B. Collections of Information Employing Statistical Methods

1. Description of the Survey Plan

(See Attachment A for more information on each form.)

EIA 820 respondents are sent an email to determine the point of contact. An email that explains any changes to the survey forms or other pertinent information is then sent to the respondent. This information is only sent by regular mail if no email address exists for the respondent (or if they request a hard copy package). For all other forms, companies receive an email notification when any changes to the forms are made.

Frames maintenance activities are conducted on a monthly and annual basis. Response to all PSRS surveys is mandatory.

Monthly Frames Maintenance

The monthly frames maintenance procedures focus on examining several frequently published industry periodicals that report changes in status (births, deaths, sales, and acquisitions) of petroleum facilities producing, transporting, importing, and/or storing crude oil and petroleum products. These sources are augmented by articles in newspapers, letters from respondents indicating changes in status, and information received from survey systems operated by other offices. At the same time, the sample frames for the weekly surveys are also updated. A sample control meeting is conducted each month. This meeting focuses on changes in the current monthly data as it relates to the weekly surveys, changes in the weekly surveys that impact the monthly surveys, and changes in respondent reporting patterns. Furthermore, the Form EIA-819 is also updated as a result of changes to other monthly surveys. Forms EIA-810, 811, and 812 are used to update the oxygenate end-of-month stocks data. Form EIA-814 is used to update oxygenate imports data. These meetings are conducted to assure a 90-percent coverage of the total for each item collected and each geographic region for each of the weekly surveys as well as the EIA-819.

Annual Frames Maintenance

The annual frames maintenance is conducted to re-evaluate the consistency of frames between the Forms EIA-810 and EIA-820.

2. Sampling Methodology and Estimation Procedures

The frame of respondents is considered as the universe for all PSRS surveys with the exception of the following surveys:

EIA-800, “Weekly Refinery and Fractionator Report”
EIA-801, “Weekly Bulk Terminal Report”

EIA-802, “Weekly Product Pipeline Report”
EIA-803, “Weekly Crude Oil Stock Report”
EIA-804, “Weekly Imports Report”
EIA-805, “Weekly Terminal Blenders Report”

a. Sampling Frame

The EIA weekly reporting system, as part of the Petroleum Supply Reporting System (PSRS), was designed to collect data similar to those collected monthly. The sample of companies that report weekly in the Weekly Petroleum Supply Reporting System (WPSRS) are selected from the universe of companies that report on the corresponding monthly forms. All sampled companies report data only for facilities in the 50 States and the District of Columbia.

The EIA-800 sampling frame is based on data collected on the EIA-810 which includes all operating and idle petroleum refineries and on the EIA-816 which includes natural gas processing plants and fractionators in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions.
The EIA-801 sampling frame is based on data collected on the EIA-811 which includes all bulk terminal operating companies that have a total bulk storage capacity of 50,000 barrels or more, and/or receive petroleum products by tanker, barge, or pipeline located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and other U.S. possessions.

The EIA-802 sampling frame is based on data collected on the EIA-812 and includes all petroleum product pipeline companies in the 50 States and the District of Columbia that transport refined petroleum products (including interstate, intrastate, and intracompany pipeline movements.) Pipelines that transport only natural gas liquids are not included.

The EIA-803 sampling frame is based on data collected on the EIA-813 and includes all companies that which carry or store 1,000 barrels or more of crude oil. Included are gathering and trunk pipeline companies (including interstate, intrastate, and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water in the 50 States and the District of Columbia.

The EIA-804 sampling frame is based on data collected on the EIA-814 and includes all importers of record who import crude oil and petroleum products into the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and other U.S. possessions.

The EIA-805 sampling frame is based on data collected on the EIA-815 from companies in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and other U.S. possessions that report motor gasoline blending activity at

terminal facilities.

Sample Design

The sampling procedure used for all the sampled surveys is the cut-off method. In the cut-off method, companies are ranked from largest to smallest on the basis of quantities reported during some previous period. Companies are chosen for the sample beginning with the largest and adding companies until the total sample covers approximately 90 percent of the total volumes for each item and each geographic region for which data may be published.

b. Estimation Procedures

Forms EIA-800 through 805

After company reports have been checked and entered into the weekly database values are imputed for companies that have not yet responded. The imputed values are exponentially smoothed means of recent weekly reported values for this specific company. The imputed values are treated like reported values in the estimation procedure, which calculates ratio estimates of the weekly totals. First, the current week's data for a given product reported by companies in a geographic region are summed. (Call this weekly sum, W_s.) Next, the most recent month's data for the product reported by those same companies are summed. (Call this monthly sum, M_s.) Finally, let M_t be the sum of the most recent month's data for the product as reported by all companies. Then, the current week's ratio estimate for that product for all companies, W_t, is given by:

$$W_t = (M_t / M_s) * W_s$$

This procedure is used directly to estimate total weekly inputs to refineries and production. To estimate stocks of finished products, the preceding procedure is followed separately for refineries, bulk terminals, and pipelines. Total estimates are performed by summing over established types.

Weekly imports data are highly variable on a company-by-company basis or a week-to-week basis. Therefore, an exponentially smoothed ratio has been developed. The estimate of total weekly imports is the product of the smoothed ratio and the sum of the weekly reported values and imputed values.

Forms EIA-810 through 813, 815, 816, and 819

In any survey, non-response can be a major concern because the effects can cause serious bias in survey results. Non-response occurs whenever requested information is not obtained from all units in a survey. Response rates for these surveys are generally 99 to 100 percent. Whenever survey responses are not received in time to be included in published statistics, the data are imputed. Although imputing for missing data may not eliminate the total error associated with non-response, it can serve to reduce the error.

The data reported in the previous month are used as imputed values for missing data. Data are not imputed for the EIA-814 and 817 because these data series, by respondent, are highly variable.

c. Data Accuracy

The reliability of data is subject to two types of possible errors, non-sampling errors and sampling errors. Sampling errors occur because observations are made only on a sample, not on the entire population. Non-sampling errors can be attributed to many sources in the collection and processing of data such as, response coverage; a difference in interpretations of definitions or questions; mistakes in recording or coding the data from respondents; and other errors of collection and estimation. The accuracy of survey results is determined by the joint effects of sampling and non-sampling errors.

For the monthly surveys EIA-810 through 813, 815 through 817, 819 and the annual survey EIA-820, there is no sampling error because the surveys are based upon a complete census of the frame. However, response error is the major factor affecting the accuracy of data. Response error, or reporting error, is the difference between the true value and the value reported on a survey form.
To aid in detecting and minimizing reporting errors, automated editing procedures are used to check current data. These checks include verifying the current data for consistency with past data, for internal consistency (e.g. totals equal sum of parts), examining orders of magnitude, and cell position. Data elements that fail edit criteria are flagged.

Monthly and weekly data are compared on a regular basis to rectify discrepancies in data. In addition, a comparison of PSRS data with sources outside of the Petroleum Division is performed each year. The results of this effort have been published in the feature article, "*Comparisons of Independent Petroleum Supply Statistics*" located on the Internet.

3. Maximizing the Response Rate

The response rate for weekly surveys averages above 97 percent. The response rate for monthly surveys is 99 to 100 percent. For chronically late filings and non-response by a company, these actions are handled by first contacting the company by telephone. If contact is not made or actions to adequately respond to data requests from the EIA are not made, then noncompliance form letters are sent to the company.

4. Test Procedures

There are no changes in the forms so no tests were necessary.

5. Questions

Questions regarding the Petroleum Supply Reporting System may be directed to Stefanie Palumbo of the Department of Energy, Energy Information Administration, at (202) 586-

6866. Questions regarding the EIA Forms Clearance process should be directed to Grace Sutherland at (202) 287-1712.

Attachment A

Description of Petroleum Supply Reporting System Surveys

This attachment describes the petroleum supply data gathering surveys used by the Petroleum Supply Division, Energy Information Administration (EIA). It is presented by frequency of collection (weekly, monthly, and annually). Listed for each category are the titles of publications which are created from the collected data and a description of the data collection elements for each survey.

Weekly Surveys

The weekly surveys are designed to highlight information on petroleum refinery operations, inventory levels, and imports of selected petroleum products in a timely manner. Preliminary information is collected for the purpose of analysis and forecasting by EIA, other government agencies, and the public. The information appears in the publications listed below and is also available electronically through the Internet. Another service that EIA provides is "print-on-demand" for those publications that are only available on the Internet.

Publications:

Weekly Petroleum Status Report
Petroleum Supply Monthly
Monthly Energy Review
Short-Term Energy Outlook
Annual Energy Outlook
This Week in Petroleum

The **Weekly Refinery and Fractionator Report (Form EIA-800)** provides data on operations of petroleum refineries and fractionators. Respondents are a sample of all refineries and fractionators that report on the Monthly Refinery Report (Form EIA-810) and the Monthly Natural Gas Liquids Report (Form EIA-816). Data collected are crude oil input, total inputs, and gross output to atmospheric crude oil distillation units. Inventory data is collected for crude oil, unfinished oils, and the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), reformulated and conventional gasoline treated as blendstock (GTAB), and all other motor gasoline blending components. Data on net production and inventories is collected for propane/propylene; the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline; kerosene-type jet fuel (total); distillate fuel oil (15 ppm sulfur, greater than 15 ppm sulfur to 500 ppm sulfur inclusive, and greater than 500 ppm sulfur); and residual fuel oil. In addition, net production data on kerosene-type jet fuel are collected by military and commercial use.

The **Weekly Bulk Terminal Report (Form EIA-801)** provides data on end-of-week

stock levels of selected finished petroleum products held in the custody of bulk terminal operators. Respondents are a sample of all bulk terminal operators that report on the Monthly Bulk Terminal Report (Form EIA-811). Specific product stock data are collected on a Petroleum Administration for Defense (PAD) District basis or sub-PAD District basis. Products collected include the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline; the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), reformulated and conventional gasoline treated as blendstock (GTAB), and all other motor gasoline blending components; kerosene-type jet fuel, distillate fuel oil (15 ppm sulfur, greater than 15 ppm sulfur to 500 ppm sulfur inclusive, and greater than 500 ppm sulfur); propane/propylene and propylene (non-fuel use); and residual fuel oil. The volume of 15 ppm sulfur and under diesel fuel downgraded is also collected.

The **Weekly Product Pipeline Report (Form EIA-802)** provides data on end-of-week stock levels of selected finished petroleum products held in the custody of product pipeline operators. Respondents are a sample of all product pipeline operators that report on the Monthly Product Pipeline Report (Form EIA-812). Specific product stock data are collected on a PAD District or sub-PAD District basis. Products collected include the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline; the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), reformulated and conventional gasoline treated as blendstock (GTAB), and all other motor gasoline blending components; kerosene-type jet fuel, distillate fuel oil (15 ppm sulfur, greater than 15 ppm sulfur to 500 ppm sulfur inclusive, and greater than 500 ppm sulfur); propane/propylene and propylene (nonfuel use); and residual fuel oil. The volume of 15 ppm sulfur and under diesel fuel downgraded is also collected.

The **Weekly Crude Oil Stocks Report (Form EIA-803)** provides data on end-of-week stock levels of crude oil held in the custody of pipeline companies, crude oil producers, terminal operators, those who store crude oil (excluding refineries), and transporters of crude oil. Respondents are a sample of all crude oil pipeline operators that report on the Monthly Crude Oil Report (Form EIA-813). Specific crude oil stock data are collected on a PAD District basis. Stocks for Cushing, Oklahoma and Alaskan crude in transit by water are also collected.

The **Weekly Imports Report (Form EIA-804)** provides data on imports of crude oil and petroleum products that occurred during the report week. Specific import data are collected on a PAD District or sub-PAD District basis. Products collected include crude oil; the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional

(blended with alcohol), conventional (other) gasoline; the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), reformulated and conventional gasoline treated as blendstock (GTAB), and all other motor gasoline blending components; kerosene-type jet fuel, distillate fuel oil (15 ppm sulfur, greater than 15 ppm sulfur to 500 ppm sulfur inclusive, greater than 500 ppm to 2000 ppm sulfur inclusive, greater than 2000 ppm sulfur); residual fuel oil; liquefied petroleum gases; propane/propylene; and other petroleum products. Also collected are crude oil imports from the following countries: Algeria, Angola, Argentina, Canada, China, Colombia, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Mexico, Nigeria, Norway, Qatar, Russia, Saudi Arabia, Trinidad, United Arab Emirates, United Kingdom, Venezuela, and other. Respondents are a sample of all importers of record who import crude oil and petroleum products into the 50 States and the District of Columbia from foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions.

The **Weekly Terminal Blenders Report (Form EIA-805)** provides data on motor gasoline blending activity at terminal facilities. Data are collected on a weekly basis for production and inputs. Respondents are a sample of all operators of motor gasoline blending terminals that report on the Monthly Terminal Blenders Report (Form EIA-815). Input and production are collected for these products: the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline; the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), and all other motor gasoline blending components. Input is collected for oxygenates, liquefied petroleum gases, and pentanes plus, and reformulated and conventional gasoline treated as blendstock (GTAB).

Monthly Surveys

The monthly surveys were designed to provide statistically reliable and comprehensive information not available from other sources to EIA, other Federal agencies, and the private sector for use in forecasting, policy making, planning, and analysis activities. The information appears in the publications listed below and is also available electronically through the Internet.
Another service that EIA provides is “print-on-demand” for those publications that are only available on the Internet.

Publications:

Weekly Petroleum Status Report
Petroleum Supply Monthly
Petroleum Supply Annual

Monthly Energy Review
Annual Energy Review
Short-Term Energy Outlook
Annual Energy Outlook

The **Monthly Refinery Report (Form EIA-810)** provides data on refinery input and capacity, sulfur content and API gravity of crude oil, and data on supply (beginning stocks, receipts, and production) and disposition (inputs, shipments, fuel use and losses, and ending stocks) of crude oil and all refined products. Data are collected from operators of all operating and idle petroleum refineries located in the 50 States, District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions.

The **Monthly Bulk Terminal Report (Form EIA-811)** provides data on end-of-month stock levels of finished petroleum products by State in the custody of the bulk terminal company regardless of ownership. Leased tankage at other facilities is excluded. Specific product stock data are collected for the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline; the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), reformulated and conventional gasoline treated as blendstock (GTAB), and all other motor gasoline blending components; finished aviation gasoline; special naphthas, kerosene; kerosene-type jet fuel; distillate fuel oil (15 ppm sulfur, greater than 15 ppm sulfur to 500 ppm sulfur inclusive, and greater than 500 ppm sulfur); lubricants; asphalt and road oil; miscellaneous products, residual fuel oil by sulfur content; pentanes plus; liquefied petroleum and refinery gases (ethane/ethylene, ethylene, propane/propylene, nonfuel use propylene, normal butane/butylene, refinery-grade butane, isobutane/isobutylene), and oxygenates (fuel ethanol, methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), and all other oxygenates), and unfinished oils (naphthas and lighter, kerosene and lighter gas oils, heavy gas oils, and residuum). The volume of 15 ppm sulfur and under diesel fuel downgraded is also collected by PAD District. Data are collected from every bulk terminal operating company located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and other U.S. possessions.

The **Monthly Product Pipeline Report (Form EIA-812)** provides data on end-of-month stock levels and movements of finished petroleum products transported by pipeline. Intermediate movements for pipeline systems operating in more than two PAD Districts are included. Specific product stock and movement between PAD District data are collected for the following finished motor gasoline products: reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline; the following motor gasoline blending components: reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), reformulated and conventional gasoline treated as

blendstock (GTAB), and all other motor gasoline blending components; finished aviation gasoline; kerosene; kerosene-type jet fuel; distillate fuel oil (15 ppm sulfur, greater than 15 ppm sulfur to 500 ppm sulfur inclusive, and greater than 500 ppm sulfur); miscellaneous products, residual fuel oil; pentanes plus; and liquefied petroleum and refinery gases (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene). Data on oxygenates (fuel ethanol, methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), and all other oxygenates) are collected for stock levels only. The volume of 15 ppm sulfur and under diesel fuel downgraded is also collected by PAD District. Data are collected from all pipeline companies that carry petroleum products (including interstate, intrastate, and intracompany pipelines) in the 50 States and the District of Columbia.

The **Monthly Crude Oil Report (Form EIA-813)** provides data on end-of-month stock levels and movements between PAD Districts of crude oil. Data are collected from all companies which carry or store 1,000 barrels or more of crude oil. Included are gathering and trunk pipeline companies (including interstate, intrastate, and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil (excluding refineries), and companies transporting Alaskan crude oil by water. Stocks for Cushing, Oklahoma are also collected. Crude oil consumed by pipelines and on leases as pump fuel, boiler fuel, etc. is collected as well. Data are collected on a PAD District basis.

The **Monthly Imports Report (Form EIA-814)** provides data on imports of crude oil and petroleum products. Data are collected from the importer of record who imports (1) into the 50 States and the District of Columbia, (2) into Puerto Rico, the Virgin Islands, and other U.S. possessions, and (3) from Puerto Rico, the Virgin Islands, and other U.S. possessions into the 50 States and the District of Columbia. The type of commodity, port of entry, country of origin, quantity (thousand barrels), sulfur percent by weight, API gravity, and name and location of the processing or storage facility are reported.

The **Monthly Terminal Blenders Report (Form EIA-815)** provides data on motor gasoline blending activity at terminal facilities. Data are collected on a monthly basis for production and inputs. Respondents are all operators of motor gasoline blending terminals. Input and production are collected for these products: finished motor gasoline products (reformulated (blended with ether), reformulated (blended with alcohol), reformulated (non-oxygenated), conventional (blended with alcohol), conventional (other) gasoline); motor gasoline blending components (reformulated blendstock for oxygenate blending (RBOB) for blending with ether, RBOB for blending with alcohol, conventional blendstock for oxygenate blending (CBOB), and all other motor gasoline blending components). Input is collected for normal butane, isobutene, pentanes plus, other hydrocarbons and hydrogen, fuel ethanol, methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), and all other oxygenates, and reformulated and conventional gasoline treated as blendstock (GTAB).

The **Monthly Natural Gas Liquids Report (Form EIA-816)** provides data on the operations of natural gas processing plants and fractionators. Beginning and end-of-month stocks, receipts, inputs, production, shipments, and plant fuel use and losses

during the month are collected from operators of natural gas processing plants. End-of-month stocks are collected from fractionators. Data are collected from the operators of all 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 (fractionator). The volume of natural gas received during the month, the volume of natural gas consumed as fuel at the facility for all purposes, the volume of natural gas vented and flared during the month, and the volume of natural gas shipments during the month are collected. These data are collected from the operators of all facilities that extract liquid hydrocarbons from a natural gas stream (natural gas processing plant). These facilities are located in the 50 States and the District of Columbia.

The **Monthly Tanker and Barge Movement Report (Form EIA-817)** provides data on the movements of crude oil and petroleum products between PAD Districts. Data are reported by shipping and receiving PAD District and sub-PAD District. Data are collected from all companies that have custody of crude oil or petroleum products transported by tanker or barge between PAD Districts. For purposes of this report, custody is defined as physical possession of crude oil or petroleum products on a company-owned tanker or barge. Also, companies which lease vessels or contract for the movement of crude oil or petroleum products on a tanker or barge between PAD Districts are considered to have custody.

The **Monthly Oxygenate Report (Form EIA-819)** provides data on oxygenate production and end-of-month stocks. Respondents are merchant and captive oxygenate producers in the 50 States and the District of Columbia. Production data are collected for fuel ethanol, ethyl tertiary butyl ether (ETBE), methyl tertiary butyl ether (MTBE) for both merchant and captive plants, all other oxygenates and motor gasoline blending components (alkylate, isooctane, and other) on a PAD District and U.S. total basis. Stock data are collected for fuel ethanol, ethyl tertiary butyl ether (ETBE), methyl tertiary butyl ether (MTBE) for merchant plants only, all other oxygenates and motor gasoline blending components.

Annual Survey

The **Annual Refinery Report (Form EIA-820)** provides data on the operations of all operating and idle petroleum refineries and refineries shutdown during the previous year. These facilities are all located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Data are collected on fuels consumed at the refinery and refinery receipts of crude oil by method of transportation during the preceding year; current and next year projections for operable atmospheric crude oil distillation capacity and for downstream charge capacity and production capacity; and current year working and shell storage capacity for crude oil and petroleum products at the refinery.

Data are published on the Internet in the *Refinery Capacity Report*.