, Oak Ridge National Laboratory, Oak Ridge, Tennessee, at (615) 576-5239.

Sincerely,



Charles C. Heath  
Director  
Petroleum Supply Division  
Office of Oil and Gas  
Energy Information Administration

Enclosure

Energy Information Administration  
U.S. DEPARTMENT OF ENERGY  
Petroleum Supply Reporting System  
PETROLEUM FACILITY OPERATOR IDENTIFICATION SURVEY  
FORM EIA-825  
INSTRUCTIONS

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**I. PURPOSE**

Form EIA-825 is a triennial survey designed to obtain information on operators of petroleum supply facilities. The information will aid in determining whether such operators are eligible respondents to Energy Information Administration (EIA) monthly data surveys.

**II. WHO MUST SUBMIT**

Every firm that receives Form EIA-825 must fill out pertinent schedules and submit them to the Department of Energy (DOE).

**III. WHEN TO SUBMIT**

Submit this form within 30 days after receipt.

**IV. WHERE TO SUBMIT**

Mail completed form to:

Ms. Deborah M. Flanagan  
Oak Ridge National Laboratory  
Building 4500 N, Mail Stop 179  
P.O. Box "X"  
Oak Ridge, Tennessee 37831

If you have any questions concerning this survey, please contact the EIA-825 Project Manager at (615) 576-5239.

**V. SANCTIONS**

The timely submission of Form EIA-825 by a firm required to report is mandatory under Section 13(b) of the Federal Energy Administration (FEA) Act of 1974, Public Law 93-275. Failure to respond may result in criminal fines, civil penalties, and other sanctions as provided by Section 13(i) of the FEA Act.

**VI. PROVISIONS REGARDING CONFIDENTIALITY OF INFORMATION**

Information on this form is collected for respondent identification purposes, and will not be published by the DOE in individually identifiable form. However, upon receipt of a request for individually identifiable information, the DOE will follow the procedures listed below:

1. The information contained in this form will be kept confidential to the extent that it satisfies the criteria set forth in the Freedom of Information Act (FOIA) exemption for trade secrets and confidential commercial information and DOE regulations implementing the FOIA, and is prohibited from public release by the Trade Secrets Act, 18 U.S.C. § 1905. Upon receipt of a request for disclosure of this information under the FOIA, the DOE shall, in accordance with the procedures and criteria provided in 10 C.F.R. § 1004.11, make a final determination whether the information is exempt from disclosure. To assist us in this determination, respondents should demonstrate to the DOE that their information constitutes trade secrets or commercial or financial information whose release would be likely to cause substantial harm to their company's competitive position. A letter accompanying the submission that explains (on an element-by-element basis, if possible) the reasons why the information would be likely to cause the respondent substantial competitive harm if released to the public would aid in this determination.
2. Requests from other Federal agencies for information from this form shall be evaluated in accordance with the DOE Policy on the Disclosure of Individually Identifiable Energy Information in the Possession of the EIA [45 Fed. Reg. 59812 (1980)].
3. Except as otherwise provided by law, the information will also be made available in response to an order of a Court of competent jurisdiction, or upon written request, to the Congress, any committee of Congress, the General Accounting Office, or other congressional agencies authorized by law to receive such information.



**Energy Information Administration  
U.S. DEPARTMENT OF ENERGY  
Petroleum Supply Reporting System  
DEFINITIONS OF PETROLEUM PRODUCTS AND OTHER TERMS**

**Alcohol.** The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group;  $\text{CH}-(\text{CH})_n\text{-OH}$  (e.g., methanol, ethanol, and tertiary butyl alcohol (TBA)).

**Alkylation.** A refining process for chemically combining isobutane with olefin hydrocarbons (e.g., propylene, butylene) through the control of temperature and pressure in the presence of an acid catalyst, usually sulfuric acid or hydrofluoric acid. The product, alkylate, an isoparaffin, has high octane value and is blended with motor and aviation gasoline to improve the antiknock value of the fuel.

**API Gravity.** An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula:

$$\text{Degrees API} = \frac{141.5}{\text{sp gr } 60^\circ\text{F} / 60^\circ\text{F}} - 131.5$$

**Aromatics.** Hydrocarbons characterized by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics are benzene, toluene, and xylene (BTX).

**Asphalt.** A dark-brown-to-black cement-like material containing bitumens as the predominant constituents, obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. The conversion factor for asphalt is 5.5 barrels of 42 U.S. gallons per short ton.

**ASTM.** The acronym for the American Society for Testing and Materials.

**Aviation Gasoline Blending Components.** Naphthas which will be used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, and reformat). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus.

**Aviation Gasoline (Finished).** All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910 and Military Specification MIL-G-5572. Excludes blending components which will be used in blending or compounding into finished aviation gasoline.

**Barrel.** A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. This measure is used in most statistical reports. Factors for converting petroleum coke, asphalt, still gas and wax to barrels are given in the definitions of these products.

**Barrels Per Calendar Day.** The maximum number of barrels of input that can be processed during a 24-hour period after making allowances for the following limitations:

the capability of downstream facilities to absorb the output of crude oil processing facilities of a given refinery. No reduction is made when a planned distribution of intermediate streams through other than downstream facilities is part of a refinery's normal operation;

the types and grades of inputs to be processed;  
the types and grades of products expected to be manufactured;

the environmental constraints associated with refinery operations;

the reduction of capacity for scheduled downtime such as routine inspection, mechanical problems, maintenance, repairs, and turn-around; and

the reduction of capacity for unscheduled downtime such as mechanical problems, repairs, and slowdowns.

**Barrels Per Stream Day.** The amount a unit can process running at full capacity under optimal crude oil and product slate conditions.

**Benzene.** An aromatic hydrocarbon, ( $\text{C}_6\text{H}_6$ ), present to a minor degree in most crude oils. Some important

Shaded areas represent changes introduced in January 1987.

products manufactured from benzene are: styrene, phenol, nylon, aniline, and synthetic detergents.

**Butane.** A normally gaseous straight-chain or branch-chain hydrocarbon, (C<sub>4</sub>H<sub>10</sub>). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

**Isobutane.** A normally gaseous branch-chain hydrocarbon, (C<sub>4</sub>H<sub>10</sub>). It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees F. It is extracted from natural gas or refinery gas streams.

**Normal Butane.** A normally gaseous straight-chain hydrocarbon, (C<sub>4</sub>H<sub>10</sub>). It is a colorless paraffinic gas that boils at a temperature of 31.1 degrees F. It is extracted from natural gas or refinery gas streams.

**Butylene.** An olefinic hydrocarbon, (C<sub>4</sub>H<sub>8</sub>), recovered from refinery processes.

**Catalytic Cracking.** The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil. Catalytic cracking processes fresh feeds and recycled feeds.

**Fresh Feeds.** Crude oil or petroleum distillates which are being fed to processing units for the first time.

**Recycled Feeds.** Feeds that are continuously fed back for additional processing.

**Catalytic Hydrocracking.** A refining process that uses hydrogen and catalysts with relatively low temperatures and high pressures for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel and/or high grade fuel oil. The process uses one or more catalysts, depending upon product output, and can handle high sulfur feedstocks without prior desulfurization.

**Catalytic Hydrotreating.** A refining process for treating petroleum fractions from atmospheric or vacuum distillation units (e.g., naphthas, middle distillates, reformer feeds, residual fuel oil, and heavy gas oil) and other petroleum (e.g., cat cracked naphtha, coker naphtha, gas oil, etc.) in the presence of catalysts and substantial quantities of hydrogen. Hydrotreating includes desulfurization, removal of substances (e.g., nitrogen compounds) that deactivate catalysts, conversion of olefins to paraffins to reduce gum formation

in gasoline, and other processes to upgrade the quality of the fractions.

**Catalytic Reforming.** A refining process using controlled heat and pressure with catalysts to rearrange certain hydrocarbon molecules, thereby converting paraffinic and naphthenic type hydrocarbons (e.g., low-octane gasoline boiling range fractions) into petrochemical feedstocks and higher octane stocks suitable for blending into finished gasoline. **Catalytic reforming is reported in two categories. They are:**

**Low Pressure.** A processing unit operating at less than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

**High Pressure.** A processing unit operating at either equal to or greater than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

**Charge Capacity.** The input (feed) capacity of the refinery processing facilities.

**Coal.** A generic term applied to carbonaceous rocks that were formed by the partial or complete decomposition of vegetation. These stratified carbonaceous rocks are either solid or brittle and are highly combustible. Includes lignite, bituminous coal, and anthracite which conform to ASTM Specification D388.

**Crude Distillation.** The refining process of separating crude oil components at atmospheric pressure by heating to temperatures of about 600 degrees F to 750 degrees F (depending on the nature of the crude oil and desired products) and subsequent condensing of the fractions by cooling.

**Crude Oil (including Lease Condensate).** A mixture of hydrocarbons that existed in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface-separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded where identifiable. Crude oil is considered as either domestic or foreign, according to the following:

**Domestic.** Crude oil produced in the United States or from its "outer continental shelf" as defined in 43 USC 1331.

**Foreign.** Crude oil produced outside the United States. Imported Athabasca hydrocarbons are included.

**Delayed Coking.** A process by which heavier crude oil fractions can be thermally decomposed under conditions of elevated temperatures and pressure to produce a mixture of lighter oils and petroleum coke. The light oils can be processed further in other refinery units to meet product specifications. The coke can be used either as a fuel or in other applications such as the manufacturing of steel or aluminum.

**Distillate Fuel Oil.** A general classification for one of the petroleum fractions produced in conventional distillation operations. It is used primarily for space heating, on-and-off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation. Included are products known as No. 1, No. 2, and No. 4 fuel oils; No. 1, No. 2, and No. 4 diesel fuels.

**No. 1 Fuel Oil.** A light distillate fuel oil intended for use in vaporizing pot-type burners. ASTM Specification D396 specifies for this grade maximum distillation temperatures of 400 degrees F at the 10-percent recovery point and 550 degrees F at the 90-percent point, and kinematic viscosities between 1.4 and 2.2 centistokes at 100 degrees F.

**No. 2 Fuel Oil.** A distillate fuel oil for use in atomizing-type burners for domestic heating or for moderate capacity commercial-industrial burner units. ASTM Specification D396 designates minimum and maximum distillation temperatures at the 90-percent recovery point of 540 degrees F and 640 degrees F, and kinematic viscosities between 2.0 and 3.6 centistokes at 100 degrees F.

**No. 1 and No. 2 Diesel Fuel Oils.** Distillate fuel oils used in compression-ignition engines, as designated in the ASTM Specification D975:

**No. 1-D.** A volatile distillate fuel oil with a maximum distillation temperature of 550 degrees F at the 90-percent recovery point for use in high-speed diesel engines generally operated under variations in speed and load. Includes type C-B diesel fuel used for city buses and similar operations. Properties are defined in ASTM Specification D975.

**No. 2-D.** A gas oil type distillate of lower volatility with minimum and maximum distillation temperatures at the 90-percent recovery point of 540 and 640 degrees F for use in high-speed diesel engines generally operated under uniform speed and load conditions. Includes Type R-R diesel fuel used for railroad locomotive engines, and Type T-T for diesel engine trucks. Properties are defined in ASTM Specification D975.

**No. 4 Fuel Oil.** A fuel oil for commercial burner installations not equipped with preheating facilities. It is used extensively in industrial plants. This grade is a blend of distillate fuel oil and residual fuel oil stocks that conforms to ASTM Specification D396 or Federal Specification VV-F-815C; with minimum and maximum kinematic viscosities between 5.8 and 26.4 centistokes at 100 degrees F. Also included is No. 4-D, a fuel oil for low and medium-speed diesel engines that conforms to ASTM Specification D975.

**Electricity (Purchased).** Electricity purchased for refinery operations that is not produced within the refinery complex.

**Ethane.** A normally gaseous straight-chain hydrocarbon, (C<sub>2</sub>H<sub>6</sub>). It is a colorless paraffinic gas that boils at a temperature of -127.48 degrees F. It is extracted from natural gas and refinery gas streams.

**Ether.** A generic term applied to a group of organic chemical compounds composed of carbon, hydrogen, and oxygen, characterized by an oxygen atom attached to two carbon atoms (e.g., methyl tertiary butyl ether).

**Ethylene.** An olefinic hydrocarbon, (C<sub>2</sub>H<sub>4</sub>), recovered from refinery processes or petrochemical processes.

**Field Production.** Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, and new supply of other hydrocarbons and alcohol.

**Flexicoking.** A thermal cracking process which converts heavy hydrocarbons such as crude oil, tar sands bitumen, and distillation residues into light hydrocarbons. Feedstocks can be any pumpable hydrocarbons including those containing high concentrations of sulfur and metals.

**Fluid Coking.** A thermal cracking process utilizing the fluidized-solids technique to remove carbon (coke) for continuous conversion of heavy, low-grade oils into lighter products.

**Fuels Solvent Deasphalting.** A refining process for removing asphalt compounds from petroleum fractions, such as reduced crude oil. The recovered stream from this process is used to produce fuel products.

**Gasohol.** See Motor Gasoline (Finished).

**Gas Oil.** A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. It derives its name from having originally been

used in the manufacture of illuminating gas. It is now used to produce distillate fuel oils and gasoline.

**Gasoline Blending Components.** Naphthas which will be used for blending or compounding into finished aviation or motor gasoline (e.g., straight-run gasoline, alkylate, and reformat). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus.

**Heavy Gas Oil.** Petroleum distillates with an approximate boiling range from 651 degrees F to 1000 degrees F.

**Hydrogen.** The lightest of all gases, occurring chiefly in combination with oxygen in water; also in acids, bases, alcohols, petroleum, and other hydrocarbons.

**Idle Capacity.** The component of operable capacity that is not in operation and not under active repair, but capable of being placed in operation within 30 days; and capacity not in operation but under active repair that can be completed within 90 days.

**Imported Crude Oil Burned As Fuel.** The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. Imported crude oil burned as fuel includes lease condensate and liquid hydrocarbons produced from tar sand oil, gilsonite, and shale oil.

**Isobutane.** See *Butane*.

**Isohexane.** A saturated branch-chain hydrocarbon, (C<sub>6</sub>H<sub>14</sub>). It is a colorless liquid that boils at a temperature of 156.2 degrees F.

**Isomerization.** A refining process which alters the fundamental arrangement of atoms in the molecule without adding or removing anything from the original material. Used to convert normal butane into isobutane, (C<sub>4</sub>), an alkylation process feedstock, and normal pentane and hexane into isopentane, (C<sub>5</sub>), and isohexane, (C<sub>6</sub>), high-octane gasoline components.

**Isopentane.** See *Natural Gasoline and Isopentane*.

**Kerosene.** A petroleum distillate that has a maximum distillation temperature of 401 degrees F at the 10-percent recovery point, a final boiling point of 572 degrees F, and a minimum flash point of 100 degrees F. Included are the two grades designated in ASTM D3699: No. 1-K and No. 2-K, and all grades of kerosene called range or stove oil. Kerosene is used in space heaters, cook stoves, and water heaters and is suitable for use as an illuminant when burned in wick lamps.

**Kerosene-Type Jet Fuel.** A quality kerosene product with a maximum distillation temperature of 400 degrees F at the 10-percent recovery point and a final maximum boiling point of 572 degrees F. The fuel is designated in ASTM Specification D1655 and Military Specification MIL-T-5624L (Grades JP-5 and JP-8). A relatively low-freezing point distillate of the kerosene type used primarily for commercial turbojet and turboprop aircraft engines.

**Lease Condensate.** A natural gas liquid recovered from gas well gas (associated and non-associated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons.

**Light Gas Oils.** Liquid petroleum distillates heavier than naphtha, with an approximate boiling range from 401 degrees F to 650 degrees F.

**Liquefied Petroleum Gases (LPG).** Ethane, ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate raw natural gas plant liquids.

**Liquefied Refinery Gases (LRG).** Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration, they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane. Excludes still gas.

**Lubricating Oils.** A substance used to reduce friction between bearing surfaces. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. Do not include byproducts of lubricating oil refining such as aromatic extracts derived from solvent extraction or tars derived from deasphalting. "Lubricants" includes all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. The three categories include:

**Bright Stock.** A refined, high viscosity lubricating oil base stock that is usually made from a residuum by a treatment such as deasphalting, acid treatment, or solvent extraction.

**Neutral.** A distillate lubricating oil base stock with a viscosity that is usually not above 550 Saybolt Universal Seconds (SUS) at 100 degrees F. A product of hydrotreating, acid treatment, or solvent extraction.

**Other.** A lubricating oil base stock used in finished lubricating oils and greases, including black, coastal, and red oils.

**Middle Distillates.** A general classification that includes distillate fuel oil and kerosene.

**Miscellaneous Products.** Includes all finished products not classified elsewhere (e.g., petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, speciality oils, and medicinal oils).

**Motor Gasoline Blending Components.** Naphthas which will be used for blending or compounding into finished motor gasoline (e.g. straight-run gasoline, alkylate, and reformat). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus.

**Motor Gasoline (Finished).** A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as given in ASTM Specification D439 or Federal Specification VV-G-1690B, include a range in distillation temperatures from 122 to 158 degrees F at the 10-percent recovery point and from 365 to 374 degrees F at the 90-percent recovery point. The Reid Vapor Pressure ranges from 9 to 15 psi. "Motor gasoline" includes finished leaded gasoline, finished unleaded gasoline, and gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

**Finished Leaded Gasoline.** Contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

**Finished Unleaded Gasoline.** Contains not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

**Gasohol.** A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol), limited to 10 percent by volume of alcohol.

**Naphtha.** A generic term applied to a petroleum fraction with an approximate boiling range between 122 and 400 degrees F.

**Naphtha-Type Jet Fuel.** A fuel in the heavy naphtha boiling range. ASTM Specification D1655 specifies for this fuel maximum distillation temperatures of 290 degrees F at the 20-percent recovery point and 470 degrees F at the 90-percent point, meeting Military Specification MIL-T-5624L (Grade JP-4). JP-4 is used for turbojet and turboprop aircraft engines, primarily by the military. Excludes ram-jet and petroleum rocket fuels.

**Natural Gas.** A mixture of hydrocarbons and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in underground reservoirs.

**Natural Gas Field Facility.** A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to recover propane, normal butane, pentanes plus, etc., and to control the quality of natural gas to be marketed.

**Natural Gas Plant Liquids.** Natural gas liquids recovered from natural gas in gas processing plants, and in some situations, from natural gas field facilities. Natural gas liquids extracted by fractionators are also included. These liquids are defined according to the published specifications of the Gas Processors Association and the American Society for Testing and Materials and are classified as follows: ethane, propane, normal butane, isobutane, pentanes plus, and other products from natural gas processing plants (i.e., products meeting the standards for finished petroleum products produced at natural gas processing plants, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, distillate fuel oil, and miscellaneous products).

**Natural Gas Processing Plant.** A gas processing plant is a facility designed (1) to achieve the recovery of natural gas liquids from the stream of natural gas which may or may not have been processed through lease separators and field facilities, and (2) to control the quality of the natural gas to be marketed. Cycling plants are classified as gas processing plants.

**Natural Gasoline and Isopentane.** A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated branch-chain hydrocarbon, (C<sub>5</sub>H<sub>12</sub>), obtained by fractionation of natural gasoline or isomerization of normal pentane.

**Normal Butane.** See *Butane*.

**OPEC.** The acronym for the Organization of Petroleum Exporting Countries, that have organized for the purpose of negotiating with oil companies on matters of oil production, prices and future concession rights. Current members are Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

**Operable Capacity.** The amount of capacity that, at the beginning of the period, is in operation; not in operation and not under active repair, but capable of being placed in operation within 30 days; or not in operation but under active repair that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day or barrels per stream day.

**Operating Capacity.** The component of operable capacity that is in operation at the beginning of the period.

**Other Hydrocarbons.** Materials received by a refinery and consumed as a raw material. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

**Oxygenates.** Oxygenates include both alcohols and ethers used as octane boosting additives for gasoline (e.g., methyl tertiary butyl ether).

**Pentanes Plus.** A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline, and plant condensate.

**Petrochemical Feedstocks.** Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are "Naphtha-Less than 400 degrees F" and "Other oils over 400 degrees F."

**Naphtha-Less Than 400 Degrees F.** A naphtha with a boiling range of less than 400 degrees F that is intended for use as a petrochemical feedstock.

**Other Oils-Over 400 Degrees F.** Oils with a boiling range of over 400 degrees F that is intended for use as a petrochemical feedstock.

**Petroleum Coke.** A residue, the final product of the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion factor is 5 barrels of 42 U.S. gallons per short ton.

**Marketable Coke.** Those grades of coke produced in delayed or fluid cokers which may be

recovered as relatively pure carbon. This "green" coke may be sold as is or further purified by calcining.

**Catalyst Coke.** In many catalytic operations (e.g., catalytic cracking) carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. This carbon or coke is not recoverable in a concentrated form.

**Petroleum Products.** Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

**Plant Condensate.** One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

**Primary Stocks.** Stocks of crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tankfarms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in-transit by water from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. Primary Stocks exclude stocks of foreign origin that are held in bonded warehouse storage.

**Production Capacity.** The amount of product that can be produced from processing facilities.

**Propane.** A normally gaseous straight-chain hydrocarbon, (C<sub>3</sub>H<sub>8</sub>). It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees F. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

**Propylene.** An olefinic hydrocarbon, (C<sub>3</sub>H<sub>6</sub>), recovered from refinery processes or petrochemical processes.

**Refinery.** An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

**Residual Fuel Oil.** The topped crude of refinery operations which includes No. 5 and No. 6 fuel oils as defined in ASTM Specification D396 and Federal Specification VV-F-815C, Navy Special fuel oil as defined in Military Specification MIL-F-859E including Amendment 2 (NATO Symbol F-77), and Bunker C fuel oil. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes. Imports of residual fuel oil include "Imported Crude Oil Burned as Fuel."

**Residuum.** Residue from crude oil after distilling off all but the heaviest components, with a boiling range greater than 1000 degrees F.

**Road Oil.** Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

**Shell Storage Capacity.** The design capacity of a petroleum storage tank and is always greater than or equal to working storage capacity.

**Special Naphthas.** All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

**Steam (Purchased).** Steam, purchased for use by a refinery, that was not generated from within the refinery complex.

**Still Gas (Refinery Gas).** Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylene, propane, propylene, etc. Still gas is used as a refinery fuel and a petrochemical feedstock. The conversion factor is 6.000 million BTU's per barrel (42 U.S. gallons).

**Strategic Petroleum Reserve (SPR).** Petroleum stocks maintained by the Federal Government for use during periods of major su

**Sulfur.** A nonmetallic element of lemon-yellow color, sometimes known as "brimstone."

**Thermal Cracking.** A refining process in which heat and pressure are used to break down, rearrange, or

combine hydrocarbon molecules. Thermal cracking includes gas oil, visbreaking, fluid coking, delayed coking, and other thermal cracking processes (e.g., flexicoking). See individual categories for definition.

**Toluene.** An aromatic hydrocarbon, (C<sub>6</sub>H<sub>5</sub>CH<sub>3</sub>), somewhat similar to benzene but of a higher boiling point produced in the coking of coal and also by petroleum refining processes. It is the basis of dyes, explosives, and aromatic compounds. Along with xylene, it is a key component in unleaded gasoline.

**Unfinished Oils.** Includes all oils requiring further processing, except those requiring only mechanical blending. Includes naphthas, kerosene, light and heavy gas oils, and residuum. See individual categories for definition.

**Unfractionated Streams.** Mixtures of unsegregated natural gas liquid components excluding those in plant condensate. This product is extracted from natural gas.

**Vacuum Distillation.** Distillation under reduced pressure (less the atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique with its relatively low temperatures prevents cracking or decomposition of the charge stock.

**Visbreaking.** Normal cracking process in which heavy atmospheric or vacuum-still bottoms are cracked at moderate temperatures to increase production of distillate products and reduce viscosity of the distillation residues.

**Wax.** A solid or semi-solid material derived from petroleum distillates or residues by such treatments as chilling, precipitating with a solvent, or de-oiling. It is light-colored, more-or-less translucent crystalline mass, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series predominates. Includes all marketable wax whether crude scale or fully refined. The three grades included are microcrystalline, crystalline-fully refined, and crystalline-other. The conversion factor is 280 pounds per 42 U.S. gallons per barrel.

**Microcrystalline Wax.** Wax extracted from certain petroleum residues having a finer and less apparent crystalline structure than paraffin wax and having the following physical characteristics: Penetration at 77 degrees F (D1321)-60 maximum. Viscosity at 210 degrees F in Saybolt Universal Seconds (SUS). (D88)-60 SUS (10.22 centistokes) minimum to 150 SUS (31.8 centistokes) maximum. Oil content (D721)-5 percent minimum.

**Crystalline-Fully Refined Wax.** A light-colored paraffin wax having the following characteris-

tics: Viscosity at 210 degrees F (D88)-59.9 SUS (10.18 centistokes) maximum. Oil content (D721)-0.5 percent maximum. Other +20 color, Saybolt minimum.

*Crystalline-Other Wax.* A paraffin wax having the following characteristics: Viscosity at 210 degrees F (D88)-59.9 SUS (10.18 centistokes) maximum. Oil content (D721)-0.51 percent minimum to 15 percent maximum.

*Working Storage Capacity.* The volume between the maximum safe fill capacity and the quantity below which pump suction is ineffective (bottoms).

*Xylene.* An aromatic hydrocarbon,  $(C_6H_4Y(CH_3)_2)$ , produced in petroleum refining (cracking) processes. One important use is as a solvent in the manufacture of paints. Along with toluene, it is a key ingredient in unleaded gasoline.

**APPENDIX B**

**AN ASSESSMENT OF THE COMPLETENESS OF THE  
FRAMES FOR THE PETROLEUM SUPPLY REPORTING SYSTEM**



ENERGY DIVISION

**AN ASSESSMENT OF THE COMPLETENESS  
OF THE FRAMES FOR  
THE PETROLEUM SUPPLY REPORTING SYSTEM**

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**A Comparison With Estimates From Other Sources**

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## EXECUTIVE SUMMARY

### PURPOSE OF REPORT

This is a part of the second Triennial Frames Update Project of the Petroleum Supply Division (PSD) of the Energy Information Administration (EIA) of the U.S. Department of Energy in which PSD examines the completeness of the survey frames that support its Petroleum Supply Reporting System (PSRS) and updates them, if necessary. The PSRS provides annual, monthly, and weekly estimates of the supply of petroleum products to consumers in the United States. The survey frames are listings of suppliers and transporters that must report to EIA the amounts of petroleum products that they handle. The quality and completeness of the frames have a direct effect on the quality of the published estimates.

This part of the triennial examination and update is a comparison of the PSRS national-level estimates of total product supplied with estimates of comparable quantities generated by separate data collection activities. This appendix provides the results of this comparison for the current triennial frames update and is an extension of the previous triennial report.

The comparisons are made on three fuels as supplied for domestic use. They are:

- Motor Gasoline
- Distillate Fuel
- Residual Fuel.

Comparative estimates are available from several sources for these three fuels. The sources used for the comparisons reported in this appendix are listed below:

<u>Fuel</u>	<u>Comparative Estimates</u>
• Motor Gasoline	<ul style="list-style-type: none"> <li>• EIA, Petroleum Marketing Division</li> <li>• American Petroleum Institute</li> <li>• Federal Highway Administration</li> <li>• Internal Revenue Service</li> <li>• Environmental Protection Agency</li> </ul>
• Distillate Fuel	<ul style="list-style-type: none"> <li>• EIA, Petroleum Marketing Division</li> <li>• American Petroleum Institute</li> </ul>
• Residual Fuel	<ul style="list-style-type: none"> <li>• EIA, Petroleum Marketing Division</li> <li>• American Petroleum Institute</li> </ul>

The new comparisons in this assessment cover the years 1985 through 1986. The comparisons in this appendix extend comparable work performed earlier by EIA for 1979 through 1984 and updates some estimates for 1984 from the previous triennial report. The comparisons are based on annual, quarterly, and monthly estimates produced by PSD and the separate sources.

This comparison of the PSD annual and monthly estimates for motor gasoline (also quarterly), distillate fuel, and residual fuel with comparable estimates from other sources does provide some evidence that during the last two years the group of estimates including PSD and the comparative estimates have varied and in some cases the differences were shown to be unacceptable. When estimates from the EIA Petroleum Marketing Division are excluded from the comparisons, there are very few instances where the differences are unacceptable. As the previous study revealed, there is a continuing tendency for the PSD estimates to be less than the comparative estimates for all three fuels. In general, the PSD estimates were closest to those of the American Petroleum Institute, the other custody-based survey. As indicated in the exhibits, further investigations are needed particularly for some of the estimates during 1985 and 1986. It is possible that the differences exist because at least one of the frames (either PSD's frame(s) or the frames of the other comparative estimates) has deteriorated over 1985 and 1986 and needs to be updated. Of course, other explanations are also possible.

Further investigation is needed to provide reasons for the unacceptable differences. In view of the differences observed in some of the estimates during 1985 and 1986, the decision to update the PSRS frame(s) should be implemented as planned and completed.



## CHAPTER 1. INTRODUCTION AND METHOD OF COMPARISONS

### BACKGROUND

From its beginning in the late 1970's, the Energy Information Administration (EIA) of the U.S. Department of Energy has performed a series of studies designed to assess the quality of its energy data collection systems. These studies identified several deficiencies in the existing systems and developed recommendations for improving the systems by correcting the deficiencies. EIA implemented the recommendations by undertaking a series of projects designed to define specific corrective steps and then to put them into effect.

One of the identified deficiencies, which is a problem common to almost any data collection effort, involved the completeness of the EIA survey frames used with the petroleum industry. EIA's petroleum survey frames had been inherited in 1977 from several predecessor organizations whose data-collection activities became part of the new agency. Several of the frames were believed to be missing significant numbers of eligible respondents. Among the recommendations were several suggestions that the magnitude of this potential deficiency be assessed and, if warranted, a project be undertaken to upgrade specific petroleum frames.

In 1981, EIA's Petroleum Supply Division (PSD) undertook a series of steps to implement these and other recommendations. Among these steps was a study to assess the completeness of the frames for a group of surveys then known as the Joint Petroleum Reporting System (JPRS). The JPRS included frames for surveys covering several segments of the petroleum industry. These included: bulk terminal owners, crude oil storage operations, and petroleum product pipeline operators. The study also covered frames for tankers and barge owners and identified 675 potentially qualified respondents that were not then included on the examined frames. Eventually, 205 respondents were added, and 50 more were transferred between frames to enhance accuracy. The study made additional recommendations regarding the improvement of respondent definitions.

These recommendations were implemented by PSD during the winter of 1982-1983, and the results reported in the March 1983 issue of PSD's *Petroleum Supply Monthly*. Other improvements were made to the JPRS and the resulting revised PSD system was renamed the Petroleum Supply Reporting System (PSRS). The JPRS frame study and others conducted by PSD identified several structural dynamics within the petroleum industry that pointed to the need for periodic frame review and updating if the quality of the data produced from surveys using these frames was to be maintained. Formal frames review and updating procedures were developed to satisfy this need. These procedures included a triennial review and update of the PSRS frames. In early 1985, PSD initiated the first of these triennial reviews. One of the procedures recommended for the triennial

frames review and update is a comparison of the estimates produced by the PSRS with estimates of comparable quantities produced from other sources including Federal agencies different from EIA. The results of that first review are reported mainly in Volume II of the report *PSD Triennial Frames Update - Final Report (Revised) January 7, 1986*. The time periods for estimates compared in that report were

Annual Estimates      1979, 1980, 1981, 1982, 1983, 1984

Quarterly Estimates    1981, 1982, 1983, 1984

Monthly Estimates     1982, 1983, 1984

Some of the estimates compared for 1984 were preliminary and not final.

This current comparison study, initiated in 1987 by PSD, is essentially an update and extension of the first comparison study. Where appropriate, final estimates have been substituted for preliminary ones used for 1984, and estimates for the years 1985 and 1986 have been added. A few 1986 estimates are preliminary and are so noted in the tables. *Because much of the work in this appendix is an update and extension of the earlier study's Volume II, the discussion, in many instances, is the same as in the previous study with few changes and new discussion added as appropriate for the years 1984, 1985, and 1986.*

#### THE UTILITY OF COMPARISONS – A DISCUSSION<sup>(1)</sup>

One basic step toward improving the quality of data produced by a data collection agency is to identify problem areas that require special attention. Comparisons with other comparable data sources, when possible, can serve to expose existing problems for one or more data collection systems such as EIA's PSRS.

If  $\theta$  is some parameter (such as a total) for a universe (such as the set of all who should be respondents to PSRS) whose true value is unknown and  $\hat{\theta}$  is some estimator (based on a sample or a census) whose value is known, the hope is that the difference between  $\hat{\theta}$  and  $\theta$  is small. An assessment of data quality and frame completeness of PSRS can include a study of the extent of such a difference, even though  $\theta$ 's true value is unknown. Such assessments can reveal limitations of the data, identify stages of the data collection process that need improvement, and may lead to revelations of inadequacies in the frame (e.g., undercoverage, overcoverage, duplication, imperfect frame data, etc.).

As Kish and Hess (1958) note "The estimation of errors (differences) . . . generally entails one of two difficult alternatives. The first calls for a quality check by procedures which are sufficiently better to provide the 'true value' against which the survey results can be compared . . . The alternative procedure calls for a reliable (and comparable) estimate from an outside source." Because the first alternative would involve a tremendous effort and require extensive resources by PSD to do a step-by-step quality check for all estimates for the indicated years, the second alternative to compare with

(1) Tsao, H. and Wright, T. (1983), "On the Maximum Ratio: A Tool for Assisting Inaccuracy Assessment," *The American Statistician*, 37, 4, 339-342.

outside sources has been adopted. The second alternative has an acceptance among data collectors and is used; however, it is not without problems. For Morgenstern (1963) notes, there are several occasions when "one is faced with alternative sets of data (estimates) which aim to describe the same phenomenon but which appear quite different; and it is difficult, if not impossible, to discover just where their difference lies." Martin (1981) has pointed out how the comparisons of different data series produced by federal statistics bureaus can make important contributions to the improvements in one or both data series and that precautions are needed to avoid judgments based solely on supposition rather than on scientific evidence. Also, Eckler and Pritzker (1951) consider such external data comparisons as the first step in checking the adequacy of the frame.

Depending on the scale of a study, different data series can be compared through various aspects of the data collection systems. Among the different data series, one may want to compare their operation activities (interviewing, collecting, processing, publishing, and dissemination) system changes through time, error types (sampling and nonsampling), definitions of variables collected, and parameters estimated. In many cases, priorities for comparison of data series must be set, and analyses must be restricted to a limited number of estimates that may have the most significant impact to the users.

#### PURPOSE

The purpose of this appendix is to compare selected national-level PSD published estimates of total product supplied for domestic use with comparable estimates from separate data collection activities.

Since there will usually be differences between the definitions, target (and/or responding) populations, data collection procedures, and estimation procedures for PSD and the separate data collection activities, the identification of differences in the estimates does not necessarily suggest that the PSRS estimates are inaccurate or that the other estimates are inaccurate. Since the true values of the various parameters are unknown, the comparisons should be approached with caution. The value of the comparisons (and the value of this appendix) lies in their ability (1) to give notice of changes in the industry's structure occurring over time that may be affecting the PSRS estimates, (2) to give notice of the need to compare PSRS data collection procedures to those of the other data collection activities to see if there is a basis for revising PSRS procedure, and (3) by these examinations, to alert PSD to the need for further investigation of frames quality.

The value and credibility of the comparisons is certainly dependent on the method of comparison which is the next subtopic.

#### THE METHOD OF COMPARISON – MAXIMUM RATIO<sup>(1)</sup>

The method of comparison should be linked with the stated purpose and objectives. In this brief discussion, a simple tool called the maximum ratio is suggested that can be used to compare several estimates of the same parameter. For more details, see Tsao and

Wright (1983).

It has been observed that analysts will, when making initial comparisons, simply display competing estimates side by side and may compute the percent that one is of another. Such comparisons are useful, but are limited because

1. They only show that two or more estimates are different; and
2. They only show the magnitude of the difference by using percentages relative to a particular estimate.

These comparisons make statements about how close the estimates are to each other but rarely, if ever, is any attempt made to say how close the set of estimates is to the true unknown value of the parameter  $\theta$ —which is really what we want to know. The maximum ratio not only gives a measure of closeness among the comparable estimates, but it also gives an indication of how the collection of estimates stands relative to the unknown true value of  $\theta$ . To be specific about the maximum ratio, we proceed as follows.

**Definition.** Let  $\hat{\theta}_1, \hat{\theta}_2, \dots, \hat{\theta}_m$  be comparable estimates of the same parameter  $\theta$ . The *maximum ratio* is given by

$$M = \frac{\hat{\theta}_{(m)} - \hat{\theta}_{(1)}}{\hat{\theta}_{(1)}} \times 100\%$$

where  $\hat{\theta}_{(1)}$  is the smallest among  $\hat{\theta}_1, \dots, \hat{\theta}_m$ , and  $\hat{\theta}_{(m)}$  is the largest among  $\hat{\theta}_1, \dots, \hat{\theta}_m$ .

For example from Exhibit 2.1, five different estimates of the total motor gasoline supplied for domestic use at the national level for 1985 ( $\theta$ ) are (in million barrels)

$$\hat{\theta}_1 = 2,493$$

$$\hat{\theta}_2 = 2,691$$

$$\hat{\theta}_3 = 2,476$$

$$\hat{\theta}_4 = 2,553$$

$$\hat{\theta}_5 = 2,333$$

The five estimates are within  $M = 15.3\%$  of each other. Note that  $M$  is a conservative measure of closeness. The smaller the value of  $M$ , the closer the estimates are to each other. However, note that a small value of  $M$  for  $\hat{\theta}_1, \dots, \hat{\theta}_m$  does not imply that  $\hat{\theta}_1, \dots, \hat{\theta}_m$  are each close to  $\theta$ .

**Definition.** Let  $\theta > 0$  be the parameter of interest and let  $\alpha$  be some number between zero and one, exclusively. An estimate  $\hat{\theta} (> 0)$  of  $\theta$  is considered as *unacceptable for  $\theta$*  for  $\alpha$  if  $\hat{\theta} < (1 - \alpha)\theta$  or  $\hat{\theta} > (1 + \alpha)\theta$ .

It might appear that in order to know if a particular estimate is unacceptable (i.e., too low or too high) we must know the true value, which we will never know. However, we do have the following result.

Fact. If  $M$  has the particular value  $M_0$  for  $m$  estimates of a particular parameter, then at least one of the estimates is more than  $100\alpha\%$  of  $\theta$  away from  $\theta$  for

$$\alpha < \frac{M_0}{M_0 + 2}$$

(Here  $M_0$  is given as a decimal and not a percent.)

The stated fact implies that  $M$  is a measure of how close the group of estimates is to the unknown truth, and we can use this result as follows:

#### Steps for Application of the Maximum Ratio

1. Obtain  $\hat{\theta}_1, \hat{\theta}_2, \dots, \hat{\theta}_m$ .
2. Compute the Maximum Ratio =  $M_0 = \frac{\hat{\theta}_{(m)} - \hat{\theta}_{(1)}}{\hat{\theta}_{(1)}}$  without changing to a percent.
3. State an  $\alpha_0$  which denotes a maximum tolerable error for the collection of estimates.
4. (a) If  $\frac{M_0}{M_0 + 2} > \alpha_0$ , then at least one of the estimators is unacceptable for  $\theta$  for  $\alpha_0$ . Further investigation is needed. If interest is in any particular one of the  $m$  estimates, then the investigation would focus initially on that particular estimate. (Frame coverage might be a cause.)  
 (b) If  $\frac{M_0}{M_0 + 2} \leq \alpha_0$ , then we do not have sufficient evidence to say that at least one of the estimates is unacceptable for  $\theta$  for  $\alpha_0$ .

Continuing with the five estimates from Exhibit 2.1 for 1985, assume that PSD has decided to specify  $\alpha_0 = .05$ . This means that PSD can not tolerate an estimate that is CERTAINLY at least 5% of the true value of  $\theta$  away from the true value of  $\theta$  for 1985.

Because  $M_0/(M_0 + 2) = .071 > .05 = \alpha_0$ , then at least one of the five estimates is CERTAINLY unacceptable for  $\theta$  for  $\alpha_0$  and further investigation is needed by PSD. On the other hand for the five 1984 estimates,  $M_0/(M_0 + 2) = .038 < .05 = \alpha_0$ , and PSD would say that based on this result it lacks sufficient evidence to say that at least one of the estimates (including its own) is CERTAINLY unacceptable for  $\theta$  for  $\alpha_0$ . Thus, the maximum ratio is a tool that can be helpful toward achieving the purpose of this appendix of this study.

#### PARAMETERS, ESTIMATES, AND TIME PERIODS

The target population and the definition of who should report on which form(s) within PSRS have been given earlier in this study. A general formula for how the PSD published

estimates are produced from the various forms is given in Exhibit 1.3 of the previous PSD Triennial Frames Update Report.

The parameters and estimates (primary and comparative) will be the same as those used in the previous PSD Triennial Frames Update Report but extended to 1985 and 1986.

Specifically, the parameters will be annual, quarterly, and monthly national-level estimates of

- Total motor gasoline supplied for domestic use and annual and monthly national-level estimates of
- Total distillate fuel supplied for domestic use.
- Total residual fuel oil supplied for domestic use.

Exhibit 1.1 lists the specific PSD primary estimates and the sources of the comparable separate estimates used for comparison.

**EXHIBIT 1.1: SOURCES OF SEPARATE COMPARATIVE ESTIMATES**

PSD Primary Estimates	Time Period	Sources of Comparative Estimates
<b>Total Motor Gasoline Supplied for Domestic Use</b>		
Annual Estimates	1979-1986	<ul style="list-style-type: none"> <li>• EIA, Petroleum Marketing Division</li> <li>• American Petroleum Institute</li> <li>• Federal Highway Administration</li> <li>• U.S. Internal Revenue Service</li> </ul>
Quarterly Estimates	1 <sup>st</sup> quarter 1981- 4 <sup>th</sup> quarter 1986	• U.S. Internal Revenue Service
	1 <sup>st</sup> quarter 1981- 2 <sup>nd</sup> quarter 1982 3 <sup>rd</sup> quarter 1983- 4 <sup>th</sup> quarter 1986	• U.S. Environmental Protection Agency
Monthly Estimates	January 1982- December 1986	<ul style="list-style-type: none"> <li>• American Petroleum Institute</li> <li>• Federal Highway Administration</li> </ul>
	January 1983- December 1986	• EIA, Petroleum Marketing Division
<b>Total Distillate Fuel Supplied for Domestic Consumption</b>		
Annual Estimates (with Kerosene)	1979-1986	<ul style="list-style-type: none"> <li>• EIA, Petroleum Marketing Division</li> <li>• American Petroleum Institute</li> </ul>
Monthly Estimates (without Kerosene)	January 1982- December 1986	• American Petroleum Institute
	January 1983- December 1986	• EIA, Petroleum Marketing Division
<b>Total Residual Fuel Supplied for Domestic Consumption</b>		
Annual Estimates	1979-1986	<ul style="list-style-type: none"> <li>• EIA, Petroleum Marketing Division</li> <li>• American Petroleum Institute</li> </ul>
Monthly Estimates	January 1982- December 1986	• American Petroleum Institute
	January 1983- December 1986	• EIA, Petroleum Marketing Division

## CHAPTER 2. COMPARISONS OF ANNUAL ESTIMATES

### INTRODUCTION

The annual estimates compared in this chapter are for the years 1979-1986 and for the fuels

- Motor Gasoline (Exhibit 2.1)
- Distillate Fuel Oil (Including Kerosene) (Exhibit 2.2)
- Residual Fuel Oil (Exhibit 2.3).

The estimates, sources of estimates, adjustments to any estimates, etc. for each fuel are documented in each exhibit and by footnotes following each exhibit.

### COMPARISONS OF ANNUAL ESTIMATES OF MOTOR GASOLINE SUPPLIED FOR DOMESTIC USE

From Exhibit 2.1, the estimates derived from the EIA Petroleum Marketing Division (PMD) and the Federal Highway Administration (FHWA) are higher than those of PSD for every year. In fact, the ratio of the PMD estimate to the PSD estimate has been nondecreasing since 1981. Of the four comparative estimates, those derived from the American Petroleum Institute (API) have been the closest to those of PSD over the years. For 1985, the ratio for the IRS derived estimate with that of PSD is the lowest for the entire Exhibit 2.1, while the 1985 (and 1986) ratio of PMD to PSD is the highest. For 1985 and 1986, the maximum ratio for each year exceeded 10%; and for both years there is clear evidence that at least one of the five derived estimates is unacceptable for the unknown true total for  $\alpha_0 = .05$ , hence further investigation is suggested.

### COMPARISONS OF ANNUAL ESTIMATES OF DISTILLATE FUEL (INCLUDING KEROSENE) SUPPLIED FOR DOMESTIC USE

There are two comparative estimates against which to compare the PSD estimate of annual distillate fuel supplied (including kerosene). These are PMD's prime supplier estimates and API's products-supplied estimates. The estimates are given in Exhibit 2.2. Over the years, the API to PSD ratio has been closer to 100% than the PMD to PSD ratio. However, both API and PMD estimates have been higher than those of PSD over the years. While the maximum ratio (which has been increasing over the last four years) is largest for 1986, there is no clear evidence from the maximum ratio that any one of the three derived estimates is unacceptable for the unknown true total for  $\alpha_0 = .05$ .

### COMPARISONS OF ANNUAL ESTIMATES OF RESIDUAL FUEL SUPPLIED FOR DOMESTIC USE

From Exhibit 2.3, the API estimate has been close to that of PSD over the years, while the PMD estimate has been consistently lower than that of PSD. Since 1983, the PMD to PSD ratio has been decreasing with the lowest ratio since 1979 occurring in 1986. Also, the maximum ratio has been increasing since 1983 giving clear evidence in 1986 (as well as it did for 1979 and 1980) that at least one of the three estimates is unacceptable for the unknown true total for  $\alpha_0 = .05$ , hence further investigation is suggested.

### GENERAL OBSERVATIONS FOR THE ANNUAL COMPARISONS

- The API estimates, like the PSD estimates, are based on volumes delivered from primary storage, whereas the PMD, FHWA, and IRS estimates are based on the volume of subsequent sales of these deliveries.
- PMD estimates over the years are generally higher than those of PSD, except for residual fuel oil for which PMD estimates are consistently lower than those of PSD over the years.
- In most cases over the years, API estimates are slightly higher than those of PSD. Over the years, the API estimates are the closest to those of PSD.
- FHWA estimates are always higher than those of PSD.
- More often than not, the IRS derived estimates are lower than those of PSD.
- There is clear evidence from Exhibits 2.1 and 2.3 that there are intolerable differences at  $\alpha_0 = .05$  for 1986, with Exhibit 2.2 showing an increasing maximum ratio (increasing differences) for the years 1983, 1984, 1985, and 1986.

## EXHIBIT 2.1: TOTAL MOTOR GASOLINE SUPPLIED FOR DOMESTIC USE - Comparison of Annual Estimates

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in million barrels. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year	Primary Estimate		Comparative Estimates					$\frac{M_0}{M_0 + 2} \times 100\%$ (7)	ACTION (At $\alpha_0 = .05$ ) (8)
	EIA, Petroleum Supply Division (1)	EIA, Petroleum Marketing Division (2)	American Petroleum Institute (3)	Federal Highway Administration (4)	Internal Revenue Service (5)	Maximum Ratio, $M_0$ (6)			
1986	2,567	2,770 (107.9)	2,569 (100.1)	2,630 (102.5)	2,504 (97.5)	10.6%	5.0%	***	
1985	2,493	2,691 (107.9)	2,476 (99.3)	2,553 (102.4)	2,333 (93.6)	15.3%	7.1%	***	
1984	2,449	2,552 (104.2)	2,459 (100.4)	2,498 (102.0)	2,366 (96.6)	7.9%	3.8%	-	
1983	2,417	2,495 (103.2)	2,420 (100.1)	2,447 (101.2)	2,322 (96.1)	7.5%	3.6%	-	
1982	2,387	2,451 (102.7)	2,376 (99.5)	2,413 (101.1)	2,404 (100.7)	3.2%	1.6%	-	
1981	2,404	2,431 (101.1)	2,379 (99.0)	2,446 (101.7)	2,401 (99.9)	2.8%	1.4%	-	
1980	2,408	2,573 (106.9)	2,523 (104.8)	2,486 (103.2)	2,430 (100.9)	6.9%	3.3%	-	
1979	2,568	2,749 (107.0)	2,579 (100.4)	2,649 (103.2)	2,613 (101.8)	7.0%	3.4%	-	

## \*\*\*Further Investigation

- (1) Estimates for 1979-1980 from Table 2 in EIA's *Petroleum Statement Annual*. Estimates for 1981-1986 from Table 2 in EIA's *Petroleum Supply Annual, Vol 1* '81, '82, '83, '84, '85, and '86.
- (2) Estimates for 1979-1982 from the EIA-25, "Prime Suppliers Report" (computer printouts). "Prime supplier" usually is the supplier or producer which makes the first sale of any product into the State. In 1983, the EIA-25 was incorporated into the EIA-782C, "Monthly Report of Petroleum Products Sold into States for Consumption". The estimates for 1983, 1984, and 1986 are from the total of the monthly estimates from Table 67 of the *Petroleum Marketing Monthly*. (For example, monthly estimates for 1986, were obtained from the issues for February 1986 - January 1987). The 1986 estimate is preliminary. The 1985 estimate is from Table 45 of the *Petroleum Marketing Annual 1985, Vol 1*.
- (3) API publishes monthly estimates in thousand barrels per day of the volume of delivered products supplied from primary storage in the *Monthly Statistical Report, API*. For each month the published estimate was multiplied by the number of days in that month to get a monthly total. The given estimate for each year in the above exhibit is the sum of the monthly totals converted to million barrels. The initial published monthly estimate is derived from API sources, but in later API publications the estimates are revised using EIA data.
- (4) Data from Federal Highway Administration, *Highway Statistics*, Tables MF-21A and MF-24. For each year the estimate in the exhibit is obtained by ((Annual Total Gasoline Use Figure from MF-21A) - (Annual Aviation Use Figure from MF-24)) + 42.
- (5) Total annual estimates are computed from the quarterly IRS estimates given in Exhibit 3.1. The annual estimate is obtained by multiplying each quarter's estimate by the number of days in that quarter and summing these products for the four quarters.
- (6) The maximum ratio  $M_0$  for a collection of estimates for the same unknown value of a parameter tells how close the estimates are to each other. To compute  $M_0$  for a collection of estimates, take the difference between the largest and smallest estimates, divide by the smallest estimate, and change to a percent. Thus for 1984, the estimates are all within 7.9% of each other.
- (7) The column headed  $M_0/(M_0 + 2)$  states that about all that can be said about how the collection of estimates stands relative to the unknown true value of the parameter is that for sure at least one of the estimates is at least  $M_0/(M_0 + 2) \times 100\%$  of the unknown true value of the parameter away from the unknown true value of the parameter. Thus for 1984, for sure at least one of the estimates is at least 3.8% of the true 1984 value for total motor gasoline supplied for domestic use away from the true 1984 value for total motor gasoline supplied for domestic use.
- (8) The column headed ACTION is based on the value in column (7). Assume EIA/PSD can not tolerate an estimate which is CERTAINLY at least  $\alpha_0 = .05$  of the true value of the parameter away from the true value of the parameter for a given year. Thus if  $M_0/(M_0 + 2) > \alpha_0 = .05$ , then further investigation is needed - possibly leading to a difference in frames or in definitions. If  $M_0/(M_0 + 2) \leq \alpha_0 = .05$ , then EIA/PSD lacks sufficient evidence from this maximum ratio test to say that at least one of the estimates (including the primary one) is CERTAINLY at least  $\alpha_0 = .05$  of the true value of the parameter away from the true value of the parameter for a given year. Because  $.038 < .05 = \alpha_0$  for 1984, this test gives no evidence that at least one of the 1984 estimates is at least 5% of the true 1984 value for total motor gasoline supplied for domestic use away from the true 1984 value for total motor gasoline supplied for domestic use.

**EXHIBIT 2.2: TOTAL DISTILLATE FUEL OIL (INCLUDING KEROSENE) SUPPLIED FOR DOMESTIC USE - Comparison of Annual Estimates**

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in million barrels. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year	Primary Estimate	Comparative Estimates				ACTION (At $\alpha_0 = .05$ ) (6)
	EIA, Petroleum Supply Division (1)	EIA, Petroleum Marketing Division (2)	American Petroleum Institute (3)	Maximum Ratio, $M_0$ (4)	$\frac{M_0}{M_0 + 2} \times 100\%$ (5)	
1986	1,100	1,196 (108.7)	1,107 (100.6)	8.7%	4.2%	-
1985	1,088	1,160 (106.6)	1,090 (100.2)	6.6%	3.2%	-
1984	1,083	1,150 (106.2)	1,093 (100.9)	6.2%	3.0%	-
1983	1,028	1,045 (101.7)	1,027 (99.9)	1.8%	.9%	-
1982	1,021	1,054 (103.2)	1,031 (101.0)	3.2%	1.6%	-
1981	1,079	1,067 (98.9)	1,109 (102.8)	3.9%	1.9%	-
1980	1,107	1,181 (106.7)	1,141 (103.1)	6.7%	3.2%	-
1979	1,277	1,345 (105.3)	1,291 (101.1)	5.3%	2.6%	-

(1) Estimates for 1979-1980 from Table 2 in EIA's *Petroleum Statement Annual*. Estimates for 1981-1986 from Table 2 in EIA's *Petroleum Supply Annual*, Vol 1 '81, '82, '83, '84, '85, and '86.

(2) Estimates for 1979-1982 from the EIA-25, "Prime Suppliers Report" (computer printouts). "Prime supplier" usually is the supplier or producer which makes the first sale of any product into the State. In 1983, the EIA-25 was incorporated into the EIA-782C, "Monthly Report of Petroleum Products Sold into States for Consumption". The estimates for 1983, 1984, and 1986 are from the total of the monthly estimates from Table 68 of the *Petroleum Marketing Monthly*. (For example, monthly estimates for 1986, were obtained from the issues for February 1986 - January 1987). The 1986 estimate is preliminary. The 1985 estimate is from Table 46 of the *Petroleum Marketing Annual 1985*, Vol 1.

(3) See footnote (3), Exhibit 2.1. In 1982, API discontinued publishing kerosene as a separate category. PSA monthly data for kerosene supplied from Table 3 of the *Petroleum Supply Annual '84, '85 and '86*, Vol 2 have been added to API distillate totals.

(4) See footnote (6), Exhibit 2.1.

(5) See footnote (7), Exhibit 2.1.

(6) See footnote (8), Exhibit 2.1.

**EXHIBIT 2.3: TOTAL RESIDUAL FUEL OIL SUPPLIED FOR DOMESTIC USE -  
Comparison of Annual Estimates**

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in million barrels. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year	Primary Estimate	Comparative Estimates				ACTION (At $\alpha_0 = .05$ ) (6)
	EIA, Petroleum Supply Division (1)	EIA, Petroleum Marketing Division (2)	American Petroleum Institute (3)	Maximum Ratio, $M_0$ (4)	$\frac{M_0}{M_0 + 2} \times 100\%$ (5)	
1986	518	444 (85.7)	506 ( 97.7)	16.7%	7.7%	***
1985	439	411 (93.6)	443 (100.9)	7.8%	3.7%	-
1984	501	484 (96.6)	498 ( 99.4)	3.5%	1.7%	-
1983	519	510 (98.3)	525 (101.2)	2.9%	1.4%	-
1982	627	584 (93.1)	622 ( 99.2)	7.4%	3.6%	-
1981	762	723 (94.9)	780 (102.4)	7.9%	3.8%	-
1980	918	815 (88.8)	937 (102.1)	15.0%	7.0%	***
1979	1,032	791 (76.6)	1,044 (101.2)	32.0%	13.8%	***

**\*\*\*Further Investigation**

- (1) Estimates for 1979-1980 from Table 2 in EIA's *Petroleum Statement Annual*. Estimates for 1981-1986 from Table 2 in EIA's *Petroleum Supply Annual*, Vol 1 '81, '82, '83, '84, '85, and '86.
- (2) Estimates for 1979-1982 from the EIA-25, "Prime Suppliers Report" (computer printouts). "Prime supplier" usually is the supplier or producer which makes the first sale of any product into the State. In 1983, the EIA-25 was incorporated into the EIA-782C, "Monthly Report of Petroleum Products Sold into States for Consumption". The estimates for 1983, 1984, and 1986 are from the total of the monthly estimates from Table 69 of the *Petroleum Marketing Monthly*. (For example, monthly estimates for 1986, were obtained from the issues for February 1986 - January 1987). The 1986 estimate is preliminary. The 1985 estimate is from Table 47 of the *Petroleum Marketing Annual 1985*, Vol 1.
- (3) See footnote (3), Exhibit 2.1.
- (4) See footnote (6), Exhibit 2.1.
- (5) See footnote (7), Exhibit 2.1.
- (6) See footnote (8), Exhibit 2.1.

### CHAPTER 3. COMPARISONS OF QUARTERLY ESTIMATES

#### INTRODUCTION

The quarterly estimates compared in this chapter are for the years 1981-1986 for motor gasoline (Exhibit 3.1) only.

The estimates, sources of estimates, adjustments to any estimates, etc. are documented in the exhibit and by footnotes following the exhibit.

#### COMPARISONS OF QUARTERLY ESTIMATES OF MOTOR GASOLINE SUPPLIED FOR DOMESTIC USE

The PSD daily average data, originally published on a monthly basis, were weighted by the number of days in the month and used to generate average quarterly estimates for comparison with IRS and EPA data.

The IRS derived comparative estimates for motor gasoline are derived from IRS quarterly statistics on federal excise tax collections.

The EPA comparative estimates are derived from quarterly summaries for lead and gasoline (formerly lead additive) reports submitted by petroleum refineries. Because of regulatory changes in the definition of refineries as reporting units and in the reporting periods that went into effect in July 1982, summaries of these reports for refineries are not comparable to PSD's estimates for the four quarters between the end of the second quarter of 1982 and the third quarter of 1983. EPA did not publish other data that could be used for adjustments; therefore, comparisons could not be made for the four missing quarters.

Over time, both IRS and EPA estimates vary above and below the PSD estimate. Since 1983, the EPA estimate was closer to the PSD estimate than was the IRS estimate. Of the twenty-four quarters considered, seven had maximum ratios higher than 11% with five of those quarters occurring in 1985 and 1986. For these five quarters (in addition to the quarter in 1982 and the quarter in 1983), there is clear evidence that at least one of the three (two in the 1983 quarter) derived estimates is unacceptable for the unknown true total for  $\alpha_0 = .05$ ; hence, further investigation is suggested.

#### GENERAL OBSERVATION FOR THE QUARTERLY COMPARISONS

- There is clear evidence for five quarters in 1985 and 1986 (also two other quarters) that there are intolerable differences at  $\alpha_0 = .05$ .

**EXHIBIT 3.1: TOTAL MOTOR GASOLINE SUPPLIED FOR DOMESTIC USE -  
Comparison of Quarterly Estimates**

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in thousand barrels per day. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year and Quarter	Primary Estimate	Comparative Estimates			Maximum Ratio, $M_0$ (4)	$\frac{M_0}{M_0+2} \times 100\%$ (5)	ACTION (At $\alpha_0 = .05$ ) (6)
	EIA, Petroleum Supply Division (1)	Internal Revenue Service (2)	Environmental Protection Agency (3)				
<b>1981</b>							
Jan-Mar	6346	6053 ( 95.4%)	6656 (104.9%)	10.0%	4.7%	-	
Apr-June	6747	6780 (100.5%)	6452 ( 95.6%)	5.1%	2.5%	-	
July-Sept	6708	6706 (100.0%)	6869 (102.4%)	2.4%	1.2%	-	
Oct-Dec	6546	6765 (103.3%)	6801 (103.9%)	3.9%	1.9%	-	
<b>1982</b>							
Jan-Mar	6208	6953 (112.0%)	6275 (101.1%)	12.0%	5.7%	***	
Apr-June	6794	6962 (102.5%)	6654 ( 97.9%)	4.6%	2.3%	-	
July-Sept	6646	6264 ( 94.3%)		6.1%	3.0%	-	
Oct-Dec	6504	6179 ( 95.0%)		5.3%	2.6%	-	
<b>1983</b>							
Jan-Mar	6306	6415 (101.7%)		1.7%	.9%	-	
Apr-June	6687	5642 ( 84.4%)		18.5%	8.5%	***	
July-Sept	6810	7130 (104.7%)	6902 (101.4%)	4.7%	2.3%	-	
Oct-Dec	6680	6255 ( 93.6%)	6436 ( 96.3%)	6.8%	3.3%	-	
<b>1984</b>							
Jan-Mar	6344	6114 ( 96.4%)	6659 (105.0%)	8.9%	4.3%	-	
Apr-June	6891	6490 ( 94.2%)	6787 ( 98.5%)	6.2%	3.0%	-	
July-Sept	6840	6590 ( 96.3%)	6964 (101.8%)	5.7%	2.8%	-	
Oct-Dec	6694	6657 ( 99.4%)	7083 (105.8%)	6.4%	3.1%	-	
<b>1985</b>							
Jan-Mar	6531	6999 (107.2%)	6429 ( 98.4%)	8.9%	4.2%	-	
Apr-June	7005	5934 ( 84.7%)	7143 (102.0%)	20.4%	9.2%	***	
July-Sept	6963	5402 ( 77.6%)	7057 (101.3%)	30.6%	13.3%	***	
Oct-Dec	6820	7237 (106.1%)	6628 ( 97.2%)	9.2%	4.4%	-	
<b>1986</b>							
Jan-Mar	6648	7637 (114.9%)	6542 ( 98.4%)	16.7%	7.7%	***	
Apr-June	7140	6022 ( 84.3%)	7248 (101.5%)	20.4%	9.2%	***	
July-Sept	7249	7452 (102.8%)	7220 ( 99.6%)	3.2%	1.6%	-	
Oct-Dec	7093	6341 ( 89.4%)	7210 (101.6%)	13.7%	6.4%	***	

**\*\*\*Further Investigation**

- (1) The primary estimate is calculated as the weighted (by days in a month) average of the monthly values for finished motor gasoline, products supplied, for a given quarter, reported in the *Petroleum Supply Annual, Vol. II*, Table 3, "Daily Average Supply and Disposition of Crude Oil and Petroleum Products", for the year specified in Exhibit 3.1.

- (2) The IRS estimate is an adjusted value for manufacturer's excise taxes, gasoline, reported in thousands of dollars, in "Internal Revenue Collections of Excise Taxes", a quarterly report of the Public Affairs Division, Internal Revenue Service, U.S. Department of Treasury, for the quarter and year specified in Exhibit 3.1. The IRS published estimates for excise taxes on gasoline include aviation fuel in the gasoline product definition while EIA estimates for finished motor gasoline do not. Because a separate IRS estimate for aviation fuel was not available, the published estimates for aviation fuel from Table 3 "Daily Average Supply and Disposition of Crude Oil and Petroleum Products" of the *Petroleum Supply Annual, Vol. II* were converted to a weighted (by days in a month) quarterly average and subtracted from the converted IRS published estimate for a given quarter. The tax rate through the first quarter of 1983 was \$.04 per gallon and after that time \$.09 per gallon. The total estimate for quarter  $i$  is obtained using the following formula:

$$\left[ \begin{array}{c} \text{Total Estimate} \\ \text{for quarter } i \end{array} \right] = \frac{\text{(Manufacturer's excise taxes, gasoline for quarter } i \text{)}}{\text{(Tax rate) (42) (number of days in quarter } i \text{)}} - \left[ \begin{array}{c} \text{PSD based} \\ \text{estimate of} \\ \text{finished aviation} \\ \text{gasoline for} \\ \text{quarter } i \end{array} \right]$$

- (3) The EPA estimate is based on the value in total billions of gallons of gasoline produced for a given quarter reported in "Lead and Gasoline" (formerly called "Summary of Lead Additive Reports for Refiners") published quarterly by the Office of Mobile Sources, U.S. Environmental Protection Agency, for the year specified in Exhibit 3.1. The estimate for quarter  $i$  is obtained from the following formula:

$$\left[ \begin{array}{c} \text{Estimate for} \\ \text{quarter } i \end{array} \right] = \frac{\text{(Billions of gallons of gasoline produced, total in quarter } i \text{)}}{\text{(42) (number of days in quarter } i \text{)}}$$

- (4) See footnote (6), Exhibit 2.1.  
 (5) See footnote (7), Exhibit 2.1.  
 (6) See footnote (8), Exhibit 2.1.

## CHAPTER 4. COMPARISONS OF MONTHLY ESTIMATES

### INTRODUCTION

In addition to comparing annual and quarterly estimates as described in Chapters 2 and 3, this review also looked at the monthly national-level estimates of product supplied for domestic use. The monthly estimates compared in this chapter are for the years 1982-1986 and for the fuels

- Motor Gasoline (Exhibit 4.1)
- Distillate Fuel Oil (Not including Kerosene) (Exhibit 4.2)
- Residual Fuel Oil (Exhibit 4.3)

The estimates, sources of estimates, adjustments to any estimates, etc. for each fuel are documented in each exhibit and by footnotes following each exhibit.

The monthly comparisons are made (1) to provide additional data points for possible tests of differences, and (2) to permit a more detailed examination of possible trends within years and between years.

The monthly comparison for the distillate fuel estimates examines the distillate estimates without including kerosene. In some previous comparisons, PSD estimates of kerosene supplied have been added to the PSD and API estimates of distillate supplied to provide a basis for comparison with PMD's estimates of distillate (including kerosene) supplied. In 1983, PMD began publishing separate distillate and kerosene estimates in its *Petroleum Marketing Monthly*. Because PSD and API also publish distillate estimates separately, it was decided to compare these estimates directly to avoid having to impute a kerosene value for API.

### COMPARISONS OF MONTHLY ESTIMATES OF MOTOR GASOLINE SUPPLIED FOR DOMESTIC USE

From Exhibits 4.1 and 4.1a, it is clear that PMD monthly estimates are consistently higher than the PSD estimates with what appears to be an increasing trend for the PMD to PSD ratio since June 1984. From Exhibits 4.1 and 4.1b, we observe that the API to PSD ratio appears to fluctuate randomly about 100%, suggesting that on the average over the 60 months, the estimates are roughly the same. From Exhibit 4.1 and 4.1c, the FHWA estimates are, more times than not, larger than the PSD estimates. Also, the month-to-month variation of the FHWA to PSD ratio appears to be greater for 1985-1986 than for 1983-1984. From Exhibit 4.1d, there appears to be an increasing trend for the maximum ratio since June 1984 which coincides with the increasing trend for the PMD to PSD ratio since June 1984. We see that for three months in 1985 and three months in 1986 (October and November for both years) there is clear evidence that for each of these months at least one of the monthly estimates is unacceptable at  $\alpha_0 = .05$ . Exhibit 4.1e gives the plot for

the monthly maximum ratio excluding the PMD monthly estimates. With the PMD monthly estimates excluded, the maximum ratio gives no evidence that any monthly estimates are unacceptable for  $\alpha_0 = .05$ . *This should be taken as a mere observation and not evidence that the PMD estimates are in error while the others are not.*

#### COMPARISONS OF MONTHLY ESTIMATES OF DISTILLATE FUEL (WITHOUT KEROSENE) SUPPLIED FOR DOMESTIC USE

From Exhibits 4.2 and 4.2a, the PMD to PSD ratio is generally greater than 100% and it appears to be slightly increasing since July 1985. From Exhibits 4.2 and 4.2b, the API to PSD ratio appears to fluctuate randomly about 100%. After June 1985, the monthly maximum ratio appears to be larger on the average than for the months prior to June 1985. For three months in 1986, there is clear evidence that for each of these months, at least one of the monthly estimates is unacceptable for  $\alpha_0 = .05$ . Exhibit 4.2d gives the plot for the monthly maximum ratio excluding the PMD monthly estimates. With the PMD monthly estimates excluded, the maximum ratio gives no evidence that any monthly estimates are unacceptable for  $\alpha_0 = .05$ . As noted earlier, *this last result should be taken as a mere observation and not evidence that the PMD estimates are in error while the others are not.*

#### COMPARISONS OF MONTHLY ESTIMATES OF RESIDUAL FUEL SUPPLIED FOR DOMESTIC USE

It is apparent from Exhibits 4.3, 4.3a, 4.3b, and 4.3c that there is considerable variability among the three monthly estimates. There is also considerable variability from month to month. For example, during the last three months of 1984 and the first month of 1985, the PMD to PSD ratio varies from 111.9% to 88.2% to 118.1% to 96.8%. Also over a three-month period (December 1982-February 1983), the API to PSD ratio varies from 83% to 105.2%, its minimum and maximum for the entire sixty month period. The PMD to PSD ratio appears to be decreasing over the period, particularly since April 1985, while the API to PSD ratio exhibits possibly random fluctuation about 100%. Since July 1985, there appears to be an increasing trend in the monthly maximum ratio. Exhibit 4.3d gives the plot for the monthly maximum ratio excluding the PMD monthly estimates. With the PMD monthly estimates excluded, there is no appearance of an increase or decrease in the maximum ratio. Both with and without the PMD monthly estimates for some months, there is clear evidence that at least one of the monthly estimates is unacceptable for  $\alpha_0 = .05$ .

#### GENERAL OBSERVATIONS FOR THE MONTHLY COMPARISONS

- PMD monthly estimates are generally higher than the PSD estimates for motor gasoline and distillate fuel, but generally lower for residual fuel.

- The month-to-month variation in the estimates for residual fuel is greater than that for motor gasoline and distillate fuel.
- For all three fuels, there appears to be an increasing trend in the monthly maximum ratio during 1985 and 1986 with several unacceptable monthly estimates. Without the PMD monthly estimates, there appears to be no increasing trend in the monthly maximum ratio and only some unacceptable monthly estimates for residual fuel.

**EXHIBIT 4.1: TOTAL MOTOR GASOLINE SUPPLIED FOR DOMESTIC USE -  
Comparison of Monthly Estimates**

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in thousand barrels per day. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year and Month	Primary Estimate	Comparative Estimates			Maximum Ratio, $M_0$ (5)	$\frac{M_0}{M_0+2} \times 100\%$ (6)	ACTION (At $\alpha_0 = .05$ ) (7)
	EIA, Petroleum Supply Division (1)	EIA, Petroleum Marketing Division (2)	American Petroleum Institute (3)	Federal Highway Administration (4)			
1982							
J	5961		6139 (103.0)	5741 ( 96.3)	6.9%	3.4%	-
F	6196		6116 ( 98.7)	6567 (106.0)	7.4%	3.6%	-
M	6466		6225 ( 96.3)	6487 (100.3)	4.2%	2.1%	-
A	6897		6654 ( 96.5)	6704 ( 97.2)	3.7%	1.8%	-
M	6655		6778 (101.8)	6719 (101.0)	1.8%	0.9%	-
J	6835		6887 (100.8)	6982 (102.2)	2.2%	1.1%	-
J	6790		6809 (100.3)	6981 (102.8)	2.8%	1.4%	-
A	6614		6661 (100.7)	6695 (101.2)	1.2%	0.6%	-
S	6531		6451 ( 98.8)	6757 (103.5)	4.7%	2.3%	-
O	6391		6608 (103.4)	6488 (101.5)	3.4%	1.7%	-
N	6574		6439 ( 97.9)	6615 (100.6)	2.7%	1.3%	-
D	6549		6281 ( 95.9)	6627 (101.2)	5.5%	2.7%	-
1983							
J	6051	6140 (101.5)	6023 ( 99.5)	5943 ( 98.2)	3.3%	1.6%	-
F	6000	6166 (102.8)	5923 ( 98.7)	6450 (107.5)	8.9%	4.3%	-
M	6836	7154 (104.7)	6742 ( 98.6)	6862 (100.4)	6.1%	3.0%	-
A	6452	6904 (107.0)	6600 (102.3)	6508 (100.9)	7.0%	3.4%	-
M	6617	6824 (103.1)	6607 ( 99.8)	6615 (100.0)	3.3%	1.6%	-
J	6994	7362 (105.3)	6964 ( 99.6)	7125 (101.9)	5.7%	2.8%	-
J	6765	6917 (102.2)	6876 (101.6)	6870 (101.6)	2.2%	1.1%	-
A	6936	7245 (104.5)	6657 ( 96.0)	7023 (101.3)	8.8%	4.2%	-
S	6727	6926 (103.0)	6665 ( 99.1)	6901 (102.6)	3.9%	1.9%	-
O	6588	6659 (101.1)	6614 (100.4)	6548 ( 99.4)	1.7%	0.8%	-
N	6603	6774 (102.6)	6671 (101.0)	6715 (101.7)	2.6%	1.3%	-
D	6846	6920 (101.1)	6670 ( 97.4)	6878 (100.5)	3.7%	1.8%	-
1984							
J	6265	6495 (103.7)	6456 (103.0)	6227 ( 99.4)	4.3%	2.1%	-
F	6231	6658 (106.9)	6171 ( 99.0)	6374 (102.3)	7.9%	3.8%	-
M	6528	6949 (106.4)	6289 ( 96.3)	6574 (100.7)	10.5%	5.0%	-
A	6676	6830 (102.3)	6696 (100.3)	6835 (102.4)	2.4%	1.2%	-
M	6890	7101 (103.1)	6954 (100.9)	6991 (101.5)	3.1%	1.5%	-
J	7107	7140 (100.5)	7072 ( 99.5)	7235 (101.8)	2.3%	1.1%	-
J	6830	7034 (103.0)	7055 (103.3)	7131 (104.4)	4.4%	2.2%	-
A	7093	7489 (105.6)	7023 ( 99.0)	7226 (101.9)	6.6%	3.2%	-
S	6588	6761 (102.6)	6811 (103.4)	6666 (101.2)	3.4%	1.7%	-
O	6729	7131 (106.0)	6643 ( 98.7)	6982 (103.8)	7.3%	3.5%	-
N	6800	7132 (104.9)	6648 ( 97.8)	6947 (102.2)	7.3%	3.5%	-
D	6555	6922 (105.6)	6781 (103.4)	6699 (102.2)	5.6%	2.7%	-

1985							
J	6348	6736 (106.1)	6368 (100.3)	6296 ( 99.2)	7.0%	3.4%	-
F	6587	7098 (107.8)	6360 ( 96.6)	6703 (101.8)	11.6%	5.5%	***
M	6664	7236 (108.6)	6649 ( 99.8)	6639 ( 99.6)	9.0%	4.3%	-
A	6956	7540 (108.4)	6857 ( 98.6)	7127 (102.5)	10.0%	4.7%	-
M	7060	7591 (107.5)	6950 ( 98.4)	7009 ( 99.3)	9.2%	4.4%	-
J	6997	7411 (105.9)	7019 (100.3)	7211 (103.1)	5.9%	2.9%	-
J	7008	7660 (109.3)	7015 (100.1)	7602 (108.5)	9.3%	4.4%	-
A	7242	7628 (105.3)	7237 ( 99.9)	7193 ( 99.3)	6.0%	2.9%	-
S	6629	7189 (108.4)	6829 (103.0)	7185 (108.4)	8.4%	4.1%	-
O	6897	7626 (110.6)	6715 ( 97.4)	6856 ( 99.4)	13.6%	6.4%	***
N	6770	7350 (108.6)	6816 (100.7)	7030 (103.8)	8.6%	4.1%	-
D	6792	7374 (108.6)	6573 ( 96.8)	7078 (104.2)	12.2%	5.7%	***
1986							
J	6502	6832 (105.1)	6647 (102.2)	6680 (102.7)	5.1%	2.5%	-
F	6469	7041 (108.8)	6572 (101.6)	6814 (105.3)	8.8%	4.2%	-
M	6955	7426 (106.8)	7026 (101.0)	6765 ( 97.3)	9.8%	4.7%	-
A	7105	7767 (109.3)	7127 (100.3)	7460 (105.0)	9.3%	4.5%	-
M	7106	7986 (112.4)	6926 ( 97.5)	7371 (103.7)	15.3%	7.1%	***
J	7209	7722 (107.1)	7230 (100.3)	7636 (105.9)	7.1%	3.4%	-
J	7436	7853 (105.6)	7408 ( 99.6)	7452 (100.2)	6.0%	2.9%	-
A	7435	7936 (106.7)	7473 (100.5)	7506 (101.0)	6.7%	3.3%	-
S	6864	7439 (108.4)	6967 (101.5)	7223 (105.2)	8.4%	4.0%	-
O	7250	7818 (107.8)	7162 ( 98.8)	6866 ( 94.7)	13.9%	6.5%	***
N	6879	7372 (107.2)	7003 (101.8)	7230 (105.1)	7.2%	3.5%	-
D	7143	7827 (109.6)	6877 ( 96.3)	7437 (104.1)	13.8%	6.5%	***

\*\*\*Further Investigation

- (1) Data from Table 2 in EIA's *Petroleum Supply Annual, Vol II*, 1982, 1983 and 1984 and Table 3 for 1985 and 1986.
- (2) Data from the tables labelled "First Sales For Consumption" in EIA's *Petroleum Marketing Monthly* for each month of 1984. Data are reported for 1983 and 1984 in the 1984 issues. 1985 estimates were obtained from Table 32 of the *Petroleum Marketing Annual 1985, Vol II*. 1986 estimates were obtained from Table 67 of the *Petroleum Marketing Monthly* for the months February 1986 through January 1987. It is likely that the 1986 figures will be revised (again) as they were for the first time in 1985 before publication in the *Petroleum Marketing Annual*.
- (3) Estimates from the table titled "Estimated United States Petroleum Balance" of the *Monthly Statistical Report* of the American Petroleum Institute.
- (4) All estimates are computed from data given in Tables MF-21A, MF-24, and MF-33GA of *Highway Statistics* for 1982, 1983, 1984, 1985, and 1986 published by the Federal Highway Administration. The monthly estimates in Table MF-33GA have not been revised as has the annual estimate in Table MF-21A. Usually the revised annual estimate in MF-21A is lower than the total of the monthly estimates from MF-33GA. Also the monthly estimates include fuel for aviation use. The percentage of aviation fuel in each monthly estimate is unpublished. Table MF-24 gives a revised annual estimate for aviation use. In an attempt to not include fuel for aviation use and to make the monthly estimates consistent with the revised annual estimate, the estimate for each month was obtained using the following formula

$$\left[ \begin{array}{c} \text{Estimate for} \\ \text{Month } i \end{array} \right] = \frac{\left[ \begin{array}{c} \left[ \begin{array}{c} \text{Month } i \\ \text{Number} \\ \text{MF-33GA} \end{array} \right] - \left[ \begin{array}{c} \text{Annual} \\ \text{Aviation} \\ \text{MF-24} \end{array} \right] \left[ \begin{array}{c} \text{Annual} \\ \text{Total} \\ \text{MF-21A} \end{array} \right] \left[ \begin{array}{c} \text{Month } i \\ \text{Number} \\ \text{MF-33GA} \end{array} \right] \left[ \begin{array}{c} \text{Annual} \\ \text{Total} \\ \text{MF-33GA} \end{array} \right] \left[ \begin{array}{c} \text{Annual} \\ \text{Total} \\ \text{MF-21A} \end{array} \right] \end{array} \right]}{(42)(\# \text{ of days in Month } i)}$$

- (5) See footnote (6), Exhibit 2.1.
- (6) See footnote (7), Exhibit 2.1.
- (7) See footnote (8), Exhibit 2.1.

EXHIBIT 4.1a

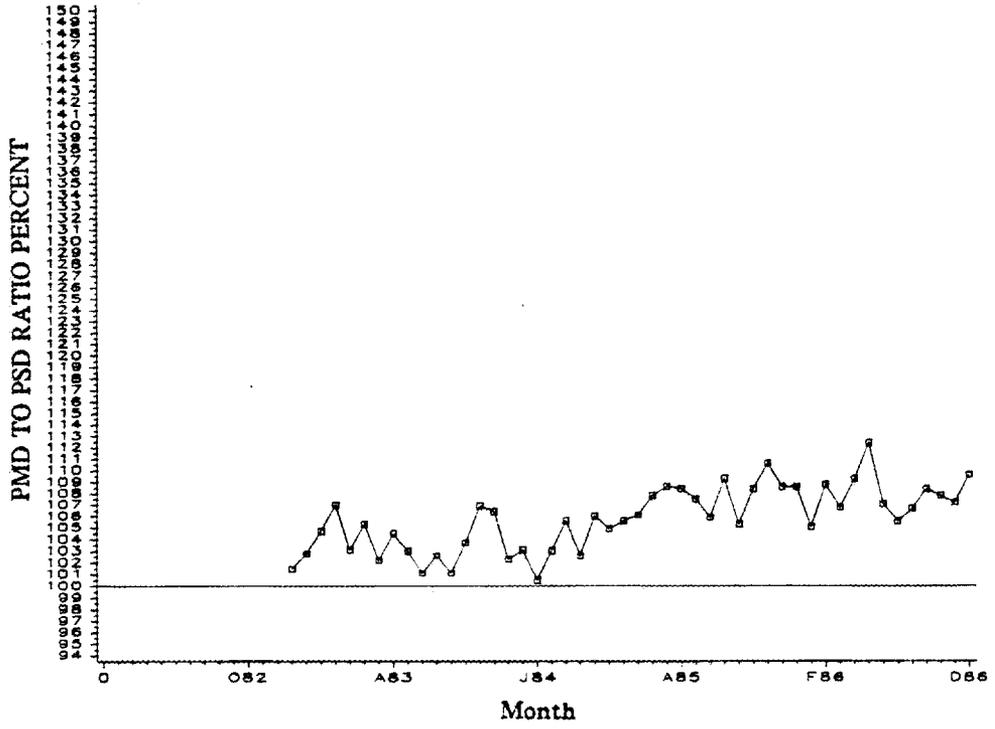


EXHIBIT 4.1b

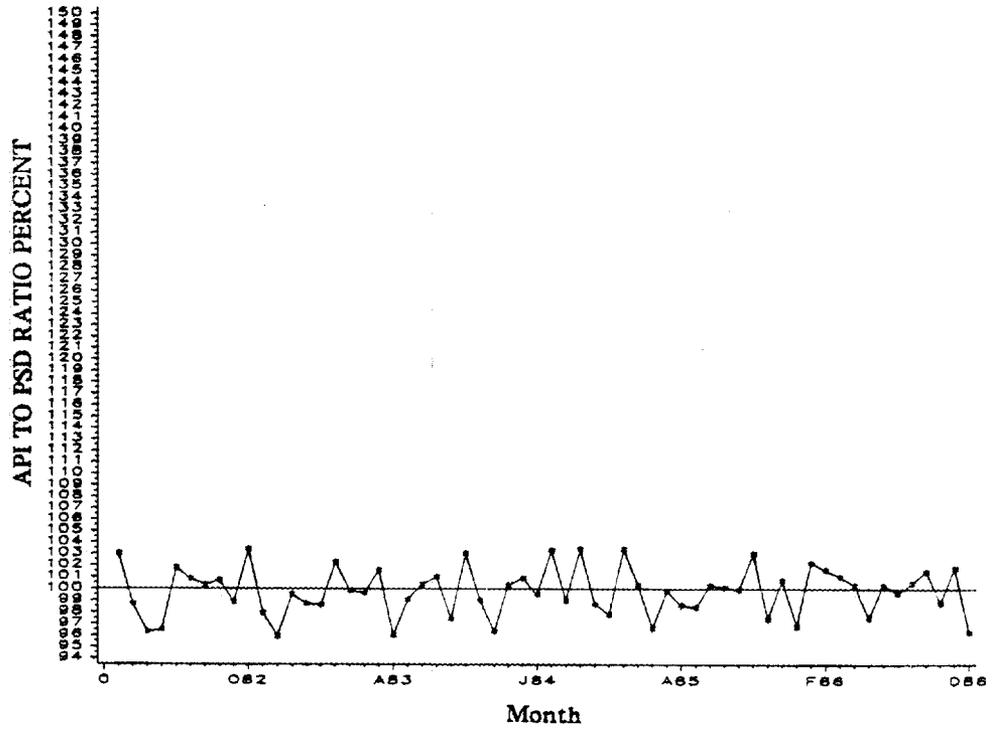


EXHIBIT 4.1c

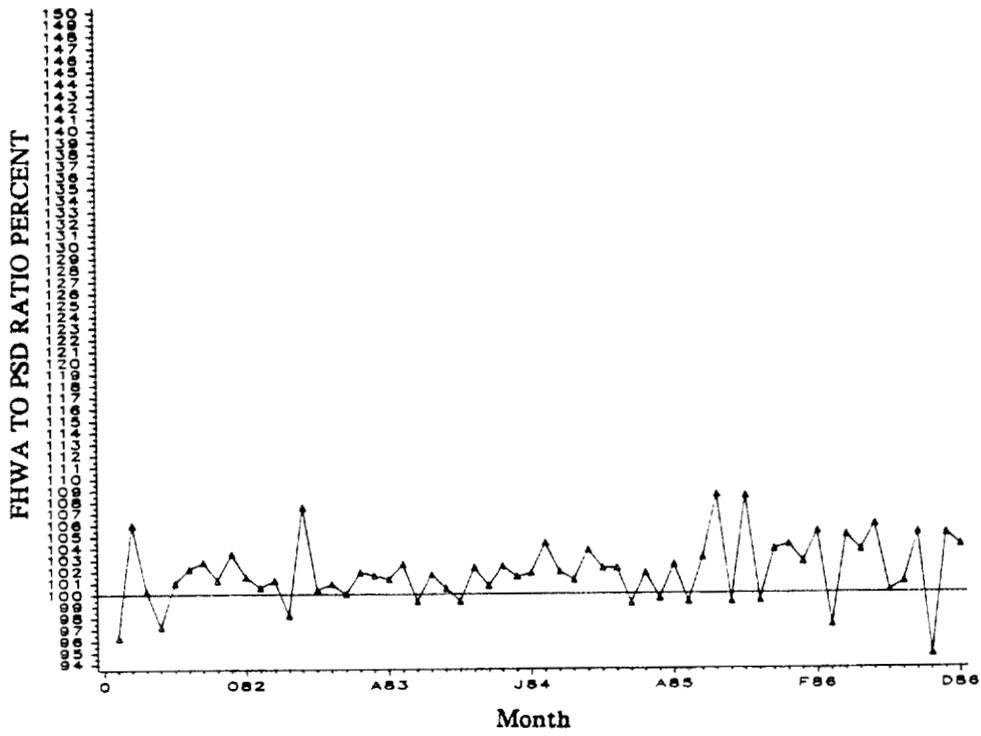


EXHIBIT 4.1d

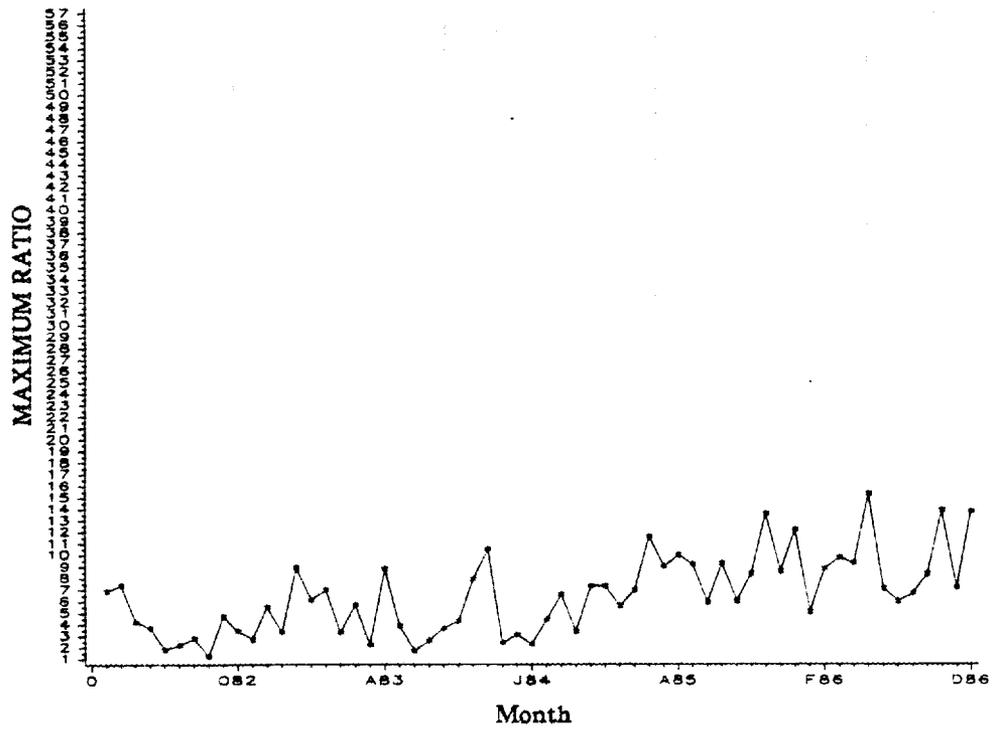
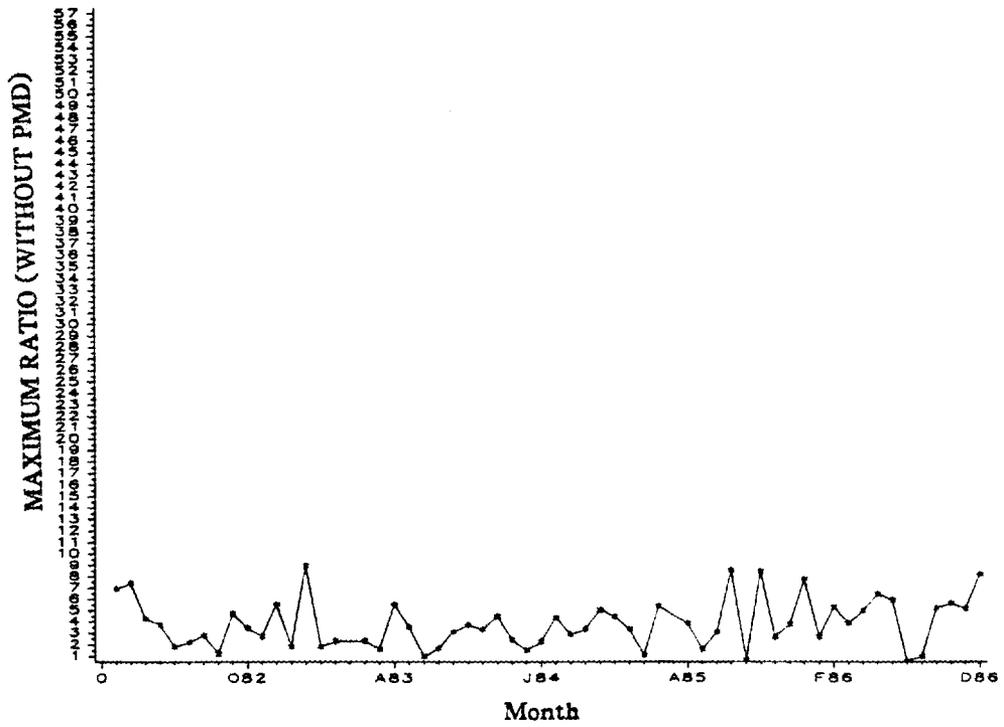


EXHIBIT 4.1c



**EXHIBIT 4.2: TOTAL DISTILLATE FUEL OIL SUPPLIED FOR DOMESTIC USE -  
Comparison of Monthly Estimates**

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in thousand barrels per day. The estimates in this table do not include kerosene. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year and Month	Primary Estimate	Comparative Estimates				ACTION (At $\alpha_0 = .05$ ) (6)
	EIA, Petroleum Supply Division (1)	EIA, Petroleum Marketing Division (2)	American Petroleum Institute (3)	Maximum Ratio, $M_0$ (4)	$\frac{M_0}{M_0+2} \times 100\%$ (5)	
1982						
January	3484		3644 (104.6)	4.6%	2.2%	-
February	3055		3224 (105.5)	5.5%	2.7%	-
March	2945		2816 ( 95.6)	4.6%	2.2%	-
April	2978		2855 ( 95.9)	4.3%	2.1%	-
May	2444		2661 (108.9)	8.9%	4.3%	-
June	2452		2268 ( 92.5)	8.1%	3.9%	-
July	2058		2121 (103.1)	3.1%	1.5%	-
August	2218		2156 ( 97.2)	2.9%	1.4%	-
September	2507		2570 (102.5)	2.5%	1.2%	-
October	2581		2636 (102.1)	2.1%	1.1%	-
November	2474		2433 ( 98.3)	1.7%	0.8%	-
December	2855		2943 (103.1)	3.1%	1.5%	-
1983						
January	2797	2822 (100.9)	2980 (106.5)	6.5%	3.2%	-
February	2780	2749 ( 98.9)	2831 (101.8)	3.0%	1.5%	-
March	2947	2955 (100.3)	2725 ( 92.5)	8.4%	4.0%	-
April	2697	2746 (101.8)	2848 (105.6)	5.6%	2.7%	-
May	2354	2242 ( 95.2)	2286 ( 97.1)	5.0%	2.4%	-
June	2524	2512 ( 99.5)	2545 (100.8)	1.3%	0.7%	-
July	2270	2292 (101.0)	2286 (100.7)	1.0%	0.5%	-
August	2495	2604 (104.4)	2375 ( 95.2)	9.6%	4.6%	-
September	2575	2360 ( 91.7)	2479 ( 96.3)	9.1%	4.4%	-
October	2611	2443 ( 93.6)	2624 (100.5)	7.4%	3.6%	-
November	2874	2919 (101.6)	2880 (100.2)	1.6%	0.8%	-
December	3365	3315 ( 98.5)	3338 ( 99.2)	1.5%	0.7%	-
1984						
January	3525	3628 (102.9)	3728 (105.8)	5.8%	2.8%	-
February	2834	3058 (107.9)	2819 ( 99.5)	8.5%	4.1%	-
March	3259	3303 (101.4)	3176 ( 97.5)	4.0%	2.0%	-
April	2926	2957 (101.1)	2827 ( 96.6)	4.6%	2.2%	-
May	2814	2910 (103.4)	2796 ( 99.4)	4.1%	2.0%	-
June	2593	2617 (100.9)	2678 (103.3)	3.3%	1.6%	-
July	2504	2566 (102.5)	2516 (100.5)	2.5%	1.2%	-
August	2559	2689 (105.1)	2573 (100.5)	5.1%	2.5%	-
September	2654	2736 (103.1)	2736 (103.1)	3.1%	1.5%	-
October	2765	2746 ( 99.3)	2597 ( 93.9)	6.5%	3.1%	-
November	2827	3033 (107.3)	2940 (104.0)	7.3%	3.5%	-
December	2865	3140 (109.6)	3060 (106.8)	9.6%	4.6%	-

1985						
January	3465	3528 (101.8)	3334 ( 96.2)	5.8%	2.8%	-
February	3330	3365 (101.1)	3348 (100.5)	1.1%	0.5%	-
March	3093	3225 (104.3)	3129 (101.2)	4.3%	2.1%	-
April	2798	2984 (106.6)	2761 ( 98.7)	8.1%	3.9%	-
May	2607	2635 (101.1)	2611 (100.2)	1.1%	0.5%	-
June	2594	2466 ( 95.1)	2682 (103.4)	8.8%	4.2%	-
July	2436	2575 (105.7)	2405 ( 98.7)	7.1%	3.4%	-
August	2636	2797 (106.1)	2679 (101.6)	6.1%	3.0%	-
September	2575	2756 (107.0)	2626 (102.0)	7.0%	3.4%	-
October	2901	3090 (106.5)	2850 ( 98.2)	8.4%	4.0%	-
November	2747	2993 (109.0)	2875 (104.7)	9.0%	4.3%	-
December	3254	3388 (104.1)	3198 ( 98.3)	5.9%	2.9%	-
1986						
January	3330	3375 (101.4)	3467 (104.1)	4.1%	2.0%	-
February	3416	3651 (106.9)	3514 (102.9)	6.9%	3.3%	-
March	3168	3364 (106.2)	3369 (106.3)	6.3%	3.1%	-
April	2904	3020 (104.0)	2756 ( 94.9)	9.6%	4.6%	-
May	2762	2894 (104.8)	2838 (102.8)	4.8%	2.3%	-
June	2544	2694 (105.9)	2553 (100.4)	5.9%	2.9%	-
July	2592	2739 (105.7)	2491 ( 96.1)	10.0%	4.7%	-
August	2621	2949 (112.5)	2618 ( 99.9)	12.6%	5.9%	***
September	2540	2815 (110.8)	2514 ( 99.0)	12.0%	5.6%	***
October	2912	3135 (107.7)	2911 (100.0)	7.7%	3.7%	-
November	2877	3007 (104.5)	3070 (106.7)	6.7%	3.2%	-
December	3329	3473 (104.3)	3127 ( 93.9)	11.1%	5.2%	***

\*\*\*Further Investigation

- (1) Data from Table 2 in EIA's *Petroleum Supply Annual, Vol II*, 1982, 1983 and 1984 and Table 3 for 1985 and 1986.
- (2) Data from the tables labelled "First Sales For Consumption" in EIA's *Petroleum Marketing Monthly* for each month of 1984. Data are reported for 1983 and 1984 in the 1984 issues. 1985 estimates were obtained from Table 33 of the *Petroleum Marketing Annual 1985, Vol II*. 1986 estimates were obtained from Table 68 of the *Petroleum Marketing Monthly* for the months February 1986 through January 1987. It is likely that the 1986 figures will be revised (again) as they were for the first time in 1985 before publication in the *Petroleum Marketing Annual*.
- (3) Estimates from the table titled "Estimated United States Petroleum Balance" of the *Monthly Statistical Report* of the American Petroleum Institute.
- (4) See footnote (6), Exhibit 2.1.
- (5) See footnote (7), Exhibit 2.1.
- (6) See footnote (8), Exhibit 2.1.

EXHIBIT 4.2a

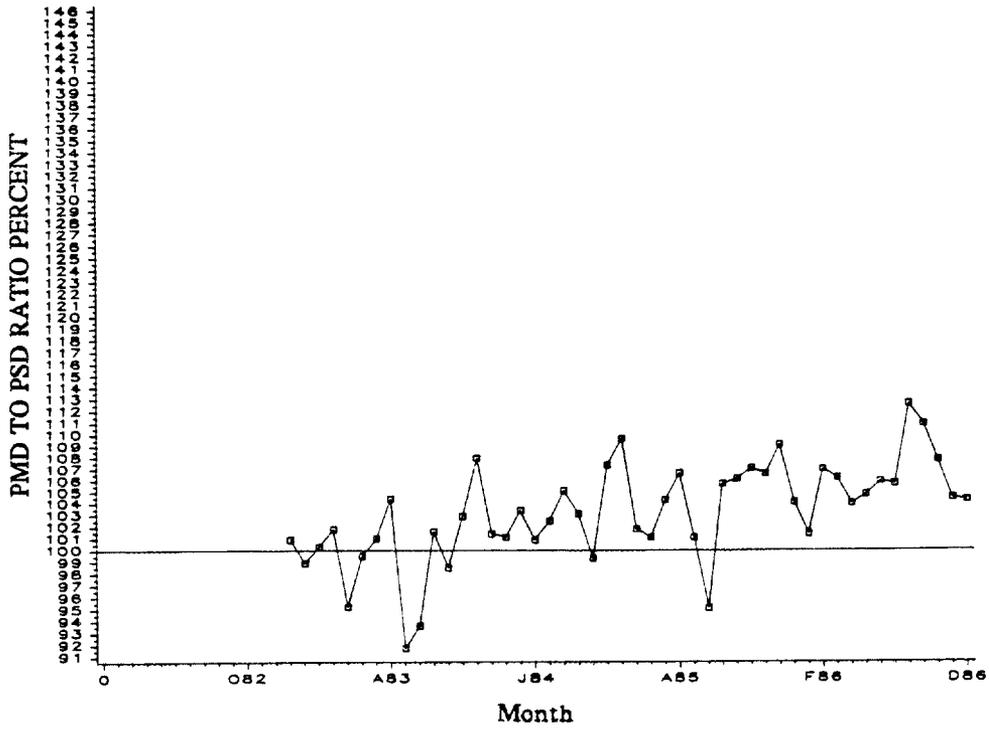


EXHIBIT 4.2b

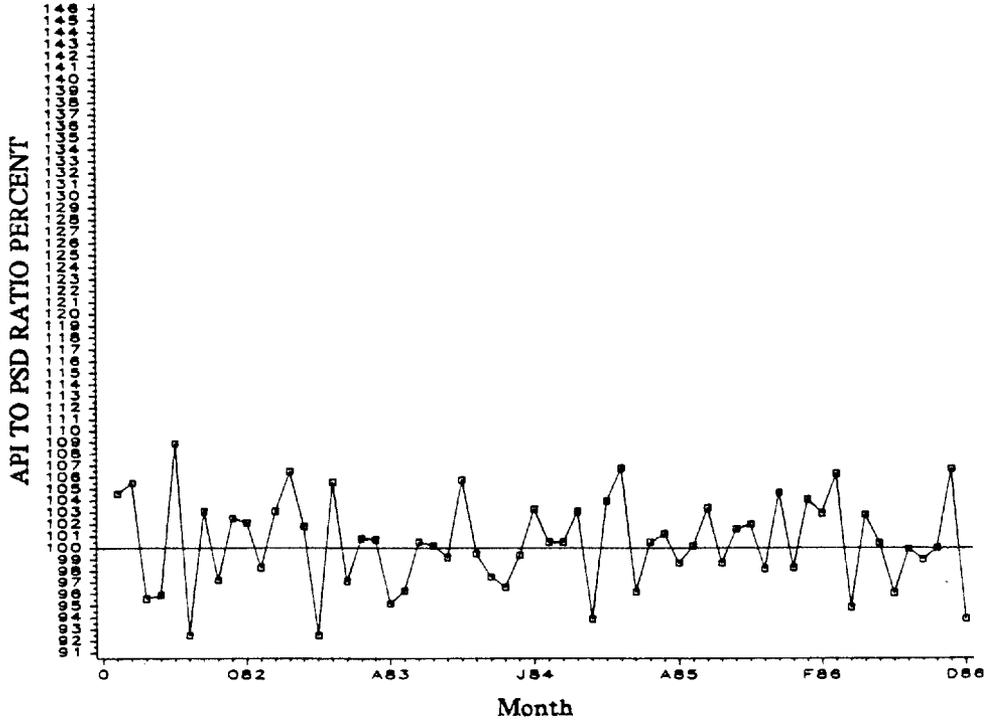


EXHIBIT 4.2c

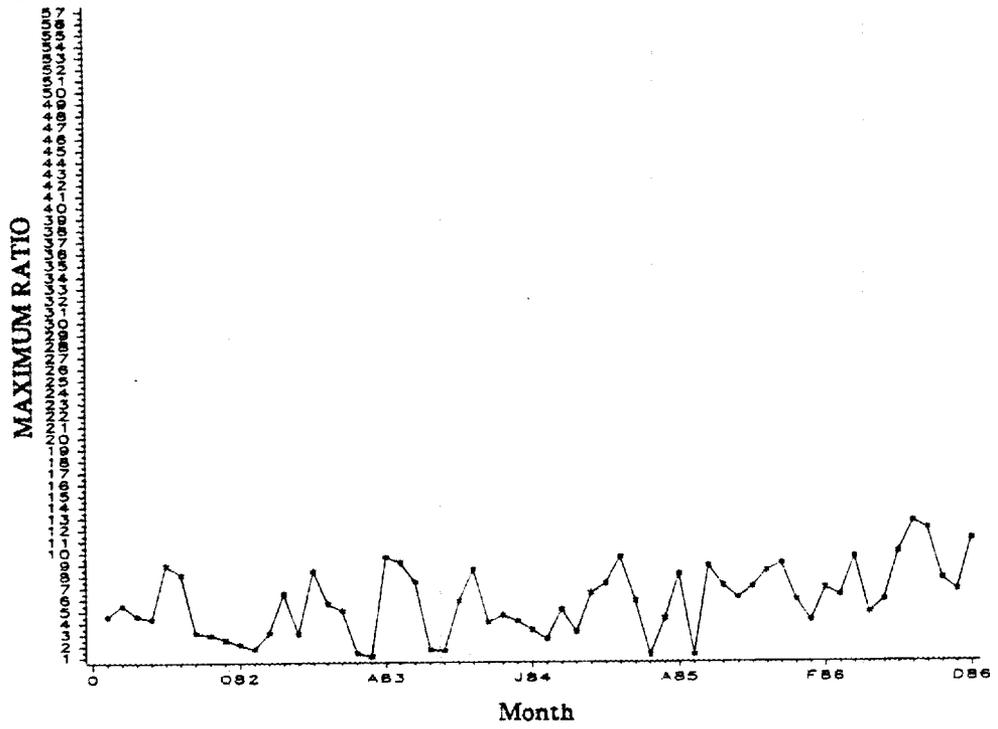
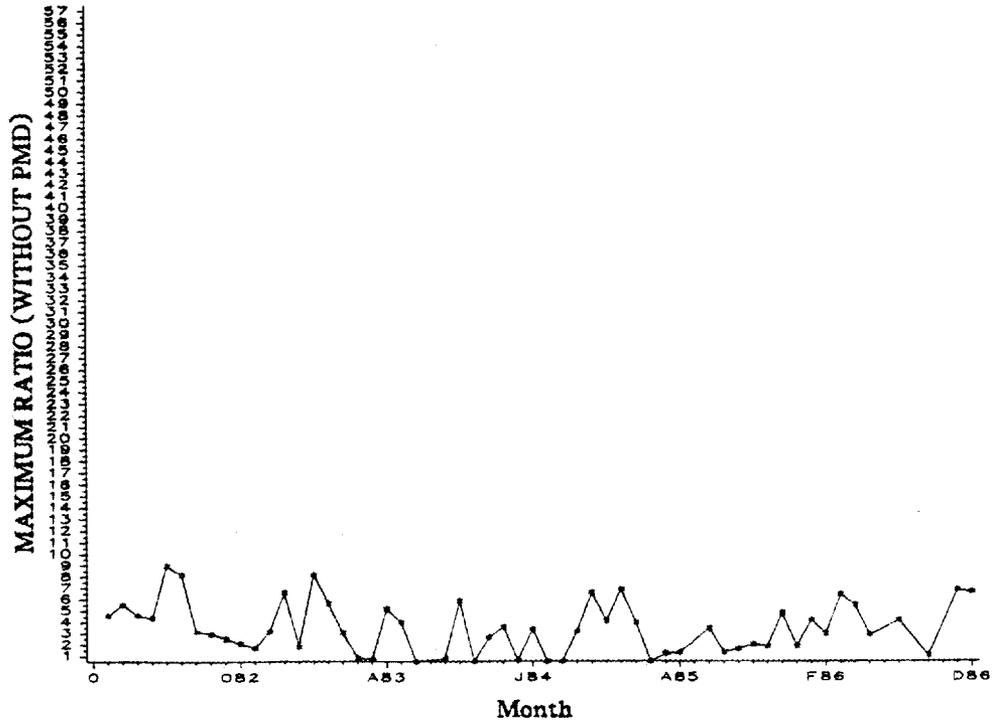


EXHIBIT 4.2d



**EXHIBIT 4.3: TOTAL RESIDUAL FUEL OIL SUPPLIED FOR DOMESTIC USE -  
Comparison of Monthly Estimates**

(The number following each comparative estimate is the quotient of that comparative estimate and the EIA/PSD primary estimate times 100%. All estimates are in thousand barrels per day. Where necessary original estimates were changed from gallons to barrels by the conversion factor 42 gallons = 1 barrel.)

Year and Month	Primary Estimate	Comparative Estimates			$\frac{M_0}{M_0+2} \times 100\%$ (5)	ACTION (At $\alpha_0 = .05$ ) (6)
	EIA, Petroleum Supply Division (1)	EIA, Petroleum Marketing Division (2)	American Petroleum Institute (3)	Maximum Ratio, $M_0$ (4)		
<b>1982</b>						
January	2185		2405 (110.1)	10.1%	4.8%	-
February	2344		2246 ( 95.8)	4.4%	2.1%	-
March	1903		1869 ( 98.2)	1.8%	0.9%	-
April	1923		1725 ( 89.7)	11.5%	5.4%	***
May	1560		1591 (102.0)	2.0%	1.0%	-
June	1501		1405 ( 93.6)	6.8%	3.3%	-
July	1550		1630 (105.2)	5.2%	2.5%	-
August	1530		1577 (103.1)	3.1%	1.5%	-
September	1470		1528 (103.9)	3.9%	1.9%	-
October	1490		1381 ( 92.7)	7.9%	3.8%	-
November	1591		1489 ( 93.6)	6.9%	3.3%	-
December	1598		1327 ( 83.0)	20.4%	9.3%	***
<b>1983</b>						
January	1626	1537 ( 94.5)	1711 (105.2)	11.3%	5.4%	***
February	1570	1715 (109.2)	1914 (121.9)	21.9%	9.9%	***
March	1579	1529 ( 96.8)	1616 (102.3)	5.7%	2.8%	-
April	1374	1474 (107.3)	1653 (120.3)	20.3%	9.2%	***
May	1342	1360 (101.3)	1288 ( 96.0)	5.6%	2.7%	-
June	1323	1348 (101.9)	1284 ( 97.1)	5.0%	2.4%	-
July	1299	1310 (100.8)	1212 ( 93.3)	8.1%	3.9%	-
August	1400	1342 ( 95.9)	1307 ( 93.4)	7.1%	3.4%	-
September	1351	1242 ( 91.9)	1326 ( 98.1)	8.8%	4.2%	-
October	1243	1241 ( 99.8)	1262 (101.5)	1.7%	0.8%	-
November	1362	1270 ( 93.2)	1281 ( 94.1)	7.2%	3.5%	-
December	1587	1427 ( 89.9)	1410 ( 88.8)	12.6%	5.9%	***
<b>1984</b>						
January	1979	1707 ( 86.3)	1843 ( 93.1)	15.9%	7.4%	***
February	1651	1695 (102.7)	1607 ( 97.3)	5.5%	2.7%	-
March	1619	1508 ( 93.1)	1464 ( 90.4)	10.6%	5.0%	***
April	1384	1157 ( 83.6)	1309 ( 94.6)	19.6%	8.9%	***
May	1237	1197 ( 96.8)	1192 ( 96.4)	3.8%	1.9%	-
June	1344	1225 ( 91.1)	1420 (105.7)	15.9%	7.4%	***
July	1192	1108 ( 93.0)	1277 (107.1)	15.3%	7.1%	***
August	1261	1257 ( 99.7)	1298 (102.9)	3.3%	1.6%	-
September	1168	1229 (105.2)	1335 (114.3)	14.3%	6.7%	***
October	1066	1193 (111.9)	1136 (106.6)	11.9%	5.6%	***
November	1352	1192 ( 88.2)	1228 ( 90.8)	13.4%	6.3%	***
December	1189	1404 (118.1)	1236 (104.0)	18.1%	8.3%	***

1985						
January	1480	1432 ( 96.8)	1508 (101.9)	5.3%	2.6%	-
February	1366	1446 (105.9)	1399 (102.4)	5.9%	2.8%	-
March	1190	1218 (102.4)	1367 (114.9)	14.9%	6.9%	***
April	1126	1004 ( 89.2)	1014 ( 90.1)	12.2%	5.7%	***
May	1156	988 ( 85.5)	1076 ( 93.1)	17.0%	7.8%	***
June	1043	1020 ( 97.8)	1060 (101.6)	3.9%	1.9%	-
July	1058	930 ( 87.9)	1077 (101.8)	15.8%	7.3%	***
August	1168	1009 ( 86.4)	1166 ( 99.8)	15.8%	7.3%	***
September	1031	935 ( 90.7)	1094 (106.1)	17.0%	7.8%	***
October	1042	1013 ( 97.2)	1137 (109.1)	12.2%	5.8%	***
November	1290	1150 ( 89.1)	1328 (102.9)	15.5%	7.2%	***
December	1483	1370 ( 92.4)	1346 ( 90.8)	10.2%	4.8%	-
1986						
January	1407	1221 ( 86.8)	1274 ( 90.5)	15.2%	7.1%	***
February	1478	1385 ( 93.7)	1463 ( 99.0)	6.7%	3.2%	-
March	1435	1221 ( 85.1)	1247 ( 86.9)	17.5%	8.1%	***
April	1402	1175 ( 83.8)	1330 ( 94.9)	19.3%	8.8%	***
May	1345	1138 ( 84.6)	1286 ( 95.6)	18.2%	8.3%	***
June	1377	1184 ( 86.0)	1441 (104.6)	21.7%	9.8%	***
July	1508	1239 ( 82.2)	1457 ( 96.6)	21.7%	9.8%	***
August	1485	1240 ( 83.5)	1443 ( 97.2)	19.8%	9.0%	***
September	1296	1182 ( 91.2)	1312 (101.2)	11.0%	5.2%	***
October	1259	1006 ( 79.9)	1185 ( 94.1)	25.1%	11.2%	***
November	1391	1178 ( 84.7)	1433 (103.0)	21.6%	9.8%	***
December	1638	1449 ( 88.5)	1755 (107.1)	21.1%	9.6%	***

\*\*\*Further Investigation

- (1) Data from Table 2 in EIA's *Petroleum Supply Annual, Vol II*, 1982, 1983 and 1984 and Table 3 for 1985 and 1986.
- (2) Data from the tables labelled "First Sales For Consumption" in EIA's *Petroleum Marketing Monthly* for each month of 1984. Data are reported for 1983 and 1984 in the 1984 issues. 1985 estimates were obtained from Table 34 of the *Petroleum Marketing Annual 1985, Vol II*. 1986 estimates were obtained from Table 69 of the *Petroleum Marketing Monthly* for the months February 1986 through January 1987. It is likely that the 1986 figures will be revised (again) as they were for the first time in 1985 before publication in the *Petroleum Marketing Annual*.
- (3) Estimates from the table titled "Estimated United States Petroleum Balance" of the *Monthly Statistical Report of the American Petroleum Institute*.
- (4) See footnote (6), Exhibit 2.1.
- (5) See footnote (7), Exhibit 2.1.
- (6) See footnote (8), Exhibit 2.1.

EXHIBIT 4.3a

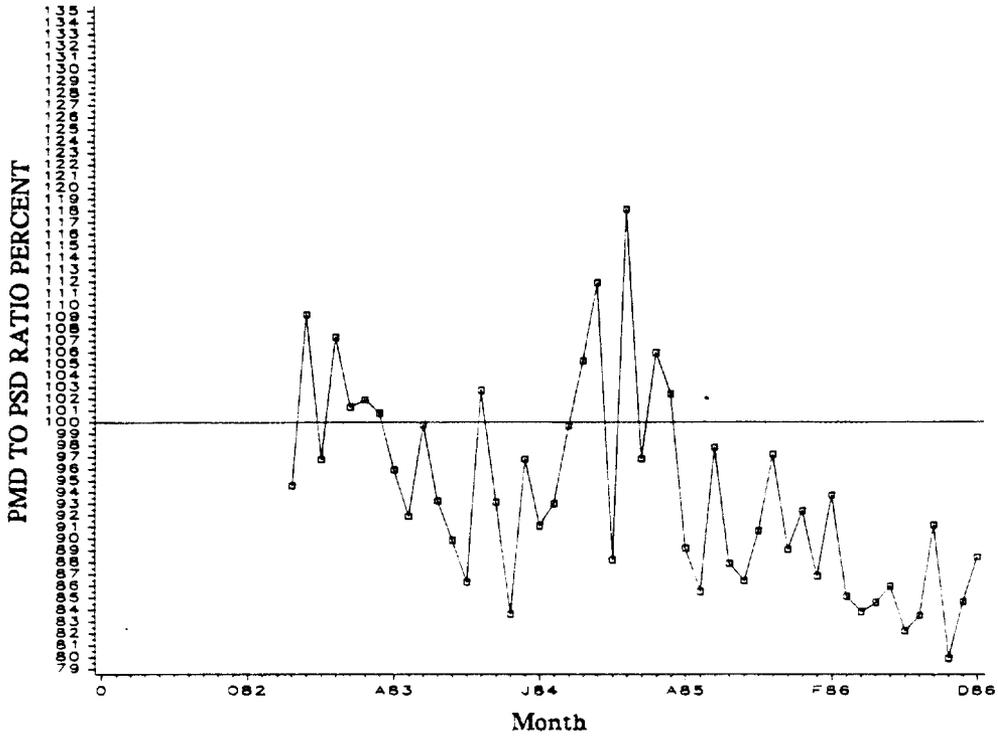


EXHIBIT 4.3b

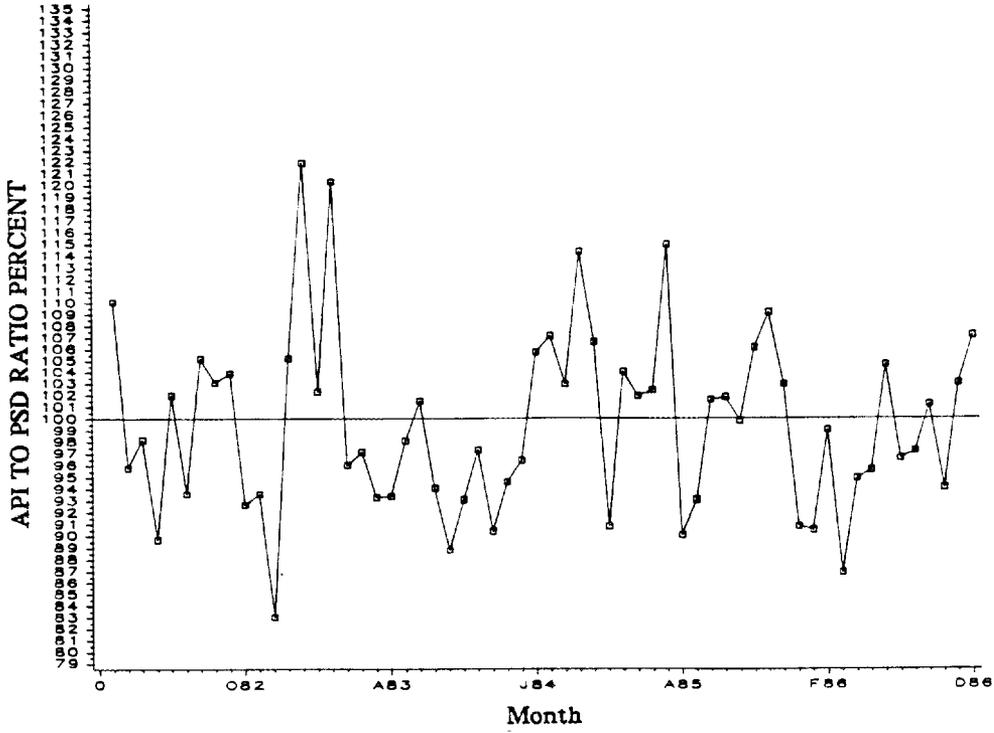


EXHIBIT 4.3c

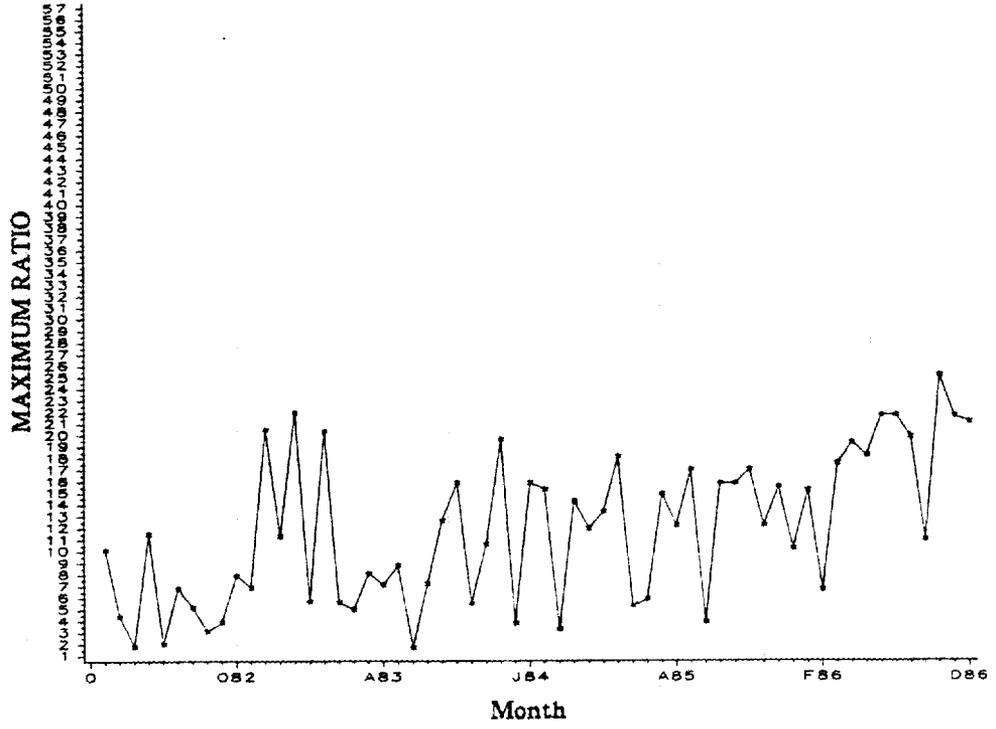
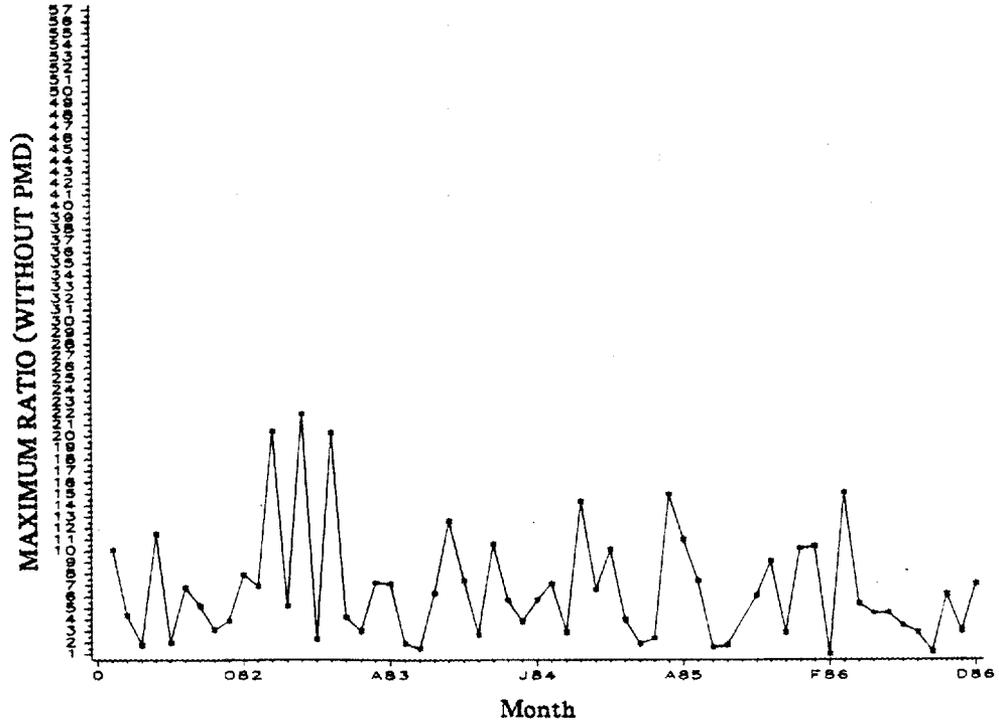


EXHIBIT 4.3d



## CHAPTER 5. SUMMARY

### FINDINGS

#### Possible Need for Frames Update

These comparisons of the PSD annual and monthly estimates for motor gasoline (also quarterly), distillate fuel, and residual fuel with comparable estimates from other sources does provide some evidence that during the last two years the estimates (PSD, PMD, API, FWHA, EPA, and IRS) have varied and in some cases, using the simple test based on the maximum ratio, the differences were unacceptable at  $\alpha_0 = .05$ .

When PMD estimates are excluded from the monthly comparisons, there were very few instances where the differences are unacceptable at  $\alpha_0 = .05$ . As the previous study revealed, there is a continuing tendency for the PSD estimates to be less than the comparative estimates for all three fuels. In general, the PSD estimates were closest to those of API, the other custody-based survey. As indicated in the Exhibits, further investigations are needed particularly for some of the estimates during 1985 and 1986. It is possible that the differences exist because at least one of the frames (either PSD's frame(s) or frames of PMD, API, FWHA, EPA, or IRS) has deteriorated over 1985 and 1986 and needs to be updated. Of course, other explanations are also possible.

#### Recommendation

Further investigation is needed to provide reasons for the unacceptable differences. In view of the differences observed in some of the estimates during 1985 and 1986, the decision to update the PSRS frame(s) should be implemented as planned and completed.

## REFERENCES

- ECKLER, A. R., and PRITZKER, L. (1951), "Measuring the Accuracy of Enumerative Surveys." *Bulletin of the International Statistical Institute*, Part 4, 33, 7-24.
- MARTIN, M. E. (1981), "Statistical Practice in Bureaucracies." *Journal of the American Statistical Association*, 76, 1-8.
- MORGENSTERN, O. (1963), *On the Accuracy of Economic Observations*, Princeton, New Jersey: Princeton University Press.
- OAK RIDGE NATIONAL LABORATORY (1986), "PSD Triennial Frames Update-Final Report (Revised)," Report Number ORNL/SUB/85-28676/4, Oak Ridge, Tennessee.
- TSAO, H. and WRIGHT, T. (1983), "On the Maximum Ratio: A Tool for Assisting Inaccuracy Assessment," *The American Statistician*, 37, 4, 339-342.

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\*Other references appear in the footnotes of the tables.



## APPENDIX C

### PROGRAM CODES

APPENDIX C.1. EXAMPLE OF A SOURCE PROGRAM

APPENDIX C.2. EXAMPLE OF A FRAME PROGRAM

APPENDIX C.3. EXAMPLE OF A MERGE PROGRAM



## APPENDIX C.1

### EXAMPLE OF A SOURCE PROGRAM

```
libname stalsby '\petro';
options pagesize=60 linesize=99;

data stalsby.stalsby;
  infile '\petro\stalsby.dat' missover;
  input src1st $ 1-2 srcnum $ 3-8 namefix $ 11-40
        name2 $ 41-70 add11 $ 71-80;

  ww=index(namefix,'NORTH ');
  xx=index(namefix,'NORTHWEST ');
  x1=index(namefix,'NORTHEAST ');
  c2=index(namefix,'NORTHWESTERN');
  b2=index(namefix,'NORTHEASTERN');
  m1=index(namefix,'SOUTH ');
  o1=index(namefix,'SOUTHWEST ');
  n1=index(namefix,'SOUTHEAST ');
  p1=index(namefix,'SOUTHWESTERN');
  z1=index(namefix,'SOUTHEASTERN');
  w1=index(namefix,'WEST ');
  a2=index(namefix,'WESTERN');
  jj=index(namefix,'EAST ');
  kk=index(namefix,'EASTERN');
  a=index(namefix,'COMPANY');
  b=index(namefix,'INCORPORATED');
  c=index(namefix,'CORPORATION');
  d=index(namefix,'U S A');
  e=index(namefix,'INCORPORATE');
  f=index(namefix,'COMPANY THE');
  g=index(namefix,'CORPORATION THE');
  h=index(namefix,'LIMITED');
  i=index(namefix,'COMPANY, INC');
  j=index(namefix,'PIPE LINE');
  k=index(namefix,' AND ');
  l=index(namefix,'TEXAS');
  m=index(namefix,'NEW MEXICO');
  n=index(namefix,'GATHERING');
  o=index(namefix,'EXPLORATION');
  p=index(namefix,'RESOURCES');
  q=index(namefix,'REFINING');
  r=index(namefix,'REFINERY');
  s=index(namefix,'MARKETING');
  t=index(namefix,'PETROLEUM');
  u=index(namefix,'PIPELINE');
  v=index(namefix,'PROCESSING');
  w=index(namefix,'INTERNATIONAL');
  x=index(namefix,'ENERGY');
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aa=index(namefix,'CHEMICAL ');  
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ee=index(namefix,'COUNTY');  
ff=index(namefix,'DEPARTMENT');  
gg=index(namefix,'DISTRIBUTING');  
hh=index(namefix,'DISTRIBUTOR');  
ii=index(namefix,'DISTRICT');  
ll=index(namefix,'ELECTRIC');  
mm=index(namefix,'ENGINEERING');  
nn=index(namefix,'ENGINEERS');  
oo=index(namefix,'EQUIPMENT');  
pp=index(namefix,'GENERAL');  
qq=index(namefix,'INDEPENDENT');  
rr=index(namefix,'LUBRICANT');  
ss=index(namefix,'LUBRICANTS');  
tt=index(namefix,'MANAGEMENT');  
uu=index(namefix,'MOUNT');  
vv=index(namefix,'MOUNTAIN');  
yy=index(namefix,'OFFICE');  
zz=index(namefix,'OPERATE');  
a1=index(namefix,'OPERATION');  
b1=index(namefix,'PARTNERSHIP');  
c1=index(namefix,'PETROCHEMICAL ');  
d1=index(namefix,'NATURAL');  
e1=index(namefix,'PLANT');  
f1=index(namefix,'PRODUCTION');  
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h1=index(namefix,'PROFESSIONAL');  
i1=index(namefix,'REFINED');  
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k1=index(namefix,'RESEARCH');  
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r1=index(namefix,'STATION');  
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t1=index(namefix,'SUPPLY');  
u1=index(namefix,'SYSTEM');  
v1=index(namefix,'TERMINAL');  
y1=index(namefix,'PETROCHEMICALS');  
d2=index(namefix,'ASPHALT');  
e2=index(namefix,'SPECIALTIES');  
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j2=index(namefix,'ARIZONA');  
k2=index(namefix,'ARKANSAS');  
l2=index(namefix,'COLORADO');  
m2=index(namefix,'HAWAII');  
n2=index(namefix,'ILLINOIS');

o2=index(namefix,'NEW JERSEY');  
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q2=index(namefix,'TRANSMISSION');  
r2=index(namefix,'SYSTEMS');  
s2=index(namefix,'SERVICES');  
t2=index(namefix,'TENNESSEE');  
u2=index(namefix,'PRODUCING');  
v2=index(namefix,'EXTRACTION');  
w2=index(namefix,'ASSOCIATES');  
x2=index(namefix,'ENVIRONMENTAL');  
y2=index(namefix,'NATIONAL');  
z2=index(namefix,'HEATING');  
a3=index(namefix,'WISCONSIN');  
b3=index(namefix,'CHEMICALS');  
c3=index(namefix,'MICHIGAN');  
d3=index(namefix,'LOUISIANA');  
e3=index(namefix,'NORTH DAKOTA');  
f3=index(namefix,'FRACTIONATOR ');  
g3=index(namefix,'FRACTIONATORS');  
h3=index(namefix,'RESOURCE ');  
i3=index(namefix,'KANSAS');  
j3=index(namefix,'KENTUCKY');  
k3=index(namefix,'RECOVERY');  
l3=index(namefix,'PETROCHEML');  
m3=index(namefix,'MISSISSIPPI');  
n3=index(namefix,'MISSOURI');  
o3=index(namefix,'MINNESOTA');  
p3=index(namefix,'MONTANA');  
q3=index(namefix,'OKLAHOMA');  
r3=index(namefix,'LIGHT');  
s3=index(namefix,'RESOURCES');  
t3=index(namefix,'WYOMING');  
u3=index(namefix,'DIVISION');  
v3=index(namefix,'OHIO');  
w3=index(namefix,'SOHIO');

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if b>0 then substr(namefix,b,12)='INC?????????';  
if c>0 then substr(namefix,c,11)='CORP?????????';  
if d>0 then substr(namefix,d,5) ='USA??';  
if e>0 then substr(namefix,e,11)='INC?????????';  
if f>0 then substr(namefix,f,11)='CO?????????';  
if g>0 then substr(namefix,g,15)='CORP?????????????';  
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if i>0 then substr(namefix,i,12)='CO?????????????';  
if j>0 then substr(namefix,j,9) ='P L?????';  
if k>0 then substr(namefix,k,5) =' & ??';  
if l>0 then substr(namefix,l,5) ='TX????';  
if m>0 then substr(namefix,m,10)='N M?????????';  
if n>0 then substr(namefix,n,9) ='GATH?????';  
if o>0 then substr(namefix,o,11)='EXPL?????????';  
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if v>0 then substr(namefix,v,10) = 'PROC???????';  
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if bb>0 then substr(namefix,bb,11) = 'CONSLD?????';  
if cc>0 then substr(namefix,cc,12) = 'CONST?????????';  
if dd>0 then substr(namefix,dd,11) = 'COOP?????????';  
if ee>0 then substr(namefix,ee,6) = 'CTY???';  
if ff>0 then substr(namefix,ff,10) = 'DEPT?????????';  
if gg>0 then substr(namefix,gg,12) = 'DISTB?????????';  
if hh>0 then substr(namefix,hh,11) = 'DISTB?????????';  
if ii>0 then substr(namefix,ii,8) = 'DIST?????';  
if kk>0 then substr(namefix,kk,7) = 'ESTRN???';  
if ll>0 then substr(namefix,ll,8) = 'ELEC?????';  
if mm>0 then substr(namefix,mm,11) = 'ENG?????????';  
if nn>0 then substr(namefix,nn,9) = 'ENG?????????';  
if oo>0 then substr(namefix,oo,9) = 'EQUIP?????';  
if pp>0 then substr(namefix,pp,7) = 'GEN?????';  
if qq>0 then substr(namefix,qq,11) = 'INDEP?????????';  
if rr>0 then substr(namefix,rr,9) = 'LUB?????????';  
if ss>0 then substr(namefix,ss,10) = 'LUB?????????';  
if tt>0 then substr(namefix,tt,10) = 'MGT?????????';  
if uu>0 then substr(namefix,uu,5) = 'MT?????';  
if vv>0 then substr(namefix,vv,8) = 'MTN?????????';  
if xx>0 then substr(namefix,xx,10) = 'N W?????????';  
if yy>0 then substr(namefix,yy,6) = 'OFFC???';  
if zz>0 then substr(namefix,zz,7) = 'OPER?????';  
if a1>0 then substr(namefix,a1,9) = 'OPER?????';  
if b1>0 then substr(namefix,b1,11) = 'PTNRSHP?????';  
if c1>0 then substr(namefix,c1,14) = 'PETROCHEM?????';  
if d1>0 then substr(namefix,d1,7) = 'NAT?????';  
if e1>0 then substr(namefix,e1,5) = 'PLT???';  
if f1>0 then substr(namefix,f1,10) = 'PROD?????????';  
if g1>0 then substr(namefix,g1,8) = 'PROD?????';  
if h1>0 then substr(namefix,h1,12) = 'PROF?????????';  
if i1>0 then substr(namefix,i1,7) = 'REFD?????';  
if j1>0 then substr(namefix,j1,8) = 'REFNRS???';  
if k1>0 then substr(namefix,k1,8) = 'RES?????????';  
if l1>0 then substr(namefix,l1,7) = 'SERV?????';  
if n1>0 then substr(namefix,n1,10) = 'S E?????????';  
if o1>0 then substr(namefix,o1,10) = 'S W?????????';  
if p1>0 then substr(namefix,p1,12) = 'SWSTRN?????????';  
if q1>0 then substr(namefix,q1,8) = 'STAND?????';  
if r1>0 then substr(namefix,r1,7) = 'STA?????';  
if s1>0 then substr(namefix,s1,7) = 'STRGE???';  
if t1>0 then substr(namefix,t1,6) = 'SPLY???';  
if u1>0 then substr(namefix,u1,6) = 'SYS?????';  
if v1>0 then substr(namefix,v1,8) = 'TERM?????';  
if x1>0 then substr(namefix,x1,10) = 'N E?????????';  
if y1>0 then substr(namefix,y1,14) = 'PETROCHEM?????????';

```

if z1>0 then substr(namefix,z1,12)='SESTRN?????';
if a2>0 then substr(namefix,a2,7)='WSTRN??';
if b2>0 then substr(namefix,b2,12)='NESTRN?????';
if c2>0 then substr(namefix,c2,12)='NWSTRN?????';
if d2>0 then substr(namefix,d2,7)='ASP????';
if e2>0 then substr(namefix,e2,11)='SPEC???????';
if f2>0 then substr(namefix,f2,10)='CA???????';
if g2>0 then substr(namefix,g2,7)='AL?????';
if h2>0 then substr(namefix,h2,7)='IN?????';
if i2>0 then substr(namefix,i2,6)='AK?????';
if j2>0 then substr(namefix,j2,7)='AZ?????';
if k2>0 then substr(namefix,k2,8)='AR?????';
if l2>0 then substr(namefix,l2,8)='CO?????';
if m2>0 then substr(namefix,m2,6)='HI?????';
if n2>0 then substr(namefix,n2,8)='IL?????';
if o2>0 then substr(namefix,o2,10)='NJ???????';
if p2>0 then substr(namefix,p2,8)='NY?????';
if q2>0 then substr(namefix,q2,12)='TRANS?????';
if r2>0 then substr(namefix,r2,7)='SYS????';
if s2>0 then substr(namefix,s2,8)='SERV????';
if t2>0 then substr(namefix,t2,9)='TN?????';
if u2>0 then substr(namefix,u2,9)='PROD????';
if v2>0 then substr(namefix,v2,10)='EXTRAC????';
if w2>0 then substr(namefix,w2,10)='ASSOC????';
if x2>0 then substr(namefix,x2,13)='ENV?????????';
if y2>0 then substr(namefix,y2,8)='NATL????';
if z2>0 then substr(namefix,z2,7)='HTG????';
if a3>0 then substr(namefix,a3,9)='WI?????';
if c3>0 then substr(namefix,c3,8)='MI?????';
if d3>0 then substr(namefix,d3,8)='LA?????';
if e3>0 then substr(namefix,e3,12)='ND?????????';
if f3>0 then substr(namefix,f3,13)='FRAC????????';
if g3>0 then substr(namefix,g3,13)='FRAC?????????';
if h3>0 then substr(namefix,h3,9)='RES?????';
if i3>0 then substr(namefix,i3,6)='KS?????';
if j3>0 then substr(namefix,j3,8)='KY?????';
if k3>0 then substr(namefix,k3,8)='RECVRY??';
if l3>0 then substr(namefix,l3,10)='PETROCHEM?';
if m3>0 then substr(namefix,m3,11)='MS?????????';
if n3>0 then substr(namefix,n3,8)='MO?????';
if o3>0 then substr(namefix,o3,9)='MN?????';
if p3>0 then substr(namefix,p3,7)='MT?????';
if q3>0 then substr(namefix,q3,8)='OK?????';
if r3>0 then substr(namefix,r3,5)='LGT??';
if s3>0 then substr(namefix,s3,9)='RES?????';
if t3>0 then substr(namefix,t3,7)='WY?????';
if u3>0 then substr(namefix,u3,7)='DIV?????';

if ww>0 and xx=0 and x1=0 and c2=0 and b2=0 then
  substr(namefix,ww,6)='N?????';
if m1>0 and o1=0 and n1=0 and p1=0 and z1=0 then
  substr(namefix,m1,6)='S?????';
if w1>0 and xx=0 and c2=0 and o1=0 and p1=0 and a2=0 then
  substr(namefix,w1,5)='W?????';

```

```

if jj>0 and x1=0 and b2=0 and n1=0 and z1=0 and kk=0 then
  substr(namefix,jj,5)='E???' ;
if aa>0 and c1=0 then substr(namefix,aa,9) ='CHEM????' ;
if b3>0 and y1=0 then substr(namefix,b3,9)='CHEML????';
if v3>0 and w3=0 then substr(namefix,v3,4)='OH??';

name1=compress(namefix,'.?'');

infile '\petro\stalsby.dat' missover;
input add12 $ 1-5 address2 $ 6-35 city $ 36-52
  state $ 53-54 zip $ 55-59 phone $ 60-69 ty1 $ 70-80;

infile '\petro\stalsby.dat';
input ty2 $ 1-20 contact $ 21-71 missover;

address1=add11 || add12;
type=ty1 || ty2;

drop a b c d e f g h i j k l m n o p q r
  s t u v w x y z aa bb cc dd ee ff gg hh ii jj kk ll mm nn oo pp qq rr ss tt uu vv ww
xx yy zz a1 b1 c1 d1 e1 f1 g1 h1 i1 j1 k1 l1 m1 n1 o1 p1 q1 r1 s1 t1 u1 v1 w1 x1 y1 z1 a2 b2 c2
d2 e2 f2 g2 h2 i2 j2 k2 l2 m2 n2 o2 p2 q2 r2 s2 t2 u2 v2 w2 x2 y2 z2 a3 b3 c3 d3 e3 f3 g3 h3 i3
j3 k3 l3 m3 n3 o3 p3 q3 r3 s3 t3 u3 v3 w3 add11 add12 ty1 ty2 missover namefix;
run;

proc sort data=stalsby.stalsby; by name1 state city address1;
run;

proc print; id name1; var state;
title 'stalsby';
run;

```

## APPENDIX C.2

### EXAMPLE OF A FRAME PROGRAM

```
libname f813 '\petro';
options pagesize=60 linesize=99;

data f813.f813;
  infile '\petro\f813.dat' missover;
  input name1 $ 12-41
        #2 address1 $ 12-41 address2 $ 43-72
        #3 city $ 12-30 state $ 32-33 st $ 35-36 zip $ 38-46 eiaid $ 48-57;
  if address1='XXX' then address1=' ';
  if address2='XXX' then address2=' ';
  if city='XXX' then city=' ';
run;

proc sort; by name1 state city address1;

proc print; id name1; var address1 city state st;
  format city $10. address1 $10. address2 $10.;
title 'f813';
run;
```

### APPENDIX C.3

#### EXAMPLE OF A MERGE PROGRAM

```
libname form423 '\petro';
libname mwdpc '\petro';
libname pipeline '\petro';
libname pladi '\petro';
libname ogjww '\petro';
libname f813b '\petro';
libname gcod '\petro';

options pagesize=60 linesize=96;

data ha; set form423.form423;
  if substr(name2,1,9)='PETROLEUM';
  keep name1; run;
data h; set ha; by name1;
  if first.name1;

data a; set gcod.gcod; by name1;
  if first.name1;
  keep name1; run;
data b; set mwdpc.mwdpc; by name1;
  if first.name1;
  keep name1; run;
data c; set pipeline.pipeline; by name1;
  if first.name1;
  keep name1; run;
data d; set pladi.pladi; by name1;
  if first.name1;
  keep name1; run;
data f; set ogjww.ogjww; by name1;
  if first.name1;
  keep name1; run;

data l; set f813b.f813b; by name;
  if first.name;
  name1=name;
  keep name1; run;

data merge1;
merge b(in=inb) c(in=inc) d(in=ind) f(in=inf)
      h(in=inh) l(in=inl) a(in=ina);
  by name1;
  if inl then f='x';      else f='o';
  if ina then gcod='x';  else gcod='o';
  if inb then mwdpc='x'; else mwdpc='o';
  if inc then pipeline='x'; else pipeline='o';
  if ind then pladi='x'; else pladi='o';
  if inf then ogjww='x'; else ogjww='o';
```

```
if inh then form423='x'; else form423='o';  
fmppog=form423||mwdpc||pipeline||pladi||ogjww||gcod;  
keep name1 f fmppog;  
run;
```

```
proc print; id f; var fmppog name1;  
title 'Frame 813';  
run;
```



**APPENDIX D**

**MENU SYSTEM AND DATA ENTRY SCREENS  
FOR EIA FRAMES MAINTENANCE LOG PROCEDURES**



**WELCOME TO EIA FRAMES MAINTENANCE  
LOG PROCEDURES**

Opening Menu
<b>Mailed Forms</b>
Telephone Survey
Follow-up Survey
Add to Follow-up Database
EXIT from Module

---

SELECT COMPANY		
NAME	CITY	STATE
BAY P L INC	HOUSTON	TX
BAYONNE TERM CORP	BAYONNE	NJ
BELL FUELS INC	CHICAGO	IL
BENNETT MILLS E	BROOKS	TX
BENS RUN F L OIL	BENS RUN	WV
BENSON MINERALS	GOLDEN	CO
BEST ENG CORP	HOUSTON	TX
BIG S OIL CO INC	WOODRIDGE	NY
BILLUPS WSTRN PETRO	VICKSBURG	LA
BISHOP P L CO	HOUSTON	TX
BLYTHEVILLE RIVER RA	BLYTHEVILLE	AR

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

ADVANCED POLYMER

Address:

MARYSVILLE

MI

EIA ID:

Frames:

F816

Sources: HPI

Date Received: 03/16/88 Date Edited: 04/13/88 Editor: PMC

Incoming Calls Process

First Call: / /88 Last Call: / /88 Complete?:

Verification Process

Nonrespondent Process

Verify Needed (Y/N)?: N

Person Contacted:

Date Calls Completed: / /88

Phone Number: - -

Date of First Contact: / /88

Date of First Contact: / /88

Date of Last Contact: / /88

Date of Last Contact: / /88

Person Contacted:

Phone Survey Completed:

Verify Completed?:

Noncompliance Needed:

Date Noncompliance Mailed: / /88

Survey Disposition: N816

Remarks: 2550 BUSHY HWY, MARYSVILLE, MI 48840

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

SOURCE: 201 201

Address:

MARYSVILLE

MI

EIA ID:

Frames:

F816

Sources:

HPI

Date Received: 03/18/88

Date Edited: 04/13/88

Editor: BMC

Incoming Calls Process

First Call: / /88

Last Call: / /88

Complete?:

Verification Process

Nonrespondent Process

Verify Needed (Y/N)?: N

Person Contacted:

Date Calls Completed: / /88

Phone Number:

Date of First Contact: / /88

Date of First Contact: / /88

Date of Last Contact: / /88

Date of Last Contact: / /88

Person Contacted:

Phone Survey Completed:

Verify Completed?:

Noncompliance Needed:

Date Noncompliance Mailed: / /88

Survey Dispos

Remarks: 0: 2

Do you want to save this entry? (Y/N): N

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

ADVANCED POLYMER

Address:

MARYSVILLE

MI

EIA ID:

Frames:

F816

Sources: HPI

Date Received: 03/18/88 Date Edited: 04/13/88 Editor: ENC

Incoming Calls Process

First Call: / / 88 Last Call: / / 88 Complete?:

Verification Process

Nonrespondent Process

Verify Needed (Y/N)?: N

Person Contacted:

Date Calls Completed: / / 88

Phone Number:

Date of First Contact: / / 88

Date of First Contact: / / 88

Date of Last Contact: / / 88

Date of Last Contact: / / 88

Person Contacted:

Phone Survey Completed:

Verify Co

Do you want to enter another call item? (Y/N): / / 88

Survey Di

Remarks: 2 Do you want to save this entry? (Y/N): N

<b>Opening Menu</b>
<b>Mailed Forms</b>
<b>Telephone Survey</b>
<b>Follow-up Survey</b>
<b>Add to Follow-up Database</b>
<b>EXIT from Module</b>

---

SELECT COMPANY		
NAME	CITY	STATE
CHEVRON CORP	SAN FRANCISCO	CA
CHEVRON USA INC	HAMILTON	OH
CHEVRON USA INC	SAN FRANCISCO	CA
CITGO PETRO CORP	TULSA	OK
CKB PETRO INC	DALLAS	TX
CLAJON TRANSPORT	HINDS CO	MS
CLARK OIL & REF	ST LOUIS	MO
CLAYCO INC	CALDWELL	TX
CNG P L CO	NEW ORLEANS	LA
CO INTERSTATE GAS	CARBON	WY
COASTAL CORP THE	HOUSTON	TX

---

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

Address: PO BOX 182  
DALLAS TX 75244

EIA ID:  
Frames: F812

Sources: Form 6

Person Contacted: TOM LAMPE

Date of First Contact: 4/25/88

Date of Last Contact: 4/25/88

Completed? (Y/N): Y

Caller: RW

Non-Respondent? (Y/N):

Compliance Form Written? (Y/N):

Move to Follow-up Survey?(Y/N):

Remarks: SEE FORM ATTACHED, BASIN DRILLING COMPANY.

Survey Disposition: M012

---

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

010 0000 010

Address: PO BOX 102  
DALLAS TX 75244

EIA ID:

Frames: F812

Sources: Form 6

Person Contacted: TOM LANPE

Date of First Contact: 4/5/88

Date of Last Contact: 4/5/88

Completed? (Y/N): Y

Caller: RU

Non-Respondent? (Y/N):

Compliance Form Written? (Y/N):

Move to Follow-up Survey?(Y/N):

Remarks: SEE FORM ATTACHED, BASIN DRILLING COMPANY.

Survey Disposition: N012

Do you want to save this entry? (Y/N): Y

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

**BASIN DRILLING INC**

Address: PO BOX 182  
DALLAS TX 75244

EIA ID:  
Frames: F812

Sources: Form 6

Person Contacted: TOM LAMPE

Date of First Contact: 4 / 5 / 88

Date of Last Contact: 4 / 5 / 88

Completed? (Y/N): Y

Caller: BW

Non-Respondent? (Y/N):

Compliance Form Written? (Y/N):

Move to Follow-up Survey?(Y/N):

Remarks: SEE FORM ATTACHED, BASIN DRILLING COMPANY.

Survey Di

Do you want to enter another call's form? (Y/N): N

Do you want to save this entry? (Y/N): Y

Opening Menu
Mailed Forms
Telephone Survey
Follow-up Survey
Add to Follow-up Database
EXIT from Module

---

SELECT COMPANY		
NAME	CITY	STATE
MACARTHUR PETRO SOLU	NEWARK	NJ
MAPCO INC	TULSA	OK
MEENAM OIL CO INC	SYOSSET	NY
MERIDIAN OIL INC	HOUSTON	TX
MID-CONTINENT P	TULSA	OK
MIDWEST ENGY	HAMTRAMCK	MI
MIZEL GAS PROCESS	DENVER	CO
MOBILE BAY REFG CO	BLAKELY ISLAND	AL
N W P L CORP	LA PLATA	CO
NATOMAS INTERNATIONAL	HOUSTYON	TX
NOCO ENGY CORP	TONOWANDA	NY

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

**FIELD CONTINENT**

Address: PO BOX 141  
TULSA OK 74102  
EIA ID:  
Frames: FB13

**Telephone Survey Follow-up**

First Call: / /88 Last Call: / /88 Complete?:  
Date Received: / /88 Date Edited: / /88 Editor:  
Form Mailed: / /88

**Verification Process**

Verify Needed (Y/N)?:  
Date Calls Completed: / /88  
Date of First Contact: / /88  
Date of Last Contact: / /88  
Person Contacted:  
Verify Completed?:

Remarks:

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

Address: PO BOX 141  
TULSA OK 74102  
EIA ID:  
Frames: F813

Telephone Survey Follow-up

First Call: / / 88 Last Call: / / 88 Complete?:  
Date Received: / / 88 Date Edited: / / 88 Editor:  
Form Mailed: / / 88

Verification Process

Verify Needed (Y/N)?:  
Date Calls Completed: / / 88  
Date of First Contact: / / 88  
Date of Last Contact: / / 88  
Person Contacted:  
Verify Completed?:

Remarks:

Do you want to save this entry? (Y/N): ?

EDIT THE FOLLOWING INFORMATION FOR THIS COMPANY

FIELD CONTINUITY

Address: PO BOX 141  
TULSA OK 74182  
EIA ID:  
Frames: F813

Telephone Survey Follow-up

First Call: / /88 Last Call: / /88 Complete?:  
Date Received: / /88 Date Edited: / /88 Editor:  
Form Mailed: / /88

Verification Process

Verify Needed (Y/N)?:  
Date Calls Completed: / /88  
Date of First Contact: / /88  
Date of Last Contact: / /88

Do you want to enter another follow-up form? (Y/N):

Remark

Do you want to save this entry? (Y/N): Y

Opening Menu
Mailed Forms
Telephone Survey
Follow-up Survey
Add to Follow-up Database
EXIT from Module

---

Opening Menu

Mailed Forms  
Telephone Survey  
Follow-up Survey  
Add to Follow-up Database

Please Wait-it takes a couple minutes

---

**Opening Menu**

**Mailed Forms**  
**Telephone Survey**  
**Follow-up Survey**  
**Add to Follow-up Database**  
**EXIT from Module**

---



**APPENDIX E**  
**RESPONDENTS LISTINGS**

**APPENDIX E.1. POTENTIAL NEW RESPONDENTS**

Appendix E.1 is an abbreviated printout of all potential new respondents for the six surveys being updated.

**APPENDIX E.2. ELIGIBLE NEW RESPONDENTS**

Appendix E.2 is a printout of the eligible new respondents for the six surveys being updated. The file format and the source identification codes are included as preliminary pages to this subappendix.



## Listings Used For Potential Respondents

Frame=810

Source Code	Company Name	Address	City	State	Zip
0X000	ADOBE REFG CO		LA BLANCA	TX	78558
0000X	AK PACIFIC REFG INC		VALDEZ	AK	
00000	ALLIED MATERIALS CO		STROUD	OK	
000X0	AMERADA HESS CORP		WOODBRIDGE	NJ	07095
000X0	ANCHOR REFG CO INC	BOX 97	MCKITTRICK	CA	93251
X0000	ARCO OIL & GAS CO		KERN	CA	
000X0	ASAMERA OIL US INC	BOX 118 (80203)	BENVER	CO	80201
000X0	ASHLAND PETRO CO	BOX 391 (41114)	RUSSELL	KY	41169
X0000	ASSOCIATED NAT GAS		WEBSTER	LA	
0X000	ATLANTIC RICHFIELD		NORTH SLOPE	AK	
00000	ATLANTIC RICHFIELD		HOUSTON	TX	
0X000	BIG W OIL CO		KEVIN	MT	
X0000	C S X OIL & GAS COR		ELNICE	LA	
0000X	CENTRAL DISTILLERS		CENTRAL CITY	NE	
0X000	CENTURY REFG CO		SCOTT CITY	KS	
0X000	CHAMPLIN PETRO CO		ENID	OK	
0X000	CHARTER INTL OIL CO		HOUSTON	TX	
0X000	CHEVRON ASP CO		NORTH BEND	OH	45052
0X000	CHEVRON USA		BAKERSFIELD	CA	
000X0	CHEVRON USA INC		SAN FRANCISCO	CA	94105
X0000	CHEVRON USA INC		HAMILTON	OH	
00000	CIT-CON OIL CORP		LAKE CHARLES	LA	
000X0	CIT-CON OIL CORP	BOX 3758	TULSA	OK	74102
X0000	COASTAL OIL & GAS C		STATELINE	MT	
000X0	COASTAL PETRO INC		TUSTIN	CA	92680
0X000	COASTAL REF & MKT C		WESTVILLE	NJ	
X0000	COASTAL STATES CRUD		ALMEDA	TX	
0X000	CONOCO INC		DENVER	CO	80022
X0000	CONSLDD GAS TRANS C		HASTINGS	WV	
0000X	CONSLDD RECYCLING C		TROY	IN	
000X0	CORAL PETRO INC	BOX 19666	HOUSTON	TX	77024
000X0	CRYSER CORP	BOX 15600	SANTA ANA	CA	92705
0X000	CRYSER REFG CO		TACOMA	WA	
00000	CYRIL REFG CORP		CRYRIL	OK	
X0000	DAYLST ENG INC		WHITE	IL	
X0000	DAYLST ENG INC		CLAY	KY	
000X0	DEMENNO/KERDOON		COMPTON	CA	90222
00000	DOUGLAS OIL CO OF C		PARAMOUNT	CA	
00000	DOUGLAS OIL CO OF C		CA (EM CORMANY	SU	
X0000	DOW CHEM USA PROMIX		NAPOLEONVILLE	LA	
0X000	ECC PETRO INC		SIGNAL HILL	CA	
0X000	EDDY REFG CO		HOUSTON	TX	77046
0X000	EDGINGTON OIL CO		LONG BEACH	CA	
X0000	ENRON GAS PROC CO		BUSTON	KS	
X0000	ENTERPRISE FRACTION		CHAMBERS	TX	
00000	FLINT CHEM CO DIV O		SAN ANTONIO	TX	
000X0	FLYING J INC		SALT LAKE CITY	UT	
0X000	GARY REFG CO		GILSONITE	CO	81502
0X000	GLACIER PARK CO		OSAGE	WY	
0X0X0	GLADIEUX REFY INC		FORT WAYNE	IN	46803
00000	GOLDEN BEAR DIV OF		OILDALE	CA	
000X0	GLIAM OIL & REFG CO		HONOLULU	HI	96842
X0000	GULF COAST FRAC INC		CHAMBERS	TX	

## Listings Used For Potential Respondents

Frame=810  
(continued)

Source Code	Company Name	Address	City	State	Zip
0X000	GULF/CHEVRON		BELLE CHASSE	LA	
0X000	GULF/CHEVRON		WEST FORT ARTHUR	TX	
00000	HUDSON REFG CO		CUSHING	OK	
0X000	INDEP VALLEY EGY		BAKERSFIELD	CA	
000X0	INDUSTRIAL FUEL & A		HAMMOND	IN	46320
000X0	INTERMTN REFG CO	BOX 35	FARMINGTON	NM	67565
0000X	INTERNATL PETR CO		TAMPA	FL	
X0000	ISD-FRAC INC		RENO	KS	
00000	KENCO REFG		MACON	MT	
0X000	KENCO REFG CO		WOLF POINT	MT	
00000	KERN OIL & REFG CO		HOUSTON	TX	
0X000	KOCH FUELS INC		ROSEMONT	MN	
X0000	KOCH HYDROCARBON CO	BOX 2256	WICHITA	KS	67201
000X0	KS REFD HELIUM CO	BOX 312	OTIS	KS	67565
0X000	LA GLORIA OIL & GAS		SCOTT CITY	KS	67871
0X000	LAJET PETRO CO		ST JAMES	LA	70086
000X0	LAKE CHARLES REFG C	BOX 459	ADDISON	TX	75001
0X000	LITTLE AMERICA REFG		SINCLAIR	WY	
X0000	LONE STAR GAS LIQUI		BAKERSFIELD	CA	
0X000	LOUISIANA LAND & EX		SARALAND	AL	36571
X0000	LOVELAND GAS PROC C	BOX 22418	DENVER	CO	80222
0000X	LUERIPAC		GALENA PARK	TX	
X0000	MAFCO FRAC INC	BOX 1336	MCPHERSON	KS	67460
00000	MARATHON PETRO CO		1300 S FORT ST	DE	
X0000	MARATHON PETRO CO	BOX A-C	GARYVILLE	LA	70051
0X000	MARION CORP		THEODORE	AL	
000X0	MID-CONTINENT SYS I	BOX 1370	WEST MEMPHIS	AR	72301
0X000	MOBIL OIL CORP		WOODHAVEN	MI	48183
X0000	MOBIL OIL E & P S E	1250 FOYDRAS BLDG	NEW ORLEANS	LA	70113
000X0	MOBILE BAY REFG CO	BOX 11526	CICKASAW	AL	36611
0000X	MS RIVER ALCOHOL		MYRTLE GROVE	LA	
0X000	MT REFG CO		BLACK EAGLE	MT	59414
0X000	NORTHLAND OIL & REF		DICKINSON	ND	
00000	NORTHLAND OIL LTD		DALLAS	TX	
0000X	OAKES ENGY CORP		OAKES	ND	
00000	OIL PURE REFINER CO		GLENDALE	CA	
0X000	ORIENTAL REFG CO		DENVER	CO	
X0000	OXY CITIES SERV NGL	BOX 1225	HUTCHINSON	KS	67504-11
X0000	OXY CITIES SERV NGL	520 W HIGHWAY 108	SULFUR	LA	70663
X0000	OXY CITIES SERV NGL	DRAWER 550	MONT BELVIEU	TX	77580
0X000	PACIFIC OASIS		PARAMOUNT	CA	
00000	PENRECO DIV OF PENN		BUTLER	PA	16001
0X0X0	FESTER REFG CO		EL DORADO	KS	
X0000	PETRO PROD INC		MCPHERSON	KS	
000X0	PIONEER OIL CO INC	BOX 16935	PHILADELPHIA	PA	19153
00000	PIONEER PROC INC		FREMONT	NE	
0X000	PLATEAU INC		FARMINGTON	NM	87401
000X0	PORT PETRO INC		SHREVEPORT	LA	71101
0X000	QUAKER STATE OIL RE		SMITHFORT	PA	
0X000	QUITMAN REFG CO		QUITMAN	TX	75783
00000	RMT PROPERTIES INC-		NORTH SALT LAKE	UT	
00000	RMT PROPERTIES INC-		CHEYENNE	WY	

## Listings Used For Potential Respondents

Frame=810  
(continued)

Source Code	Company Name	Address	City	State	Zip
000X0	SAGE CREEK REFG CO		LOVELL	WY	82431
X0000	SHELL WSTRN E & P I		ASCENSION	LA	
000XX	SHEPHERD OIL CO	BOX 609	JENNINGS	LA	70546
00000	SIMMONS REFG CORP		BLACK EAGLE	MT	
0000X	SIMPLIT DEV CORP		CALDWELL	ID	
00000	SOUTHERN UNION REFG		LOVINGTON	NM	
X0000	SUN EXPL & PROD CO	BOX 157	DELHI	LA	71232
00000	T & S REFG INC		JENNINGS	LA	
X0000	TENNCO OIL CO	BOX 830	FLAGLEMIN	LA	70764
00000	TESORO PETRO CORP		CARRIZO SPRINGS	TX	78834
X00X0	TEXACO INC	RT 1 BOX 356	VERMILION	LA	70533
00000	TEXACO INC		WESTVILLE	NJ	
00000	TEXACO INC	BOX 30110	AMARILLO	TX	79120
00000	TEXACO INC		EL PASO	TX	
XX000	TEXACO USA	BOX 311	LAWRENCEVILLE	IL	62439
0X000	TEXACO USA		PHILADELPHIA	PA	
0X000	TEXACO USA		FORT WORTH	TX	77651
0X000	TEXACO USA		ANACORTES	WA	98221
000X0	TIPPERARY CORP		MIDLAND	TX	
00000	TONKAWA REFG CO		ROSWELL	NM	
0X000	TONKAWA REFG CO		ARNETT	OK	
00000	TOSCO CORP		EL DORADO	AR	
0X000	TOSCO CORP		BAKERSFIELD	CA	93303
0X000	TOSCO CORP		DUNCAN	OK	
X0000	TRUE OIL CO		MCKENZIE CO	ND	
X0000	UNION PACIFIC RES C		PANDLA	TX	
X0000	UNION TX PETRO CORP	RT 1	RAYNE	LA	70578
0X000	UNOCAL		ARROYO GRANDE	CA	
X0000	WARREN PETRO CO	DRAWER G	VENICE	LA	70091
X0000	WARREN PETRO CO	BOX 1110	MONT BELVIEU	TX	77580
00000	WARRIOR ASP CO OF A		EASTSIDE STA	UT	
00000	WIGHT OIL & REFG CO			TX	
0X000	WILLIAMS F L CO		AUGUSTA	KS	
0X000	WINSTON REFG CO		FT WORTH	TX	76101
0000X	WITCO CORP		PETROLIA	PA	
00000	WOLF'S HEAD OIL REF		RENO	PA	
X0000	WSTRN GAS PROD LTD	3108 E SECOND AVE	GILLETTE	WY	82716
X0000	WSTRN GAS PROCESSOR	BOX 579	BAKER	MT	59313
00000	YOUNG REFG CORP		LAKETON	IN	

## Listings Used For Potential Respondents

Frame=811

Source Code	Company Name	Address	City	State	Zip
0X00X	AL STATE DOCKS	STATE DOCKS RD	RUSSELL COUNTY	AL	
0000X	ALTON PACKAGING	1915 WIGMORE ST	JACKSONVILLE	FL	
00X00	ALVIN HOLLIS & CO I	ONE HOLLIS STRE	SOUTH WEYMOUTH	MA	02190
000X0	AMARCO PETRO INC		DEER PARK	TX	
0X000	AMER OIL CO		CHATTANOOGA	TN	
0X000	AMHERST FUEL CO		HUNTINGTON	WV	
0X000	AMMAR OIL CO		MARIETTA	OH	
000X0	ANDRILL OIL CORP		STAMFORD	CT	
000X0	ANDRILL OIL CORP		LITTLE FERRY	NJ	
00XX0	ARKLA ENGY RES	PO BOX 9	MAGNOLIA	AR	71753
00XX0	ATLANTIC OIL & HTG	P O BOX SIX	MACUNGIE	PA	18062
0000X	AVIATION FUEL TERMS	BEAUFORT TERMIN	MOREHEAD CITY	NC	
000X0	B-T ENGY CORP		NEW ALBANY	IN	
00XX0	B-T ENGY CORP		WEST POINT	KY	
0X000	BAILEY FUELS INC		CALVERT CITY	KY	
0000X	BANDCROFT & MARTIN	1 LINCOLN ST L-	S PORTLAND	ME	
000X0	BAYONNE TERM CORP	PO BOX 67	BAYONNE	NJ	07
000X0	BEAUMONT OIL INC		DULAC	LA	
000X0	BEAUMONT OIL INC		HOUSTON	TX	
0XX0X	BELL FUELS INC	4116 W PETERSON	CHICAGO	IL	60646
0X000	BENS RUN P L OIL		BENS RUN	WV	
00X00	BIG S OIL CO INC	BOX 308	WOODRIDGE	NY	12789
0X000	BILLUPS WSTRN PETRO		VICKSBURG	LA	
00XX0	BLYTHEVILLE RIVER R	PO BOX 1227	BLYTHEVILLE	AR	72315
0000X	BORCHERS OIL INC		KANSAS CITY	MO	
00X00	BUCKLEY BROTHERS	146 ADMIRAL STR	BRIDGEPORT	CT	06605
00X00	BURKE DENNIS K INC	284 EASTERN AVE	CHELSEA	MA	02150
0X000	CAHOKIA MARINE SERV	2 MONSANTO AVE	SAUGET	IL	62201
000X0	CAL GAS CORP		PHOENIX	AZ	
00X00	CAL GAS CORP	PO BOX 28397	SACRAMENTO	CA	95828
00X00	CALCASIEU REFG CO	654 NORTH EAST	HOUSTON	TX	77060
0X000	CANTON OIL & GAS CO		CARLTON	AL	
0000X	CAPE INDUSTRIES	U S HWY 421 NOR	WILMINGTON	NC	
0X000	CARBON FUEL CO		CHESAPEAKE	WV	
000X0	CARIBOU FOUR CORNER	1431 S 1800 W	WOODS CROSS	UT	84087
000X0	CARPENTER STAS INC	PO BOX 366	BURLINGTON	IA	52601
0000X	CARPENTER STAS INC	1000 N FRONT ST	BURLINGTON	MN	
000X0	CARSWELL P L CO	P O BOX 327	ALEDO	TX	76008
00X00	CATAMT PETRO CORP	HARBOUR EXEC PK	CHELSEA	MA	02150
000X0	CENTRAL FLORIDA P L		TAFT	FL	
0X000	CENTRAL IL DOCK CO	PO BOX 638	PEKIN	IL	61554
000X0	CENTURY RES CORP	EAGLES NEST RD	BRIDGEPORT	CT	
00XX0	CENTURY RES CORP	PO BOX 277	TARRYTOWN	NY	10591
00XX0	CERTIFIED OIL CO	PO BOX 28007	COLUMBUS	OH	43228
0000X	CHEMSERVE TERM INC	WILMINGTON WHAR	WILMINGTON	NC	
00X00	CHOCTAW FUELS INC	212 S 27TH AVEN	HATTIESBURG	MS	39401
000X0	CLAYCO INC		CALDWELL	TX	
000X0	CO PETRO PDTS	4080 GLOBEVILLE	DENVER	CO	
X0XX0	COLUMBIA TERMS	CENTRAL AVENUE	SOUTH KEARNY	NJ	07032
000X0	COMMERCIAL FUEL COR	PO BOX C	MILLVILLE	NJ	08332
0000X	COMMODORE'S POINT T		JACKSONVILLE	FL	
0X000	CONSLOD OIL CO		QUINDY	IL	
0000X	CONTAINER CORP OF A	FOOT OF ATLANTI	FERNANDINA BEAC	FL	

Listings Used For Potential Respondents

Frame=811  
(continued)

Source Code	Company Name	Address	City	State	Zip
0X000	CORAL PETRO		REMY	LA	
X0X00	CRODA STRGE INC		ELIZABETH	NJ	07202
0000X	CROWN ZEILERSBACH CO		PORT ANGELES	WA	
000X0	CRYSN TRADING & MK		BAY CITY	TX	
000X0	CRYSN TRADING & MK	825 PARKCENTER	SANTA ANA	CA	92705
0000X	CUMMINS H E	RIVERSIDE RD AT	MUSKOGEE	OK	
0000X	D & D DISTES		PORT ANGELES	WA	
000X0	DAVIS OIL CO	BOX 501	WEST CHESTER	PA	19380
0X000	DAVISON FUEL & DOCK		MARRET	WV	
000X0	DEAL PETRO CO		MUSKOGEE	OK	
0X000	DELTA OIL TERM		MEMPHIS	TN	
X0X00	DEMADO CORP	PO BOX 8283	PONCE	PR	00732
000X0	DENVER PROD TERM	PO BOX 1040	ADAMS CITY	CO	80022
000X0	DELLI FUEL CO	PO BOX 1977	ATLANTIC CITY	NJ	08404
000X0	DIXIE P L CO	PO BOX 428	OPELIKA	AL	36901
000X0	DIXIE P L CO	RTE 1	MILNER	GA	30257
000X0	DIXIE P L CO	PO BOX 787	APEX	NC	27502
000X0	DIXIE P L CO	P O DRAWER 968	LEXINGTON	SC	29072
0000X	DLD ENGY LTD	5563 E CHANNEL	CATOOSA	OK	
000X0	DOME P L CORP		BENSON	MN	
000X0	DOME P L CORP		DEXTER	MO	
000X0	DOME P L CORP		CARRINGTON	ND	
000X0	DOME/AMER		ST CLAIR	MI	
000X0	DOMINION OIL CO	P O BOX 3L	RICHMOND	VA	
0000X	DOUGLAS OIL PURCHAS	BARGE WHARF	MOBILE	AL	
0000X	EAGLE OIL CO	201 SHERMAN AVE	PANAMA CITY	FL	
0000X	ELDON CORP	HARRIMAN COVE D	SEARSPORT	ME	
000X0	ENGY RETAILERS INC	PO BOX 151	HINGHAM	MA	02043
000X0	ENMARC PETRO CORP	450 N SUNNYSLOP	BROOKFIELD	WI	53005
000X0	EWE DISTES INC		GREAT NECK	NY	
000X0	FALCON REFG CO	7322 SOUTHWEST	HOUSTON	TX	77074
0000X	FIERREBOARD CORP		ANTIOCH	CA	
0000X	FLORIDA PETRO CORP	231 NORTH FRONT	FERNANDINA BEAC	FL	
000X0	FLYING J INC	PO BOX 678	BRIGHAM CITY	UT	84302
0000X	FUEL SERV INC	PIER	GULFFORT	MS	
000X0	G & M TERM INC	2233 SOUTHPORT	BALTIMORE	MD	21226
0X000	GALLTIN FUELS INC		W NEWTON	PA	
000X0	GARY ENGY CORP	115 INNERNESS D	ENGLEWOOD	CO	80112
000X0	GENOVESE INDUSTRIES	PO BOX 481	STAMFORD	CT	06904
000X0	GLOBAL PETRO CORP		BRAINTREE	MA	
000X0	GLOBAL PETRO CORP		PORTLAND	ME	
000X0	GLOBAL PETRO CORP		PROVIDENCE	RI	
000X0	GNC ENGY CORP	15700 DIXIE HIG	LOUISVILLE	KY	40272
000X0	GOLDEN GATE PETRO C	2200 POWELL STR	EMERYVILLE	CA	94608
000X0	GOLDEN W REFG CO	13539 E FOSTER	SANTA FE SPRING	CA	90670
000X0	GRACE OIL CO	101 EAST FIFTH	WILDWOOD	NJ	08260
0000X	GRASSO OILFIELD SER	PELICAN ISLAND	GALVESTON	TX	
0X000	GREAT NORTHERN OIL		MINNEAPOLIS	MN	
0000X	GULFFORT TERMS INC	SEAWAY ROAD WHA	GULFFORT	MS	
0X000	GUSTAFSON OIL CO		CHICAGO	IL	
0X000	GUTHRIE COTTON OIL		WAGSONER	OK	
000X0	HARBOR FUEL CO		GLENWOOD LANDIN	NY	

Listings Used For Potential Respondents

Frame=811  
(continued)

Source Code	Company Name	Address	City	State	Zip
0000X	HARPER OIL CO		FORT TOWNSEND	WA	
00X00	HEATER OIL COMPANY I	P O DRAWER D	GASSAWAY	WV	26624
000X0	HI OCTANE OIL CO	1900 E SECOND C	PANAMA CITY	FL	
000X0	HIGHPLAINS CORP		WICHITA	KS	
00X00	HOUSTON MARINE SERV	5300 MEMORIAL S	HOUSTON	TX	77007
00X00	HOWARD GASOLINE & O	BOX 543 RD-6	IRWIN	PA	15644
X0000	HUDSON TANK TERMS C	PO BOX 2549	NEWARK	NJ	07114
000X0	HULL OIL CO	PO BOX 2266	PANAMA CITY	FL	31746
00X00	HUNT OIL CO	P O DRAWER H	HAMPTON	VA	23669
0X000	HUTCHISON OIL TERM		HOLY TRINITY	AL	
000X0	HYDROCARBON TRANSP	PO BOX 28	CLEAR LAKE	IA	50428
000X0	HYDROCARBON TRANSP		LEMONT	IL	
000X0	HYDROCARBON TRANSP		PLATTSMOUTH	NE	
0X000	IL OIL PROD INC	321 24TH ST	ROCK ISLAND	IL	61201
00X00	INLAND FUEL TERMS	215 ADMIRAL STR	BRIDGEPORT	CT	06605
000X0	INTERCONTINENTAL CO		CHARLOTTE	NC	
000X0	INTERCONTINENTAL FE		LITTLE FERRY	NC	
000X0	INTERCONTINENTAL TE	PO BOX 645	FORT ALLEN	LA	70767
000X0	INTERCONTINENTAL TE	PO BOX 576	GIBSONTON	FL	33534
0000X	INTL PAPER CO	GEORGETOWN MILL	GEORGETOWN	SC	
000X0	INTLNATL PETRO REF		BRIDGEPORT	CT	
000X0	INTLNATL PETRO REF		SAVANNAH	GA	
000X0	INTLNATL TERMS	PO BOX 837	BAY CITY	MI	48707
0X000	IOWA OIL CO		DUBUQUE	IA	
0000X	ITT RAYONIER INC	FOOT OF GUM STR	FERNANDINA BEAC	FL	
0000X	ITT RAYONIER INC		FORT ANGELES	WA	
0X000	JAYRED OIL & GAS		BELLE CHASSE	LA	
0000X	JEBRO INC	2303 BRIDGEPORT	SIOUX CITY	NE	
0000X	JOHNSON A & CO INC	110 EAST 59TH S	NEW YORK	NY	10022
0X000	JOHNSTON'S FORT 33	PO BOX 219	INOLA	OK	74063
000X0	KANEB P L CO	PO BOX 621	LE MARS	IA	51031
000X0	KANEB P L CO	3300 EAST AVENU	HUTCHISON	KS	67501
000X0	KANEB P L CO	RRT 2	JAMESTOWN	ND	58401
000X0	KANEB P L CO	RR 4 BOX 417	NORTH PLATTE	NE	69101
000X0	KANEB P L CO	RR 4 BOX 223	YANKTON	SD	57078
0X000	KELLEYS CREEK FUEL		CEDAR GROVE	WV	
000X0	KENDO REFG CO		GREENSBORO	NC	
000X0	KING RES REFY		DENVER	CO	
0000X	KOPPERS CO	3900 S LARAMIE	CHICAGO	IL	
X0000	LAKE RIVER CORP		BERWYN	IL	60402
X0X00	LEMM CORP OPERS THE	PO BOX 171118	MEMPHIS	TN	38187
0000X	LIQUID FUELS OF CAR	ST HWY 165	PANAMA CITY	FL	
0X000	LITTLE ROCK TERM CO	9001 LINDSEY RD	LITTLE ROCK	AR	72206
0X000	LOCK 3 OIL COAL & D		ELIZABETH	PA	
0000X	LONG BEACH TERM CO	1900 LUGGER WAY	LONG BEACH	CA	
00X00	MACARTHUR PETRO SOL	126 PASSAIC ST	NEWARK	NJ	07104
0X000	MAGNOLIA PETRO CO		BATON ROUGE	LA	
00X00	MANK-O-PETRO	6 HEADS OVERLO	ATLANTA	GA	30328
0000X	MARINE FUELING DOCK	FOOT OF HILL AV	SUPERIOR	WI	
0X000	MARINE OIL TREATMEN		CHICAGO	IL	
0X000	MARINE PETRO CO		ST LOUIS	MO	
0X000	MATADOR DOCK		MARCHAND	LA	

## Listings Used For Potential Respondents

Frame=811  
(continued)

Source Code	Company Name	Address	City	State	Zip
00X00	MEENAN OIL CO INC	6800 JERICHO TU	SYOSSET	NY	11791
00X00	MEENAN OIL CO INC	113 MAIN STREET	TULLYTOWN	PA	19007
00X00	METRO TERMS CORP	235 MCGUINNESS	BROOKLYN	NY	11222
00X00	MID STATES PETRO	2146 LIVERNOIS	TROY	MI	48098
000X0	MID-PENN REFG CO		AURORA	OH	
00X00	MID-PENN REFG CO	P O BOX 480	ZELIENOPLE	PA	16063
0X000	MID-SOUTH TERMS	1145 CHANNEL AV	MEMPHIS	TN	38113
00000	MIDSTREAM FUEL SERV	FUEL WHARF	MOBILE	AL	
000X0	MIDW SOLVENTS INC	1300 MAIN	ATCHISON	KS	66002
000X0	MIDW SOLVENTS INC		AURORA	OH	
00X00	MIDWEST ENGY	2929 HOLBROOK	HAMTRAMCK	MI	48212
0000X	MILCHEM INC DOCK	FOOT OF BRADNER	GALVESTON	TX	
0X000	MILLER OIL CO		TUSCALOOSA	AL	
00X00	MINEMET CREST FUELS	101 PARK AVENUE	NEW YORK	NY	10178
0X000	MINERVA OIL CO		CAVE IN ROCK	IL	
000X0	MOBILE BAY REFG CO		BLAKELY ISLAND	AL	
000X0	MOGAR OIL CO	PO BOX 4008	PENSACOLA	FL	32507
0000X	MONSANTO BARGE	DOCK NO 4	TEXAS CITY	TX	
00X00	MONTELLO OIL CORP	800 SOUTH STREE	WALTHAM	MA	02154
0X000	MORGAN OIL CO		ALEXANDRIA	MO	
00X00	MORGAN OIL TERMS CO	PO BOX 350	BROOKLYN	NY	11237
0X000	MUTUAL OIL CO		DEMOPOLIS	AL	
000X0	NAMOLCO TERMS		LONG BEACH	CA	
000X0	NATL TERM		CHARLOTTE	NC	
0000X	NEW ENGLAND TANK IN	FOOT OF PATTERS	NEWINGTON	NH	
X0X00	NOOD ENGY CORP	PO BOX 86	TONOWANDA	NY	14151
X0000	NORFOLK OIL TRANSIT	PO BOX 1756	NORFOLK	VA	23501
0X000	NORTHERN PETROCHEM		KINGSTON MINES	IL	
X0000	OCEAN TERMS INC	PO BOX 231	BLUE BELL	PA	19422
0X000	OH RIVER OIL CO		LIVERPOOL	OH	
000X0	OIL TERM CO	PO BOX 4864	EUREKA	CA	95501
X0X00	OILTANKING INC	PO BOX 96290	HOUSTON	TX	77213
0000X	OLYMPIC OIL LTD INC	5000 W 41ST ST	CHICAGO	IL	
000X0	ORLEANS OIL CO	507 S HENRY	ABBEVILLE	LA	70501
000X0	OSCEOLA REFG CO		WEST BRANCH	MI	
000X0	OZARK PETRO CO		MOUNT VERNON	MO	
000X0	PACIFIC INLAND NAVI	RIVER RD	THE DALLES	OR	97058
X0000	PACIFIC MOLASSES CO	PO BOX 3952	SAN FRANCISCO	CA	94119
000X0	PAKTANK CORP		MOBILE	AL	
000X0	PAKTANK CORP	2101 WESTERN DR	RICHMOND	CA	94802
000X0	PAKTANK CORP	106 BRIDGE CITY	BRIDGE CITY	LA	70094
000X0	PAKTANK CORP	1710 WOODBINE S	WILMINGTON	NC	28401
000X0	PAKTANK CORP		PHILADELPHIA	PA	
00X00	PAKTANK CORP	200 WEST LOOP S	HOUSTON	TN	77027
X0X00	PAKTANK CORP		HOUSTON	TX	77027
000X0	PARADE CO	PO BOX 48	NEW LONDON	TX	75682
000X0	PASCO MKTG INC	PO BOX 294	IOLA	KS	66749
00X00	FALL MOLNAR	PO BOX 275	CLAYTON	NJ	08312
0X000	PAYMASTER OIL MILL		OSCEOLA	AR	
0X000	PAYMASTER OIL MILL		VICKSBURG	LA	
000X0	PEERLESS DISTB	7965 HOLLAND	TAYLOR	MI	
00X00	PERMIAN CORP	P O BOX 2767	CORPUS CHRISTI	TX	78403

Listings Used For Potential Respondents

Frame=811  
(continued)

Source Code	Company Name	Address	City	State	Zip
0X000	PETERS FUEL CORP		BROWNSVILLE	PA	
00X00	PETRO FUEL & TERM C	7930 CLAYTON RD	ST LOUIS	MI	63117
00X00	PETRO FUEL & TERM C	7930 CLAYTON RD	ST LOUIS	MO	63117
0000X	PETRO FUEL & TERM C	RIVER RD	WILMINGTON	NC	
00XX0	PETRO PROD CORP	LOCUST POINT RD	NEW KINGSTON	PA	
00X00	PETRO SERV	COLFAX AND CONC	PAWTUCKET	RI	02862
000X0	PETRO SPEC		FLAT ROCK	MI	
0X1000	PETROL PLUS OF NAUG	38 COMMERCE STR	DERBY	CT	06418
000X0	PETROLM FUEL & TERM		NORTH LITTLE RO	AR	
00XX0	PETROMARK INC		RICHMOND	CA	
X0X00	PETROUNITED TERMS I		HOUSTON	TX	77002
0X000	PHOENIX TERM CO		HARTFORD	IL	
0000X	PICKETT-DAVISON FLE	FOOT OF ATKINS	PINE BLUFF	AR	
00X00	PIERSON J W CO	89 DODD STREET	EAST ORANGE	NJ	07019
00X00	PILOT PETRO CORP	444 WEST OCEAN	LONG BEACH	CA	90802
00X00	FLACID OIL CO	3900 THANKSGIVI	DALLAS	TN	75201
00X00	FLACID OIL CO	3900 THANKSGIVI	DALLAS	TX	75201
000X0	FLATEAU INC	P O BOX 10	ROOSEVELT	UT	84066
0000X	PORTLAND P L CORP	STANFORD ST EXT	S PORTLAND	ME	
X0000	POWELL DUFFRYN TERM		BAYONNE	NJ	07002
00X00	PRINCETON FUEL OIL	220 ALEXANDER S	FRINCETON	NJ	08540
000X0	PROD TERMS OF WI	1414 S HARBOR D	MILWAUKEE	WI	53207
X0000	PUBLIC TERMS INC	PO BOX 633	OFELOUSAS	LA	70571
000X0	PUBLICCKER INDUS INC		PHILADELPHIA	PA	
0X000	QUAKER STATE OIL		MARTINS FERRY	OH	
0X000	QUAKER STATE OIL		JASPER	TN	
XXXXX0	QUEEN CITY TERMS IN		CINCINNATI	OH	45226
0000X	RADIUM PETRO CO		LITTLE ROCK	AR	
X0X00	REFNRS MKTG CO		SAN PEDRO	CA	90731
00X00	RELIANCE FUELS INC	6025 SECOR ROAD	TOLEDO	OH	43613
0X000	REFUBLIC OIL CO		GREENVILLE	MS	
0X0X0	RICH OIL CO		IRONTON	OH	
0X000	RIVER OIL CO		CARUTHERSVILLE	MO	
0X000	RIVER OIL CO		MEMPHIS	TN	
XX000	RIVER TRANSPORTATIO	PO BOX 33141	CINCINNATI	OH	45233
0X000	ROCK ISLAND OIL REF		MARCHAND	LA	
000X0	ROMAN INC	PO BOX 428	HUTCHINSON	KS	67504
0X000	ROCKWOOD OIL TERM		CINCINNATI	OH	
X0X00	S COAST TERMS INC	PO BOX 15535	HOUSTON	TX	77220
0000X	S E PETRO PROD		PANAMA CITY	FL	
00X00	SAVDRY ENGY CO INC	PO BOX 1266	BINGHAMTON	NY	13902
000X0	SCOTLAND OIL CO		CHARLOTTE	NC	
0000X	SCOTT PAPER CO	BAY BRIDGE RD	MOBILE	AL	
0X000	SEATANK CHICAGO INC	12200 S STONY I	CHICAGO	IL	60633
0X000	SENTELL OIL CO		FORT BIRMINGHAM	AL	
000X0	SHOTMEYER OIL CORP		WILMINGTON	DE	
00X00	SHOTMEYER OIL CORP	ONE VALLEY STRE	HAWTHORNE	NJ	07506
0X0X0	SHOTMEYER OIL CORP	PO BOX 746	NEWBURGH	NY	12553
000X0	SHOTMEYER OIL CORP		CHESAPEAKE	VA	
000X0	SIMMONS REFS CORP		PHOENIX	AZ	
0X000	SINTER FUEL CORP		BROWNSVILLE	PA	
0X100	SIFFIN BROTHERS OIL	234 MAIN STREET	MONROE	CT	06469

## Listings Used For Potential Respondents

Frame=811  
(continued)

Source Code	Company Name	Address	City	State	Zip
00X00	SOUTHERN ENGY INC	P O BOX 100	LANCASTER	SC	29720
000X0	SOUTHERN STATES ASP	PO BOX 308	KUTTAWA	KY	42055
000X0	SOUTHERN STATES ASP	P O BOX 8098	NASHVILLE	TN	37207
000X0	SOUTHERN UNION OIL		EL PASO	TX	
000X0	SOUTHLAND OIL CO	PO BOX 7058	SAVANNAH	GA	31408
00X00	ST CLAIR UNDERGROUN	2510 BUSHA HIGH	MARYSVILLE	MI	48040
000X0	ST JOHNS PETROTERMS		SANFORD	FL	
0X000	STAND SLAG CO	PO BOX 184	WHEELERSBURG	OH	45694
00X00	STATIA TERMS INC	1320 SOUTH DIXI	CORAL GABLES	FL	33146
00X00	STOKES OIL CO	PO BOX 227	HICKMAN	KY	42050
0000X	STRGE TANK DEV CORP	FOOT OF PATTERS	PORTSMOUTH	NH	
0X000	SUNRAY DX OIL CO		HENDERSON	KY	
0X000	SWEENEY GAS & OIL		PEDRIA	IL	
0000X	SWYGERT SHIPYARD	4900 VIRGINIA A	CHARLESTON	SC	
00X00	TABOR & CO	PO BOX 447	LA SALLE	IL	61301
0X000	TABOR GRAIN CO	PO BOX 447	LASALLE	IL	61301
000X0	THEISEN-CLEMENS CO	PO BOX 149	GLADSTONE	MI	49837
0000X	THOMPSON INC	500 S OAKLEY DR	N LITTLE ROCK	AR	
0X000	TIDEWATER OIL CO		VENICE	LA	
0X000	TN RIVER TERMS	530 MANUFACTURE	CHATTANOOGA	TN	37405
0X000	TRANSIT OIL CO		NEW ALBANY	IN	
XX00X	TRI-CENTRAL MARINE	PO BOX 369	LEMONT	IL	60439
000X0	TROPICANA ENGY CO	6800 W CANAL BA	FOREST VIEW	IL	60402
0000X	TWIN CITY SHIPYARD	1303 RED ROCK R	ST PAUL	MN	
000X0	TX INDEP OIL CO	PO BOX 6040	PHOENIX	AZ	85005
0X000	TX OIL CO		MEMPHIS	TN	
000X0	U S OIL	4306 TERMINAL D	MCFARLAND	WI	53558
000X0	ULTRAMAR PETRO INC		GLASTONBURY	CT	
000X0	ULTRAMAR PETRO INC		CHELSEA	MA	
000X0	ULTRAMAR PETRO INC		BAYONNE	NJ	
000X0	ULTRAMAR PETRO INC	138TH ST	ERONX	NY	
0X000	UNION RAILROAD OIL		DUGUESNE	PA	
0X000	UNITED FUEL GAS CO		ST ALBANS	WV	
0X000	US FUEL & ENGY INC		CHATTANOOGA	TN	
000X0	USA OIL INC	1689 NORTH OLIV	VENTURA	CA	93001
0X000	USX CORP		RANKIN	PA	
000X0	VALLEY OIL CO		HUDSON	NY	
0000X	VEN-OIL PIER	VIADUCT RD EXT	MOBILE	AL	
00X00	VINCI J J OIL CO	1000 NEWFIELD S	MIDDLETOWN	CT	06457
000X0	W TX MKTG		WILMINGTON	DE	
000X0	WABACO	1129 SCOTTSVILL	ROCHESTER	NY	14624
00X00	WALTER F SCHWAB CO	P O BOX 577	POTTSTOWN	PA	19464
0000X	WARRIOR & GULF NAVI	FUEL OIL DOCK	MOBILE	AL	
000X0	WARRIOR ASP CORP AL		TUSCALOOSA	AL	
0000X	WEBB WEBB & KLEMMANN		FORT TOWNSEND	WA	
00X00	WECHTER PETRO CORP	ONE SHERIDAN BO	INWOOD	NY	11696
00X00	WESTBANK OIL INC	PO BOX 638	PENNSAUKEN	NJ	08110
00X00	WESTPAC PETRO CORP	106 K STREET SU	SACRAMENTO	CA	95814
0000X	WESTVACO CORP	5200 VIRGINIA A	CHARLESTON	SC	
X0000	WESTWAY TRADING COR		ENGLEWOOD CLIFF	NJ	07632
0X000	WHITewater PETRO		CHICAGO	IL	
0X000	WILSON E A CO	700 BROADWAY	LOWELL	MA	01854

Listings Used For Potential Respondents

Frame=811  
(continued)

Source Code	Company Name	Address	City	State	Zip
00x00	WILSON OF WALLINGFO	221 ROBERS LANE	WALLINGFORD	PA	19086
00x00	WSTRN FUELS INC	PO BOX 75037	TAMPA	FL	33675
0x000	WSTRN OIL & FUEL		MINNEAPOLIS	MN	

## Listings Used For Potential Respondents

Frame=812

Source Code	Company Name	Address	City	State	Zip
00000	AMER OIL & GAS	333 CLAY ST STE 2000	HOUSTON	TX	77002
000X0	AMER P L CO	333 CLAY ST STE 2000	HOUSTON	TX	77002
0X000	ANDERSON P L CO	1200 DENVER CENTER B	DENVER	CO	80203
0X000	BAY P L INC	1200 SMITH	HOUSTON	TX	77002
00000	BISHOP P L CO	PENNZOIL PL S TOWER	HOUSTON	TX	77002
000X0	CABOT CORP	125 HIGH STREET	BOSTON	MA	02110
0X000	CAMPFON P L CORP	17400 DALLAS PARKWAY	DALLAS	TX	75252
00000	CARDINAL P L CORP	8700 CROWNHILL	SAN ANTONIO	TX	78209
000X0	CITRONELLE-MOBI	PO BOX 16705	MOBILE	AL	36616
0X0X0	COMYN P L CO	500 CHESTNUT	ABILENE	TX	79602
0X000	CORONADO TRANSM	P O BOX 165	CORPUS CHRISTI	TX	78403
0X0X0	COSDEN P L CO	P O BOX 2835	CODY	WY	82414
0X000	D S P L CORP	P O BOX 696000	SAN ANTONIO	TX	78269
0X000	DOW P L CO	FM 3156	BAY CITY	TX	77414
00000	EASTERN P L CO	407 SAN JACINTO BLDG	HOUSTON	TX	77002
0000X	ERSON REFG INC	VICKSBURG HARBOR	VICKSBURG	MS	39810
0X000	ESTRN GAS SYS I	2243 SAN FELIFE	HOUSTON	TX	77019
0X000	EXLINE P L CO	123 PARK AVE	OKLAHOMA CITY	OK	73102
00000	FERGUSON CROSSING P	P O BOX 4000	THE WOODLANDS	TX	77381
0X000	FOOR P L INC	2414 S HOOVER	WICHITA	KS	67215
0X000	GAMMILLS INC	RT 5 BOX 55 4321 N 1	PONCA CITY	OK	74601
0X0X0	GULF INTERSTATE ENGY	319 N POTTSTOWN PIKE	EXTON	PA	19341
00000	GULFTIDE GAS CO	P O BOX 1749	ROCKFORD	TX	78382
0X000	HELBIG A S CO THE	915 HOME AVE	AKRON	OH	44310
00000	HGI CORP	621 AMERICANA BLDG	HOUSTON	TX	77002
0X000	HST GATH CO	202 5808 CALLAGHAN R	SAN ANTONIO	TX	78228
0X000	INDUSTRIAL P LS	821 VISTA WEST	SUNDANCE	WY	82729
00000	K-W GATH INC	P O BOX 5801	KINGWOOD	TX	77325
0X0X0	KIANTONE P L CO	PO BOX 780	WARREN	PA	16365
0X0X0	KY W VIRGINIA G	340 - 17TH ST	ASHLAND	KY	41105
0X000	LAZY BEND INC	608 N ST PAUL ST	DALLAS	TX	75201
0X000	LITTLE BIG INCH P L	PO BOX 31249	EL PASO	TX	79931
X0000	PC ENGY INC	925 GREENVILLE AVE	ALLAS	X	5206
0X000	PCO INC	1800 S BALTIMORE BOX	TULSA	OK	74119
0X000	MID PLAINS P L CO	33 BRIEROCFT OFFICE	LUBBOCK	TX	79412
0X0X0	MID-CONTINENT P	PO BOX 141	TULSA	OK	74102
0X0X0	N W P L CORP	PO BOX 8900	SALT LAKE CITY	UT	84108
0X000	NORTHERN INTRASTATE	2223 DODGE ST	OMAHA	NE	68102
0X0X0	NORTHERN ROCKIE	PO BOX 1856	BILLINGS	MT	59103
0X0X0	OCCIDENTAL PETR	10889 WILSHIRE	LOS ANGELES	CA	90024
000X0	OSAGE P L CO	BOX 17785	DENVER	CO	80217
0X000	PALADIN P L CO	STE 808 601 N W LOOP	SAN ANTONIO	TX	78216
0X000	PETRO SOURCES C	185 S STATE #900	SALT LAKE CITY	UT	84111
0X000	PHENIX TRANS CO	120 S MARKET	WICHITA	KS	67202
0X000	POLO ENGY CORP #2900	1200 SMITH	HOUSTON	TX	77002
0X0X0	PORTLAND P L CORP	PO BOX 2590	SOUTH PORTLAND	ME	04106
0X000	RANGER P LS INC	#E 2010 OCEAN AVE	SAN FRANCISCO	CA	94127
0X000	RESERVE P L INC	PO BOX 1274	LIBERAL	KS	67901
00000	REYNOLDS P L CO	P O BOX 9936	CORPUS CHRISTI	TX	78469
0X000	SAFARI ENERGY INC	FIRST NAT'L BK	CORSICANA	TX	75110
0000X	SAN JOAQUIN REF	3542 SHELL ST BOX 55	BAKERSFIELD	CA	93388-55
00X00	SAN JOAQUIN VAL	N/A			
0X0X0	SOURLOCK OIL CO	PO BOX 4648	HOUSTON	TX	77210

Listings Used For Potential Respondents

Frame=812  
(continued)

Source Code	Company Name	Address	City	State	Zip
0x000	SHEVEFORT INTRA	209 TEXAS	SHREVEPORT	LA	71101
	SIMMONS OIL CORP	3200 CAMELBACK RD	PHOENIX	AZ	85018
0x000	SIoux P L CO	303 BROAD	BALLINGER	TX	76821
0x0x0	SOUTHERN CA P L	555 MARKET ST	SAN FRANCISCO	CA	94105
0x000	SPOT MARKET CORP	3801 KIRBY DR STE 50	HOUSTON	TX	77098
0x0x0	STINGRAY P L CO	PO BOX 1642	HOUSTON	TX	77251
0x000	TANGRAM TRANS CORP	PO BOX 8995	THE WOODLANDS	TX	77387
0x000	TELLEPSEN CORP	15600 W HARDY	HOUSTON	TX	77060
0x000	TEXPATA P L CO	PO BOX 499	LAREDO	TX	78040
0x0x0	TN VIRGINIA ENGY COR	PO BOX 60	JOHNSON CITY	TN	37601
0x000	TRAILBLAZER P L CO	RR	SIDNEY	NE	69162
0x000	TRANS-PAN GATH INC	2505 LAKEVIEW DR	AMARILLO	TX	79109
0x000	TRANS-PAN P L CO	SUITE 520 6301 GASTO	DALLAS	TX	75214
0x000	TRANSWESTERN P	P O BOX 1188	HOUSTON	TX	77251
0x000	TRINITY P L INC	4851 KELLER SPRINGS	DALLAS	TX	75248
0x0x0	TX EASTMAN CO	PO BOX 7444	LONGVIEW	TX	75607
0x0x0	TX OIL & GAS CO	1700 PACIFIC AV	DALLAS	TX	75201
0x000	ULTICORP UNITED INC	10700 E 350 HIGHWAY	KANSAS CITY	MO	64138
0x000	UNITED BRINE P L	2000 W LOOP S STE 99	HOUSTON	TX	77027
0x000	UNITED ENERGY RES IN	P O BOX 1478	HOUSTON	TX	77251
	UNOCAL	1201 W 5TH ST PO BOX	LOS ANGELES	CA	90017
0x000	WALKUP CO	5945 ARMOUR DR	HOUSTON	TX	77020
0x000	WATERFORD P L INC	SUITE 1250 210 WEST	OKLAHOMA CITY	OK	73102
0x000	WESCO P L CO	PO BOX 5568	DENVER	CO	80217
0x000	WIL JON CO INC	4105 MANKINS RD	ODESSA	TX	79764
0x000	WILLBROS TERM CO	PO DRAWER 3448	TULSA	OK	74101
	WILLIAMS P L CO	BOX 3448	TULSA	OK	74101
0x0x0	WSTRN OIL TRANSP CO	PO BOX 1183	HOUSTON	TX	77001

## Listings Used For Potential Respondents

Frame=813

Source Code	Company Name	Address	City	State	Zip
00000	AMER OIL & GAS	333 CLAY ST STE 2000	HOUSTON	TX	77002
000X0	AMER P L CO	333 CLAY ST STE 2000	HOUSTON	TX	77002
0X000	ANDERSON P L CO	1200 DENVER CENTER B	DENVER	CO	80203
0X000	BAY P L INC	1200 SMITH	HOUSTON	TX	77002
00000	BISHOP P L CO	PENNZOIL PL S TOWER	HOUSTON	TX	77002
000X0	CABOT CORP	125 HIGH STREET	BOSTON	MA	02110
0X000	CAMPEDIN P L CORP	17400 DALLAS PARKWAY	DALLAS	TX	75252
00000	CARDINAL P L CORP	8700 CROWNHILL	SAN ANTONIO	TX	78209
000X0	CITRONELLE-MOBI	PO BOX 16705	MOBILE	AL	36616
0X0X0	COMYN P L CO	500 CHESTNUT	ABILENE	TX	79602
0X000	CORONADO TRANSM	P O BOX 165	CORPUS CHRISTI	TX	78403
0X0X0	COSDEN P L CO	P O BOX 2835	CODY	WY	82414
0X000	D S P L CORP	P O BOX 696000	SAN ANTONIO	TX	78269
0X000	DOW P L CO	FM 3156	BAY CITY	TX	77414
00000	EASTERN P L CO	407 SAN JACINTO BLDG	HOUSTON	TX	77002
0000X	ERSON REFG INC	VICKSBURG HARBOR	VICKSBURG	MS	39810
0X000	ESTRN GAS SYS I	2243 SAN FELIFE	HOUSTON	TX	77019
0X000	EXLINE P L CO	123 PARK AVE	OKLAHOMA CITY	OK	73102
00000	FERGUSON CROSSING P	P O BOX 4000	THE WOODLANDS	TX	77381
0X000	FOOR P L INC	2414 S HOOVER	WICHITA	KS	67215
0X000	GAMMILLS INC	RT 5 BOX 55 4321 N 1	FONCA CITY	OK	74601
0X0X0	GULF INTERSTATE ENG	319 N POTTSTOWN PIKE	EXTON	PA	19341
00000	GULFTIDE GAS CO	P O BOX 1749	ROCKPORT	TX	78382
0X000	HELBIG A S CO THE	915 HOME AVE	AKRON	OH	44310
00000	HGI CORP	621 AMERICANA BLDG	HOUSTON	TX	77002
0X000	HST GATH CO	202 5808 CALLAGHAN R	SAN ANTONIO	TX	78228
0X000	INDUSTRIAL P LS	821 VISTA WEST	SUNDANCE	WY	82729
00000	K-W GATH INC	P O BOX 5801	KINGWOOD	TX	77325
0X0X0	KIANTONE P L CO	PO BOX 780	WARREN	PA	16365
0X0X0	KY W VIRGINIA G	340 - 17TH ST	ASHLAND	KY	41105
0X000	LAZY BEND INC	608 N ST PAUL ST	DALLAS	TX	75201
0X000	LITTLE BIG INCH P L	PO BOX 31249	EL PASO	TX	79931
X0000	PC ENGY INC	925 GREENVILLE AVE	ALLAS	X	5206
0000X	MAPCO INC	1800 S BALTIMORE BOX	TULSA	OK	74119
0X000	MID PLAINS P L CO	33 BRIERCROFT OFFICE	LUBBOCK	TX	79412
0X0X0	MID-CONTINENT P	PO BOX 141	TULSA	OK	74102
0X0X0	N W P L CORP	PO BOX 8900	SALT LAKE CITY	UT	84108
0X000	NORTHERN INTRASTATE	2223 DODGE ST	OMAHA	NE	68102
0X0X0	NORTHERN ROCKIE	PO BOX 1856	BILLINGS	MT	59103
000X0	OCCIDENTAL PETR	10889 WILSHIRE	LOS ANGELES	CA	90024
000X0	OSAGE P L CO	BOX 17785	DENVER	CO	80217
0X000	PALADIN P L CO	STE 808 601 N W LOOP	SAN ANTONIO	TX	78216
	PETRO SOURCES C	185 S STATE #900	SALT LAKE CITY	UT	84111
0X000	PHENIX TRANS CO	120 S MARKET	WICHITA	KS	67202
0X000	FOLD ENGY CORP #290	1200 SMITH	HOUSTON	TX	77002
0X0X0	PORTLAND P L CORP	PO BOX 2590	SOUTH FORTLAND	ME	04106
0X000	RANGER P LS INC	#E 2010 OCEAN AVE	SAN FRANCISCO	CA	94127
0X000	RESERVE P L INC	PO BOX 1274	LIBERAL	KS	67901
00000	REYNOLDS P L CO	P O BOX 9936	CORPUS CHRISTI	TX	78469
0X0X0	SAFARI ENERGY INC	FIRST NAT'L BK	CORSICANA	TX	75110
0000X	SAN JOAQUIN REF	3542 SHELL ST BOX 55	BAKERSFIELD	CA	93388-51
00000	SAN JOAQUIN VAL	N/A			
0X0X0	SOURLOCK OIL CO	PO BOX 4648	HOUSTON	TX	77210

## Listings Used For Potential Respondents

Frame=813  
(continued)

Source Code	Company Name	Address	City	State	Zip
0X000	SHEVEFORT INTRA	209 TEXAS	SHREVEPORT	LA	71101
	SIMMONS OIL CORP	3200 CAMELBACK RD	PHOENIX	AZ	85018
0X000	SIOUX P L CO	303 BROAD	BALLINGER	TX	76821
00X0X	SOUTHERN CA P L	555 MARKET ST	SAN FRANCISCO	CA	94105
00000	SPOT MARKET CORP	3801 KIRBY DR STE 50	HOUSTON	TX	77098
0X0X0	STINGRAY P L CO	PO BOX 1642	HOUSTON	TX	77251
0X000	TANGRAM TRANS CORP	PO BOX 8995	THE WOODLANDS	TX	77387
0X000	TELLEPSEN CORP	15600 W HARDY	HOUSTON	TX	77060
0X000	TEXPATA P L CO	PO BOX 499	LAREDO	TX	78040
00X0X	TN VIRGINIA ENGY CO	PO BOX 60	JOHNSON CITY	TN	37601
0X000	TRAILBLAZER P L CO	RR	SIDNEY	NE	69162
0X000	TRANS-PAN GATH INC	2505 LAKEVIEW DR	AMARILLO	TX	79109
0X000	TRANS-PAN P L CO	SUITE 520 6301 GASTO	DALLAS	TX	75214
00000	TRANSWESTERN P	P O BOX 1188	HOUSTON	TX	77251
0X000	TRINITY P L INC	4851 KELLER SPRINGS	DALLAS	TX	75248
00X0X	TX EASTMAN CO	PO BOX 7444	LONGVIEW	TX	75607
00X0X	TX OIL & GAS CO	1700 PACIFIC AV	DALLAS	TX	75201
00X0X	ULTLICORP UNITED IN	10700 E 350 HIGHWAY	KANSAS CITY	MO	64138
00000	UNITED BRINE P L	2000 W LOOP S STE 99	HOUSTON	TX	77027
00000	UNITED ENERGY RES I	P O BOX 1478	HOUSTON	TX	77251
	UNOCAL	1201 W 5TH ST PO BOX	LOS ANGELES	CA	90017
0X000	WALKUP CO	5945 ARMOUR DR	HOUSTON	TX	77020
0X000	WATERFORD P L INC	SUITE 1250 210 WEST	OKLAHOMA CITY	OK	73102
0X000	WESCO P L CO	PO BOX 5568	DENVER	CO	80217
0X000	WIL JON CO INC	4105 MANKINS RD	ODESSA	TX	79764
0X000	WILLBROS TERM CO	PO DRAWER 3448	TULSA	OK	74101
	WILLIAMS P L CO	BOX 3448	TULSA	OK	74101
0X0X0	WSTRN OIL TRANSP CO	PO BOX 1183	HOUSTON	TX	77001

## Listings Used For Potential Respondents

Frame=816

Source Code	Company Name	Address	City	State	Zip
X000	ADDOE RES CORP	645 MADISON AVE	NEW YORK	NY	10022
000X	ADVANCED POLYFR		MARYSVILLE	MI	
X000	AGGIELAND GATH		BRAZOS	TX	
000X	AGRIDO CHEML CO	BOX 3166	TULSA	OK	74101
000X	AGRIFUELS REFB	BOX 9130	NEW IBERIA	LA	70560
000X	AIR PROD & CHEM	BOX 538	ALLENTOWN	PA	18105
000X	ALLIED CHEM CORP		HOPEWELL	VA	
X000	AMER CENTRAL GA		LIVE OAK	TX	
000X	AMER CYANAMID CO		HANNIBAL	MO	
000X	AMMONIA PRODUCE		DONALDSONVILLE	LA	
X000	AMODO PROD CO	200 E RANDOLPH DRIVE	CHICAGO	IL	60680
X000	ANCHOR GASOLINE	114 E 5TH STREET	TULSA	OK	74103
000X	ANR P L	ONE WOODWARD AVENUE	DETROIT	MI	48226
000X	ARCO CHEML CO	1500 MARKET STREET	PHILADELPHIA	PA	19101
000X	ASHLAND PETR CO	2000 ASHLAND DRIVE B	RUSSELL	KY	41169
XX00	ASSOCIATED NAT		WEBSTER	LA	
000X	AUGUSTA REFB CO		AUGUSTA	KS	
000X	BADISCHE CORP		FREEPORT	TX	
X000	BATEMAN GAS FLT		BASTROP	TX	
X000	BENNETT MILLS E		BROOKS	TX	
000X	BENSON MINERALS	1536 COLE BOULEVARD	GOLDEN	CO	80401
X000	BERRY OPERATING		NOBLE	OK	
X000	BEST ENG CORP		JASPER	MS	
X000	BIG THREE GAS CO		EDWARDS	IL	
X000	BLAIR OIL CO		HUTCHINSON	TX	
0000	BOLIN R L	1120 OIL & GAS BLDG	WICHITA FALLS	TX	76301
000X	BORDEN CHEML CO	BOX 427	GEISMAR	LA	70734
X000	BORDEN GAS CO L		BORDEN	TX	
000X	BORG-WARNER CHEM		PT BIENVILLE	MS	
000X	BP OIL CORP		MARCUS HOOK	PA	
000X	BP OIL INC		ALLIANCE	LA	
X000	BRANCH INVESTMENT		LAFAYETTE	AR	
0000	BRIDGEMAN RIDGE GA FLA	P O BOX 1272	BRIDGEMAN RIDGE	TX	76024
X000	BRIGHTON GAS PR		WELD	CO	
0X00	BRUIN PETRO INC	1300 MAIN STREET SUI	HOUSTON	TX	77002
0000	BUTTES GAS & OIL	P O BOX 2071 1970 BR	OAKLAND	CA	94604
X000	C S X OIL & GAS	909 FANNIN SUITE 200	HOUSTON	TX	77010
0X00	CABIN CREEK GAS		ADAMS COUNTY	CO	
0000	CAL GAS CROP	8401 GERBER ROAD	SACRAMENTO	CA	95808-01
000X	CALNEV P L	412 W HOSPITALITY LA	SAN BERNARDINO	CA	92408
000X	CALLMET REFB CO		FRINCETON	LA	
000X	CANADIAN GATEWA		MARILLA	NY	
000X	CAROLINA EASTMA		COLUMBIA	SC	
000X	CELEBRON/ALL AME	BOX 31029	SANTA BARBARA	CA	93130
X000	CELSIUS ENGY CO	79 S STATE STREET BO	SALT LAKE CITY	UT	84147
XX00	DERRITO LAND CO	211 N COLORADO	MIDLAND	TX	79701
000X	OF INDUSTRIES INC		DONALDSONVILLE	LA	
0X00	CHAMPLIN PETRO	801 CHERRY ST BOX 7	FORT WORTH	TX	76101-00
0X0X	CHEVRON CHEM CO	575 MARKET STREET	SAN FRANCISCO	CA	94105-
0000	CHEVRON USA INC	225 BUSH STREET	SAN FRANCISCO	CA	94104
000X	CLAJON TRANSPORT		HINDS CO	MS	
000X	CLARK OIL & REF	8182 MARYLAND AVENUE	ST LOUIS	MO	63105
X000	CO GAS COMPRESS		CREEK	OK	

## Listings Used For Potential Respondents

Frame=816  
(continued)

Source Code	Company Name	Address	City	State	Zip
00X0	CO INTERSTATE GAS		CARBON	WY	
X100	COASTAL OIL & GAS	BOX 749	DENVER	CO	80201
000X	COGEN LYONDELL	1221 MCKINNEY SUITE	HOUSTON	TX	77010
X000	COMMANDER OIL CO	FOOT OF SOUTH STREET	OYSTER BAY	NY	11771
X000	CONSUMERS POWER	212 W MICHIGAN AVENU	JACKSON	MI	49201
X000	CORY GAS PROC INC		COLEMAN	TX	
000X	COX & COX OIL	3800 INTER FIRST ONE	DALLAS	TX	75202
X000	CRYSTAL OIL CO	BOX 21101	SHREVEPORT	LA	71120
0000	C S X OIL & GAS CO	P O BOX 1528	GEORGE WEST	TX	
X000	CULP & HEFNER		BROWN	TX	
X000	CUSTOM ENERGY CON		DIVIDE	ND	
X000	D M W GAS PROC		NOLAN	TX	
X000	DAMSON GAS PROC	BOX 2268	HOUSTON	TX	77252
X000	DAMSON OIL CORP	366 MADISON AVENUE	NEW YORK	NY	10022
X000	DAVIS OIL CO	410 17TH STREET SUIT	DENVER	CO	80202
X000	DEL-MAR PETRO INC		STEPHENS	TX	
000X	DEMENND KERDOON	2000 N ALAMEDA	COMPTON	CA	90222
X000	DENOVO OIL & GAS	1111 FANNIN STREET B	HOUSTON	TX	77210
X000	DILLEY GAS PROC		LASALLE	TX	
X000	DOVE PROC INC		WOOD	TX	
000X	DOW CHEML CO	BOX 3387	HOUSTON	TX	77253-33
00X0	EAST OH GAS	1717 E 9TH STREET	CLEVELAND	OH	44114
X000	EL PASO HYDROCA	BOX 3908	ODESSA	TX	79760
00X0	EL PASO NATIONAL GA	BOX 1492	EL PASO	TX	79978
000X	EL PASO PROC CO		ODESSA	TX	
X000	ELAMEDA GAS INC		CREEK	OK	
X000	ELK ENERGY CORP		LAFAMIE	WY	
X000	EMPIRE EXPL INC	10 LAFAYETTE SQUARE	BUFFALO	NY	14203
X000	EMPIRE P L CO		HOOD	TX	
00X0	ENRON CORP	ENRON BLDG 1400 SMIT	HOUSTON	TX	77002-72
XX00	ENRON GAS PROC		BRADFORD COUNTY	FL	
X000	EQUITY DRILLING	BOX 40	DEWEY	OK	74029
000X	ETHYL CORP	330 S 4TH STREET BOX	RICHMOND	VA	23217
000X	EVAL CO AMERICA		BAYFORT	TX	
X000	EVERGREEN ENERGY		WASHINGTON	OK	
000X	EXXON CO USA	BOX 2180	HOUSTON	TX	77252-21
000X	FARMLAND IND INC	BOX 7305	KANSAS CITY	MO	64116
000X	FINA OIL AND CHEM	BOX 2159	DALLAS	TX	75221
000X	FMC CORP		BALTIMORE	MD	
XX00	FORT CHADBOURNE	211 N COLORADO	MIDLAND	TX	79701
X000	FRENCH GAS PROC		RICHLAND	IL	
X000	GALAXY OIL CO	DRAWER GALY 4309 JAC	WICHITA FALLS	TX	76307
0000	GETTY ENERGY CORP	115 INVERNESS DRIVE	ENGLEWOOD	CO	80112-51
X000	GAS DOCTOR THE		OSAGE	OK	
X000	GAS PROC INC		EVANGELINE	LA	
X000	GAS PROCESS INC		CALLAHAN	TX	
XX00	GERLAND PETRO CO	211 N COLORADO	MIDLAND	TX	79701
X000	GETTY OIL CO	P O BOX 54050 3810 W	LOS ANGELES	CA	90054
X000	GSSI GATH & PRO	300 N TEXAS SUITE 11	MIDLAND	TX	79701
000X	GIANT REFG CO	BOX 9156	PHOENIX	AZ	85068
X000	GOLDEN RES CORP		CLAY	TX	
000X	GOODYEAR TIRE		BEALMONT	TX	

## Listings Used For Potential Respondents

Frame 816

(continued)

Source Code	Company Name	Address	City	State	Zip
X000	GRACE PETRO CORP	6501 N BROADWAY	OKLAHOMA CITY	OK	73116
00X0	GREAT LAKES TRA	2100 BUHL BLDG	DETROIT	MI	48226
X000	GREAT PLAINS RE		FRANKLIN	IL	
X000	GYPSY-HIGHVIEW		TETON	MT	
X000	H C W EXPL INC	400 N MARIENFIELD BO	MIDLAND	TX	79702
X000	H C W GAS PROCESS	ROD N MARIENFIELD BO	MIDLAND	TX	79702
X000	HADSON GAS SYS	BOX 26770	OKLAHOMA CITY	OK	73126-67
X000	HAMILTON OIL INC	1560 BROADWAY SUITE	DENVER	CO	80202
X000	HARBIN JAMES A		COLEMAN	TX	
0000	HARSHAW/FILTROL	2580 ANDREW AVENUE	SALT LAKE CITY	UT	84104
X000	HIGH PLAINS GAS		HOWARD	TX	
000X	HIMONT INC		LAKE CHARLES	LA	
X000	HRUBETZ OIL CO	5949 SHERRY LAND SUI	DALLAS	TX	75225
X000	HUFFCO PETRO CO		ESCAMBIA	AL	
X000	HYDROCARBON SER	SAMSON PLAZA TWO WES	TULSA	OK	74103
X000	IB NO 1 LTD		JASPER	IL	
000X	INDIANA FARM BUREAU		MT VERNON	IN	
000X	INTERESIN CORP		CHANNELVIEW	TX	
000X	INTERNATIONAL MINER		STERLINGTON	LA	
X000	INTRATEX GAS CO	ENRON BLDG 1400 SMIT	HOUSTON	TX	77002-72
X000	INTRESTATE GAS		HARRIS	TX	
X000	J-O'B OPERATING	BOX 5928	SHREVEPORT	LA	71135-55
X000	J-W OPERATING CO	BOX 226406	DALLAS	TX	75222-64
X000	K N ENERGY INC	12055 W SECOND PLACE	LAKEWOOD	CO	80215
X000	KANEB OPERATING	BOX 4557	SUGARLAND	TX	77479
00X0	KERN RIVER GAS		KEMMERER	WY	
XX00	KERR-MOSEE CORP	BOX 25861	OKLAHOMA CITY	OK	73125
X000	KIM PETRO CO INC		MOORE	TX	
0000	KOCH HYDROCARBO	BOX 2256	WICHITA	KS	67201
X000	KODIAK CONST		ROBERS	OK	
XX00	KANSAS REFD HELIUM		RUSH	KS	
XX00	KENTUCKY HYDROCARBO	BOX 128	LANGLEY	KY	41645
X000	L T X INC		NOLAN	TX	
000X	LA JET INC		ST JAMES	LA	
XX00	LADD PETRO CORP	370 17TH STREET SUIT	DENVER	CO	80202-52
0000	LARIO OIL & GAS	301 S MARKET STREET	WICHITA	KS	67202
X000	LEAR GAS GATH CO		CALCASIEU	LA	
000X	LEEDE OIL & GAS		ELK CITY	OK	
X000	LIQUID ENERGY CORP	2001 TIMEERLOCH FLAC	THE WOODLANDS	TX	77387-40
X000	LINERCH PROCESS INC		GARVIN	OK	
000X	LONE STAR ENERGY	301 S HARWOOD STREET	DALLAS	TX	75201
X000	LOS ARROYOS PROCESS		RUNNELS	TX	
XX00	LOUISIANA LAND	BOX 60350	NEW ORLEANS	LA	70160
XX00	LOVELAND GAS PROD	BOX 22418	DENVER	CO	80222
000X	LYONDELL PETRO CO	BOX 3646	HOUSTON	TX	77010
X000	MAN-GAS TRANS CO		MAVERICK	TX	
0000	MAPCO INC	1800 S BALTIMORE BOX	TULSA	OK	74119
X000	MARALO INC	BOX 832	MIDLAND	TX	79702
000X	MARATHON PETRO CO	539 S MAIN ST	FINDLAY	OH	45840
X000	MARK PROD CO	675 BERING DRIVE	HOUSTON	TX	77057
X000	MATADOR P L LTD	BOX 2256	WICHITA	KS	67201
X000	MAXIS ENERGY CORP	9830 COLONNADE BLVD	SAN ANTONIO	TX	78230

Listings Used For Potential Respondents

Frame=816  
(continued)

Source Code	Company Name	Address	City	State	Zip
X000	MAXUS EXPL CO		BILLINGS	ND	
X000	MAYFIELD W L CO		EVANGELINE	LA	
X000	MC FARLAND ENERGY	10425 PAINTER AVENUE	SANTA FE SPRING	CA	90670
XX00	MCMORAN OIL & GAS	1615 FOYDRAS STREET	NEW ORLEANS	LA	70160
X000	MERIDIAN OIL INC	2919 ALLEN PARKWAY B	HOUSTON	TX	77019
00X0	MESQUITE PROD		SOUR LAKE	TX	
000X	METCO AMERICA INC		MOBILE CO	AL	
0000	MGFC INC		CAMPBELL COUNTY	WY	
X000	MGT RES GROUP L		CREEK	OK	
X000	MID-AMERICA GAS	BOX 3120	MIDLAND	TX	79707
X000	MIDAS P L CORP		HARDIN	TX	
0X00	MITCHELL ENERGY	2001 TIMBERLOCH PLAC	THE WOODLANDS	TX	77387-40
X000	MIZEL GAS PROCESS	3600 S YOSEMITE ST S	DENVER	CO	80237
000X	MN ALCOHOL PRODUCTS		MANKATO	MN	
000X	MOBILE CORP	3225 GALLOWAY RD	FAIRFAX	VA	22037
XX00	MOBILE OIL CORP	3225 GALLOWAY RD	FAIRFAX	VA	22037
00X0	MOJAVE P L		SAN ARDO	CA	
000X	MONSANTO CO	550 CALIFORNIA STREE	SAN FRANCISCO	CA	94104
X000	MOSEBACHER ENERGY	712 MAIN STREET SUIT	HOUSTON	TX	77002-32
000X	MS CHEMICAL CORP		YAZOO CITY	MS	
X000	MULL DRILLING CO	BOX 2758	WICHITA	KS	67201-27
000X	MURPHY OIL USA	200 FEACH STREET	EL DORADO	AR	71730
0000	MUSTANG GAS PRO	SUITE 1100 E 1ST NAT	OKLAHOMA CITY	OK	73102
XX00	N W P L CORP		LA FLATA	CO	
00X0	NAT GAS P L CO	701 E 23ND STREET BO	LOMBARD	IL	60148
0000	NATIONAL HELIUM	BOX 1008	LIBERAL	KS	67901
X000	NATIONAL GAS PROCES	P O BOX 541 101 DIVI	WORLAND	WY	82401
0000	NATOMAS INTERNATION	11757 KATY FREEWAY	HOUSTYON	TX	77079
0000	NAVAL PETROLEUM	P O BOX 11	TUFMAN	CA	93276
0X00	NGL PROD CO		RIO BLANCO	CO	
X00X	NIJECT SERV CO	ONE WILLIAMS CENTER	TULSA	OK	74172
X000	NORTH EDNA GA		CREEK	OK	
00X0	NORTHERN BORDER		VENTURA	IA	
X000	NORTHERN MT GAS	BOX 2800	CASPER	WY	82602
X000	NORTHINGTON INC		TOM GREEN	TX	
X000	NORTHRIDGE OIL		JACK	TX	
000X	OCCIDENTAL CHEMICAL	800 CONNECTICUT AVEN	NORWALK	CT	06854
X000	ODESSA INDUSTRIAL		BROWN	TX	
000X	OLIN CHEMICAL CO		LAKE CHARLES	LA	
X000	OLIN CORP		GREEN	KY	
000X	OXY CITIES SERV		SANTA BARBAR	CA	
XL*	P P G INDUSTRIES	SUITE 600 ONE JACKSO	JACKSON	MI	49201
00X0	PACIFIC GAS & ELEC	160 SPEAR STREET	SAN FRANCISCO	CA	94105-15
000X	PACIFIC SHALE		GARFIELD COUNTY	CO	
00X0	PACIFIC TX P L		FORT OF LA	CA	
X000	PALOMA CO	ARC00 TOWER 515 S FLD	LOS ANGELES	CA	90071
X000	PANHANDLE PROD	601 NORTHWEST LOOP 4	SAN ANTONIO	TX	78216
XX00	PARADE CO	1308 PETROLEUM TOWER	SHREVEPORT	LA	71101
000X	PARAHO DEV CORP	23 INVERNEWAY WAY EAS	ENGLEWOOD	CO	80712
X000	PATTERSON PETRO		KENT	TX	
0X0X	PENNZOIL PROD CO	700 MILAM BOX 2967	HOUSTON	TX	77252-2
XX00	FERRY GAS PROD	SUITE 2990 1600 SMIT	HOUSTON	TX	77002

## Listings Used For Potential Respondents

Frame=816  
(continued)

Source Code	Company Name	Address	City	State	Zip
X000	PETRO-HUNT CORP		ALLEN	LA	
X000	PETRO-HYDROCARB		JASPER	IL	
0000	PETRO-TEX CHEMICAL	8600 PARK PL	HOUSTON	TX	77017
000X	PETROGAS PROCESS	1500-635 8TH AVENUE	CALGARY AB	ON	T2P3Z1
0X00	PETROLAND LOMIT	BOX 851	LONG BEACH	CA	90801
X000	PIN OAK PETRO CO		CONVERSE	WY	
0000	PIONEER CORP	BOX 511	AMARILLO	TX	79163
000X	PLTATION P L	BOX 18616	ATLANTA	GA	30326
XX00	PORTAL DRILLING		MCULLEN	TX	
000X	PPG INDUSTRIES		LAKE CHARLES	LA	
X000	PRIDE ENERGY CORP	BOX 701602	TULSA	OK	74170
XX00	FRONTO GAS PROD	BOX 838	ABILENE	TX	79604
000X	PROSPER ENERGY		POPLARVILLE	MS	
0000	PROVD GAS PRODUCTS	P O BOX 200-20TH FLD	ALBERTA	ON	T2P2H3
X000	FRUET PROD CO	217 W CAPITO STREET	JACKSON	MS	29261
000X	GO CHEMICAL INC		MEMPHIS	TN	
0000	QUAKER STATE OIL	P O BOX 989	OIL CITY	PA	16301
X000	QUANICO OIL & GAS		UNION	AR	
X000	RALSTON PROC AS	P O BOX 18348 1751 F	DENVER	CO	80218
X000	RAM GROUPS LTD		WOODS	OK	
X000	RANGELAND MGT CO		WASHINGTON	OK	
X000	RAW ENERGY CORP		COLEMAN	TX	
000X	REPUBLIC MINERAL		BIG SPRING	TX	
X000	RIMMER ROY T		SEMINOLE	OK	
X00X	RIO BRAVO OIL CO		JASPER	TX	
000X	ROCK ISLAND REF	500 W 86TH STREET EO	INDIANAPOLIS	IN	46268-00
0X00	ROCKY MTN NATIONAL	BOX 15265	LAKEWOOD	CO	80215
X000	ROSEWOOD RES INC		TERREBONNE	LA	
000X	RUBICON CHEMICAL IN		GEISMAR	LA	
X000	S & S GAS PROCESS		CREEK	OK	
X000	S P G EXPL CORP	100 NE LOOP 410 SUIT	SAN ANTONIO	TX	78216-47
0X00	S W FOREST GAS		REAGAN COUNTY	TX	
000X	SAHARO PETRO	BOX 6536	PHOENIX	AZ	805005
X000	SAMEDAN OIL CORP	BOX 909	ARDMORE	OK	73402
000X	SAN JOAQUIN REF	3542 SHELL ST BOX 55	BAKERSFIELD	CA	93388-55
XX00	SANTA FE ENERGY CO	1616 S VOSS ROAD SUJ	HOUSTON	TX	77057
X000	SCHREIDER OPERA		WELD	CO	
XXXX	SEAGULL PROD CO	1001 FANNIN SUITE 17	HOUSTON	TX	77002
000X	SENTRY FLOYMERS		FREESPORT	TX	
X000	SHELL EASTERN ENG		WIRT	WV	
XX00	SHELL WESTERN ENG	BOX 576	HOUSTON	TX	77001
0X00	SID RICHARDSON	FIRST CITY BANK TOWE	FORT WORTH	TX	76102
000X	SOHIO AK PETR CO		FRUDHOE BAY	AK	
0000	SOHIO PETROLEUM	200 PUBLIC SQUARE	CLEVELAND	OH	44114-20
000X	SOLTEX POLYMER	2 NORTH-PARK E SUITE	DALLAS	TX	75231
000X	SOUTH JERSEY GAS		VINELAND	NJ	
000X	SOUTHERN CA P L		SANTA BARBAR	CA	
000X	SOUTHERN NAT GAS	BOX 2563	VIRMINGHAM	AL	35202-25
0000	SOUTHERN UNION	BOX 980	HOBBS	NM	88240
X000	ST JOE GAS GATH		OSAGE	OK	
X000	STALLWORTH OIL	900 HARTFORD BLDG EO	DALLAS	TX	75221
000X	STAND AK PROD CO		FRUDHOE BAY	AK	

Listings Used For Potential Respondents

Frame=816  
(continued)

Source Code	Company Name	Address	City	State	Zip
X000	STONE BLUFF ENG		WAGONER	OK	
000X	SUN REFG & MKTG	10 PENN CENTER 1801	PHILADELPHIA	PA	19103
00X0	SUNSHINE NAT GAS		MOBILE COUNTY	AL	
XX00	SUNTERRA GAS FR		RIO SRIIBA	NM	
0000	SUPERIOR OIL	P O BOX 1521	HOUSTON	TX	77001
X000	T X N ENERGY INC		MUHLENBERG	KY	
X000	T-SQUARE PETRO		EASTLAND	TX	
X000	TAYLOR ENERGY CO	234 LOYOLA BLDG SUIT	NEW ORLEANS	LA	70112
X000	TEXAS GAS CORP	4545 CAPITAL BANK FL	HOUSTON	TX	77002
X000	TEMBEC CO		GREENE	PA	
X000	TERRA RES INC	5416 S YALE AVENUE	TULSA	OK	74135
000X	TESORO AK PETR	8700 TESORO DRIVE EO	SAN ANTONIO	TX	78296
0X0X	TEXACO INC	2000 WESTCHESTER AVE	WHITE FLAINS	NY	10650
X000	TEXLINE GAS CO		SAN JUAN	NM	
X000	TIDEWATER PROCESS	BOX 61117	NEW ORLEANS	LA	70161
X000	TIERRA EXPL INC	1935 VINE SUITE 110	SALT LAKE CITY	UT	84121
0000	TIFFERARY CORP	511 W OHIO BOX 3179(	MIDLAND	TX	79701
000X	TOTAL PETRO INC	BOX 500	DENVER	CO	80201
X000	TRANS-CO P L CO		SAN MIGUEL	CO	
00X0	TRANSCONTINENTAL	BOX 1396	HOUSTON	TX	77251
00X0	TRANSWESTERN P L	ENRON BLDG 1400 SMIT	HOUSTON	TX	77002-7
00X0	TEXAS GAS TRANS	1745 FEDERAL RESERVE	RICHMOND	VA	23261
0X00	TEXAS OIL & GAS CO	FIRST CITY CTR 1700	DALLAS	TX	75201-46
X000	TEXAS OILS INC		LIVE OAK	TX	
000X	UNION CAMP CORP		SAVANNAH	GA	
000X	UNION CARBIDE CO		MARIETTA	OH	
X000	UNION PACIFIC	801 CHERRY STREET EO	FT WORTH	TX	76101-00
X000	UNION TEXAS PET	BOX 2120 (77252-2120	HOUSTON	TX	77056
X000	UNIT DRILLING	1000 KENSINGTON GALL	TULSA	OK	74136
000X	UNITED REFG CO	15 BRADLEY ST BOX 78	WARREN	PA	16365
0X00	UNOCAL	BOX 7600	LOS ANGELES	CA	90051
X000	US FUELS INC		RUNNELS	TX	
X000	VANGUARD-BRAZOS		BRAZOS	TX	
000X	WASHAKIE OIL CO		RIVERTON	WY	
X000	WELLHEAD ENTERP		OKFUSKEE	OK	
X000	WESTLAND OIL DE	701 HICKORY RIDGE EO	MONTGOMERY	TX	77356
X000	WGS PROPERTIES		JACK	TX	
000X	WHEELING PITTSBURG		MONESSEN	PA	
XX00	WIL GAS CO	600 CLAY DESTA TOWER	MIDLAND	TX	79705
X000	WILLIAMS J W INC		ROOSEVELT	MT	
X000	WINGSFREAD RES		CREEK	OK	
000X	WITCO CORP	520 MADISON AVE	NEW YORK	NY	10022-6
X000	WOLVERINE GAS		OAKLAND	MI	
0X00	WW SUB INC		JACK COUNTY	TX	
00X0	WYCAL-WY-CA P L			WY	
00X0	YUKON PACIFIC CO		FRUDHOE BAY	AK	

## Listings Used For Potential Respondents

Frame=817

Source Code	Company Name	Address	City	State	Zip
X	ADOBE REFG CO	PO BOX 3	LA BLANCA	TX	78558
X	AMERADA HESS CORP	1185 AVE OF THE AMER	NEW YORK	NY	10036
X	ANCHOR REFG CO INC	BOX 97	MCKITTRICK	CA	93251
X	ARCO OIL & GAS CO	PO BOX 147	BAKERSFIELD	CA	93302
X	ASSOCIATED NAT GAS	RT 1, BOX 265P	MINDEN	LA	71055
X	BIG W OIL CO		KEVIN	MT	
X	C S X OIL & GAS COR	BOX 562	ELNICE	LA	70535
X	CENTURY REFG CO	PO BOX 127	SCOTT CITY	KS	
X	CHAMPLIN PETRO CO		ENID	OK	
X	CHEVRON ASP CO	PO BOX 38041	NORTH BEND	OH	45052
X	CHEVRON USA INC		HAMILTON	OH	
X	COASTAL OIL & GAS C		STATELINE	MT	
X	COASTAL PETRO INC		TUSTIN	CA	92680
X	COASTAL STATES CRUD		ALMEDA	TX	
X	CONSLDD GAS TRANS	BOX 370	PINE GROVE	WV	26419
X	CONSLDD RECYCLING C	P O BOX 55	TROY	IN	47588
X	CORAL PETRO INC	BOX 19666	HOUSTON	TX	77024
X	CRYSER CORP	BOX 15600	SANTA ANA	CA	92705
X	CYRIL REFG CORP	BOX 579	CYRIL	OK	73029
X	DAYLST ENG INC		WHITE	IL	
X	DOUGLAS OIL CO OF C	13220 BROOKHURST	GARDEN GROVE	CA	92643
X	DOW CHEM USA PROMIX	PO DRAWER N	TAINCOURTVILLE	LA	70391
X	EDDY REFG CO	PO BOX 185	HOUSTON	TX	77046
X	ENRON GAS PROC CO	ENRON BLDG 1400 SMIT	HOUSTON	TX	77002
X	ENTERPRISE FRACTION	2727 NW LOOP W BOX 4	HOUSTON	TX	77210
X	GLACIER PARK CO		OSAGE	WY	
X	GUAM OIL & REFG CO		HONOLULU	HI	96842
X	GULF COAST FRAC INC	BOX 845	MONT BELVIEU	TX	77580
X	HUDSON REFG CO	PO BOX 1111	CUSHING	OK	
X	INTERMTN REFG CO	BOX 35	FARMINGTON	NM	67565
X	INTERNATL PETR CO		TAMPA	FL	
X	ISO-FRAC INC		RENO	KS	
X	KENDO REFG		MACON	MT	
X	KERN OIL & REFG CO	16800 IMPERIAL VALLE	HOUSTON	TX	77060
X	KOCH SERVICE INC	PO BOX L, 12730 PIPE	ROSEMOUNT	MN	55068
X	KS REFD HELIUM CO	BOX 312	OTIS	KS	67565
X	LA GLORIA OIL & GAS	PO BOX 627	SCOTT CITY	KS	67871
X	LONE STAR GAS LIQ	PO BOX 10316	BAKERSFIELD	CA	93389
X	LOVELAND GAS PROC	BOX 22418	DENVER	CO	80222
X	LUBRIPAC		GALENA PARK	TX	
X	MAFCO FRAC INC	BOX 1336	MCPHERSON	KS	67460
X	MARATHON PETRO CO		1300 S FORT ST	DE	
X	MID-CONTINENT SYS I	BOX 1370	WEST MEMPHIS	AR	72301
X	MOBIL OIL CORP	150 E 42ND ST	NEW YORK	NY	10017
X	MOBIL OIL E & P S E	1250 FOYDRAS BLDG	NEW ORLEANS	LA	70113
X	MS RIVER ALCOHOL	RR 1, BOX 605	BELCHASE	LA	70037
X	MT REFG CO	1900 10TH ST	BLACK EAGLE	MT	59414
X	NORTHLAND OIL & REF		DICKINSON	ND	
X	OAKES ENGY CORP		OAKES	ND	
X	OIL PURE REFINER CO	5406 SAN FERNAN	GLENDALE	CA	
X	ORIENTAL REFG CO	4781 E 53RD AVE	DENVER	CO	
X	OXY CITIES SERV NGL	BOX 1225	HUTCHINSON	KS	67504-11
X	PENRECO DIV OF PENN	PO BOX 671	BUTLER	PA	16001

## Listings Used For Potential Respondents

Frame=817  
(continued)

Source Code	Company Name	Address	City	State	Zip
x	PETRO PROD INC		MCFHERSON	KS	
x	PIONEER OIL CO INC	BOX 16935	PHILADELPHIA	PA	19153
x	PIONEER PROD INC		FREMONT	NE	
x	PORT PETRO INC	610 TEXAS ST	SHREVEPORT	LA	71101
x	QUITMAN REFG CO	P O BOX 896	QUITMAN	TX	75783
x	SHELL WSTRN E & P I		ASCENSION	LA	
x	SHEPHERD OIL CO	BOX 609	JENNINGS	LA	70546
x	SIMPLOT DEV CORP		CALDWELL	ID	
x	SUN EXPL & PROD CO	BOX 157	DELHI	LA	71232
x	T & S REFG INC	PO DRAWER 839	JENNINGS	LA	
x	TENNECO OIL CO	PO BOX 2511	HOUSTON	TX	77001
x	TEXACO INC	2000 WESTCHESTER AVE	WHITE PLAINS	NY	10650
x	TEXACO USA		PHILADELPHIA	PA	
x	TONKAWA REFG CO	PO BOX 490	ROSWELL	NM	
x	TRUE OIL CO		MCKENZIE CO	ND	
x	UNION PACIFIC RES C		PANOLA	TX	
x	UNION TX PETRO CORP	RT 1	RAYNE	LA	70578
x	WARREN PETRO CO	DRAWER 6	VENICE	LA	70091
x	WARRIOR ASP CO OF A	PO BOX 3159, EASTSID	TUSCALOOSA	AL	35401
x	WIGHT OIL & REFG CO	1400 POLY DR, SUITE	BILLINGS	MT	59102-17
x	WITCO CORP	520 MADISON AVE	NEW YORK	NY	10022-61
x	WOLF'S HEAD OIL REF	PO BOX 808, WOLF'S H	OIL CITY	PA	16301
x	WSTRN GAS PROD LTD	3108 E SECOND AVE	GILLETTE	WY	82716
x	WSTRN GAS PROCESSOR	BOX 579	BAKER	MT	59313

**FILE FORMAT FOR EIA ELIGIBLE NEW RESPONDENT LISTS**

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Name	Columns	A/N <sup>a</sup>	Comments
Source List	1-2	A	Two Letter Code Corresponding to Main Source List
Source Number	3-8	N	Six-Digit Number Assigned Sequentially by List
Indicator Codes	9-10	A	Indicator Codes (%-*) Internal Use Only
Name 1	11-40	A	Name of Company
Name 2	41-70	A	Corporate or Secondary Name
Address 1	71-85	A	Mailing Address (If Different from Street Address)
Address 2	86-115	A	Street Address
City	116-132	A	City or County Name
State	133-134	A	Two-Letter State Abbreviation
Zip Code	135-139	N	Five-Digit Zip Code
Phone No.	140-149	N	Ten-Digit Phone Number
Additional	150-155	A	Two-Letter Codes Corresponding to Additional Sources Respondent Appeared on in Addition to Columns 1-2
EIA Survey	156-161	N	Last Digit of EIA Survey Currently Reporting on (EIA-810 = 0, EIA-811 = 1, etc.)
Eligibility Code	163	A	Verified Eligibility for Survey (Y - yes, N - No, U - Unknown, etc.)
Contact Person	164-200	A	Name of Person Contacted or Person Who Sent in the Form

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<sup>a</sup>A = character; N = numeric.

## SOURCE IDENTIFICATION CODES

<u>Source ID Code</u>	<u>Source</u>
F6	<u>FERC Gas and Petroleum Suppliers to Electric Utilities</u>
F8	EIA-820 Frame File
GC	<u>Gulf Coast Oil Directory</u>
HP	<u>Hydrocarbon Processing Magazine</u>
IL	<u>ILTA Directory of Bulk Liquid Terminals and Storage Facilities</u>
IR	<u>Inland Rivers Guide</u>
MW	<u>Midwest Oil Register</u>
NG	<u>LPG Almanac, NGL Supply Yearbook</u>
OG	<u>Oil and Gas Journal</u> , OG&J 400 Issue
OJ	<u>Oil and Gas Journal</u> , Annual Gas Processing Report
OW	<u>Oil and Gas Journal</u> , Worldwide Construction Issue
PA	<u>Pipeline Magazine</u> , Annual Directory Issue
PL	<u>Pipeline Magazine</u> , January 1987 Issue
PM	<u>Petroleum Marketers' Handbook</u>
PS	U. S. Coast Guard, <u>Port Series Reports</u>
RC	<u>FERC Annual Report of Oil Pipeline Companies</u>
ST	<u>Stalsby's Petroleum Terminal Encyclopedia</u>
US	<u>USA Oil Industry Directory</u>
WW	<u>Worldwide Refining and Gas Processing Directory</u>

Eligible New Respondents  
Form 810

ng248	m	DOW CHEM USA PROMIX PO DRAWER N LA70391	810	YTIMOTHY GUNN	TAINCOURTVILLE
mw441	c	KOCH HYDROCARBON PO BOX 2302 KS672013168327245	810	YDENISE RUSSEL	WICHITA

Eligible New Respondents  
Form 811

2	m	ADAMS OIL INC PO BOX 1351 NJ08105	811	YHAROLD DIEROFF	CAMDEN
st52	m	ATLANTIC OIL & HTG C P O BOX SIX PA18062	811	YBRUCE EBERT	MACUNGIE
mw54	m	ATTCO NGL P L CO PO BOX 5493 CO80217	811	YJ. ROGER GRACE	DENVER
ir68	m	BELL FUELS INC 4116 W PETERSON IL60646	811	YTHOMAS MORGAN	CHICAGO
pm75	m	BIG S OIL CO INC BOX 308 NY12789	811	YLOUIS SAPERSKIN	WOODRIDGE
pm98	m	BUCKLEY BROTHERS 146 ADMIRAL STR CT06605203-336-35	811	YTOM SANTA	BRIDGEPORT
ir105	m	CAHOKIA MARINE SERV 2 MONSANTO AVE IL62201	811	YGLEN T. SLAY	SAUGET
pm150	m	CHOCTAW FUELS INC 212 S 27TH AVEN MS39401	811	YMATT YOST	HATTIESBURG
st165	m	CO PETRO PDTS 4080 GLOBEVILLE CO	811	YDAVID HEINEY	DENVER
ps181	m	COMMODORE'S POINT TE 1010 E ADAMS ST FL32202	811	YMARIE SEFTON	JACKSONVILLE
ps206	m	CUMMINS H E PO BOX 1589 OK74402918-683-28	811	YVERNA DAY	MUSKOGEE
ps247	c	DOUGLAS OIL PURCHASING PO BOX 160506 AL366162054763120	811	YLILLIAN BOLTON	MOBILE
st304	m	G & M TERM INC 2233 SOUTHPORT MD21226301-355-88pm	811	YKIM ASH	BALTIMORE
319	c	GETTY PETRO CORP 42 RIVER RD NY125285163381503	811	Y	HIGHLAND
st326	c	GLOBAL PETRO CORP 800 SOUTH STREET MA021546172892102pm	811	YBOB DONNELLAN	WALTHAM
pm328	m	GO-MART INC 915 RIVERSIDE DR WV26624	811	YROY M. WEBER	GASSAWAY
ps337	m	GRASSO OILFIELD SERV 2500 E PC JESTER SUITE TX77008713-880-30	555 811	YCARSON KAECHLER	HOUSTON
pm370	m	HOUSTON MARINE SERV 5300 MEMORIAL S TX77007	811	YGREER L. GRAHAM	HOUSTON
ir386	m	IL OIL PROD INC 321 24TH ST			ROCK ISLAND

Eligible New Respondents  
Form 811

pm390	m	IL61201 INLAND FUEL TERMS PO BOX 3972 CT06605	pm	811	YWAYNE THOMPSON	BRIDGEPORT
ps416	m	JEBRO INC 2303 BRIDGEPORT DR IA51111		811	YTHOMAS SANTA	SIOUX CITY
pm451	m	LA GLORIA OIL & GAS CO PO BOX 2521 TX77252		811	YDAVID DILLMAN	HOUSTON
ps472	c	LONG BEACH TERM CO L 1900 LUGGER WAY CA 7145530112		811	YAL SHIRAH PETRO-DIAMOND INC	LONG BEACH
pm509	c	MEENAN OIL CO INC 6800 JERICHO TU NY117915163649030		811	YWAYNE HALL	SYOSSET
pm516	m	METRO TERMS CORP 235 MCGUINNESS NY11222		811	YMARTIN GILLEN	BROOKLYN
st533	m	MIDWEST TERM CO 3866 FISHER RD OH43228	pm	811	YHOWARD SELDERS	COLUMBUS
pm537	m	MINEMET FUELS INC 408 E FIRST ST CA90802213-590-79		811	YROD WOOLEY	LONG BEACH
pm557	m	MORGAN OIL TERMS COR PO BOX 350 NY11237		811	YDANA HESTER	BROOKLYN
576	c	NATL COOP REFY ASSN PO BOX 1404 KS674603162412340		811	YWILLIAM MORGAN	MCPHERSON
pm587	c	NOCO ENGY CORP 700 GRAND ISLAND BLVD NY14150716874620011		811	YFRED GREEP	TONOWANDA
ps609	m	OIL CO INC DBA EAGLE OIL ONE SHERIDAN BLVD NY11696		811	YGARY ROESCH	INWOOD
ps616	m	OLYMPIC OIL LTD INC 5000 W 41ST ST IL60650312-458-85		811	YROBERT ERWOOD	CICERO
pm669	m	PETRO FUEL & TERM CO 8182 MARYLAND AVE MO63105314-889-96		811	YDEXTER HAWK	ST LOUIS
pm670	m	PETRO FUEL & TERM CO 8182 MARYLAND AVE MO63105		811	YNICK IPPOLITO	ST LOUIS
st686	c	PETROROLEUM SPECIALITIES INC 26361 PETERS RD MI481343139655075		811	YROBERT WELSH	FLAT ROCK
pm693	m	PIEDMONT NATURAL GAS CO INC PO BOX 37130 NC28237		811	YNO CONTACT	CHARLOTTE
st726	m	PTW INC 1414 S HARBOR D WI53207		811	YMAX GEORGE	MILWAUKEE
il727	m	PUBLIC TERMS INC		811	YJOHN SUSEK	

Eligible New Respondents  
Form 811

		PO BOX 633			OPELOUSAS
		LA70571	811	YGENE DUPRE	
st782	m	SCOTLAND OIL CO			SMYRNA
		PO BOX 2698			
		GA30081	811	YBARRY ROBINSON	
ir787	m	SELLERS OIL CO INC			BAINBRIDGE
		PO BOX 1335			
		GA31717912-246-06	811	YE. J. SELLERS	
ir808	m	SINTER INDEPENDENT OIL CO			SMOCK
		RD 1			
		PA15480412-677-44	811	YMR HIGGANBOTHAM	
st820	m	SOUTHERN STATES ASP			KUTTAWA
		PO BOX 308			
		KY42055	811	YWILLIAM MILLER	
st821	m	SOUTHERN STATES ASP			NASHVILLE
		P O BOX 8098			
		TN37207615-226-60	811	YBILL ALLEN	
pm827	m	ST CLAIR UNDERGROUND			MARYSVILLE
		2510 BUSH HIGH			
		MI48040	811	YC. OVERLUCK	
ir835	m	STAND SLAG CO			YOUNGSTOWN
		PO BOX 1378			
		OH44501614-574-42	811	YIRVIN MAURER	
ir888	m	THE BOSWELL OIL CO			CINCINNATI
		2500 CENTRAL TRUST TWR			
		OH45202513-941-05il	811	YLUKE BOSWELL	
ir915	m	TRI-CENTRAL MARINE T			LEMONT
		PO BOX 369			
		IL60439	psil 811	YGERALD ADAMS	
924	m	TX EASTMAN CO			LONGVIEW
		PO BOX 7444			
		TX75607	811	YJ. R. GOODWYN	
938	c	UNION PACIFIC CORP			FT WORTH
		PO BOX 7			
		TX761018178777529	811	Y	
940	c	UNION PACIFIC RESOURCES			LONG BEACH
		PO BOX 920			
		CA908018178777202	811	YBOB KURZ	
pm987	m	WESTBANK OIL INC			PENNSAUKEN
		PO BOX 638			
		NJ08110	811	YJ.T. O'NEILL	

Eligible New Respondents  
Form 812

21	m	AMER OIL & GAS 333 CLAY ST STE 2000 TX77002713-739-29	812	YROBERT CARMICHL	HOUSTON
pl23	m	AMER P L CO 333 CLAY ST STE 2000 TX77002915-267-36ww	812	YSAM HONNICUT	HOUSTON
104	c	CABOT ENERGY CORP PO BOX 4544 TX77210	812	YSHELLY GRENADER	HOUSTON
pl106	m	CAIN CHEMICAL INC PO BOX 27702 TX77227	812	YJOSEPH MCDEVITT	HOUSTON
ng174	c	COASTAL STATES CRUDE GATHERING NINE GREENWAY PLAZA TX 7138771400f8	812	YDAN COOPER	HOUSTON
mw400	m	INTERSTATE STRGE & P PO BOX 1032 889 ELM ST NH03105	812	YCHARLES DENAULT	MANCHESTER
438	m	KIANTONE P L CO PO BOX 780 PA16365814-723-15	812	YRAY LOWE	WARREN
ng504	c	MAXUS EXPL CO BOX 696000 TX782302149532028	812	YWAYNE CUMMINGS	SAN ANTONIO
mw513	m	MESA TRANS CO PO BOX 2009 TX79189	812	YRICHARD PARIS	AMARILLO
pl567	m	MUSTANG P L CO PO BOX 7444 TX75607	812	Y	LONGVIEW
pl714	m	PRAIRIE STATES GAS C 104 S BROADWAY KS67202	812	YSALLY FISHER	WICHITA
924	m	TX EASTMAN CO PO BOX 7444 TX75607	812	YJ. R. GOODWYN	LONGVIEW

Eligible New Respondents  
Form 813

2	m	ADAMS OIL INC PO BOX 1351 NJ08105	813	YHAROLD DIEROFF	CAMDEN
mw54	m	ATTCO NGL P L CO PO BOX 5493 CO80217	813	YJ. ROGER GRACE	DENVER
st59	m	B-T ENGY CORP 15700 DIXIE HIGHWAY KY	813	YROBERT PANKRATZ	LOUISVILLE
ww119	m	CARDINAL P L CORP 8700 CROWNHILL TX78209	813	YWALTER BUZZINI	SAN ANTONIO
st165	m	CO PETRO PDTS 4080 GLOBEVILLE CO	813	YDAVID HEINEY	DENVER
mw305	m	G & T P L CO PO BOX 2511 TX77001	813	YJOSEPH LOWRY	HOUSTON
438	m	KIANTONE P L CO PO BOX 780 PA16365814-723-15	813	YRAY LOWE	WARREN
mw513	m	MESA TRANS CO PO BOX 2009 TX79189	813	YRICHARD PARIS	AMARILLO
mw536	m	MILNE POINT P L CO PO BOX 1267 OK74603	813	YC. ARMSTRONG	PONCA CITY
mw647	m	PALOMA P L CO 3900 THANKSGIVING TOWER TX75201	813	YJULIA JEANES	DALLAS
pl706	m	POLO ENGY CORP #2900 1200 SMITH TX77002	813	YJOHN GILLIAS	HOUSTON
ps710	m	PORTLAND P L CORP PO BOX 2590 ME04106	813	YW.R. MCGREW	SOUTH PORTLAND
887	m	TEXPATA P L CO PO BOX 499 TX78040	813	YGILBERT SOTO	LAREDO

Eligible New Respondents  
Form 816

ng74	m	BEST ENG CORP 12455 BARRYKNOLL TX77024	816	YE. D. BLOSSOM	HOUSTON
104	c	CABOT ENERGY CORP PO BOX 4544 TX77210	816	YSHELLY GRENADER	HOUSTON
ng128	m	CELSIUS ENGY CO 79 S STATE STREET BOX 11070 UT84147	816	YJ. L. BAIRD	SALT LAKE CITY
ng210	m	D M W GAS PROC PO BOX 3987 TX79760	816	YGARY WISE	ODESSA
ng220	m	DEL-MAR PETRO INC 1501 W WALKER TX76024	816	YGARY DABBS	BRECKENRIDGE
ng241	m	DOME PROC INC 400 1ST REPUBLIC BANK PLAZA BLDG TX75703	816	YMICHAEL FARRELL	TYLER
ng258	c	EL PASO HYDROCARBOM 2121 DESDA DR TX797059156865678	816	YBOB BRADSHAW	MIDLAND
ow270	c	ENRON CORP ENRON BLDG 1400 SMITH ST TX770027138536161	816	YGARY KRIEGGER	HOUSTON
og271	c	ENRON GAS PROC ENRON BLDG 1400 SMITH ST TX770027136583565ng	816	YROBERTA CURRIE	HOUSTON
ng439	m	KIM PETRO CO INC PO BOX 380 TX79065	816	YDENNIS STOWERS	PAMPA
mw441	c	KOCH HYDROCARBON PO BOX 2302 KS672013168327245	816	YDENISE RUSSEL	WICHITA
ng506	m	MCFARLAND ENERGY 10425 PAINTER AVENUE BOX 3608 CA90670	816	YGEORGE ECKERT	SANTA FE SPRINGS
mw512	c	MESA OPERATING LIMITED BOX 2009 ONE MESA SQUARE TX791898063784886	816	YHENRY GALPIN	AMARILLO
ng563	m	MULL DRILLING CO BOX 2758 KS67201	816	YSCOTT HAMPEL	WICHITA
ng725	m	PRUET PROD CO 217 W CAPITO STREET SUITE 201 MS29261	816	YJ. DAVID HILTON	JACKSON
ng886	m	TEXLINE GAS CO PO BOX 1980 TX78403	816	YSTEVE LOY	CORPUS
ng993	m	WGS PROPERTIES PO BOX 217 TX76056	816	YWILLIS STAMPER	JACKSBORO
ng1023	m	ZCA GAS GATHERING CO INC PO BOX 579 OK74005	816	YJOHN BURROUGHS	BARTLESVILLE

Eligible New Respondents  
Form 817

ww199	c	CRYSEN CORP 825 PARKCENTER DR CA927057148356505f8	817	YCHUCK DURGIN	SANTA ANA
ng248	m	DOW CHEM USA PROMIX PO DRAWER N LA70391	817	YTIMOTHY GUNN	TAINCOURTVILLE
442	c	KOCH REFG CO PO BOX 2256 KS672013168325175	817	YDICK MEYER	WICHITA
ng876	c	TEXACO INC 2000 WESTCHESTER AVE NY106509142534000ww	817	YSHELTON GLENN	WHITE PLAINS
st877	c	TEXACO USA			PHILADELPHIA
ng972	c	PA f8 WAR-X PETROLEUM CORP BOX 1110 TX775809185604214f8	817	Y CHEVRON	MONT BELVIEU
ng973	c	WARREN PETRO CO DRAWER G LA700919185604214f8	817	YDENNIS SKULLIN CHEVRON	VENICE
				YREX LEINWEBER	

**APPENDIX F**

**DESCRIPTIONS OF SOURCES EXAMINED AND EVALUATED  
FOR THE EIA TRIENNIAL UPDATE**



## APPENDIX F

### DESCRIPTION OF SOURCES EXAMINED AND EVALUATED FOR THE EIA TRIENNIAL UPDATE

The following sources were examined for the specific survey under which they are described. An evaluation of each source is also provided. The evaluations fall in three categories: "Good-1" (the best) through "Good-8"; "Mediocre-1" through "Mediocre-8"; and "Bad-1" through "Bad-8" (the worst).

These evaluations were based on an early examination of the sources. After gaining more experience, team members determined that not all of these sources should be used. For a listing of the final sources selected, see Table 3.1.

#### EIA-810 "MONTHLY REFINERY REPORT"

Hydrocarbon Processing Magazine (Bad-8)  
Gulf Publishing Company  
October 1986

The Hydrocarbon Processing Magazine Construction Boxscore issue provides a table of petroleum facilities under construction throughout the world. The refineries which were under construction and were expected to be completed by 1987 were selected as potential new respondents to the EIA-810 survey. The Construction Boxscore is published three times a year; in February, June and October. Address information is not included for the new plants, although company name and city are provided. Because address information is so incomplete, a lot of address research is required.

Midwest Oil Register<sup>1</sup>,  
Directory of Oil Refineries (Good-1)  
Midwest Oil Register  
1987

The Midwest Oil Register is a directory of oil refineries located throughout the world. In the United States section, the refineries are listed both by state and in alphabetical order and give complete and accurate company name and address information. Individual refinery site location is included.

Oil and Gas Journal, Worldwide Construction Report (Bad-4)  
PennWell Publishing Company  
October 26, 1987

This issue of the weekly Oil and Gas Journal lists major refineries which are under construction, along with their capabilities and estimated time of completion. Companies whose estimated time of completion was prior to 1988 were selected for the EIA-810 survey. Company names and general locations are given; however, the address of each facility is not provided.

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<sup>1</sup>In a letter dated August 10, 1988, Ross G. Sloan, President of Midwest Oil Register, Inc., announced that the 1988 Directories would be the last ones published.

Oil and Gas Journal, OG&J 400 Issue (Bad-2)  
PennWell Publishing Company  
September 21, 1987

This issue of the weekly Oil and Gas Journal contains a list of the top 400 oil and gas producing companies. The company index is according to rank, which depends on total assets. The company name and general location appear but not the address. No indication was given on whether the firms operated refineries. One problem with this source is that it did not specify the kind of energy company. It was used to verify relationships but was not used as a source for potential respondents.

Petroleum Marketers' Handbook (Good-4)  
Petroleum Publications, Inc.  
1987 Directory

This industry directory, published annually, includes a section on U.S. refineries. It includes the capacity of operable refineries, which are listed by Petroleum Allocation District (PAD), refining district, and state. Company name and address require research.

LPG Almanac, NGL Supply Yearbook (Mediocre-3)  
Cancrude Consultants, Division of RTM Engineering Ltd.  
1987

The annual supply yearbook contains summary information regarding 1986 refinery LPG production in the United States. One table ranks the states according to 1986 output and the other table lists the states in alphabetical order. Information given includes mix components, LPG products and total LPG. The company name, city, and county are given, but no address information is supplied. Address research is required.

USA Oil Industry Directory (Good-2)  
PennWell Publishing Company  
1987 Directory

The annual Industry Directory provides a listing of the principal oil companies in the United States. Each firm is presented to show its entire range of activity in the petroleum industry. All companies listed in the section on integrated oil companies were used as were those in the large independent section that indicated refinery operations. Both sections contained complete and accurate name and address information. One problem with this source is that it did not specify the kind of energy company. It was used to verify relationships but was not used as a source for potential respondents.

Worldwide Refining and Gas Processing Directory (Good-3)  
PennWell Publishing Company  
1988

This annual directory lists companies engaged in crude oil processing in the United States. Refinery information is given for each company along with officers of the companies. In addition, subsidiary information, where applicable, is given. Some companies show storage capacities. Name, address, city, and state information is complete.

## EIA-811 "MONTHLY BULK TERMINAL REPORT"

ILTA Directory of Bulk Liquid Terminals & Storage Facilities (Good-6)  
Independent Liquid Terminals Association (ILTA)  
1987 Directory

The ILTA is a national trade association representing commercial operators of for-hire bulk liquid terminals. The 62 member companies operate 324 bulk terminals with a total storage capacity of more than 231,000,000 barrels of bulk liquid commodities. The annual directory provides detailed descriptions of each member terminal facility including location, capacity, commodities handled, and transport modes served. Since the dedication of storage facilities changes as the customer mix changes, the directory does not provide details on current dedication by product type. Given the large size of nearly all members and the information on transport modes served, the directory allows for a highly accurate identification of companies eligible to report on the EIA-811.

Stalsby's Petroleum Terminal Encyclopedia (Bad-1)  
Stalsby/Wilson Assoc. Inc.  
1986/1987 Issue

Stalsby's Petroleum Terminal Encyclopedia lists 325 companies with approximately 1,910 facilities, of which nearly 1,236 are owned by 40 large proprietary oil, refining, and pipeline companies. Stalsby's is the most extensive public list of available facilities. Some information is greatly outdated and there are instances of errors, duplicate listings, and lack of some addresses or telephone numbers.

The Inland Rivers Guide (Mediocre-2)  
Waterways Journal  
1987 Edition

The Inland Rivers Guide was acquired as a resource to be used with the Tanker and Barge Operator Identification Survey. However, this directory also contains information on public terminals located on the inland waterway system. Public terminals described as having facilities with bulk liquid storage were selected. Companies were also selected for contact if their name contained the words "oil," "petroleum," or "fuel."

Petroleum Marketers' Handbook (Good-4)  
Petroleum Publications, Inc.  
1987 Directory

This industry directory, published annually, includes a section on storage facilities. This section, which is organized by state, gives accurate name and address information. In addition, this section provides data on storage capacity, transport modes available, and products stored. While not comprehensive, it is an excellent resource.

Port Series Reports, U.S. Coast Guard (Bad-7)  
Army Corps of Engineers  
1985-1987

The Port Series Reports are prepared by the Water Resources Support Center of the Army Corps of Engineers. A volume for each major U.S. port or group of ports was in existence at the time of frames research. Issues that were updated from 1985 through 1987 were used. Most volumes contained a table for each port covered in the volume, entitled "Oil Handling and Oil Bunkering Facilities." These tables identified facility operators or users and storage tank capacity. They also identified facilities storing fuel for plant consumption. Address information was almost nonexistent.

USA Oil Industry Directory (Good-2)  
PennWell Publishing Company  
1987 Directory

This annual directory, published by the Oil and Gas Journal, lists terminal storage facilities in both the integrated oil companies and independent sections. In addition, all companies in the marketing companies section that indicated they may have storage facilities were used in the update. Complete and accurate address information was included.

## EIA-812 "MONTHLY PRODUCT PIPELINE REPORT"

FERC Annual Report of Oil Pipeline Companies (Mediocre-4)  
Federal Energy Regulatory Commission (FERC) Form 6  
Reporting Year 1987

The FERC Form 6 is submitted annually by interstate petroleum pipeline companies. This form provides data on parent-subsidiary relationships and jointly owned pipelines, which were useful in verifying data reported on the Form EIA-825. Name and address information were complete. Most of these pipelines already reported on the EIA-812.

FERC Gas and Petroleum Suppliers to Electric Utilities (Mediocre-4)  
Federal Energy Regulatory Commission (FERC) Form 423  
May 1987

FERC Form 423 provides names of companies that supply gas and petroleum to electric utilities. The name of the company is given as is the name of the utility to whom it supplies its product. A contact name is given along with a phone number. No address is given.

Oil and Gas Journal, Worldwide Construction Report (Bad-4)  
PennWell Publishing Company  
October 26, 1987

This issue of the journal lists major construction projects in processing and pipelining, showing costs and estimated time of completion. Company names and general locations are given. However, the address of each facility is not provided. Pipeline projects with a completion date of 1988 were selected for inclusion.

Pipeline Magazine, Annual Directory and Equipment Guide (Bad-5)  
November 15, 1987

Annually, Pipeline Magazine devotes a single issue to providing a directory of pipelines, service companies, and equipment manufacturers. Name and address information is complete. All companies listed under Line Pipe Tabulations, Crude Oil Pipelines, Products Pipeline, Natural Gas, and Gas Distribution firms were selected.

Pipeline Magazine (Bad-6)  
January 1987

This issue lists major pipeline expansion programs for 1987. Company names are given but no address information. In addition, a section forecasting pipeline construction for 1987 is included. This section gives the cost, distance, and general vicinity of the construction. Types of construction given include U.S. natural gas products and crude pipelines. Future U.S. natural gas and products pipeline construction is also listed.

USA Oil Industry Directory (Good-2)  
PennWell Publishing Co.  
1987 Directory

This annual Industry Directory provides a listing of the principal oil companies in the United States. Most listings provide a brief history or description of the company. Products pipeline companies are listed in both the integrated oil companies and independent companies sections. Name and address information is complete.

Gulf Coast Oil Directory (Good-5)  
NL Baroid Industries  
1988 Directory

This annual directory contains a comprehensive listing of petroleum companies located in Texas, Louisiana, Mississippi, Alabama, and Arkansas. A large section on pipeline operators contains complete address information. However, in most cases, this section does not distinguish between products pipelines, crude oil pipelines, and gathering lines.

Midwest Oil Register, Directory of Pipe Line Companies  
and Pipeline Contractors (Good-1)  
Midwest Oil Register  
1987

The Midwest Oil Register annual directory of pipelines appears to be the most complete pipeline publication. The publication lists products pipelines, crude oil pipelines, and natural gas lines. The directory includes some data on pipeline size. Name and address information is essentially complete.

## EIA-813 "MONTHLY CRUDE OIL REPORT"

Oil and Gas Journal, Worldwide Construction Report (Bad-4)  
PennWell Publishing Company  
October 26, 1987

This issue of the journal lists major construction projects in processing and pipelining, showing storage capacities, costs and estimated time of completion. Company names and general locations are given, however, the address of each facility is not provided. Pipeline projects with a completion date of 1988 were selected.

Pipeline Magazine, Annual Directory and Equipment Guide (Bad-5)  
November 15, 1987 Issue

Annually, Pipeline Magazine devotes a single issue to providing a directory of pipelines, service companies, and equipment manufacturers. Name and address information is complete. All companies listed in the crude oil pipeline section were selected.

Pipeline Magazine (Bad-6)  
January 1987

This issue lists major pipeline expansion programs for 1987. Company names are given but no address information. In addition, a section forecasting pipeline construction for 1987 is included. This section gives the cost, distance, and general vicinity of the construction. Types of construction given include U.S. natural gas products, and crude pipelines. Future U.S. natural gas and products pipeline construction is also listed.

Gulf Coast Oil Directory (Good-5)  
NL Baroid Industries  
1988 Directory

This annual directory contains a comprehensive listing of petroleum companies located in Texas, Louisiana, Mississippi, Alabama, and Arkansas. A large section on pipeline operators contains complete address information. However, in most cases, this section does not distinguish between products pipelines, crude oil pipelines, and gathering lines.

USA Oil Industry Directory (Good-2)  
PennWell Publishing Co.  
1987 Directory

This annual Industry Directory provides a listing of the principal oil companies in the United States. Most listings provide a brief history or description of the company. The sections on integrated oil companies, and independent producers were reviewed for listings indicating crude oil storage or pipeline facilities. This source contains complete and accurate name and address information.

Oil and Gas Journal, OG&J 400 Issue (Bad-2)  
PennWell Publishing Company  
September 21, 1987

This issue of the weekly Oil and Gas Journal contains a list of the top 400 oil and gas producing companies. The company index is according to rank, which depends on total assets. The company name and general location appear. However, the address is not provided.

## EIA-816 "MONTHLY NATURAL GAS LIQUIDS REPORT"

Midwest Oil Register, Directory of Oil Refineries (Good-1)  
Midwest Oil Register  
1987

The Midwest Oil Register is a directory of processing facilities located throughout the world. There is a section on natural gas processing plants which is organized alphabetically and gives accurate name and address information. In addition, this section provides individual site data.

Oil and Gas Journal, Worldwide Construction Report (Bad-4)  
PennWell Publishing Company  
October 26, 1987

This journal lists major construction projects throughout the world. Natural gas processing plants scheduled for completion by 1988 were selected. This source presents storage capacities, costs, and estimated time of completion. Company names and general locations are given; however, the address of each facility is not provided.

Hydrocarbon Processing Magazine (Bad-8)  
Gulf Publishing Company  
October 1986

The Hydrocarbon Processing Magazine Construction Boxscore issue provides a table of petroleum facilities under construction throughout the world. The natural gas processing plants which are under construction and are expected to be completed by 1987 were selected. The Construction Boxscore is published three times a year, in February, June, and October. Address information is not included, although company name and city are provided.

Oil and Gas Journal, Annual Gas Processing Report (Bad-3)  
PennWell Publishing Company  
March 30, 1987

The Oil and Gas Journal, Annual Gas Processing Report, lists natural gas processing companies in tabular form according to state. Tables contain capacity and production information. This journal contains company name and county, but not city. Address research is required.

USA Oil Industry Directory (Good-2)  
PennWell Publishing Co.  
1987 Directory

This annual Industry Directory provides a listing of the principal oil companies in the United States, along with a brief history or description of their development. The section on integrated oil companies and independent producers was reviewed for listings of natural gas plants. This source contains complete and accurate name and address information.

LPG Almanac, NGL Supply Yearbook (Mediocre-3)  
Cancrude Consultants, Division of RTM Engineering Ltd.  
1987

The annual supply yearbook contains summary information and individual breakdowns by state for 1985 and 1986 for natural gas liquids extraction at gas processing plants. Summary and individual information includes mix components, mixes and specification products. The individual breakdowns give the company name and plant name along with the county. No address or city information is given, so research is required.

Worldwide Refining & Gas Processing Directory (Good-3)  
PennWell Publishing Company  
1988

This annual directory lists companies in the U.S. that have gas processing plants under construction. Cost, production amounts per day, and anticipated construction completion dates are shown. The companies selected included plants completed in 1987. A gas processing survey gives capacities as of January 1, 1987, and average production, along with other information. A summary table and breakdown by states is included. Company name, plant name, and county is given, but further address research is required.

**EIA-817 "MONTHLY TANKER AND BARGE MOVEMENTS REPORT"**

The Inland Rivers Guide (Mediocre-2)  
Waterways Journal  
1987 Edition

The Inland Rivers Guide is an annual guide to the inland waterways system. It includes directories of barging firms and is the most comprehensive privately published directory of barge operators. All listings that described tanker or barge operations or contained the names "tanker" or "barge" in the titles were selected. The guide provides company name, address, area served, type of vessels operated, and specialized personnel.

Gulf Coast Oil Directory (Good-5)  
NL Baroid Industries  
1988 Directory

This annual directory contains a section on marine transportation. This section includes a comprehensive listing of transportation companies operating in the Gulf of Mexico. All company names or descriptions that indicated tanker or barging operations were selected.

Port Series Reports, U.S. Coast Guard (Bad-7)  
Army Corps of Engineers  
1985-1987

The Port Series Reports are prepared by the Water Resources Support Center of the Army Corps of Engineers. These reports were quickly scanned for names of tanker and barge operations.



**APPENDIX G**  
**WHO SHOULD REPORT**



## APPENDIX G

### WHO SHOULD REPORT

This appendix is derived from notes given by Jack Thorpe of Z, Incorporated (formerly of Applied Management Sciences, Inc.). It describes briefly how to match a firm with the appropriate EIA PSD survey. Even those firms that meet these specifications, however, must complete and return the appropriate EIA-825 survey schedule.

#### EIA-810 (Schedule E)

##### Refinery

1. Refinery that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, hydrocarbons, or alcohol.
2. Plant that produces finished motor gasoline through the mechanical blending of liquids.
3. If refinery is associated with petrochemical plant, the refinery must report.

##### Blender

4. Firms that conduct blending operations onsite at a bulk terminal facility.  
Note: A net increase in product must result from blending operations (resulting product must have higher volume than original products).

##### Exclude

1. Petrochemical plants or natural gas processing plants (note No. 3 under "Refinery").
2. Firms that conduct blending operations while in transit. (Note: Schedule A has this question.)
3. Blenders who add alcohol to petroleum to produce gasohol.

#### EIA-811 (Schedule A)

1. Bulk terminals with a storage capacity of 50,000 barrels or more (42 gallons = 1 barrel).
2. If less than 50,000 barrels, terminal must report if either of these conditions exist.
  - o All bulk terminals serviced by a pipeline, tanker, or barge.

o Bulk terminal associated with a products pipeline.

Exclude

1. Bulk terminals with a storage capacity of less than 50,000 barrels (generally resellers) that don't meet access requirement.

EIA-812 (Schedule B)

1. Products pipeline that carry petroleum products.

Note: Include all interstate, intrastate, and intracompany (non-end-use) pipelines (anything other than crude oil).

Exclude

1. Military pipelines or government pipeline.
2. Pipelines that transport products exclusively for their own end-use.

EIA-813 (Schedule B)

1. Crude oil storage facilities with a capacity in excess of 1000 barrels, including tank farms.
2. Crude oil pipelines and gathering lines.
3. Crude oil producers or well operators.

Exclude

1. Storage facilities with a capacity less than 1000 barrels.
2. Military pipelines or government pipelines.

EIA-816 (Schedule E)

1. Natural gas processing plants that extract liquid hydrocarbons from a natural gas stream.
2. Fractionators that separate a liquid hydrocarbon stream into its component products.
3. Cycling plants.

Note: Firm must report for all individual plants; that is, the form must be completed with the total information, but a separate form is not needed for each plant.

Exclude

1. Condensate recovery plants.

EIA-817 (Schedule C)

1. Firms with custody (people who own the oil) of crude oil or petroleum products that are transported by tanker or barge.
2. Must be transported between Petroleum Allocation Districts (different regions of the country).
3. Companies which lease tankers or barges to transport products.

Note: People who own the oil must report, not the lessee. Lessee must fill out Schedule C and return and then the owner must fill out the EIA-817 form.

Exclude

1. Firms without "custody" of product.
2. Transporters within Petroleum Allocation Districts if product is moving within the same state. If moving to a different state, then the firm probably does qualify.



**APPENDIX H**  
**SAMPLE INSTRUCTIONS FOR**  
**EDITING SURVEY FORMS**



APPENDIX H

SAMPLE INSTRUCTIONS FOR EDITING SURVEY FORMS

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SCHEDULE "A" Terminal Operator Identification Survey

Question No.	Valid Entries
1a.	Enter one response only.
1b.	This question has 5 possible entries: 1b.1., 1b.2, 1b.3, 1b.4, 1b.5 Enter <u>one response only</u> provided 1a is "yes" For 1b.1 or 1b.5, do not record comments. For 1b.2, 1b.3, or 1b.4, record comments as follows: --1b.2: name of reporting firm, street address, city, state, zip, company relationship (e.g., parent, subsidiary, etc.) --1b.3: (facility reported for): type, city, state; (facility not reported for): type, city, state --1b.4: (facility reported for): type, city, state, company name, street, city, state zip (facility not reported for): type, city, state
2a.	Enter response only if 1a was checked yes, by respondent. Affix attached sheet with additional information directly following 2a. Enter number of barrels in thousands (i.e., 100,000 = 100) Convert state entry to 2-letter code
2b.	Enter response only if respondent answered 2a. Affix attached sheet with additional information directly following 2b. Enter number of barrels in thousands (i.e., 100,00 = 100) Convert state entry to 2-letter code
3a.	Enter one response only
3b.	Enter <u>one response only</u> provided 3a is "yes" For 3b.1 or 3b.5, do not record comments. For 3b.2, 3b.3 or 3b.4, record comments as follows: --3b.2: name of reporting firm, street address, city, state, zip, company relationship (e.g., parent, subsidiary, etc.) --3b.3: (facility reported for): type, city, state (facility not reported for): type, city, state --3b.4: (facility reported for): type, city, state, company name, street, city, state, zip (facility not reported for): type, city, state
4a.	Enter response only if 3a was checked 'yes' by respondent. Affix attached sheet with additional information directly following 4a. Enter number of barrels in thousands (i.e., 100,000 = 100) Convert state entry to 2-letter code
4b.	Enter response only if respondent answered 4a. Affix attached sheet with additional information directly following 4b. Enter number of barrels in thousands (i.e., 100,000 = 100) Convert state entry to 2-letter code.
5a.	Enter one response only
5b.	Enter as many responses as apply provided answer 5a is "yes" For "other" entry, make certain comments are recorded.

- 5c. Enter as many entries as apply, provided respondent answered 5a and 5b.  
Affix attached sheet with additional information directly following 5c.
6. Enter complete firm name
7. Enter street address, city, state, zip code
8. Enter first name, initial, last name,
9. Enter area code followed by phone number
- NOT ALL FIRMS ARE REQUIRED TO ANSWER QUESTIONS 10, 11, AND 12.
10. Enter subsidiary name, city, state, location, area code and phone no., P or S, C or P
11. Enter company name, street or P.O. Box, city, state, zip, area code and phone number.
12. Enter company name, city, state, area code, and phone number.

CERTIFICATION.

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SCHEDULE "B" Pipeline Operator Identification Survey

Question No.	Valid Entries
1.	This question has 4 possible entries: 1.1, 1.2, 1.3, and 1.4. Enter <u>one response only</u>
2.	This question has 5 possible entries: 2.1, 2.2, 2.3, 2.4, and 2.5 Enter <u>one response only</u> provided either 1.1 or 1.3 is "yes" For 2.1 or 2.5 do not record comments. For 2.1, or 2.2 or 2.4 record comments as follows: --2.2: name of reporting firm, street address, city, state, zip, company relationship (e.g., parent, subsidiary, etc.) --2.3: (facility reported for): type, city, state (facility not reported for): type, city, state --2.4: (facility reported for): type, city, state, company name, street, city, state, zip (facility not reported for): type, city, state
3.	This question has 3 possible entries. Enter <u>one response only</u> provided respondent checked "yes" to 1.2 or 1.3. For 3.1 or 3.3, do not record comments. For 3.2 record comments as follows: --name of reporting firm, street address, city, state, zip, company relationship (e.g., parent, subsidiary, etc.)
4a.	Enter one response only.
4b.	This question should be answered only by respondents who have checked "yes" to 1.2 or 1.3 and who have answered "yes" to 4a. Enter <u>one response only</u> For 4b.1 or 4b.5 do not record comments. For 4b.2, 4b.3 or 4b.4 record comments as follows: --4b.2: name of reporting firm, street address, city, state, zip, company relationship (e.g., parent, subsidiary, etc.) --4b.3: (facility reported for): type, city, state; (facility not reported for): type, city, state --4b.4: (facility reported for): type, city, state; (facility not reported for): type, city, state

- 4c. Enter response only if respondent answered "yes" to 4a.  
 Enter number of barrels in thousands (i.e., 100,000 = 100)  
 Convert state entry to 2-letter code.  
 Affix attached sheet with additional information directly following 4c.
5. Enter complete firm name
6. Enter street address, city, state, zip code
7. Enter first name, middle initial, last name,
8. Enter area code and phone number
- NOT ALL FIRMS ARE REQUIRED TO ANSWER QUESTIONS 9, 10, AND 11.
9. Enter subsidiary name, city, state, location, area code and phone no., P or S, C or P
10. Enter company name, street or P.O. Box, city, state, zip, area code and phone number.
11. Enter company name, city, state, area code, and phone number.

CERTIFICATION.

SCHEDULE "C" Tanker and Barge Operator Identification Survey

Question No.	Valid Entries
1.	Enter one response only.
2.	This question has three possible entries, i.e., 2.1, 2.2 and 2.3. Enter <u>one response only</u> provided the answer to 1 is yes. For 2.1 and 2.2 do not record comments. For 2.3 record comments as follows: Complete name of firm and relation to respondent (i.e., parent, subsidiary, etc.)
3.	Enter response only if 1 was checked "yes" by respondent. Affix attached sheet with additional information directly following 3. Enter number of barrels in thousands (i.e., 100,000 = 100)
4.	Enter one response only. If "yes", record comments as follows: company name, street, state, zip code. If "no", go to Q.5.
5.	Enter complete firm name.
6.	Enter street address, city, state, zip code.
7.	Enter first name, middle initial, last name.
8.	Enter area code followed by phone number.
NOT ALL FIRMS ARE REQUIRED TO ANSWER QUESTIONS 9, 10, AND 11.	
9.	Enter as many responses as apply. Affix attached sheet with additional information directly following 9. Enter response as follows: <ul style="list-style-type: none"> <li>o Complete name of subsidiary</li> <li>o Street, city, state, zip code</li> <li>o Area code, telephone number</li> <li>o Enter either P (parent) or S (subsidiary)</li> <li>o Enter either C( crude storage facility) or P (petroleum products storage facility)</li> </ul>

10. Enter response as follows:
  - Complete name, area code, telephone number
  - Street, city, state, zip code
11. Enter as many responses as apply  
 Affix attached sheet with additional information directly following 11.  
 Enter response as follows:
  - Complete name
  - Street, city, state, zip code
  - Area code, phone number

CERTIFICATION.

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SCHEDULE "E" Processing Facility Operator Identification Survey

Question No.	Valid Entries
1a.	Enter one response only.
1b.	This question has five possible entries, i.e., 1b.1, 1b.2, 1b.3, 1b.4, and 1b.5. Enter <u>one response only</u> provided the answer to 1a is "yes". For 1b.1 and 1b.5 do not record comments. For 1b.2, 1b.3, or 1b.4, record comments as follows: --1b.2: name of reporting firm, street address, city, state, zip, company relationship (e.g. parent, subsidiary, etc.) --1b.3: (Facility reported for): type, city, state --1b.4: (Facility reported for): type, city, state, company name, street, city, state, zip code; (Facility not reported for): type, city, state.
2a.	Enter one response only.
2b.	Enter response only if 1 was checked "yes" by respondent. This question has five possible entries: 2b.1, 2b.2, 2b.3, 2b.4, 2b.5. For 2b.1 or 2b.5, do not record comments. For 2b.2, 2b.3 or 2b.4, record comments as follows: --2b.2: name of reporting firm, street address, city, state, zip code, company relationship (e.g., parent, subsidiary, etc.) --2b.3: (facility reported for): type, city, state --2b.4: (facility reported for):type, city, state; (facility not reported for): type, city, state
3.	Enter complete firm name.
4.	Enter street address, city, state, zip code.
5.	Enter first name, middle initial, last name.
6.	Enter area code followed by phone number.
NOT ALL FIRMS ARE REQUIRED TO ANSWER QUESTIONS 7, 8, AND 9.	
7.	Enter as many responses as apply. Affix attached sheet with additional information directly following 9. Enter response as follows: <ul style="list-style-type: none"> <li><input type="radio"/> Complete name of subsidiary</li> <li><input type="radio"/> Street, city, state, zip code</li> <li><input type="radio"/> Area code, telephone number</li> <li><input type="radio"/> Enter either P (parent) or S (subsidiary)</li>   <li><input type="radio"/> Enter either C (crude storage facility) or P (petroleum products storage facility)</li> </ul>

8. Enter response as follows:
- Complete name, area code, telephone number
  - Street, city, state, zip code
9. Enter as may responses as apply
- Affix attached sheet with additional information directly following 9.
- Enter response as follows:
- Complete name
  - Street, city, state, zip code
  - Area code, phone number

CERTIFICATION.

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